Laois County Council
Comhairle Chontae Laoise

PORTLAOISE LOCAL AREA PLAN

2018 – 2024

STRATEGIC ENVIRONMENTAL ASSESSMENT
ENVIRONMENTAL REPORT

CONTENTS

1.0 INTRODUCTION

Laois County Council (LCC) has prepared a Local Area Plan (LAP) for Portlaoise for the period 2018-2024. This is the Environmental Report for the Strategic Environmental Assessment (SEA) of the LAP. The purpose of SEA is to formally and systematically evaluate the likely significant effects of implementing a plan or programme, in this instance the Portlaoise LAP. The report identifies the significant environmental effects of the plan on the environment and where significant effects are identified, recommends appropriate mitigation measures to avoid or reduce such effects. SEA is an iterative process and has informed and influenced the preparation of the LAP, particularly through avoiding areas of greatest environmental sensitivity.

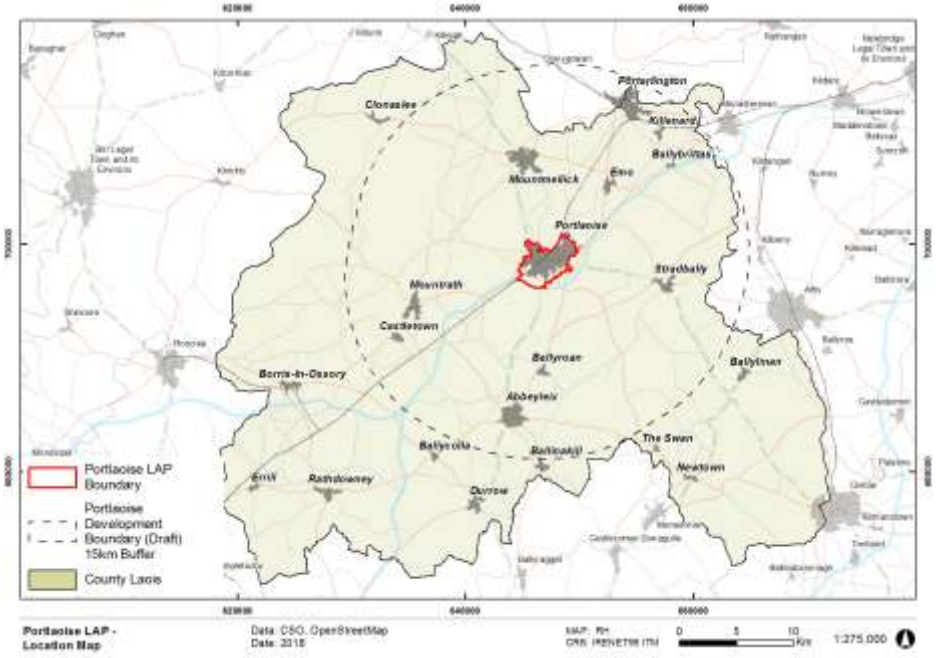
This Environmental Report for the LAP, forms part of the SEA process, documents the SEA process, is the key consultation document in the SEA process and facilitates interested parties to comment on the environmental issues associated with the plan. This Environmental Report has been prepared under the Planning and Development (Strategic Environmental Assessment) Regulations 2004 (S.I 436 of 2004).

This is the final SEA ER of the adopted Portlaoise Local Area Plan 2018-2024, please see Addendum No. 1 for SEA comments on Material Alterations to the LAP as well as the SEA Screening of same.

1.1 SCALE, NATURE AND LOCATION OF DEVELOPMENT

Figure 1 below shows the outline of the Portlaoise LAP within the wider context of Laois County.

Figure 1: Location of Portlaoise Town within County Laois



1.2 SEA ENVIRONMENTAL REPORT

Regulations contained in Schedule 2B of Statutory Instrument (S.I.) 436 of 2004(as amended) details the information to be contained in an Environmental Report. The following Table 1 lists the information required and details where this information is contained in this Environmental Report.

Table 1: Information required to be contained in an Environmental Report

Schedule 2B of Statutory Instrument 436 of 2004	Addressed in this SEA ER
(a) An outline of the contents and main objectives of the plan and relationship with other relevant plans	Chapter One Introduction and Chapter Two Methodology outline contents and main objectives. Chapter Three details the relationship with other relevant plans
(b) The relevant aspects of the current state of the environment and the likely evolution thereof without implementation of the plan	Chapter Four Baseline Environment provides this information
(c) The environmental characteristics of areas likely to be significantly affected	Chapter Four Baseline Environment provides this information
(d) Any existing environmental problems which are relevant to the plan including, in particular, those relating to any areas of a particular environmental importance, such as areas designated pursuant to the Birds Directive or Habitats Directive	Chapter Four Baseline Environment provides this information
(e) The environmental protection objectives, established at international, European Union or national level, which are relevant to the plan and the way those objectives and any environmental considerations have been taken into account during its preparation	Chapter Five SEA Objectives provides this information
(f) 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 Seven Significant Effects on the Environment provides this information
(g) The measures envisaged to prevent, reduce and as fully as possible offset any significant adverse effects on the environment of implementing the plan	Chapter Eight Mitigation Measures provides this information
(h) 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	Chapter Six Alternatives Considered provides this information and difficulties encountered are listed at the end of Chapter Two Baseline Environment

Schedule 2B of Statutory Instrument 436 of 2004	Addressed in this SEA ER
deficiencies or lack of know-how) encountered in compiling the required information	
(i) A description of the measures envisaged concerning monitoring of the significant environmental effects of implementation of the plan	Chapter Nine Monitoring provides this information
(j) A non-technical summary of the information provided under the above headings	This is provided as a separate document to this Environmental Report but is also available

1.3 REPORT PREPARATION

The SEA Team worked with the LCC Planning team and other specialists. The following consultants prepared this SEA ER:

- Ruth Minogue MCIEEM, AILI, (BSoc Sc) Social Anthropology, University of Manchester 1996, MA (Econ) Environment and Development, University of Manchester 1998, Dip Field Ecology, University College Cork 2003, ongoing CPD including certificate in Health Impact Assessment (2012) and Diploma in Planning and Environmental Law (2017).

- Pat Doherty MCIEEM, MSc in Applied Environmental Science (Ecology), University College Dublin, 2003, BSc (Honours) in Environmental Earth Science, University of Wales, Aberystwyth, 2000, ongoing CDP including Habitat Assessment (NVC) and flora and fauna identification through IEEM.

- Dr Ronan Hennessey, Ph.D Earth & Ocean Sciences, NUI Galway, Higher Diploma in applied Remote Sensing and GIS, NUI Maynooth, B.Sc Earth Sciences, NUI Galway.

- Michael Cregan, Diploma in Landscape Architecture (Edinburgh University), B.Agr.Sc. (Forestry) (University College Dublin) and M.Agr.Sc (Urban Landscape Planning) (University College Dublin).

2.0 METHODOLOGY

2.1 INTRODUCTION

This chapter presents the SEA methodology in detail and outlines the steps required for SEA. The methodology used to carry out the SEA of the plan reflects the requirements of the SEA regulations and available guidance on undertaking SEA in Ireland, including:

- SEA Methodologies for Plans and Programmes in Ireland – Synthesis Report Environmental Protection Agency (EPA), 2003;
- Implementation of SEA Directive (2001/42/EC) Assessment of the Effects of Certain Plans and Programmes on the Environment – Guidelines for Regional Authorities and Planning Authorities - published by the Department of the Environment, Heritage and Local Government, 2004;
- Planning and Development (Strategic Environmental Assessment) Regulations 2004 (SI 436 and SI 435 of 2004);
- Planning and Development (Strategic Environmental Assessment) Regulations 2011 (S.I. No. 201 of 2011);
- Planning and Development (Environmental Assessment of Certain Plans and Programmes) (S.I No 200 of 2011);
- SEA Process Checklist Consultation Draft 2008, EPA 2008;
- Circular Letter PSSP 6/2011 Further Transposition of EU Directive 2001/42/EC on Strategic Environmental Assessment;
- Guidance on integrating climate change and biodiversity into Strategic Environmental Assessment European Union 2013;
- SEA Resource Manual for Local and Regional Authorities, Draft Version, 2013;
- Integrating Climate Change into Strategic Environmental Assessment in Ireland – A Guidance Note, EPA, 2015 and
- Developing and assessing alternatives in Strategic Environmental Assessment, (EPA, 2015).

2.2 STAGES IN THE SEA PROCESS

The steps involved in SEA are as follows:

- Screening (determining whether or not SEA is required);
- Scoping (determining the range of environmental issues to be covered by the SEA);
- The preparation of an Environmental Report;
- The carrying out of consultations;
- The integration of environmental considerations into the Plan or Programme;
- The publication of information on the decision (SEA Statement).

• 2.2.1 Screening

The SEA Regulations state that SEA is mandatory for certain plans while screening for SEA is required for other plans that fall below the specified thresholds. SEA is mandatory for Local Area Plans where the population or target population exceeds 5,000 persons. As this is the

case for the Portlaoise LAP area, the LAP progressed to the next stage of SEA – Scoping. An overview of this is provided below.

• 2.2.2 Scoping

The purpose of the SEA Scoping report is to identify the scope of the SEA and ensure that relevant data and environmental topics are included in the SEA. The Scoping report was issued to the statutory environmental authorities consultees on January 2018 for a four week period.

The table below summarises the main issues raised by consultees and the SEA response to same. Please note that pre-draft consultation was also undertaken by LCC and the list of issues identified through this process also informed the scope of the SEA.

Table 2: Scoping Submissions received

Consultee	Key Issue Raised	SEA Response
Scientific Officer, SEA Section, Office of Evidence and Assessment, Environmental Protection Agency, Regional Inspectorate, Inniscarra, County Cork		
	Plan Area Boundary Map: There is merit in including a map showing the extent of the Plan area, particularly in the context of assessing and identifying relevant environmental sensitivities to be considered in the SEA.	Agreed, see Figure 1
	Key Environmental Resources: We welcome in Section 3 Key Environmental Resources, that the EPA's Ireland's Environment 2016 - An Assessment (EPA 2016), is a key environmental resource in informing the LAP process. The challenges and emerging issues described within this report should be integrated as appropriate in the Plan.	Noted
	Water Framework Directive: The Plan should include a commitment to integrate the relevant recommendations of the Draft National River Basin Management Plan for Ireland 2018-2021 (DHPLG) and associated Programme of Measures which will be adopted during the lifetime of the Plan. The Plan should also provide for the protection of high and good quality surface waters and groundwater resources and also protect relevant areas listed on the WFD Register of Protected Areas.	Noted, reference made in policies to same. Noted, this is provided in the LAP
	Designated Sites: Among the conservation areas included in / within 15km of the Plan area are Clonrehen Bog (NHA), Ridge of Portlaoise (pNHA) and the Great Heath of Portlaoise (pNHA). The SEA should consider the potential effects occurring for all designated sites and protected species within and adjacent to the Plan area and associated ecological corridors. In particular consideration should be given to the potential for cumulative effects associated with existing, and proposed, development arising from the Plan implementation.	Noted, these sites are described in Chapter 4 and potential cumulative effects are discussed in Chapter 7 of this SEA ER

The protection of and possible enhancement of Undesignated Biodiversity: Wider consideration of biodiversity outside of designated areas, such as ecological corridors/linkages, hedgerows and wetlands should be identified and measures put in place to ensure protection/replacement where appropriate. It may also be useful to consider reviewing and updating, as appropriate, existing habitat mapping to inform the development of the Plan area over the lifetime of the Plan. Where wetland sites are involved, consideration should be given to assessing the potential impact on water quality and the hydrological/ hydrogeological regime which maintains these sites.	Noted, consideration of these within the plan area are described in Chapter 4 Noted
Provision of Adequate and Appropriate Critical Infrastructure: We note section 3.6 Material Assets in the Scoping Report and in particular, the various drinking water upgrades included under the joint Portlaoise and Mountmellick Water Supply Scheme, currently awaiting departmental approval. The Plan should include a commitment to collaborate with Irish Water in seeking to resolve any critical water infrastructure issues and to ensuring the provision of adequate and appropriate critical water infrastructure to cater for future sustainable development in the Plan area.	Noted, Chapters 4 and 7 of this SEA ER amends this
Climate Change Adaptation: The Plan should promote commitments for the development and promotion of appropriate climate change adaptation and mitigation measures that can be implemented through relevant land use plans and/or specific plans e.g. Flood Risk Management Plans etc. Climate change adaptation and mitigation measures should be included in the Plan as appropriate and the Plan should be consistent with the National Policy Position on Climate Action and Low Carbon Development, the National Mitigation Plan and the National Adaptation Framework (when available), as well as relevant sectoral, regional and local adaption plans. The Agency has published SEA guidance on 'Integrating Climate Change into SEA' which may be useful in this regard. This guidance (and other SEA related guidance) is available at: http://www.epa.ie/pubs/advice/ea.	Noted, a specific policy addresses this in the LAP
Flood Risk Assessment and Management: We note that the Plan area has a history of flood events. The Plan should reflect the need for flood risk to be taken into consideration for both existing and proposed new zoning, and associated development, within the Plan area. UoM14 CFRAMS should help inform appropriate zoning/re-zoning considerations within the Plan area. The Planning System and Flood Risk Management Guidelines for Planning Authorities (DAHLG 2009) should also be integrated, as appropriate.	Noted, and agreed. Noted, this is provided in the LAP
Groundwater Vulnerability: The Geological Survey of Ireland (GSI) has identified areas within and adjacent to the Plan area as having high levels of groundwater vulnerability. In this context, the Plan should include a commitment to the protection of groundwater resources and associated habitats and species.	Noted and agreed.

Core Strategy: We note Table 3 Core Strategy in the Scoping Report. The Plan should ensure that it remains consistent with the National Planning Framework, when adopted, and promote the need for sustainable development. A commitment should also be made to remain consistent with the relevant Regional Spatial and Economic Strategy (RSES) upon adoption.	Noted. The Ethos of the NPF has informed the plan preparation. The LAP complies with the National Spatial Strategy and Regional Planning Guidelines currently in place. Policies relating to Town Centre consolidation have been integrated to the LAP.
Brownfield Lands: Where any brownfield lands are proposed for reuse / regeneration in the context of Plan development, these should be appropriately remediated to avoid or minimise any potential significant environmental impacts or human health impacts that may arise. A commitment should be given that any assessment of these sites should consider and provide information on aspects such as contaminated soil removal / remediation, noise and air quality, waste management, possible service infrastructure provision issues, possible presence of invasive species and ensuring appropriate management/ control, implications for biodiversity etc.	Noted.
The EPA's Office of **Radiological Protection** has identified areas in the Plan as having radon levels between 10% to 20% above reference level. The Plan should consider the significant concentrations of radon, which may occur within the Plan area. Radon Maps are now provided by the EPA at http://www.epa.ie/radiation/radonmap/ and should be consulted with regard to assessing the risk of radon, which should be taken into account as appropriate into the Plan.	Noted, will be described in Chapter Four of this SEA ER
Development arising from the Plan: The Plan should include a specific commitment that any proposed residential, industrial, infrastructural or tourism related development arising from the Plan will take into account any other associated plans/ programmes/ strategies and the requirements of the SEA, Habitats, WFD and Floods Directives, as relevant and appropriate.	Noted and agreed, specific policy in Chapter One provides for this
Potential for Cumulative Effects: In preparing the SEA, you should consider assessing the potential for cumulative effects on the environment as a result of implementing the Plan. A review of relevant adjacent Local Area Plans and relevant Plans/ Programmes and significant projects should also be undertaken and the potential for cumulative environmental effects considered.	Noted, see Chapter 7 for assessment of cumulative effects
Alternatives: In considering and assessing alternatives, the alternatives proposed should be reasonable and realistic and should	Noted, and agreed. Chapter 6

be set at the appropriate strategic level at which the Plan will be implemented operating within the national planning hierarchy. They should be assessed against the relevant environmental objectives established for the key environmental aspects of the environment likely to be significantly affected. Clear justification should be provided for the selection of the preferred alternative/ combination of alternatives. Where relevant, the development of alternatives should be clearly described. In addition, the methodology applied in the assessment of alternatives along with any assumptions made should be described. The Agency has published an EPA Guidance document Developing and Assessing Alternatives in Strategic Environmental Assessment - Good Practice Guidance (EPA, 2015), which should be considered.	Consideration of Alternatives addresses these comments
SEA Mitigation Measures: The Plan should include appropriate mitigation measures to address the potential for significant negative environmental effects, where these have been identified.	Noted, see Chapter 8 for mitigation measures
SEA Related Monitoring: In relation to monitoring related aspects required under the SEA Directive, the SEA should include information on the nature and frequency of monitoring to be carried out and organisations responsible for carrying out the monitoring. Linking SEA and Plan related monitoring will ensure that any unforeseen negative effects are identified early and appropriate mitigation measures provided.	Noted, please see Chapter 9 of this SEA ER

2.3 BASELINE DATA

The baseline data assists in describing the current state of the environment, facilitating the identification, evaluation and subsequent monitoring of the effects of the plan. It helps identify existing environmental problems in and around the plan area and in turn these can be quantified (for certain environmental parameters) or qualified. This highlights the environmental issues relevant to each SEA parameter and ensures that the plan implementation does not exacerbate such problems. Conversely this information can also be used to promote good environmental practices and opportunities for environmental enhancement, thereby improving environmental quality where possible.

Baseline data was gathered for all parameters. Site visits were undertaken by the forward planners and SEA consultant in January 2018. Other data was gathered from the SEA ER of the Laois County Development Plan 2017-2023, Irish Water, the EPA, Met Eireann and other sources as appropriate. Footnotes throughout the document, particularly in Chapter Four present the reference and source.

The SEA has also used a Geographical Information System (GIS) in the following ways:

- To provide baseline information on a range of environmental parameters;
- To assist in assessment of alternatives;
- To help assess in-combination or cumulative impacts, and

- To provide maps to illustrate environmental parameters in the SEA Environmental Report.

The SEA Directive requires that information be focused upon **relevant aspects** of the environmental characteristics of the area likely to be **significantly affected** by the plan and the likely change, both positive and negative, where applicable.

2.4 CONSIDERATION OF ALTERNATIVES

The SEA assessed a number of alternative development scenarios during the plan preparation process. The three emerging scenarios were subject to a workshop that assessed each of the scenarios through posing key questions in relation to potential environmental effects associated with same. Further information is provided in Chapter Six, Consideration of Alternatives.

2.5 APPROACH TO ASSESSMENT OF SIGNIFICANT ENVIRONMENTAL IMPACTS

The assessment described within this Environmental Report aims to highlight the potential conflicts, if they are present, between the aims and proposals contained in this LAP with the Strategic Environmental Objectives. Furthermore the assessment examines the potential impact arising from the plan's implementation on sensitive environmental receptors.
Key to assessing the above is setting a specific set of environmental objectives for each of the environmental topics. The objectives are provided in Chapter Five and include all aspects of the environment such as Cultural Heritage, Population and Human health, and Biodiversity, Flora and Fauna.

The SEA, Habitats Directive Assessment process and LAP formulation is an iterative process and environmental considerations have informed all stages of the preparation of the plan, in order to avoid or minimise significant adverse environmental impacts. However, where the environmental assessment identifies significant adverse effects, consideration is given in the first instance to preventing such impacts; where this is not possible for stated reasons, to lessening or offsetting those effects.

In accordance with SEA guidelines the assessment identifies 'impact' under three headings:

- Quality of Impact
- Significance of Impact
- Duration of Impact.

This initial stage aims to ascertain the quality, if any, of the potential impact. Each of the Plan's objectives, policies and zonings have been assessed for their impact and where a neutral impact is noted no further discussion is provided within this report. In this manner, the ER focuses on the negative and positive impacts and proceeds to a commentary on their significance and duration. Thus it is a more robust, more focused approach to understanding the potential impacts associated with the Portlaoise LAP.

Secondly, where a potential impact is noted, either positive or negative, the significance of impact is addressed. Significance is assessed in terms of the type/scale of development envisaged by the plan and the sensitivity/importance of the receiving environment. Finally where it has been determined that elements of the LAP may potentially result in a negative impact on an environmental receptor appropriate level mitigation measures are proposed.

2.6 MITIGATION

Section (g) of Schedule 2B of the SEA Regulations requires information on the mitigation measures that will be put in place to minimise/eliminate any significant adverse impacts due to the implementation of the LAP. Chapter Eight of this SEA ER highlights the mitigation measures that will be put in place to counter identified significant adverse impacts due to the LAP's implementation.

The LAP has been prepared having regard to the environmental protection objectives contained within the Laois County Development Plan 2017-2023. However, some unavoidable residual issues may remain and therefore mitigation measures are required. Chapter Eight details the mitigation measures necessary to prevent, reduce and, as fully as possible, offset any significant adverse impacts on the environment of implementing the LAP.

2.7 MONITORING

Article 10 of the SEA Directive sets out the requirement that monitoring is to be carried out of the significant environmental effects of the implementation of the LAP in order to identify at an early stage any unforeseen adverse effects and to be able to undertake appropriate remedial action. Chapter Nine presents the monitoring requirements for the plan, aligned where possible with those of the SEA of the Laois CDP 2017-2023.

2.8 STRATEGIC FLOOD RISK ASSESSMENT

The Planning System and Flood Risk Management Guidelines (DoEHLG 2009) provide a methodology to incorporate flood risk identification and management into land use strategies. It also requires the alignment and integration of flood risk into the SEA process. The core objectives of the Guidelines are to:

- Avoid inappropriate development in areas at risk of flooding;
- Avoid new developments increasing flood risk elsewhere, including that which may arise from surface water run-off;
- Ensure effective management of residual risks for development permitted in floodplains;
- Avoid unnecessary restriction of national, regional or local economic and social growth;
- Improve the understanding of flood risk among relevant stakeholders; and
- Ensure that the requirements of EU and national law in relation to the natural environment and nature conservation are complied with at all stages of flood risk management.

Potential flood issues in the plan area are an important consideration in the preparation of the LAP. Therefore the plan has been guided by the information on flood risk currently available and has been informed by the currently up to date flood risk information for Portlaoise including Catchment Flood Risk Assessment and Management (CFRAM) studies. These findings have been integrated into the LAP and this SEA ER (See Chapters Four and Seven in particular).

2.9 DATA GAPS

Data gaps are present in terms of human health and population. However, the Census 2016 Small Area Population statistics will address some of these data gaps.

3.0 RELATIONSHIPS TO PLANS, POLICIES AND PROGRAMMES

3.1 INTRODUCTION

Under the SEA Directive, the relationship between the LAP and other relevant plans and programmes must be taken into account. A review of the relevant plans and programmes can be found in Annex B.

The LAP must be considered within the context of a hierarchy of policies, plans and strategies which include international, national, regional and local level policy documents. These documents set the policy framework within which the plan will operate. The Laois County Development Plan 2017-2023 (LCDP 2017-2023) operates as the primary land use framework for the County. The LAP has been prepared having regard to the policies and objectives outlined within the above LCDP 2017-2023. The key environmental protective objectives and policies of the LAP are consistent with the County Development Plan.

A list of the key relevant international, national, regional and county policies included in the review are provided below in Section 3.2; Section 3.3 identifies key principles that have informed the SEA process arising from this review.

3.2 RELEVANT PLANS, POLICIES AND PROGRAMMES

• 3.2.1 International

- UN Convention of Biological Diversity, 1992
- The Convention on Wetlands of International Importance (The Ramsar Convention) 1971 and subsequent amendments
- EU Environmental Action Programme to 2020
- EU Biodiversity Strategy to 2020
- EU Directive on the Conservation of Wild Birds, (2009/147/EC) 1979. Known as the Birds Directive
- EU Directive on the Conservation of Natural Habitats and of Wild Flora and Fauna, (92/43/EEC), 1992 known as the Habitats Directive
- European Communities (Birds and Natural Habitats) Regulations 2011
- EU Green Infrastructure Strategy 2013
- The Stockholm Convention 2001
- EU Soil Thematic Strategy
- Water Framework Directive (2000/60/EC) as amended
- Floods Directive (2007/60/EC)
- The Drinking Water Directive (DWD), (98/83/EC) 1998
- Groundwater Directive, (2006/118/EC) 2006
- EC Bathing Water Quality Directive, (2006/7/EC) 2006
- Paris (Climate Change) Agreement
- Kyoto Protocol
- The Ambient Air Quality and Cleaner Air for Europe (CAFE) Directive
- EU Directive on Waste, (2006/12/EC), 2006
- EU Directive on Waste (2008/98/EC), 2008

- EU Urban Waste Water Treatment Directive (91/271/EEC), 1991
- Directive 2009/28/EC on the promotion of the use of energy from renewable sources
- European Convention on the Protection of the Archaeological Heritage,
- 1992 (The Valletta Convention)
- Convention for the Protection of the Architectural Heritage of Europe, 1985 (Granada Convention)
- The European Landscape Convention 2000
- The Aarhus Convention
- Environmental Liability Directive 2004/35/EC
- SEA Directive - Assessment of the effects of certain plans and programmes on the Environment, (2001/42/EC) 2001
- Environmental Impact Assessment Directive (85/337/EEC) (97/11/EC), 1985 and Environmental Impact Assessment Directive (2014/52/EC)

3.2.2 National

- Project 2040 National Planning Framework (2018)
- The National Spatial Strategy 2002 -2020
- 3rd National Biodiversity Action Plan 2017-2021
- The Wildlife Acts 1976 to 2012 National Mitigation Plan (in preparation)
- Sectoral Climate Adaptation Plans (in preparation)
- Local Authority Adaptation Strategy Development Guidelines, EPA 2016
- Our Sustainable Future A framework for sustainable development in Ireland (2012)
- National Landscape Strategy (2015-2025)
- National Heritage Plan (2002)
- Water Framework Directive River Basin Management Plans (2nd cycle in preparation)
- Irish Water's Capital Investment Programme
- Water Services Act (2007)
- Water Services (Amendment) Act (2012)
- Irish Water Services Strategic Plan SEA and AA (2015)
- Irish Water Capital Investment Programme (2017-2021)
- Guidelines for Planning Authorities on Sustainable Residential Development in Urban Areas (Cities, Towns & Villages) (2009)
- Geological Heritage Sites Designation (under the Wildlife Amendment Act 2000)
- Waterways Ireland Heritage Plan 2014-2020
- The Planning System and Flood Risk Management Guidelines (and Technical Appendices) for Planning Authorities (DoEHLG, OPW), 2009
- National Climate Change Strategy (2007-2012)
- Review of Ireland's climate change policy and Climate Action and Low Carbon Bill 2013
- Smarter Travel, A Sustainable Transport Future, A New Transport Policy for Ireland 2009-2020
- National Monuments Act 1930 with subsequent amendments
- Architectural Heritage Protection - Guidelines for Planning Authorities (2011)
- National Inventory of Architectural Heritage (NIAH)
- Draft Landscape and Landscape Assessment Guidelines, (2000)

- Planning and Development Act 2000 (as amended)
- Planning Policy Statement, 2015

3.2.3 Regional and County

- Regional Planning Guidelines 2010-2020- to be replaced by Regional Spatial and Economic Strategies
- Eastern Catchment and Flood Risk Assessment and Management Plan
- Eastern River Basin District Management Plan (second cycle in preparation)
- Eastern-Midlands Regional Waste Management Plan 2015
- Laois County Development Plan 2017-2023
- Laois Local Economic and Community Plan 2016
- Laois County Heritage Plan 2014-2019
- 2040 and Beyond: A Vision for Portlaoise

3.3 KEY PRINCIPLES IDENTIFIED FROM REVIEW

Following the review of the relationship between the above plans, policies and programmes (see also Annex B), the following key principles have been identified and this have been considered through the SEA and helped to inform the LAP development.

Table 3: Key Principles from review

SEA Topic	Principles/Implications for the LAP and SEA	EPA State of Irelands Environment 2016 Key Issues
Biodiversity, Flora and Fauna	• Conserve and enhance biodiversity at all levels • Avoid and minimise effects on nationally and internationally rare and threatened species and habitats through sensitive design and consultation, recognising ecological connectivity where possible • Facilitate species and habitat adaption to climate change • Avoid and minimise habitat fragmentation and seek opportunities to improve habitat connectivity • Ensure careful consideration of non-native invasive and alien species issues	-Implementation of legislation; -Climate change; -Environment and health and well being; -Nature and wild places
Population and Human Health	• Provide for sustainable communities with key services • A high quality environment to live, work and play in • Avoid pollution and environmental health impacts (noise and air quality) through mitigation and design	-Environment and health and well being; -Implementation of legislation; -Climate change; -Community engagement; -Sustainable economic

SEA Topic	Principles/Implications for the LAP and SEA	EPA State of Irelands Environment 2016 Key Issues
		activities
Water	• Maintain and improve water quality • Avoid and minimise effects on natural processes, particularly natural flood management and catchment processes through sensitive design and consultation • Adapt and improve resilience to the effects of climate change, particularly flood risks associated with extreme weather • Minimise water consumption/ abstractions • Design SUDS to facilitate ecological improvement/ enhancement where possible	-Restore and protect water quality; -Implementation of legislation; -Climate change; -Environment and health and well being
Soil and Geology	• Conserve soil resources where possible and avoid waste of soil resources • Maintain productive capacity and prevent erosion of soils • Ensure careful consideration of non-native invasive and alien species issues	-Climate change; -Environment and health and well being; -Sustainable economic activities
Material Assets	• Avoid and minimise waste generation • Maximise re-use of material resources and use of recycled materials • Minimise energy consumption and encourage use of renewable energy • Promote sustainable transport patterns and modes where possible • Plan and provide for sustainable water management and wastewater treatment	-Restore and protect water quality; -Implementation of legislation; -Climate change; -Environment and health and well being; -Sustainable economic activities
Air Quality and Climate	• Adapt and improve resilience to the effects of climate change • Encourage reduction in greenhouse gases through transport, energy, built development • Minimise adverse impacts associated with air and noise quality	-Climate change; -Implementation of legislation; -Environment and health and well being
Cultural Heritage	• Conserve, preserve and record architectural and archaeological heritage • Avoid and minimise effects on historic environment features through sensitive	-Environment and health and well being; -Sustainable economic activities

SEA Topic	Principles/Implications for the LAP and SEA	EPA State of Irelands Environment 2016 Key Issues
	design and consultation	
Landscape	• Enhance the landscape character of the area through design • Integrate green infrastructure considerations • Improve landscape connectivity to surrounding area	-Environment and health and well being; -Nature and wild places
Climate change and sustainability	• Adapt and improve resilience to the effects of climate change • Promote local/ sustainable sourcing of materials • Promote sustainable design and innovation to reduce material consumption	-Environment and health and well being; -Sustainable economic activities; -Climate change; -Implementation of legislation
Inter-relationships	• Maintain and improve the health of people, ecosystems and natural processes • Minimise effects on landscape and historic environment features • Adapt and improve resilience to climate change and extreme weather events • Actively seek to integrate opportunities for environmental enhancement	-Environment and health and well being; -Sustainable economic activities; -Climate change; -Implementation of legislation; -Nature and wild places; -Restore and protect water quality; -Community engagement

4.0 ENVIRONMENTAL BASELINE

4.1 INTRODUCTION

Article 5 of the SEA Directive states that the environmental report shall include the information that may reasonably be required taking into account:

• Current knowledge and methods of assessment;
• The contents and level of detail in the plan or programme and its stage in the decision-making process; and
• The extent to which certain matters are more appropriately assessed at different levels in that process in order to avoid duplication of the assessment.

In addition, particular issues as they relate to the environment have been identified through the responses to the SEA Scoping Report, these are summarised in the relevant section of this chapter.

The sphere of influence of the plan is variable, with potential water resources extending well beyond the plan area and potential interactions with the wider catchment, downstream of the plan area. For other parameters, the sphere of influence is more closely defined to a specific place, for example in relation to cultural heritage features.

4.2 POPULATION AND HUMAN HEALTH

This section provides information on the current population, demographic trends and changes in the LAP area adjacent DEDs between 2011 and 2016 Census. In addition, information is provided on economic and human health trends in the County. Impacts can arise on people's health and quality of life from a range of environmental factors, often through a combination of environmental impacts such as land use, water quality, air quality, noise and transport patterns.

Figure 2 below presents the LAP boundary and Census Data (2016) for Electoral Districts within the plan boundary. Figure 3 shows population density for the LAP.

Figure 2: Population (Census 2016)

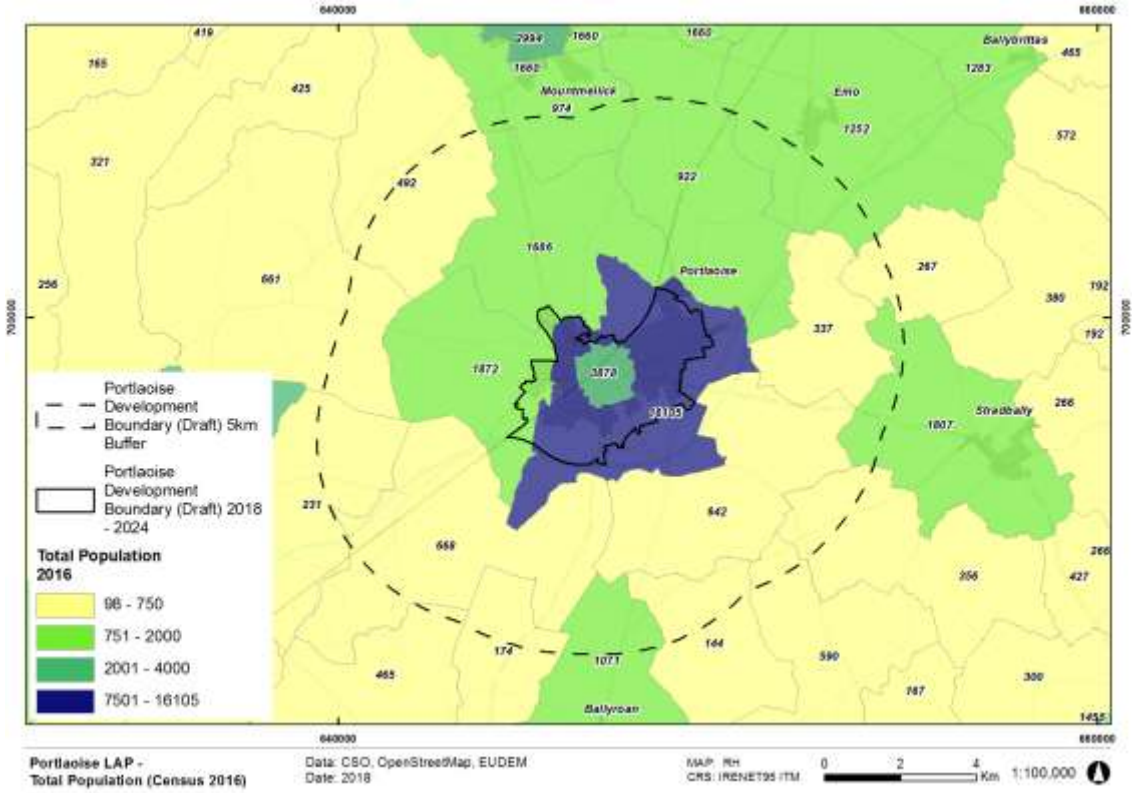
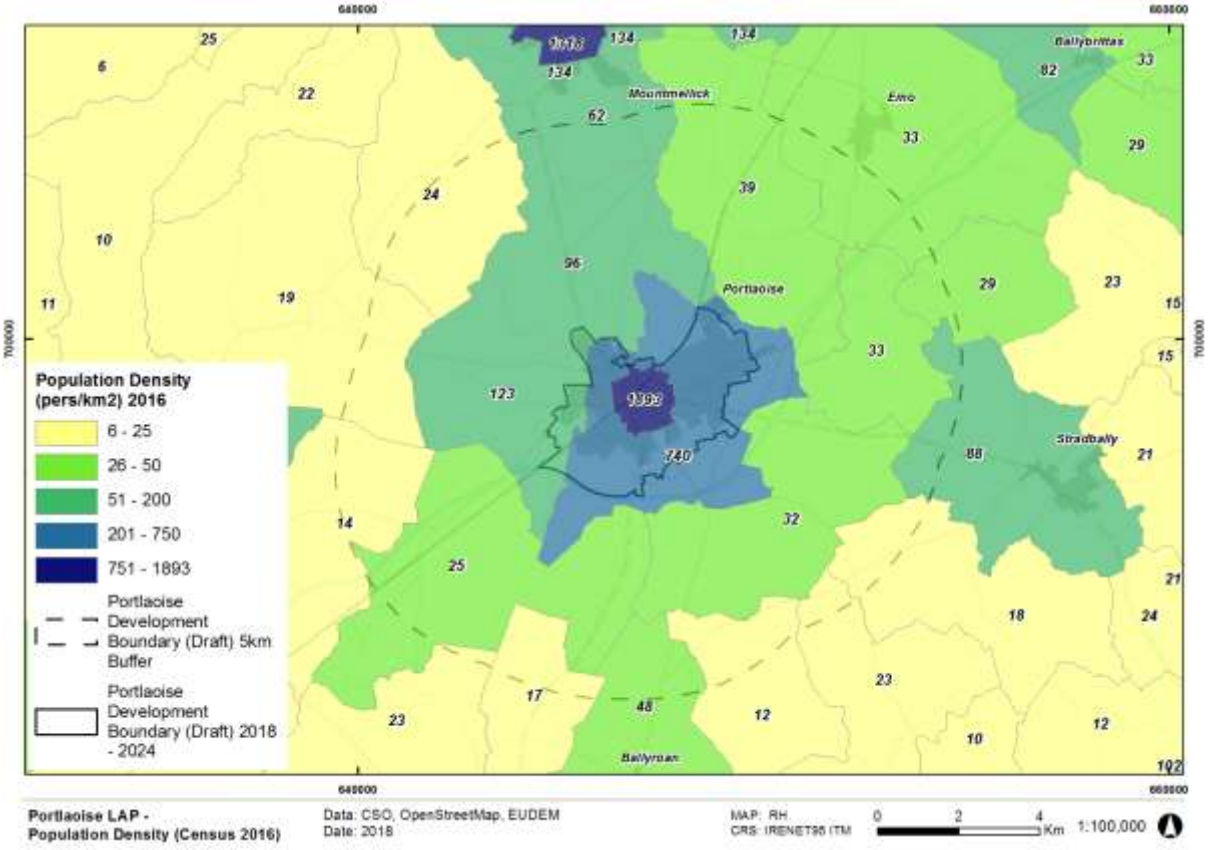


Figure 3: Population Density



4.2.1 POPULATION

County Laois has experienced significant population growth in the past decade, growing by 26.3% over the ten year period between 2006 and 2016. In the same ten year period, Portlaoise experienced a significant population growth rate of 45%. The proportion of the county's population living within Portlaoise has grown steadily over this period, rising from 21% in 2006 to 26% in 2016.

Portlaoise benefits from a relatively young population, with 54.3% of the population below 35 years of age, compared to 47.1% elsewhere in the State. Portlaoise has a lower proportion of middle-aged and older residents, with just 16.1% of the population aged 55 or older, compared to 24% elsewhere in the State. Portlaoise also benefits from an ethnically diverse population, with 23% of its population being non-Irish. Of particular note, is that almost 15% of the population is made up of EU nationals excluding the UK.

A summary of key population and housing stock data from this census for the relevant EDs is provided below in Table 4.

Table 4: Electoral Districts 2016 Census Data

Maryborough (Urban)			
Total Population	3,951		
Total housing stock	1,836	**Vacant**	199
Maryborough (Rural)			
Total Population	16,058		
Total Housing stock	5607	**Vacant**	351

4.2.2 HUMAN HEALTH

Human health can be determined by social, environmental and economic factors, among others. Human health may be impacted upon in a variety of ways and by a number of environmental receptors such as water, biodiversity, climate, flooding, air and major accidents, etc. The exposure to contaminants or pollutants can have serious implications for human health. Potential impacts on population and human health include inadequate water and wastewater and waste infrastructure, contamination of soils, excessive noise, flooding and poor air quality in areas where there are large volumes of traffic.

The Institute of Public Health states:

'*Where people live affects their health. There are a number of elements of the living environment that influence health including the built environment, travel choices and the communities in which people live. The design, maintenance and location of buildings influence health. Similarly, public spaces and transport networks can facilitate health by providing opportunities for physical activity, social interaction and access to social goods*'.

Disadvantaged people are more likely to live in poor quality built environments and have limited access to transport and local amenities supporting healthy choices. Figure 4 below

identifies key factors that contribute to human health. This is followed by a summary of the key environmental factors that can affect human health as identified through the SEA Scoping process.

Figure 4: the determinants of health and well being[1]

- **Human Health and Noise**

Environmental noise is treated in a different way to noise nuisance. A nuisance noise is something that occurs from time to time and is not usually considered to be a feature of life in the local area. For example, a noisy dog or late night parties are short term occurrences. Even if they happen regularly, they are not caused by any long term activities and so they are thought of as nuisance noise. Environmental noise is from long term or permanent sources, like major transport routes and factories. Noise from these sources has a different effect on people and is managed in a different way. The Environmental Noise Directive was written into Irish law in 2006, through The Environmental Noise Regulations (Statutory Instrument No. 140 of 2006). This law relates to the assessment and management of environmental noise. They provide for a common approach intended to avoid, prevent or reduce the harmful effects, including annoyance, due to exposure to environmental noise. These regulations do not apply to nuisance noise which can be dealt with under the Environmental Protection Agency Act.

[1] The determinants of health and well-being (Barton & Grant 2006)

Noise Action Plans are required under the Environmental Noise Directive (EU 2002/49/EC) transposed into Irish law by SI 140 of 2006. Laois County Council prepared a Noise Action Plan for 2014-2018. This plan establishes the measures that the council intend to take to manage environmental noise exposure. This Action Plan follows the practice set down in the EPA Guidance and accordingly, hospitals, schools and housing are designated as noise sensitive premises.

In the context of the LAP, existing roads operate as the greatest noise generators. Noise mapping was undertaken on roads that meet the criteria of more than 8,000 vehicles per day. For Portlaoise, relevant roads include the following:

- The entire length of the M7 and M8 motorways
- A segment of the N77 within the town of Portlaoise
- A segment of the N80 between Mountmellick and Stradbally, including the town of Portlaoise
- A segment of the R445 within Portlaoise

In this Action Plan, the following onset levels are given in line with EPA Guidance at which mitigation measures should be considered:

- In excess of 70dB, Lden
- In excess of 57dB, Lnight
-

For areas that currently have low levels of noise, the onset levels are:

- 55dB, Lden and
- 45dB, Lnight

where it may be appropriate to consider introducing measures or controls, to preserve the area from any increase in environmental noise, above the existing relatively low level.

The map below shows noise mapping for the above roads in and around Portlaoise, the deeper colours (purple to orange) represents higher sound levels for daytime. As the map shows in particular the M7, N80, and Regional Roads produce daytime noise levels (over a 12 hour period) above 70db.

Figure 5: Day time Levels Major Roads

The location of new residential properties, mixed residential/commercial use buildings or noise sensitive premises such as schools or hospitals, adjacent to existing roads, railways, airports, industry or recreational activities can result in significant noise management issues. Noise sensitive locations such as those above have particular requirements for low level noise environments in order to be able to function effectively. A high standard of insulation can be applied to improve noise attenuation in these buildings but this measure is rendered relatively ineffective when windows are opened. It also does not protect the external environment around the noise sensitive location from community/environmental noise.

- **Human Health and Air Quality**

The Air Framework Directive 96/62/EC (CEC, 1996) details how ambient air quality should be monitored assessed and managed. This Directive requires that member states divide their territory into zones for the assessment and management of air quality. Portlaoise is designated as a Large Town under the Air Quality Index for Health (EPA). The Air Quality Index of health[2] is based on hourly monitoring data from sites around Ireland and is based on measurements of five air pollutants all of which can harm health. The five pollutants are:

- Ozone gas
- Nitrogen dioxide gas
- Sulphur dioxide gas
- PM2.5 particles and
- PM10 particle

Portlaoise achieved 'good' air quality under this index when checked on 8th March 2018.

The Air Pollution Regulations (2012) were signed into law by the Minister for Environment, Community and Local Government on 31st August 2012. One of the key elements of the regulations has been the designation of new towns as smokeless zones and the expansion of

[2] http://www.epa.ie/air/quality/

the ban areas in towns that were previously covered under the old regulations. Portlaoise Town is included within these regulations.

The EPA State of the Environment Report (2016) has further highlighted the role of environmental quality and health and in turn has highlighted the adoption of the newer more stringent World Health Organization guideline values for air quality. The Clean Air Policy Package (EC 2014) involves a move to tackling air emissions at source with potentially tighter air quality standards from 2020 onwards[3].

- **Radon**

The greatest health risk from radiation in Ireland is caused by radon. 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. Up to 250 cases of lung cancer in Ireland every year can be linked to radon. These lung cancer cases are principally associated with exposure to radon in the home, but exposure in the workplace is also a contributor. In the workplace, the employer must protect the health of workers from this identifiable risk.

Radon is only a problem if it is ignored and some simple, inexpensive and straightforward solutions are available to reduce excessive levels both in the workplace and in the home. The EPA Radon map shows that the majority of the LAP is situated within a 10km grid square in which between less than one percent of homes are estimated to be above the Reference Level for Radon. However, surrounding 10km grids have slightly higher levels, between one to five percent (northern and western grids), and ten to twenty percent (eastern grids).

4.2.3 EXISTING ISSUES POPULATION AND HUMAN HEALTH

- Provision of community facilities, public open space, housing and design;
- Transport Network and Public Transport;
- Environmental Health relating to noise and air quality in particular;
- Commuting patterns – promoting employment opportunities closer to the town to reduce commuting patterns.

As the noise maps show, much of the LAP area is subject to ongoing high sound levels and these can have long term negative effects on populations and human health.

4.3 BIODIVERSITY, FLORA AND FAUNA

Much of the LAP lands can be classified as Built Land and Artificial Surfaces. In turn, this makes the areas of open space and water courses potentially important as green corridors and stepping stones for biodiversity.

[3] SEA ER of draft National Mitigation Plan , 2017.

4.3.1 DESIGNATED NATURE CONSERVATION AREAS

The lands occurring within the LAP are not subject to any statutory conservation designations. However, a proposed Natural Heritage Area comprising The Ridge of Portlaoise extends to the north and south of the town along the Triogue River. The main habitats and species comprise the esker ridge and disused gravel pits, ash and hazel woodlands with species rich grasslands and is protected under the Wildlife Amendment Act, 2000.

The following Figures show designated (and proposed) nature conservation areas occurring within a 15 km radius of the LAP. The nearest conservation area to the LAP is Clonreher Bog Natural Heritage Area (site code: 002357), approximately 3km north of the town; the Slieve Bloom Mountains Special Protection Area (site code: 004160) are located some 7km west of the town as the crow flies and the River Barrow and Nore Special Area of Conservation (site code: 002162) is located approximately 10km southeast of the town as the crow flies; these are nearest European Site designated under the EU Habitats Directive.

Figure 6: Special Areas of Conservation within 15km of Portlaoise LAP

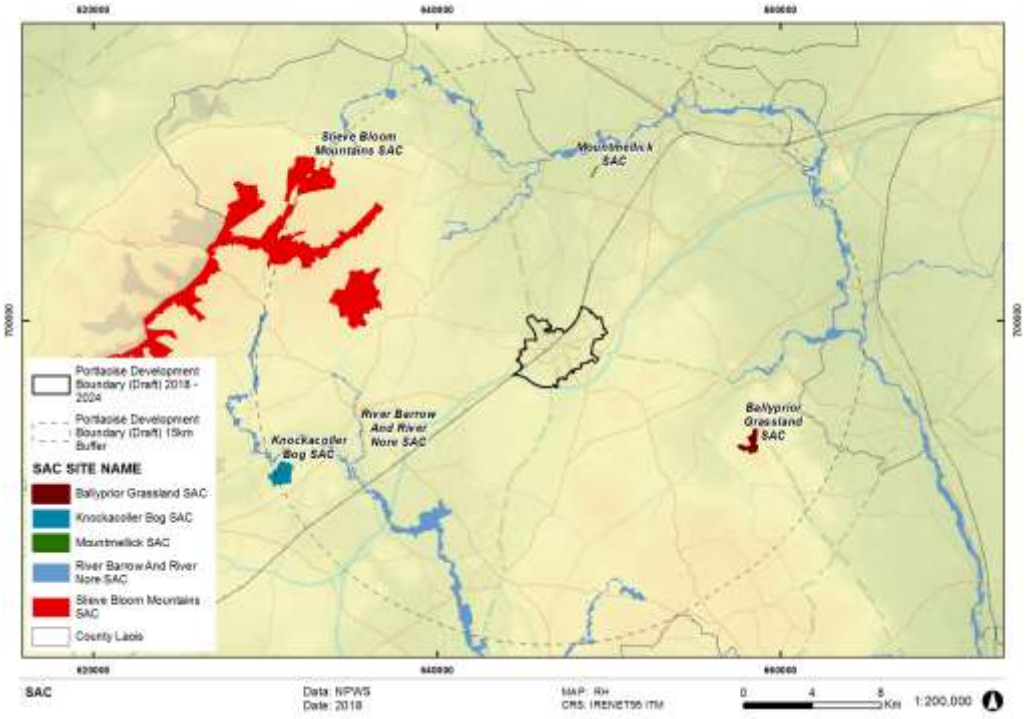


Figure 7: Special Protection Areas within 15km of Portlaoise LAP

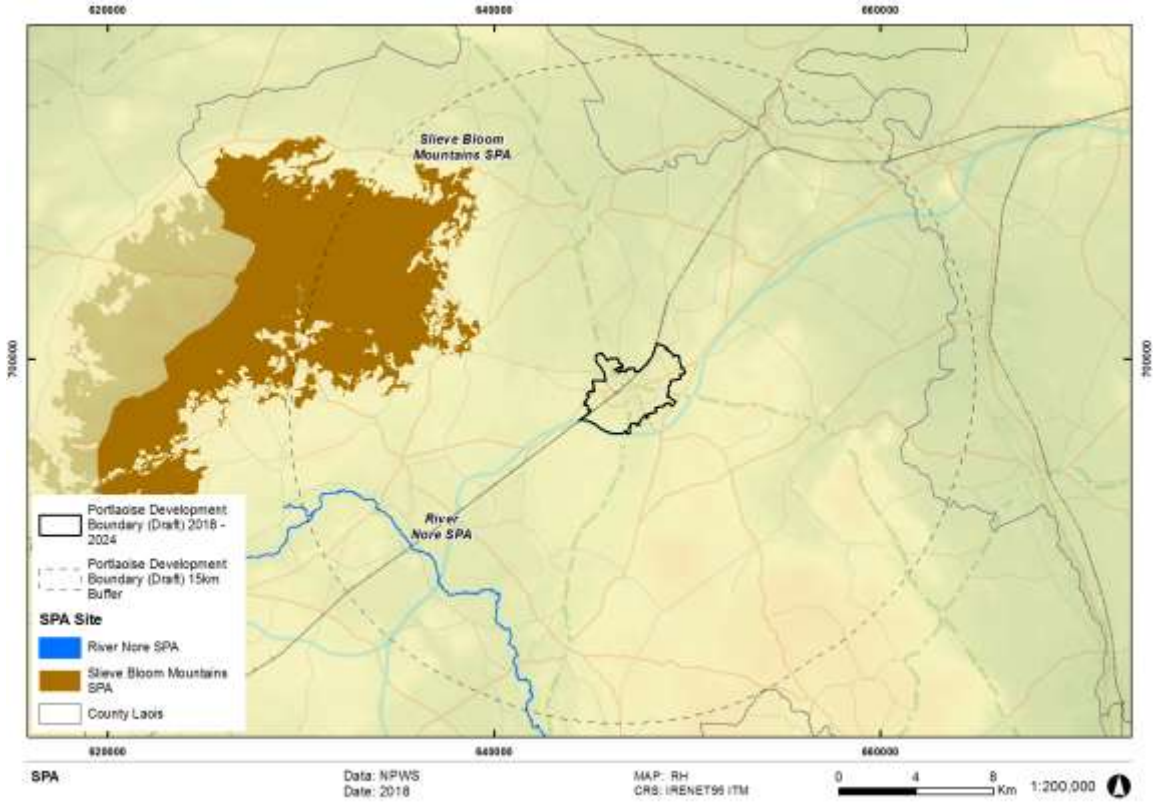


Figure 8: Natural Heritage Areas within 15km of Portlaoise LAP

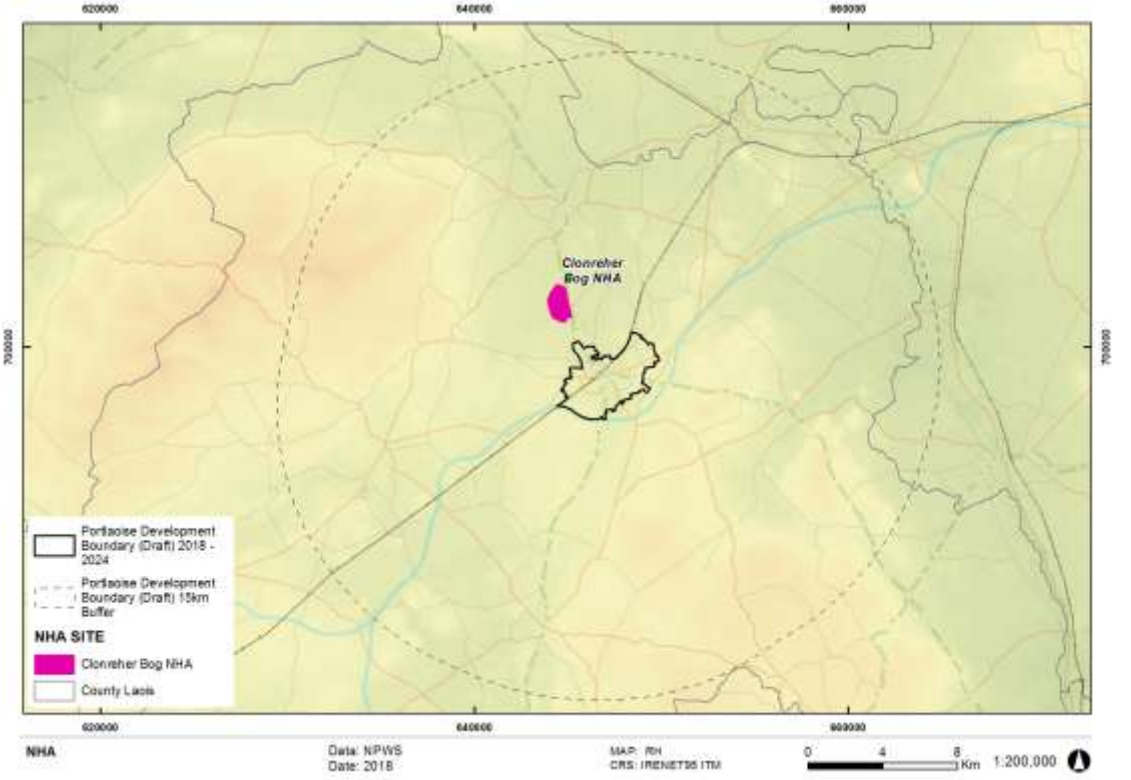
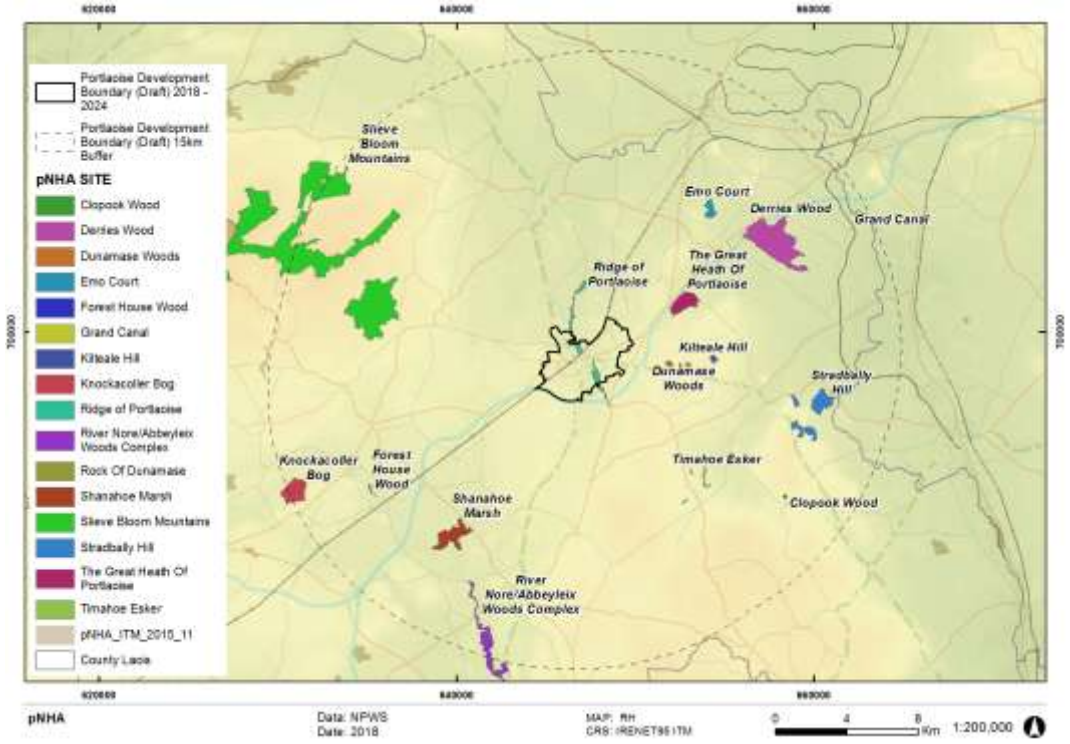


Figure 9: Proposed Natural Heritage Areas within 15km of Portlaoise LAP



4.3.2 ECOLOGICAL CORRIDORS, STEPPING STONES AND GREEN INFRASTRUCTURE

As natural habitats become more fragmented as a result of human activity, habitat patches and corridors within a landscape mosaic become increasingly important for species to allow movement between populations, Figure 11 below presents an overview of the landscape mosaic with stepping stones and corridors.

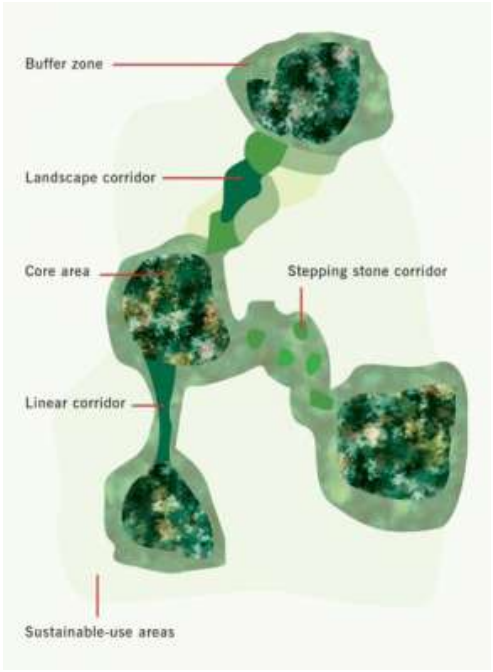


Figure 10: Landscape mosaic with stepping stones, corridors and core areas (source: *http://www.sicirec.org/definitions/corridors)*

The Portlaoise Local Area Biodiversity Action Plan 2015-2019 provides a useful overview of biodiversity within the town:

> *The river Triogue itself is a green corridor cutting right through the centre of the town. Natural corridors such as the Triogue are of huge importance to biodiversity in an urban situation. Linear landscape features such as rivers, hedgerows and treelines provide lengths of shelter and foraging opportunities for many species of wildlife. They are reservoirs of trees, shrubs and wildflowers providing nesting areas, shelter and food for a wide variety of birds, small mammals, insects and other invertebrates. Another very important function is the fact that they provide links between green areas. An example of this is the Triogue providing a nature corridor between the People's Park in the south of the town and the Linear Park in the north of the town.*

> *Portlaoise has many old and new buildings as well as mature gardens which in themselves can be habitats for rare and threatened species. Like many other towns and villages, Portlaoise features prominent open, grassy areas some of which may be suitable for promoting biodiversity through planting with wildflowers and native species of tree and shrub.*

A habitat map was prepared as part of the above plan and is replicated in Figure 12 below. This habitat survey identified the following habitats present as being of High Local Biodiversity Value:

- Scrub (WS1)
- Lowland Depositing Rivers (FW2)
- Hedgerows (WL1)
- Drainage Ditches (FW4)

Figure 11: Habitat Map of Portlaoise (Portlaoise Local Biodiversity Action Plan 2015-2019)

Stepping stones relate to small pockets of habitat that can be used by species to shelter, rest or for food provision. They can play an important role in facilitating longer distanced dispersal as well as refuges for species to breed in[4]. These can provide important links between larger protected areas and corridors, in this context, this could include small areas of wet grassland, ponds, old graveyards (such as St Peter's), and treelines.

The Wetlands Survey of Ireland[5] has identified a number of wetlands within the plan area as follows:

- Beladd Pond
- Borris Little Pond
- Meelick Golf Course Ponds
- Kilminchy Ponds.

Considered as part of the wider ecological network, these could function as stepping stones within the plan area.

Whilst the dominant land use is urban lands comprising built lands and artificial surfaces, *2040 and Beyond*: *A Vision for Portlaoise* identifies the connection of linkages from the wider agricultural farmland into the town centre. This includes the restoration of a contiguous pedestrian friendly green spine running east-west along the line of the James Fintan Lalor Avenue through the centre of Portlaoise. This will link an extended Civil Plaza at County Hall to the west with the River Triogue Blueway which runs north south. The Blueway will link the People's Park (which partly include the Ridge of Portlaoise pNHA) with the Triogue Linear Park.

4.3.3 EXISTING ISSUES BIODIVERSITY, FLORA AND FAUNA

Key issues relate to the following:

- Enhancing existing ecological resources
- Promoting and facilitating ecological connectivity
- Enhancing ecological considerations within the urban realm
- Provision of green and blue infrastructure to enhance ecological connectivity and provide mitigation in relation to air quality and noise emissions as appropriate
- Managing and controlling alien invasive plant species
- Minimising soil sealing and sustainable use of soil and water resources
- Water quality of the surface waters.

[4] "Science for Environment Policy": European Commission DG Environment News Alert Service, edited by SCU, The University of the West of England, Bristol.
[5] http://www.wetlandsurveysireland.com/wetlands/map-of-irish-wetlands--/map-of-irish-wetlands---map/index.html. Accessed on 08.03.2018

4.4 WATER RESOURCES INCLUDING SURFACE WATER MANAGEMENT AND FLOOD RISK

Water resources and their quality have a clear interaction and impacts with other environmental parameters, therefore its protection and enhancement is of particular importance.

4.4.1 WATER FRAMEWORK DIRECTIVE

The Water Framework Directive (WFD) is a key initiative aimed at improving water quality throughout the EU. It applies to rivers, lakes, groundwater, estuarine and coastal waters. The Directive requires an integrated approach to managing water quality on a river basin basis, with the aim of maintaining and improving water quality. The WFD identifies River Basin Districts as the key management units with clearly defined water bodies forming the basis for assessment reporting and management. The first cycle of RBD management plans were from 2009 to 2015 and the second cycle is currently being prepared. Currently the LAP is located within the Eastern River Basin District. However, for the second cycle the Eastern, South Eastern, South Western, Western and Shannon River Basin Districts will be merged to form one national River Basin District.

The most recent data for the new plans being prepared (with adoption in 2018) is from the catchments.ie website. A catchment is an area where water is collected by the natural landscape and flows from source through river, lakes and groundwater to the sea. The LAP lands are situated within the Barrow Catchment (Catchment code: 14) summarised as follows[6]:

> *This catchment includes the area drained by the River Barrow upstream of the River Nore confluence and all streams entering tidal water between the Barrow railway bridge at Great Island and Ringwood, Co. Kilkenny, draining a total area of 3,025km². The largest urban centre in the catchment is Carlow. The other main urban centres in this catchment are New Ross, Graiguenamanagh, Athy,* ***Portlaoise****, Mountmellick, Portarlington, Monasterevin and Kildare. The total population of the catchment is approximately 188,117 with a population density of 62 people per km². The Barrow catchment is underlain in its flat northern area by limestones of varying purity which continue down the western side of the catchment and sustain good groundwater resources in places. On the eastern side of the catchment, granites dominate, culminating in the summits of the Blackstairs Mountains.*

Portlaoise Town is located within the Barrow Subcatchment (subcatchment code: 020).

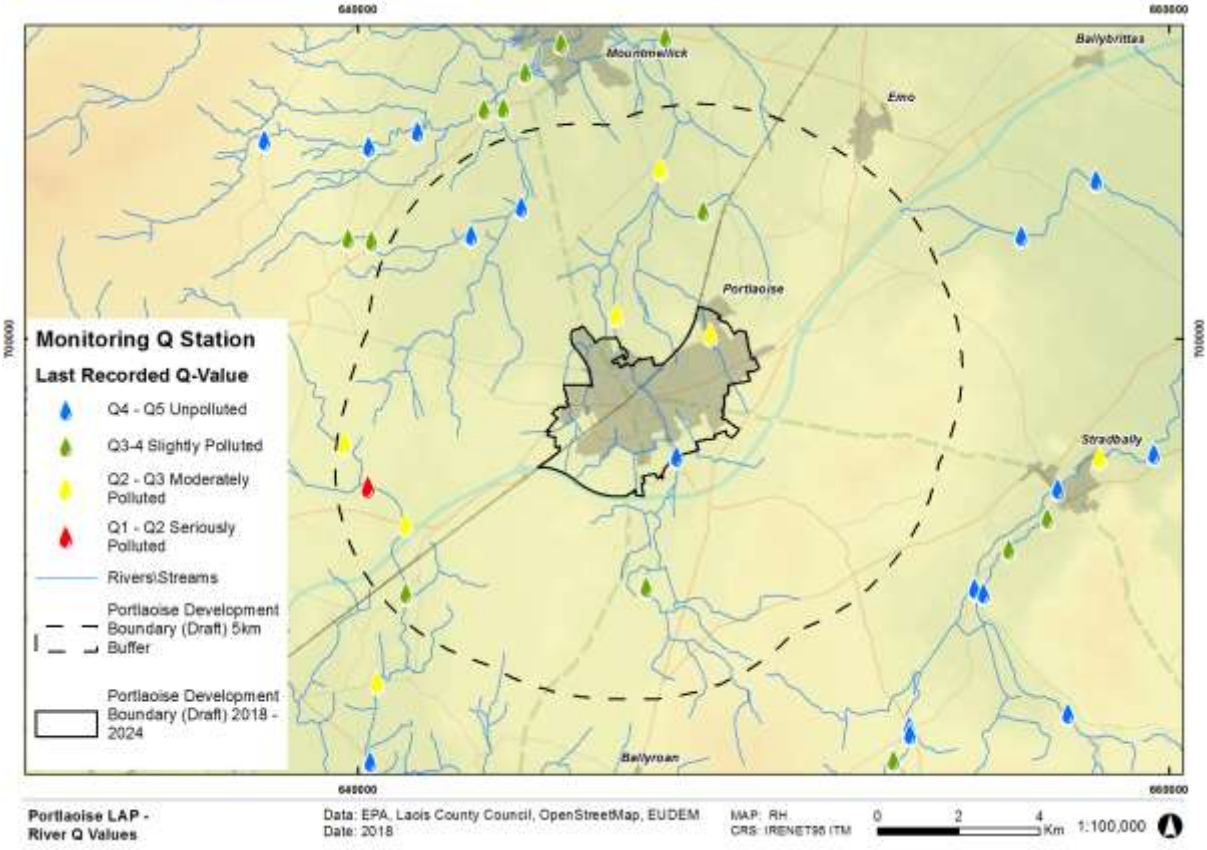
4.4.2 SURFACE WATER

The River Triogue is the main surface water that runs through the plan area.
Surface water status is classified under the WFD from 'high' to 'bad' status. In measuring this status both ecological and chemical parameters are measured and the overall status is determined by the lower threshold achieved for both ecological and chemical parameters.

[6] www.catchments.ie

The latest information from the catchments.ie website shows the overall WFD status of the River Triogue and a tributary the Kylegrove Stream to be of Poor Quality (Q value of 3, 2-3) as it runs though the plan area.

Figure 12: Surface Water Quality

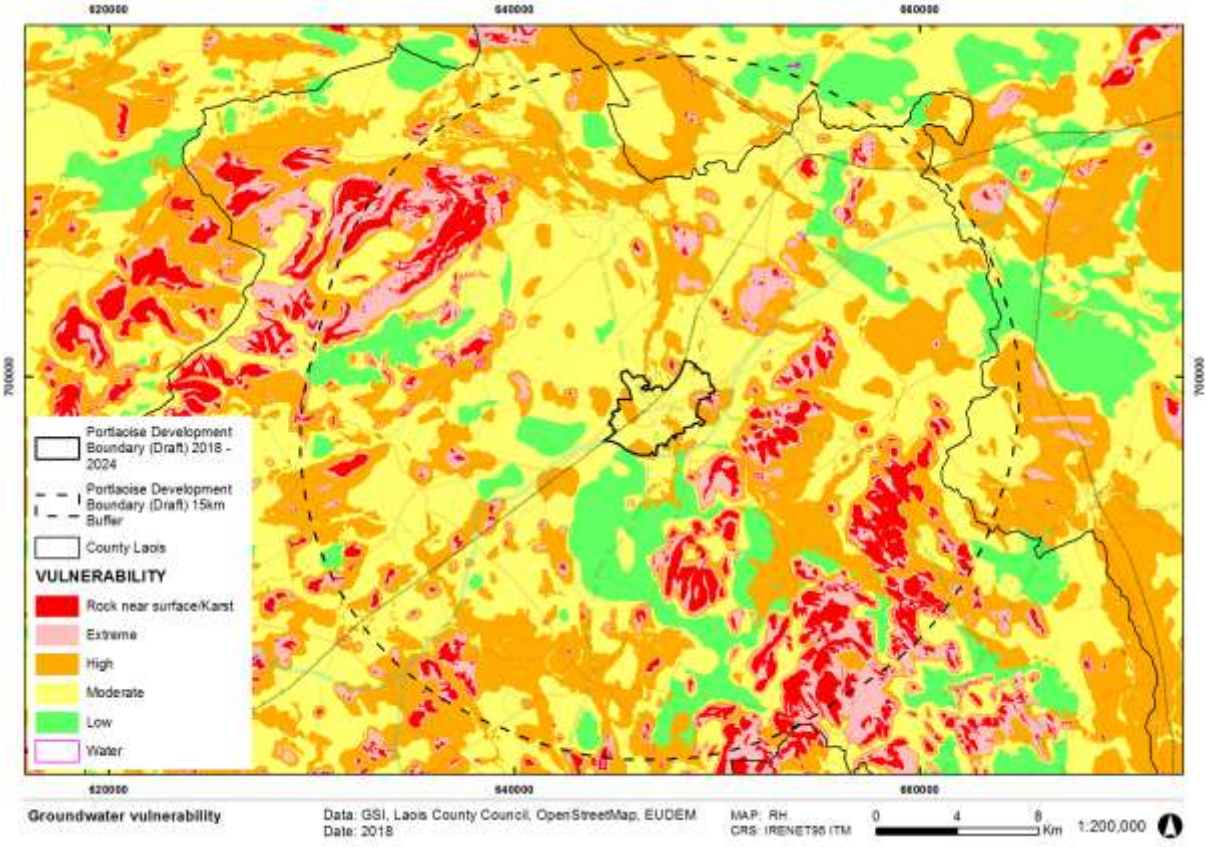


4.4.3 GROUNDWATER

Groundwater is a further significant resource and refers to water stored underground in saturated rock, sand, gravel, and soil. Surface and groundwater functions are closely related and form part of the hydrological cycle. The protection of groundwater from land uses is a critical consideration and groundwater vulnerability is becoming an important management tool. The entire island of Ireland has been designated as a Protected Area for Groundwater under the WFD. Groundwater is important as a drinking water supply as well as the supply to surface waters. In addition, groundwater supplies surface waters. Groundwater is exposed to higher concentrations of pollutants that are retained in the layers of rock and soil. The exposure to pollutants lasts much longer as groundwater moves at a slower pace through the aquifer. The quality of our drinking water supply, fisheries and terrestrial based habitats is intrinsically linked with groundwater quality. The Geological Survey of Ireland (GSI) aquifer categories are based on their vulnerability to pollution, i.e. the ease at which it can enter the subsurface layers. The classification of extreme or high vulnerability means that the groundwater in these areas is very vulnerable to contamination due to hydrogeological and soil factors.

The Geological Survey of Ireland's Groundwater Vulnerability Mapping shows the groundwater vulnerability for the area of the LAP within a catchment where groundwater vulnerability is considered moderate for much of the LAP Area. There are also areas north of the railway line and north of the M7 classified as being of high vulnerability. The groundwater quality of the area is classified as good. An extensive groundwater source protection area lies to the east of the plan area.

Figure 13: Groundwater Vulnerability

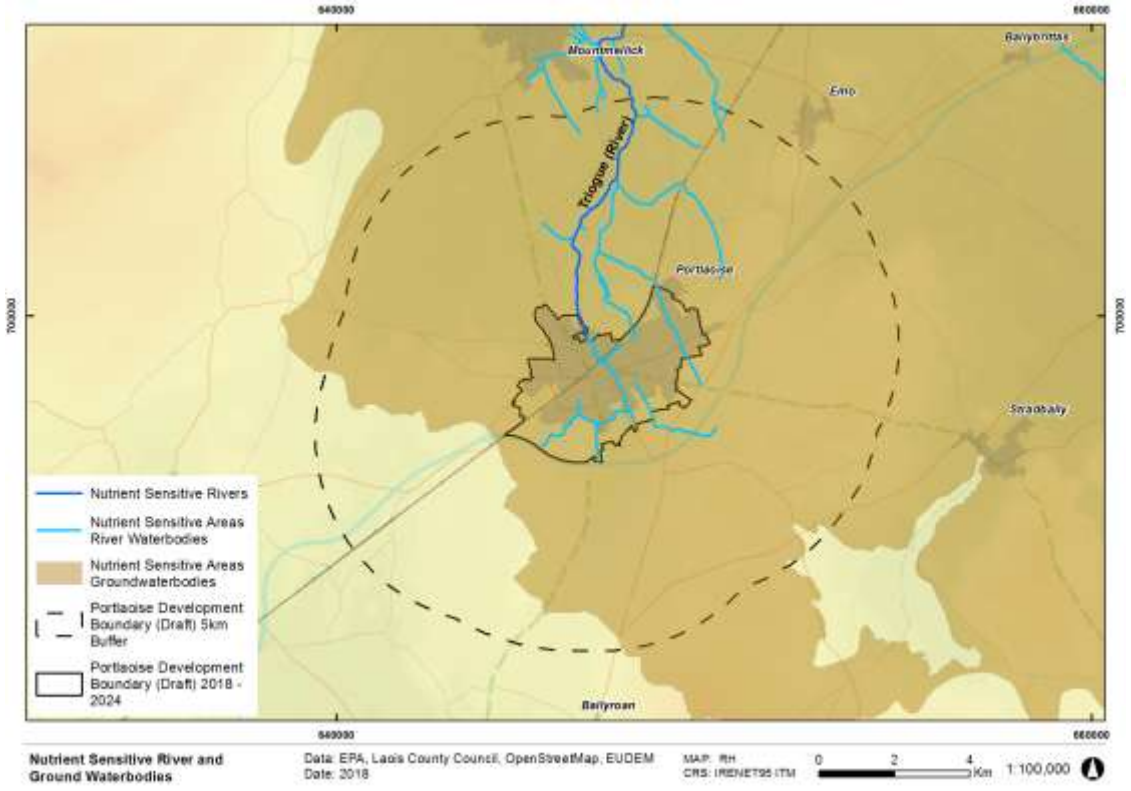


4.4.4 REGISTER OF PROTECTED AREAS (RPA)

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 people and by wildlife have been listed on Registers of Protected Areas (RPAs). Protected areas are areas that have been designated as needing special protection because of their particular importance for use as bathing waters, drinking water supply, growing and harvesting of shellfish, conserving sensitive habitats and species or because they are particularly affected by eutrophication due to excessive inputs of phosphorus and/or nitrogen.

Entries to the RPAs in County Laois include the channels of the Triogue River and the River Barrow by virtue of their nutrient sensitivity. Nutrient Sensitive Areas comprise nitrate vulnerable zones designated under the Nitrates Directive (91/676/EEC) and areas designated as sensitive under the Urban Waste Water Treatment Directive (91/271/EEC). The LAP is also within a groundwater area designated as Nutrient Sensitive.

Figure 14: Nutrient Sensitive Waters



4.4.5 FLOODING AND FLOOD RISK

The Planning System and Flood Risk Management, Guidelines for Planning Authorities, 2009, issued by the DoEHLG and undertaken in conjunction with the OPW, requires Planning Authorities to prepare a Strategic Flood Risk Assessment (SFRA). The primary purpose of the SFRA is to determine flood risk within a particular geographical area. It should be noted the SFRA is an ever evolving document, which is to be reviewed and updated on a regular basis in the light of emerging information, flood data and an improved understanding of flood risk. Section 4.20 of the above Guidelines states:

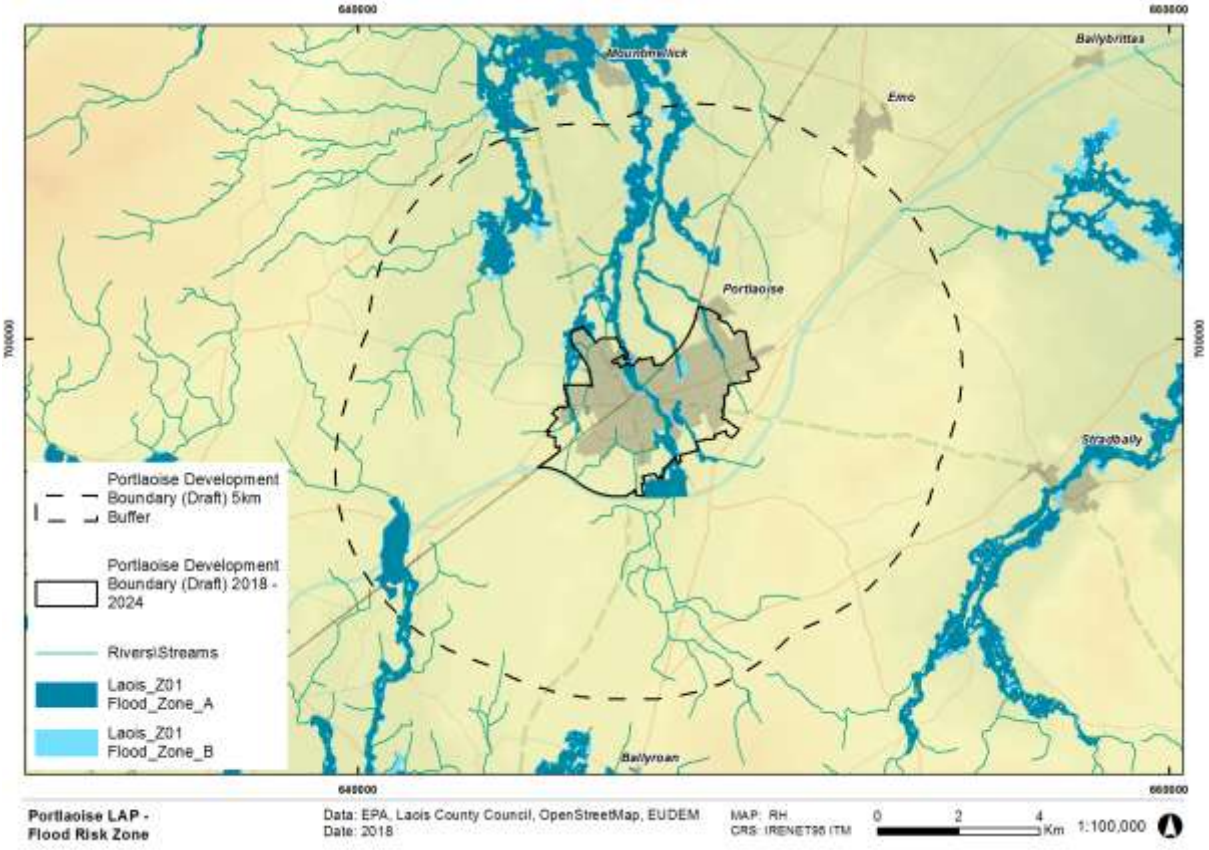
'*Flood risk identification (Stage 1) to assess whether full flood risk assessment is required, should ideally be carried out in a manner that is integrated with the SEA process rather than constituting an additional and separate process. Any subsequent stages of flood risk assessment should also be carried out in a way that is integrated with the SEA process*.'

Strategic Flood Risk Assessment (SFRA[7]) has informed the preparation of the LAP. There is a history of flooding of the Rivers Triogue and Boghlone in Portlaoise. The Barrow Drainage Board was dissolved in 2014. The Board comprised the Local Authorities of Laois, Kildare and Offaly and was responsible for maintaining the Barrow and its tributaries from its source in the Slieve Bloom mountains to the Horse Bridge in Athy. The responsibilities of the Board were subsumed into the County Councils.

[7] SFRA prepared by JBA Consulting

The latest Catchment Flood Risk Assessment and Management (CFRAM) maps available show very small locations in the LAP boundary at risk of 1 in 100 year pluvial event and no fluvial data yet available for the plan area.

Figure 15: Flood Risk



4.4.6 EXISTING ISSUES – WATER RESOURCES

Key issues include:

- Improving surface water quality
- Ensuring no further deterioration in surface water
- Ensuring the status of Not at risk (of meeting WFD objectives) is kept and maintained for Groundwater
- Avoiding the spread of alien and invasive species
- Ensuring flood risk is fully considered and embedded in the LAP.

4.5 GEOLOGY[8] AND SOIL

4.5.1 GEOLOGY

Portlaoise is located within broad bedrock of Lower Carboniferous Limestones. Mostly these limestones accumulated as horizontal layers on a fairly shallow 'shelf' sea floor although some of the younger layered limestones, around 325 Ma, are much darker in colour and were deposited in considerably deeper water. Although the limestones mostly form low ground across the centre of the county, they are well exposed in various working and disused quarries and on some of the low hills in the south of the county. A subtle but interesting component of the Laois landscape is the probable relict tower karst seen in the numerous small hills between Stradbally and Portlaoise, such as Killone Hill, the Rock of Dunamase, Clopook, Luggacurren and Hewson Hill. These are sometimes called hums, and are thought to be the glacially eroded remnants of tower karst, of the type seen today in China and SE Asia.

As elsewhere across Ireland, the ice sheets and glaciers of the last Ice Age have modified the Laois landscape, although in a more subdued way than in some of the more mountainous regions of Ireland. The main effect has been to blanket much of the lowlands with glacial till, or 'boulder clay'.

Another notable feature associated with glaciation is the eskers that are found particularly around the midland and one of which is in the plan area – the Ridge of Portlaoise. These features, although long subjected to quarrying and extraction, are important geodiversity features in the landscape.

There are a number of Geological Heritage Sites close to the LAP area. The figure below shows such sites within 15km of the LAP boundary and the accompanying table provides a brief description of those sites closest to the LAP boundary.

Table 5: Geological Heritage Sites closest to LAP boundary

Name	Brief Description
Darkin Well	This site comprises a significant spring rising within a fenced compound. **Site Importance:** The site is of County Geological Site importance, as a complement to the Sluggory Cross Roads swallow hole site, and as part of a suite of karstic features within the limestone terrain surrounding Portlaoise Town
Rathleague Spring	A natural spring situated under tree cover, 2km southeast of Portlaoise alongside the R425 road. **Site Importance:** This site is an important County Geological Site. The spring is situated in a Regionally Important Aquifer – Karstified aquifer. This is an important hydrogeological phenomenon of a warm spring in

[8] The Geological Heritage of County Laois An audit of County Geological Sites in County Laois by Matthew Parkes, Ronan Hennessy, Robert Meehan, Vincent Gallagher and Sarah Gatley 2016

	this part of County Laois, and is possibly the county's only warm spring. (Tepid springs have been identified elsewhere, e.g. Kyle Spring). A 1986 paper on the energy potential of groundwater in Ireland listed Rathleague Spring among 17 warm springs (with a temperature >13.5°C) in Leinster, with a water temperature value of 14.5°C recorded on May 10th 1982. Warm spring temperature values are considered 2.5°-7°C above normal.
Ridge of Portlaoise	The Ridge of Portlaoise and its surrounding sands and gravels include a long, sinuous accumulation of sands and gravels deposited both under the ice sheet and at its margin as the ice withdrew northwards across central Laois at the end of the last Ice Age. **Site Importance:** What remains of the feature is still a high, striking example of a dry sand and gravel ridge, which stands proud of the surrounding landscape. This esker and the associated sands and gravels in the locality are a good example of a deglacial, meltwater-deposited complex, with portions deposited under the ice, and portions at the ice margin.

The bedrock geology, quarries and geological heritage sites relevant to the Plan area is shown below:

Figure 16: Bedrock Geology

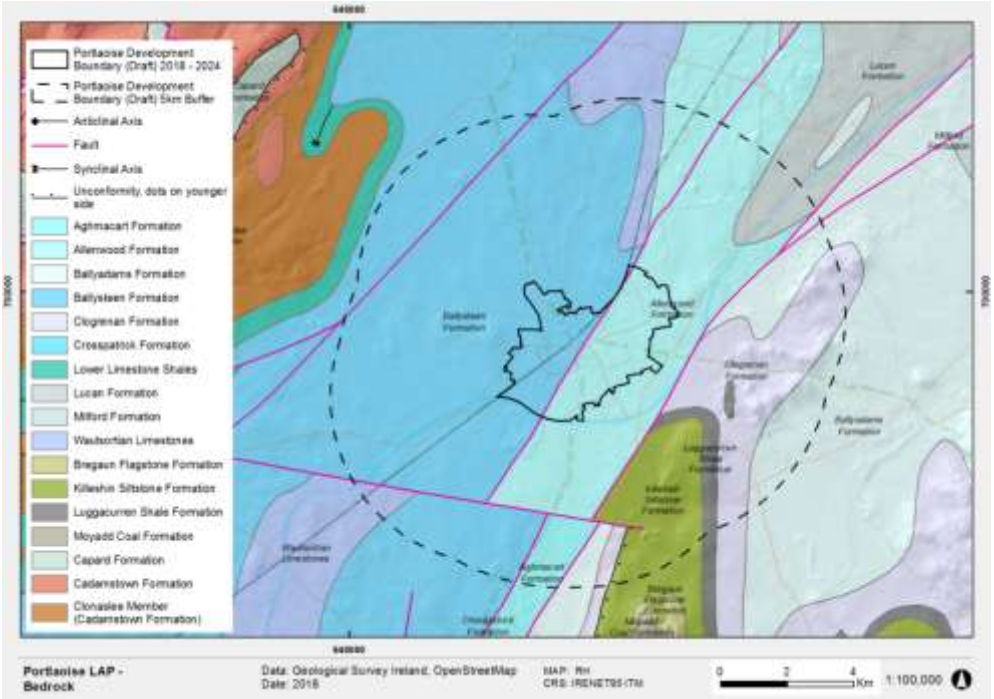
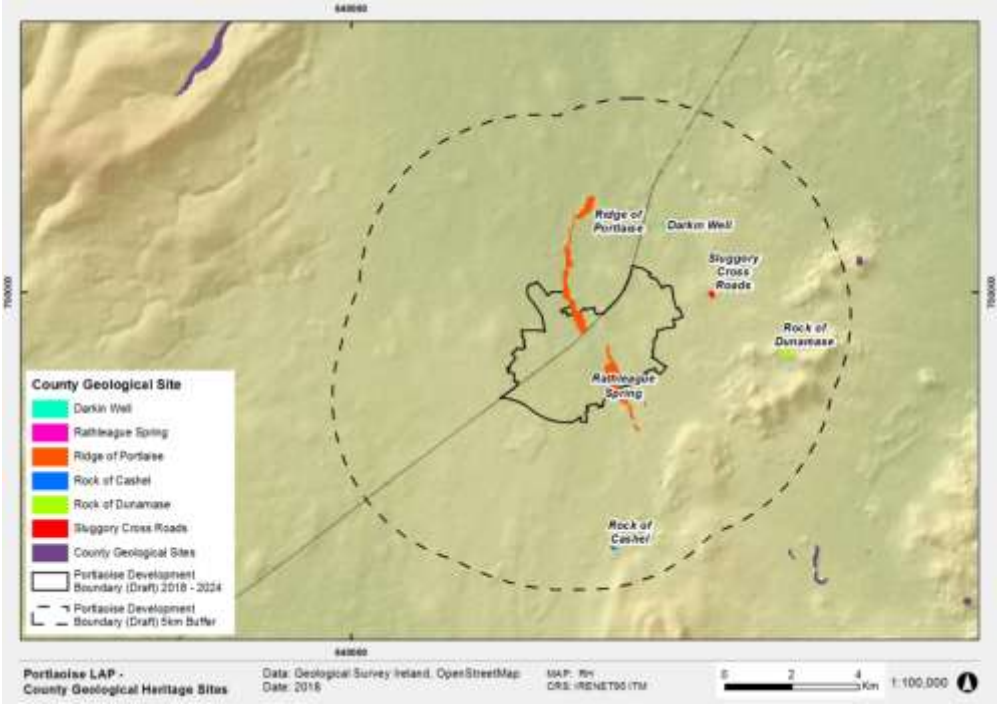


Figure 17: Geological Heritage Sites within 15km of LAP



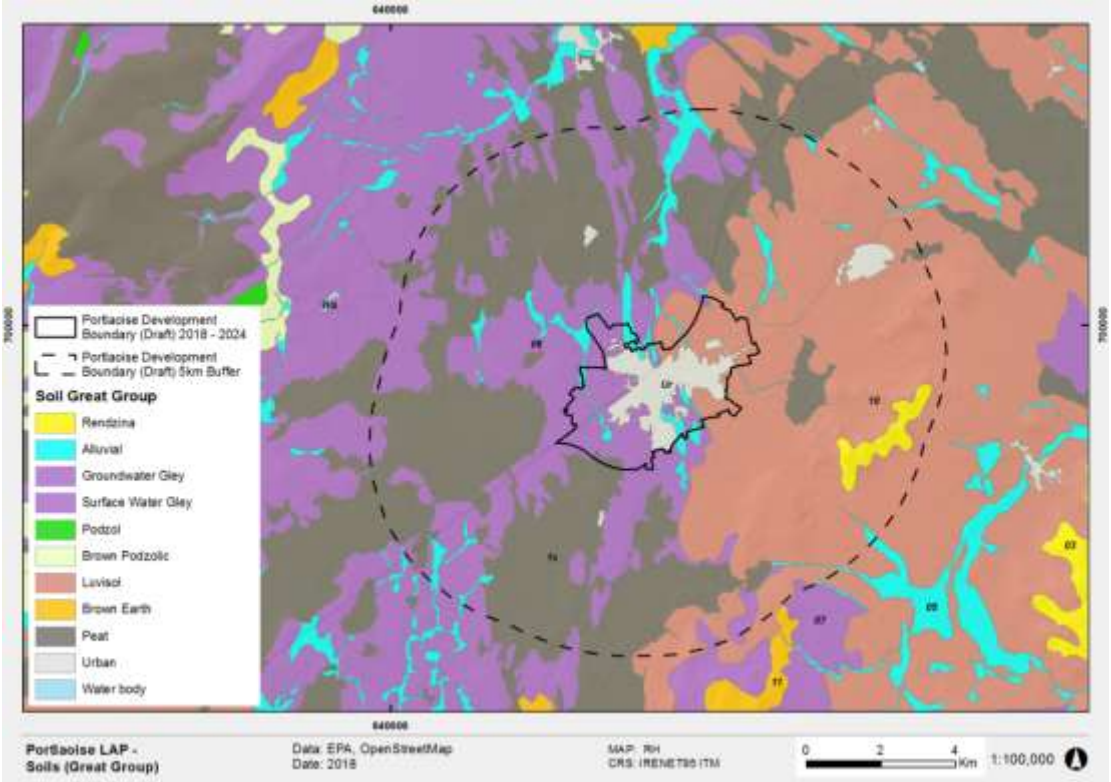
4.5.2 SOIL

Soil can be considered as a non-renewable natural resource because it develops over very long timescales. It is an extremely complex, variable and living medium and performs many vital functions including: food and other biomass production, storage, filtration and transformation of many substances including water, carbon, and nitrogen. Soil has a role as a habitat and gene pool, serves as a platform for human activities, landscape and heritage and acts as a provider of raw materials. Such functions of soil are worthy of protection because of their socio-economic as well as environmental importance. Soils in any area are the result of the interaction of various factors, such as parent material, climate, vegetation and human action.

There is no overarching soil legislation in place currently, however the 7th Environment Action Programme (EAP) recognises the challenge of soil degradation and provides by 2020 that land be managed sustainably with soil adequately protected.

Whilst much of the LAP lands are classified as urban according to the Teagasc soil map, reflecting the built up character of much of the LAP, the surrounding soils are identified as the Mylerstown subseries of soils, defined by fine loamy drift with limestones. Alluvium soils are associated with the River Triogue are present, as well as a series of gley soils.

Figure 18: Soil Types



4.5.3 EXISTING ISSUES – GEOLOGY AND SOIL

- Maintaining and enhancing soil function and its carbon storage role where possible;
- Retention of areas of greenfield in terms of open space, green infrastructure and biodiversity considerations;
- Potential soil contamination associated with brownfield sites or sites subject to previous industrial activities.

Because of the complex interrelationship between water, air and soil, declining soil quality can contribute to negative or declining water or air quality and function.

4.6 CLIMATIC FACTORS AND CLIMATE CHANGE

The context for addressing climate change and energy issues in Laois County, are set within a hierarchy of EU and National Legislation and Policy. At a European level these directives include, the EU Climate and Energy Package 2008, EU Renewables Directive 2009/28/EC and EU Energy Efficiency Directive 2012/27/EU.

The EU Climate Change and Energy Package 2008 resulted in the 2020 EU wide '20-20-20' energy targets as follows:

- 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.

Under the EU Energy Efficiency Directive 2009/28/EC, each Member State has been assigned a legally binding individual renewable energy target. The Directive's target for Ireland is that 16% of the national gross final consumption of energy will comprise renewable energy sources by 2020, across the electricity, heat and transport sectors.

The Climate Change and Low Carbon Development Act 2015 now provide a statutory, overarching basis for climate change in Ireland. It provides structures to transition to a low carbon economy through the following:

- A national mitigation plan (to lower Ireland's level of greenhouse emissions);
- A national adaptation framework (to provide for responses to changes caused).

A number of objectives included in the *2040 and Beyond: A Vision for Portlaoise* are relevant in terms of addressing climate change and reducing carbon emissions, these include the following:

- The creation of a low carbon town centre;
- The delivery of a walkable town centre;
- The greening of Portlaoise town centre.

4.6.1 GREENHOUSE GAS EMISSIONS

Agriculture is the largest contributor to overall emissions, however in terms of the LAP – energy and transport – which are the next largest contributors are the most relevant.

As outlined above, the *2040 and Beyond: A Vision for Portlaoise* identified the creation of a Low Carbon Town Centre as a key outcome, this would be achieved through the following measures:

- Interventions at James Lalor/Lyster Square (pedestrian priority);
- Re-balance of the existing c 3,600 car parking spaces;
- Target of 10% of all journeys by bicycle by 2020;
- 300-500 trees planted in the town centre.

Promoting a modal shift in transport patterns, along with energy efficiency are key measures to assist in reducing Greenhouse Gas Emissions.

4.6.2 EXISTING ISSUES –CLIMATE

- Planning for and adapting to climate change;
- Sectoral policies can assist in this including transport and energy;
- Measures including carbon sequestration in existing soils and additional appropriate vegetation planting associated with green infrastructure and ecological corridors.

4.7 MATERIAL ASSETS

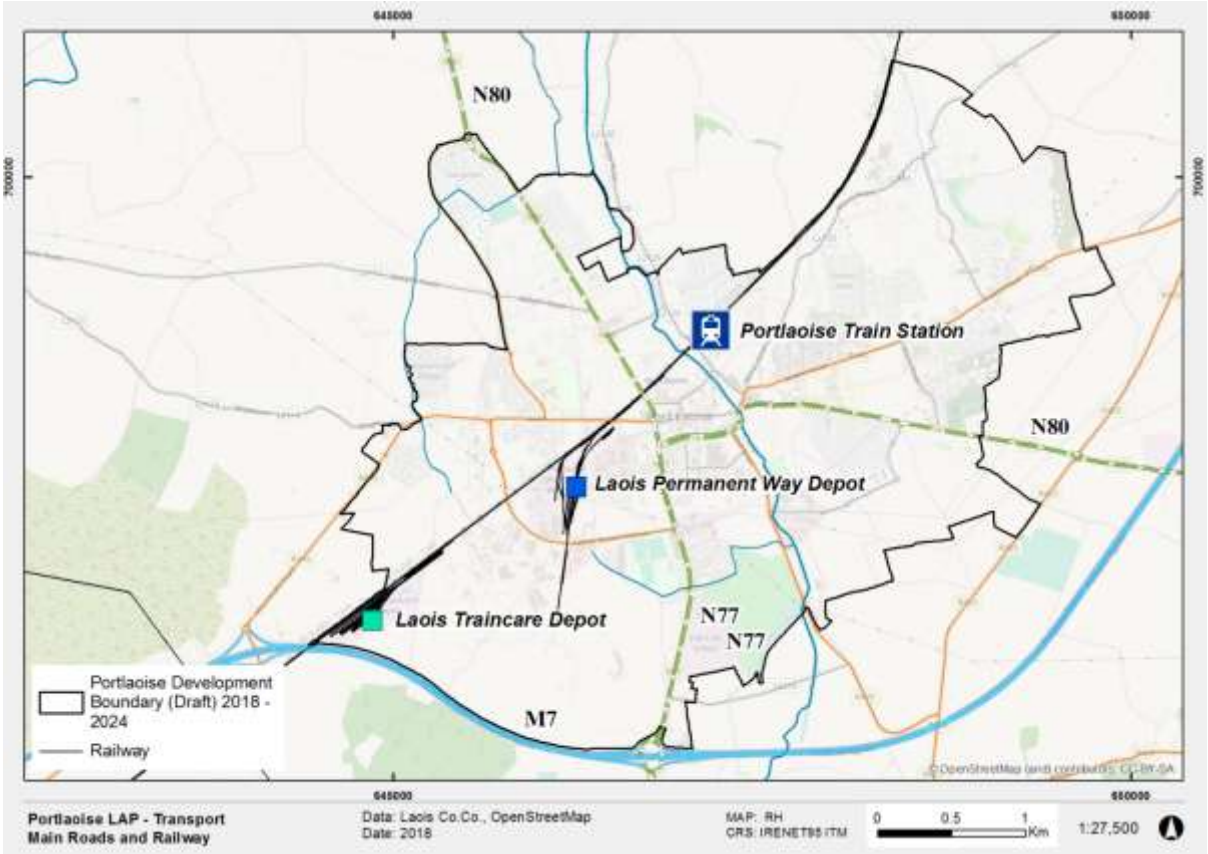
The EPA SEA Process Draft Checklist (2008) defines material assets as the critical infrastructure essential for the functioning of society such as: electricity generation and distribution, water supply, wastewater treatment, transportation, etc. An overview is provided below.

4.7.1 TRANSPORT

Public Transport

Portlaoise has strategic road links to the entire country via the M7 and M8 motorways, the N77, N78 and N80 National Secondary Roads and a network of regional and local roads. The town is also located on the railway line connecting the south and west to Dublin. National and local bus routes also provide services in the town. Further upgrades are planned for the Inner Relief Road in 2018.

Figure 19: Existing Transport Network



4.7.2 WATER SERVICES

The treatment of wastewater is governed by the Urban Waste Water Treatment Directive (91/271/EEC) (amended by Directive 98/15/EEC) transposed into Irish law by the Urban Waste Water Treatment Regulations 2001 (SI 254 of 2001) and the Urban Waste Water Treatment (Amendment) Regulations 2004 (SI 440 of 2004). The Directive aims to protect the environment from the adverse effects of the wastewater discharges by ensuring that

wastewater is appropriately treated before it is discharged to the environment. The treatment of wastewater is relevant to the Water Framework Directive which requires all public bodies to coordinate their policies and operations so as to maintain the good status of water bodies which are currently unpolluted and bring polluted water bodies up to good status by 2027.

Water and Wastewater

The Portlaoise Main Drainage Scheme involving the construction of 14 kms of new foul sewers and 10 kms of new surface water sewers was completed in 2009.

The Portlaoise treatment plant has an overall treatment capacity of 39,000 PE, the domestic population of the Portlaoise Sewer Catchment is approx. 20,000.

Awaiting departmental approval is the joint Portlaoise and Mountmellick Water Supply Scheme under which the following are planned: construction of 10 new wells, 12 kms. of new watermains, new reservoirs at Emo, Straboe, and Acragar and extended capacity at Kilminchy Water Treatment Plant. The Scheme designed to cater for the projected water supply demand for the next 20 years will result in a doubling of water supply capacity for Portlaoise. Portlaoise town was removed from the EPA Remedial Action List in early 2018.

There is a significant aquifer source protection zone to the east and north-east of the town.

4.7.3 WASTE MANAGEMENT AND IPPC

The Regional Waste Management Plan 2015-2021 for the Eastern-Midlands Region encompasses the local authorities: Dublin City, Dún Laoghaire- Rathdown, Fingal, South Dublin, Kildare, Louth, Laois, Longford, Meath, Offaly, Westmeath and Wicklow. The regional plan provides the framework for waste management for the next six years and sets out a range of policies and actions in order to meet the specified mandatory and performance targets.

The Waste Framework Directive (WFD) has incorporated previous separate directives that addressed waste oils and hazardous waste. Principles in relation to waste prevention, recycling, waste processing and the polluter pays principle are included within this Directive.

In 2014 the EC adopted a communication promoting the Circular Economy. The circular economy considers waste as a resource which in turn can be re-circulated into systems that focus on maintaining, repairing, reusing, refurbishing and recycling materials.

Denmark, Sweden, Japan, Scotland and the Netherlands[9] are currently the most advanced countries in terms of embedding the circular economy into their waste management system. Key elements of the communication include:

- Increase recycling and preparing for municipal waste to 70% by 2030;

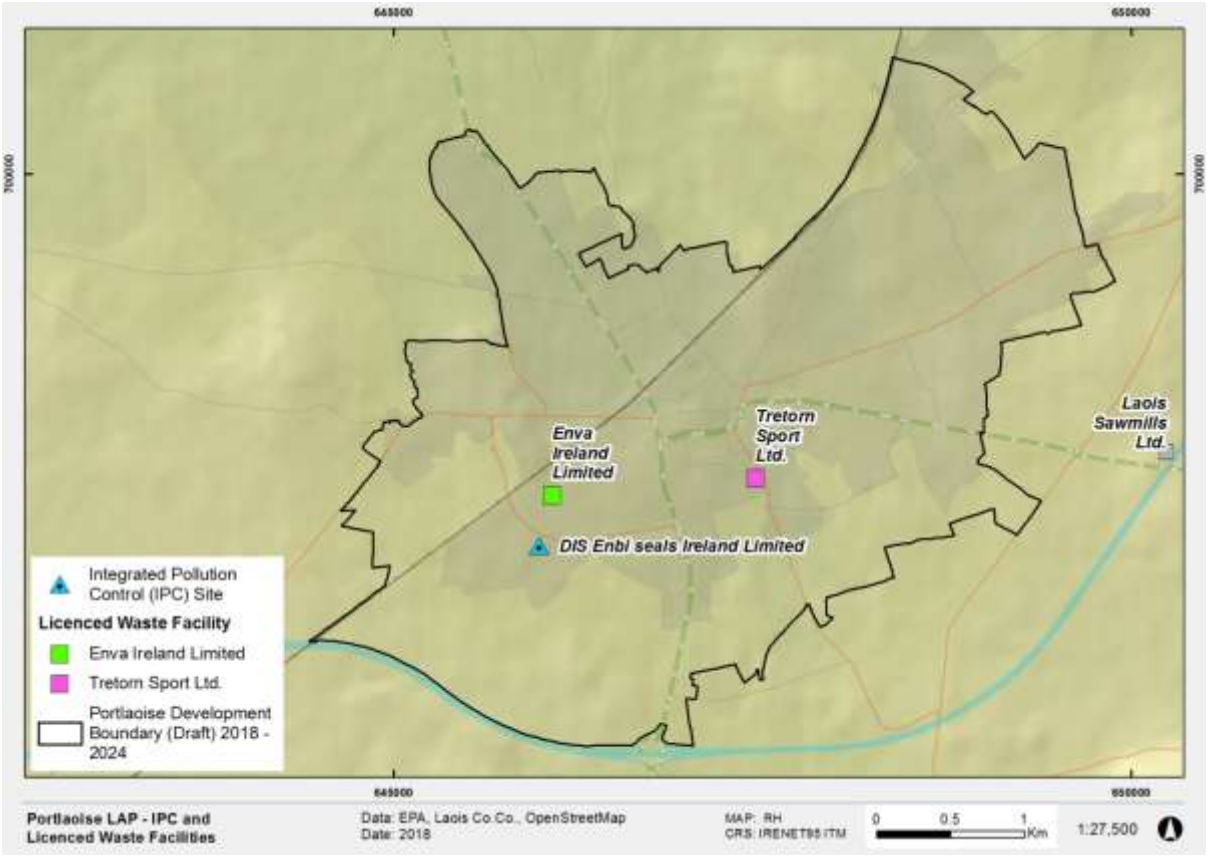
[9] http://circulatenews.org/2015/04/an-introduction-to-circular-economy-in-scandinavia-sweden-and-denmark-leading-the-race-to-circularity/

- Increase recycling and preparing for reuse of packaging waste to 80% by 2030;
- An aspiration to eliminate landfill by 2030;
- Member states to be responsible for ensuring the separate collection of biowaste by 2025;
- Reduction of food waste by at least 30% by 2025.

In terms of existing waste facilities, the sole landfill site for the County is at Kyletalesha. The landfill site operates under Environmental Protection Agency Waste Licence since May 2000. The landfill site accepts waste at a rate of up to a maximum of 47,100 tonnes per year. This site also is a recycling centre accepting a wide range of materials for recycling.

There are also a number of licensed waste facilities within the LAP area which operate under license from the EPA. The figure shows the location of these facilities.

Figure 20: IPPC facilities within LAP Boundary



4.7.4 ENERGY AND BROADBAND

Portlaoise is served by a high capacity electricity system and gas network. Within the settlement 5,615 households have broadband internet services. The high speed broadband network upgrade is being implemented by SIRO, which will give significant economic and social advantage to Portlaoise as a place to set up internet based businesses.

4.7.5 EXISTING ISSUES – MATERIAL ASSETS

Transport considerations and integrated land use as well as increasing permeability around the plan area are key issues for the LAP and SEA.

Key issues to consider for material assets include:

- Planning and maintaining sufficient water services and capacity for the plan area;
- Consideration of receiving waters for wastewater;
- Encouraging sustainable use of resources;
- Reducing reliance on private transport, particularly for commuting;
- Workable alternatives to private transport and future public transport services and infrastructure in the area;
- The future road layout in the areas;
- Development standards affecting transport e.g. car parking;
- Energy efficiency;
- Promotion of the circular economy.

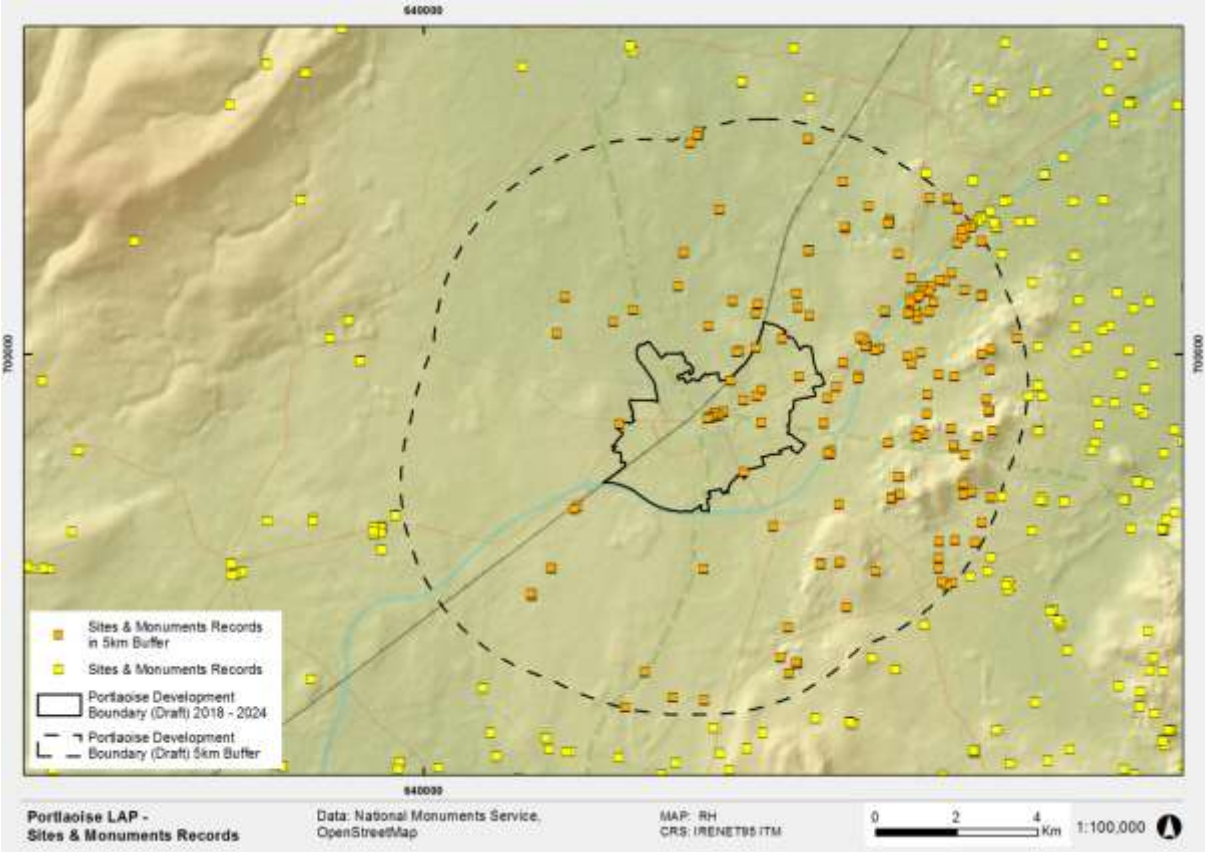
4.8 CULTURAL ASSETS –ARCHAEOLOGY AND BUILT HERITAGE

Known until 1902 as Maryborough, Portlaoise owes its current name to the 16th century 'Fort Protector'- one of two Crown Forts built by English forces in 1548 as military outposts after the defeat of the O'Moore and O'Connor clans and occupation of their territories. The urban core emerged in the 18th century with the growth of the town around the fort and the building of fine Georgian Terraces, a surviving example being on Church Street. The central town plan that we see today originated in the 19th Century with a number of significant buildings such as the Market House, County Infirmary, new Barracks, and an emerging Catholic ecclesiastical quarter to the north and east of the Old Fort, combining the church of SS Peter and Paul and the Presentation Convent (the latter now identified as an Opportunity Site in the LAP).

4.8.1 ARCHAEOLOGY

There are approximately 25 no. archaeological monuments listed in the Record of Monuments and Places. A zone of archaeological significance has also been identified within the plan area.

Figure 21: Sites and Monuments Record



4.8.2 BUILT HERITAGE

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

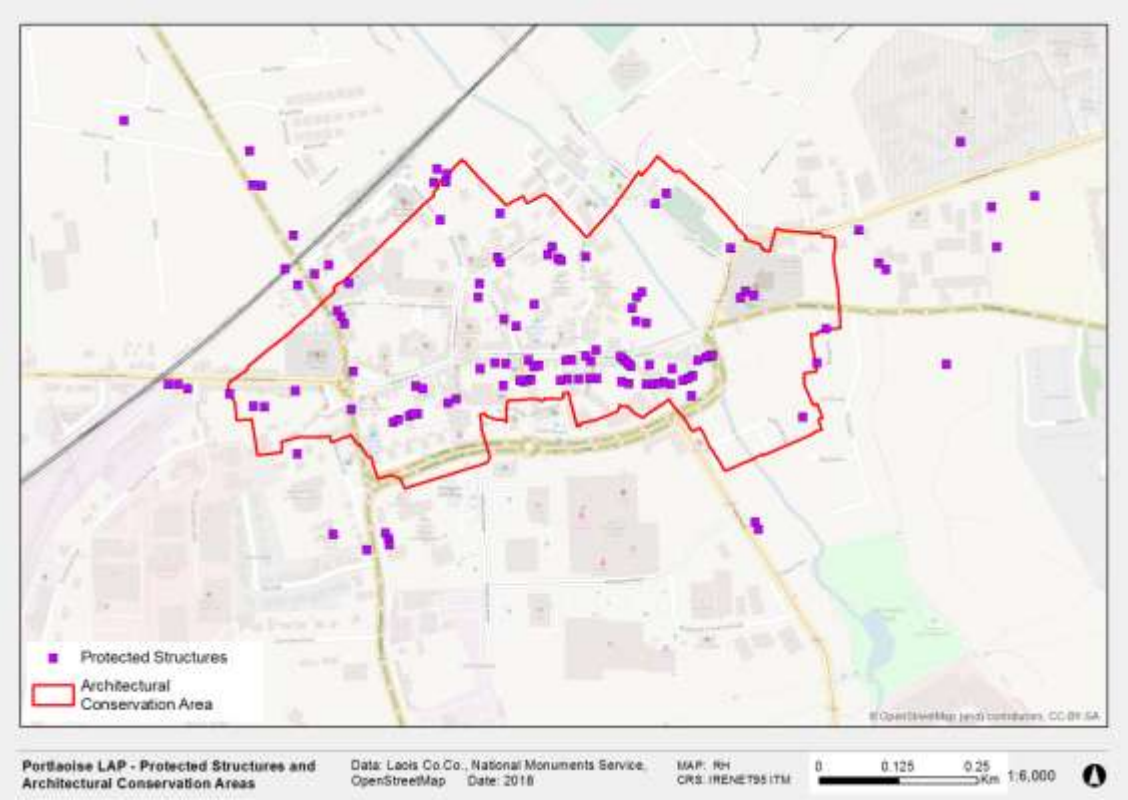
The Planning and Development Act 2000 (as amended), provides for a number of methods of preservation of such structures. These include the Record of Protected Structures (RPS) and the designation of Architectural Conservation Areas (ACA). Portlaoise Centre has been designated as an ACA.

In addition to these identified areas, numerous additional structures worthy of preservation are located within the LAP boundary. Such buildings or structures are noted within the RPS. Protected Structures are defined as structures, or parts of structures that are of special interest from an architectural, historical, archaeological, artistic, cultural, scientific, social or technical point of view. There are approximately 78 no. Protected Structures within the development boundary of Portlaoise. The following figure shows the structures listed on the Record of Protected Structures.

More generally, there are a number of older buildings that are unoccupied as well as a number of sites that are identified as Opportunity Sites in the LAP. Reuse of these buildings is both more sustainable and adds a further lifespan to these structures, adaptive re-use of

these buildings contributes to the cultural heritage, as well as townscape, town centre viability and is a more efficient use of resources.

Figure 22: Record of Protected Structures and ACA boundary



4.8.3 EXISTING ISSUES – CULTURAL ASSETS

Key issues include:

- Potential for additional archaeological resources;
- Enhancing and linking cultural heritage of the area;
- Conservation and enhancement of ACA;
- Promotion of heritage features as tourist attractions;
- Archaeological input on the archaeological implications of any new development proposed in the Local Area Plan.

4.9 LANDSCAPE AND TOWNSCAPE

- **Landscape and Open Spaces**

Portlaoise is located within the Landscape Character Type 6 –Urban Fringe Area—a type that overlaps with LCT 2 (Lowland Agricultural Area), and LCT 3 (River Corridors and Lakes), and LCT 5 (Peatland Areas). The defining characteristics of the Urban Fringe type include the radiating road routes. Ribbon type developments on the routes define the physical form. Individual sites are often designed inappropriately as if they were in a suburban setting. Instead their form should reflect their urban location and as such enhance the character of the townscape. Disused or underused former agricultural lands are found within the

landscape type, and these are now zoned and set-aside for future developments or may be required for future orbital schemes.

- **Landscape and Townscape**

Portlaoise serves a large agricultural hinterland and agricultural lands penetrate as strong wedges into the urban fabric. The town has two major parks – People's Park (Páirc an Phobaill) on Timahoe Road to the south, and Linear Park off Ridge Road to the north. Numerous green 'pockets' are dotted through the town, including Old St. Peter's churchyard and Ridge burial ground. The River Triogue forms a green /blue corridor traversing south /north through the town centre.

Townscape improvements in the form of tree planting and other streetscape improvements have taken place in the town. But poor quality interventions have degraded the overall quality of the public realm. The town centre lacks definition and poor traffic management prioritise vehicles over pedestrians.

- **Landscape and Townscape Programmes**

Developed multi – purpose open spaces to enhance and articulate the connections between the urban and the rural hinterland. The spaces will function as a buffer in preserving the integrity of a boundary the strictly urban from the rural. The open spaces will also emphasise the strong association between the town and the surrounding agricultural lands. The open spaces should be planted with trees, woodlands and copses.

Enhance the area of open space in the town, which the biodiversity report considers deficient. The report notes the incidence of many pockets of open space in the town. Their character and function should be examined to determine if they some or all of them could be incorporated as part of the town's public open spaces.

Connectivity is the key to embedding the town in an open space matrix, and at the same time protecting and enhancing biodiversity. Linkages should be established between the town, the town fringes, and the farmlands beyond as corridors for cyclists and pedestrians, and conduits for wildlife and vegetation. A link should be established from People's Park through the town centre along the Triogue linear park and would encompass a continuous pedestrian spine from James Finton Lalor to the Town Centre. The link will connect the Civic Plaza at the Town Hall to the River Triogue greenway.

Flood defences proposed on the River Triogue through the Convent lands east of the town centre include a 15m riparian buffer zone from the river. The buffer provides an opportunity to create facilities for cyclists and pedestrians in addition to an ecological corridor.

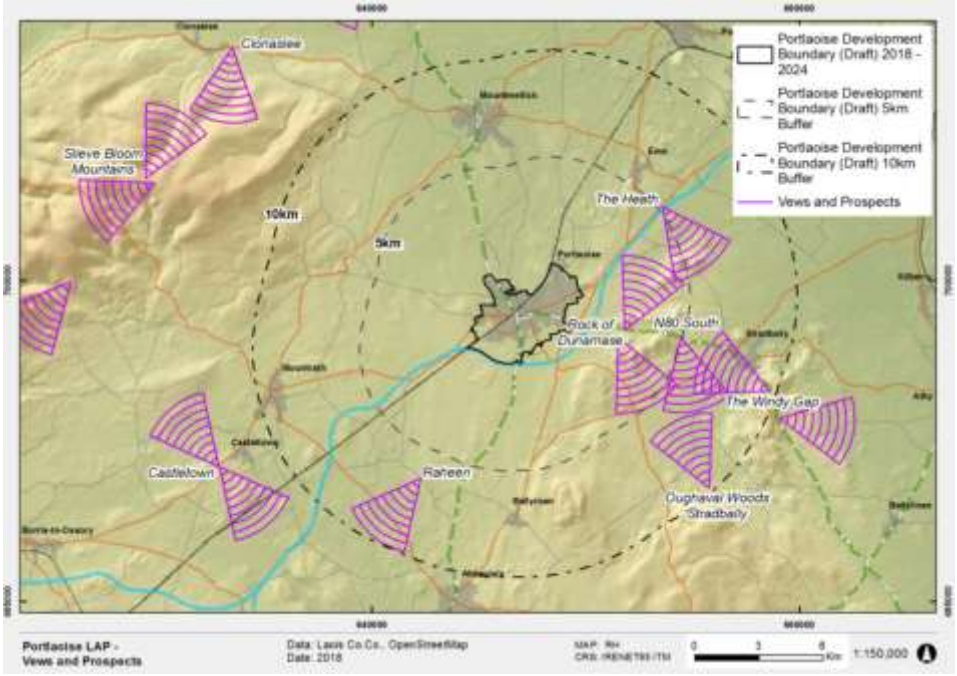
Creating safe and comfortable connections for pedestrians and cyclists will require a vehicular traffic management strategy aimed at reducing the penetration of cars into the town centre, and minimising conflicts between cars, pedestrians and cyclists. The conflict is particularly noted in the *2040 And Beyond: A Vision for Portlaoise* with reference to Lyster Square- dominated by car parking creating contested space between cars and pedestrians. It

is proposed that a linked planted corridor be created with James Finton Lalor as the centre piece for a new town centre. Connectivity for cyclists and pedestrians would emphasise linkages with landmark buildings including the Courthouse, Portleix House, and terraces on Church Street. The measures would also involve townscape improvements involving the upgrading of the settings around the landmark buildings and the creating of public spaces in those settings. Other links should be established to heritage features including Fort Protector Walls, the Presentation Convent Buildings, Old Peter's churchyard and the Ridge Burial Ground. A Vision for Portlaoise also has a number of objectives that will enhance the townscape character and these include:

- Reconnection of the Old and New Town Centre;
- Exposure of the River Triogue;
- Exposure of Portlaoise's Cultural Heritage;
- The delivery of a Walkable Town Centre.

Finally, the figure below shows views and prospects in the Laois CDP 2017-2023 within a 5 and 10km buffer of the LAP area.

Figure 23: Views and Prospects



4.9.1 EXISTING ISSUES FOR LANDSCAPE AND TOWNSCAPE

- Enhancing existing landscape elements that form local landscape character;
- Enhancing biodiversity as a component of a landscape and open space strategy;
- Maintaining and expanding green and blue infrastructure as part of a public greenspace policy;
- Expanding the areas assigned to open space in the town;
- Enhancing connectivity for pedestrians and cyclists by linking parks and other green areas;
- Enhancing townscape by linking heritage features and sites within the public realm;

- Developing a vehicle circulation/parking strategy to reduce car/pedestrian conflict, to enhance the pedestrian experience of the town and to improve townscape;
- Formulating a planting strategy to articulate key components of the town centre, and to articulate lines of connectivity.

4.10 LIKELY EVOLUTION OF THE ENVIRONMENT IN THE ABSENCE OF THE PORTLAOISE LAP

The SEA legislation requires that consideration is given to the likely evolution of the current baseline where implementation of the LAP does not take place. In the absence of the new LAP the environment would evolve under the regime of the existing LAP and the requirements of the Laois County Development Plan 2017- 2023.

Principal environmental issues in the absence of the LAP include:

- **Air Quality:** In the absence of the new LAP opportunities to promote greater permeability, enhanced measures relating to public transport, pedestrian and cycle movement may not be fully implemented.
- **Noise and Human Health:** Aligned to the above point, opportunities to enhance permeability and as above, offer other means of transporting and movement around the LAP area would be lost and means to reduce noise emissions associated with traffic would be lost.
- **Landscape:** The new LAP includes additional public realm measures that seek to improve connectivity between the different land uses and functions around the LAP area. In the absence of the new LAP, these enhancement measures would not be implemented.
- **Biodiversity, Flora and Fauna:** Habitat surveys and green infrastructure considerations are not included in the current LAP, therefore enhancement measures for open spaces and opportunities to improve ecological connectivity, particularly with the River Triogue would not be implemented.
- **Population and Human Health:** In the absence of mitigation associated with the LAP human health has the potential to interact with environmental problems identified under other parameters including biodiversity, flora and fauna, cultural assets, soil and geology, water resources, material assets, landscape and green infrastructure.
- **Population and Human Health:** The existing LAP does not allocate measures relating to the Opportunity Sites identified in the plan area. In the absence of the new plan, these sites and associated measures in terms of potential new housing provision and open space would not be implemented.
- **Cultural Heritage, Material Assets, Landscape, Population, Climate Change and Biodiversity:** In the absence of the plan, measures including as part of the Vision for Portlaoise strategy would not be fully integrated to the plan and represent a lost opportunity to embed these proposals within the LAP framework.

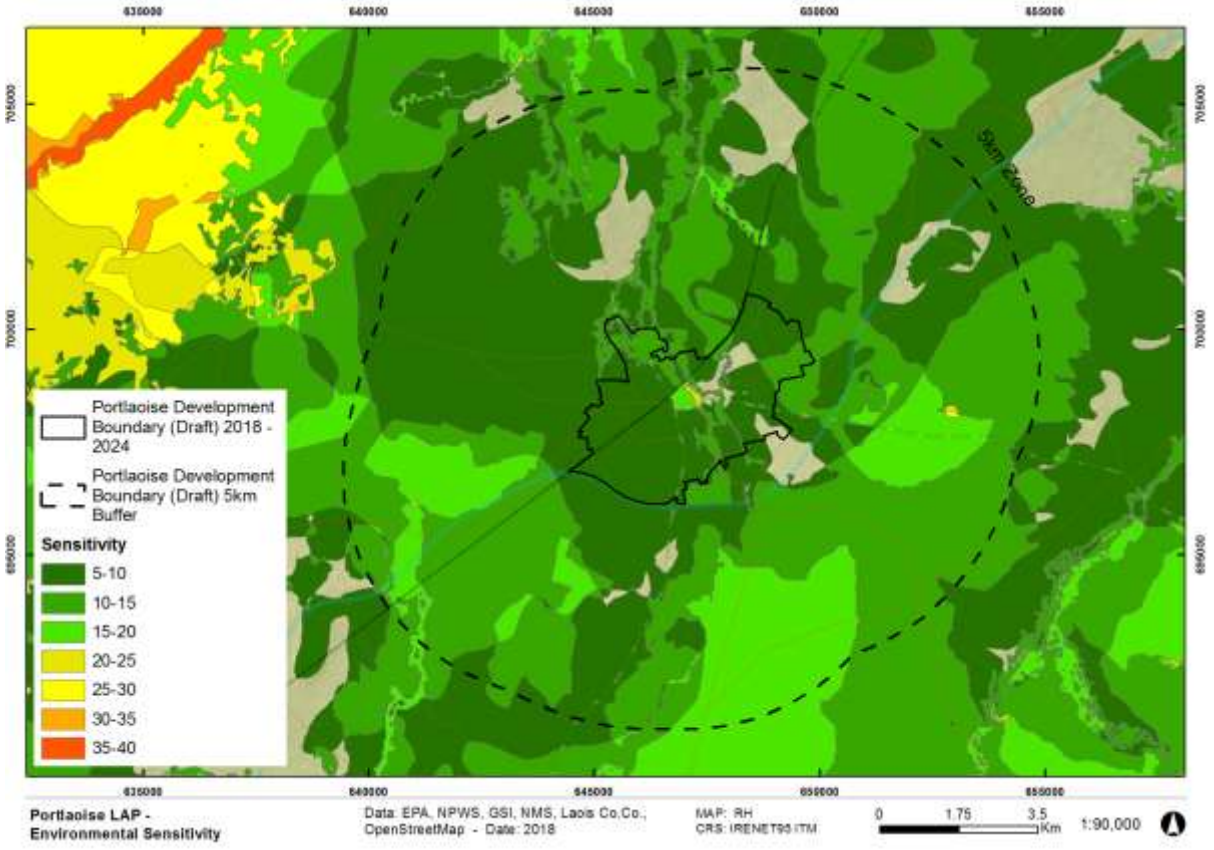
4.11 INTERRELATIONSHIP OF THE ABOVE COMPONENTS

In accordance with the SEA Directive, the interrelationship between the environmental parameters above must be taken into account. Although all such parameters may be

considered interrelated and may impact on each other at some level, environmental sensitivity mapping is commonly used to help identify areas of greater or lesser sensitivity. Figure 24 shows the overall environmental sensitivity for the plan area and sphere of influence, and follows the same approach (i.e.: ranking of environmental parameters) as that used in the Laois County Development Plan 2017-2023 SEA process.

By mapping key environmental layers (GIS) to produce an environmental sensitivities map, it provides a visual impression which can assist in identifying which areas within the Plan area experience the highest concentration of environmental sensitivities and consequently the areas potentially most vulnerable to potential environmental impacts from development. This can be a useful guide when considering the strategic options in relation to the plan during the early stages in the plan making process, and identifying areas that are of greater or lesser vulnerability. Figure 24 shows the environmental sensitivity map for the LAP.

Figure 24: Environmental Sensitivity Mapping



Reflecting the designations and the hydrological regime within the plan area, the areas of greatest environmental sensitivity are the areas designated for natural heritage, flood zones and water courses.

In understanding this sensitivity map it is important to stress how these resources interact with each other; declining water quality will impact downstream on both water quality and species dependent on the high quality character of this water body. Inappropriate land uses, could, over time, generate soil impacts that in turn would contribute to declining groundwater resources with subsequent impacts on human health and biodiversity.

5 STRATEGIC ENVIRONMENTAL OBJECTIVES

5.1 INTRODUCTION

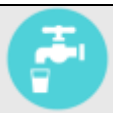
The overall aim of the SEA is to facilitate environmental protection and to allow the integration of environmental considerations into the preparation and implementation of the Portlaoise LAP. To that end, the SEA process assesses the draft LAP as it evolves in terms of its environmental impacts, positive, negative, neutral, cumulative and synergistic and also in terms of duration i.e.: short, medium, long term, temporary, permanent, and secondary effects. This process highlights how improvements can be integrated into the LAP to increase its environmental performance and maintain environmental resources. The purpose of the SEA Objectives is to ensure that the assessment process is transparent and robust and that the LAP considers and addresses potential environmental effects.

These SEA Objectives are presented in this chapter and are developed into a monitoring programme in the form of targets and indicators which are presented in more detail in Chapter Nine Monitoring Programme. To facilitate consistency with the primary land use plan for the County and reflect data gathering requirements, these SEOs reflect where possible the SEOs developed for the SEA of the Laois CDP 2017-2023. Where necessary the SEOs are adapted to reflect particular environmental considerations for this Portlaoise LAP. Where they differ from the above CDP SEA objectives, the text is shown in italic bold font. The results of this will be summarized in a table, called an evaluation matrix.

The Strategic Environmental Objectives are as follows:

Table 6: Strategic Environmental Objectives for Portlaoise LAP

SEA Topic	Strategic Environmental Objectives
Biodiversity Flora and Fauna	**B1:** To ensure compliance with the Habitats and Birds Directives with regard to the protection of Natura 2000 Sites and Annexed habitats and species.
	**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.
Population and human health Noise 	**PHH1:** To protect populations and human health from exposure to incompatible land uses ***including adverse noise and air quality impacts.***
Water 	**W1:** To maintain and improve, where possible, the quality and status of surface waters; **W2:** To prevent pollution and contamination of ground water;

SEA Topic	Strategic Environmental Objectives
	W3: To comply as appropriate with the provisions of the Planning System and Flood Risk Management: Guidelines for Planning Authorities (DEHLG, 2009).
Soil and Geology	**S1:** To avoid damage to the hydrogeological and ecological function of the soil resource.
	***S2: To maximise the sustainable re- use of brownfield lands, and the existing built environment, rather than developing greenfield lands***.
Material Assets	**M1:** To serve new development with adequate and appropriate wastewater 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.
Climate Change, Air Quality and Noise	**C1:** To reduce travel related emissions to air and to encourage modal change from car to more sustainable forms of transport.
	***C2: Ensure that the LAP proposals are adaptive to expected climate change patterns line with Local Authority Adaptation Strategy Development Guidelines (EPA) as appropriate.***
Cultural Heritage	**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.
Landscape	**L1:** To minimise significant adverse visual impacts within and adjacent to the County.
	***L2: To protect and enhance landscape character and quality within and adjacent to the LAP area.***
Interrelationships	***Maintain and improve the health of people, ecosystems and natural processes.***
	***Actively seek to integrate opportunities for environmental enhancement.***

6 CONSIDERATION OF ALTERNATIVES

6.1 INTRODUCTION

One of the critical roles of the SEA is to facilitate an evaluation of the likely environmental consequences of a range of alternative development scenarios, in this case the Portlaoise LAP 2018-2024.

These alternative development scenarios should meet the following considerations:

- Take into account the geographical scope, hierarchy and objectives of the plan – be realistic;
- Be based on socio-economic and environmental evidence – be reasonable;
- Be capable of being delivered within the plan timeframe and resources – be implementable;
- Be technically and institutionally feasible – be viable.

In developing, refining and assessing the alternatives for the LAP, the toolkit included in Developing and Assessing Alternatives in Strategic Environmental Assessment Good Practice Guidance (EPA 2015) was utilised.

In addition to the above, the Portlaoise LAP will function within the policy hierarchy established by national, regional and county strategic plans, as well as relevant legislation. This chapter presents the approach to considering and assessing the alternatives for the LAP. Section 6.2 presents the alternative scenarios. Section 6.3 explains how the assessment of alternatives was undertaken. Section 6.4 presents the evaluation of the alternatives for potential environmental effects. This in turn informed the selection of a preferred alternative for the LAP which is presented in Section 6.5.

6.2 ALTERNATIVE SCENARIOS FOR LAP

In the case of the Draft Portlaoise LAP, possible alternatives include different land uses and scales of development will be examined:

1. **Continuation of Existing LAP land use zonings and policies/objectives (The Do-Nothing Scenario)**. Continues with the existing LAP in its current context.
2. **Town centre consolidation:** This approach would be to focus explicitly on the densification of the town centre with intensification of land uses and focus on employee intensive sectors.
3. **Town centre consolidation and designation of future development lands in a tiered structure:** Promotion of development lands within the town centre for development and the designation of secondary and edge of centre areas where this type of development is considered appropriate in certain circumstances. It would also promote the development of neighbourhood centres to provide a level of retail services locally.

In considering these alternatives, regard was had to the Preferred Alternative (Scenario 3

Balanced Growth, Strong Plans) identified for the Laois County Development Plan 2017-2023. Within this scenario, the main population centres for prioritised development would remain to be Portlaoise, Portarlington, Mountmellick and Graiguecullen, this is where development both residential and commercial is most likely to happen in a controlled manner. This fulfils the objectives of the current NSS, the RPGS and the new National Planning Framework in terms of achieving balanced regional growth which is of benefit to both the county and the region as a whole. Policies will be formulated to promote residential and commercial development within these areas.

6.3 ASSESSMENT OF POTENTIAL EFFECTS FOR EACH ALTERNATIVE SCENARIO

This section presents the assessment of potential environmental effects for each Alternative Scenario. This is undertaken by assessing each alternative against the SEOs presented in Chapter 5 of this SEA ER. It is informed by the environmental baselines as well as the policy review.

The assessment of Alternatives is categorised as follows:

Positive	
Neutral	
Uncertain	
Negative	

.

6.4 SUMMARY EVALUATION AGAINST SEOS

Strategic Environmental Objectives	Alternative 1: Continuation of Existing LAP land use zonings and policies/objectives (The Do-Nothing Scenario). Continues with the existing LAP in its current context.	Alternative 2: Town centre consolidation: This approach would be to focus explicitly on the densification of the town centre with intensification of land uses and focus on employee intensive sectors.	Alternative 3: Town centre consolidation and designation of future development lands in a tiered structure.
Biodiversity			
B1: To ensure compliance with the Habitats and Birds Directives with regard to the protection of Natura 2000 Sites and Annexed habitats and species.	Uncertain	Positive	Positive
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.	Negative	Negative	Neutral
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.	Uncertain	Uncertain	Neutral
Population and Human Health			
PHH1: To protect populations and human health from exposure to incompatible land uses ***including adverse noise and air quality impacts.***	Negative	Negative	Positive

Water			
W1: To maintain and improve, where possible, the quality and status of surface waters.	Neutral	Neutral	Positive
W2: To prevent pollution and contamination of ground water.	Neutral	Neutral	Neutral
W3: To comply as appropriate with the provisions of the Planning System and Flood Risk Management: Guidelines for Planning Authorities (DEHLG, 2009).	Uncertain	Positive	Positive
Soil and Geology			
S1: To avoid damage to the hydrogeological and ecological function of the soil resource.	Neutral	Positive	Positive
***S2: To maximise the sustainable re- use of brownfield lands, and the existing built environment, rather than developing greenfield lands*.**	Neutral	Positive	Positive
Material Assets			
M1: To serve new development with adequate and appropriate wastewater treatment.	Positive	Positive	Positive
M2: To serve new development with adequate drinking water that is both wholesome and clean.	Positive	Positive	Positive
M3: To reduce waste volumes, minimise waste to landfill and increase recycling and reuse.	Uncertain	Positive	Uncertain
Climate and Air Quality			
C1: To reduce travel related emissions to air and to encourage modal change from car to more sustainable forms of transport.	Uncertain	Uncertain	Positive
***C2:** Ensure that the LAP proposals are adaptive to*	Negative	Uncertain	Positive

expected climate change patterns.			
Cultural Heritage			
CH1: To protect archaeological heritage including entries to the Record of Monuments and Places and/or their context.	Positive	Positive	Positive
CH2: To protect architectural heritage including entries to the Record of Protected Structures and Architectural Conservation Areas and their context.	Positive	Positive	Positive
Landscape			
L1: To minimise significant adverse visual impacts within and adjacent to the County	Neutral	Neutral	Positive
L2: *To protect and enhance landscape character and quality within and adjacent to the LAP area.*	Uncertain	Uncertain	Positive
Inter-relationships			
Maintain and improve the health of people, ecosystems and natural processes	Negative	Uncertain	Positive
Actively seek to integrate opportunities for environmental enhancement	Negative	Uncertain	Positive

6.5 PREFERRED ALTERNATIVE

From the above Table it can be seen that the comparative assessment of Alternatives shows that Alternative 3 provides for the most positive effects when assessed against the SEOs. This alternative provides for the promotion of development lands within the town centre for development and the designation of sequential areas where this type of development is considered appropriate in certain circumstances. It would also promote the development of neighbourhood centres to provide a level of retail services locally.

It acknowledges the need to consolidate Portlaoise through town centre vitalisation whilst helping to meet the key objectives of the LAP. A key positive of this Alternative is that it allows for provision of employment land uses which is a key challenge facing the town due to its proximity to Dublin and unsustainable commuting patterns.

Therefore, the preferred alternative was developed by the planning team and others having regard to the key requirements of:

- Environmental effects identified through the SEA consideration of alternatives;
- Objectives of the Portlaoise LAP including social and economic effects of the development;
- National Policy Documents;
- 2040 and Beyond: A Vision for Portlaoise.

By complying with appropriate mitigation measures - including those which have been integrated into the LAP - potential adverse environmental effects which could arise as a result of implementing this scenario would be likely to be avoided, reduced or offset.

7 ASSESSMENT OF SIGNIFICANT EFFECTS

7.1 INTRODUCTION

The purpose of this section of the Environmental Report is to predict and evaluate as far as possible the environmental effects of the LAP.

SEA is an iterative process and the LAP has taken consideration of environmental issues raised during the SEA process to date. These issues have been incorporated into the LAP and the principal purpose of this chapter is to discuss the evaluation of these. The discussion of likely impacts is grouped around each of the following environmental parameters as described in Chapter Four:

- Population & Human Health
- Biodiversity, Flora & Fauna
- Water
- Soil & Geology
- Climatic Factors and Climate change
- Cultural Assets
- Material Assets
- Landscape
- In-combination and cumulative effects.

The individual evaluation of relevant requirements contained in the LAP is presented in Annex A. The identification of impacts through the evaluation matrix and discussion of significant impacts detailed below, in turn informs the development of mitigation measures presented in Chapter Eight, Mitigation Measures. The table below identifies the significant environmental issues that were identified for all alternatives considered through the SEA process**.**

7.2 POPULATION AND HUMAN HEALTH- SIGNIFICANT EFFECTS

Land use planning impacts on the everyday lives of people and can either hinder or help promote healthy sustainable environments and communities. For example the provision of safe walking routes, cycle-ways, parks, playgrounds, safe routes to school, public transport facilities, etc. result in direct and indirect health benefits and allow for healthier transportation choices to be made by communities above private motor car. Both the Key Plan objectives and those included in Movement and Transport such as TM 03 and TM 08 create positive direct effects on this parameter due to promotion and design of pedestrian and cycle friendly movement and accessibility to public transport options. The zoning of lands, and promotion of employment opportunities (ED 01 and ED 03 for example) and services in the town also will contribute to reduced commuting patterns if successfully implemented, in turn this gives rise to positive interactions with Population and Human health SEOs.

The LAP emphasises the need to integrate land use and transportation. It supports town centre viability, and focuses on brownfield redevelopment as well as reuse of existing

buildings. More generally the actions and objectives included in the *2040 and Beyond: A vision for Portlaoise* provides for a range of measures, which cumulatively will enhance the environmental quality of the LAP with direct positive effects on Population and Human Health SEOs. Provisions in relation to Community, Services and Culture including service provision on appropriately zoned lands (CSC P1) generate positive effects for PHH SEOs.

The maintenance, protection and enhancement of water quality are important and are closely allied to human health generally. The LAP provides for phased development with infrastructure provided in advance; see Key Infrastructure Strategic Aims and policies such as KI P1 and KI P2. The provision of buffer zones for watercourses as detailed in Objective NH 011 will help protect riparian zones and water quality. Application of Flood Risk guidelines is consistent with SEOs and avoids potential adverse effects arising from inappropriate development and land use activities. In this regard, FM P7 in particular is positive and provide for input and recommendations from statutory bodies such as Inland Fisheries and NPWS to be fully applied in flood risk management which is a very important consideration.

The promotion of sustainable development by balancing complex sets of environmental, social and economic goals in planning decisions can deliver positive effects for population and human health. The LAP promotes the town centre, brownfield development, integrated transport and land use and environmental enhancement measures through the Strategy *A Vision for Portlaoise -2014.* Overall, the LAP is likely to improve the status of the SEOs on population and human health.

7.3 BIODIVERSITY, FLORA AND FAUNA- SIGNIFICANT EFFECTS

The promotion of compact, sustainable settlements, reuse of existing buildings and brownfield sites, integrating land use and transport, green and blue infrastructure, ecological corridors and buffer zones for watercourses all strengthen overall protection of biodiversity resources and the Biodiversity SEOs.

Particular measures identified as generating positive effects on Biodiversity SEOs include buffer zones for water courses (NH 011), Green Infrastructure (NH 02) and additional tree planting and greening measures identified in *2040 and Beyond*: *A Vision for Portlaoise.*

Infrastructure has the potential to generate adverse impacts on biodiversity, with key potential impacts relating to disturbance, disruption, fragmentation and loss of habitats. However, the focus on brownfield lands, identification of town centre Opportunity Sites, reference to relevant guidelines, and promotion of green/blue infrastructure and buffer zones does assist in reducing the overall adverse impacts and many impacts are identified as being addressed through recommended mitigation.

Indirect and cumulative impacts are identified for biodiversity in the event of damage to soil and water resources associated with development activities. Water pollution or surface water runoff could give rise to negative effects on water quality and streams/ rivers within the lands with subsequent adverse effects on biodiversity.

Therefore, a number of mitigation measures are recommended for the above. Mitigation measures are recommended for a number of policies and objectives to further enhance biodiversity protection including NH 05 and NH 06.

7.4 WATER - SIGNIFICANT EFFECTS

Potential effects on water resources (and frequently biodiversity) in the absence of mitigation include:

- A reduction in water quality in groundwater, springs and watercourses associated with the construction phase of new developments (short to medium term impacts);
- Surface water runoff from impermeable surfaces leading to reduced water quality in groundwater springs or surface waters affecting qualifying habitats and species downstream (impacts can range from short to long term);
- Changes in the flow rate of watercourses arising from an increased footprint of impermeable surfaces within the Plan area - increasing the extent of impermeable surfaces will result in a decrease in infiltration and an increase in runoff;
- Inadequate wastewater treatment resulting in pollution of groundwater springs or surface watercourses;
- Generally, land use practices can result in water quality impacts and whilst surface water impacts may be identified quickly, impacts to groundwater can take much longer to ascertain due to the slow recharge rate of this water resource;
- Interruptions in hydrological regimes, particularly in wetlands that can have direct impacts on biodiversity, and
- Water quality impacts can also have human health impacts in the case where bacterial or chemical contamination arises.

The LAP includes a range of provisions and measures to address and minimise the above effects, including:

- Green and blue infrastructure, buffer zones for watercourses (NH0 11), invasive species control measures (NH 012) as detailed in the Natural Heritage chapter. More positive, long term impacts are associated with these measures;
- The recognition of the Water Framework Directive and roles and responsibilities for same, currently act as a key driver toward long term positive impacts for water quality and water management generally;
- The requirement for Sustainable Urban Drainage systems (SUDs), green and blue infrastructure and flood risk management also create positive effects on Water SEOs.
- Application of Flood Risk guidelines is consistent with SEOs and avoids potential adverse effects arising from inappropriate development and land use activities. In this regard, FM P7 in particular and FM P6 are positive and provide for input and recommendations from statutory bodies such as NPWS to be fully applied in flood risk management which is a very important consideration;
- By encouraging brownfield development, and reuse of existing buildings, the potential for increased greenfield land requirements are reduced though not fully avoided.

- The delivery of critical infrastructure (including water and wastewater services) in tandem with built development is also supported through this LAP, this will allow for a phased and managed approach to service delivery and capacity of WWTP in the plan area.

Notwithstanding the above provisions that will minimise adverse effects, at LAP level infrastructural and built development may adversely affect water resources due to potential impacts on water quality. To provide for greater protection of water resources, additional mitigation measures are recommended.

7.5 SOIL AND GEOLOGY - SIGNIFICANT EFFECTS

Soil quality and function may be enhanced through particular measures associated with water quality and land use and achieving the Water Framework Directive Objectives. The quality of groundwater is directly related to soil quality and land use, and abstraction of geological and soil resources can also affect the water table over time.

The most significant potential soil and geology effect identified relates to new built development on greenfield lands. Soil sealing and increased risk of surface run off are addressed largely by identification of brownfield opportunity sites, also reuse of existing buildings creates positive effects for Geology and Soil SEOs.

Additional measures in relation to control and management of invasive species, (NH 012) will assist in addressing and controlling this effect.

7.6 CLIMATIC FACTORS AND CLIMATE CHANGE - SIGNIFICANT EFFECTS

Overall the LAP will contribute positively to climate change adaptation through the following:

- Integration of land use and transport (Transport and Movement Strategic Aim and TM 01,TM 02 and TM 03);
- Promotion of public and non- vehicular transport (TM 07);
- Design measures to enhance walking and cycling around the LAP (TM 011 and TM 013);
- Blue and green infrastructure giving rise to increased surface water storage and potential carbon sequestration (NH 02);
- Retention of hedgerows (NH 03) and provision of new planting regimes to further enhance carbon sinks (existing and new);
- Reuse of existing buildings (TCR 03, TCR 04, TCR 05) and brownfield development (H 08 and identification of Opportunity Sites), and
- Longer term positive effects in relation to air quality, population and human health and water.

7.7 CULTURAL ASSETS - SIGNIFICANT EFFECTS

Overall the impacts of the LAP are long term and positive in relation to cultural heritage due to the recognition of the value of cultural heritage and the range of cultural heritage features including built heritage, natural heritage and landscapes. The integration of the actions and objectives in 2040 and Beyond: A Vision for Portlaoise is important in this regard as this identifies character areas and interventions many of which relate to existing built heritage.

Potential cultural heritage impacts arise once more in relation to built development, though existing development management control and policies/objectives of the LAP will ensure sufficient protection and oversight.

The Built Heritage Chapter contains specific measures to minimise adverse effects and promote reuse of architectural features for example BH01 to BH015 and policies BHP1 and BHP2.

7.8 MATERIAL ASSETS - SIGNIFICANT IMPACTS

For transport, provisions including in the Movement and Transport chapter are of particular relevance. These are identified as generating positive impacts for a number of SEOs including population and human health, air quality and climate and sustainable transport. Several transport measures (in particular public transport and walking and cycling) create positive impacts as they support more sustainable transport options with cumulative and in combination positive impacts relating to human health, biodiversity and air quality.

Objectives and policies which promote employment within the town, and key infrastructure developments support the Material Assets SEOs as they can reduce the current unsustainable commuting patterns in the LAP, and promote integration of land use and transport, as well as providing for service led development. Examples include ED 01, ED 03, ED 04 and KI 03 and KI 010. These promote employment and enterprise within the LAP, as well as identification of community and educational facilities (H 015, CSC 01 and CSC P4) can promote a model shift for those living within and close to the lands, this generates positive direct permanent impacts for sustainable transport if it reduces car dependency and increases viability of public transport options. Indirect long term positive effects are identified for Population and Human health SEOs also.

Water supply and wastewater capacity and demands are addressed in conjunction with Irish Water. The key element in relation to this is ensuring the implementation of the LAP is in line with capacity to treat wastewater and water supply services. Policies and objectives in the Key Infrastructure Chapter all strengthen and reinforce these issues by ensuring provision of critical services infrastructure on a plan led basis.

Additionally, provision is made in the LAP for water conservation measures including raising awareness (KI P6) and rainwater harvesting (KI P7). Application of Flood Risk guidelines is consistent with SEOs and avoids potential adverse effects arising from inappropriate development and land use activities. In this regard, FM P7 in particular is positive in relation to SEOs, as it provides for input and recommendations from statutory

bodies such as NPWS to be fully applied in flood risk management which is a very important consideration.

Mitigation measures are recommended for a number of Key Infrastructure policies/objectives to strengthen environmental protection and align with plans such as the Water Framework Directive.

7.9 LANDSCAPE - SIGNIFICANT EFFECTS

Green and blue infrastructure provisions as detailed in Natural Heritage and objectives such as NH 02, as well as buffer zones can contribute to positive landscape effects associated with the implementation of the LAP. In particular, key interventions and aims of the *2040 and Beyond: A Vision for Portlaoise* are very positive in relation to townscape and landscape SEOs as they address public realm, greening of the LAP and interventions that will enhance the natural and built heritage of the town examples include NH 06 and NH 07.

For a number of the Opportunity Sites identified in the LAP, mitigation measures are recommended to align interventions proposed in *2040 and Beyond: A Vision for Portlaoise* with the identified Opportunity Sites.

7.10 LANDUSE ZONING SIGNIFICANT EFFECTS.

The main elements of the Plan with the potential to result in such impacts relate to the zoning of development land-use in undeveloped sites close to or hydrologically connected to European Sites, the development of infrastructure and the pressures associated with the adequate supply of water throughout the lifetime of the Plan.

The general impacts (in the absence of mitigation measures) to the qualifying interests of European Sites associated with elements of the Plan will include:

- A reduction in water quality in surface waters associated with the construction phase of new developments, surface water runoff from impermeable surfaces and the use of the River Barrow as a tourist and amenity attraction;
- Inadequate wastewater (i.e. sewer) collection system resulting in pollution of surface watercourses and ground waters;
- Unsustainable abstraction of water from surface and ground waters leading to the drawdown of baseline water levels;
- Disturbance to qualifying habitats and species from increased human presence particularly associated with tourism and amenity activity on the River Barrow.

The Natura Impact Report that accompanies this SEA ER provides further information in relation to the above.

The following section discusses the impacts associated with each zoning proposed for the plan area.

7.10.1 TOWN CENTRE

The town centre zonings are concentrated in the existing centre of Portlaoise, confirming existing and established land uses and an area of 60.44ha. are provided for within this zoning.

Whilst there is generally little greenfield land identified for this zoning, some of the town centre zonings include backlands or areas that could be expanded to the rear of the town centre. For much of this zoning, the lands are established urban areas. The main undeveloped land zoned town centre is backland areas composed of grassland, or built surfaces. This landuse zoning also includes some of the Opportunity Sites such as Lyster Square, which comprises mostly built land and Fitzmaurice Place which includes former school sites with slightly more habitats such as older treelines, based on a review of aerial photography. Mitigation measures have been included for these Opportunity Sites to align them more closely with interventions identified in *2040 and Beyond: A Vision for Portlaoise.*

The purpose of this zoning is:

- To enhance the vitality and viability of the town centre through the promotion of retail, residential, commercial, office, cultural, public facilities and other uses appropriate in the urban core;
- To prioritise the development of town centre lands in order to consolidate the development of the town;
- To encourage the use of buildings and backlands, in particular the full use of upper floors, preferably for residential purposes.

Subject to adherence and implementation of relevant polices and measures including NH 01, NH 02, TCR O1, TCR O5, FM P1 and FM08 positive impacts are identified for population and human health, material assets, landscape, cultural heritage and soil and geology SEOs.

7.10.2 RESIDENTIAL ZONINGS

The Core Strategy for County Laois is set out under Section 2 of the Laois County Development Plan 2017 – 2023. The LAP identifies approximately 82.16ha. of undeveloped residentially zoned land (Residential 2), located within and adjacent to established residential areas within the town. The housing capacity of these lands is estimated to be approximately 2,875 residential units, based on a density of 35 units per hectare. Over the lifetime of the LAP, priority for residential development should be given to the development of these lands to consolidate the built up area of the town.

Currently capacity exists in the Foul Sewer Network, Waste Water Treatment Plant and Public Water Supply.

The Residential 2 zoning relates to new residential land use zonings these are all located close to or adjacent to existing residential areas. Lands in the south west of the plan area are zoned for Residential 2 and are close to the River Triogue but a buffer of open space is allowed for. All of the Residential 2 landuse zoning identified in the plan is at a distance

from the River Triogue, thus avoiding areas of flood risk and providing for a buffer zone for the River – application and adherence to existing LAP objectives relating to water quality and flood risk are relevant in this context –see for example: FM P1, FM P2, FM P3 and NH O11.

Two Opportunity Sites - The Centrepoint Site and the Maltings Site are zoned for Mixed Use and these are identified as positive for number of SEOs, as they support town centre and brownfield lands use.

Most of the impacts identified for residential development zones are identified as being mitigated at project level through development management. Positive impacts were identified for population and human health, plus a number of material assets such as sustainable transport.

7.10.3 AMENITY AND OPEN SPACE

Lands of 140.9ha. are zoned for Amenity and Open Space in the plan area. Many smaller areas relate to existing open green space associated with residential development. Potential Impacts identified with such zonings include disturbance to species through increased access and accompanying noise or human presence. The Objective for this zoning in the LCC plan is "*to preserve, provide for and improve active and passive recreational open space".*

Larger areas relate to the public park and the golf course in the south of the plan area.

Generally, impacts are positive for a range of parameters including soil and geology, population and human health, flood risk, water quality and landscape. The opportunities to enhance these areas through public realm improvements and/or green and blue infrastructure measures contribute positively longer term to biodiversity, water and climate change adaptation SEOs also.

7.10.4 COMMUNITY/EDUCATIONAL/INSTITUTIONAL

The Community/Educational/Institutional lands are largely concentrated close to the existing town centre and the land use objective for this zoning is "*to protect and provide for local neighbourhood, community, ecclesiastical, recreational and educational facilities".* This zoning confirms existing uses commonly associated with schools or churches or the hospital and prison in the east of the plan area. A total of 102.9ha. has been zoned under this land use.

Other undeveloped lands zoned for this use are close to the town centre where possible to facilitate and promote town/village centre viability and easy access to these facilities for inhabitants of the town.

Again on undeveloped lands, negative impacts are identified for biodiversity and soil due to development on greenfield sites, but for many SEOs these can be mitigated through development management and relevant policies and objectives in the Plan. Positive impacts are identified for population and human health, transport and air quality for these zonings.

7.10.5 INDUSTRIAL

Lands totalling 36.91ha. are zoned for Industrial use. This in part reflects the historical land uses within the town, as well as confirming existing industrial land use, for example in the southwest of the plan area at Clonminam, currently in use as an Industrial Estate and Business Park. A review of aerial photography shows that this undeveloped land is characterised by improved agricultural grassland with hedgerow boundaries and a central area comprising forestry including some broadleaf species.

Mitigation measures in the plan relating to retention of hedgerows, additional tree planting and green infrastructure should be considered in relation to development on these lands.

The range of impacts will vary according to the potential use, however for most of the SEOs, the impacts are considered to be addressed through mitigation at development management level.

7.10.6 ENTERPRISE AND EMPLOYMENT

Lands totalling 178.59ha. are zoned for Enterprise and Employment, these are concentrated on the south west plan area and are either side of the Utilities and Transport Zoning. This relates to the Togher National Enterprise Lands zoning.

The objective of this zoning is *"to accommodate commercial and enterprise uses that are incapable of being situated in a town centre location, including low input and emission manufacturing, campus style offices, storage uses, wholesaling and distribution, commercial services with high space and parking requirements".* Business Park type development shall be provided in high quality landscaped campus style environments, incorporating a range of amenities.

The uses in this zone are likely to generate a considerable amount of traffic by both employees and service movements. Sites should therefore have good vehicular and public transport access. The implementation of mobility management plans will be required to provide important means of managing accessibility to these sites.

These lands are close to the M7 and existing plans and objectives in the LAP both support this as well as investigating the potential re-opening of the railway line at Togher (TM O14). A masterplan has been prepared for these lands which will further integrated environmental considerations at local level.

Subject to implementation of appropriate mitigation measures, no significant adverse effects are identified for this zoning.

7.10.7 UTILITIES AND TRANSPORT

Lands of 70.88ha. are zoned for Utilities and Transport. A large area in the south west of the plan area is buffered by the Enterprise and Employment use. Other areas identified for this zoning include the wastewater treatment plant and reserved lands associated with transport uses.

A wedge shaped Utilities zoning east of the Golf course comprises grassland with built land and artificial surfaces and some hedgerows. It is approximately 300m northwest of the River Triogue.

Mitigation measures in the plan including KI P1, KI O8, NH O12, and NH O11 will address potential adverse effects at development management level.

7.10.8 GENERAL BUSINESS

Lands totalling 62.3ha. are zoned for General Business. The objective of this is *"to provide for and improve commercial activities".*

Within the plan area, this zoning largely corresponds to existing landuse activities. The area of undeveloped land identified for this zoning is an area south of Portlaoise Retail Park, which, based on a review of aerial photography is characterised by agricultural land – of note is that the River Triogue flows through this so key mitigation measures relating to flood risk management, buffers for watercourses, ground and surface water quality and integration of green and blue infrastructure are important for this particular area.

7.10.9 STRATEGIC RESIDENTIAL RESERVE

38ha. are zoned for Strategic Reserve. The objective is "*to provide lands for future development in line with national and regional target".* As this land use is identified as lands which may be considered for zoning during a subsequent review of the LAP impacts are not envisaged over the lifetime of this plan.

7.10.10 NEIGHBOURHOOD CENTRE

Lands comprising 9.66ha. are identified for this land use, these are located close to existing residential or community/educational/institutional land uses. They largely confirm existing land uses.

7.11 IN-COMBINATION AND CUMULATIVE SIGNIFICANT EFFECTS

This section of the Environmental Report provides an outline of the potential cumulative effects on the environment as a result of implementation of the LAP. Figure 25 presented the overall environmental sensitivity mapping for the LAP.

Cumulative effects are referred to in a number of SEA Guidance documents and are defined in the EPA SEA Process Checklist as "*effects on the environment that result from incremental changes caused by the strategic action together with other past, present and reasonably foreseeable future actions. These effects can result from individually minor but collectively significant actions taking place over time or space*"[10]. These effects can be insignificant individually but cumulatively over time and from a number of sources can result in the degradation of sensitive environmental resources. The assessment of cumulative effects is a requirement of the SEA Directive (2001/42/EC).

[10] (EPA SEA Process Checklist (2011)).

The 2004 Guidelines produced by the DECLG outlines that the SEA process is in a good position to address cumulative effects for which the Environmental Impact Assessment process is not equipped to deal with. Due to the strategic nature of the SEA process a forum is provided in which cumulative effects can be addressed. The EPA is presently undertaking a study in relation to cumulative effects and it is anticipated that a draft Cumulative Effects – Best Practice Guidance Document will be available soon to SEA practitioners.

The EPA Strive Report 2007-2013 on 'Integrated Biodiversity Impact Assessment' describes cumulative effects as incremental effects resulting from a combination of two or more individual effects, or from an interaction between individual effects – which may lead to a synergistic effect (i.e. greater than the sum of the individual effects), or any progressive effect likely to emerge over time.

The SEA ER of the Laois CDP 2017-2023 provided a cumulative assessment of national level plans and programmes as they relate to the CDP, as this are more appropriately assessed at County level, they are not included within this cumulative impact assessment, rather the focus in on regional/locals plans and projects, as these are considered to be the most appropriate scale and potential relevance to the plan area and zone of influence.

7.11.1 POTENTIAL CUMULATIVE EFFECTS FROM OTHER PLANS AND PROJECTS

Table 7: Potential cumulative and in combination effects

Plan	Comment	Cumulative effects
Water Services Strategic Plan	Ireland's first integrated national plan for the delivery of water services, the Water Services Strategic Plan (WSSP) addresses six key themes and was adopted in 2015. It was subject to full SEA and AA and concluded that overall, the assessment has identified that the implementation of the draft WSSP is likely to have positive effects on the majority of the SEOs that have been used in the assessment to help characterise the environmental effects of the WSSP and no significant negative effects were identified.	No in-combination impacts were predicted as a result of implementation of the Plans.
Neighbouring County Development Plans	These plans were subject to full SEA and AA and concluded that subject to full adherence and implementation of measures likely significant effects were not identified.	No in-combination impacts were predicted as a result of implementation of the Plans.
River Basin District Management Plans	The second cycle of these plans (2015 to 2021) are currently in preparation and will provide management measures to achieve WFD Objectives up to 2021. This plan is undergoing both SEA and AA and is in draft form.	No in-combination impacts are predicted as a result of implementation of the Plans.
CFRAMS	The Eastern CFRAM study has been	Recommendations in

Plan	Comment	Cumulative effects
Study	commissioned in order to meet the requirements of the Floods Directive, as well as to deliver on core components of the 2004 National Flood Policy, in the Eastern district.	relation to this are noted. No adverse effects identified.
Laois Local Economic and Community Plan 2016-2021	The plan supports a range of high level goals, actions and objectives. It was subject to SEA and AA Screening, and was developed with support from the Forward Planning Section.	The plan is consistent with the CDP and no adverse in combination or cumulative effects are identified.
Laois Heritage Plan 2014-2019	Key objectives as follows: -Objective 1: Increase understanding of the heritage of Laois; -Objective 2: Record the heritage of Laois; -Objective 3: Protect and promote active conservation of the heritage of Laois; -Objective 4: Promote community participation in heritage plans and projects; -Objective 5: Promote enjoyment and accessibility of heritage sites.	Positive interactions with SEOs in relation to this plan, no adverse cumulative effects identified.
Irelands Ancient East and Laois Tourism Strategy 2018-2023	A range of proposed actions and projects and targets in terms of aligning with the Ancient East and increasing tourism numbers form part of this strategy. Key project identified for Portlaoise relates to Maryborough Fort as follows: Examine the development of the Maryborough Fort in Portlaoise as a tourism stimulus project for Portlaoise to position the town as an engine for tourism growth across the county.	This project is also included in 2040 and Beyond: A Vision for Portlaoise and is not identified as giving rise to adverse cumulative effects.

8 MITIGATION MEASURES

8.1 INTRODUCTION

This chapter outlines the mitigation measures that will prevent, reduce, and offset as much as possible any significant adverse effects on the environment of the plan area resulting from the implementation of the LAP. Section (g) of Schedule 2B of the SEA Regulations (as amended) requires *'The measures envisaged to prevent, reduce and as fully as possible offset any significant adverse effects on the environment of implementing the Plan'.*

Mitigation involves ameliorating significant negative effects. Where the environmental assessment identifies significant adverse effects, consideration is given in the first instance to preventing such impacts or where this is not possible, to lessening or offsetting those effects. Mitigation measures can be generally divided into those that:

- Avoid effects;
- Reduce the magnitude or extent, probability and/or severity of effect;
- Repair effects after they have occurred, and
- Compensate for effects, by balancing out negative impacts with positive ones.

The iterative process of the LAP preparation has facilitated the integration of environmental considerations into the LAP. In addition, potential positive effects of implementing the LAP have been and will be maximized and potential adverse effects have been and will be avoided, reduced or offset.

Many impacts will be more adequately identified and mitigated at project and EIA level. In general terms, all proposals for development will be required to have due regard to environmental considerations outlined in this Environmental Report and associated assessments including the Screening for Appropriate Assessment/Natura Impact Report and Strategic Flood Risk Assessment. Proposals for development which are deemed contrary to the environmental objectives contained in the Laois CDP 2017-2023 and Portlaoise LAP 2018-2024 will not normally be permitted, and if permitted, not without the appropriate site and development specific mitigation measures.

There were also a number of policies/objectives associated with the LAP that were identified as potentially generating significant adverse impacts on the environment, and suggested rewording of these proposals are put forward for consideration and recommended for inclusion in the LAP.

This chapter is structured as follows:

- 8.2 Environmental Protection Measures in the Laois County Development Plan 2017-2023
- 8.3 Mitigation measures –amendment of text in the Portlaoise LAP

8.2 EXISTING ENVIRONMENTAL POLICIES AND OBJECTIVES IN THE LAOIS COUNTY DEVELOPMENT PLAN 2017-2023

Ref	Text
CS13	Contribute towards compliance with EU Directives - including the Habitats Directive (92/43/EEC, as amended), the Birds Directive (2009/147/EC), the Environmental Impact Assessment Directive (85/337/EEC, as amended) and the Strategic Environmental Assessment Directive (2001/42/EC) and relevant transposing Regulations.
CS14	Ensure that lower levels of decision making and environmental assessment consider the sensitivities identified in the SEA Environmental Report that accompanies the Development Plan, Laois County Development Plan 2017-2023.
CS15	Assess proposals for development in terms of, inter alia, potential impact on existing adjacent developments, existing land uses and/ or the surrounding landscape. Where proposed developments would be likely to have a significant adverse effects on the amenities of the area through pollution by noise, fumes, odours, dust, grit or vibration, or cause pollution of air, water and/or soil, the Council shall ensure the introduction of mitigation measures in order to eliminate adverse environmental impacts or reduce them to an acceptable operating level.
CS10	Provide for active and efficient use of derelict sites, vacant premises, neglected lands, disused (brownfield) or underused lands that are zoned and served by existing public infrastructure and facilities, to consolidate the urban form, improve streetscapes, support housing delivery and smarter travel as well as strengthen the vitality and vibrancy of urban areas, by way of the development management process and other mechanisms including the imposition of levies under the Urban Regeneration and Housing Act 2015 and Derelict Sites Act 1990, the preparation of opportunity site briefs and the consideration of incentives in the preparation of Development Contributions Scheme(s).
CS11	Encourage the re-use of the existing building stock in an appropriate manner in line with standard conservation principles and the Council's policy on sustainable development in order to integrate proposed development into the existing streetscape and to reduce potential construction and demolition waste.
CS20	Implement the actions of the Portlaoise Public Realm Strategy / 2040 And Beyond A Vision For Portlaoise to improve the character of the town of Portlaoise.
CS21	In Portlaoise, seek the improvement of pedestrian and cycling linkages between: (i) Portlaoise Railway Station; (ii) Lyster Square/ Main Street/Kylekiproe; (iii) Portlaoise Leisure Centre; (iv) Portlaoise College and running track; (v) Borris Road schools.
NRA 1	Encourage and facilitate, in consultation with relevant stakeholders, the development of green infrastructure that recognises the synergies that can be achieved with regard to the following: (i) Provision of open space amenities; (ii) Sustainable management of water; (iii) Protection and management of biodiversity; (iv) Protection of cultural heritage; (v) Protection of protected landscape sensitivities.

ECN13	Direct labour intensive enterprises to town centre/edge of centre locations and brownfield sites and favour brownfield sites over greenfield sites for general enterprise development in the interests of sustainability and orderly development.
ECN17	Seek to provide opportunities for highly-skilled outbound commuters to work locally through local employment opportunities, tourism opportunities, the development of an e-working centre or working-from-home arrangements facilitated by high-speed broadband in the interests of sustainable economic development, smarter travel and quality of life considerations.
EC 18	Support community initiatives to foster stronger engagement between commuters and their local towns and villages.
ECN21	Encourage the maintenance of town/village centre buildings and improve the quality of the public realm in town/village centres making them more attractive and safe to locals and visitors, as well as more pedestrian and cycle-friendly. Prepare Public Realm Strategies, where appropriate, liaising closely with residents, visitors and other relevant stakeholders.
TRANS6	Ensure that all proposed plans or projects relating to transportation (including walking, cycling, rail, bus and roads) and any associated improvement works, individually or in combination with other plans or projects, are subject to Appropriate Assessment Screening to ensure there are no likely significant effects on the integrity (defined by the structure and function) of any Natura 2000 site(s) and that the requirements of Articles 6(3) and 6(4) of the EU Habitats Directive are fully satisfied. Where the plan or project is likely to have a significant effect on a Natura 2000 site, or there is uncertainty with regard to effects, it shall be subject to Appropriate Assessment. The plan or project will proceed only after it has been ascertained that it will not adversely affect the integrity of the site or where in the absence of alternative solutions, the project is deemed imperative for reasons of overriding public interest, all in accordance with the provisions of Articles 6(3) and 6(4) of the EU Habitats Directive.
PWS 1	Protect both ground and surface water resources and to work with Irish Water to develop and implement Water Safety Plans to protect sources of public water supply and their contributing catchment.
WS4	Work with IW on developing and upgrading the water supply schemes so as to ensure an adequate,resilient, sustainable and economic supply of piped water meeting targets in relation to quality as set out in the IWs WSSP is available for domestic, commercial, industrial, fire safety and other use for the sustainable development of the county in accordance with the settlement structure identified in this plan. All Capital projects and programmes associated with the provision of water supply or wastewater and surface water treatment must be assessed in accordance with Article 6 of the Habitats Directive in order to avoid adverse impacts on Natura 2000 sites.
WS30	Protect and develop, in a sustainable manner, the existing groundwater sources and aquifers in the County and control development in a manner consistent with the proper management of these resources, in accordance with the County Source Protection Zones.
WS31	Ensure the protection of groundwater dependant Natura 2000 sites which rely on the continued supply of groundwater resources to secure the key environmental conditions that support the integrity of the site and through the protection of groundwater

	standards as defined by the relevant River Basin Management Plan. Where no detailed plan for protection of a specific source is available wastewater discharge will not be permitted within a radius of 300 metres of that source.
WS32	Ensure the protection of groundwater dependant Natura 2000 sites which rely on the continued supply of groundwater resources to secure the key environmental conditions that support the integrity of the site and through the protection of groundwater standards as defined by the relevant River Basin Management Plan. All Capital projects and programmes associated with the provision of water supply or wastewater and surface water treatment must be assessed in accordance with Article 6 of the Habitats Directive in order to avoid adverse impacts on Natura 2000 sites.
WS33	Consult as necessary with other competent authorities with responsibility for environmental management.
WS34	Comply with the provisions of the Water Framework Directive 2000.
WS35	To assist and co-operate with the EPA and the Lead Authorities in the continued implementation of the EU Water Framework Directive.
WS36	To ensure, through the implementation of the River Basin Management Plans and their associated Programmes of Measures and any other associated legislation, the protection and improvement of all drinking water, surface water and ground water.
FD1	Ensure that flood risk management is incorporated into the preparation of all local area plans through the preparation in accordance with the requirements of the Planning System and Flood Risk Management-Guidelines for Planning Authorities (DoEHLG 2009).
CC1	Support and facilitate the national objectives for climate adaptation and work with the EPA, the Eastern and Midland Regional Assembly and adjoining planning authorities in implementing future guidance for climate change proofing of land use plan provisions as is flagged in the National Climate Change Adaptation Framework (DECLG, 2012).
CC2	Prepare a Climate Change Adaptation plan following the adoption of the Development Plan, in line with relevant Government guidelines.
ES1	Facilitate and promote the implementation of the Eastern-Midlands Regional Waste Management Plan 2015 – 2021 within its functional area.
ES11	Promote the preservation of best ambient air quality compatible with sustainable development in accordance with the EU Ambient Air Quality and Cleaner Air for Europe (CAFE) Directive (2008/50/EC) and ensure that all air emissions associated with new developments are within Environmental Quality Standards as out in the Air Quality Standards Regulations 2011 (SI No. 180 of 2011) (or any updated/superseding documents).
ES18	Encourage the maintenance of dark skies in rural areas and limit light pollution in urban and rural areas.
ES21	Ensure good soil quality throughout the county by requiring developments of a certain nature (as specified in the relevant environmental legislation) to carry out assessments of the impact of the development on soil quality.

ES22	Recognise the significant impacts of land use, land use change and sludge generation and treatment in relation to carbon loss/ stocks and recognise the function of soil assessment and management, carbon sinks, carbon sequestration and restoration of degraded lands in plan led settlement and development strategies.
EN4	Promote and encourage the development of energy from renewable sources such as hydro, bio-energy, wind, solar, geothermal and landfill gas subject to compliance with normal planning and environmental criteria and the development management standards contained in Section 8.
BH6	Encourage the full use of Protected Structures, subject to the compatibility of the use with the character of the Protected Structures.
BH11	Consider favourably development proposals within an ACA that would either preserve or enhance the special character or appearance of the ACA. In considering applications for changes of use, the Council will be concerned with maintaining the character of that area.
ARCH5	Ensure protection of Zones of Archaeological Potential, as identified in the Record of Monuments and Places.
BIO1	Comply with the objectives of the National Biodiversity Plan 2011-2016 (and any future National Biodiversity Plan which may be adopted during the period of this plan) as appropriate to County Laois.
BIO2	Contribute, as appropriate, towards the protection of designated ecological sites including candidate Special Areas of Conservation (cSACs) and Special Protection Areas (SPAs); Ramsar Sites; Wildlife Sites (including Natural Heritage Areas, proposed Natural Heritage Areas and Nature Reserves); Salmonid Waters; Flora Protection Order sites; and Freshwater Pearl Mussel catchments (the River Nore Freshwater Pearl Mussel sub-basin management Plan should be referenced in this regard).
NH08	All projects and plans arising from this plan (including any associated improvement works or associated infrastructure) will be screened for the need to undertake Appropriate Assessment under Article 6 of the Habitats Directive. A plan or project will only be authorised after the competent authority has ascertained, based on scientific evidence, Screening for Appropriate Assessment, and a Stage 2 Appropriate Assessment where necessary, that: 1. The Plan or project will not give rise to significant adverse direct, indirect or secondary effects on the integrity of any European site (either individually or in combination with other plans or projects); or 2. The Plan or project will have significant adverse effects on the integrity of any European site (that does not host a priority natural habitat type/and or a priority species) but there are no alternative solutions and the plan or project must nevertheless be carried out for imperative reasons of overriding public interest, including those of a social or economic nature. In this case, it will be a requirement to follow procedures set out in legislation and agree and undertake all compensatory measures necessary to ensure the protection of the overall coherence of Natura 2000; or 3. The Plan or project will have a significant adverse effect on the integrity of any European site (that hosts a natural habitat

	type and/or a priority species) but there are no alternative solutions and the plan or project must nevertheless be carried out for imperative reasons for overriding public interest, restricted to reasons of human health or public safety, to beneficial consequences of primary importance for the environment or, further to an opinion from the Commission, to other imperative reasons of overriding public interest. In this case, it will be a requirement to follow procedures set out in legislation and agree and undertake all compensatory measures necessary to ensure the protection of the overall coherence of Natura 2000.

8.3 MITIGATION MEASURES-AMENDMENT OF TEXT

Additional text identified through the SEA process is included in **blue, bold** font.

LAP	Mitigation Measure	Included in LAP Yes/No
Key Plan Objectives Additional objective	**7. To require the preparation and assessment of all planning applications in the plan area to have regard to the information, data and requirements of the Appropriate Assessment Natura Impact Report, SEA Environmental Report and Strategic Flood Risk Assessment Report that accompany this LAP.**	Yes
Opportunity Site 1 Lyster Square	Public realm improvements would be beneficial, **should be consistent with the Guiding Principles for Lyster Square as outlined in 2040 and Beyond: A Vision for Portlaoise. Landscaping proposals including tree planting and 'greening' of the area.**	Yes
Opportunity Site 2 Fitzmaurice Place	**Interventions for this area, as described under *'Fort Protector a Heritage Quarter* 'and '*The Convent, CBS and Parish Lands*' in the 2040 and Beyond: A Vision for Portlaoise, should be considered and reflected in development proposals.**	Yes
Opportunity Site 3 Centre Point	Public realm improvements would be beneficial **and should seek to maximise green and blue infrastructure through landscape design.**	Yes
Opportunity Site 4 Mountmellick Road	Public realm improvements would be beneficial **and should seek to maximise green and blue infrastructure through landscape design.**	
KI O9	Maintain, improve and enhance the environmental and ecological quality of surface waters and groundwater in accordance with ~~the South Eastern River Basin District River Basin Management Plan~~ **National River Basin Management Plan for Ireland 2018-2021 (DHPLG) and associated Programme of Measures.**	Yes
KI O10	Ensure developments will not adversely impact on the status of waterbodies in accordance with the Water Framework Directive and ~~South Eastern River Basin District River Basin Management Plan~~ **National River Basin Management Plan for Ireland 2018-2021 (DHPLG).**	Yes
KI O11	Facilitate, promote and encourage the expansion and improvement of telecommunications, broadband, electricity and gas networks infrastructure **subject to proper planning and sustainable development.**	Yes

KI 08	Co-operate with and facilitate the work of national telecommunications, broadband, electricity and gas network providers in the improvement, expansion and provision of energy and communication infrastructure **subject to proper planning and sustainable development.**	Yes
KIP 05	Assess all applications in the context of available and sufficient public infrastructural facilities, the protection of Surface Water and Groundwater Resources **and their associated habitats and species**[11].	
NH O5	Carry out and require the planting of **native** trees, hedgerows and vegetation in all new developments.	Yes
NH O6	Open up visual and physical access via the River Triogue from People's Park as a continuous pedestrian and cycle link through the town centre, and potentially through the Convent Lands **having regard to ecological considerations including protected species and habitats**.	Yes
NH O10	Protect environmental quality and implement **site appropriate** mitigation measures with respect to air quality, greenhouse gases, climate change, light pollution, noise pollution and waste management.	Yes

[11] On foot of EPA Scoping submission

9 MONITORING

9.1 INTRODUCTION

It is proposed, in accordance with Article 10 of the SEA Directive, to base monitoring on a series of indicators which measure changes in the environment, especially changes which are critical in terms of environmental quality, for example water pollution levels. Monitoring will focus on the aspects of the environment that are likely to be significantly impacted upon by the implementation of the LAP.

The targets and indicators are derived from the Strategic Environmental Objectives (SEOs) discussed in Chapter Five. The target underpins the objective whilst the indictors are used to track the progress of the objective and targets in terms of monitoring of impacts.

The monitoring programme will consist of an assessment of the relevant indicators and targets against the data relating to each environmental component. Similarly, monitoring will be carried out frequently to ensure that any changes to the environment can be identified.

9.2 FREQUENCY OF MONITORING AND REPORTING

Should new data or the following occur, additional monitoring will be required:

- Pollution events associated with construction;
- Boil notices on drinking water;
- Fish kills;
- Court cases taken by the DEHLG regarding impacts upon archaeological heritage including entries to the Record of Monuments and Places; and,
- Complaints received from statutory consultees regarding avoidable impacts resulting from development which is granted permission under the LAP.

In turn the list below is subject to review at each reporting stage to reflect new data. Laois County Council are responsible for the implementation of the SEA Monitoring Programme including:

- Monitoring specific indicators and identifying any significant effects, including cumulative effects;
- Collating the Environmental Reports (such as Environmental Impact Assessment Reports, Natura Impact Reports etc) submitted by developers in the LAP area;
- Reviewing the effectiveness of monitoring/mitigation measures during the lifetime of the LAP; and
- Identifying any cumulative effects.

It is recommended that the monitoring report be made available to the public upon its completion.

Table 8: Monitoring Table

SEA Topic	Strategic Environmental Objectives	Indicator	Selected Target	Source (Frequency)
Biodiversity Flora and Fauna	**B1:** To ensure compliance with the Habitats and Birds Directives with regard to the protection of Natura 2000 Sites and Annexed habitats and species	**B1:** Conservation status of habitats and species as assessed under Article 17 of the Habitats Directive	**B1:** Maintenance of favourable conservation status for all habitats and species protected under National and International legislation to be unaffected by implementation of the plan	-Internal monitoring of likely significant effects -Department of Arts, Heritage, Regional, Rural and Gaeltacht Affairs report of the implementation of the measures contained in the Habitats Directive - as required by Article 17 of the Directive (every 6 years); -Department of Arts, Heritage, Regional, Rural and Gaeltacht Affairs's National Monitoring Report for the Birds Directive under Article 12 (every 3 years); -Consultations with the NPWS
	**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	**B2:** Percentage loss of functional connectivity without remediation resulting from development provided for by the Plan	**B2:** No significant ecological networks or parts thereof which provide functional connectivity to be lost without remediation resulting from development provided for by the Plan	-Internal monitoring of likely significant environmental effects of grants of permission (grant by grant); -CORINE mapping resurvey (every c. 5 years); -Review of Council Ecological Network Mapping

SEA Topic	Strategic Environmental Objectives	Indicator	Selected Target	Source (Frequency)
	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	**B3i:** Number of significant impacts on relevant habitats, species, environmental features or other sustaining resources in designated sites including Wildlife Sites resulting from development provided for by the Plan **B3ii:** Number of significant impacts on the protection of listed species	**B3i:** Avoid significant impacts on relevant habitats, species, environmental features or other sustaining resources in designated sites including Wildlife Sites resulting from development provided for by the Plan **B3ii:** No significant impacts on the protection of listed species	-Internal monitoring of likely significant environmental effects of grants of permission (grant by grant); -Consultations with the NPWS.
Population and	**PHH1:** To protect	**PHH1:** Occurrence (any) of a	**PHH1:** No spatial	-Consultations with EPA and Health

SEA Topic	Strategic Environmental Objectives	Indicator	Selected Target	Source (Frequency)
human health Noise 	populations and human health from exposure to incompatible land uses ***including adverse noise and air quality impacts***	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	concentrations of health problems arising from environmental factors as a result of implementing the Plan	Service Executive
Water 	**W1:** To maintain and improve, where possible, the quality and status of surface waters	**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	**W1:** Not to cause deterioration in the status of any surface water or affect the ability of any surface water to achieve 'good status'47 by 2015	-Internal monitoring of likely significant environmental effects of grants of permission (grant by grant); -Data issued under the Water Framework Directive Monitoring Programme for Ireland (multi-annual)
	W2: To prevent pollution and contamination of ground water	**W2:** Groundwater Quality Standards and Threshold Values under Directive 2006/118/EC	**W2:** Not to affect the ability of groundwaters to comply with Groundwater Quality Standards and Threshold Values under Directive 2006/118/EC	-Internal monitoring of likely significant environmental effects of grants of permission (grant by grant); -Data issued under the Water Framework Directive Monitoring Programme for Ireland (multi-annual)
	W3: To comply as appropriate with the provisions of the Planning System	**W3:** Number of incompatible developments granted permission on lands which pose - or are likely to pose in	**W3:** Minimise developments granted permission on lands which pose - or are likely to pose in the future - a	-Internal monitoring of likely significant environmental effects of grants of permission (grant by grant)

SEA Topic	Strategic Environmental Objectives	Indicator	Selected Target	Source (Frequency)
	and Flood Risk Management: Guidelines for Planning Authorities (DEHLG, 2009)	the future - a significant flood risk	significant flood risk in compliance with The Planning System and Flood Risk Management Guidelines for Planning Authorities	
Soil and Geology	**S1:** To avoid damage to the hydrogeological and ecological function of the soil resource	**S1:** Soil extent and hydraulic connectivity	**S1:** To minimise reductions in soil extent and hydraulic connectivity	-Internal monitoring of likely significant environmental effects of grants of permission (grant by grant)
	***S2: To maximise the sustainable re-use of brownfield lands, and the existing built environment, rather than developing greenfield lands***.	***S2: Permission granted on Opportunity Sites.*** ***% Occupancy of buildings in town centre***	***S2: Number of Opportunity Sites developed over lifetime of the plan***	***-Grant by grant***
Material Assets	**M1:** To serve new development with adequate and appropriate wastewater treatment	**M1:** Number of new developments granted permission which can be adequately and appropriately served with waste water treatment over the lifetime of the Plan	**M1:** All new developments granted permission to be connected to and adequately and appropriately served by waste water treatment over the lifetime of the Plan	-Internal monitoring of likely significant environmental effects of grants of permission (grant by grant)

SEA Topic	Strategic Environmental Objectives	Indicator	Selected Target	Source (Frequency)
	**M2:** To serve new development with adequate drinking water that is both wholesome and clean	**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	**M2:** No 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	-Internal monitoring of likely significant environmental effects of grants of permission (grant by grant)
	M3: To reduce waste volumes, minimise waste to landfill and increase recycling and reuse	**M3i:** Total collected and brought household waste **M3ii:** Packaging recovered (t) by self-complying packagers	**M3i:** Minimise increases in and, where possible, reduce household waste generation **M3ii:** Maximise increases in packaging recovered (t) by self-complying packagers	-EPA National Waste reports
Climate Change, Air Quality and Noise	**C1:** To reduce travel related emissions to air and to encourage modal change from car to more sustainable forms of transport	**C1:** Percentage of population travelling to work, school or college by public transport or non-mechanical means	**C1:** An increase in the percentage of the population travelling to work, school or college by public transport or non-mechanical means	-CSO Population Data
	***C2:*** *Ensure that the LAP proposals are adaptive to expected climate*	***C2:*** *Number of SUDs measures included and developed as part of planning applications. Number/extent of additional*	***C2:*** *An increase in extent of Blue and Green infrastructure linkages in plan area*	*-Grants of permission*

SEA Topic	Strategic Environmental Objectives	Indicator	Selected Target	Source (Frequency)
	change patterns	*tree planting as part of planning applications.*		
Cultural Heritage	**CH1:** To protect archaeological heritage including entries to the Record of Monuments and Places and/or their context	**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	**CH1:** Protect entries to the Record of Monuments and Places - including Areas of Archaeological Potential and Significance (and their context of the above within the surrounding landscape where relevant) from significant adverse effects arising from new development granted permission under the Plan	-Grants of permission
	**CH2:** To protect architectural heritage including entries to the Record of Protected Structures and Architectural Conservation Areas and their context	**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	**CH2:** Protect entries to the Record of Protected Structures and Architectural Conservation Areas and their context from significant adverse effects arising from new development granted permission under the Plan	-Internal monitoring of likely significant environmental effects of grants of permission (grant by grant); -Consultation with Department of Arts, Heritage, Regional, Rural and Gaeltacht Affairs
Landscape	**L1:** To minimise significant adverse visual impacts within and adjacent	**L1:** Number of complaints received from statutory consultees regarding avoidable adverse visual	**L1:** No developments permitted which result in avoidable adverse visual impacts on the landscape	-Internal monitoring of likely significant environmental effects of grants of permission (grant by grant)

SEA Topic	Strategic Environmental Objectives	Indicator	Selected Target	Source (Frequency)
	to the County	impacts on the landscape resulting from development which is granted permission under the Plan	resulting from development which is granted permission under the Plan	
	***L2: To protect and enhance landscape character and quality within and adjacent to the LAP area***	***L2: Number of Opportunity Sites and interventions from A vision for Portlaoise 2014 implemented over lifetime of plan***	***L2: Adherence to all principles in A Vision for Portlaoise 20140***	-Internal monitoring of likely significant environmental effects of grants of permission (grant by grant)
Interrelationships	***Maintain and improve the health of people, ecosystems and natural processes***	***Blue and Green Infrastructure measures implemented over lifetime of plan***	***Increased network of blue and green infrastructure achieved over lifetime of the plan***	-Internal monitoring of likely significant environmental effects of grants of permission (grant by grant)
	***Actively seek to integrate opportunities for environmental enhancement***	***As above***	***As above***	-Internal monitoring of likely significant environmental effects of grants of permission (grant by grant).

9.3 CONCLUSION

This SEA Environmental Report demonstrates how environmental parameters have been addressed in the plan preparation process. Consultation was undertaken for the Scoping of this Environmental Report and during the draft plan display period.

The SEA and Appropriate Assessment has been undertaken in line with the Planning and Development (Strategic Environmental Assessment) Regulations 2004 to 2011 (as amended). Subject to the full and proper implementation of the mitigation measures outlined in this SEA Environmental Report and the Portlaoise LAP 2018-2024 including detailed design at planning application stage, it is considered that significant adverse impacts on the environment will be avoided.