

SEA ENVIRONMENTAL REPORT

NON-TECHNICAL SUMMARY

FOR THE

DRAFT

LAOIS COUNTY DEVELOPMENT PLAN 2017-2023

for: Laois County Council

Áras an Chontae
Portlaoise
County Laois



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Section 1 Introduction and Terms of Reference

This is the Non-Technical Summary of the Environmental Report of the Draft Laois County Development Plan 2017-2023. The purpose of the Environmental Report is to provide a clear understanding of the likely environmental consequences of decisions regarding the future accommodation of growth in County Laois.

What is an SEA?

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

Why is it needed?

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

How does it work?

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

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

No significant difficulties have been encountered during the undertaking of the assessment to date.

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

The Environmental Report contains the following information:

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

What happens at the end of the process?

On the making of the Plan, a document, referred to as the SEA Statement, will be made public.

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

Section 2 The Draft Plan

2.1 Introduction and Content of the Draft Plan

The Laois County Development Plan 2017-2023 (CDP) sets out the overall strategy for the proper planning and sustainable development of County Laois for the plan period and beyond. The Laois County Development Plan 2017-2023 has been prepared in accordance with the Planning and Development Act 2000, as amended (the Act). The plan relates to the whole functional area of Laois County Council.

The CDP consists of a written statement and plans that indicate the development objectives for County Laois.

Volume 1 contains the written statement which is made up of a number of Sections. Section 1 of the County Development Plan 2017-2023 sets out the current trends and identifies the emerging issues to be dealt with in the new Plan. Section 2 of the Plan introduces the Vision for the County and the Core Development Strategy to be put in place to achieve this vision. It develops the Core Development Strategy through the following sections:

- Housing Policy
- Social Infrastructure Strategy
- Economic Development
- Infrastructure
- Heritage Policy
- Development Standards

Volume 2 contains the settlement strategy for the County and contains zoning and settlement Plans.

Accompanying Documents include:

- Strategic Environmental Assessment (SEA) Environmental Report
- Appropriate Assessment (AA)
- Strategic Flood Risk Assessment (SFRA)

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

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

Strategic work undertaken by the Council includes background work in relation to Plan Strategies and other provisions for a variety of sectors including: settlement; economic development, enterprise and tourism; movement and transportation; infrastructure; energy and communications; retail; rural development; social, community and cultural development; architectural and archaeological protection; natural heritage and green infrastructure; landscape, recreation and amenities; urban design; and rural design.

In addition, the undertaking of this SEA process as well as the preparation of an Appropriate Assessment and Strategic Flood Risk Assessment were part of this strategic work and contributed towards the integration of environmental considerations into individual Plan provisions as summarised in Section 5 of this report.

2.2 Relationship with other relevant Plans and Programmes

The CDP sits within a hierarchy of strategic action such as plans and programmes and is subject to a number of high level environmental protection policies and objectives with which it must comply. As required by the Act, the CDP is consistent, in so far as is practicable, with such national plans, policies and strategies. The CDP may, in turn, guide lower level strategic actions. Examples of relevant plans and programmes include the following:

Regional Planning Guidelines

The Regional Planning Guidelines for the Midland Region provide a long-term strategic planning framework for the development of the Midlands. The RPGs aim to give regional effect to the National Spatial Strategy and Guide the Development Plans and lower tier plans of planning authorities.

River Basin Management Plan and Programme of Measures

Local Authorities, including Laois County Council, have prepared the South Eastern and the Shannon River Basin Management Plans, both of which are being implemented through, inter alia, the County Development Plan, in order to help protect and improve waters in the County and wider RBDs. The Management Plans provide specific policies for individual river basins in order to implement the requirements of the WFD.

Catchment Flood Risk Assessment and Management Studies

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

Smarter Travel 2009

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

Eastern-Midlands Region Waste Management Plan

The Eastern-Midlands Region Waste Management Plan (WMP) 2015-2021 provides the framework for solid waste management in the region and sets out a range of policies and actions to meet specified mandatory and performance based targets. The WMP seeks to assist and support resource efficiency and waste prevention initiatives. A key WMP target is to achieve a 1% reduction per annum in the quantity of household waste generated per capita over the period of the WMP. In tandem, the WMP identifies measures to develop a circular economy whereby waste management initiatives are no longer confined to treating and disposing of waste, instead supporting initiatives that value waste as a resource or potential raw material.

Environmental Protection Objectives

The Draft Plan is subject to a number of high level environmental protection policies and objectives with which it must comply, including those which have been identified as Strategic Environmental Objectives in Section 3.12. An example of an Environmental Protection Objective is the aim of the EU Habitats Directive - which is to contribute towards ensuring biodiversity through the conservation of natural habitats and of wild fauna and flora in the European territory of Member States.

Section 3 The Environmental Baseline

3.1 Introduction

Reflecting the specifications in the SEA Directive, the relevant aspects (those which have the greatest potential to be affected by implementation of the Draft Plan) of the current state of the environment for various environmental components is summarised in this section.

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

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

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

Such adverse effects could include:

- Arising from both construction and operation of development and associated infrastructure: loss of/damage to biodiversity in designated sites (including Natura 2000 Sites and Wildlife Sites) and Annexed habitats and species, listed specs, ecological connectivity and non-designated habitats; and disturbance to biodiversity and flora and fauna;
- Habitat loss, fragmentation and deterioration, including patch size and edge effects;
- Disturbance (e.g. due to noise and lighting along transport corridors) and displacement of protected species;
- Potential interactions if effects upon environmental vectors such as water and air are not mitigated;
- Damage to the hydrogeological and ecological function of the soil resource;
- Adverse impacts upon the status of water bodies, including bathing waters, arising from changes in quality, flow and/or morphology;
- Increase in the risk of flooding;
- Failure to provide adequate and appropriate waste water treatment (water services infrastructure and capacity is needed to ensure the mitigation of potential conflicts);
- Failure to comply with drinking water regulations and serve new development with adequate drinking water that is both wholesome and clean (water services infrastructure and capacity is needed to ensure the mitigation of potential conflicts);
- Increases in waste levels;
- Emissions to air including greenhouse gas emissions and other emissions;
- Potential effects on protected and unknown archaeology and protected architecture arising from construction and operation activities; and
- Occurrence of adverse visual impacts and conflicts with the appropriate protection of statutory designations relating to the landscape.

3.3 Biodiversity and Flora and Fauna

Ecologically rich areas in Laois include hedgerows, drainage ditches, eskers, wetlands, relic woodland and semi-natural woodland. These habitats support a variety of species and ecosystems that contribute to the unique biodiversity of Laois. Many of these areas are coming under pressure as development intensifies the demand for land. It is imperative that measures are put in place to respond to these pressures and that any development will not have a detrimental effect on the natural environment.

Ecological designations include:

- Special Protection Areas¹;
- Special Areas of Conservation²;
- Natural Heritage Areas and Proposed Natural Heritage Areas³;
- Nature Reserves⁴;
- Freshwater Pearl Mussel catchments⁵
- Certain entries to the Water Framework Directive Register of Protected Areas⁶; and
- RAMSAR sites⁷.

There are eight Special Areas of Conservation (SACs) within the Plan area and two Special Protection Area (SPA) – see Figure 3.1. There are two Natural Heritage Areas (NHAs), twenty eight proposed National Heritage Areas (pNHA's) and four Nature Reserves within the Plan area.

The River Nore is designated as a Salmonid Water under the European Communities (Quality of Salmonid Waters) Regulations 1998 (SI No. 293 of 1988). Designated Salmonid Waters are capable of supporting salmon (*Salmo salar*), trout (*Salmo trutta*), char (*Salvelinus*) and whitefish (*Coregonus*).

Ecological networks are important in connecting areas of local biodiversity with each other and with nearby designated sites so as to prevent islands of habitat from being isolated entities. Within and surrounding the County, the ecological networks are made up of components including undeveloped foothill/upland areas, rivers and lakes, woodlands, lands used for agriculture, parks, gardens and hedgerows within and surrounding the Plan area. These components provide habitats for flora and fauna and facilitate linkages to the surrounding countryside for flora and fauna.

¹ SPAs have been selected for protection under the 1979 European Council Directive on the Conservation of Wild Birds (79/409/EEC) - referred to as the Birds Directive - by the DECLG due to their conservation value for birds of importance in the European Union.

² Special Areas of Conservation (SACs) have been selected for protection under the European Council Directive on the conservation of natural habitats and of wild fauna and flora (92/43/EEC) - referred to as the Habitats Directive - by the DEHLG due to their conservation value for habitats and species of importance in the European Union.

³ NHAs are designated due to their national conservation value for ecological and/or geological/geomorphological heritage. They cover nationally important semi-natural and natural habitats, landforms or geomorphological features, wildlife plant and animal species or a diversity of these natural attributes. NHAs are designated under the Wildlife (Amendment) Act 2000. Proposed NHAs were published on a non-statutory basis in 1995, but have not since been statutorily proposed or designated. These sites are of significance for wildlife and habitats.

⁴ A Nature Reserve is an area of importance to wildlife, which is protected under Ministerial order. There are currently 78 Statutory Nature Reserves. Most are owned by the State but some are owned by organisations or private landowners.

⁵ Freshwater pearl mussel is a globally threatened, long-lived and extremely sensitive species that can be impacted by many forms of pollution, particularly sediment and nutrient pollution and by hydrological and morphological changes, which may arise from developments, activities or changes in any part of the catchment.

⁶ In response to the requirements of the Water Framework Directive a number of water bodies or parts of water bodies which must have extra controls on their quality by virtue of how their waters are used by wildlife have been listed on Registers of Protected Areas (RPAs). RPAs include those for Protected Habitats or Species, Shellfish, Salmonid, Nutrient Sensitive Areas, Recreational Waters and Drinking Water.

⁷ The Convention of Wetlands of International Importance, especially as Water Fowl Habitat, was established at Ramsar in 1971 and ratified by Ireland in 1984. The main aim of the Convention is to secure the designation by each contracting state of wetlands in its territory for inclusion in a list of wetlands of international importance for waterfowl. This entails the commitment of each contracting state to a policy of protection and management of the designated wetlands, and of formulating and implementing planning so as to promote the conservation of designated wetlands and, as far as possible, the wise use of wetlands in its territory. Ireland presently has 45 sites designated as Wetlands of International Importance, with surface areas of 66,994 hectares.

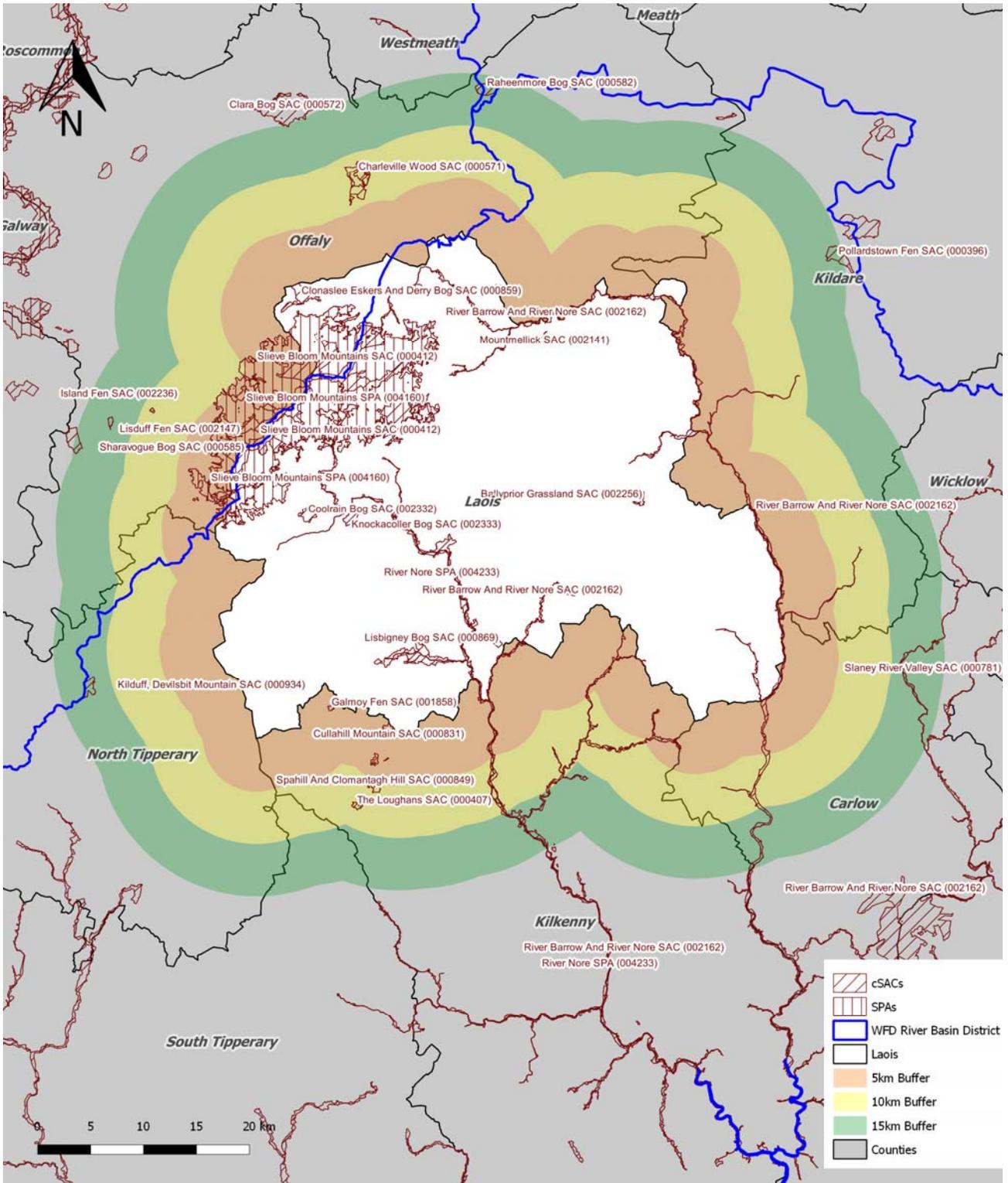


Figure 3.1 SPAs and SACs within the County
 Source: NPWS (datasets downloaded April 2015)

3.4 Population and Human Health

Population

The population of County Laois was 67,059 persons in 2006. This rose by 13,500 persons or c. 20.13% to 80,559, persons in 2011. The highest concentrations in population are along the north-east of the County and in settlements throughout the County.

For the review of the County Development Plan, the Planning Authority carried out an assessment which involved an evaluation of the dynamics and distribution of population and settlement within the county for the period 2006-2011. This assessment revealed:

- Laois was the fastest growing county in Ireland between 2006 and 2011. Strong population growth is a longstanding trend in County Laois. Over the last 20 years, its population growth rate has been higher than the wider Midlands or the State. Further significant growth is anticipated.
- County Laois has the highest population of 0-18 year olds, as a proportion of its overall population. Nearly 39% of the Laois population is aged under 25, this compares to 36% of the Midlands population and 34% of the State's population.
- County Laois has a balanced rural/urban population. It is becoming more urbanised but rural life and the rural economy remain important. Average farm sizes and farm incomes in County Laois are higher than the Midlands or State average.
- County Laois is becoming more diverse in terms of the nationality and ethnicity of its residents.
- County Laois has the highest rate of outbound commuters in the Midlands, with Dublin and Kildare being the most popular destination.

Human Health

The impact of implementing the Draft Plan on human health is determined by the impacts which the Plan will have upon environmental vectors. Environmental vectors are environmental components, such as air, water or soil, through which contaminants or pollutants, which have the potential to cause harm, can be transported so that they come into contact with human beings. Hazards or nuisances to human health can arise as a result of exposure to these vectors arising from incompatible adjacent land uses for example. These factors have been considered with regard to the description of: the baseline of each environmental component; and the identification and evaluation of the likely significant environmental effects of implementing the Draft Plan. Emission limits for discharges to air, soil and water are set with regards to internationally recognised exposure limit values. These are generally set to be many times the safe exposure limit - in order to provide protection. In the event that a land-use plan began to have adverse health effects on surrounding populations it is likely that it would have been identified as being in breach of such emission standards at a very early stage - and long before the manifestation of any adverse health effects in the population.

Existing Problems

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

Some areas within County Laois, particularly to the east and south-east of the County are estimated as having 10%-20% of homes above the reference level for Radon (mapping available at <http://www.epa.ie/radiation/radonmap>).

There is historic and predictive evidence of flooding in various locations across the County (see information on Strategic Flood Risk Assessment at Section 3.6).

3.5 Soil

County Geological Sites

In 2005 the Council in partnership with the Irish Geological Heritage Programme of the Geological Survey of Ireland assessed the geological heritage of Laois and identified the most important sites which are worthy of protection as County Geological Sites. According to the GSI, there are 25 sites of geological interest within the vicinity of the Plan area:

1. Castlecomer Artesian Borehole - Swan
2. Arless
3. Arless Quarry
4. Ballyadams Quarry
5. Carrolls Quarry
6. Clogh River
7. Clonaslee Eskers
8. Flemings Fireclay Quarries (at Swan)
10. Hollymount
11. Hollymount
12. Killeshin Glen
13. Killeshin Glen
14. Kyle Spring
15. Luggacurran Stream Section
16. Luggacurran Stream Section
17. Modubeagh Mine Spring
18. Moyadd Stream
19. Old Rossmore
20. Rathleague Spring
21. Ridge of Portlaoise
22. Rock of Cashel
23. Rock of Dunamase
24. Rossmore
25. Rossmore (Castlecomer coalfield)
26. Timahoe Eskers

Contaminated Soil

Given the urban nature of certain areas within the County and the range of land use activities which have taken place historically, soils may have been contaminated to some degree in the past in certain areas. Such contamination has the potential to affect water quality, biodiversity and flora and fauna and human health. Both the existing 2011-2017 Plan and the Draft 2017-2023 Plan include provisions in relation to environmental protection and degraded/contaminated lands.

3.6 Water

Potential Pressures on Water Quality

Human activities, if not properly managed, can cause deterioration in water quality. Pressures exerted by human activities include the following: sewage and other effluents discharged to waters from point sources, e.g. pipes from treatment plants; discharges arising from diffuse or dispersed activities on land; abstractions from waters; and structural alterations to water bodies. Since 2000, Water Management in the EU has been directed by the Water Framework Directive 2000/60/EC (WFD). The WFD requires that all Member States implement the necessary measures to prevent deterioration of the status of all waters - surface, ground, estuarine and coastal - and protect, enhance and restore all waters with the aim of achieving "good status". All public bodies are required to coordinate their policies and operations so as to maintain the good status of water bodies which are currently unpolluted and improve polluted water bodies to good status. Ireland has been divided into eight river basin districts or areas of land that are drained by a large river or number of rivers and the adjacent estuarine / coastal areas. Laois falls within both the South Eastern River Basin District and

the Shannon International River Basin District for which Management Plans and associated Programmes of Measures are being implemented.

WFD Surface Water Status

Figure 3.2 illustrates currently available data from the EPA on the status of waters within and surrounding the County. These status classifications are contributed towards by morphological pressures, such as those relating to culverts, river straightening or bed/bank reinforcement in reservoirs.

- The largest catchment in the County is the Nore catchment which drains the south west of the County and includes the Nore River and all of its tributaries. This catchment is generally a mixture *good* status.
- The north-east and east of the County forms part of the Barrow catchment which includes the River Barrow and its tributaries. The waters in the Liffey catchment are generally classified as being of *good* or *moderate* status.

WFD Groundwater Status

For groundwater bodies, the approach to classification is different from that for surface water. For each body of groundwater, both the chemical status and the quantitative must be determined. Both have to be classed as either *good* or *poor*. The WFD sets out a series of criteria that must be met for a body to be classed as good chemical and quantitative status. The EPA has classified groundwater status in County Laois as shown on Figure 3.3. Groundwater is generally identified as being of *good* status.

Flooding

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

Existing Problems

Subject to exemptions provided for by Article 4 of the WFD⁸, based on available data on the status of waters within the County, certain surface water bodies within the County will need improvement in order to comply with the objectives of the WFD:

- Certain water bodies within the County identified as being of *moderate* status. These include water bodies within the Nore and Barrow catchments.

The South-Eastern and Shannon International RBD Management Plans and associated Programmes of Measures include provisions to help ensure that these water bodies meet the objectives of the WFD. The Draft Plan will contribute towards the achievement of the objectives of this Management Plan.

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

⁸ Article 4 of the WFD sets out various exemptions for deterioration in status caused as a result of certain physical modifications to water bodies. This is provided: all practicable mitigation measures are taken; there are reasons of overriding public interest or the benefits to human health, safety or sustainable development outweigh the benefits in achieving the WFD objective; there are no better alternatives; and the reasons for the physical modification are explained in the relevant river basin management plan.

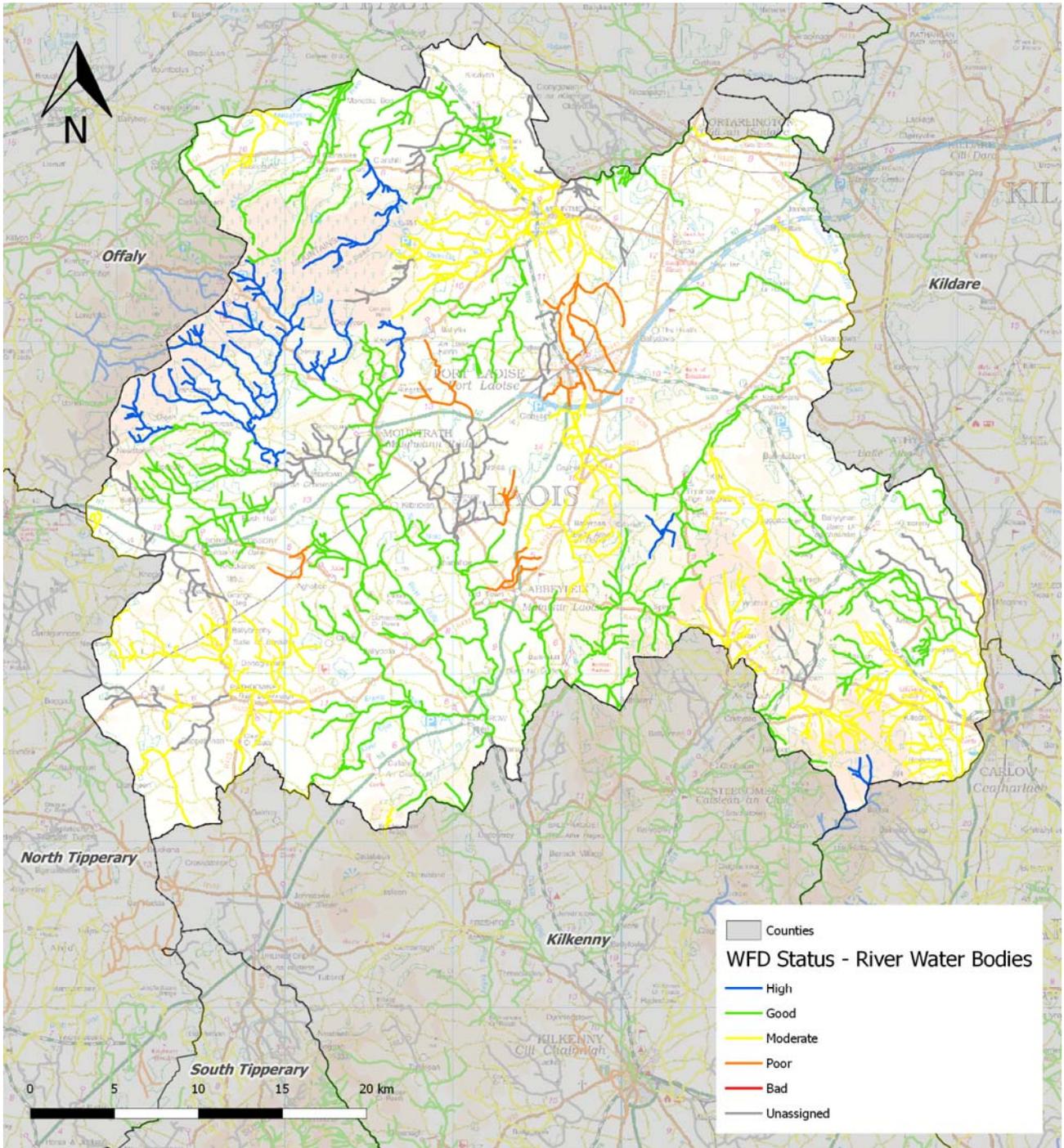


Figure 3.2 WFD Status of Rivers

Source: EPA (2011)

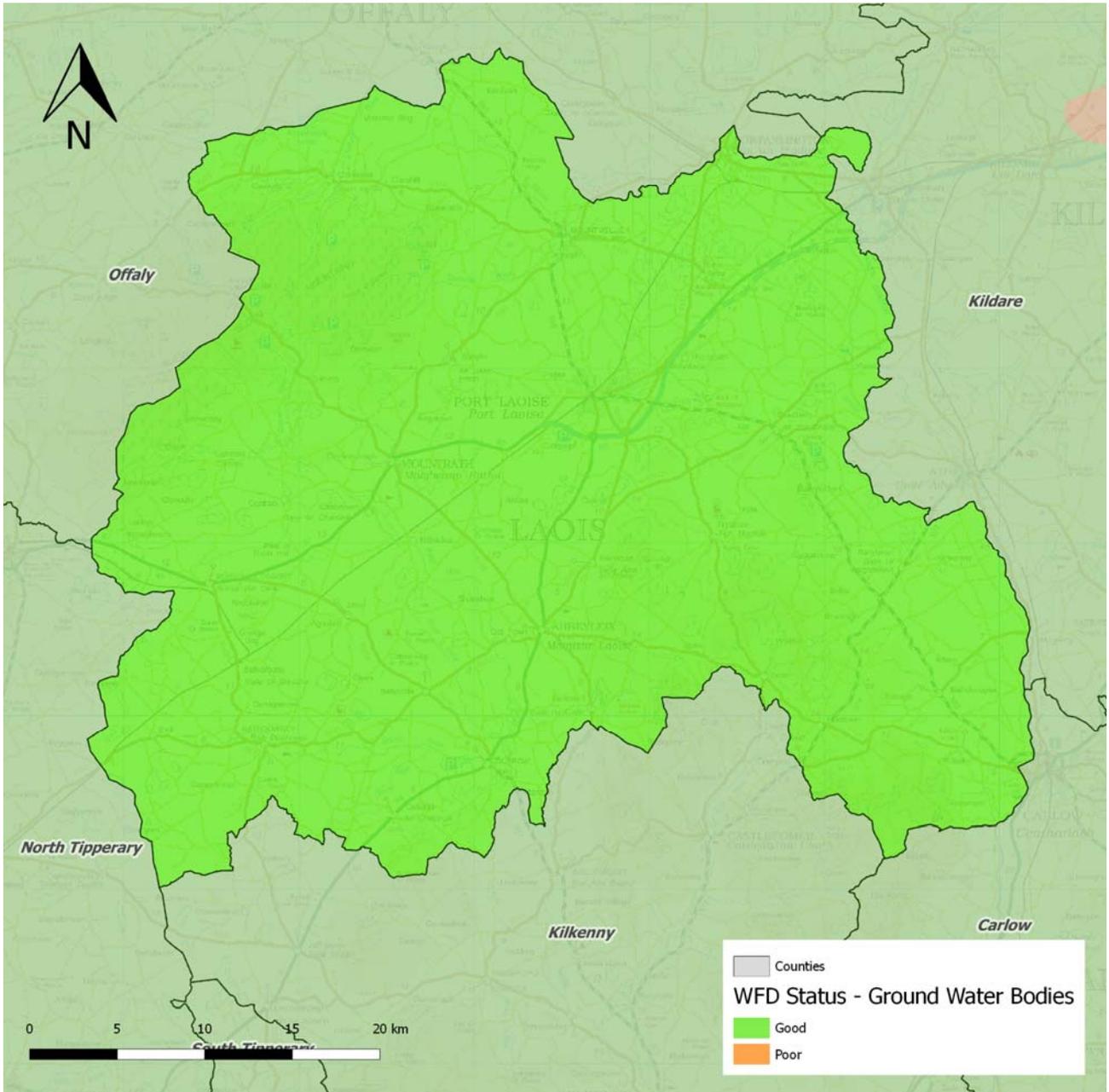


Figure 3.3 WFD Status of Groundwater

Source: EPA (2011)

3.7 Air and Climatic Factors

Ambient Air Quality

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

In order to comply with air quality standards directives, the EPA measures the levels of a number of atmospheric pollutants. The EPA's (2015) *Air Quality in Ireland 2014* identifies that, overall, air quality in Ireland compares favourably with other EU Member States and continues to be of good quality relative to other EU countries. The Draft Plan facilitates improvements in sustainable mobility, thereby facilitating reductions in and limiting increases of emissions to air including noise. Such emissions would occur otherwise with higher levels of motorised transport and associated traffic.

Climatic Factors

The key issue involving the assessment of the effects of implementing the plan on climatic factors relates to greenhouse gas emissions arising from transport. Climatic factors also interact with flooding.

The Draft Plan facilitates improvements in sustainable mobility, thereby facilitating reductions in and limiting increases of greenhouse gas emissions. Such emissions would occur otherwise with higher levels of motorised transport and associated traffic.

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

1. Noise;
2. Air emissions; and
3. Energy use (39% of Total Final Energy Consumption in Ireland in 2012 was taken up by transport, the largest take up of any sector)⁹.

Between 2008 and 2011, Ireland's greenhouse gas emissions decreased across all sectors due to the effects of the economic downturn with emissions falling by 15.2% between 2008 and 2011. However, 2012 saw emissions rise by 1.2% when compared with 2011.¹⁰

Between 1990 and 2013, the Transport sector shows the greatest overall increase at 115.5%. Emissions increased by 2.1% in 2013, the first increase in Transport emissions since 2007. However, Transport emissions have decreased by 23.1% below peak levels in 2007 primarily due to the economic downturn, improving vehicle standards due to the changes in vehicle registration tax and the increase use in biofuels. The increase up to 2007 can be attributed to general economic prosperity, increasing population with a high reliance on private car travel as well as rapidly increasing road freight transport.¹¹

The EPA 2015 publication *Ireland's Greenhouse Gas Emission Projections 2014-2035*, identifies that:

- Under the 'worst case' scenario, Ireland is projected to cumulatively exceed its obligations by 4 Mtonnes of CO₂eq over the period 2013-2020.
- Under the 'best case' scenario, Ireland is projected to cumulatively meet its compliance obligations over the 2013-2020 period and meet its 2020 target. This takes into account the overachievement of the annual limits in the period 2013- 2017 which is banked and used in the years 2018-2020. The report identifies that achieving the outlook under the 'best case'

⁹ Sustainable Energy Ireland (2014) *Energy in Ireland 1990 – 2012*

¹⁰ EPA (2013) Ireland's Greenhouse Gas Emissions in 2012

¹¹ EPA (2014) Ireland's Provisional Greenhouse Gas Emissions in 2013

scenario will require focus and effort which includes meeting renewable targets for transport and heat as well as energy efficiency targets.

- Transport emissions are projected to show strong growth over the period to 2020 with a 13%-19% increase on current levels depending on the level of policy implementation. Relative to 2005, transport emissions are projected to remain the same or, at best, decrease by 4% by 2020.

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

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

Provisions in relation to climate change such as a commitment to prepare a Climate Change Adaptation Strategy have been integrated into the Plan.

Provisions in relation to green infrastructure have also been integrated into the Plan. Green Infrastructure has the potential to achieve objectives and synergies with regard to the following:

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

3.8 Material Assets

Introduction

The provision of an adequate supply of water and wastewater treatment facilities is critical to facilitate and sustain the growth of the County over the lifetime of the plan and beyond. As of January 2014, Laois County Council no longer has any direct control in relation to the provision of such services. The delivery, integration and implementation of water and wastewater projects and infrastructural improvements are now the responsibility of the newly established State body 'Irish Water'.

Laois County Council will work closely with Irish Water to ensure that the County Development Plan and - in particular the Core Strategy - continue to align with both the National Spatial Strategy and the Regional Planning Guidelines and that the provision of water/ wastewater services will not be a limiting factor in terms of targeted growth.

Waste Water

Irish Water provide public wastewater collection, treatment and disposal infrastructure. While significant resources have been invested in such facilities, there are still notable deficiencies throughout the County. These deficiencies undermine both the ability of the Council to support the increasing population and demand for development and the implementation of growth targets set by the Department of the Environment, Community and Local Government / Regional Planning Guidelines and also result in risk of pollution and environmental damage. Deficiencies in wastewater services have also been identified as a barrier to the economic development of the County and addressing this issue is therefore critical to the success and well-being of the County.

Laois is served by 14 urban wastewater treatment plants. The largest wastewater treatment plants are located at Portlaoise and Portarlinton. Wastewater collection and treatment capacity has struggled to keep pace with development in the county. Many networks and plants in the county are operating at capacity, with consequential negative impacts on receiving water quality.

Taking into account the population equivalent of the urban area catchments which they serve, there is currently a shortfall in design capacity at Durrow.

Eight of the public waste water systems are identified by the EPA as having failed to comply with quality standards in 2014: Ballylinan, Ballyroan, Castletown, Durrow, Mountrath, Portarlinton Rathdowney and Stradbally.

Drinking Water

Irish Water being the Water Services body for the state and County Laois is responsible for providing and maintaining adequate public water supply infrastructure. Compliance with the drinking water requirements is determined by comparing the results of analyses submitted by water suppliers to the standard for 48 parameters specified in the European Communities (Drinking Water) Regulations (No. 2), 2007. To ensure that these standards are met, each water supply must be monitored on a regular basis.

The most recent drinking water report from the EPA 'Drinking Water Report 2014' (EPA, 2015) identifies that:

- There are 28 public water supplies in County Laois serving a population of 58,609;
- Microbiological parameter compliance for the year was 100%;
- Chemical parameter compliance for the year was 99.2%;
- No boil notices were issued in 2014; and
- No water restrictions occurred.

The EPA publishes a Remedial Action List which identifies water supplies which are not in compliance with the Regulations mentioned above. The most recent EPA Remedial Action List (Q4 of 2015) illustrates that one water supply in County Laois: Portlaoise was not in compliance with the Drinking Water Regulations for Q4 of 2015 due to inadequate treatment for cryptosporidium. The Portlaoise supply is thus in need of improvement with respect to treatment and management issues, specifically Monitoring to determine specifications for Crypto barrier.

Waste

The Eastern–Midlands Region Waste Management Plan (WMP) 2015-2021 provides the framework for solid waste management in the region and sets out a range of policies and actions to meet specified mandatory and performance based targets. The WMP seeks to assist and support resource efficiency and waste prevention initiatives. A key WMP target is to achieve a 1% reduction per annum in the quantity of household waste generated per capita over the period of the WMP. In tandem, the WMP identifies measures to develop a circular economy whereby waste management initiatives are no longer confined to treating and disposing of waste, instead supporting initiatives that value waste as a resource or potential raw material.

Existing Problems

There are a number of challenges with respect to water services which are outlined above. The provisions of the new Plan 2017-2023 will contribute towards protection of the environment with regard to impacts arising from material assets.

3.9 Cultural Heritage

Archaeological Heritage

Laois has a significant archaeological heritage, which provides a valuable cultural, educational and tourism resource. A number of areas of archaeological potential and significance are present in Laois. The Record of Monuments and Places (RMP) was established under Section 12 of the National Monuments (Amendment) Act 1994 and structures, features, objects or sites listed in this Record are known as Recorded Monuments. The term Monument refers to any artificial or partly artificial building or structure, that has been carved, sculptured or worked upon or which appears to have been purposely put or arranged in position. It also includes any, or part of any prehistoric or ancient tomb, grave or burial deposit, or ritual, industrial or habitation site. Monuments that predate 1700 AD are automatically accorded the title Historic Monument.

Figure 3.4 shows the spatial distribution of entries to the RMP in County Laois. These monuments are found throughout the County with clusters found in towns and lower concentrations found in upland and peatland areas.

Architectural Heritage

Laois has a wealth of architectural heritage. The three main towns, of Portlaoise, Portarlington and Mountmellick have relatively intact cores while Abbeyleix is designated as a Heritage Town. There are many other urban settlements across the county that are significant in terms of built heritage and cultural associations including the villages of Ballinakill and Timahoe which was the site of an abbey founded by St. Mochua in the 6th Century.

Part IV of the Planning & Development Act requires every development plan to include a record of protected structures (RPS). A 'protected structure' is a structure or a specific feature of the structure as may be specified that a Planning Authority considers to be of special interest from an architectural, historical, archaeological, artistic, cultural, scientific, social or technical point of view.

Figure 3.5 maps the location of entries to the Record of Protected Structures within County Laois. Also mapped on Figure 3.5 are entries to the National Inventory of Architectural Heritage (NIAH) (these provide the basis for the recommendations of the Minister for Arts, Heritage and the Gaeltacht for the inclusion of particular structures into the RPS). Concentrations of protected architectural structures are found within existing settlements.

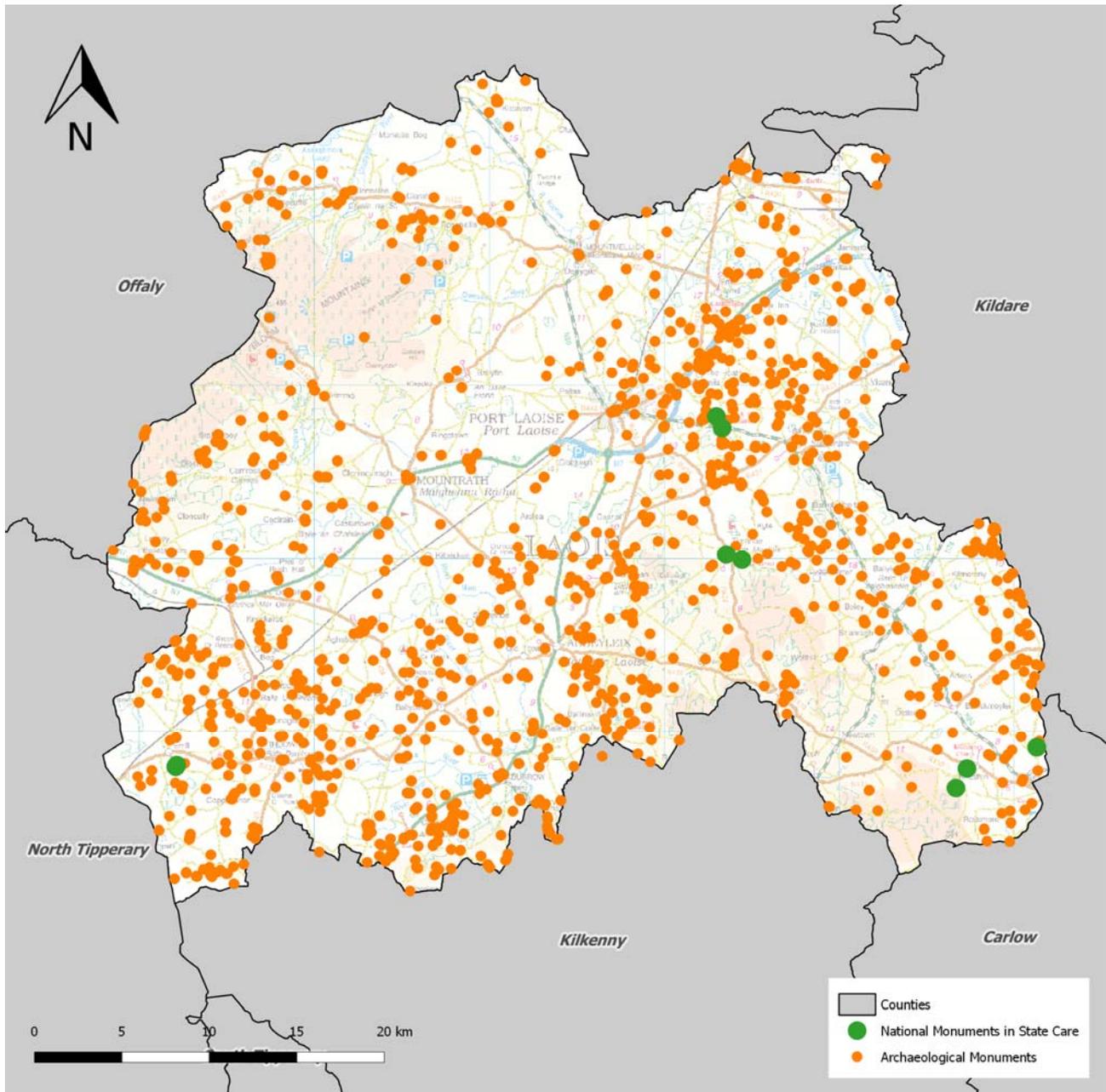


Figure 3.4 Archaeological Heritage - Record of Monuments and Places

Source: Laois County Council (Unknown)

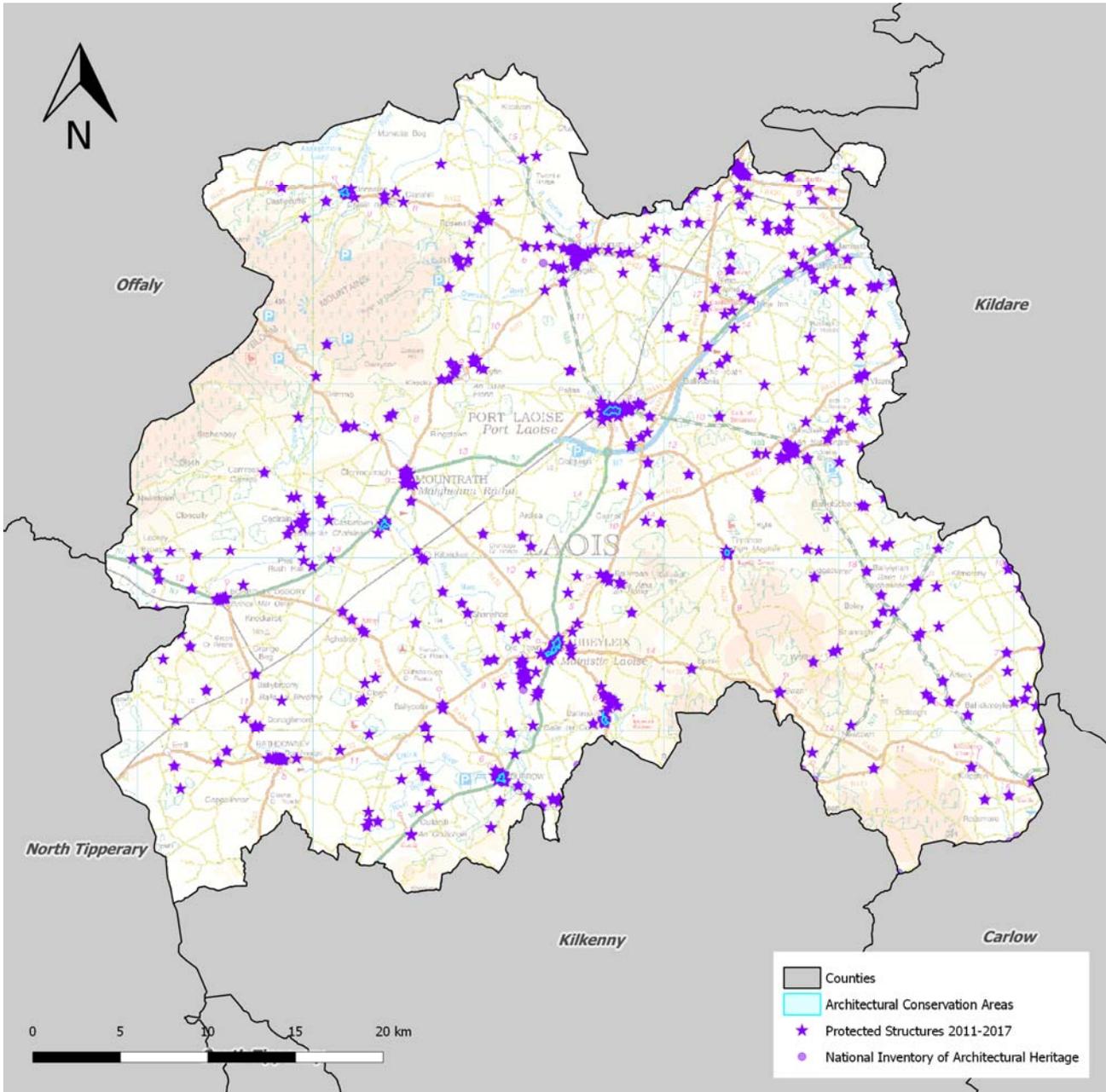


Figure 3.5 Architectural Heritage
Source: Laois County Council (Unknown)

3.10 Landscape

The landscape assessment that has been undertaken as part of the Plan identifies a number of distinctive landscape categories each containing a number of landscape areas. The landscape categories are identified below and mapped on Figure 3.6. The individual landscape areas are described below under each of the landscape categories.

1. Hills and upland areas

Although lacking in terms of dramatic peaks, hills and uplands are a prominent feature of the county, particularly in the North West and south-east. From the tops of these hills panoramic views of the lowland landscapes of Laois and adjacent counties are gained. The hills also act as orientating features. The Seven Hills, Cullenagh, Cullahill, Fossy Mountains and the upland areas around Swan, Luggacurren and Wolfhill are prominent by virtue of landmarks at their summits as well as their topography: A church on the Wolfhill acts as a prominent local landmark.

2. Lowland agricultural areas

The Lowland LCT covers the largest proportion of County Laois. In terms of landuse, it is comprised primarily of pastoral and tillage agriculture. It is generally a flat open landscape [around Ballylynan, Barrowhouse and the environs of Graiguecullen especially] with long range views towards the upland areas. Field patterns tend to be of large scale and are generally bounded by deciduous hedgerows containing mature trees. Farm sizes are larger than average. Throughout the county there is an abundance of 18th and 19th century demesnes with extensive areas of mixed woodland and parkland bounded by original stonewalls, creating an attractive landscape setting for the numerous estate houses.

3. River corridors and lakes

A number of key river corridors traverse County Laois. This LCT contains a wealth of historic features providing longstanding evidence of human influence on the landscape including Norman fortifications, castles, demesnes and industrial artifacts such as mills, canals and bridges. The River Nore is the largest and most prominent of the river corridors. The river enters the county north of Borris-in Ossory and runs generally in a southeast trajectory through Castletown, west of Abbeyleix, east of Durrow and onto Ballyragget, County Kilkenny. It merges with a number of other rivers along the way including Whitehorse [near Mountrath] and Erkina, Gully and Owenbeg [near Durrow]. The river is enclosed and well wooded along much of its length, containing areas of mixed deciduous woodland of great antiquity and species diversity including specimen oak in Abbeyleix Demesne.

4. Mountain areas

The Sliabh Bloom Mountains are the only mountain range in the county, covering an area of approx. 25,000 hectares with the remaining 12,000 hectares in County Offaly. In addition to the multiple nature designations including extensive NHA's, SAC's, and SPA, tourist infrastructure in the form of picnic areas, walking trails, archaeological artifacts, the mountains offer a sense of remoteness and a range of spectacular views over the rest of County Laois and many adjoining counties. They also contain the largest unbroken area of upland blanket peat in Ireland.

5. Peatland areas

Topography is strikingly flat, geology is generally Carboniferous Limestone (type varies according to specific location) and landcover is raised bog much of which is now exhausted and being considered for alternatives uses including afforestation, amenity and wind energy.

6. Urban fringe areas

Elevations range from 20-100 metres and geology is generally Carboniferous Limestone. The majority of the centres of the county population are located in this landscape type including the largest urban settlements of Portlaoise, Portarlington, Mountmellick and Graiguecullen. This landscape type also overlaps with LCT's 2 *Lowland Agricultural Areas] 3 [River Corridors and

Lakes] and 5 [Peatland Areas]. In terms of urban fringe, the defining characteristics include the radiating road routes on which development has taken place in a ribbon-type physical form. Individual sites are often suburban in design and their more formal and sculptured character does not usually integrate sympathetically with the overall landscape context. Another characteristic of this LCT is the frequently disused or underused nature of former agricultural lands which are now zoned and set aside for future development or may be required for orbital route schemes.

7. Rolling hill areas

Undulating with variable topography usually ranging from 70 metres to 90 metres. Geology comprises Silurian greywackes and slates with Old Red Sandstone at lower elevations. Overall, this is a complex landscape incorporating several elements within a rolling landform. Landcover reflects this complexity with tillage and pasture agriculture, pockets of wetlands and raised bog, small coniferous plantations and occasional deciduous copses. Varied enclosures include hedgerows with significant amounts of trees and some post and wire fencing. Settlement is quite frequent though commonly dispersed. Considerable evidence of new one-off house building in the vicinity of settlements

Landscape character areas in County Laois which are most sensitive to development include the 'Mountain Areas', the 'Hills and Upland Areas' and the 'River Corridors and Lakes'. These areas have the potential to be the most sensitive to new developments as they often have limited ability to accommodate change.

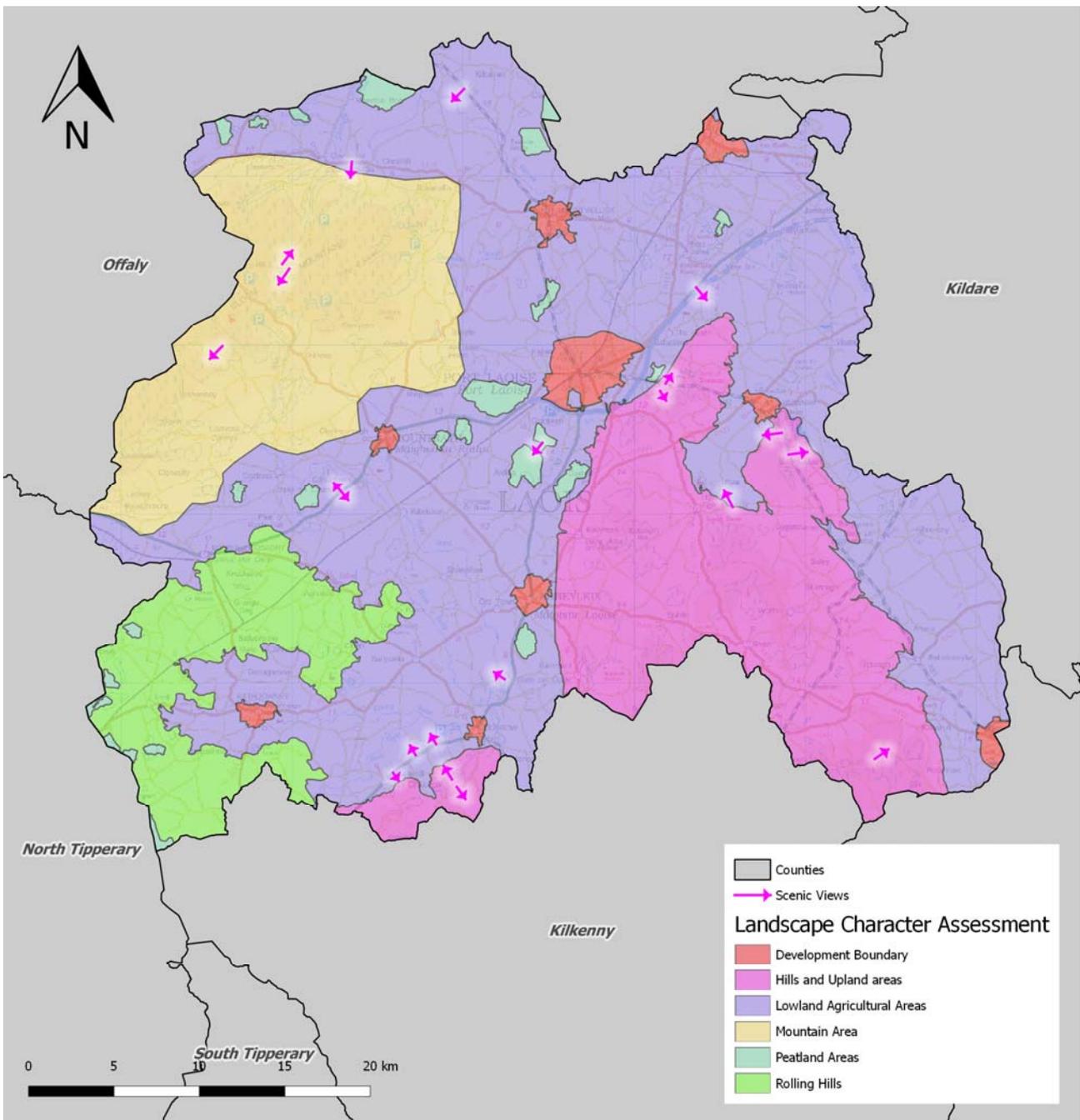


Figure 3.6 Landscape Category Map
Source: Laois County Council (2015)

3.11 Appropriate Assessment and Strategic Flood Risk Assessment

Appropriate Assessment (AA) Screening and a Strategic Flood Risk Assessment (SFRA) have both been undertaken alongside the Draft Plan. The requirement for AA is provided under the EU Habitats Directive (Directive 1992/43/EEC). The requirement for SFRA is provided under 'The Planning System and Flood Risk Management Guidelines for Planning Authorities' (DECLG, 2009).

The AA concluded that the Plan will not affect the integrity of the Natura 2000 network¹².

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

3.12 Strategic Environmental Objectives

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

B1: *To ensure compliance with the Habitats and Birds Directives with regard to the protection of Natura 2000 Sites and Annexed habitats and species¹³*

B2: *To ensure compliance with Article 10 of the Habitats Directive with regard to the management of features of the landscape which - by virtue of their linear and continuous structure or their function act as stepping stones (designated or not) - are of major importance for wild fauna and flora and essential for the migration, dispersal and genetic exchange of wild species*

B3: *To avoid significant impacts on relevant habitats, species, environmental features or other sustaining resources in designated sites including Wildlife Sites and to ensure compliance with the Wildlife Acts 1976-2010 with regard to the protection of listed species*

PHH1: *To protect populations and human health from exposure to incompatible landuses*

S1: *To avoid damage to the hydrogeological and ecological function of the soil resource*

W1: *To maintain and improve, where possible, the quality and status of surface waters*

W2: *To prevent pollution and contamination of ground water*

W3: *To comply as appropriate with the provisions of the Planning System and Flood Risk Management: Guidelines for Planning Authorities (DEHLG, 2009)*

M1: *To serve new development with adequate and appropriate waste water treatment*

M2: *To serve new development with adequate drinking water that is both wholesome and clean*

M3: *To reduce waste volumes, minimise waste to landfill and increase recycling and reuse*

C1: *To reduce travel related emissions to air and to encourage modal change from car to more sustainable forms of transport*

CH1: *To protect archaeological heritage including entries to the Record of Monuments and Places and/or their context*

CH2: *To protect architectural heritage including entries to the Record of Protected Structures and Architectural Conservation Areas and their context*

L1: *To minimise significant adverse visual impacts within and adjacent to the County*

¹² Except as provided for in Section 6(4) of the Habitats Directive, viz. There must be:

(a) no alternative solution available;

(b) imperative reasons of overriding public interest for the plan/programme/project to proceed; and

(c) adequate compensatory measures in place.

¹³ 'Annexed habitats and species' refer to those listed under Annex I, II & IV of the EU Habitats Directive and Annex I of the EU Birds Directive.

Section 4 Summary of Description and Evaluation of Alternative Scenarios and the Draft Plan

4.1 Alternative Scenarios

One of the critical roles of the SEA is to facilitate an evaluation of the likely environmental consequences of a range of alternative scenarios for accommodating future growth in County Laois.

Scenario One ‘Strong Growth, Weak Plans’

Scenario 1 (Strong Growth, Weak Plans) envisages a return to strong economic growth – especially in east Leinster. However this scenario illustrates the environmental consequences of a weak planning response.

This projected growth will see increased demand for cheaper housing within the 40 minute commute from the M50 leading to increased housing demand in northeast Laois. This demand would be met by un-coordinated growth of new housing development – both in settlements and in rural areas throughout the 8-10km zone on each side of the M7. The same forces are likely to give rise to uncoordinated and dispersed commercial retail and light industrial development within the outskirts of Portarlinton, Portlaoise, Mountmellick, Stradbally and even Abbeyleix. Such developments are even more likely to occur in the environs of major M7 junctions.

This scenario will lead to strong pressure adjacent to settlements such as Mountrath and Abbeyleix, as well as to strategic transportation corridors. These areas are also likely to experience competition with expanding dairy and stud farm uses, as well as competition with expanding/intensifying tillage land uses. There will be persistent, but dispersed pressure for development in rural areas.

Dispersed development would not be adequately served by services and would result in increases in levels of unsustainable mobility and associated interactions with emissions to air. Dispersed development would be unlikely to be served with appropriate levels of infrastructure.

This scenario will lead to low levels of change in areas of mixed farming and forested uplands, apart from increased pressure on the area for amenity use. There is little likelihood of expansion or intensification of agriculture or forestry. Potential intensification of energy amenities and tourism projects is low in this Scenario.

Scenario Two ‘Uneven Growth, Uneven Plans’

This Scenario envisages a return to strong economic demand but with underachievement of growth in both urban and rural potential due to lack of co-ordination. This leads to poorly targeted and excessively dispersed investment that causes congestion and competition, resulting in early progress to slow and stall. Sustainable mobility and associated interactions with emissions to air would not be maximised under this scenario.

In this scenario the towns of Portlaoise, Portarlinton, Mountmellick, Graiguecullen and other larger settlements will act as nuclei for strong early growth of both settlement and enterprise due to stability and coordination. The weaker plans will reduce certainty for concentrated investments in infrastructure which will gradually impede progress and reduce the regional competitiveness of enterprises.

While there will be strong pressure adjacent to settlements and Strategic Transportation Corridors – this will fail to achieve its full potential due to excessive competition for funding of sustaining infrastructure. There will be a steady pattern of conflicts between intensification of larger-scale, specialist's agriculture and poorly coordinated settlement and enterprise developments at urban/ rural fringes.

Many stronger rural areas will prosper with intensifications in areas of specialist tillage – especially near major settlements such as Killeshin and Graiguecullen and transportation corridors such as the N8, and the River Barrow.

This scenario will lead to low levels of change in areas of mixed farming and forested uplands, apart from increased pressure on the area for amenity use. There is little likelihood of expansion or intensification of agriculture or forestry. Potential intensification of energy amenities and tourism projects is low in this Scenario. There will be dispersed pressure for development in rural areas.

Scenario Three ‘Balanced Growth, Strong Plans’

Scenario 3 (Balanced Growth, Strong Plans), envisions the County experiencing strong and resilient growth of different but complementary character in different areas. A cluster of larger settlements centred on Portlaoise in the northeast will capitalise on a regionally significant confluence of major transportation, energy and water service supplies. There will also be a smaller one centred on Graiguecullen in the south east. Rural areas will see the emergence, expansion and consolidation of a series of strong sectors of specialisations in tillage and dairying. The rivers and uplands will offer opportunities for extensification into a mixed economy based on dispersed rural settlement as well as lower intensity agriculture, forestry as well as recreation and some tourism.

In this scenario the areas of Portlaoise, Portarlinton, Mountmellick, Graiguecullen and other urban environs will act as nuclei for strong and sustained growth of both settlement and enterprise due to stability and coordination. The strong plans will increase certainty and will attract cost-effective regional investment in an infrastructure-rich node. This will create a ‘virtuous cycle’ of further increasing enterprise providing employment for a growing population.

The M7 and M9 Strategic Transportation Corridor Environs will provide orderly transitions between areas of intensifying urban areas and areas of specialist agriculture.

Stronger rural areas such as mixed farmland and settlements with links to Strategic Transportation Corridors will prosper with intensifications in areas of specialist tillage – especially near major settlements and transportation corridors.

This scenario will lead to low levels of change in areas of mixed farming and forested uplands – apart from increased pressure on the area for amenity use. There is little likelihood of expansion or intensification of agriculture or forestry. Potential intensification of energy amenities and tourism projects is low in this Scenario. There will be dispersed pressure for development in rural areas.

Summary Evaluation against Strategic Environmental Objectives

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

The provisions of the alternatives are evaluated using compatibility criteria in order to determine how they would be likely to affect the status of the SEOs (these are all detailed under Section 3.12).

The interactions identified are reflective of likely significant environmental effects¹⁴:

1. Interactions that would be likely to improve the status of a particular SEO would be likely to result in a significant positive effect on the environmental component to which the SEO relates. The extent of positive effects which would be likely to occur varies and there are three ‘likely to improve columns’.
2. Interactions that would potentially conflict with the status of an SEO and would be likely to be mitigated are divided into three groups:

¹⁴ These effects include secondary, cumulative, synergistic, short, medium and long-term permanent and temporary, positive and negative effects.

- Interactions that would conflict the least with the status of SEOs – these would be likely to be mitigated to a greater degree and significant adverse effects would be less likely;
- Interactions that would conflict more with status of SEOs - these would be likely to be mitigated to an intermediate degree and significant adverse effects would be more likely.
- Interactions that would conflict the most with status of SEOs - these would be likely to be mitigated to a lesser degree and significant adverse effects would be more likely.

The scenarios suggest that the principal differences that are likely to arise will be a return to strong economic growth and associated growth in urban commercial centres, as well as rural agriculture specialisation and extensification. In Scenario 1 and Scenario 2, the plans for these areas will be less effective - leading to environmental pressures. Scenario Three, by contrast, envisages plan-led development that will significantly improve synergies causing increased, but balanced and more sustainable growth throughout the County, with least impacts on the environment.

Table 4.1 Summary Evaluation of Alternative Scenarios against SEOs

	Likely to Improve status of SEOs to a greater degree	Likely to Improve status of SEOs to an intermediate degree	Likely to Improve status of SEOs to a lesser degree	Least Potential Conflict with status of SEOs - likely to be mitigated to greater degree, significant adverse effects less likely	More Potential Conflict with status of SEOs - likely to be mitigated to an intermediate degree, significant adverse effects more likely	Most Potential Conflict with status of SEOs - likely to be mitigated to lesser degree, significant adverse effects more likely
Scenario 1 Strong Growth, Weak Plans			B1 B2 B3 PHH1 S1 W1 W2 W3 M1 M2 M3 C1 CH1 CH2 L1			B1 B2 B3 PHH1 S1 W1 W2 W3 M1 M2 M3 C1 CH1 CH2 L1
Scenario 2 Uneven Growth, Uneven Plans		B1 B2 B3 PHH1 S1 W1 W2 W3 M1 M2 M3 C1 CH1 CH2 L1			B1 B2 B3 PHH1 S1 W1 W2 W3 M1 M2 M3 C1 CH1 CH2 L1	
Scenario 3 Balanced Growth, Strong Plans	B1 B2 B3 PHH1 S1 W1 W2 W3 M1 M2 M3 C1 CH1 CH2 L1			B1 B2 B3 PHH1 S1 W1 W2 W3 M1 M2 M3 C1 CH1 CH2 L1		

Table 4.2 Evaluation of Alternative Scenarios against SEOs

4.2 Overall Findings

Alternative Scenario 3 contributes the greatest extent towards sustainable development and environmental protection and management and is the preferred and selected alternative scenario which has been developed for the strategy for the Draft Plan.

Table 7.8 details the overall findings of the assessment with respect to this preferred and selected alternative scenario.

By complying with appropriate mitigation measures - including those which have been integrated into the Draft Plan (see Section 9 of this report) – potentially significant adverse environmental effects which could arise as a result of implementing the Plan would be likely to be avoided, reduced or offset.

Table 4.3 Overall Findings – Effects arising from the Preferred Alternative Scenario for the Plan

Environmental Component	Significant Positive Effect, likely to occur	Potential Effect, if unmitigated	Residual Adverse Effects
Biodiversity and Flora and Fauna	<ul style="list-style-type: none"> Facilitates lower overall effects on ecology (including designated sites, ecological connectivity, habitats) – due to increased utilisation of lands within existing development boundaries and use of existing utilities and brownfield sites. Facilitates protection of ecology with respect to the provision of water services. Facilitates contribution towards the protection of ecology as a result of contributing towards the protection of environmental vectors, including air and water. 	<ul style="list-style-type: none"> Arising from both construction and operation of development and associated infrastructure: loss of/damage to biodiversity in designated sites (including Natura 2000 Sites and Wildlife Sites) and Annexed habitats and species, listed species, ecological connectivity and non-designated habitats; and disturbance to biodiversity and flora and fauna Habitat loss, fragmentation and deterioration, including patch size and edge effects. Disturbance (e.g. due to noise and lighting along transport corridors) and displacement of protected species. 	<ul style="list-style-type: none"> Loss of an extent of non-protected habitats and species arising from the replacement of semi-natural land covers with artificial surfaces. Losses or damage to ecology (these would be in compliance with relevant legislation).
Population and Human Health	<ul style="list-style-type: none"> Facilitates protection of human health with respect to the provision of water services and the provision of transport infrastructure integrated with land use planning – and associated interactions with sustainable mobility, emissions and energy usage. Facilitates contribution towards the protection of human health as a result of contributing towards the protection of environmental vectors, including air and water. 	<ul style="list-style-type: none"> Potential interactions if effects upon environmental vectors such as water and air are not mitigated 	<ul style="list-style-type: none"> Potential interactions with residual effects on environmental vectors. This has been mitigated by provisions which have been integrated into the Plan, including those relating to sustainable mobility and infrastructural provision.
Soil	<ul style="list-style-type: none"> Facilitates lower overall effects on soil – due to increased utilisation of lands within existing development boundaries and use of existing utilities and brownfield sites. Facilitates protection of soil with respect to the provision of water services. 	<ul style="list-style-type: none"> Damage to the hydrogeological and ecological function of the soil resource. 	<ul style="list-style-type: none"> Loss of an extent of soil function arising from the replacement of semi-natural land covers with artificial surfaces.

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Water	<ul style="list-style-type: none"> Facilitates lower effects on ground and surface waters due to higher levels of development within established and serviced settlement centres that have installed/upgraded water services capable of delivering Water Framework Directive targets. 	<ul style="list-style-type: none"> Adverse impacts upon the status of water bodies arising from changes in quality, flow and/or morphology. Increase in the risk of flooding. 	<ul style="list-style-type: none"> Increased loadings as a result of development to be in compliance with River Basin Management Plans. Flood related risks remain due to uncertainty with regard to extreme weather events.
Material Assets	<ul style="list-style-type: none"> Provides for planned infrastructure including water services infrastructure and transport infrastructure. Make most use of existing water services and drainage infrastructure. 	<ul style="list-style-type: none"> Failure to provide adequate and appropriate waste water treatment (water services infrastructure and capacity is needed to ensure the mitigation of potential conflicts). Failure to comply with drinking water regulations and serve new development with adequate drinking water that is both wholesome and clean (water services infrastructure and capacity is needed to ensure the mitigation of potential conflicts) Increases in waste levels 	<ul style="list-style-type: none"> Residual wastes to be disposed of in line with higher level waste management policies.
Air and Climatic Factors	<ul style="list-style-type: none"> Facilitates contribution towards a shift from car to more sustainable and non-motorised transport modes. Facilitates contribution towards reducing congestion and associated adverse effects on air quality. Facilitates contribution towards reductions in travel related greenhouse gas and other emissions to air. 	<ul style="list-style-type: none"> Emissions to air including greenhouse gas emissions and other emissions. 	<ul style="list-style-type: none"> An extent of travel related greenhouse gas and other emissions to air. This has been mitigated by provisions which have been integrated into the Plan, including those relating to sustainable mobility.
Cultural Heritage	<ul style="list-style-type: none"> Contribution towards the protection of cultural heritage by facilitating compliance with protection legislation. 	<ul style="list-style-type: none"> Potential effects on protected and unknown archaeology and protected architecture arising from construction and operation activities. 	<ul style="list-style-type: none"> Potential alteration to the context and setting of architectural heritage however these will occur in compliance with legislation. Potential alteration to the context and setting of archaeological heritage however this will occur in compliance with legislation. Potential loss of unknown archaeology however this loss will be mitigated by measures integrated into the Draft Plan.
Landscape	<ul style="list-style-type: none"> Contribution towards the protection of cultural heritage by facilitating compliance with objectives relating to landscape management and protection. 	<ul style="list-style-type: none"> Occurrence of adverse visual impacts and conflicts with the appropriate protection of statutory designations relating to the landscape. 	<ul style="list-style-type: none"> None. The Draft Plan contributes towards the protection of landscape designations. The County's landscapes will change overtime as a result of natural changes in vegetation cover combined with new developments.

Section 5 Mitigation and Monitoring Measures

5.1 Mitigation

5.1.1 Introduction

Mitigation measures are measures envisaged to prevent, reduce and, as fully as possible, offset any significant adverse impacts on the environment of implementing the Plan. Various environmental sensitivities and issues have been communicated to the Council through the SEA, Appropriate Assessment (AA) and Strategic Flood Risk Assessment (SFRA) processes. By integrating all related recommendations into the Plan, the Council have ensured that both the beneficial environmental effects of implementing the Plan have been and will be maximised and that potential adverse effects have been and will be avoided, reduced or offset.

Mitigation was achieved through the:

- Strategic work undertaken by the Council to ensure contribution towards environmental protection and sustainable development;
- Integration of individual SEA, AA and SFRA provisions into the text of the Plan; and
- Integration of environmental considerations into zoning provisions of the Plan.

5.1.2 Strategic work undertaken by the Council to ensure contribution towards environmental protection and sustainable development

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

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

Strategic work undertaken by the Council includes background work in relation to Plan Strategies and other provisions for a variety of sectors including: settlement; economic development, enterprise and tourism; movement and transportation; infrastructure; energy and communications; retail; rural development; social, community and cultural development; architectural and archaeological protection; natural heritage and green infrastructure; landscape, recreation and amenities; urban design; and rural design.

5.1.3 Integration of individual SEA, AA and SFRA provisions into the text of the Plan

Various provisions have been integrated into the text of the Draft Plan through the Plan-preparation and SEA, SFRA and AA processes. Both the Planning and the assessment teams contributed towards the mitigation which was developed over multiple iterations and was informed by, inter alia, various communications through the SEA, AA and SFRA processes.

Table 5.1 links key mitigation measure(s) - which have been integrated into the Draft Plan - to the likely significant effects of implementing the Plan, if unmitigated, as well as showing monitoring measures.

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

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

5.1.4 Integration of environmental considerations into Zoning of the Plan

Environmental considerations were integrated into the Draft Plan's zoning through an interdisciplinary approach.

The detailed Plan preparation process undertaken by the Planning Department combined with specialist input from the AA process facilitated zoning that avoids impacts upon sensitive ecology and Natura 2000 sites. Specifically, where a Natura 2000 site occurs within zoned settlements, the Plan map shows where a 'Natura 2000 site – Constrained Land Use Zoning Objective' applies. This Objective provides for the following:

In order to be granted permission, other than demonstrating compliance with other Plan provisions (including those relating to the protection of the environment), proposals for development will need to undergo Appropriate Assessment.

The detailed Plan preparation process undertaken by the Planning Department combined with specialist input from the SFRA process facilitated zoning that avoids inappropriate development being permitted in areas of high flood risk. Various provisions have been inserted into the Plan which provide for flood risk management at project level.

Also taken into account were other environmental considerations including sustainable mobility and sensitivities relating to cultural heritage, landscape and water, as well as the overlay mapping of environmental sensitivities.

5.2 Monitoring

The SEA Directive requires that the significant environmental effects of the implementation of plans and programmes are monitored. The Environmental Report contains proposals for monitoring the Plan which are adopted alongside the Plan. Monitoring enables, at an early stage, the identification of unforeseen adverse effects and the undertaking of appropriate remedial action.

The Environmental Report identifies indicators - which allow quantitative measures of trends and progress in the environment over time. Measurements for indicators generally come from existing monitoring sources or from an internal monitoring of the environmental effects of grants of permission in the Council.

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

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

Environmental Component	Potential Effect, if unmitigated	Mitigation Measures	Indicators for Monitoring
Biodiversity and Flora and Fauna	<ul style="list-style-type: none"> Arising from both construction and operation of development and associated infrastructure: loss of/damage to biodiversity in designated sites (including Natura 2000 Sites and Wildlife Sites) and Annexed habitats and species, listed species, ecological connectivity and non-designated habitats; and disturbance to biodiversity and flora and fauna Habitat loss, fragmentation and deterioration, including patch size and edge effects Disturbance (e.g. due to noise and lighting along transport corridors) and displacement of protected species 	<p>BIO2, BIO3, NH10, NH8, NH9, NH1, NH2, NH 3, NH4, NH5, NH6, NH7, NH15, TRANS 3, TM11, NH36</p> <p>Natura 2000 site – Constrained Land Use Zoning Objective</p>	<p>B1: Conservation status of habitats and species as assessed under Article 17 of the Habitats Directive</p> <p>B2: Percentage loss of functional connectivity without remediation resulting from development provided for by the Plan</p> <p>B3i: Number of significant impacts on relevant habitats, species, environmental features or other sustaining resources in designated sites including Wildlife Sites resulting from development provided for by the Plan</p> <p>B3ii: Number of significant impacts on the protection of listed species</p>
Population and Human Health	<ul style="list-style-type: none"> Potential interactions if effects upon environmental vectors such as water and air are not mitigated 	<p>CS15, ES25</p> <p>Also see measures under environmental vectors soil, water and air below.</p>	<p>PHH1: Occurrence (any) of a spatially concentrated deterioration in human health arising from environmental factors resulting from development provided for by the Plan, as identified by the Health Service Executive and Environmental Protection Agency</p>
Soil	<ul style="list-style-type: none"> Damage to the hydrogeological and ecological function of the soil resource 	<p>ES20, ES22, ES23, ES24 and NH 12</p> <p>Also see measures under water below.</p>	<p>S1: Soil extent and hydraulic connectivity</p> <p>Selected Indicator(s)</p>
Water	<ul style="list-style-type: none"> Adverse impacts upon the status of water bodies arising from changes in quality, flow and/or morphology Increase in the risk of flooding 	<p>WS34, WS35, WS38, WS2, WS13, WS31, WS32, WS36 and WS42</p> <p>FD 01, FD1, FD2, FD3, FD4 and FD5</p> <p>Also see measures under soil above and material assets below.</p>	<p>W1: Classification of Overall Status (comprised of ecological and chemical status) under the European Communities Environmental Objectives (Surface Waters) Regulations 2009 (SI No. 272 of 2009)</p> <p>W2: Groundwater Quality Standards and Threshold Values under Directive 2006/118/EC</p> <p>W3: Number of incompatible developments granted permission on lands which pose - or are likely to pose in the future - a significant flood risk</p>
Air and Climatic Factors	<ul style="list-style-type: none"> Emissions to air including greenhouse gas emissions and other emissions 	<p>ES10, CC1, CC2, CC2 and NRA1</p> <p>Also see measure under human health above (and various Plan measures relating to land use development and sustainable mobility)</p>	<p>C1: Percentage of population travelling to work, school or college by public transport or non-mechanical means</p>

SEA Environmental Report for the Proposed Draft Laois County Development Plan 2017-2023
Non-Technical Summary

Environmental Component	Potential Effect, if unmitigated	Mitigation Measures	Indicators for Monitoring
Material Assets	<ul style="list-style-type: none"> • Failure to provide adequate and appropriate waste water treatment (water services infrastructure and capacity is needed to ensure the mitigation of potential conflicts) • Failure to comply with drinking water regulations and serve new development with adequate drinking water that is both wholesome and clean (water services infrastructure and capacity is needed to ensure the mitigation of potential conflicts) • Increases in waste levels 	WS1, WS15, WS 16, WS17, WS18, WS19 and ES6	<p>M1: Number of new developments granted permission which can be adequately and appropriately served with waste water treatment over the lifetime of the Plan</p> <p>M2: Number of non-compliances with the 48 parameters identified in the European Communities (Drinking Water) Regulations (No. 2) 2007 which present a potential danger to human health as a result of implementing the Plan</p> <p>M3i: Total collected and brought household waste</p> <p>M3ii: Packaging recovered (t) by self-complying packagers</p>
Cultural Heritage	<ul style="list-style-type: none"> • Potential effects on protected and unknown archaeology and protected architecture arising from construction and operation activities 	<p>Archaeological Heritage OBJ1, OBJ2, OBJ5, OBJ7, ARCH5, ARCH6, ARCH7, ARCH8, ARCH17</p> <p>Architectural Heritage OBJ1, OBJ5, OBJ6, OBJ7, BH1, BH 2, BH 3, BH 4, BH 5, BH 6 and BH 7</p>	<p>CH1: Percentage of entries to the Record of Monuments and Places - including Areas of Archaeological Potential and Significance (and the context of the above within the surrounding landscape where relevant) - protected from significant adverse effects arising from new development granted permission under the Plan</p> <p>CH2: Percentage of entries to the Record of Protected Structures and Architectural Conservation Areas and their context protected from significant adverse effects arising from new development granted permission under the Plan</p>
Landscape	<ul style="list-style-type: none"> • Occurrence of adverse visual impacts and conflicts with the appropriate protection of statutory designations relating to the landscape 	OBJ 2, OBJ 5, LS01, LS2, LS3, LS4, LS5, LS6, LS7, LS8, AV1, AV2 and AV3	L1: Number of complaints received from statutory consultees regarding avoidable adverse visual impacts on the landscape resulting from development which is granted permission under the Plan