

Kildare County Council

**Maynooth Local Area Plan 2013-
2019**

SEA Environmental Report

REP1

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1 Introduction

Arup was appointed by Kildare County Council to carry out a Strategic Environmental Assessment (SEA) Environmental Report of the proposed Maynooth Local Area Plan (LAP).

This Environmental Report presents the findings of the environmental assessment of the likely significant impacts on the environment as a result of the proposed LAP. A Scoping Report¹ was previously prepared which provided information to allow consultation with defined statutory bodies on the scope and level of detail to be considered in the environmental assessment. Any issues or concerns raised during the scoping process or during the consultation period for the LAP will be incorporated into this report. An SEA Statement will be published on finalisation of the LAP and Environmental Report.

1.1 Planning Context

The relevant planning legislation comprises the Planning and Development Act 2000 as amended and the Planning and Development Regulations 2001-2012.

The Maynooth SEA sits within a hierarchy of national, regional and local plans. These include the National Spatial Strategy, regional planning guidelines, the Kildare County Development Plan and other local area plans.

The National Spatial Strategy sets the national context for spatial planning from 2002-2020. The overall aim of this strategy is to achieve a better balance of social, economic and physical development. The National Spatial Strategy deals with development at regional and local level in broad terms. The Planning and Development Act 2000-2006 requires that this strategy is integrated with both regional planning guidelines and county and city development plans.

The Regional Planning Guidelines are the main means by which to implement the National Spatial Strategy, as detailed in Section 21 of the Planning and Development Act 2000. The Regional Planning Guidelines give effect to the National Spatial Strategy at regional level and provide more detailed guidance and policy. They must be consistent with the overall context of the National Spatial Strategy. The overall objective of the guidelines is to provide a long-term strategic planning framework for the development of the region.

The hierarchy of the planning process within Ireland is summarised in the flow chart depicted in **Figure 1**. This flow chart (adapted from the Department of Environment, Heritage and Local Government (DoEHLG) Development Plan Guidelines for Planning Authorities) indicates where the Maynooth Local Area Plan falls within that hierarchy.

¹ Fehily, Timoney & Company & Kildare County Council, 2011. Maynooth Local Area Plan Review – Strategic Environmental Assessment – Scoping Report.

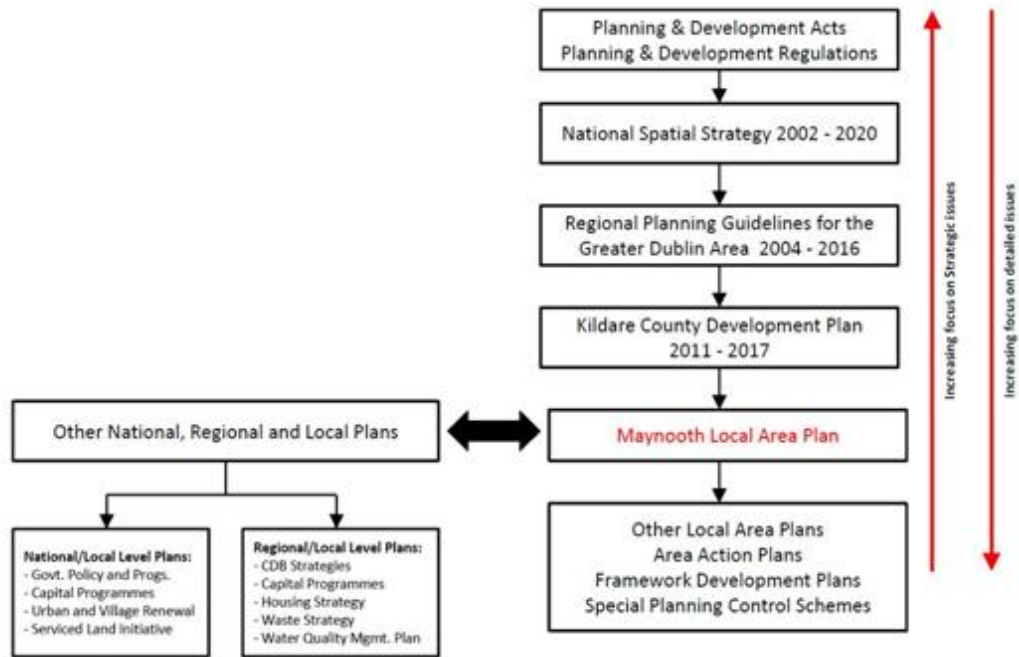


Figure 1: Planning Hierarchy in Ireland

1.2 Maynooth Local Area Plan

The Maynooth Development Plan was adopted in 2002. It's primary aim was:

“to establish a framework for the planned, co-ordinated and sustainable development of Maynooth and for the conservation and enhancement of its natural and built environment”.

The Plan sets out the objective and policies of Kildare County Council in terms of land use planning as well as co-ordinating the activities of the Council with regard to housing, sanitary services and roads.

A revised plan is currently being prepared and is discussed in greater detail in Section 1.3.

1.3 Relationship of the Plan to other Plans and Programmes

As part of the SEA process the context of the LAP must be established with regard to other plans and programmes that have been adopted at International, National, Regional and Local level. In particular the interaction of the LAP with the environmental protection objectives and standards included within these other plans and programmes must be considered.

A wide range of legislation, plans and programmes are of relevance to the revised LAP and are outlined in **Table 1**.

Table 1: Hierarchy of Relevant Legislation, Plans and Programmes

Level	Legislation, Plans and Programmes
International/EU Level	<p>Water Framework Directive & associated Directives</p> <p>SEA Directive</p> <p>Floods Directive</p> <p>Groundwater Directive</p> <p>Habitats Directive</p> <p>Birds Directive</p> <p>Freshwater Fish Directive</p> <p>Shell fish Directive</p> <p>Drinking Water Directive</p> <p>Bathing Water Directive</p> <p>Environmental Impact Assessment Directive</p> <p>Seveso Directive</p> <p>Sewage Sludge Directive</p> <p>Urban Waste Water Treatment Directive</p> <p>Waste Framework Directive</p> <p>Nitrates Directive</p> <p>Soils Directive</p> <p>Framework Directive & associated Air Quality Directives</p> <p>National Emissions Ceiling Directive</p> <p>Environmental Noise Directive</p> <p>IPPC Directive</p> <p>Climate Change Programme (ECCP II)</p> <p>EU Reach Initiative</p> <p>European Landscape Convention</p> <p>UN Convention of Biological Diversity, 1992</p> <p>Kyoto Protocol</p> <p>Stockholm Convention</p> <p>Valetta Convention</p> <p>Ramsar Convention</p> <p>OSPAR Convention</p> <p>MARPOL Convention</p> <p>Granada Convention</p> <p>Gothenburg Strategy</p>
National Level	<p>Programme for Government 2011</p> <p>National Development Plan 2007-2013</p> <p>Infrastructure and Capital Investment 2012-16: Medium Term Exchequer Framework</p> <p>National Climate Change Strategy 2007-2012</p> <p>Delivering a Sustainable Energy Future for Ireland - The Energy Policy Framework 2007-2020</p> <p>National Spatial Strategy 2002-2020</p> <p>Transport 21</p> <p>Sustainable Urban Housing: Design Standards for New Apartments. Guidelines for Planning Authorities (2007)</p> <p>Sustainable Rural Housing Guidelines for Planning Authorities (2005)</p>

	<p>Quality Housing for Sustainable Communities. Best Practice Guidelines for Delivering Homes Sustaining Communities (2007)</p> <p>The Planning System and Flood Risk Management. Guidelines for Planning Authorities (2009)</p> <p>Guidelines for Planning Authorities on Sustainable Residential Development in Urban Areas (Cities, Towns & Villages) (2009)</p> <p>Making Ireland's Development Sustainable (2002)</p> <p>Sustainable Development – A Strategy for Ireland (1997)</p> <p>Actions for Biodiversity 2011-2016 (2nd National Biodiversity Plan)</p> <p>Appropriate Assessment of Plans and Projects in Ireland. Guidelines for Planning Authorities (2009)</p> <p>Architectural Heritage Protection - Guidelines for Planning Authorities (2004)</p> <p>Government Policy on Architecture 2009-2015</p> <p>National Policy on Town Defences (2008)</p> <p>Implementation of Regional Planning Guidelines Best Practice Guidance (2010)</p>
Regional Level	<p>Regional Planning Guidelines for the Greater Dublin Area 2010-2022</p> <p>Regional Waste Management Plans</p> <p>Greater Dublin Strategic Drainage Study</p> <p>Retail Strategy for the Greater Dublin Area 2008-2016</p> <p>Draft Transport Strategy for the Greater Dublin Area up to 2030</p> <p>Eastern River Basin District River Basin Management Plan 2009 – 2013</p> <p>Flood Risk Management Plans</p> <p>Groundwater Protection Schemes</p> <p>Eastern Catchment Flood Risk Assessment Management Study</p>
Local Level	<p>Kildare County Development Plan 2011-2017</p> <p>Kildare County Retail Strategy, 2010</p> <p>County Kildare Heritage Plan 2005</p> <p>Maynooth (Carton Avenue) Action Area Plan</p> <p>Maynooth Harbour Action Area Plan</p> <p>Town Development Plans</p> <p>Other Local Area Plans</p>

2 The Draft Local Area Plan

The existing Maynooth Development Plan is being revised in order to ensure that it meets the requirements for the future development of Maynooth and focuses on the principles established in the Maynooth Development Plan 2002, the framework provided by the Regional Planning Guidelines 2010-2022 and the Kildare County Development Plan 2011-2017. This Plan establishes the framework to guide the development of Maynooth for the next 6 years. The forthcoming North East Kildare Strategic Study will address the development framework for the Kildare metropolitan area up to 2030 and will inform the future development of Maynooth beyond the period of this plan.

The LAP has a critical role to play in ensuring that the needs of the future population are planned for. Maynooth has a number of positive assets, which will aid its development in the future. However there are a number of key challenges that need to be addressed including the following:

- Ensuring that the planning framework is established so that Maynooth can meet its population target in order for the town to be a driver of balanced development within the county and the region.
- Promoting Maynooth as an Economic Growth Town by promoting significant new economic development in the town and facilitating the development of research and development based enterprises.
- Ensuring the availability of local employment opportunities, community and commercial services, recreation and amenity facilities for the existing and future population of Maynooth.
- Facilitating the upgrading of water and wastewater infrastructure in the area thereby facilitating the development of the economy, educational facilities and residential development.
- Delivering strategic transport improvements particularly the upgrading of the railway and the completion of the Maynooth Outer Orbital route.
- Facilitating the development of primary and secondary educational facilities for an expanding population.
- Protecting the unique character of Maynooth as a University town steeped in history and heritage.
- Retaining its separate physical identity, and avoiding coalescence with nearby towns and villages.
- Supporting the re-use of land and buildings, particularly though backland development and regeneration of town centre sites.

The strategic direction of the LAP for the future development of Maynooth focuses on the following key areas:

- **Economic Development:** The plan provides for the consolidation and enhancement of Maynooth's role as a primary economic growth town. This includes the zoning of lands on the Kilcock road adjacent to NUI Maynooth for Research and Development purposes. The existence of the University will allow for spin off industries and enterprises to be developed based on the knowledge economy. This site is in a good position to take advantage of its excellent location adjacent to the University, the town centre and new and

existing residential areas. Maynooth also has a lot to offer a new workforce including vibrant retail, cultural and amenity resources.

- **Planning for Residential Expansion:** The plan ensures the supply of suitably zoned serviced land to accommodate the future growth of Maynooth in line with its designation in the Regional Planning Guidelines. The vast majority of residential growth is provided in the town centre at the Canal Harbour and the new residential zoning between the Moyglare road and the Dunboyne road which is bisected by a green lung of amenity lands and the river Lyreen. These lands take advantage of close proximity to the town centre, educational facilities and amenity facilities and will provide for a range of residential opportunities.
- **Canal Harbour:** The plan also provides for the expansion of the town centre in a sustainable manner by utilising backland areas, in particular the Harbour Area which is located along the Royal Canal and to the east of the College. Through an urban design framework the plan aims to develop in an integrated manner the Harbour Area within the town in order to provide a sustainable urban expansion area, increasing permeability and strengthening the linkage between the town core and the train station, through well designed urban development.
- **Education:** The plan aims to facilitate the appropriate development of educational facilities at NUI Maynooth and promote the development of spin off research and development based enterprises in the town. The expansion of educational activities at the university is vital for the continued development of the town in tandem with the ancillary employment opportunities it creates. The development of an educational campus on the Moyglare road suitable for state of the art primary and secondary school facilities will also be encouraged.
- **Transportation:** The improvement of sustainable transport infrastructure is required to facilitate the development of a high-density employment area, expanded educational facilities, to serve existing retail areas and the residing population. This will include expanded rail services including additional car parking, improved bus frequencies and facilities and the completion of a ring road around Maynooth. The enhancement of the linkages between Maynooth and its complimentary towns in the Kildare Metropolitan area and promoting movement into and out of Maynooth from these towns and the remainder of the Greater Dublin Area will ensure the sustainable development of the town. The development of new vehicular, pedestrian and cycling routes and the enhancement and maintenance of existing routes will ensure the safe and convenient circulation around the town.
- **Heritage:** The plan seeks to protect and enhance the unique architectural and archaeological heritage of the town including the St Patrick's College complex, Main Street and Carton Avenue. The retention of vernacular buildings on the Main Street and its side streets will ensure the character of the town will remain intact. Maynooth can realise its potential as a heritage town and associated tourist destination referencing its cultural heritage dated to significant periods of Irish history.

3 SEA Methodology

3.1 Introduction

The objective of the Strategic Environmental Assessment (SEA) Directive is *'to provide for a high level of protection of the environment and to contribute to the integration of environmental considerations into the preparation and adoption of plans ... with a view to promoting sustainable development'* (Article 1 SEA Directive). It is a systematic, on-going process for evaluating, at the earliest possible stage, the environmental quality and consequences of implementing certain plans and programmes on the environment.

The requirements for SEA in Ireland are set out in the national Regulations as follows:

- European Communities (Environmental Assessment of Certain Plans and Programmes) Regulations (S.I. No. 435 of 2004) as amended by European Communities (Environmental Assessment of Certain Plans and Programmes) (Amendment) Regulations (S.I. No. 200 of 2011).
- Planning and Development (Strategic Environmental Assessment) Regulations (S.I. No. 436 of 2004) as amended by the Planning and Development (Strategic Environmental Assessment) (Amendment) Regulations (S.I. No. 201 of 2011).

This section highlights how the SEA has been undertaken, for the revision of the Maynooth LAP. The SEA methodology is based on legislative requirements and DoEHLG²/EPA³ guidance and will ensure compliance with the SEA Directive and associated legislation. The EPA's SEA Pack (Version 11/10/2011)⁴ was also used as a source of information during the scoping process. The key stages outlined in **Figure 2** were identified and are discussed in the following sections.

² Department of the Environment, Heritage and Local Government (2004). 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.

³ Scott, P & Marsden, P (2003). Development of Strategic Environmental Assessment (SEA) Methodologies for Plans and Programmes in Ireland (2001-DS-EEP-2/5) Synthesis Report Prepared for the Environmental Protection Agency by ERM Environmental Resources Management Ireland Limited

⁴ Environmental Protection Agency (2010). Strategic Environmental Assessment SEA Pack (version 11/10/2011).

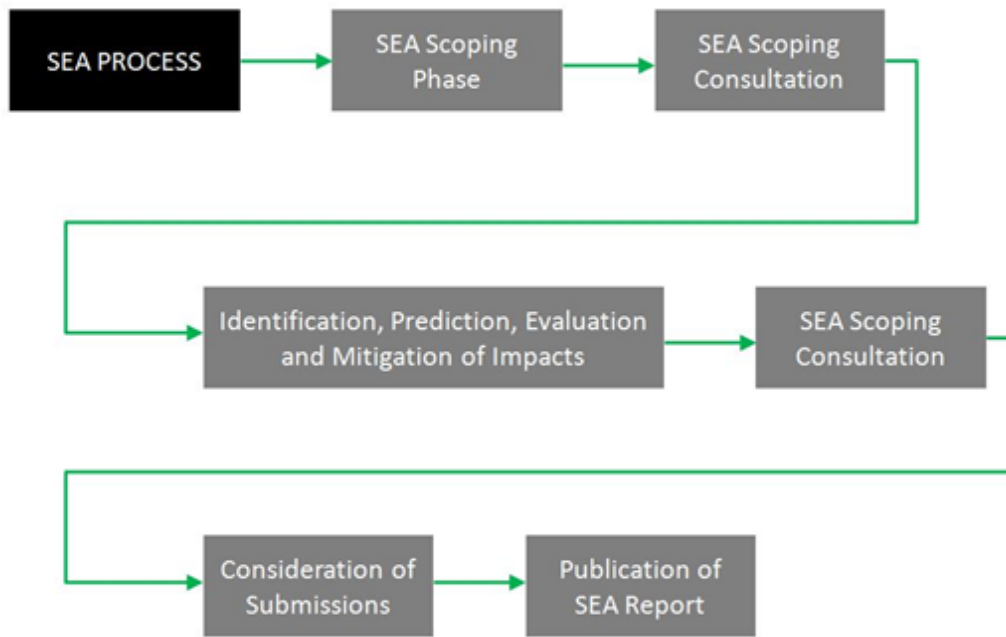


Figure 2: Key Stages of the SEA Process

3.2 Screening

Screening is the process for deciding whether a particular plan, other than those for which SEA is mandatory, would be likely to have significant environmental effects, and would thus warrant SEA.

A screening assessment was undertaken as part of this SEA process to determine if the revised LAP requires an SEA. The SEA Regulations outlined above require a mandatory SEA if the population or target population of the Local Area Plans area is 5,000 persons or more. This assessment concluded that an SEA was required as the population is significantly in excess of 5,000 persons.

3.3 Scoping

The purpose of SEA scoping is to identify the likely extent (geographic, temporal and thematic) and level of detail for the assessment and the information to be included in the SEA Environmental Report. Scoping identifies issues that are of most importance so that these can be addressed in more detail.

The Scoping Report also addressed other issues including:

- Types of reasonable alternatives which ought to be considered.
- Information and studies needed to characterise the existing environment.
- Methods used to predict the magnitude of environmental effects.
- Criteria against which the significance of effects will be evaluated.
- Any further consultations to be carried out.
- Environmental objectives and targets.

A scoping report⁵ was prepared by Fehily Timoney & Company on behalf of Kildare County Council which asked key questions of statutory consultees and key stakeholders.

3.4 Baseline Data

Gathering relevant information relating to the state of the environment for a plan area is an integral part of the SEA process. The SEA Directive requires that certain information relating to the relevant environmental baseline is presented in order to help test the performance of the plans implementation, as well as helping establish how the environment would change if the plan were not to implemented.

Baseline information has been collected from readily available sources, and a Geographical Information System (GIS) was used to graphically present relevant information. The baseline information is reported in Section 4 of this report.

3.5 Environmental Assessment of the Local Area Plan

The Environmental Assessment process ran in parallel to the development of the Local Area Plan. The following stages were included in the timeframe:

1. Development of the draft LAP.
2. Preparation of the Strategic Flood Risk Assessment (SFRA), Appropriate Assessment (AA) and SEA.
3. Drafts for Public Display finalised.
4. Public Consultation on Draft LAP, SFRA, AA and SEA.
5. Processing of feedback from public consultation process.
6. Finalisation of LAP.
7. Publication of LAP SFRA, AA and SEA.

The environmental assessment process was undertaken in accordance with best practice SEA principles and guidance. This included desk reviews of all of the available GIS data, specialist investigation into the likely impacts associated with the Local Area Plan and recommendations for suitable mitigatory measures.

3.6 Consultations

This Environmental Report will be issued to the relevant statutory stakeholders for comment. It is anticipated that there may be some feedback from this consultation process. These comments will all be incorporated into the final report.

Discussion and meetings with representatives of Kildare County Council also took place throughout the SEA process.

⁵ Fehily, Timoney & Company & Kildare County Council, 2011. Maynooth Local Area Plan Review – Strategic Environmental Assessment – Scoping Report.

3.7 Consideration of Alternatives

The SEA Directive requires that reasonable alternatives be assessed in order to demonstrate how the preferred strategy performs against other forms of action. Alternatives must be developed, described and assessed within the SEA process, with the results presented in the Environmental Report.

Section 7 of this Environmental Report discusses the consideration of alternatives.

3.8 Technical Difficulties Encountered

No major difficulties were encountered during the preparation of this Environmental Report.

4 Current State of the Environment

Note all figures referenced from this point onwards are included in **Appendix A**.

4.1 Introduction

Maynooth is a town in north County Kildare, Ireland as depicted in **Figure 3**. It is located on the R148 regional road between Leixlip and Kilcock, with the M4 motorway bypassing the town. Other roads connect the town to Celbridge, Clane, and Dunboyne. Maynooth is on the Dublin to Sligo rail line and is served by a commuter train service. Maynooth is also on the Royal Canal which is navigable eastward to central Dublin and is used mostly for leisure.

Maynooth is home to a branch of the National University of Ireland, a Pontifical University and Ireland's main Roman Catholic seminary, St. Patrick's College.

The town has, at either end of the main street, Maynooth Castle and Carton House Demesne two former seats of the Dukes of Leinster. The castle was a stronghold of the 16th century historical figure Thomas FitzGerald, 10th Earl of Kildare better known as Silken Thomas. The castle was overrun in 1535, after the rebellion of the Earl.

The topography of the LAP environs lands to the west of the R157 is undulating with lands sloping towards the River Rye Water, which forms the southern boundary of the LAP area. A tributary of the River Rye Water flows through the centre of this portion of the LAP lands in a north-east/south-west direction adjacent to Moygaddy house and Moygaddy castle. The extent of the Maynooth LAP is depicted in **Figure 4**.

According to the fourth EPA State of the Environment Report⁶, Ireland's natural environment, although under direct and indirect pressure from a wide range of sources, generally remains of good quality and represents one of our most essential national assets. The report identified four priority challenges for the environment, which comprise: limiting and adapting to climate change; reversing environmental degradation; mainstreaming environmental considerations; and complying with environmental legislation and agreements.

In the EPA's 2020 Vision document⁷ it is noted that pressures on the Irish environment have increased significantly in recent years as a result of a decade of rapid and unprecedented economic growth. Unfortunately, these pressures have accelerated at a rate that far exceeds that observed in other EU countries.

In '2020 Vision' the EPA promotes six environmental goals which consider the principal environmental challenges facing our nation. These goals, which are highly relevant to the sustainable development of County Kildare and have a bearing on the assessment of the proposed revised LAP, are:

- Limiting and adapting to climate change.
- Clean air.
- Protected waters.

⁶ EPA, 2008. Ireland's Environment 2008. EPA, Wexford, Ireland.

⁷ Environmental Protection Agency, 2000. 2020 Vision – Protecting and Improving Ireland's Environment. EPA, Wexford, Ireland.

- Protected soils and biodiversity.
- Sustainable use of natural resources.
- Integration and enforcement.

These goals are identified as a means of realising the vision of protecting and improving Ireland's environment.

4.2 Purpose of the Environmental Baseline

The assessment of the proposed revised LAP with respect to the current Environmental Baseline is the principal task of this SEA process. Consequently, the baseline description must be cognisant of the local and county level nature of the plan and the pressures and interrelationships between environmental topics.

The Environmental Baseline provides an overview of the existing conditions in the Maynooth area relevant to the proposed revise LAP and will cover the following environmental topics:

- Biodiversity including Flora and Fauna.
- Population and Human Health.
- Soils and Geology.
- Water Resources.
- Air, Noise and Climate.
- Archaeological, Architectural and Cultural Heritage.
- Landscape and Visual.
- Material Assets.

In accordance with the SEA Directive, the inter-relationship between the SEA environmental topics must be taken into account. Of particular note is the interrelationship between water (quality and quantity) and biodiversity, flora and fauna, soils, human health and population. Flora and fauna is dependent on the hydrological environment (surface water and groundwater) as a habitat. Water quality is also of particular importance with regard to human health as it provides a source of drinking water and it influences agriculture and mariculture. Water is also used for leisure and recreational purposes, providing a material asset both for local populations and as an integral component of the tourism economy.

4.3 Biodiversity

Biodiversity or biological diversity refers to the variety of all living things on earth - including people, plants, animals, fungi and micro-organisms. The term biodiversity, however, refers to more than individual species and includes the genes they contain, the habitats and ecosystems of which they form part, and also highlights the interdependence and interconnectedness of all living things.

4.3.1 Designated Areas

There is one proposed Natural Heritage Area (pNHA), the Royal Canal, within the Maynooth LAP study area. The Rye Water Valley, which has been designated as

both a candidate Special Area of Conservation (cSAC) and pNHA is located immediately outside of the north-eastern boundary of the study area. Both areas are depicted on **Figure 5**. The National Parks and Wildlife Service (NPWS) maintains a site synopsis for all protected sites in Ireland. A summary of the information available for both the Royal Canal and the Rye Water Valley/Carton is provided in the following sections.

4.3.1.1 Royal Canal

The Royal Canal (Site Code: 002103)⁸ is a man-made waterway linking the River Liffey at Dublin to the River Shannon near Tarmonbarry. The canal pNHA comprises the central channel and the banks on either side of it. The main water supply is from Lough Owel (also an NHA) via a feeder channel into the canal at Mullingar.

The Canal is home to the legally protected Opposite-leaved Pondweed (*Groenlandia densa*) under the Flora Protection Order 1987 and *Tolypella intricata*, a stonewort protected under the Red Data Book as being vulnerable. Both of these species are present in the Dublin section of the canal.

The main extent of the canal boundary is dominated by hedgerow, tall herbs, calcareous grassland, reed fringe, open water, scrub and woodland. The canal towpath is predominantly made up of various grass species except where the canal was built through bog and this contains calcifuge bog species. There is diverse hedgerow present along the canal.

The ecological value of the canal lies more in the diversity of species it supports along its linear habitats than in the presence of rare species. It crosses through agricultural land and therefore provides a refuge for species threatened by modern farming methods.

4.3.1.2 Rye Water Valley/Carton

This site (Site Code: 001398)⁹ is located between Maynooth and Leixlip on the Rye Water (a tributary of the River Liffey) along the Carton Estate. The river was dammed at intervals creating a series of lakes through the estate. The site also contains a thermal petrifying spring, a habitat listed on Annex 1 of the EU Habitats Directive¹⁰.

The main importance of the site lies in the presence of several rare and threatened plant and animal species and of the rare thermal, mineral, petrifying spring habitat. Important flora and fauna on the site are listed in **Table 2**.

⁸ NPWS, 2009. Site Synopsis - Royal Canal (Site Code: 002103).

⁹ NPWS, 2003. Site Synopsis – Rye Water Valley/Carton (Site Code: 001398)

¹⁰ Council Directive 92/43/EEC of 21 May 1992 on the conservation of natural habitats and of wild fauna and flora

Table 2: Rye Water Valley Protected Species (NPWS, 2003)

Flora	<ul style="list-style-type: none"> • Hairy St. John's-wort (<i>Hypericum hirsutum</i>), (protected under the Flora Protection Order (1987)) • Green Figwort (<i>Scrophularia umbrosa</i>) (listed in Red Data Book) • Myxomycete fungus, <i>Diderma deplanatum</i>.
Fauna	<ul style="list-style-type: none"> • Kingfisher (Annex I listed on EU Birds Directive) • Semi-aquatic snails <i>Vertigo angustior</i> and <i>V. moulinsiana</i> (Annex II listed) • Salmon and White-clawed Crayfish (<i>Austropotamobius pallipes</i>) (Annex II Species Habitats Directive) • Dragonfly (<i>Orthetrum coerulescens</i>) – scarce in Ireland.

In addition to those species listed in **Table 2** there is a historical record from the estate for the Hairy Violet (*Viola hirta*), (protected under the Flora Protection Order (1987)) but this has not been recorded in recent years.

4.3.2 Trees

The Tree Council of Ireland maintains a list of champion trees in Ireland i.e. the Tree Register of Ireland. These trees are among the largest of their species in terms of height, circumference or age. Champion trees can also have added historical or cultural significance that may or may not be associated with their striking size or shape.

According to the Tree Register, there is a Grand Fir at Carton House which measures 41 m in height and 4.37 m girth and is designated as a Champion Tree. Other notable trees in the database in the vicinity of Maynooth are outlined in **Table 3**.

Table 3: Selection of Notable Trees in Maynooth, Co. Kildare

Species	Location	Height (m)	Girth (m)
Common Lime	Carton Estate	23	3.5
Cedar of Lebanon	Carton Estate	26	6.8
Yew	Carton Estate	13	5.96
Yew	St. Patricks College	14	6.2
Yew	St. Patricks College	11	5.07
Yew	St. Patricks College	13	5.05
Sweet Gum	St. Patricks College	17	2.55
Tree of Heaven	St. Patricks College	16	2.37

4.3.2.1 Tree Protection Orders

There are eight trees/ groups of trees proposed for protection in the Maynooth Local Area Plan 2013-2019. These are listed as following and illustrated in **Figure 6**.

- Main Street.
- Lime Avenue.
- Leinster Street.
- College Lands.
- Maria Villa.
- Castle Area.
- Rear of Pound.
- Around the Cemetery on Kilcock Road.

4.3.3 Relevant Environmental Issues

4.3.3.1 Urban Expansion

Urban expansion has been accelerating over recent years as increased development expands into the countryside. The constant encroachment of the built environment on natural habitats will undoubtedly have an impact on natural flora, fauna and biodiversity.

4.3.3.2 Water Dependant Habitats

In general, water treatment and wastewater discharges, agricultural and forestry runoff, leachate from landfills and contaminated sites, urban runoff and unlicensed industrial discharges all have significant negative impacts on water quality which results in subsequent impacts to biodiversity to both aquatic ecosystems as well as neighbouring terrestrial ecosystems. In the vicinity of Maynooth, the water dependant ecosystems of the Rye Water, a tributary of the River Liffey, and Royal Canal rely on good water quality. Any impacts to these surface waters could lead to a deterioration of water quality and a consequent impact to their ecosystems.

The Maynooth area is within the River Liffey catchment which is classified as a nutrient sensitive water body. According to the Eastern River Basin District Authority (ERBDA), the River Liffey is at high risk from diffuse pollution through groundwater and urban run-off and from point sources located within its catchment¹¹.

Unrestrained development can have a direct impact on water dependent and rare habitats. Abstractions for potable water can result in a direct impact on rivers and lakes and their associated flora and fauna and on groundwater dependent habitats.

4.3.3.3 Invasive Species

Invasive non-native plant and animal species are one of the greatest threats to biodiversity. Invasive alien species negatively impact biodiversity through competition, herbivory, predation, habitat alteration and introduction of parasites or pathogens and poses a risk to the genetic integrity of our native species.

¹¹ ERBDA, 2005. ERBD Catchment Characterisation Report.

Terrestrial and aquatic habitats can be significantly negatively impacted, resulting in severe damage to conservation and economic interests, such as agriculture, fisheries, forestry and various recreational activities.

4.4 Population and Human Health

4.4.1 Population

The population of Maynooth (urban & rural) in 2011¹² was 13,617 persons and comprised 6,843 males and 6,774 females.

Table 4 illustrates the change in population over a 25 year period using census data from the 1986 census to the most recent census in 2011 (preliminary results). The population of Maynooth has increased by over 100% over the 25 year period.

Table 4: Population Statistics between 1986 and 2011

	1986	1991	1996	2002	2006	2011	% Change 2006-2011
Co Kildare	116,247	122,656	134,992	136,944	186,335	210,312	12.9
Maynooth	5,525	6,807	9,286	10,837	11,500	13,617	18.4

The population in 2011 had increased by 18.4% (2,117 persons) compared with 2006¹³ figures. This increase represents significant population growth at a time when the national and county averages were 8.2% and 12.9%, respectively. Such an increase creates considerable difficulty for the planning of infrastructure and services.

The Regional Planning Guidelines (RPG) for the Greater Dublin Area (GDA) 2010-2022¹⁴ outlines population and housing targets for Kildare to 2022 which are outlined in **Table 5**. Population and housing targets for Maynooth over the life of the LAP are presented in **Table 6**.

Table 5: Population & Housing Targets for Kildare

	2006 Census	2011 Census	2016	2022
Population	186,335	210,312	287,547	309,285
Housing	60,957	70,763	93,748	112,477

The County Development sets out the overall strategy for the proper planning and sustainable development of County Kildare over the 2011 – 2017 period and outlines housing allocations and land zoning requirements for each settlement in the County for the lifetime of the plan in accordance with the Regional Planning Guidelines population and housing targets for the County, as outlined in **Table 5**.

Maynooth has been classified in the RPGs as a Large Growth Town II. The housing allocation and land use zoning requirements identified for Maynooth for the plan period are outlined in **Table 6**.

¹² Central Statistics Office Ireland. Census 2011. www.cso.ie

¹³ Central Statistics Office Ireland. Census 2006. www.cso.ie

¹⁴ Dublin Regional Authority & Mid-East Regional Authority, 2010.

Table 6: Population and Housing Targets for Maynooth

Maynooth (urban only)	2006 Census	2011 Census	2017	2019
Population	10,715	12,510	15,897	n/a
Housing	-	-	2,364	2,888

4.4.2 Human Health

The concept of health has been defined by the World Health Organisation as “... a state of complete physical, psychological and social well-being, and not simply the absence of disease or infirmity.” Health is influenced by many factors in the social and built environment including housing, employment status, education, transport and access to fresh food and resources, as well as the impacts of air quality, water quality, flooding and access to green space.

Good planning can play an important role in reducing health inequalities. The World Health Organisation’s Commission on the Social Determinants of Health (CSDH) states governments should ‘*Ensure urban planning promotes healthy and safe behaviours equitably, through investment in active transport, retail planning to manage access to unhealthy foods, and through good environmental design and regulatory controls, including control of the number of alcohol outlets*’. The Maynooth area is fortunate in that it has a variety of settlements and housing types, various employment sectors, good transport links, good air quality and water quality and access to green space. The population of Maynooth also has access to a range of health facilities which improve the overall health and well being of the populace.

Given the strong links between income and health, it is recognised that sustainability of current and future economic activity is an important element in protecting and promoting population health. However emphasising economic growth without due regard for social and environmental consequences of such growth can have negative impacts on health both for the population as a whole and for groups within the population. Even within areas of economic development, job creation does not necessarily 'trickle down' to job opportunities for the long-term unemployed, and is neither a sufficient, nor necessary, condition for reducing long-term unemployment. Thus economic development needs to be targeted, geographically and within population groups to ensure that it reduces and does not exacerbate social inequalities.

Cognisance must also be paid to environmental issues and sustainability endeavours to protect human health as the local economy develops. While employment is generally good for health, there can be negative impacts, usually related to the quality of the working environment and type of work undertaken. The groups which face the highest risk of experiencing the adverse effects of unemployment appear to be middle-aged men, youth who have recently left school, the economically marginal such as women attempting re-entry to the labour force and children in families in which the primary earner is unemployed.

The level of green space and access to the natural environment is extremely important for the populace health. The health and wellbeing of individuals is greatly affected by the communities in which they live and the nature of their physical environment. A key element of sustainable communities is access to space as environments which lack public gathering places can encourage

sedentary living habits. Open space provision can improve levels of exercise in a community which can impact on obesity and can improve social interaction and community activities which can contribute to reducing stress-related problems.

4.4.3 Relevant Environmental Issues

4.4.3.1 Population

Population change is a complex topic. High growth has occurred in some areas of the GDA while falling occupancy rates has occurred elsewhere. Major changes have taken place to the housing market given our economic circumstances and trends such as a reduction in housing completions and rising vacancy rates are evident. Predicting accurate population forecasts impacts on future housing demand and issues such as age profiles (an ageing population), excess in housing stock and occupancy rates (falling at the moment) and migration must all be taken into account. Future housing demand and all of the services required to sustainably meet demand (e.g. health and sanitation services including waste collection, wastewater treatment and potable water supply, electricity, gas, telecommunications, transportation, education and amenity access) needs to be addressed in a planned manner.

4.4.3.2 Human Health

There are a number of interlinking areas which are relevant to the revision of the Maynooth LAP, for example, the development of sustainable transport and sustainable communities. Policies relating to these areas will impact on human health and quality of life.

The following issues were also outlined in the 'Background Issues' paper:

- Housing needs for all sectors of the community.
- Community Infrastructure needs including community facilities.
- Educational needs for Maynooth for both primary and secondary schools.
- Provision of open spaces within residential and areas throughout the town.
- Health/medical facility requirements for the town for the future.
- Preservation of public rights of way to allow public access to amenity areas in Maynooth.
- Adequacy of public/civil space areas.
- Provision for retail and commercial services.
- Vitality and viability of the town centre.
- Ease of access to Maynooth town centre.

4.5 Soils & Geology

The central section of the study area under urban areas is man-made ground. The western section is described as deep, poorly drained material while the eastern section is described as deep, well drained material. Both soil types are derived from calcareous parent material (Refer to **Figure 7**).

The plan area geology is dominated by limestone, limestone shale and limestone conglomerates. There are three bedrock types which border on a south-west to north-east axis. The northern and eastern section of the plan area is dark limestone and shale (Lucan Formation). The south-eastern section of the study area is comprised of unbedded lime-mudstone (Waulsortian Limestones). There is a band of calcareous shale and limestone between these bedrock sections (Refer to **Figure 8**).

4.5.1 Relevant Environmental Issues

The degradation of soils fertility and threats to conservation of high-quality soils through the loss of tree/vegetation cover and through urbanisation has consequences for the sustainable development of rural activities as well as the sequestration of carbon.

Global warming modelling for Ireland predicts a change to wetter winters and drier summers with a likely increase in the frequency of high intensity rainfall events. These rainfall events can have detrimental effects for slope stability and landslides and their resultant impacts on water management activities.

Eroded soil washed into rivers has the potential to increase nutrient content leading to alteration of surface water nutrient balances which can further lead to the eutrophication of rivers and lakes. If contaminated soils are eroded and transported to watercourses, aquatic plants and animals can be severely damaged.

Geotechnical extraction activities, when not managed in an environmentally sustainable fashion results in further pressure on the hydrological environment. While the extractability of minerals has been curtailed recently reduced demand and the progression of residential development into rural areas previously available for extraction, the conflicts between people and the impacts associated with these activities, e.g. noise, traffic are still apparent.

4.6 Water Resources

This section provides a description of the existing hydrological and hydrogeological environment. This section also provides some information on the Strategic Flood Risk Assessment prepared for the Plan.

The hydrological environment relates to all surface water catchments whereas the hydrogeological environment refers to groundwater issues.

4.6.1 Hydrology

The plan area is located in the River Liffey catchment. The Rye Water, River Lyreen and Royal Canal are the dominant water features in the study area. The Rye Water is a tributary of the River Liffey which flows west to east through the northern section of the plan area. The Rye Water is dammed through the Carton Estate to the east. The Lyreen River flows in a southwest to northeast direction through the town of Maynooth and joins the Rye Water at upstream of the Carton Estate. The Royal Canal flows through the study area in an easterly direction.

Both the Royal Canal and the Rye Water (Carton) are designated ecological areas as described in Section 4.3. Surface water features are presented in **Figure 9**.

The Maynooth plan area falls within the Eastern River Basin District. The River Basin Districts were delineated through the progression of the Water Framework Directive (WFD) which aims to promote the sustainable use of water resources across Europe and achieve good status water quality in all water bodies ranging from rivers, lakes, groundwater, transitional and coastal marine waters.

Consequently, the Council must be cognisant of the principles and objectives of the river basin management plans¹⁵ and its associated strategic environmental assessments¹⁶.

4.6.1.1 Water Quality

Water Framework Directive

As part of the implementation of the WFD a baseline risk assessment was completed of the water bodies within each River Basin District. These assessments was made using water pollution indicators, point and diffuse pollution sources, water abstractions and detail on commercial activities. The risk assessment assigned a water quality status to each waterbody and indicated whether the water body would meet the criteria for “good status” or would be considered “at risk” of not meeting the standards by 2015.

Under the WFD classification, the status of the Lyreen River was classified as “bad” whereas the Rye Water varies from “poor” upstream of Maynooth to “bad” downstream. Both rivers are also classified as “at risk of not achieving “good status” by 2015 as a result of diffuse and point source pollution. Surface water vulnerability is depicted in **Figure 10**.

Water Quality Baseline

As part of the monitoring of water bodies for the implementation of the WFD, the biological, physical and chemical properties of water are routinely assessed. The assessments are predominately conducted by the EPA and local authorities, and complemented by other government bodies including the Central Fisheries Board and the Marine Institute.

In Kildare surface water quality monitoring is conducted at recorded sampling locations by local authority staff on average once per month for rivers and once per quarter for lakes. The data is supplied to the EPA for compilation on their website (www.epa/water/ie). The data gathered for the biological sampling is used to determine the EPA biotic index for the water body. The corresponding biotic index is used to describe the water quality as is shown in **Table 7**. EPA data for the rivers in the study area is summarised in **Table 8**.

Table 7: EPA Water Quality Indices

Water Quality	EPA Biotic Index
Unpolluted	4-5 or 5
Slightly polluted	3-4 or 4
Moderately polluted	2-3 or 3
Seriously polluted	1, 1-2 or 2

¹⁵ Eastern River Basin District River Basin Management Plan 2009 - 2015

¹⁶ Chapter 11 of the River Basin Management Plan 2009-2015.

Table 8: Water Quality Status of River Bodies in the Study Area – Q Ratings

River	Sampling Station No.	2005 Status	2010 Status
Lyreen (South of study area)	0035	3	3
Lyreen (North of study area)	0100	3	3
Rye Water (Upstream of study area)	0300	4	3-4
Rye Water (Upstream of Rye Water/ Carton)	0400	3	3

The EPA 2005 Water Quality Report states that the Lyreen was hypertrophic at both locations during sampling with a dissolved oxygen level of 176% upstream of the Rye Water River. There is no explanation given in the report for this status. Widespread eutrophication is noted for the Rye Water River during 2005 sampling by the EPA. The location upstream of the plan area (0300) is noted as deteriorating slightly between 2005 and 2010. The location upstream of the Ryewater/ Carton (0400) after connecting with the Lyreen River shows “more marked pollution” retaining a Q rating of 3.

4.6.2 Hydrogeology

The plan area is underlain predominantly by a locally important aquifer which is moderately productive in local zones. There is a non productive aquifer corresponding to the band of calcareous shale and limestone bedrock. The aquifers are presented in **Figure 11**. Groundwater in the western section of the plan area is moderately vulnerable. In the remaining eastern section groundwater is highly vulnerable with sections of extreme vulnerability. Groundwater vulnerability is presented in **Figure 12**.

Groundwater Directive

The existing Groundwater Directive (80/68/EEC)¹⁷ aims to protect groundwater from pollution by controlling discharges and disposals of certain dangerous substances to groundwater. The Directive was transposed into Irish Law by the Protection of Groundwater Regulations, 1999 (S.I. No. 41 of 1999).

The existing Groundwater Directive is to be repealed by the Water Framework Directive (WFD) in 2013 and the new Groundwater Directive (2006/118/EC)¹⁸ on the protection of Groundwater, commonly referred to as the Groundwater Daughter Directive.

New or amended regulations will be implemented to enact the groundwater components of the Water Framework Directive and the Groundwater Daughter Directive into Irish legislation.

Water Framework Directive

As mentioned previously the Water Framework Directive’s primary mandate is for all waters to achieve “good” ecological status by 2015.

¹⁷ Council Directive 80/68/EEC on the protection of groundwater against pollution caused by certain dangerous substances as amended by Council Directive 91/692/EEC (further amended by Council Regulation 1882/2003/EC)

¹⁸ Directive 2006/118/EC of the European Parliament and of the Council of 12 December 2006 on the protection of groundwater against pollution and deterioration

The groundwater WFD status for the plan area is predominantly “at risk” of not achieving “good status” by 2015 with the exception of a section in the east of the plan area which is classified as “possibly at risk” of not achieving “good status” by 2015. The ERBD has identified diffuse pollution sources as the main influence on groundwaters. The WFD groundwater vulnerability classification is illustrated in **Figure 13**.

Groundwater Protection Areas

Groundwater Protection Reports have been prepared by the Geological Survey of Ireland (GSI) for seven locations in County Kildare. None of these are located in proximity to the study area.

4.6.3 Water Supply

According to the Kildare County Development Plan 2011 – 2017, approximately 94% percent of Kildare’s drinking water is sourced from outside the county. The primary source is the waterworks at Ballymore Eustace (operated by Dublin City Council) which delivers water via the Poulaphouca Regional Scheme to Naas, Newbridge, Kildare, Clane, Sallins, Kill, Kilcullen, Ballitore, Prosperous, Kilcock, Celbridge (Arclough Road area), Donadea area, Carbury, Suncroft and surrounding areas.

Water from the waterworks at Leixlip (operated by Fingal County Council) is distributed to Leixlip, Celbridge, Maynooth, Straffan, Arclough, Rathcoffey and surrounding areas via the Leixlip Regional Scheme.

Kildare County Council also delivers groundwater from wellfields at Monasterevin, Rathangan and Athy which is blended with Poulaphouca water prior to distribution. The 2011 County Development Plan, proposes to continue the expansion of the Groundwater Abstraction Programme with proposed wellfields at Johnstownbridge and Robertstown.

Castledermot is supplied with water from the Carlow County Council waterworks at Rathvilly which is distributed via the North Carlow South Kildare Regional Scheme. There are also a number of small public water supplies to small rural communities.

As outlined above, Maynooth is currently served by the existing Ballygoran Reservoir, via the water treatment plant at Leixlip. Options for replacing this supply with a future supply from Ballymore Eustace water treatment plant is currently being investigated by Kildare County Council. This would require the construction of a large diameter pipeline (800/900 mm) from the new Castlewarden Reservoir to the existing Ballygoran Reservoir, which will in turn need to be upgraded to an increased capacity of 30,000 m³.

4.6.4 Flooding

An area specific Strategic Flood Risk Assessment (SFRA) was carried out to guide the future development of Maynooth as part of the Local Area Plan Development Process and has also informed the SEA process.

4.6.5 Relevant environmental issues

There are a range of existing pressures on the water resources of the region. Many of these pressures apply to biodiversity, flora and fauna, soils and geology, land use and landscape as well as water resources. In general these pressures apply directly to quality, quantity and supply and demand of water resources with indirect pressure on the other environmental features.

4.6.5.1 Modification

Physical modifications have a direct impact on surface water systems through the alteration of habitats, and by indirectly affecting natural processes through the alteration of ecosystems, by reducing their diversity, distribution and population. Land use practices such as agriculture, forestry and urban expansion can have an indirect effect, manipulating the extent of water draining from the land, which can lead to an increased flood risk to properties and development.

4.6.5.2 Discharges

Inadequately treated effluents and spills or leakage from foul water sewer systems networks can lead to the pollution of the receiving waters. These pollutants can lead to a deterioration in water quality with subsequent downstream uses being impacted negatively e.g. water dependant ecosystems, potable water supplies, industrial or agricultural abstraction, fishing etc. Current estimates for the GDA indicate that the nutrient input into surface waters from direct industrial discharges produce approximately 60% of the yearly phosphorus load with the remainder arising from diffuse sources such as agriculture.

Houses and businesses not connected to public foul water collection and treatment systems rely mainly on on-site systems. If these systems fail it can lead to accidental discharges to surface water and / or groundwater systems. Provision of public sewerage systems, especially ahead of new development, can be logistically and financially challenging.

Waste disposal sites (including old of historical un-lined landfills), quarries, industrial lands etc. can produce direct discharges to both surface and groundwaters. According to an EPA 2005 report there was evidence of significant unauthorised landfilling of commercial and industrial waste and construction and demolition waste in the GDA (predominantly Wicklow but also Kildare and Meath) in the period between 1997 and 2002.

4.6.5.3 Extraction

The lowering of water tables through groundwater extraction whether for drinking water, industrial use or through construction practices can cause problems in the context of the hydrological regime of groundwater dependant sites. Construction activities in particular can lead to the mobilisation of contaminants and have the potential to significantly impact groundwater and subsequently surface water quality.

4.6.5.4 Climate Change

The effect of climate change on the hydrological regime of the planet is difficult to predict, even more so for a small region; however, there is the potential for heavier and prolonged winter rainstorms to cause more flash flooding, which can lead to an increase in diffuse pollution loads from soil runoff and increasing demand for flood alleviation, control and relief schemes. Conversely, summer droughts are also considered likely and recent research has indicated that the effects of climate change in Ireland will have serious consequences for water resources, resulting in a potential 40% reduction in drinking water supplies. Also, temperature fluctuations may give invasive alien water species a competitive advantage and alter aquatic ecosystems further.

4.7 Air, Noise and Climate

4.7.1 Air Quality

The Air Quality Standards Regulations 2011 (S.I. No. 180 of 2011) establish the limit values in Ireland for Sulphur Dioxide (SO₂), Nitrogen Dioxide (NO₂), and oxides of nitrogen (NO_x), Particulate Matter (PM₁₀ and PM_{2.5}), lead, benzene and Carbon Monoxide (CO) with alert threshold values specified for SO₂ and NO₂. These regulations are based on EU Directive 2008/50/EC¹⁹.

In order to comply with these regulations, the EPA measures the levels of a number of atmospheric pollutants throughout Ireland. For the purposes of monitoring in Ireland, four zones are defined in the Air Quality Standards Regulations (2011). The areas defined in each zone are:

- **Zone A: Dublin Conurbation.**

The Restricted Area of Dublin, as specified in the First Schedule to the Air Pollution Act 1987 (Marketing, Sale and Distribution of Fuels) Regulations 1998 to 2003.

- **Zone B: Cork Conurbation.**

The Restricted Area of Cork, as specified in the First Schedule to the Air Pollution Act 1987 (Marketing, Sale and Distribution of Fuels) Regulations 1998 to 2003.

- **Zone C: Other Cities and Large Towns.** This includes Naas (comprising Naas Urban), Newbridge and environs (comprising Droichead Nua, Droichead Nua (Newbridge) Urban; Droichead Nua, Droichead Nua (Newbridge) Rural; and Morristownbiller) and Celbridge and environs (comprising Celbridge; and Donaghcumper).

- **Zone D: Rural Ireland.**

Remainder of the State excluding Agglomeration A, and Zones B and C.

An air quality index²⁰ is to express complex air quality information in simple terms. The index is based on a maximum of four parameters; the one-hour average of SO₂, NO₂ and O₃, combined with the rolling 24-hour average of PM₁₀ (particulate matter with diameter less than ten microns). All figures are rounded

¹⁹ Directive 2008/50/EC of the European Parliament and of the Council on ambient air quality and cleaner air for Europe

²⁰ EPA Air Quality Index. <http://www.epa.ie/whatwedo/monitoring/air/index/>

to the nearest whole number. The index for each of the four parameters is derived each hour and the overall index for the hour is equivalent to the lowest rating assigned to a parameter. Five bands are used in the Irish index which, together with their appropriate ranges, is described in **Table 9**.

Table 9: Index and Values in parts per billion (ppb). PM₁₀ in ug m⁻³

Index	SO ₂ ppb (1 hour avg.)	NO ₂ ppb (1 hour avg.)	O ₃ ppb (1 hour avg.)	PM ₁₀ µg.m ⁻³ (24 hour avg.)
Very Good	0 - 19	0 - 19	0 - 19	0 - 19
Good	20 - 49	20 - 49	20 - 59	20 - 49
Fair	50 - 79	50 - 74	60 - 89	50 - 74
Poor	80 - 129	75 - 104	90 - 119	75 - 99
Very Poor	≥130	≥105	≥120	≥100

Current air quality in Zone C is described as “good” in the EPA report ‘*Air Quality in Ireland 2009 Key Indicators of Ambient Air Quality*’²¹. Real time air quality data on the EPA website confirms that remains unchanged since the publication of the aforementioned report.

Data on ambient air quality is not available from the EPA for the study area. The closest location where ambient monitoring was carried out is at St. Raphels in Celbridge where monitoring of inorganic gases and PM₁₀ was carried out between July 2010 until May 2011. Results of this monitoring are included in **Table 10**.

Table 10: Mean hourly values recorded at Celbridge (July 2010 – April 2011)

CO (1 hour avg.)	SO ₂ (1 hour avg.)	NO ₂ (1 hour avg.)	PM ₁₀ (24 hour avg.)
0.3 mg/m ⁻³	2.6 µg.m ⁻³	13.5 µg.m ⁻³	19.5 µg.m ⁻³
-	6.916 ppb	25.785 ppb	-

The HSE also monitor ambient levels of smoke and sulphur dioxide on behalf of Kildare County Council at the following three locations:

- Public Library, Celbridge
- Newtown House, Leixlip
- South Western Area Health Board Health Centre, Leixlip.

However, data was not available for inclusion in this report.

4.7.1.1 Pollution Sources

Sources of emissions to air in the region result from plant and industry and from residential home heating and solid fuel burning. Emissions from these sources would mainly influence background concentrations of NO₂ and PM₁₀/PM_{2.5} in the study area.

²¹ EPA, 2010

There are no current EPA licenced IPPC or Waste facilities within the plan area. Intel Ireland Limited operate in Leixlip approximately five kilometres from Maynooth. Hewlett Packard (Manufacturing) Ltd operate in Celbridge approximately five kilometres from Maynooth. There are no quarries operating in the study area.

4.7.1.2 Radon

The Radiological Protection Institute of Ireland (RPII) carries out monitoring of radon gas in homes and schools in Ireland. Radon comes from the ground and may accumulate in buildings to unacceptable levels. Long-term exposure to the radioactive gas can lead to lung cancer. Based on radon maps provided by the DoELG in 2002²² the estimated percentage of homes above the reference level (200 Bq/m³) in Maynooth is between 1 and 5%.

4.7.1.3 Relevant Environmental Issues

Currently there are no significant concerns with regard to air quality. There are likely to be slightly elevated levels of vehicle emissions within the urban area of Maynooth however, this is the same for all urban areas. Dust and PM₁₀ can be an issue locally during construction and operation.

A recent EPA report²³ stated that emissions from cars (particulate matter and nitrogen oxides) are a major health concern and a climate change concern. However, the prospects for compliance with targets under the EU National Emissions Ceilings Directive²⁴ are more positive. With the exception of NO_x emissions, emissions of acidifying gases are expected to achieve prescribed target emission levels within the next few years. NO_x emissions are too expected to decline but are likely to remain considerably above the target limit.

4.7.2 Noise

The Environmental Noise Directive (2002/49/EC²⁵) requires that action is taken by each member state, with a view to preventing and reducing environmental noise where necessary and particularly where exposure levels can induce harmful effects on human health and to preserving environmental acoustic quality where it is good. The relevant local authorities have been designated by the Environmental Noise Regulations, S.I. Regulations No. 140 of 2006, as the bodies charged with development and making of 'Noise Action Plans'.

The Regulations set out a requirement for the assessment of noise impact through the use of strategic noise maps. These noise maps were to be completed for large urban areas, agglomerations, major roads, major railways and major airports.

Under the Regulations the extents of major railways were identified by Iarnród Éireann and the Railway Procurement Agency, the extents of major roads were

²² Department of the Environment and Local Government, 2002. Radon in Existing Buildings – Corrective Options.

²³ EPA, 2008. Ireland's Environment 2008.

²⁴ Directive 2001/81/EC of the European Parliament and of the Council of 23 October 2001 on national emission ceilings for certain atmospheric pollutants

²⁵ Directive 2002/49/EC of the European Parliament and of the Council relating to the assessment and management of environmental noise

identified by the NRA and Local Authorities, major airports were identified by the airport authorities and agglomerations were defined within the Regulations.

The Kildare Local Authorities (Kildare County Council, Naas and Athy Town Councils) published a Noise Action Plan in 2009, setting out an approach to the strategic management and control of environmental noise over the next five years.

The report states that there were no parts of any agglomerations, no sections of major railways and no major airports identified within the County Kildare administrative area. A number of stretches of major road were identified and included within the strategic noise mapping. This included sections of the M4 between the boundary with South Dublin County Council at Leixlip and the boundary with Meath County Council at Ballynakill and between the boundary with Meath County Council at Martinstown and the boundary with Meath County Council at Clonard. Noise contours were prepared for these sections of the motorway and were plotted in terms of L_{den} and L_{night} and displayed in 5dB contour bands. The number of people exposed in each contour band is outlined in **Table 11**.

Table 11: Estimated No. of Residences and People Exposed to Noise Emissions

Decibel Level Contour (dB)	L_{den}		L_{night}	
	Residences	Population	Residences	Population
50 – 54	-	-	774	2,307
55 – 59 ^{Note 1}	3,092	9,454	213	633
(55 – 56)	-	-	(85)	(253)
(57 – 59)	-	-	(128)	(380)
60 – 64	613	1,809	33	99
65 – 69	43	125	18	53
70 – 74	9	25	0	0
>75	0	0	0	0

Note 1: The population corresponding to the band width 55-59 was subdivided into band widths of 55-57 and 58-59 in order to estimate the numbers affected by the night time assessment threshold of 57dBA (see Section 6.1). The numbers were proportioned in the ratios of 0.4/0.6 for band widths of 55-56 and 57-59 respectively.

The noise action plan proposed noise levels for the onset of this assessment of 70 dB L_{den} , and 57 dB L_{night} . From the assessment results outlined in **Table 11** above it evident that 532 people (179 residences) along the M4 (532) experience night-time noise levels in excess of 57dB. L_{den} levels are exceeded at 9 residences.

4.7.2.1 Relevant Environmental Issues

Noise mapping must be taken into account during the development of the proposed LAP. Consideration will need to be given to the following scenarios:

- Bringing people to noise through the zoning of land for new housing, schools etc. developments near to existing road noise.

- Bringing noise to people through the provision of new or altered roads, industrial sites or commercial developments which would alter the noise environment in the vicinity of noise sensitive locations.

4.7.3 Climate

The existing climate for Maynooth corresponds with the general climatic conditions for the whole country which is dominated by the Atlantic Ocean and its air and oceanic currents. Consequently, the region does not suffer from extremes of temperature. According to Met Eireann, average annual temperature is about 9°C. Mean annual wind speed varies between about 4 m/sec in the east midlands and 7 m/sec in the northwest. Average rainfall varies between about 800 and 2,800mm. Rainfall accumulation tends to be highest in winter and lowest in early summer.

According to the United Nations Integrated Panel on Climate Change, in line with the global picture, Ireland's average temperature has increased by about 0.7°C over the last 100 years, and the rate of increase has been higher in the last couple of decades. The increase has not been uniform over time, with a warming period from 1910 to the 1940s, followed by a cooling period up to the 1960s. The current warming period commenced around 1980. 2006 was the warmest year on record at both Malin Head and Phoenix Park, which have observations dating back over 100 years, and also at Casement Aerodrome, Kilkenny and Rosslare. Ten of the fifteen warmest years in the last century have occurred since 1990. In the last 100 years, 2006 was the second warmest year, 1945 being slightly warmer, and the last 10 years have been the warmest decade. Whilst we can be less categorical about wind speeds, there is some evidence of a reduction in annual average wind speeds, with a corresponding decrease in the frequency of high wind speeds and gusts. Increases in total annual rainfall in parts of the West and North have been observed, with some increase in the number of days with heavier rain but there is no clear pattern of change in other areas.

While the national scale of potential change is evident, translating the potential effects of climate change to a region is a process of inference on what will happen to Ireland at large being reduced to a regional scale. Temperatures in Ireland are predicted to increase by 1.25-1.5°C by 2040 compared to 1961 to 2000. Rainfall is expected to increase in winter by about 15% and summer projections range from no change to a 20% decrease, potentially along the east coast of the country.

Studies have shown that extreme rainfall events associated with climate change show more marked changes with more events occurring in autumn and a 20% increase in 2-day extreme rain amounts, especially in northern areas. Taking the projected precipitation changes into account, there will be the potential for a significant increase in the number of extreme discharge events and a slight increase in their intensity, leading to an increased probability of flooding in the future.

The potential rise in global temperature might affect the intensity and frequency of storms in the North Atlantic. As a consequence of stormy weather there exists the potential for flash flooding and erosion which would affect a wide range of ecosystems and economic sectors.

Climate Change Targets

The United Nations International Panel on Climate Change (IPCC) has stated categorically that greenhouse gases (GHG) in the atmosphere (including carbon dioxide, methane, nitrous oxides and a number of gases that arise from both agricultural and industrial processes) are rising, as a result of human activity and are directly linked to climate change

Ireland ratified the United Nations Framework Convention on Climate Change (UNFCCC) in April 1994 and the Kyoto Protocol in principle in 1997 and formally in May 2002. For the purpose of the EU burden sharing agreement under Article 4 of the Kyoto Protocol, in June 1998 Ireland agreed to limit the net growth of the six Greenhouse Gases (GHGs) under the Kyoto Protocol to 13% above the 1990 levels over the period 2008 to 2012.

In April 2011, the Environmental Protection Agency (EPA) indicated that Ireland can comply with its Kyoto obligations for the 2008-2012 without any further purchase of credits.

In 2008, the EU Commission's 'Energy and Climate Package' required Ireland to deliver a 20% reduction in non-Emissions Trading Scheme (ETS) greenhouse gas emissions by 2020 (relative to 2005 levels) and keep emissions below annual limits over the period 2013-2020.

Projections indicate that Ireland will breach its annual limit by 2016, in the best case scenario, and exceed its EU 2020 target by between 4.1 and 8.8 million tonnes of CO₂ in 2020.

4.7.3.1 Relevant Environmental Issues

As previously mentioned in the Water Resources Section, climate change will have an impact on the region's water resources and must be taken into account in all aspects of sustainable planning.

Further, increased rainfall intensity and stormy weather increases the potential for flash flooding and erosion which would affect a wide range of ecosystems and economic sectors.

4.8 Archaeological, Architectural and Cultural Heritage

The history and heritage of County Kildare can be traced from its earliest pre-Christian sites to magnificent estate homes such as Carton House in Maynooth. Consequently there is a great variety of building types and structures of architectural heritage significance and distinctive character that are deemed worthy of protection.

Heritage is addressed in this report under the following headings:

- Archaeological Heritage.
- Architectural Heritage.
- Architectural Conservation Areas.
- Vernacular Heritage.

- Industrial Heritage.
- Local History.

4.8.1 Archaeological Heritage

The archaeological heritage of an area includes structures, constructions, groups of buildings, developed sites, moveable objects, monuments of other kind as well as their context, whether situated on land or under water.

County Kildare has an abundant and diverse archaeological heritage, with representative monuments and artefacts of all periods. A record of archaeological heritage is maintained on the *'Record of Monuments and Places'* which was established under Section 12 of the National Monuments (Amendment) Act, 1994 (No. 17 of 1994). Structures, features, objects or sites listed in this Record are known as Recorded Monuments. According to the database there are 20 Recorded Monuments within and immediately adjacent to the Maynooth LAP boundary. These are listed in **Table 12** and depicted on **Figure 15**).

Table 12: Recorded Monuments within and adjacent to Maynooth LAP boundary

SMR No	Class	Townland	ITM Reference (E,N)	Irish Grid Reference (E,N)
Recorded Monuments within the LAP Boundary				
KD005-008-	Castle - unclassified	Laraghbryan East	692221, 737866	292290, 237840
KD005-009001-	Ecclesiastical site	Laraghbryan East	692219, 737732	292288, 237706
KD005-009002-	Church	Laraghbryan East	692219, 737732	292288, 237706
KD005-009003-	Graveyard	Laraghbryan East	692240, 737748	292309, 237722
KD005-010-	Ring-ditch	Maynooth	692911, 737906	292980, 237880
KD005-011001-	Enclosure	Maynooth	692923, 737857	292992, 237831
KD005-011002-	Road - road/trackway	Maynooth	692921, 737856	292990, 237830
KD005-012-	Field system	Maynooth	692936, 737791	293005, 237765
KD005-013-	Building	Collegeland	693441, 737573	293511, 237547
KD005-014-	Architectural feature	Maynooth	693737, 737556	293807, 237530
KD005-015-	Castle - Anglo-Norman masonry castle	Maynooth	693539, 737665	293609, 237639
KD005-015001-	House - prehistoric	Maynooth	693514, 737658	293584, 237632

SMR No	Class	Townland	ITM Reference (E,N)	Irish Grid Reference (E,N)
KD005-015002-	House - early medieval	Maynooth	693515, 737657	293585, 237631
KD005-015003-	House - early medieval	Maynooth	693515, 737657	293585, 237631
KD005-015004-	Building	Maynooth	693515, 737657	293585, 237631
KD005-015005-	Well	Maynooth	693515, 737658	293585, 237632
KD005-015006-	Well	Maynooth	693515, 737658	293585, 237632
KD005-016-	Church	Maynooth	693533, 737583	293603, 237557
KD005-021-	Ecclesiastical enclosure	Laraghbryan East	692383, 737855	292452, 237829
KD005-023-	Field boundary	Maynooth	693847, 737747	293917, 237721
Recorded Monuments adjacent to LAP Boundary				
KD006-009-	House 17 th Century	Carton Demesne	695331, 738796	295401, 238771
KD005-018-	Habitation Site	Crinstown	691761, 736926	291830, 236900
KD006-013-	Ritual Site – holy well	Carton Demesne	694785, 738416	294855, 238391
KD010-008-	Field System	Moneycooly	694229, 735944	294299, 235918
ME049A001	Castle-tower house	Moyglare	692709, 739897	292778, 239872
ME049A002	Church	Moyglare	692695, 739764	292764, 239739
ME053-001-	Castle – tower house	Moygaddy	694398, 739191	294468, 239166

The DAHG excavations database²⁶ contains a number (>35) of Irish Excavation Reports for Maynooth. This database contains summary accounts of all the excavations carried out in Ireland (North and South) from 1970 to 2007. This further illustrates the extent of archaeological heritage in area.

A number of towns in Kildare have been assigned zones of archaeological potential by the National Monuments Section of the Department of Arts, Heritage and the Gaeltacht (DAHG), around their cores to protect their significant archaeological heritage. Maynooth does not have any such designation.

²⁶ Database of Irish Excavation Reports. www.excavations.ie.

4.8.2 Built Heritage

County Kildare possesses a remarkably diverse and rich architectural heritage that forms an integral part of the county's landscape. In 1999 the Government launched a package of measures aimed at protecting our built heritage. At the heart of the system is a statutory requirement²⁷ that the protection of buildings of artistic, architectural, historical, cultural, archaeological, scientific, technical or social interest be a mandatory objective of each local authority's Development Plan. These buildings and structures are compiled on a register known as the 'Record of Protected Structures' (RPS).

There are a number of protected structures in and around the Maynooth area. These are listed in **Table 13** and depicted on **Figure 16**.

Owners and occupiers of protected buildings are required to ensure that buildings do not become endangered through harm, decay or damage.

Table 13: Protected Structures in and around Maynooth

RPS No.	NIAH Ref.	Structure Name	Townland	Description
B05-01		Laraghbryan Church (in ruins)	Laraghbryan East	Church and Graveyard
B05-03		Laragh House	Laragh Demesne	House
B05-09	11900506	Maria Villa	Mariavilla	House
B05-10	11803067	Butler's House, Convent Lane, Dillon's Lane	Maynooth	House
B05-11	11803050	Buckley House, Main Street	Maynooth	House
B05-12	11803045	Harbour House (Bean House), Leinster Street	Maynooth	House
B05-13	11803043	Nuzstop, Main Street	Maynooth	House with shop
B05-14	11803039	Lyreen House, Court House Square	Maynooth	House
B05-27	11803090	Finnerty House, Dublin Road, Maynooth	Maynooth	House
B05-28	11803091	D.R. Glas, Ryebank House, Dublin Road, Maynooth	Maynooth	House
B05-29	11803092	Dublin Road, Maynooth	Maynooth	House
B05-30	11803095	44 Mariaville, Dunboyne Road, Maynooth	Maynooth	House
B05-31	11803098	Leinster Street, Maynooth	Maynooth	House
B05-32	11803104	141 Greenfield Cottages	Greenfield	House
B05-33	11803106	Maynooth Railway Station (former), Straffan Road (off)	Greenfield	House
B05-34	11803109	202 Railpark	Railpark	House

²⁷ Planning and Development Act, 2000 (No 30 of 2000). Part II, Section 10.

RPS No.	NIAH Ref.	Structure Name	Townland	Description
B05-36	11900505	Jackson's Bridge (and Lock)	Laraghbryan East	Bridge
B05-43	11803020	Rye House, Main Street, Maynooth, Co. Kildare	Maynooth	Shop
B05-44	11803022	Main Street, Convent Lane, Maynooth, Co. Kildare	Maynooth	House
B05-45	11803035	Bradys, Main Street, Courthouse Square, Maynooth	Maynooth	Public House
B05-46	11803041	Court House Square, Main Street, Maynooth, Co. Kildare	Maynooth	House
B05-47	11803042	The Leinster Arms, Main Street, Maynooth	Maynooth	Public House
B05-48	11803044	Dawson's, Main Street, Maynooth	Maynooth	Shop
B05-49	11803049	Maynooth Garda Siochana Station, Leinster Street, Main Street	Maynooth	Garda Station
B05-50	11803055	Mill Street, Maynooth, Co. Kildare	Maynooth	Two-storey building, formerly a house
B05-51	11803078	28 Leinster Cottages, Double Lane/Back Lane, Maynooth	Maynooth	House
B05-52	11803079	Pound Lane, Maynooth, Co. Kildare	Maynooth	Church Hall/Parish Hall
B05-53	11803087	William Bridge, Maynooth, Co. Kildare	Maynooth	Bridge
B05-54	11803093	Geraldine Hall, Leinster Street, Maynooth, Co. Kildare	Maynooth	School (former)
B05-55	11803096	Carton (House), Main Street, Dublin Road, Maynooth	Maynooth	Gate Lodge
B05-56	11803099	Maynooth Rectory (former), Parson Street, Maynooth	Maynooth	House
B05-57	11803100	Saint Mary's Church, Parson Street, Maynooth	Maynooth	Church
B05-58	11803101	Saint Mary's Catholic Church, Mill Street, Maynooth	Maynooth	Church
B05-60	11803103	Old Mullen Bridge, Royal Canal Main Line, Maynooth	Maynooth	Canal Bridge
B05-62	11803107	Maynooth Railway Station, Straffan Road (off), Maynooth	Greenfield	Signal Box
B05-63	11803108	Maynooth Parochial House, Mill Street, Maynooth	Maynooth	House
B05-64	11803112	St. Patrick's College (Junior Hospital), Parson Street	Collegeland	Hospital (former)

RPS No.	NIAH Ref.	Structure Name	Townland	Description
B05-65	11803113	St. Patrick's College (Entrance Block), Parson Street	Collegeland	University
B05-66	11803114	St. Patrick's College (Saint Patrick's H, Parson Street	Collegeland	Engine House
B05-67	11803117	St. Patrick's College (Loftus Hall), Parson Street	Collegeland	Exam Hall
B05-68	11803118	St. Patrick's College, Parson Street, Maynooth	Collegeland	Building misc.
B05-69	11803123	St. Patrick's College (Rhetoric House), Parson Street	Collegeland	Building misc.
B05-70	11803125	St. Patrick's College (Riverstown Lodge), Parson Street	Collegeland	Building misc.
B05-71	11803126	St. Patrick's College (Junior House/Logic Ho, Parson St.	Collegeland	Building misc.
B05-72	11803127	St. Patrick's College (Collegiate Chapel), Parson Street	Collegeland	Church
B05-73	11803128	St. Patrick's College (The Quadrangle), Parson St., Maynooth	Collegeland	Building misc.
B05-74	11803133	Bond Bridge, Royal Canal Main Line	Maynooth	Canal Bridge
B05-75	11803134	St. Patrick's College (Senior Infirmary), Parson St., Maynooth	Collegeland	Building misc.
B05-76	11803138	Pound Lane, Maynooth, Co. Kildare	Maynooth	House
B06-06		Lime Kiln	Railpark	Lime Kiln
B06-12	11803102	Castle View House, Parson Street	Maynooth	House
B06-13	11900601	Pike Bridge, Royal Canal Main Line	Railpark	Canal Bridge

4.8.3 Architectural Conservation Areas

The Planning & Development Act 2000 as amended places an obligation on Local Authorities to include an objective for the preservation of the character of Architectural Conservation Areas (ACAs). An ACA is a place, area, group of structures or townscape, which is of special architectural, historical, archaeological, artistic, cultural, scientific, social or technical interest, which contributes to the appreciation of a Protected Structure, and the preservation of whose character is an objective of the County Development Plan.

The character of an ACA may include patterns of materials, construction systems or architectural elements that are repeated within the area and give it a sense of harmony, or it may relate to the importance of a number of buildings or structures and the interrelationship of spaces between these.

An ACA has been identified for Maynooth (refer to **Figure 17**). New development within these areas will only be granted planning permission if it can be demonstrated that it will not harm the character or appearance of the area.

4.8.4 Vernacular Heritage

Vernacular Architecture describes the local regional traditional building forms and types using indigenous materials, and without grand architectural pretensions', i.e. the homes and workplaces of the ordinary people built by local people using local materials. This is in contrast to formal architecture, such as the grand estate houses of the gentry, churches and public buildings, which were often designed by architects or engineers.

The majority of vernacular buildings are domestic dwellings. Examples of other structures that may fall into this category include shops, outbuildings, mills, limekilns, farmsteads, forges, gates and gate piers.

4.8.5 Industrial Heritage

Industrial heritage plays a very important role in the county with canals, distilleries and forges making a strong contribution to the character of places. The advent of the railways added to the county's industrial architectural heritage.

Kildare County Council is committed to seeking to protect buildings and features of industrial heritage in situ and their related artefacts and plant.

4.8.6 Local History

There are two museums in the Maynooth area as follows:

- National Science Museum at St. Patrick's College Maynooth
- Golf Museum Golfing Union of Ireland, National HQ, Carton Demesne, Co. Kildare (note: not within plan area).

4.8.7 Relevant Environmental Issues

Continued development resulting from the unprecedented economic growth of the past decade and increasing population has increased pressure on sites or features of architectural, archaeological or cultural heritage interest. Individually these developments put direct pressure of architectural heritage, where it is in proximity, or increases the potential to interact with known or previously unknown archaeological sites and features. Cumulatively, this results in negative impact on the overall cultural heritage resource.

4.9 Landscape & Visual

Kildare County Council developed a landscape character assessment (LCA) in 2004. The study area is located in a landscape character area “Northern Lowlands”, characterised by “generally flat terrain and open lands with regular (medium size) field patterns.” This low-lying landscape nature and low vegetation allows for extensive visibility and long distance views within the landscape.

The River Liffey valley transects the landscape area from the south-west to the north-east. The Royal Canal runs along the northern boundary from west to east. Both of these waterways provide for long distance viewing along the water body.

Several viewpoints and scenic routes have been identified from the LCA. There are two scenic viewpoints in the Maynooth LAP study area (RC6 and RC7) and two on the boundary (RW4 and RC8). RC6 and RC7 are views along the Royal Canal at Mullen Bridge and Bond Bridge respectively. RC8 on the western boundary is another view from the Royal Canal at Jacksons Bridge. RW4 is a view of the River Rye Water from Kildare Bridge in Carton Demense.

The following views and prospects are also identified in the draft Maynooth LAP as worthy of protection:

- View of the College Gates and Castle
- View of The Royal Canal from all bridges:
 1. Pike Bridge
 2. Bond Bridge
- View along the Carton Avenue Main Street Axis.
- View of the Harbour along Leinster Street.

The locations of the viewpoints are depicted in **Figure 18**.

4.9.1 Relevant Environmental Issues

Existing pressures on landscape and visual resources are primarily related to impacts to sensitive views and landscapes resulting from the positioning of new development, infrastructure including road, rail, electricity and water-service infrastructure, without sensitivity to these resources.

4.10 Material Assets

The term ‘Material Assets’ refers to all infrastructure and local services provided in the County. This includes transportation, water supply, waste-water treatment and discharge, waste management services, electricity supply, telecommunications etc.

The study area occupies an area of 7.2 km² with a perimeter of 12 km. The current usage of the land is predominantly urban fabric and pasture land.

4.10.1 Transport Infrastructure

Maynooth is approximately 24 km from Dublin. It is connected to Dublin by the Arrow commuter rail service, mainline railway, provincial and Dublin bus

services. It is well connected to the road network by the M4 linking Dublin to the northwest.

Pedestrian and cycling facilities will be developed throughout the town particularly from new development areas back to the town centre and NUI Maynooth.

4.10.2 Water Supply

As outlined previously in Section 4.6.3, Maynooth is currently served by the existing Ballygoran Reservoir, via the water treatment plant at Leixlip. While supply is adequate at present KCC has appointed consultants to examine options for replacing this supply with a future supply from Ballymore Eustace water treatment plant. This would require the construction of a large diameter pipeline (800/900 mm) from the new Castlewarden Reservoir to the existing Ballygoran Reservoir, which will in turn need to be upgraded to an increased capacity of 30,000 m³.

4.10.3 Waste-water Treatment

Kildare County Council provides public wastewater collection, treatment and disposal facilities. The largest wastewater treatment plants are located at Leixlip, (serving Kilcock, Maynooth, Celbridge, Leixlip and Straffan) and Osberstown (serving Naas, Newbridge, Kilcullen, Athgarvan, Prosperous, Sallins, Clane and Kill).

Maynooth forms part of the Lower Liffey Valley Regional Sewerage Scheme, which also serves the towns of Leixlip, Celbridge, Kilcock and Straffan and discharges to the wastewater treatment plant at Leixlip. This treatment plant has a population equivalent capacity of 80,000. There are plans to upgrade this to a 150,000 population equivalent by 2014. Upgrading of the Maynooth Pumping Station which serves the entire Maynooth catchment was completed in 2010. The capacity of the Leixlip plant is currently a constraint on development, and until such time as it is upgraded, any future development must be cognisant of this.

Stormwater is a problem in Maynooth thus resulting in discharges to the River Lyreen.

4.10.4 Waste Management Services

Since July 2011, Kildare County Council have ceased provision of waste and recycling bin collection services to households in the county. Waste management services in the county are now provided by the following waste management contractors:

- Advanced Environmental Waste Solutions (AES).
- Ballymore Bins.
- Mahons Recycling.
- Oxigen.
- Ozo.
- Ray Whelan.

- Thorntons.

There are no EPA waste licenced facilities in Maynooth or the immediate surrounding area. The following waste infrastructure is in place in the vicinity:

- Civic Amenity facility in Kilcock.
- Compost Facility in Carbury (Carbury Mushrooms), Kilberry (Bord na Mona).
- Non-Hazardous Waste Landfills at Drehid (Bord na Mona).
- Waste Transfer Stations at Straffan and Celbridge.

In Maynooth town, there are recycling facilities for glass and cans at Aldi, Tesco and at the Council carpark beside the Glenroyal Hotel. A civic amenity site (large recycling centre) is planned for Celbridge and will cater for the north east of the county.

4.10.5 Electricity Supply

Kildare's current energy supply is provided from a number of sources including the ESB's Liffey and Poulaphouca hydroelectric stations and a natural gas pipeline from Cork to Dublin which pass through the east of the county.

The existing gas network within the county has capacity for connections and local distribution network extensions.

4.10.6 Telecommunications

The county is served by a number of telecom providers, each using various forms of technology including fibre optic and wireless technology. Two significant mast sites are located within the county, at Cappagh and Dunmurry Hill, both of which are primary collection masts for telecoms traffic from the west of the country to Dublin.

4.10.7 Relevant Environmental Issues

Increased development including residential and industrial expansion exerts pressure on all existing material assets. Availability of water supplies into the future is essential to minimise pressure on existing sources. Water shortages will result in impacts to commercial and industrial developments.

Proposals for expansion or introduction of new residential and industrial facilities may result in impacts to water quality and ecosystems.

4.11 Interactions / Interrelationships

The interactions and interrelationships between the SEA environmental baseline topics is an important consideration for the environmental assessment. **Table 14** outlines the key identifiable interrelationships arising in this SEA. These potential interrelationships are taken into account throughout the assessment process. While all environmental topics interact with each other to some extent only the significant relationships on a regional level were considered. Direct relationships are highlighted in red while indirect relationships are highlighted in blue.

Table 14: Key Interrelationships between Environmental Topics

	Biodiversity	Population & Human Health	Soils & Geology	Water Resources	Flooding	Air, Noise & Climate	Heritage	Landscape & Visual	Material Assets
Biodiversity									
Population & Human Health									
Soils & Geology									
Water Resources									
Flooding									
Air, Noise & Climate									
Heritage									
Landscape & Visual									
Material Assets									

Of particular note is the interrelationship between water (quality and quantity) and biodiversity, flora and fauna, soils and geology and human health and population. Flora and fauna rely directly on the aquatic environment as a habitat but the terrestrial environment can also be strongly influenced by the aquatic environment. A wide range of terrestrial habitats, such as callows and turloughs, rely on the aquatic environment, both surface and groundwaters for their formation and terrestrial fauna and birds can rely on it as a source of food. Water quality is also of particular importance with regard to human health as it provides a source of potable water and provides foodstuffs (e.g. fish and shellfish). Water is also used for leisure and recreational purposes, providing a material asset both for local populations and as part of the tourism economy.

A further principle interrelationship of note is between water resources and climate. Greenhouse gas emissions associated with energy use during water management activities, such as treatment of drinking water and wastewater, have

the potential to negatively impact on climate through increased contribution to climate change. As a consequence, more frequent and more intense flooding and drought conditions can affect material assets and human health as well as biodiversity.

5 SEA Objectives, Targets and Indicators

5.1 Objective of this Environmental Report

The SEA is designed to assess the potential environmental impact of the policies of the revised LAP against the environmental baselines established.

The policies and associated recommendations are assessed against a range of established environmental objectives and targets. Indicators that are recommended in the SEA are utilised over the lifetime of the LAP to quantify the level of impact that the policies and recommendations have on the environment. This enables us to measure whether they were successful in promoting the sustainable development of the County.

5.2 Environmental Objectives

The formation of the environmental objectives required cognisance of the environmental protection objectives established at a range of levels through the legislation and guidelines outlined in Chapter 2. Global, EU and national level legislation, policy and associated environmental objectives were utilised to develop the environmental objectives for proposed revised LAP.

The objectives outlined below are also placed in the context of and linked into the development of the draft policies and recommendations to ensure that the objectives are appropriate for the Maynooth area.

The environmental objectives are also linked to appropriate targets and indicators outlined in the following sections.

The environmental objectives are as follows:

Biodiversity including Flora and Fauna

- Conserve the diversity of habitats and species both designated and undesignated.

Population and Human Health

- Improve people's quality of life based on high-quality residential, working and recreational environments, sustainable travel patterns and the provision of safe and secure drinking water.

Soils & Geology

- Protect the quality and quantity of existing soil and geology.

Water Resources

- Improve water quality and the management of watercourses to comply with the standards of the Water Framework Directive and incorporate the objectives of the Strategic Flood Risk Assessment into sustainable planning and development.

Air, Noise & Climate

- Maintain and promote continuing improvement of emissions to air, including noise emissions.

Heritage

- Promote the protection and conservation of heritage including archaeological, architectural, cultural, vernacular and industrial heritage.

Landscape & Visual

- Conserve and enhance valued natural and historic landscapes and features within them.

Material Assets

- Make best use of existing infrastructure and promote the sustainable development of new infrastructure.

5.3 Environmental Targets

Each of the Environmental Objectives has a range of Environmental Targets which the LAP Policies and Recommendations are aimed towards. These targets need to be quantifiable to ensure that monitoring can be carried out effectively. The following targets have been proposed to direct the sustainable implementation of the Policies and Recommendations and to ensure that the environment is maintained and/or improved where possible.

Biodiversity including Flora and Fauna

- Improve protection for protected sites and species.
- Improve protection for important wildlife sites, particularly protection of ecological linkages through the provision of green infrastructure.
- Improve access for the appreciation and promotion of wildlife.
- Preferably site new development in non-sensitive locations.

Population and Human Health

- Reduce population exposure to high levels of noise, vibration and air pollution.
- Increase modal shift to public transport.
- Co-ordination of land use and transportation policies.
- Reduction in journey to work (time/distance).
- Improve access to recreation opportunities.

Soils & Geology

- Maintain the quality of soils.
- Safeguard strategic mineral reserves.
- Re-use of brownfield lands, rather than developing Greenfield lands.
- Minimise the consumption of non-renewable sand, gravel and rock deposits.

Water Resources

- Improve water quality in rivers, lakes and groundwater.
- Protection of catchments/basins.
- Management of zones vulnerable to flooding.
- Promote sustainable drainage practices to improve water quality and flow.

Air, Noise & Climate

- Reduce levels of air pollution including air and noise emissions.
- Consideration of noise exposure when zoning land for new developments.
- Minimise emissions of greenhouse gases.
- Reduce waste of energy, and maximise use of renewable energy sources.

Heritage

- Regeneration of derelict and underutilised heritage sites.
- Improve appearance of areas with particular townscape character.
- Improve protection for protected archaeological sites and monuments and their settings, protected structures and conservation areas and areas of archaeological potential.
- Enhance access to sites of heritage interest.

Landscape & Visual

- Improve protection for landscapes of recognised quality.
- Maintain clear urban/rural distinctions.
- Enhance provision of, and access to, green space in urban areas.

Material Assets

- Improve availability and accessibility of commercially provided facilities and public services.
- Increase local employment opportunities.
- Improve efficiencies of transport, energy and communication infrastructure.
- Improve waste water treatment infrastructure.
- Reduce the generation of waste and adopt a sustainable approach to waste management.

5.4 Environmental Indicators

The assessment of Policies and Recommendations with respect to the Environmental Objectives and Targets is required to be measurable. The Environmental Indicators need to be capable of the following:

- Describing trends in the baseline environment.
- Demonstrating the likely significant impact of the implementation LAP.
- Being used in a monitoring programme.

- Providing an early warning of significant unforeseen adverse effects.
- Prioritising key environmental impacts.
- Ensuring the number and range of environmental indicators are manageable in terms of time and resources.

Consequently a range of Environmental Indicators required to assess the level of impact on the environment are proposed and outlined in **Table 15**.

Table 15: SEA Indicators

Biodiversity	<ul style="list-style-type: none"> • Number and extent of Protected Sites. • Areas actively managed for conservation. • Population and range of Protected Species. • Achievement of the Objectives of Biodiversity Plans.
Population & Human Health	<ul style="list-style-type: none"> • Census population data. • Rates of Unemployment per area. • % increase in housing (number and type). • % change of commuter transport distances / times / range of public transport utilised. • % of commuters using public transport. • % change in education levels.
Soils & Geology	<ul style="list-style-type: none"> • Rates of re-use / recycling of construction waste. • Rates of quarrying. • Rates of brownfield site and contaminated land reuse and development. • Rates of greenfield development.
Water Resources	<ul style="list-style-type: none"> • Compliance of potable water sources to water quality regulations. • Compliance of surface waters with national and international standards. • Potable and wastewater treatment capacities versus population. • % of wastewater requiring treatment. • Achievement of the Objectives of the River Basin Management Plans. • Amount of new developments within flood plains. • Annual costs of damage related to flood events.
Air, Noise & Climate	<ul style="list-style-type: none"> • Traffic, Transport and Vehicular survey data. • National and region specific emission data. • Compliance with national standards.

	<ul style="list-style-type: none"> • Reduction in greenhouse gas emissions. • Compliance of emission licensed facilities. • Number of energy / renewable energy production facilities. • % of dwellings / businesses using renewable energies. • Rates of energy / renewable energy consumption.
Heritage	<ul style="list-style-type: none"> • Updating of inventories to include new sites / features. • Achieving the objectives of development plans regarding heritage protection. • Range and extent of areas of heritage potential. • Range and extent of areas of special planning controls.
Landscape & Visual	<ul style="list-style-type: none"> • Range and extent of Amenity Landscapes. • Rates of development within designated landscapes. • Rates of urban expansion. • Rates of deforestation. • Rates of agricultural land re-development likely to impact landscape. • % change of land use from rural to urban.
Material Assets	<ul style="list-style-type: none"> • Location / level of infrastructure. • Achievement of development plan objectives. • Rates of deprivation. • Rate of waste disposal to landfill statistics. • Range and extent of recycling facilities and services. • Rates of recycling.

6 Assessment of Likely Significant Effects

6.1 Introduction

The approach used for assessing likely significant impacts was objectives led. The assessment was primarily qualitative in nature, with some assessment based on expert judgement. This qualitative assessment compares the likely impacts against the Strategic Environmental Objectives to see which Policies and Recommendations meet the Strategic Environmental Objectives and which, if any, contradict these.

Particular reference was made to the potential for cumulative effects in association with other relevant plans and programmes within the Kildare/Greater Dublin Area.

Particular regard was also paid to the need for the sustainable development of ecological resources (including the conservation of fish and other species of fauna and flora, habitats and the biodiversity of water ecosystems and commercial and natural fisheries) as economic resources. In conjunction with the Habitats Directive Assessment due consideration was given to potential significant impacts of the policies and recommendations on ecological resources for the following areas:

- Surface and Ground Water quality.
- Surface water hydrology.
- Fish spawning and nursery areas.
- Passage of migratory fish.
- Areas of natural heritage importance.
- Designated marine protected areas.
- Biological Diversity.
- Ecosystem structure and functioning.
- Seabirds and marine mammals.
- Fish and shellfish cultivation.
- Sport and commercial fishing and angling.
- Amenity and recreational areas.
- Mineral and aggregate resources.
- Sediment transport and coastal erosion.
- Navigation.
- Other legitimate use of the sea.

The assessment process categorised environmental impacts using the ratings outlined in **Table 16** which is based on the impact assessment criteria defined by the EPA for environmental impact assessment.

Table16: Impact Ratings

Duration and Type of Impact	
S	Short-term - Impact lasting one to seven years
M	Medium-term - Impact lasting seven to fifteen years
L	Long-term - Impact lasting fifteen to sixty years
P	Permanent - Impact lasting over sixty years
T	Temporary - Impact lasting for one year or less
C	Cumulative – Impact that is ameliorated by other impacts

Significance of Impact	
	Major Positive
	Positive
	Neutral
	Negative
	Major Negative
	Uncertain

6.2 Principal Environmental Impacts

The environmental impacts of the proposed revised LAP policies were assessed with respect to the existing environmental baseline in Chapter 4 and the environmental objectives listed in Chapter 5.

As the policies have been designed to promote sustainability and to protect the environment, the majority of recommendations have positive impacts when assessed against the environmental objectives, with the exception of the changes to zoning where . The matrix outlined in **Table 17** highlights these potential impacts. The principal findings are summarised in the following sections. It should be noted that the assessment considers the predicted residual (i.e. mitigated) impact on each environmental topic.

6.2.1 Biodiversity, Flora and Fauna

Most of the potential impacts for Biodiversity, Flora and Fauna are positive or neutral as it is not proposed to provide development solely on Greenfield sites. It is also largely intended that development will be consolidated within the footprint of the existing urban centre. Uncertainties exist where the precise nature and extent of development is unknown. Negative impacts exist where agricultural lands have been rezoned for development which has the potential, even with the provision of mitigation, to impact on habitats and species.

6.2.2 Population & Human Health

The potential impacts for Population and Human Health are predominantly positive as it is proposed to consolidate settlements and integrate land use and

transport. The focus on provision of local employment will also have a positive effect on Population and Human Health.

6.2.3 Soil & Geology

The majority of potential impacts for Soils and Geology are neutral or positive as development will primarily be consolidated within the footprint of the existing urban centre.

Uncertainties exist where the precise nature and extent of proposed new development is unknown. Negative impacts exist where agricultural lands have been rezoned for development which has the potential to impact soil and geology in the area.

6.2.4 Water Resources & Flooding

The potential impacts for Water Resources and Flooding are positive or neutral as it is proposed that a comprehensive risk-based planning approach to flood management to prevent or minimise future flood risk be implemented. The avoidance of development in areas where flood risk has been identified will be the primary response.

6.2.5 Air, Noise & Climate

The potential impacts on Air, Noise and Climate are predominantly positive or neutral as the Plan proposes to locate employment in close proximity to the town and along strategic corridors. The plan also promotes sustainable travel modes and reducing long distance commuting for employment while encouraging the development of Green Infrastructure. Such measures will have a positive effect on air, noise and climate.

Uncertainties exist where the precise nature and extent of proposed new development is unknown. Negative impacts exist where agricultural lands have been rezoned for development which has the potential even with mitigation to impact on the air and noise environment in the area.

6.2.6 Archaeological, Architectural and Cultural Heritage

The potential impacts on heritage are predominantly neutral or positive development will be consolidated within the footprint of the existing urban centre. This plan also places a significant emphasis on the retention, protection and enhancement of existing heritage features within the town.

Uncertainties exist where the precise nature and extent of proposed new development is unknown and where the discovery of heritage features cannot be ruled out.

6.2.7 Landscape and Visual

The majority of potential impacts for Landscape and Visual are positive or neutral.

Uncertainties exist where the precise nature and extent of proposed new development is unknown. Negative impacts exist where agricultural lands have been rezoned for development which has the potential even with mitigation to impact on the landscape and visual environment.

6.2.8 Material Assets

The potential impacts on Material Assets are largely considered as positive or neutral. This is because development will occur in a manner that is balanced and self sustaining occurring in tandem with physical and social infrastructure.

Maynooth LAP Policies and Objectives	SEA Environmental Objectives							
	Biodiversity	Population & Human Health	Soils & Geology	Water Resources	Air, Noise & Climate	Heritage	Landscape & Visual	Material Assets
Housing Policy:								
HP 1	P	P	P	P	P	P	P	P
HP 2	P	P	P	P	P	P	P	P
HP 3	P	P	P	P	P	P	P	P
HP 4	P	P	P	P	P	P	P	P
HP 5	P	P	P	P	P	P	P	P
HP 6	P	P	P	P	P	P	P	P
HP 7	P	P	P	P	P	P	P	P
HP 8	P	P	P	P	P	P	P	P
HP 9	P	P	P	P	P	P	P	P
HP 10	P	P	P	P	P	P	P	P
HP 11	P	P	P	P	P	P	P	P
HP 12	P	P	P	P	P	P	P	P
HP 13	P	P	P	P	P	P	P	P
HP 14	P	P	P	P	P	P	P	P
Housing Objectives:								
HPO 1	P	P	P	P	P	P	P	P
HPO 2	P	P	P	P	P	P	P	P

Maynooth LAP Policies and Objectives	SEA Environmental Objectives							
	Biodiversity	Population & Human Health	Soils & Geology	Water Resources	Air, Noise & Climate	Heritage	Landscape & Visual	Material Assets
Economic Development Policy:								
ED 1	P	P	P	P	P	P	P	P
ED 2	P	P	P	P	P	P	P	P
ED 3	P	P	P	P	P	P	P	P
ED 4	P	P	P	P	P	P	P	P
Economic Development Objectives:								
EDO 1	P	P	P	P	P	P	P	P
Tourism Policy:								
T 1	P	P	P	P	P	P	P	P
T 2	P	P	P	P	P	P	P	P
T 3	P	P	P	P	P	P	P	P
T 4	P	P	P	P	P	P	P	P
T 5	P	P	P	P	P	P	P	P
T 6	P	P	P	P	P	P	P	P
Tourism Objectives:								
TO 1	P	P	P	P	P	P	P	P
Retail Policy:								
R 1	P	P	P	P	P	P	P	P

Maynooth LAP Policies and Objectives	SEA Environmental Objectives							
	Biodiversity	Population & Human Health	Soils & Geology	Water Resources	Air, Noise & Climate	Heritage	Landscape & Visual	Material Assets
R 2	P	P	P	P	P	P	P	P
R 3	P	P	P	P	P	P	P	P
R 4	P	P	P	P	P	P	P	P
R 5	P	P	P	P	P	P	P	P
R 6	P	P	P	P	P	P	P	P
Retail Objectives:								
RO 1	P	P	P	P	P	P	P	P
RO 2	P	P	P	P	P	P	P	P
RO 3	P	P	P	P	P	P	P	P
Urban Development Strategy:								
UDS 1	P	P	P	P	P	P	P	P
UDS 2	P	P	P	P	P	P	P	P
UDS 3	P	P	P	P	P	P	P	P
UDS 4	P	P	P	P	P	P	P	P
UDS 5	P	P	P	P	P	P	P	P
UDS 6	P	P	P	P	P	P	P	P
UDS 7	P	P	P	P	P	P	P	P
Town Centre Strengthening:								

Maynooth LAP Policies and Objectives	SEA Environmental Objectives							
	Biodiversity	Population & Human Health	Soils & Geology	Water Resources	Air, Noise & Climate	Heritage	Landscape & Visual	Material Assets
TCS 1	P	P	P	P	P	P	P	P
TCS 2	P	P	P	P	P	P	P	P
TCS 3	P	P	P	P	P	P	P	P
TCS 4	P	P	P	P	P	P	P	P
TCS 5	P	P	P	P	P	P	P	P
TCS 6	P	P	P	P	P	P	P	P
TCS 7	P	P	P	P	P	P	P	P
TCS 8	P	P	P	P	P	P	P	P
TCS 9	P	P	P	P	P	P	P	P
TCS 10	P	P	P	P	P	P	P	P
TCS 11	P	P	P	P	P	P	P	P
Town Centre Consolidation:								
TCC 1	P	P	P	P	P	P	P	P
TCC 2	P	P	P	P	P	P	P	P
TCC 3	P	P	P	P	P	P	P	P
Laneway Consolidation:								
BAC 1	P	P	P	P	P	P	P	P
BAC 2	P	P	P	P	P	P	P	P

Maynooth LAP Policies and Objectives	SEA Environmental Objectives							
	Biodiversity	Population & Human Health	Soils & Geology	Water Resources	Air, Noise & Climate	Heritage	Landscape & Visual	Material Assets
BAC 3	P	P	P	P	P	P	P	P
BAC 4	P	P	P	P	P	P	P	P
BAC 5	P	P	P	P	P	P	P	P
BAC 6	P	P	P	P	P	P	P	P
Expansion Area Policies:								
EA 1	P	P	P	P	P	P	P	P
EA 2	P	P	P	P	P	P	P	P
EA 3	P	P	P	P	P	P	P	P
EA4	P	P	P	P	P	P	P	P
EA 5	P	P	P	P	P	P	P	P
EA 6	P	P	P	P	P	P	P	P
EA 7	P	P	P	P	P	P	P	P
EA 8	P	P	P	P	P	P	P	P
EA 9	P	P	P	P	P	P	P	P
EA 10	P	P	P	P	P	P	P	P
EA 11	P	P	P	P	P	P	P	P
Public Transport Policy:								
PT 1	P	P	P	P	P	P	P	P

Maynooth LAP Policies and Objectives	SEA Environmental Objectives							
	Biodiversity	Population & Human Health	Soils & Geology	Water Resources	Air, Noise & Climate	Heritage	Landscape & Visual	Material Assets
PT 2	P	P	P	P	P	P	P	P
PT 3	T	P	P	T	P	T	P	P
PT 4	P	P	P	P	P	P	P	P
PT 5	P	P	P	P	P	P	P	P
Road Infrastructure Policy:								
TR 1	P	P	P	P	P	P	P	P
TR 2	P	P	P	P	P	P	P	P
TR 3	P	P	P	P	P	P	P	P
Road Infrastructure Objectives:								
TRO 1	P	P	P	P	P	P	T	P
TRO 2	T	P	T	T	T	T	T	P
TRO 3	T	P	T	T	T	T	T	P
TRO 4	P	P	P	P	P	P	P	P
TRO 5	P	P	P	P	P	P	P	P
TRO 6	P	P	P	P	P	P	P	P
TRO 7	P	P	P	P	P	P	P	P
Pedestrian and Cycle Networks Policy:								
PC 1	P	P	P	P	P	P	P	P

Maynooth LAP Policies and Objectives	SEA Environmental Objectives							
	Biodiversity	Population & Human Health	Soils & Geology	Water Resources	Air, Noise & Climate	Heritage	Landscape & Visual	Material Assets
PC 2	P	P	P	P	P	P	P	P
Pedestrian and Cycle Networks Objectives:								
PCO 1	P	P	P	P	P	P	P	P
PCO 2	P	P	P	P	P	P	P	P
PCO 3	P	P	P	P	P	P	P	P
PCO 4	P	P	P	P	P	P	P	P
PCO 5	P	P	P	P	P	P	P	P
Water Supply and Quality Policy:								
WS 1	P	P	P	P	P	P	P	P
WS 2	P	P	P	P	P	P	P	P
WS 3	P	P	P	P	P	P	P	P
WS 4	P	P	P	P	P	P	P	P
WS 5	P	P	P	P	P	P	P	P
Wastewater Policy:								
WW 1	P	P	P	P	P	P	P	P
WW 2	P	P	P	P	P	P	P	P
WW 3	P	P	P	P	P	P	P	P
Surface Water Drainage Policy:								

Maynooth LAP Policies and Objectives	SEA Environmental Objectives							
	Biodiversity	Population & Human Health	Soils & Geology	Water Resources	Air, Noise & Climate	Heritage	Landscape & Visual	Material Assets
SW 1	P	P	P	P	P	P	P	P
SW 2	P	P	P	P	P	P	P	P
SW 3	P	P	P	P	P	P	P	P
Surface Water Drainage Objectives:								
SWO 1	P	P	P	P	P	P	P	P
SWO 2	P	P	P	P	P	P	P	P
SWO 3	P	P	P	P	P	P	P	P
SWO 4	P	P	P	P	P	P	P	P
SWO 5	P	P	P	P	P	P	P	P
Flood Risk Management Policy:								
FRA 1	P	P	P	P	P	P	P	P
FRA 2	P	P	P	P	P	P	P	P
FRA 3	P	P	P	P	P	P	P	P
FRA 5	P	P	P	P	P	P	P	P
FRA 6	P	P	P	P	P	P	P	P
FRA 7	P	P	P	P	P	P	P	P
FRA 8	P	P	P	P	P	P	P	P
FRA 9	P	P	P	P	P	P	P	P

Maynooth LAP Policies and Objectives	SEA Environmental Objectives							
	Biodiversity	Population & Human Health	Soils & Geology	Water Resources	Air, Noise & Climate	Heritage	Landscape & Visual	Material Assets
Flood Risk Management Objectives:								
FRO 1	P	P	P	P	P	P	P	P
FRO 2	P	P	P	P	P	P	P	P
FRO 3	T	T	T	T	T	T	T	T
Pollution Control Policy (Water, Air, Noise & Light):								
PCW 1	P	P	P	P	P	P	P	P
PCW 2	P	P	P	P	P	P	P	P
Wast Management Policy:								
ES 1	P	P	P	P	P	P	P	P
ES 2	P	P	P	P	P	P	P	P
Litter Control Policy:								
L 1	P	P	P	P	P	P	P	P
L 2	P	P	P	P	P	P	P	P
L 3	P	P	P	P	P	P	P	P
Dereliction Policy:								
DT 1	P	P	P	P	P	P	P	P
Energy & Communications Policy:								

Maynooth LAP Policies and Objectives	SEA Environmental Objectives							
	Biodiversity	Population & Human Health	Soils & Geology	Water Resources	Air, Noise & Climate	Heritage	Landscape & Visual	Material Assets
TEC 1	P	P	P	P	P	P	P	P
TEC 2	P	P	P	P	P	P	P	P
TEC 3	P	P	P	P	P	P	P	P
Education, Community & Cultural Policy:								
EDC 1	P	P	P	P	P	P	P	P
EDC 2	P	P	P	P	P	P	P	P
EDC 3	P	P	P	P	P	P	P	P
EDC 4	P	P	P	P	P	P	P	P
Education Objectives:								
EDO 1:	P	P	P	P	P	P	P	P
Community Policy:								
C 1	P	P	P	P	P	P	P	P
C 2	P	P	P	P	P	P	P	P
Community Objectives:								
CO 1	T	P	T	T	T	T	T	P
CO2	T	P	T	T	T	T	T	P
Culture Policy:								
CU 1	P	P	P	P	P	P	P	P

Maynooth LAP Policies and Objectives	SEA Environmental Objectives							
	Biodiversity	Population & Human Health	Soils & Geology	Water Resources	Air, Noise & Climate	Heritage	Landscape & Visual	Material Assets
CU 2	P	P	P	P	P	P	P	P
Architectural Heritage Policy:								
BH 1	P	P	P	P	P	P	P	P
BH 2	P	P	P	P	P	P	P	P
BH 3	P	P	P	P	P	P	P	P
BH 4	P	P	P	P	P	P	P	P
BH 5	P	P	P	P	P	P	P	P
Archaeological Heritage Policy:								
AH 1	P	P	P	P	P	P	P	P
AH 2	P	P	P	P	P	P	P	P
Natural Heritage and Biodiversity:								
NH 1	P	P	P	P	P	P	P	P
NH 2	P	P	P	P	P	P	P	P
NH 3	P	P	P	P	P	P	P	P
NH 4	P	P	P	P	P	P	P	P
NH 5	P	P	P	P	P	P	P	P
NH 6	P	P	P	P	P	P	P	P
Green Infrastructure Policy:								

Maynooth LAP Policies and Objectives	SEA Environmental Objectives							
	Biodiversity	Population & Human Health	Soils & Geology	Water Resources	Air, Noise & Climate	Heritage	Landscape & Visual	Material Assets
GI 1	P	P	P	P	P	P	P	P
GI 2	P	P	P	P	P	P	P	P
GI 3	P	P	P	P	P	P	P	P
GI 4	P	P	P	P	P	P	P	P
GI 5	P	P	P	P	P	P	P	P
GI 6	P	P	P	P	P	P	P	P
GI 7	P	P	P	P	P	P	P	P
GI 8	P	P	P	P	P	P	P	P
GI 9	P	P	P	P	P	P	P	P
GI 10	P	P	P	P	P	P	P	P
Green Infrastructure Objectives:								
GIO 1	P	P	P	P	P	P	P	P
Recreation, Amenity & Open Space Policy:								
AR 1	P	P	P	P	P	P	P	P
AR 2	P	P	P	P	P	P	P	P
AR 3	P	P	P	P	P	P	P	P
AR 4	P	P	P	P	P	P	P	P
AR 5	P	P	P	P	P	P	P	P

Maynooth LAP Policies and Objectives	SEA Environmental Objectives							
	Biodiversity	Population & Human Health	Soils & Geology	Water Resources	Air, Noise & Climate	Heritage	Landscape & Visual	Material Assets
AR 6	P	P	P	P	P	P	P	P
AR 7	P	P	P	P	P	P	P	P
AR 8	P	P	P	P	P	P	P	P
AR 9	P	P	P	P	P	P	P	P
AR 10	P	P	P	P	P	P	P	P
AR 11	P	P	P	P	P	P	P	P
AR 12	P	P	P	P	P	P	P	P
AR 13	P	P	P	P	P	P	P	P
AR 14	P	P	P	T	P	P	P	P
New Land Use Zonings:								
Plot of land to west rezoned from Agricultural to "P - Research and Technology"	P	P	P	P	P	T	P	P
Plot of land to North rezoned from Agricultural to "E - Community and Educational"	P	P	P	P	P	T	P	P
Lands at Mariavillas afrom Agriculture to "C - New Residential"	P	P	P	P	P	T	P	P

7 Consideration of Alternatives

7.1 Introduction

The following summarises a series of alternative plan scenarios which provide different visions of how the future development of Maynooth might occur. These are neither predictions nor preferences instead they offer a range of outcomes arising from different planning and development strategies.

7.2 Alternatives Considered

7.2.1 The ‘Do–Nothing’ Scenario

As Kildare County Council has a statutory obligation under Part II of the Planning and Development Act 2000, as amended, to review the Maynooth LAP every six years, a ‘do nothing’ alternative is not considered as one of the alternatives, nor is it required to be by the SEA Directive.

7.2.2 Option 1

This option proposed development of the College lands and consolidation of the Town Centre.

Development of the College lands comprised the provision of mixed use development including educational, employment, residential and amenity which will require infrastructural improvements and public transport links. Consolidation of the town centre would be achieved through encouraging the development of vacant and underutilised sites in the town centre.

7.2.3 Option 2

This option proposed the redevelopment of the Canal Harbour, employment development west of the college and new residential development in a new north east quadrant at Mariavilla.

The development of the Canal Harbour would consolidate the town centre through the provision of new residential, commercial, cultural and enhanced amenity facilities. New pedestrian and vehicular routes would be developed to aid circulation in the town centre. This option also included the designation of lands west of the college for research and development based employment opportunities and at Mariavilla for new residential purposes.

7.2.4 Option 3

This option proposed to provide residential growth on the Moyglare Road with employment and educational development on adjacent lands. It also included for (science and technology based) employment development in nearby Moygaddy in County Meath.

7.2.5 Option 4

This option proposed to provide the majority of the residential growth for Maynooth at Railpark to include neighbourhood services.

7.2.6 Option 5

This option proposed to provide for residential development at lands between the Motorway and the Railway to the West of Maynooth. This area would become a new residential quarter with associated community facilities.

7.2.7 Assessment of Alternatives

A planning evaluation of the five options was carried out and is summarised in **Table 18**.

An environmental assessment was carried out using the same criteria outlined in **Table 16** and is summarised in **Table 19**. The review of the final revised LAP was cognisant of this environmental assessment and incorporated the findings into the development of the revised LAP.

Following the assessments Option 2 was selected as the preferred option.

Table 18: Planning Assessment of Alternatives Considered

Option	Development Scenario	Critical Evaluation	Effects on Planning	Conclusion
1	Development of the College lands and the consolidation of the Town Centre.	<ul style="list-style-type: none"> The college lands may be best utilised by focusing on the development of education and research and development based employment opportunities. The redevelopment of underused sites in the town centre particularly the Canal Harbour area will allow for the revitalisation of the town centre in terms of commerce, accommodation and movement. This scenario could facilitate the completion of the Maynooth Outer Orbital route. Protection of the natural and built heritage including Carton estate and the Rye water cSAC. 	<ul style="list-style-type: none"> Lands may be more productively used for education and ancillary research and development based employment. Poor access to Motorway. Will cause additional through traffic through the town until relief road complete. Requires the implementation of a detailed masterplan for the college lands. Requires significant upgrading of infrastructural links to town centre and surrounding residential areas. Requires specific local planning and urban design guidance for the development of key sites in the town centres and clear guidance on the density and quality of new residential development in all areas identified for consolidation. 	No
2	Canal Harbour redevelopment, employment development west of the college and new residential development in a new north east quadrant at Mariavilla.	<ul style="list-style-type: none"> The redevelopment of underused sites in the town centre particularly the Canal Harbour area will allow for the revitalisation of the town centre in terms of commerce, accommodation and movement. The employment generating land use at the college is complimentary of the existing 	<ul style="list-style-type: none"> Requires significant upgrading of infrastructural links to town centre and surrounding residential areas. Requires specific local planning and urban design guidance for the development of key sites in the town centres and clear guidance on the density and quality of new residential development in all areas identified for consolidation. 	Yes

Option	Development Scenario	Critical Evaluation	Effects on Planning	Conclusion
		<p>educational use.</p> <ul style="list-style-type: none"> • New Residential development will be located close to the town centre, other residential areas and existing services. • Development of a mixed use vibrant new urban north east quarter at Mariailla with strong community uses and a permeable and pedestrian friendly urban environment that focuses on the quality of the public realm. • This scenario could facilitate the completion of the Maynooth Outer Orbital route. • Protection of the natural and built heritage including Carton estate and the Rye water cSAC. 	<ul style="list-style-type: none"> • Responds to the relevant national/regional planning strategies including the National Spatial Strategy and the Regional Planning Guidelines for the Greater Dublin Area. 	
3	To provide residential growth on the Moyglare Road with employment and educational development on adjacent lands with employment development in nearby Moygaddy in County Meath.	<ul style="list-style-type: none"> • Requires the development of Greenfield land far removed from the town centre. • Under utilises the potential to consolidate the existing town centre by not prioritising the more efficient use of land on identified strategic sites closer to the centre. • The development pattern is likely to detract from the town centre with increased vacancies on the existing Main Street and lack of critical mass resulting in a less vibrant town centre. • Close proximity to Education Facilities i.e. NUI 	<ul style="list-style-type: none"> • Requires the implementation of a detailed masterplan for the residential lands at the Moyglare road. • Requires significant upgrading of infrastructural links to town centre and surrounding residential areas. • Has potential to lead to an uncoordinated use of lands with disconnected neighbourhoods and isolated areas of employment. • Physical separation of research and development enterprises from NUI. 	No

Option	Development Scenario	Critical Evaluation	Effects on Planning	Conclusion
		<p>Maynooth.</p> <ul style="list-style-type: none"> • Lands suitable for development. • Close proximity to recreational facilities. 	<ul style="list-style-type: none"> • Distance from the town centre. • Requirement for completion of Ring Road. • Current access from Motorway through the town centre. 	
4	New residential quarter at Railpark.	<ul style="list-style-type: none"> • Allows for growth of low density residential development at peripheral location to the south-east of the town. • The development pattern is likely to detract from the town centre with increased vacancies on the existing Main Street and lack of critical mass resulting in a less vibrant town centre. • Low density development results in the insufficient use of strategically located and serviced lands leading to a sprawling pattern of development. • Close proximity to the newly opened primary school. • Lands to the north located directly adjacent to employment land uses of Office/ Light Industry and Warehousing. • Adjacent to existing residential areas. 	<ul style="list-style-type: none"> • Has potential to lead to an uncoordinated use of lands with disconnected neighbourhoods and isolated areas of employment. • Not easily accessible to Motorway. • c.1km from Railway Station equating to c.10-12 minute walking time (not ideal in most cases especially commuting purposes). • Distance from the secondary school. 	No
5	New Development between the motorway and the built up area.	<ul style="list-style-type: none"> • Adjacent to existing residential areas. • Impact on the M4 interchange and any possible 	<ul style="list-style-type: none"> • Poor access to the town centre. • Poor access to the Motorway. 	No

Option	Development Scenario	Critical Evaluation	Effects on Planning	Conclusion
		<p>new interchanges with increased residential development creating traffic congestion at key junctions.</p> <ul style="list-style-type: none"> • The development of habitable dwellings in close proximity to the motorway may lead to health and safety issues. • Under utilises the potential to consolidate the existing town centre by not prioritising the more efficient use of land on identified strategic sites closer to the centre. 	<ul style="list-style-type: none"> • Requires significant upgrading of infrastructural links to town centre and surrounding residential areas. • Has potential to lead to an uncoordinated use of lands with disconnected neighbourhoods. 	

Table 19: Environmental Assessment of Options

Revised Maynooth LAP Alternatives	SEA Environmental Objectives							
	Biodiversity	Population & Human Health	Soils & Geology	Water Resources	Air, Noise & Climate	Heritage	Landscape & Visual	Material Assets
Option 1	P	P	P	P	P	P	P	P
Option 2	P	P	P	P	P	P	P	P
Option 3	P	P	P	P	P	P	P	P
Option 4	P	P	P	P	P	P	P	P
Option 5	P	P	P	P	P	P	P	P

8 Mitigation Measures

Mitigation measures are measures envisaged and designed to prevent, reduce and as fully as possible offset any significant adverse impacts on the environment of implementing the revised LAP. All mitigation measures have been developed and agreed with KCC as part of the SEA iterative process.

Mitigation measures required for the Habitats Directive Article 6 report are also noted as being relevant to the measures outlined for Biodiversity, Flora and Fauna, Water Resources, Soils and Geology and Landscape.

The primary mitigation measure is to ensure the sustainable and appropriate development of Maynooth without compromising the integrity of the natural and built environment. All new development requiring an Environmental Impact Statement will need to address the range of environmental objectives, indicators and targets and associated environmental mitigation measures and incorporate them into the project specific mitigation measures.

Table 20: Mitigation Measures

Environmental Receptor	Mitigation Measures
Biodiversity	<ul style="list-style-type: none"> • Ensure that appropriate measures for conservation and enhancement of the natural and built environment are incorporated into all relevant plans and programmes. • Ensure that all new development plans are cognisant of the Biodiversity Action Plan for the County. • Ensure the suitable protection of ecological resources that have economic benefits e.g. ecological zones that draw tourism. • Compliance with the zoning of the SACs, NHAs, SPAs which prohibits non-compatible developments. • Ensure that an AA is carried out for all development proposals with potential to impact on Natura 2000 sites.
Population and Human Health	<ul style="list-style-type: none"> • Ensure that access to adequate health and education facilities to meet the demand of the current and projected populace are included in development plans. • Encourage the further development of regional public transport infrastructure including rail and bus corridors.
Soils and Geology	<ul style="list-style-type: none"> • Perform a survey of obsolete urban renewal areas and facilitate and promote the reuse and regeneration of brownfield sites, derelict land and buildings in and around urban centres. • Promote the recycling of construction and demolition waste and the reuse of aggregate and other materials in order to reduce the quantities of virgin material being extracted. • Ensure that the ‘polluter pays principle’ is adhered to in full cooperation with the EPA.

Environmental Receptor	Mitigation Measures
Water Resources and Flooding	<ul style="list-style-type: none"> • Ensure that the objectives and the programme of measures outlined the River Basin Management Plans are fully implemented. • Provide adequate capacity at water and wastewater treatment and storage facilities for current and projected populace. • Prevent the alteration of natural drainage systems and in the case of development works require the provision of acceptable mitigation measures in order to minimise the risk of flooding and negative impacts on water quality. • Comply with the objectives and policies of the Eastern Catchment Flood Risk Assessment Management Study. • Promote SUDS principles for all drainage including the integration of storm water attenuation facilities for new developments and existing catchment areas. • Ensure that any new development does not present an inappropriate risk of flooding or does not cause or exacerbate such a risk at other locations. • Preserve and protect the water quality of Kildare's river systems where these help to regulate stream flow, recharge ground water and screen pollutant. • Comply with the DoEHLG/OPW guidance on development and flood risk through the control of development in any flood plain so that new and existing developments are not exposed to increased risk of flooding and that any loss of flood storage is compensated for elsewhere in the river catchment.
Air, Noise and Climate	<ul style="list-style-type: none"> • Ensure that the objectives and policies of EU Air Quality legislation are incorporated into plans and programmes upon implementation into Irish law. • Promote the reduction of emissions of Greenhouse Gases to ensure Ireland's compliance with our Kyoto Protocol Targets. • Facilitate sustainable transport modes and the use of walking, cycling and public transport. • Consideration of existing noise policy in County Kildare for example noise mapping and noise action plans produced by the Local Authority. • Consideration of likely noise impacts/effects associated with new developments. This includes being cognisant of proximity to sensitive receptors when siting new developments and consideration of existing noise sources when zoning lands for residential development.
Archaeological, Architectural and Cultural Heritage	<ul style="list-style-type: none"> • Ensure the protection of all features of architectural and archaeological merit.

Environmental Receptor	Mitigation Measures
	<ul style="list-style-type: none"> • Promote the designation of areas of architectural merit throughout the County. • Promote the integration of suitably designed developments into existing urban and rural landscapes. • Prevent inappropriately designed developments in designated areas of architectural merit.
Landscape & Visual	<ul style="list-style-type: none"> • Ensure that all new plans and programmes incorporate the findings of the landscape Character Assessment for County Kildare.
Material Assets	<ul style="list-style-type: none"> • Protect the hydrological environment from adverse effects of the wastewater discharges by ensuring that there is suitable wastewater treatment to meet demands before discharge to the environment. • Promote the development of sustainable transportation infrastructure where considered feasible. • Promote the implementation of the Waste Management Plan together with any future National or Regional Waste Management Plans. • Encourage waste prevention, minimisation, reuse, recycling and recovery as methods of managing waste. • Ensuring specific national policies and regulations regarding waste Management are adhered to. • Promote and facilitate community awareness and involvement in community-based recycling initiatives or environmental management initiatives that will lead to local sustainable waste management practices. • Promote the development of sufficient energy resources to meet the needs of the GDA and promote the use of renewable energies to meet those needs.

9 SEA Monitoring

Article 10 of the SEA Directive requires that monitoring should be carried out in order to identify at an early stage any unforeseen adverse impacts associated with the implementation of the plan or programme.

A monitoring programme is developed based on the indicators selected to track progress towards achieving strategic environmental objectives and reaching targets, enabling positive and negative impacts on the environment to be measured. As previously described, the environmental indicators have been developed to show changes that would be attributable to implementation of the revised LAP.

The SEA carried out has ensured that any potential significant environmental impacts have been identified and given due consideration.

No significant impacts have been identified as part of the SEA process. Consequently it has been determined that no additional monitoring is required.