APPENDIX I - NON TECHNICAL SUMMARY

FOR THE

GALWAY COUNTY DEVELOPMENT PLAN 2015-2021

for: **Galway County Council**

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Section 1 Introduction and Terms of Reference

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

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

Why is it needed?
The SEA has been carried out in order to comply with the provisions of the Planning and Development (SEA) Regulations and in order to improve planning and environmental management within County Galway. The output of the process is an Environmental Report which should be read in conjunction with the County Development Plan.

How does it work?
All of the main environmental issues in County Galway were assembled and presented to the team who prepared the Plan. This helped them to devise a Plan that protects whatever is sensitive in the environment. It also helped to identify wherever there are environmental problems in the area and ideally the Plan tries to improve these.

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

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

The Environmental Report contains the following information:

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

What happens at the end of the process?

An SEA Statement has been prepared which accompanies the Plan and summarises, inter alia, how environmental considerations have been integrated into the Plan.

Section 2 The County Development Plan

2.1 Background to the Plan

The Plan sets out an overall strategy for the proper planning and sustainable development of the functional area of Galway County Council. The Plan presents Galway County Council's outlook for future development of the County up to the period 2021. It also takes account of the longer term vision for the manner in which the County can be developed, while protecting and enhancing its environment through employing the principles of sustainable development in the policies and objectives set out therein. The Plan builds on the strategies, policies and objectives of the Galway Plan 2009-2015, taking into account recent key development trends and national, regional and local policy developments. In particular, it also takes account of the increased emphasis on flooding, climate change, renewable energy and the need to support economic development. It also takes account of EU requirements including the application of SEA and AA to the Plan.

2.2 Content of the Plan

The Plan has been prepared by Galway County Council and comprises of a written document with maps, and various appendices. The County Development Plan has been structured into 13 main Chapters which deal with various topics as outlined below:

Chapter No.	Title/Topics
1	Introduction
2	Spatial Strategy, Core and Settlement Strategy
3	Urban and Rural Housing
4	Economic, Tourism and Retail Development
5	Roads and Transportation
6	Water and Wastewater, Waste Management and Extractive Industry
7	Energy/Renewable Energies & Communications Technology
8	Climate Change & Flooding
9	Heritage, Landscape & Environmental Management
10	Cultural, Social & Community Development
11	Agriculture, Fishing, Marine Resources & Forestry
12	Implementation & Monitoring
13	Development Management Standards and Guidelines

2.3 The Plan's Vision

The Vision of the Plan is as follows:

"Enhance the quality of life of the people of Galway and maintain the County as a uniquely attractive place in which to live, work, invest and visit, harnessing the potential of the county's competitive advantages in a sustainable and environmentally sensitive manner."

2.4 The Plan's Strategic Aims

The Strategic Aims of the Plan are detailed below.

Strategic Aim 1 – Promote Regional Development
Promote regional development and growth through harnessing the economic and employment potential of the competitive advantages of County Galway such as its strategic location, quality of life, landscape, heritage and natural resources, in a sustainable and environmentally sensitive manner.

Strategic Aim 2 – Environmental Protection
Afford suitable protection to the environment and natural resources of the County and ensure the fulfilment of environmental responsibilities.

Strategic Aim 3 – Living Landscapes
Recognise the importance of living landscapes where people live, work, visit and enjoy while ensuring they are managed in a sustainable and appropriate manner.

Strategic Aim 4 – Balanced Urban and Rural Areas
Prioritise development within the Hub town of Tuam, the Galway Metropolitan Area, Ballinasloe, the key towns and smaller towns, villages and settlements within the County, while supporting the role of the rural areas in sustaining the rural based economy.

Strategic Aim 5 – Inclusive Communities
Encourage and support the development of inclusive communities which engage and include all members of society facilitating equal physical, social and cultural access and integration.

Strategic Aim 6 – Integrated Development
Ensure a more sustainable and integrated concept of development with regard to land use, transportation, water services, energy supply and waste management over the lifetime of the Plan.

Strategic Aim 7 – Sustainable Transportation
Minimise travel demand and promote the increase of sustainable mobility throughout the county.

Strategic Aim 8 – An Ghaeltacht
Promote the Gaeltacht as an Irish speaking community, recognising its importance locally, nationally and internationally.

Strategic Aim 9 – Infrastructural Projects
Facilitate the development of infrastructural projects, which will underpin sustainable development throughout the County and Region during the Plan period.

Strategic Aim 10 – Heritage
Enhance and protect the built heritage and natural environment, including buildings, archaeology, landscape and biodiversity, within the County.

Strategic Aim 11 – Climate Change Adaptation
Engage in efforts to limit the human induced causes of climate change and take account of climate change in planning and delivering work programmes.

2.5 Relationship with other relevant Plans and Programmes

Introduction
The Plan sits within a hierarchy of land use forward planning strategic actions. The Plan must comply with relevant higher level strategic actions and may, in turn, guide lower level strategic actions. The following sections identify a number of these strategic actions, further details of which are contained in the Plan. A full list of Plan informants are provided in Chapter 1 of the Plan.

The National Spatial Strategy 2002-2020
The National Spatial Strategy (NSS) is the national planning framework for Ireland which promotes self-sustaining growth through building up sufficient scale and critical mass through a network of gateways and hubs. The gateways act at national level and the hubs act at the regional level. The county levels are partnered by the county towns and other larger towns which support the role of smaller towns, villages and rural areas as a focus for business, residential, service and amenity functions.

Regional Planning Guidelines
Ireland is divided into eight regional forward planning regions, Dublin, Midlands, Mid-East, Mid-West, South East, South West, West and Border, each with its own regional planning authority composed of Elected Members selected by the constituent local government councils. Regional planning authorities are required, under the Planning and Development (Regional Planning Guidelines) Regulations 2003 (SI No. 175 of 2003), to draw up regional planning guidelines (RPGs), long term strategic planning frameworks, for their relevant region.

The RPGs for the West Region 2010-2022 provide a framework for the long term strategic development of the West Region through setting out goals, policies and objectives in relation to population targets, housing, infrastructure, economic development, environment, amenities, social infrastructure and community development, ensuring the successful implementation of the NSS at regional, county and local level.

Ballinasloe Town Development Plan
The Plan includes the administrative area of what was formerly Ballinasloe Town Council. On foot of a recent amendment to the Planning and Development Act 2000, the provisions and zonings of the Ballinasloe Development Plan (which has undergone SEA and AA) will remain in force to the extent provided for by that Development Plan or until an LAP is prepared for Ballinasloe, whichever is the earlier.

Other Lower Tier Plans
Local Area Plans (LAPs) have been or will be prepared for the towns/areas with a population over 1,500 persons; however, the County Development Plan remains the overarching Plan for the County. LAPs have been prepared for Athenry, Bearna, Clifden, Craughwell, Gaeltacht, Gort, Loughrea, Maigh Cuilinn, Oranmore, Oughterard, Portumna and Tuam.

River Basin Management Plans
Local Authorities, including Galway County Council, have prepared the Shannon International and Western River Basin Management Plan which are implemented in order to help protect and improve waters in the county and wider River Basin Districts. The Shannon International and Western RBD Management Plans and associated Programmes of Measures include provisions to help ensure that water bodies in the districts meet the objectives of the Water Framework Directive.

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

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

GRID 25 and associated Implementation Plan
Grid25 is a high-level strategy outlining how EirGrid intends to undertake the development of the electricity transmission grid in the short, medium and longer terms, to support a long-term sustainable and reliable electricity supply. The Grid25 strategy thereby seeks to implement the provisions of the 2007 Government White Paper on Energy - "Delivering a Sustainable Energy Future for Ireland" in terms of development of electricity transmission infrastructure. The Grid25 Implementation Programme (IP) is a practical strategic overview of how the early stages of Grid25 are intended to be implemented.

Food Harvest 2020

Food Harvest 2020 is a roadmap for the Irish food industry, as it seeks to innovate and expand in response to increased global demand for quality foods. It sets out a vision for the potential growth in agricultural output after the removal of milk quotas in 2015.

Environmental Protection Objectives

The Plan is subject to a number of high level environmental protection policies and objectives with which it must comply, including those which have been identified as Strategic Environmental Objectives in Section 3.14. Note that the above policies etc. influenced the various provisions of the Plan which are detailed within Section 8 of the main SEA Environmental Report and within the Plan itself.

Section 3 The Environmental Baseline

3.1 Introduction

The environmental baseline of County Galway is described in this section. This baseline together with the Strategic Environmental Objectives, which are identified in Section 3.14, is used in order to identify, describe and evaluate the likely significant environmental effects of implementing the Plan and in order to determine appropriate monitoring measures. The environmental baseline is described in line with the legislative requirements encompassing the following components – biodiversity, flora and fauna, population, human health, soil, water, air and climatic factors, material assets, cultural heritage, landscape and the interrelationship between these components.

The lack of a centralised data source that could make all environmental baseline data for the Plan area both readily available and in a consistent format posed a challenge to the SEA process. This difficulty is one which has been encountered while undertaking SEAs at local authorities across the Country and was overcome by investing time in the collection of data from various sources and through the use of Geographical Information Systems.

3.2 Monitoring Review

As part of the scoping exercise, a monitoring review was undertaken by examining the environmental effects of planning applications upon the environment between 2009 and 2013. The following points summarise this review:

- Biodiversity, Flora and Fauna
    - No conflicts between development granted permission under the 2009-2015 Plan and conservation status of habitats and species under Article 17 of the Habitats Directive have been identified by the Council.
    - No significant ecological networks or parts thereof which provide functional connectivity have been identified as being lost without remediation resulting from development provided for by the 2009-2015 Plan.
    - No significant impacts on relevant habitats, species, environmental features or other sustaining resources in Wildlife Sites resulting from development provided for by the 2009-2015 Plan have been identified the Council.
    - No significant impacts on the protection of species listed on Schedule 5 of the Wildlife Act 1976 resulting from development provided for by the 2009-2015 Plan have been identified by the Council.
    - Figures from Central Statistics Office show overall increase (+0.2% of the specified population) in the population involved in land management in the county between 2006 and 2011.

- Population and Human Health
    - No significant effects on human health arising from implementation of the 2009-2015 Plan have been identified.
    - Based on available data from the Central Statistics Office and the Core Strategy Variation to the 2009-2015 Plan, population changes are in compliance with the provisions of the 2009-2015 Plan (it is anticipated that population growth may be lower than the RPG's / Core Strategy allocations).

- Soil
    - There is a reduced availability of brownfield land in the County at the end of the 2009-2015 Plan's lifespan. It is noted however that there has been limited development within the lifetime of the 2009-2015 Plan.

- Water
    - The most recent Q values for testing locations within the county are for 2010-2012. The most recent trophic classifications (Lakes and Coastal and Estuarine Water) from the EPA are for the period 2007-2009. Details on these indicators and the current status of surface and ground waters is provided in the main Environmental Report and summarised under Section 1.1.
    - In both 2009 and 2012 Clifden Beach failed to achieve both Guide and Mandatory values for bathing water and was designated as Poor Status.
    - All permissions have been granted in compliance with The Planning System and Flood Risk Management Guidelines for Planning Authorities.

- Material Assets
    - Microbiological compliance levels in Public Water Supplies have improved from 98.8% in 2009 to 100% in 2010, 2011 and 2012 whilst chemical compliance levels have changed from 99% in 2009 and 2010 to 99.6% in 2011 and 99.5% in 2012.
    - Between 2009 and 2011 both the total *packaging* recovered by self-complying packagers and the total *collected and brought household waste* have increased.

- Air and Climatic Factors
    - Figures from Central Statistics Office show an overall decrease of 2.5% of the entire population travelling to work by public transport or non-mechanical means in the county between 2006 and 2011.

- Cultural Heritage
    - No inappropriate development has been granted under the 2009-2015 Plan that would affect the protection of entries to the Record of Monuments and Places.
    - No inappropriate development has been granted under the 2009-2015 Plan that would affect the protection of entries to the Record of Protected Structures.

- Landscape
    - No complaints have been received from statutory consultees regarding avoidable impacts on the landscape.

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

In the absence of the new Plan it is uncertain how permission for new development would be applied for and evaluated. As indicated under Section 3.2, the 2009-2015 Plan has contributed towards environmental protection within County Galway. If the 2009-2015 Plan was to expire and not be replaced by the new Plan, this would result in a deterioration of the County's planning and environmental protection framework. Although higher level environmental protection objectives – such as those of various EU Directives and transposing Irish Regulations – would still apply, the deterioration of this framework would mean that new development would be less coordinated and controlled. Such development could result in an increase in the occurrence of adverse effects on all environmental components, especially those arising cumulatively. Cumulative effects occur as a result of the addition of many small impacts to create one larger, more significant, impact.

3.4 Biodiversity and Flora and Fauna

Overview of High Value Biodiversity
County Galway contains a variety of natural habitats including many of international nature importance such as blanket bogs, fens, heath, ancient oak woodland, turloughs, species-rich calcareous grassland and limestone pavement. The County also contains a large number of rare, threatened and uncommon species, including a large number of plants and animals that are protected

under national and European Union legislation. A number of these species are found within the habitats of high value mentioned below as well as within the County's designated ecological sites.

Peatlands

- Peatlands such as raised and blanket bogs, wet and dry heath, and fens are of particular value because of the rarity of these habitats in an international context, and because of the characteristic flora and fauna that live in these wet, peaty and often highly acidic places.

Limestone Pavement

- Limestone pavement is a unique habitat found in the Burren region in Clare, south County Galway and on the Aran Islands. Exposed limestone outcrops and the associated habitats of limestone heath, scrub and woodland form some special habitat mosaics with many uncommon plant species and unusual plant assemblages present.

Woodland

- Native woodland is a relatively uncommon habitat in County Galway. In west Galway, Derryclare and Ballinahinch in Conamara are important native woodland sites, while in east Galway, significant areas of oak-birch-holly woodland include Gortnacarnaun, Drummin, and Woodford.

Eskers

- Eskers are distinctive Irish habitats found mostly in the midlands. They are long sinuous rounded hills that are important for the characteristic woodland and grassland habitats they support, including species-rich grasslands with abundant orchids. A number of eskers are found in the north and east of the County including Richmond Esker.

Freshwater Aquatic Habitats

- Turloughs, a priority habitat under the EU Habitats Directive, are seasonal lakes which are unique to limestone regions in the west of Ireland.
- Galway also has an abundance of permanent freshwater lakes, the largest of which, Lough Corrib divides the geographically distinct regions of the east and west of the County.
- The seasonally flooded grasslands of the floodplains of the Shannon and Suck Rivers, the callows, form important wildlife habitats and add to the rich habitat mosaic found along these rivers. During the summer the callows support exceptional flower rich wet meadows and various protected species,
- The various of rivers of the County (see also Section 1.1) support a variety of species including some which are protected; artic char, freshwater pearl mussel and shite clawed cray fish.

Coastal Habitats

The coastline of the County - including its various offshore islands - stretches for over 2,000 km. It is highly indented and supports a diverse range of habitats including rocky and sandy shores, shingle beaches, and saltwater lagoons.

Ecological Networks and Connectivity

- Ecological networks are important in connecting areas of local biodiversity with each other and with nearby designated sites so as to prevent islands of habitat from being isolated entities. They are composed of linear features, such as treelines, hedgerows and rivers/streams, which provide corridors or stepping stones for wildlife species moving within their normal range. They are important for the migration, dispersal and genetic exchange of species of flora and fauna particularly for mammals, especially for bats and small birds and facilitate linkages both between and within designated ecological sites, the non-designated surrounding countryside and the more urban areas of the County.
- The County is dissected by many rivers and lakes with Lough Corrib, Ireland's second largest lake at its centre. The banks of these aquatic features together with the extensive coastline of the County provide significant connectivity across the County.

- Hedgerows are a familiar landscape feature in the countryside of the County, particularly east of Lough Corrib. As well as providing food and shelter for insects, birds and other animals, hedgerows also act as important corridors.
- As traditional species-rich grasslands decline, grassy roadside verges and other marginal grasslands act as important habitats and ecological networks for many species of wild flowers and the invertebrates they support.
- Manmade structures such as stone walls, bridges and buildings can also be very important for wildlife and provide feeding, hibernating and roosting sites for many species of invertebrates, birds and bats. A diversity of mosses, lichens and other plants are often found on old stone built structures.

Ecological Network Classes Mapping

Tubridy and Ó Riain behalf of the EPA (2002) have identified a national spread of Ecological Network Classes which have been informed by CORINE land cover data. The study developed criteria to classify the relative importance of different areas within an Ecological Network.

Five Classes of areas were defined on the basis of *naturalness*. These areas are mapped for County Galway on Figure 3.1.

Class 1 areas are expected to have the following characteristics:

1. Supports natural or near-natural vegetation types.
2. Contains landscape features which act as corridors as well as core areas such as uplands, rivers, lakes and coastline.
3. They contain flora and fauna which are specialists i.e. typical of particular habitats or support migratory species either as feeding, nesting or roosting areas, particularly species such as those listed in Annex 1 of the Birds Directive, Annex 2 and 1V of the Habitats Directive, and in the Red Data Books for plants, vertebrates, plants and stoneworts.

Class 2 areas are expected to have the following characteristics:

1. Supports natural or near-natural vegetation types.
2. While they have many of the species and characteristics which would be expected to occur in a natural or semi-natural area quality has been reduced due to development impacts. This is revealed by water quality analyses, examination of management impacts or field surveys. Therefore the area does not support all expected species or functions.
3. Area has potential to revert to class 1 with management.

Class 3 areas are expected to have the following characteristics:

1. Does not contain natural or semi-natural vegetation types.
2. Flora and fauna is dominated by native species. However many non-native species of plants will be found.
3. Area of little importance for rare or migratory species.
4. Unlikely to be designated.
5. Area subject to low intensity management. Therefore they are unlikely to change if management ceases and they have particular potential for improving biodiversity.

Class 4 areas are expected to have the following characteristics:

1. Habitats in the area have appeared as a result of recent development (within last 100 years).
2. They support a mix of species (native and exotic) and the proportion of non-native plants is between 20-35%.
3. Management is intensive and is contributing to their low biodiversity value
4. Habitats of little importance for rare or migratory species.
5. No designations.

Class 5 areas are expected to have the following characteristics:

1. Does not contain natural or semi-natural vegetation types.
2. They support a mix of species (native and exotic) and the proportion of non-native plants is at least 35% or higher.
3. Management is intensive and is contributing to their low biodiversity value
4. Habitats of little importance for rare or migratory species.
5. No designations.

Designations
The international significance of Galway's natural heritage is reflected in the fact that a high proportion of the County is designated for nature conservation under various European and National legislation.

Candidate Special Areas of Conservation (cSACs) have been selected for protection under the European Council Directive on the conservation of natural habitats and of wild fauna and flora (92/43/EEC) by the former Department of the Environment, Heritage and Local Government (DEHLG) due to their conservation value for habitats and species of importance in the European Union. The sites are *candidate* sites because they are currently under consideration by the Commission of the European Union.

Special Protection Areas (SPAs) have been selected for protection under the 1979 European Council Directive on the Conservation of Wild Birds (79/409/EEC) by the DEHLG due to their conservation value for birds of importance in the European Union.

A total of 72 cSACs have been selected in County Galway for 47 Annex I habitats including 10 priority habitats. Annex I habitats are recognised by the European Union to be of particularly high nature conservation value. Candidate SACs in Galway provide examples of bogs, callows, machair, limestone pavement, headlands, bays, loughs, turloughs, islands, woods and caves.

19 SPAs have been designated in County Galway covering, inter alia, certain bays, loughs, islands, turloughs, callows, woods and marshes. These SPAs along with cSACs comprise Natura 2000 - a network of protected areas throughout the EU established under the Habitats Directive.

SPAs along with SACs comprise Natura 2000 - a network of protected areas throughout the EU established under the Habitats Directive. Management Plans for Natura 2000 sites can help protect whatever is important in Natura 2000 sites while enabling appropriate development

Figure 3.2 shows the spatial distribution of cSAC and SPA designations across the County. As can be seen from the map, many of these sites overlap with each other. Other categories of designations[1] are present in the County and are identified in the main environmental report however these generally overlap with those shown on Figure 3.2.

Existing Problems
Previous developments such as residential, commercial and transportation have resulted in loss of biodiversity and flora and fauna across the County however legislative objectives governing biodiversity and fauna were not identified as being currently conflicted with.

Both the current 2009-2015 Galway County Development Plan and the new County Development Plan 2015-2021 include measures to address the potentially conflicting issues identified by the 2008 County Galway Biodiversity Action Plan.

[1] Natural Heritage Areas, National Parks, Ramsar Sites, Nature Reserves, Shellfish Waters, Designated Salmonid Waters, Entries to the Register of Protected Areas, Freshwater Pearl Mussel Catchments, Wildfowl Sanctuaries, Important Bird Areas and Other Protected Species/Habitats.

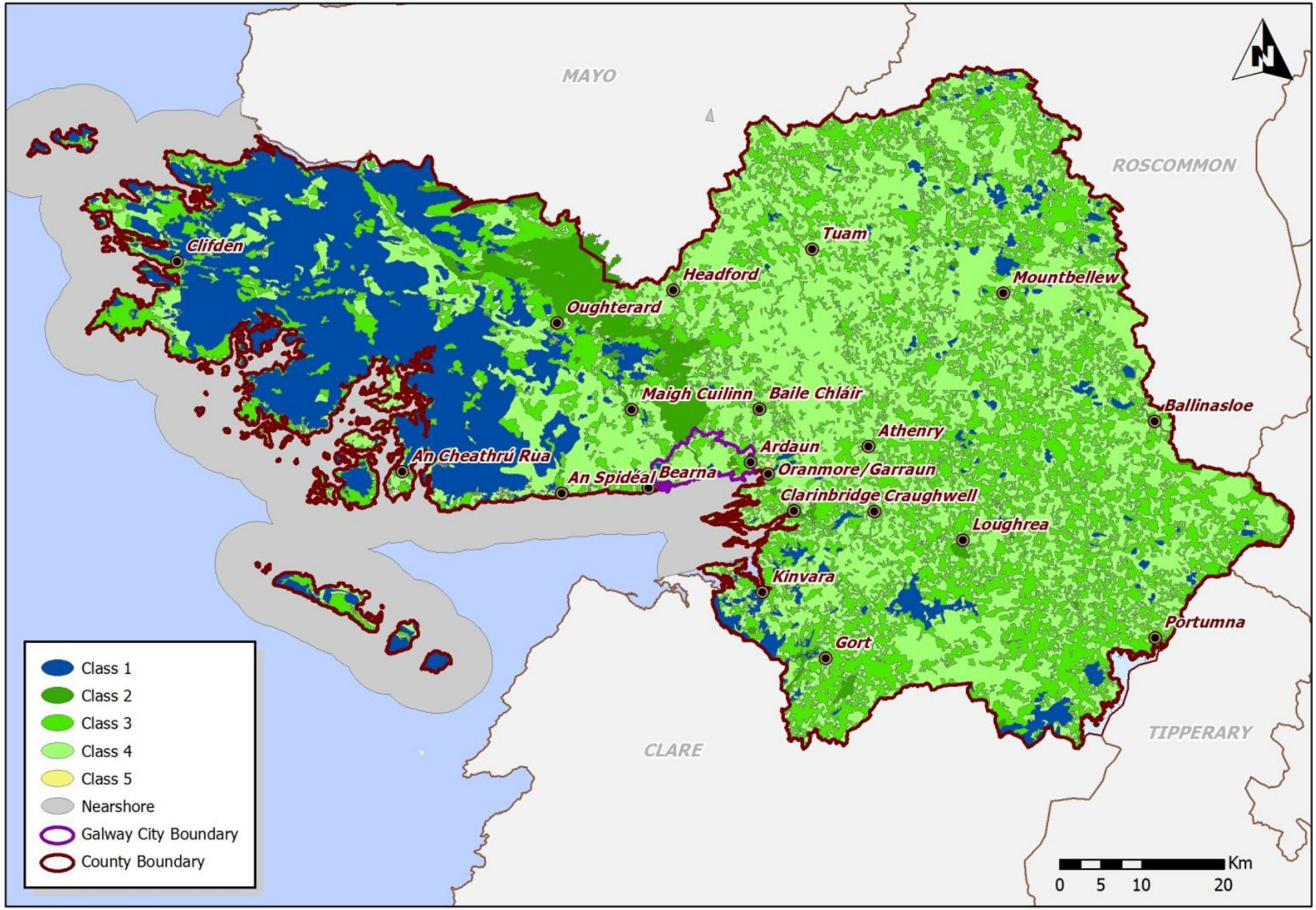

Figure 3.1 EPA Ecological Network Classes
Source: Tubridy and Ó Riain behalf of EPA (2002)

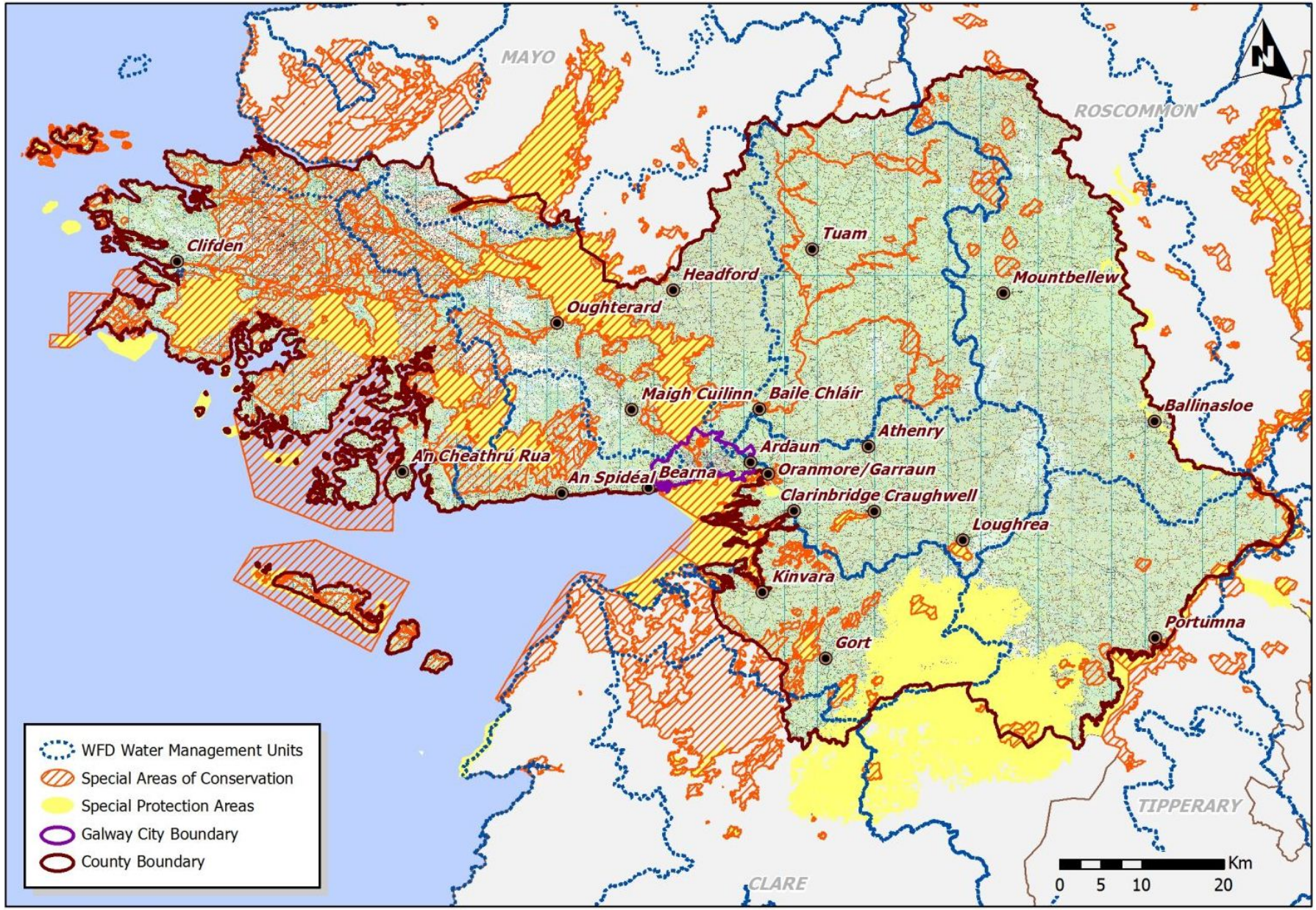

Figure 3.2 SPAs, SACs, NHAs and pNHAs
Source: NPWS (datasets downloaded November, 2013)

3.5 Population and Human Health

Population
Population in County Galway rose from 159,256 persons in 2006 to 175,124 persons in 2011. The growth in population has mainly been in the areas closest to Galway City and the area of the county identified as the Galway Transportation and Planning Study boundaries. More rural parts of County Galway have experienced mixed growth with some electoral divisions in the extreme north east, south east, western, and upland areas of the County still experiencing population decline. The 2011 Census highlighted that 75.6% of private households are located in rural areas.

The most populous towns in the county include Ballinasloe, Tuam, Loughrea, Oranmore, Athenry, Gort, Clifden, Bearna, Portumna, Oughterard and Maigh Cuilinn.

Human Health
Human health has the potential to be impacted upon by environmental vectors (i.e. environmental components such as air, water or soil through which contaminants or pollutants, which have the potential to cause harm, can be transported so that they come into contact with human beings). Hazards or nuisances to human health can arise as a result of exposure to these vectors arising from incompatible adjacent land uses for example. These factors have been considered with regard to the description of: the baseline of each environmental component; and the identification and evaluation of the likely significant environmental effects of implementing the Plan.

Existing Problems
In 2013, 1 monitored bathing water location within the County (Clifden Beach) failed to achieve both Guide and Mandatory values and was designated as *Poor Status* (EPA, 2014).

The most recent EPA Remedial Action List (Q1 of 2013) identifies 12 water supplies in the County that are in need of improvement. These are identified in Section 3.9.

Flood risk indicators provide historic evidence of flooding in various locations across the County. All recommendations made by the Strategic Flood Risk Assessment (undertaken alongside the preparation of the Plan and this SEA) in respect of these areas have been integrated into the Plan.

3.6 Soil

Soil is an extremely complex, variable and living medium and performs many vital functions including: food and other biomass production, storage, filtration and transformation of many substances including water, carbon, and nitrogen. Soil has a role as a habitat and gene pool, serves as a platform for human activities, landscape and heritage and acts as a provider of raw materials. Such functions of soil are worthy of protection because of their socio-economic as well as environmental importance. Soil types, as classified by Teagasc in co-operation with the Forest Service, EPA and GSI, are mapped on Figure 3.3.

The area of the County to the west of Lough Corrib is generally covered by blanket bog with upland areas in Conamara and areas close to the coast covered by acid mineral soils.

The area of the County to the east of Lough Corrib is generally covered with a mix of basic mineral soils and cutaway raised bog, with the latter increasing in occurrence in the north and west of the County. Grey brown podzolic basic mineral soils are deep, well drained soils which are derived from calcareous drift composed mainly of limestone with some coal shales and sandstone. These soils are relatively fertile, support grasslands and are facilitate the production of a wide range of vegetable crops. The Slieve Aughty foothills are covered by acid mineral soils while the Slieve Aughty uplands are by blanket bog. The County's river floodplains are covered with fertile alluvium.

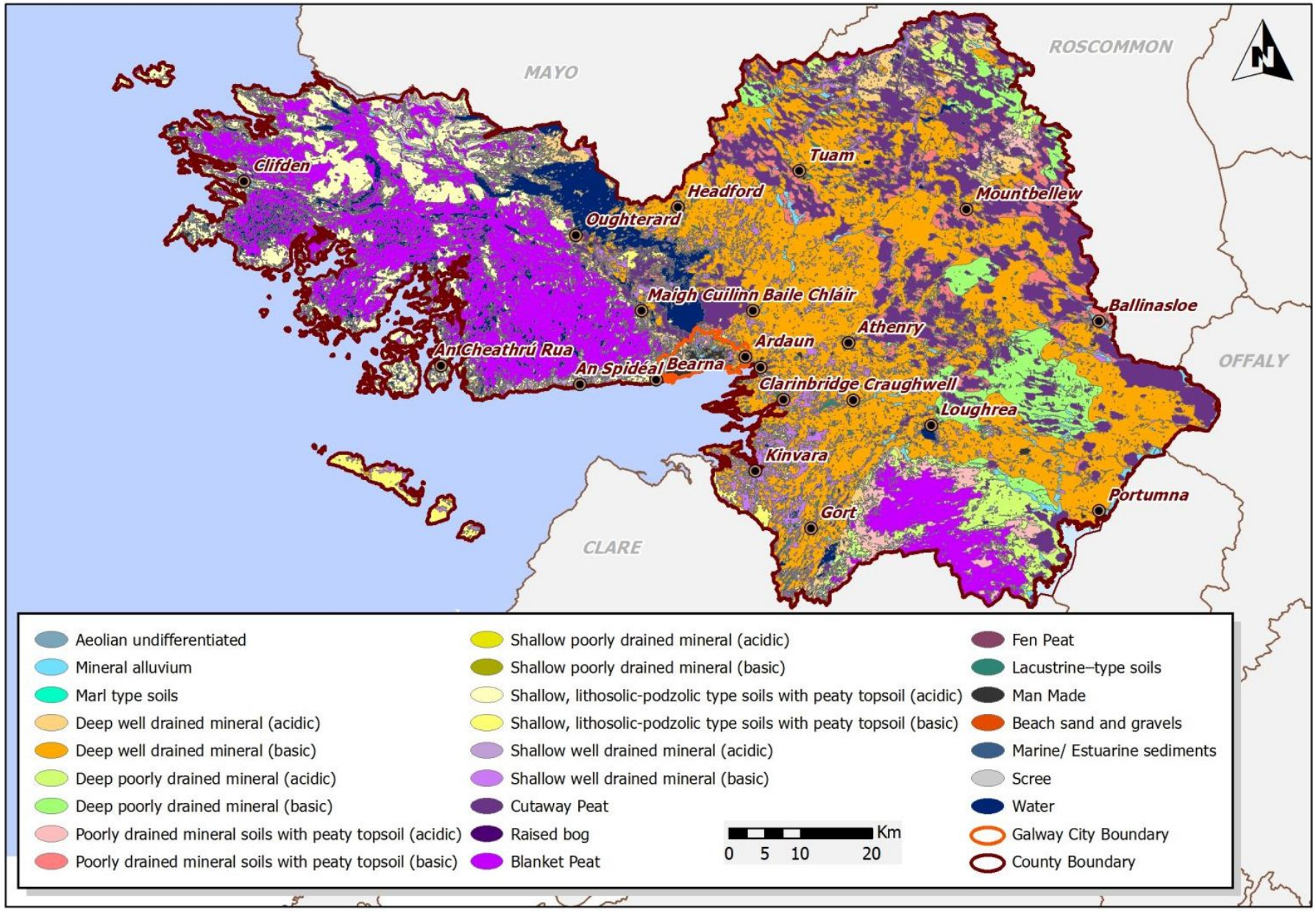

Figure 3.3 Soil Types
Source: Galway County Council

3.7 Water

Potential Pressures on Water Quality and the Water Framework Directive (WFD)
Human activities, if not properly managed, can cause deterioration in water quality. Pressures exerted by human activities include the following: sewage and other effluents discharged to waters from point sources, e.g. pipes from treatment plants; discharges arising from diffuse or dispersed activities on land; abstractions from waters; and structural alterations to water bodies. Since 2000, Water Management in the EU has been directed by the Water Framework Directive 2000/60/EC (WFD). The WFD requires that all Member States implement the necessary measures to prevent deterioration of the status of all waters - surface, ground, estuarine and coastal - and protect, enhance and restore all waters with the aim of achieving "good status" by 2015. All public bodies are required to coordinate their policies and operations so as to maintain the good status of water bodies which are currently unpolluted and improve polluted water bodies to good status by 2015. Ireland has been divided into eight river basin districts or areas of land that are drained by a large river or number of rivers and the adjacent estuarine / coastal areas. The management of water resources is on these river basin districts. County Galway falls within the Shannon International and Western RBDs.

WFD Surface Water Status
The WFD defines 'surface water status' as the general expression of the status of a body of surface water, determined by the poorer of its ecological status and its chemical status. Ecological status is an expression of the structure and functioning of aquatic ecosystems associated with surface waters. Such waters are classified as of "good ecological status" when they meet Directive requirements. Good surface water chemical status means that concentrations of pollutants in the water body do not exceed the environmental limit values specified in the Directive.

Figure 3.4 and Figure 3.5 illustrate the status of surface water bodies within and surrounding County Galway, as currently available from the EPA[2].

Rivers in the west of the county are generally of a *high* or *good* status while rivers in the east of the county are a mixture of *high*, *good*, *moderate*, *poor* and *bad* status. The status of some rivers is identified as *not monitored* as they were not included in this round of monitoring but may be included in the next round.

The overall status of lakes differs across the county, however; of the 2 largest lakes within the county, Lough Corrib is currently identified as being of *moderate* status and Lough Derg is currently identified as being of *poor* status. As identified in the EPA's Integrated Report[3], of the 28 lakes in the county which are assigned an *ecological* status, 23 are of *high* or *good ecological* status. Aughrusbeg, Corrib Lower and Ross lakes are identified as being of poor/bad *ecological* status, Ballyquirke is identified as being of poor *ecological* status while Tully is identified as being of moderate *ecological* status. The EPA's report also identifies that there are few pressures in Galway, but diffuse pollution from agriculture and septic tanks, and in some instances point sources pose a threat.

The status of transitional and coastal waters is either *good* or *high* apart from in Killary Harbour where the status is *moderate*. Most coastal waters are identified as being *not monitored*.

Quality of Rivers
River water quality within the County is monitored by the EPA at a number of locations. Good status as defined by the WFD equates to approximately *Q4* in the national biological classification scheme of rivers as set out by the EPA. Of the 276 locations which have data available for 2010 to 2012, 191 (c.69%) are identified as being of either *high* or *good* status, 41 (c.15%) are identified as being of *moderate* status, 42 (c.15%) are identified as being of *poor* status and only 2 (c.1%) are identified as being of *bad* status.

[2] Dataset downloaded November 2013.
[3] EPA (2012) *Integrated Water Quality Report Galway, Mayo and Sligo 2011*

Quality of Lakes
The EPA also monitors the quality of these lakes. Good status as defined by the WFD equates to approximately *Mesotrophic* in the national biological classification scheme of lakes as set out by the EPA. Mesotrophic lakes are lakes with an intermediate level of productivity, greater than oligotrophic lakes, but less than eutrophic lakes. Mesotrophic lakes are commonly clear water lakes and ponds with beds of submerged aquatic plants and medium levels of nutrients. All classified lakes in County Galway are currently identified as either Oligotrophic or Mesotrophic (EPA, 2007-2009).

Quality of Transitional, Coastal and Bathing Waters
Good status as defined by the WFD equates to approximately *Unpolluted* status in the Assessment of Trophic Status of Estuaries and Bays in Ireland (ATSEBI).

All classified Estuaries and Coastal Waters in the county are classified as *Unpolluted*. As identified in the EPA's Integrated Report[4], improvement in the trophic status of the Corrib Estuary receiving water has been seen since the provision of waste water treatment at Mutton Island.

In 2013: 8 of the 12 monitored bathing waters achieved EU Guide and Mandatory values and were designated as being of Good Status; 3 (Céibh an Spidéil, Trá na bhForbacha, Na Forbacha and Trá na mBan, An Spidéal) only achieved the Mandatory values and were designated as Sufficient Status; and 1 (Clifden Beach) failed to achieve both Guide and Mandatory values and was designated as Poor Status (EPA, 2014). The Quality of Bathing Water in Ireland Report also identifies Traught - Kinvara as being a water exhibiting periodic pollution events which could influence their overall status.

WFD Groundwater Status
As shown on Figure 3.6 the County's groundwater is a mixture of good and poor status. In 2011, the EPA's groundwater monitoring programme included 30 monitoring locations in Counties Galway, Mayo and Sligo. As identified in the EPA's Integrated Report[5]:

- In general, the average nitrate concentration at groundwater monitoring locations in County Galway is relatively low when compared to the national average nitrate concentration. The average nitrate concentration did not exceed the Irish WFD Threshold Value concentration of 37.5 mg/l NO_3 at any monitoring location in County Galway in the period 2007-2011.
- The Irish WFD Threshold Value concentration of 0.035 mg/l P is considered when assessing the contribution of phosphate in groundwater to rivers. In 2011, 83.3% of monitoring locations in Counties Galway, Mayo and Sligo had average concentrations <0.025mg/l P and only two monitoring locations had an average concentration >0.050mg/l P. Overall, there has been a general decrease in phosphate concentrations over the period 2007-2011.
- There is one groundwater body in County Galway classified at poor chemical status for the WFD because of contamination from historic mining activities. Diffuse sources of pollution include nutrient pressures from agricultural activities and domestic wastewater treatment systems (especially nitrates and phosphates) and agrochemicals.

Flooding
Flooding is an environmental phenomenon which, as well have causing economic and social impacts, could in certain circumstances pose a risk to human health.

In 2009 the DEHLG published *The Planning System and Flood Risk Management* Guidelines for Planning Authorities. These are aimed at ensuring a more consistent, rigorous and systematic approach which will fully incorporate flood risk assessment and management into the planning system. Planning authorities are required to undertake flood risk identification, assessment and management processes as appropriate when preparing Development Plans and other plans and in the consideration of applications for planning permission.

[4] EPA (2012) *Integrated Water Quality Report Galway, Mayo and Sligo 2011*
[5] EPA (2012) *Integrated Water Quality Report Galway, Mayo and Sligo 2011*

In compliance with the aforementioned Guidelines, a Strategic Flood Risk Assessment (SFRA) has been undertaken alongside the preparation of the new County Plan. This assessment has taken into account, inter alia, various flood risk indicators which are mapped on Figure 3.7. All recommendations made by the SFRA have been integrated into the Plan.

Existing Problems

Based on available water data, various water bodies within the County will need improvement in order to comply with the objectives of the WFD:

- There are a number of water bodies within the County which are currently identified as being of *moderate*, *poor* and *bad* status.
- Lough Corrib is currently identified as being of *moderate* status and Lough Derg is currently identified as being of *poor* status.
- Killary Harbour is currently identified as being of *moderate* status.
- Of the 276 river monitoring locations which have data available for 2010 to 2012, 41 (c.15%) are identified as being of *moderate* status, 42 (c.15%) are identified as being of *poor* status and 2 (c.1%) are identified as being of *bad* status.
- Parts of the County's groundwater is identified as being of *poor* status.

The EPA's Integrated Report[6] identifies that the Clarinbridge, Dalgan, Kilcolgan and Terryland Rivers all have water quality issues at certain locations. These are mainly caused by diffuse agricultural or municipal pollution or point source pollution from waste water treatment plants.

In 2012 1 monitored bathing water location within the County (Clifden Beach) failed to achieve both Guide and Mandatory values and was designated as *Poor Status* (EPA, 2013).

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

Flood risk indicators provide historic evidence of flooding in various locations across the County. All recommendations made by the Strategic Flood Risk Assessment (undertaken alongside the preparation of the Plan and the SEA Environmental Report) in respect of these areas have been integrated into the Plan.

[6] EPA (2012) *Integrated Water Quality Report Galway, Mayo and Sligo 2011*

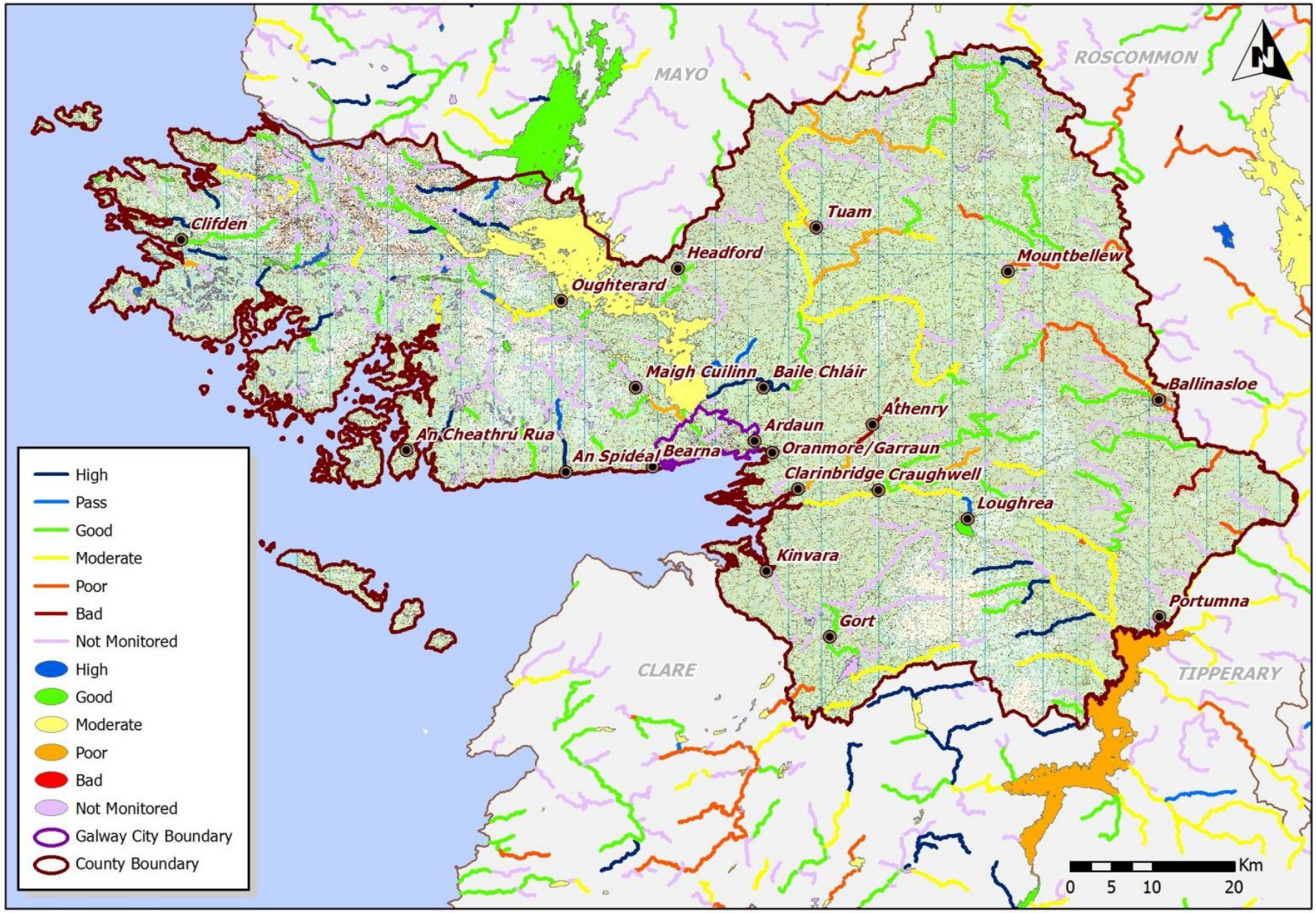

Figure 3.4 WFD Status of Rivers and Lakes
Source: EPA (2011)

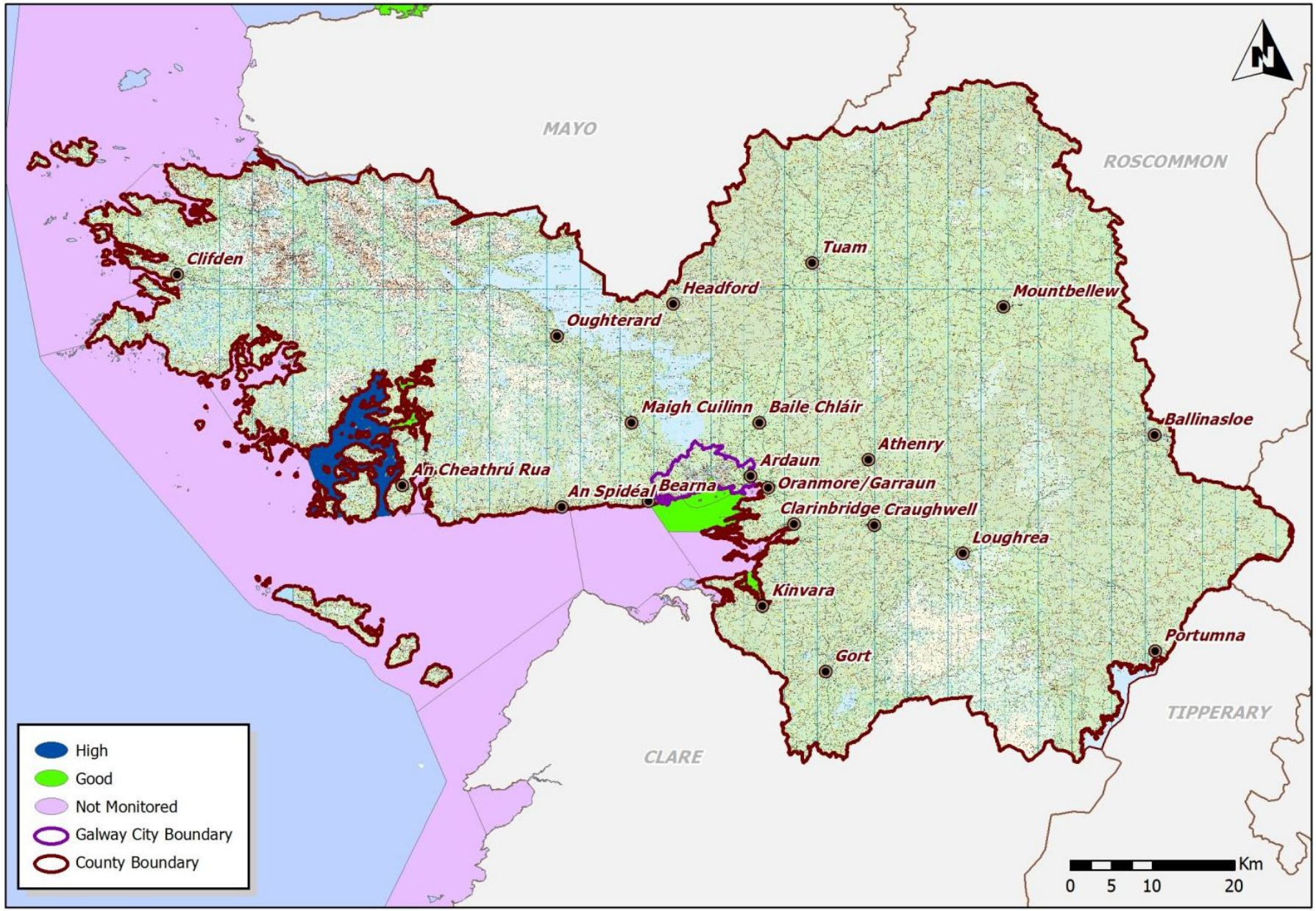

Figure 3.5 WFD Status of Transitional and Coastal Waters
Source: EPA (2011)

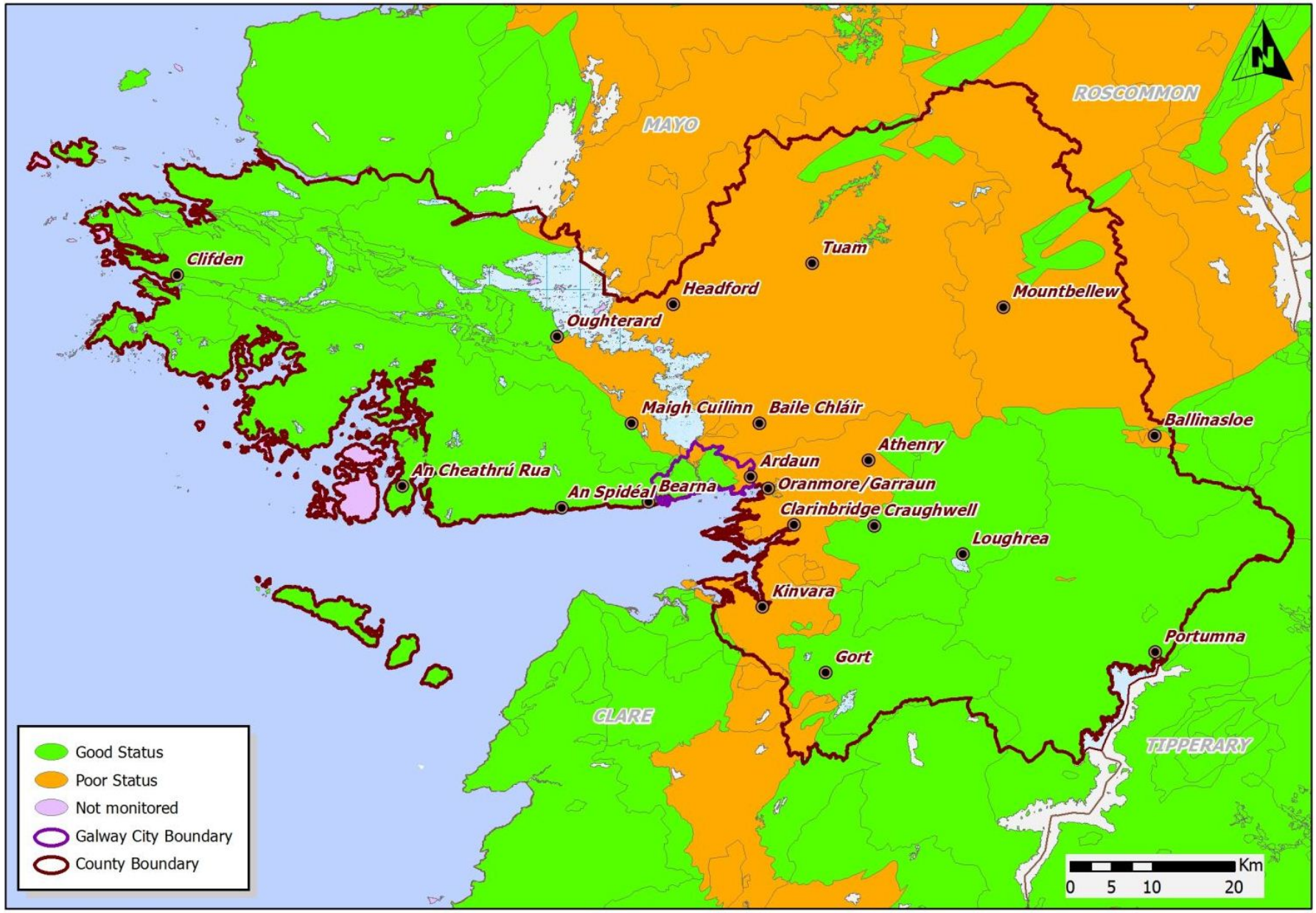

Figure 3.6 WFD Status of Groundwater
Source: EPA (2011)

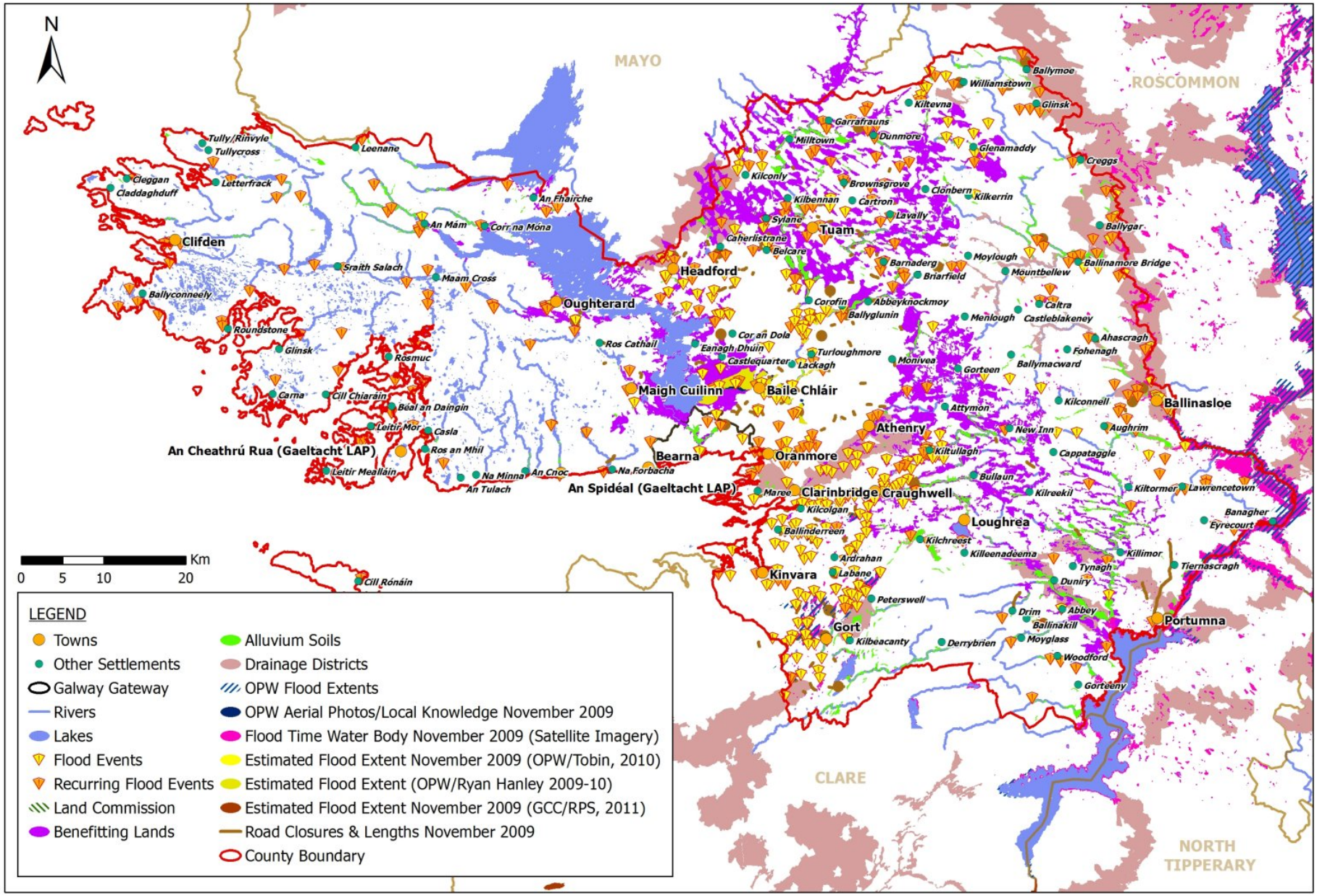

Figure 3.7 Occurrence of Available Historical Flood Risk Indicators
Source: various

3.8 Air and Climatic Factors

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

In order to comply with air quality standards directives, the EPA measures the levels of a number of atmospheric pollutants. For the purposes of monitoring in Ireland, four zones are defined in the Air Quality Standards Regulations 2002 (SI No. 271 of 2002). The administrative area of Galway County Council is located in Zone D while the administrative area of Galway City Council is located in Zone C.

Air quality within both the County and City areas is currently identified as being "good". The EPA's (EPA, 2013) *Air Quality in Ireland 2012* identifies that air quality in Ireland continues to be good, with no exceedances for the pollutants measured in 2012.

Noise - The Environmental Noise Directive
Noise is unwanted sound. The Environmental Noise Regulations (SI No. 140 of 2006) transpose into Irish law the EU Directive 2002/49/EC relating to the assessment and management of environmental noise, which is commonly referred to as the Environmental Noise Directive or END. The END defines a common approach intended to avoid, prevent or reduce on a prioritised basis the harmful effects, including annoyance, due to exposure to environmental noise. The END does not set any limit value, nor does it prescribe the measures to be used in the action plans, which remain at the discretion of the competent authorities. Limit values are left to each member state. At this point in time, Ireland does not have any statutory limit values.

Climatic Factors
The key issue involving the assessment of the effects of implementing the plan on climatic factors relates to greenhouse gas emissions arising from transport. It is noted that the Plan contains a number of actions which respond to potential threats to environmental components arising from a changing climate.

Flooding – see also Section 3.7 - is influenced by climatic factors and that the implications of climate change with regard to flood risk in relevant locations have been considered by the SFRA which has been undertaken for the Plan. There are emerging objectives relating to climate adaptation and that there is likely to be future Guidance for climate change proofing of land use plan provisions as is flagged in the National Climate Change Adaptation Framework (DECLG, 2012). Some of these objectives might relate to green infrastructure which can achieve synergies with regard to the following: provision of open space amenities; sustainable management of water; protection and management of biodiversity; protection of cultural heritage; and protection of protected landscape sensitivities.

In 2009, Ireland's greenhouse gas emissions decreased across all sectors due to the effects of the economic downturn with a decline in total emissions of 7.9 per cent. In 2010, Ireland's emissions fell by a further 0.7 per cent. Ireland's emissions profile has changed considerably since 1990, with the contribution from transport more than doubling and the share from agriculture reducing since 1998.
Travel is a source of: noise; air emissions; and energy use (38.8% of Total Final Consumption in Ireland in 2010 was taken up by transport, the largest take up of any sector)[7].

Land-use planning contributes to what number and what extent of journeys occur. By addressing journey time through land use planning and providing more sustainable modes and levels of mobility, noise and other emissions to air and energy use can be minimised. Furthermore, by concentrating

[7] Sustainable Energy Ireland (2011) *Energy in Ireland 1990 – 2010*

populations, greenfield development - and its associated impacts - can be minimised and the cost of service provision can be reduced.

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

Existing Problems
Legislative objectives governing air and climatic factors in County Galway were not identified as being conflicted with.

3.9 Material Assets

Waste Water
In County Galway there are a number of different types of wastewater supplies. c.63% of the population is served by individual septic tanks, c.28% of the population is served by Public Schemes and c.5% of the population is served by other individual treatment types that are not septic tanks.

Available waste water infrastructure information from the EPA[8] on 22 of the County's biggest public waste water treatment plants identifies that:

- 7 plants [Ahascragh, An Cheathrú Rua, Clifden, Eyrecourt, Glenamaddy, Kinvara and An Spidéal] are identified as having failed to meet the effluent quality standards due to lack of secondary treatment;
- 9 plants [Ballygar, Clonbur, Gort, Letterfrack, Loughrea, Mountbellew Moylough Oughterard and Tuam] are identified as having failed to meet all the effluent quality and/or sampling standards (6 failed on effluent quality, 2 failed on sampling standards and 1 failed on both effluent quality and sampling standards); and
- 6 plants [Athenry, Ballinasloe, Dunmore, Headford, Maigh Cuilinn and Portumna] were all identified as having passed the requirements of the Urban Waste Water Treatment Directive.

Both Oranmore and Bearna are in the Mutton Island agglomeration and managed as part of the City's discharge. The City's waste water treatment plant is identified as having passed the requirements of the Directive.

Drinking Water

- *Supply*
  Drinking water in the County is drawn from a variety of sources including Public Main, Group Schemes with local authority sources, Group Scheme with private source and Other Private Source.

  Galway County Council is responsible for the operation of 38 Public Water Supplies (PWS) serving a population of 106,824. Approximately 80% of the treated water supplied through this infrastructure network is abstracted from surface water sources. Private supplies provide the alternative for those areas that are not served by a public water supply and comprise mainly of wells for single dwellings and certain private group water schemes for rural settlements.

- *Quality*
  Under Section 58 of the Environmental Protection Agency Act 1992 the EPA is required to collect and verify monitoring results for all water supplies in Ireland covered by the European Communities (Drinking Water) Regulations, 2007.

[8] EPA (2014) *Focus on Urban Waste Water Treatment in 2012*

The EPA's 'The Provision and Quality of Drinking Water in Ireland' (EPA, 2012) Reports identify that microbiological compliance levels in Public Water Supplies in the County have improved from 98.8% in 2009 to 100% in 2010, 2011 and 2012 whilst chemical compliance levels have changed from 99% in 2009 and 2010 to 99.6% in 2011 and 99.5% in 2012.

The EPA publishes Remedial Action Lists (RALs) which identify water supplies which are not in compliance with the Regulations mentioned above. The most recent EPA RAL (Q3 of 2013) identifies 12 water supplies that are in need of improvement.

Waste
The total collected and brought household waste in Galway in 2009 amounted to 48,440(t). This figure rose to 58,484 (t) in 2011. The total packaging recovered by self-complying packagers in 2009 amounted to 151 (t). This figure rose to 458 (t) in 2011 (EPA, 2013).

Extractive Industries and Quarries
The geology of the County produces aggregate resources in terms of sand, limestone and gravel, which are exploited at quarries throughout the County and the County Plan recognises this resource as a significant economic asset. In the 2011 Census, 274 people identified that they were employed in mining, quarrying and turf production.

Agriculture and Forestry
The Census of Agriculture 2010, indicates that agriculture is the predominant land-use within County Galway with 13,445 farms listed within the County and the total area farmed was 347,122.7Ha. The total area farmed and average farm size has increased since 2000. Cattle and sheep are the main type of farming, dairy, pig and poultry farming are also important categories. Equine activities are also practiced but to a lesser degree. Forestry and Horticulture are also practiced within the County.

The actual forest cover of Co. Galway is c.9.84% of the total land area of the County or c.593,966Ha. This compares with 11.01% or 6,889,456 at a national level (up to 2012). Under the afforestation scheme there was c. 380Ha of grazing land planted within the County in 2012. In order to assist in achieving the national target, the current area of forestry cover in Galway will need to be increased considerably by 2030.

In the 2011 Census, 5,908 people identified that they were employed in agriculture, forestry and mining.

Fishing and Marine Resources
Fishing, fish processing, transport, mariculture, aquaculture and related activities including seaweed aquaculture, seaweed harvesting and processing generate significant employment in the County.

Marine energies will in the future play an important role in enhancing energy efficiencies, minimising land use requirements of the power sector and in reducing greenhouse gas emissions.

There are a number of strategic ports, the most important being Ros an Mhíl. Ros an Mhíl is the largest and busiest port in the County and is a major fishing port and fish processing location.

Transport
The integration of land use and transportation continues to be an overarching strategic aim of the Galway County Development Plan 2015-2021.

Renewable Energies and Electricity Transmission
The Plan recognises that the availability of clean and reliable energy is an essential requirement for the sustainable economic development of the county and is committed to assisting in achieving 40% of Ireland's energy demand from renewable resources and to develop County Galway as a low carbon economy by making provision for renewable energies.

County Galway has, in terms of renewable energy, huge potential for the development of wind, solar, biomass, geothermal, hydro and wave energy. The wave and wind resource along the west coast of the County are among the richest in Europe.

A strong transmission grid is essential in order to attract and retain high-tech industrial investment, to ensure competitive energy supplies, to achieve balanced development, to reduce dependency on fossil fuels, and to achieve climate change targets. Moreover, to attract renewable energy development it is important for County Galway that the existing grid infrastructure is reinforced where necessary and expanded to areas not adequately serviced.

Existing Problems
16 wastewater treatment plants[9] in the county are identified by the EPA (Focus on Urban Waste Water Discharges in Ireland, 2012) as having failed to comply with certain requirements of the Urban Waste Water Regulations (2001).

The most recent EPA Remedial Action List (Q3 of 2013) identifies 12 water supplies in the County that are in need of improvement.

The provisions of the new Plan 2015-2021 will contribute towards protection of the environment with regard to impacts arising from material assets.

3.10 Cultural Heritage

Archaeological Heritage
County Galway's archaeological heritage is protected under the National Monuments Acts (1930-2004), Natural Cultural Institutions Act 1997 and the Planning Acts. The Record of Monuments and Places (RMP) is an inventory, established under Section 12 of the National Monuments (Amendment) Act 1994, of sites and areas of archaeological significance, numbered and mapped. The RMP includes all known monuments and sites of archaeological importance dating to before 1700 AD, and some sites which date from after 1700 AD.

Figure 3.8 shows the spatial distribution of entries to the RMP.

The majority of known monuments are located to the east of Lough Corrib, in the eastern half of the County, along the coastline, along river and lake banks and within and surrounding settlements such as Galway City, Headford, Tuam, Oranmore, Athenry, Loughrea and Gort - showing that most people have always lived in the same parts of Galway as they do today.

In the western half of the County clusters of monuments are found near the banks of Lough Corrib, within and surrounding Oughterard and in coastal areas to the east of Conamara. A high proportion of monuments are to be found on the Aran Islands.

There are a number of national monuments located within County Galway – these are monuments the preservation of which is a matter of national importance by reason of the historical, architectural, traditional, artistic or archaeological interest attaching thereto. There are over 80 national monuments located within County Galway that are in state care i.e. are in the ownership and guardianships of the Minister of Arts, Heritage and the Gaeltacht (National Monuments Service, 2009). There are over 40 national monuments in County Galway that are subject to Preservation Orders (National Monuments Service, 2010).

Architectural Heritage
The term architectural heritage is defined in the Architectural Heritage (National Inventory) and Historic Monuments Act 1999 as meaning all: structures and buildings together with their settings and

[9] Ahascragh, An Cheathrú Rua, Clifden, Eyrecourt, Glenamaddy, Kinvara, An Spidéal, Ballygar, Clonbur, Gort, Letterfrack, Loughrea, Mountbellew Moylough Oughterard and Tuam

attendant grounds, fixtures and fittings; groups of structures and buildings; and, sites which are of technical, historical, archaeological, artistic, cultural, scientific, social, or technical interest.

The Record of Protected Structures (RPS) is legislated for under the Planning and Development Acts 2000-2010. Protected Structures are defined as structures, or parts of structures that are of special interest from an architectural, historical, archaeological, artistic, cultural, scientific, social or technical point of view. Current entries to the RPS in County Galway are mapped on Figure 3.9. New entries to the RPS may be adopted as part of the County Development Plan review process.

The Planning and Development Acts 2000-2010 provide the legislative basis for the protection of areas known as Architectural Conservation Areas (ACAs). An ACA is a place, area or group of structures or townscape which is of special architectural, historical, archaeological, artistic, cultural, scientific, social or technical interest or value, or contributes to the appreciation of protected structures, whose character it is an objective to preserve in a development plan. The following ACAs are included in the County Development Plan:

1. Athenry town Centre
2. Bearna Pier Road
3. Clarinbridge village centre
4. Clifden Town centre
5. Craughwell village centre
6. Gort town Centre
7. Headford town Centre
8. Loughrea town centre
9. Oranmore town centre
10. Oughterard town centre
11. Portumna town centre
12. Tuam town centre
13. Ballinasloe Town Centre
14. St Brigid's Hospital, Ballinasloe

Existing Problems
The context of archaeological and architectural heritage has changed over time within County Galway however no existing conflicts with legislative objectives governing archaeological and architectural heritage have been identified.

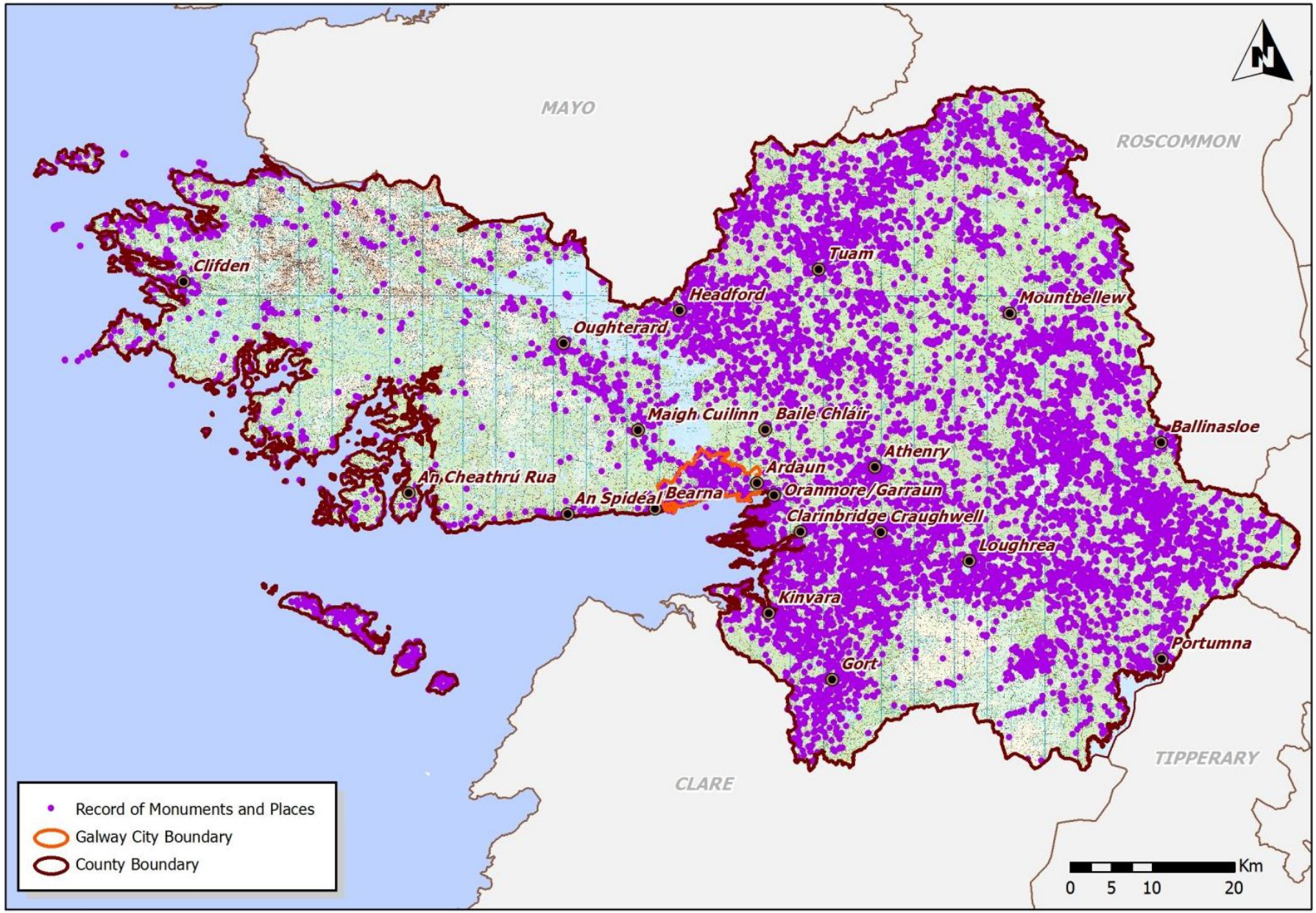

Figure 3.8 Archaeological Heritage - Entries to the Record of Monuments and Places
Source: Galway County Council (Unknown)

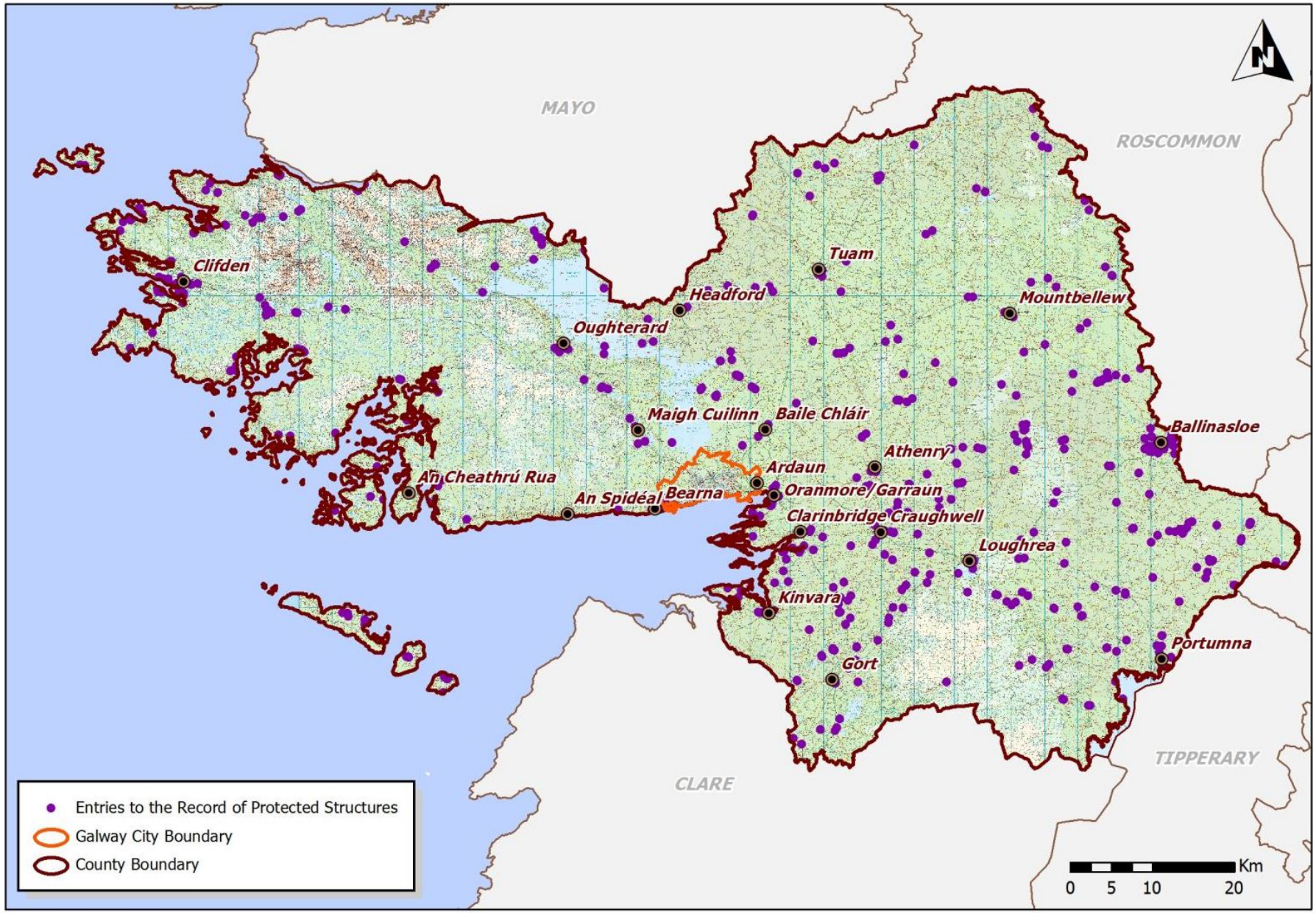

Figure 3.9 Architectural Heritage - Entries to the Record of Protected Structures
Source: Galway County Council (Unknown)

3.11 Landscape

Introduction
County Galway is richly endowed with a variety of landscape types ranging from the quartzite mountain ranges and blanket bogs of Conamara to the fertile patchwork of farmland in east Galway and the bare karst pavements of the Aran Islands and South Galway.

West Galway is a rugged landscape with mountains, bogs, rivers and lakes. Galway is bounded to the west by an extensive and varied Atlantic coastline, which ranges from cliffs to sand dunes and rocky shores to salt marshes. East Galway is characterised by a low-lying rolling topography of a fertile limestone plain, rich pasturelands, bog, and the Shannon system with its Callows and Lough Derg. A number of eskers are found in the north and east of the County including Richmond Esker, a Nature Reserve near Kilkerrin, which has two of the few esker ridges left in the country which still carry native woodland. The County is dissected by many rivers and lakes with Lough Corrib, Ireland's second largest lake at its centre. A multitude of dry stone walls typifies the landscape of the Aran Islands. Seascapes vary from the steep cliffs of the Aran Islands to sandy beaches and the famous Coral Strand, west of An Cheathrú Rua, to the long fjord-like inlet of Killary harbour.

Landscape Character Assessment
Galway County Council's (2003) Landscape Character Assessment classifies landscapes in Galway according to their:

- Character[10] (see Figure 3.10);
- Values[11] (see Figure 3.11); and,
- Sensitivity[12] (see Figure 3.12).

The most valuable and sensitive landscapes in the County are found to the west of Lough Corrib - especially in the uplands of Conamara and in coastal areas.

Landscapes of lesser value and sensitivity - with the exception of areas including the coast of the County from Clarinbridge to Gort, the Lower Burren, water bodies and their banks and some upland areas in the Slieve Aughty Mountains - generally occur in the eastern half of the County.

Focal Points and Views
Focal points and views were identified as part of the Landscape Character Assessment and these are provided a degree protection from the effects of development under the County Development Plan. There are 122 protected focal points and views in total. They include: long distant views of areas such as Conamara, Lough Corrib, Galway Bay, the Burren, the Slieve Aughty Mountains, the coasts of Galway and North Clare; and, local focal points such as castle ruins, church spires, cemeteries and old mills. Focal points and views are mapped on Figure 3.13.

[10] Landscape character areas were defined by a combination of professional judgement relating to the physical elements which make up the landscape of an area and the following procedures from the prescribed landscape assessment methodology: physical units (i.e. the combination land form and land cover) comprising visual units (i.e. physical limits of a view) and image units (i.e. physical features such as focal points).
[11] Landscape values were derived for each landscape character area by consideration of environmental and cultural benefits such as visual beauty, ecology, archaeology, social history, religious sites and mythology. Landscape values combining all environmental and cultural benefits were decided through liaison with Galway County Council's Forward Planning Department.
[12] Landscape sensitivity is a measure of the ability of the landscape to accommodate change or intervention without suffering unacceptable effects to its character and values. Sensitivity ratings are derived from a combination of landscape values and landscape character. The most sensitive landscapes are 'Class 5 - Unique', 'Class 4- Special' and 'Class 3- High sensitivity' while landscapes of lesser sensitivity are 'Class 2- Moderate sensitivity' and 'Class 1- Low sensitivity'.

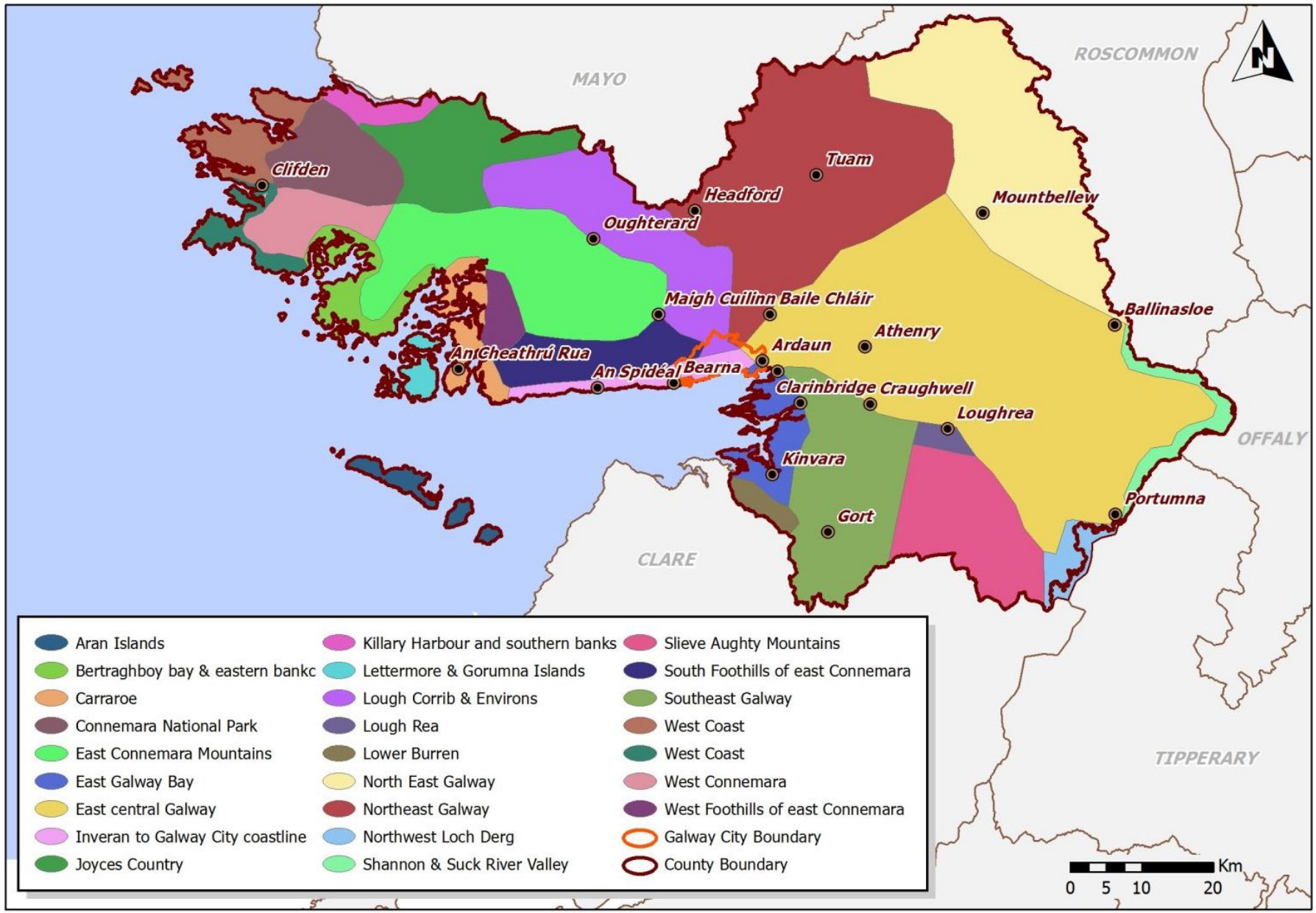

Figure 3.10 Landscape Character Areas
Source: Galway County Council (2009)

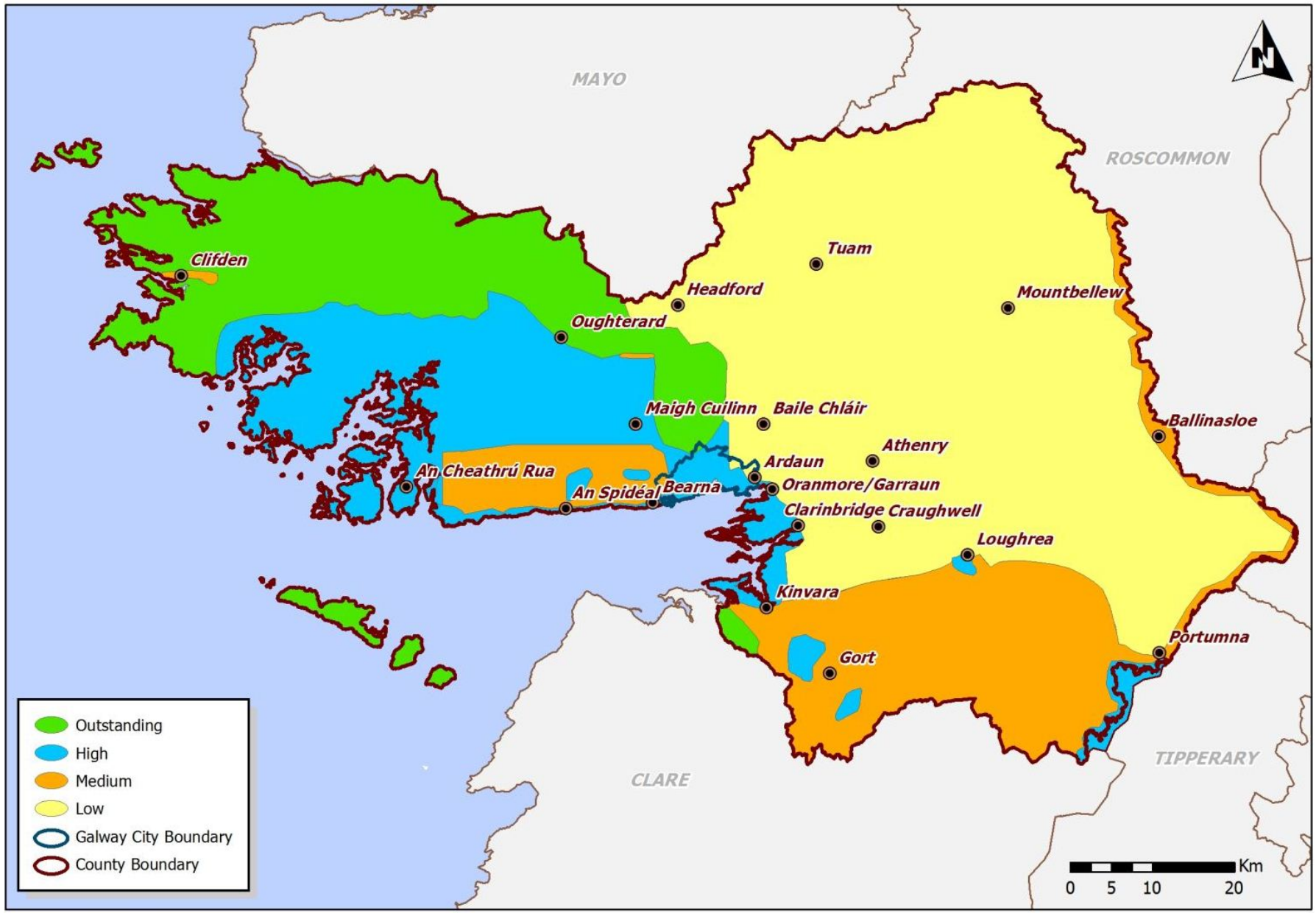

Figure 3.11 Landscape Values
Source: Galway County Council (2009)

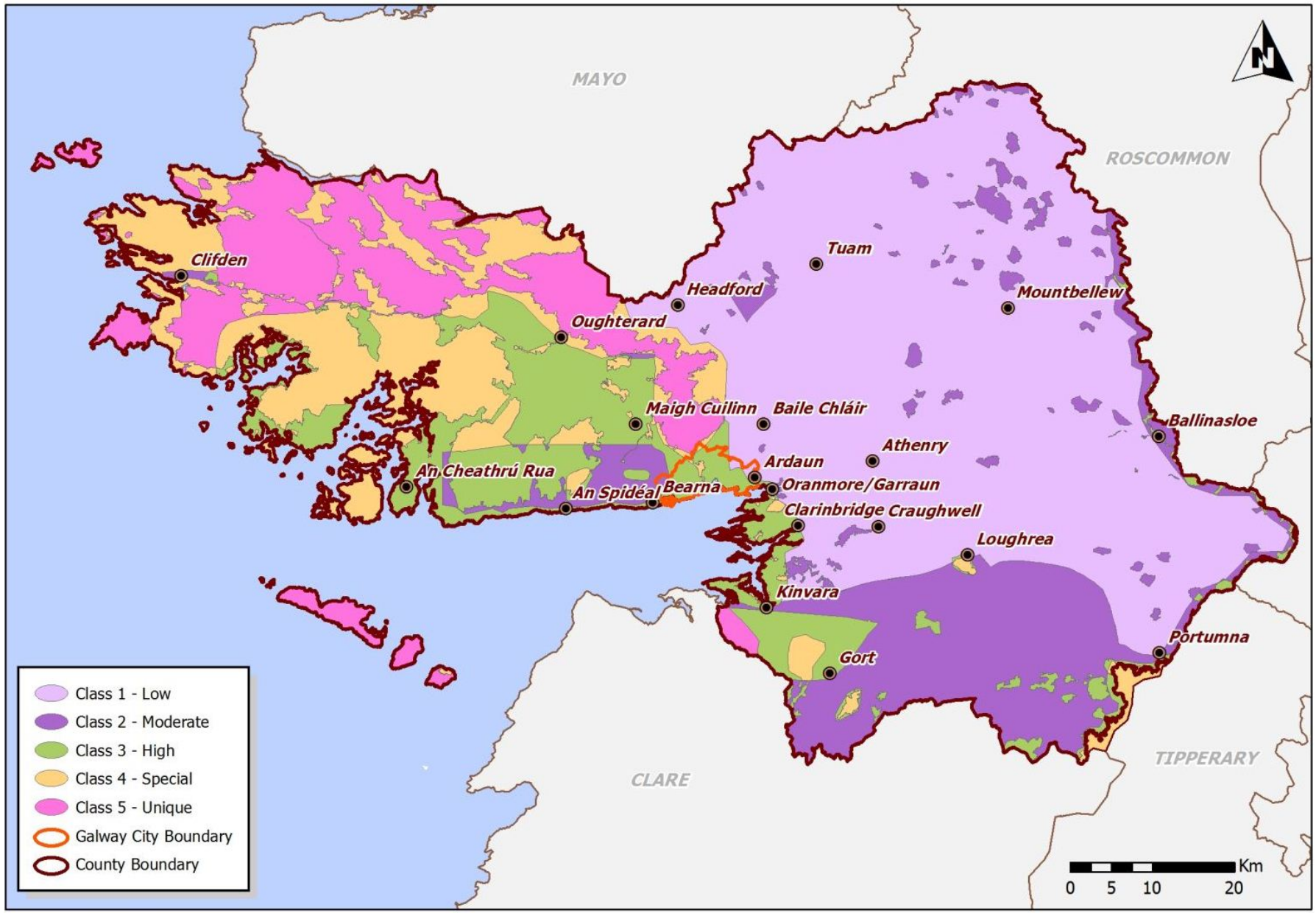

Figure 3.12 Landscape Sensitivity Classification
Source: Galway County Council (2009)

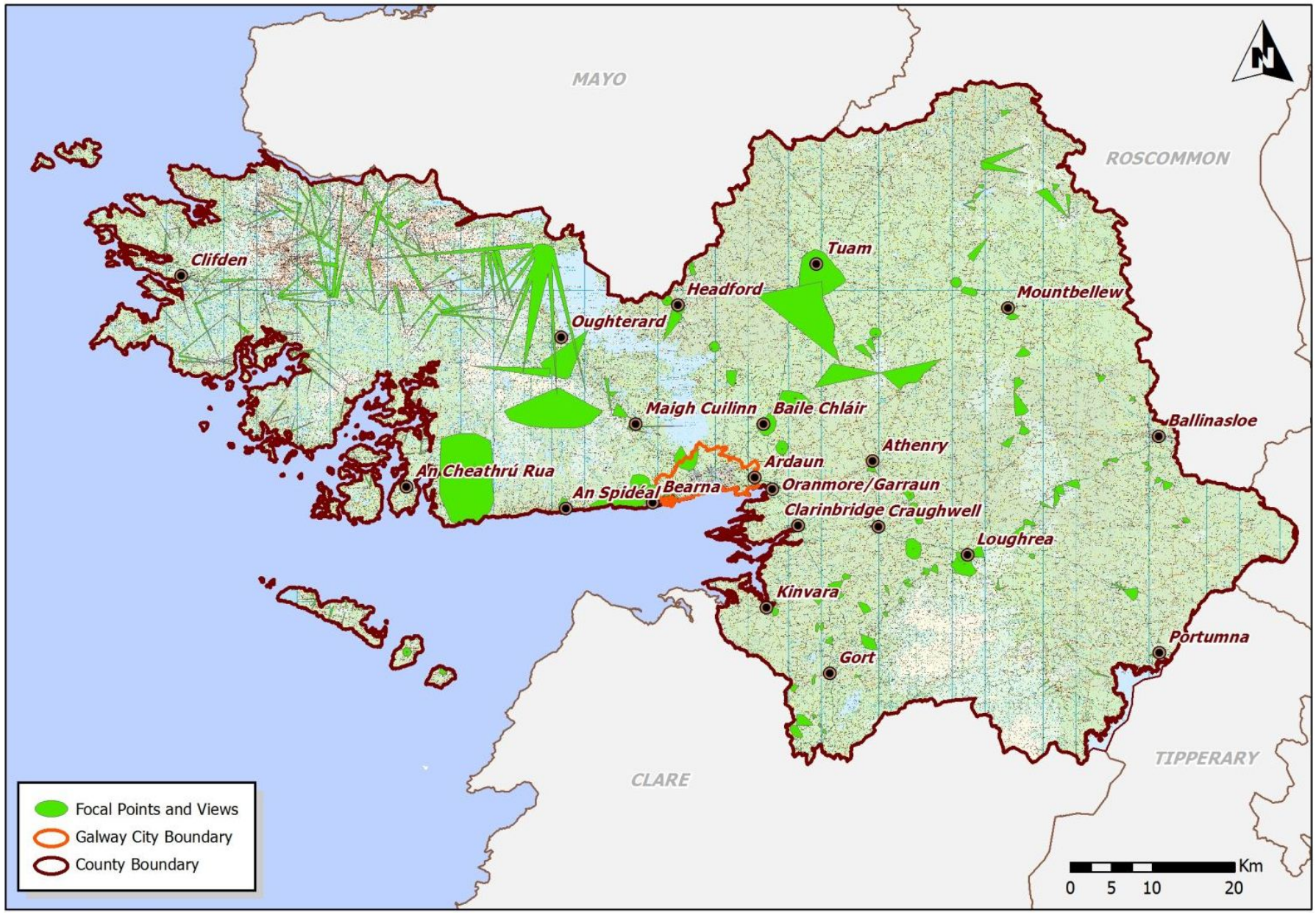

Figure 3.13 Focal Points and Views
Source: Galway County Council (2009)

3.12 Overlay of Environmental Sensitivities

In order to identify where most sensitivities within the county occur, a number of the environmental sensitivities described above were weighted and mapped overlapping each other. Figure 3.14 provides an overlay of environmental sensitivities for the county.

The overlay mapping shows that environmental sensitivities are not evenly distributed throughout the County.

Lough Corrib and adjacent lands comprise the greatest extent of sensitive area within the County on account of sensitivities including ecological, hydrological and landscape.

Areas in close proximity to the County's border with Roscommon, Offaly and Tipperary are similarly sensitive. These areas include the water bodies of the River Shannon and Lough Derg as well as adjacent areas (sensitivities including hydrological, ecological, landscape and flood).

Other areas with heightened levels of sensitivities include the large area of Conamara (sensitivies including ecological, hydrological and landscape), parts of the coast and smaller lakes in the east of the County (including Lough Cutra, Lough Rea, Coole Lough, Kiltullagh Lough and Glenamaddy Turlough).

The remainder of the County is generally of low or moderate vulnerability.

As previously referenced, the occurrence of multiple sensitivities in any location does not preclude development; rather it flags at a strategic level that the mitigation measures - which have already been integrated into the County Development Plan as policies and objectives - will need to be complied with in order to ensure that the implementation of the Plan contributes towards environmental protection.

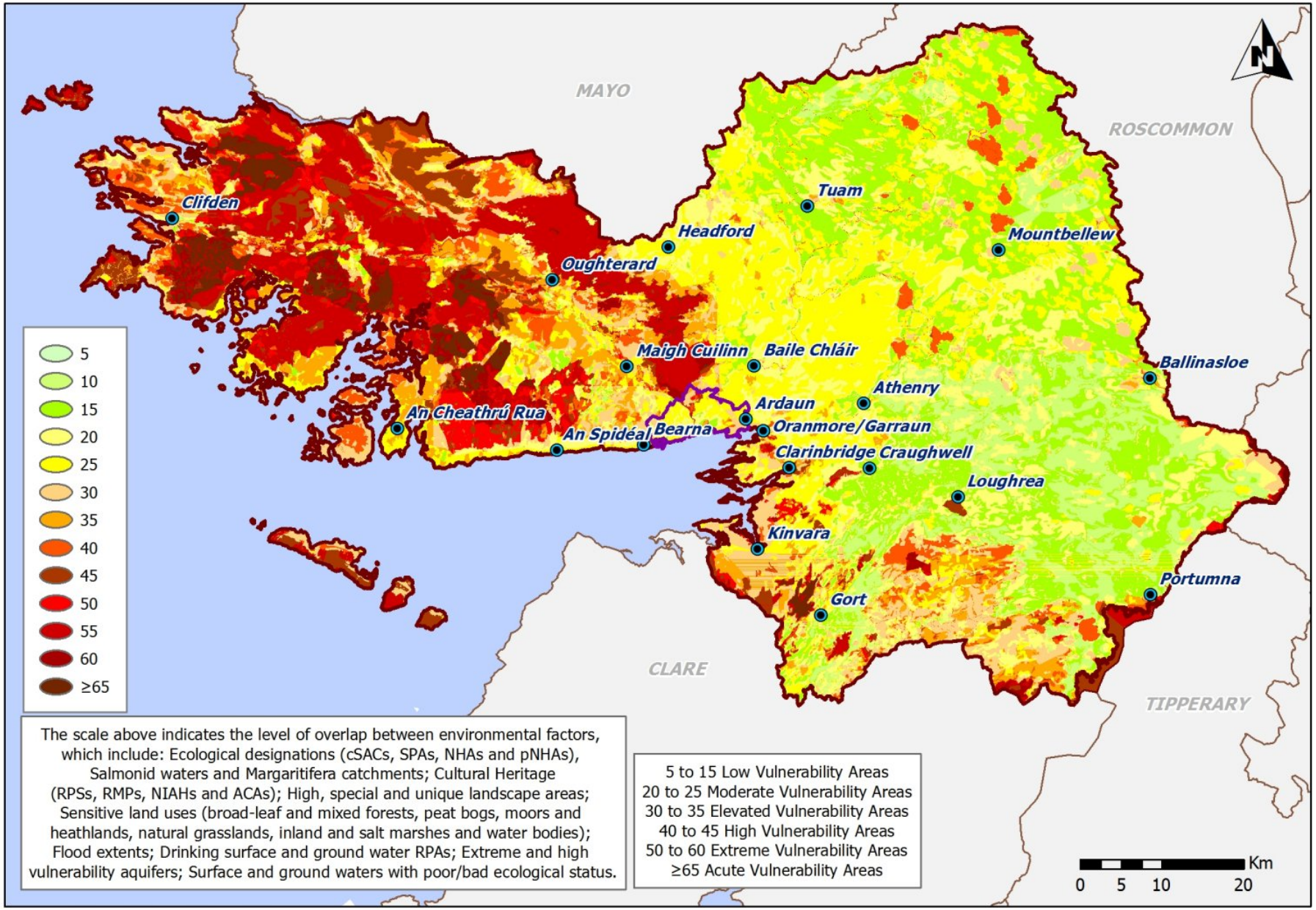

Figure 3.14 Overlay Mapping of Environmental Sensitivities
Source: CAAS (2014)

3.13 Appropriate Assessment and Strategic Flood Risk Assessment

A Stage 2 Appropriate Assessment (AA) and a Stage 1 Strategic Flood Risk Assessment (SFRA) have both been undertaken alongside the preparation of the Plan.

The requirement for AA is provided under the EU Habitats Directive (Directive 1992/43/EEC). The requirement for SFRA is provided under 'The Planning System and Flood Risk Management Guidelines for Planning Authorities' (DEHLG, 2009).

The AA concluded that the Plan will not affect the integrity of the Natura 2000 network[13]. All recommendations made by the AA and SFRA were integrated into the Plan.

The preparation of the Plan, SEA, AA and SFRA has taken place concurrently and the findings of the AA and SFRA have informed both the Plan and the SEA.

3.14 Strategic Environmental Objectives

Strategic Environmental Objectives (SEOs) are methodological measures against which the environmental effects of the Plan can be tested. If complied with in full, SEOs would result in an environmentally neutral impact from implementation of the Plan. The SEOs are set out under a range of topics and are used as standards against which the provisions of the Plan can be evaluated in order to help identify areas in which potential adverse impacts may occur. SEOs are distinct from the objectives of the Plan and are developed from international and national policies which generally govern environmental protection objectives. Such policies include those of various European Directives which have been transposed into Irish law and which are intended to be implemented within the Plan area.

[13] Except as provided for in Section 6(4) of the Habitats Directive, viz. There must be:
(a) no alternative solution available;
(b) imperative reasons of overriding public interest for the plan to proceed; and
(c) adequate compensatory measures in place.

Table 3.1 Strategic Environmental Objectives

SEO Code	SEO
B1	To ensure compliance with the Habitats and Birds Directives with regard to the protection of Natura 2000 Sites and Annexed habitats and species[14]
B2	To ensure compliance with Article 10 of the Habitats Directive with regard to the management of features of the landscape which - by virtue of their linear and continuous structure or their function act as stepping stones - are of significant importance for wild fauna and flora and/or essential for the migration, dispersal and genetic exchange of wild species
B3	To avoid significant impacts on relevant habitats, species, environmental features or other sustaining resources in designated sites including Wildlife Sites and to ensure compliance with the Wildlife Acts 1976-2010 with regard to the protection of species listed on Schedule 5 of the principal Act
B4	To sustain existing sustainable rural management practices - and the communities who support them - to ensure the continuation of long established managed landscapes and the flora and fauna that they contain
PHH1	To protect populations and human health from exposure to incompatible landuses
S1	To avoid damage to the hydrogeological and ecological function of the soil resource in County Galway
W1	To maintain and improve, where possible, the quality and status of surface waters
W2	To prevent pollution and contamination of ground water
W3	To comply as appropriate with the provisions of the Planning System and Flood Risk Management: Guidelines for Planning Authorities (DEHLG, 2009)
M1	To serve new development with adequate and appropriate waste water treatment
M2	To serve new development with adequate drinking water that is both wholesome and clean
M3	To reduce waste volumes, minimise waste to landfill and increase recycling and reuse.
C1	To reduce travel related emissions to air and to encourage modal change from car to more sustainable forms of transport
CH1	To protect archaeological heritage including entries to the Record of Monuments and Places and/or their context
CH2	To protect architectural heritage including entries to the Record of Protected Structures and Architectural Conservation Areas and their context
L1	To avoid significant adverse impacts on the landscape - especially with regard to the County's landscapes which are most valuable and most sensitive to change and protected focal points and views

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

Section 4 Effects of Alternative Scenarios and the Plan

4.1 Alternative Scenarios

4.1.1 Introduction and Rational

Section 4.1.2 identifies and describes 4 different alternative scenarios that were considered during the preparation of the Plan. Mapping is contained in the main Environmental Report for some of the scenarios.

Section 4.1.3 provides a summary of the evaluation of environmental effects arising from each of the scenarios (the main Environmental Report contains the full evaluation).

The alternatives considered are constrained by the provisions of the RPGs;

- The RPG's population growth target 2016-2022 has been adjusted for the Plan period 2015-2021, meaning that a target of 13,160 persons has been allocated to the Council's administrative area for the plan period.
- The RPGs require that a minimum of 900 persons of the 2016-2022 allocation, or less than ten percent, is assigned to the town of Tuam; there is no alternative to this requirement.
- The RPGs require that the residual balance of c. 12,000 persons is distributed across the County, as deemed appropriate by the planning authority. The location of this residual balance is the basis for the alternatives.

4.1.2 Description of Alternative Scenarios

4.1.2.1 Scenario A

Concentrating growth in urban areas and settlements

Scenario A provides for a population target of 13,160 persons for the Plan period 2015-2021 and meets the minimum RPGs requirement for population allocation to the town of Tuam.

This scenario focuses on building strong urban centres and generating critical mass in the Galway Gateway, the Tuam Hub and a restricted number of towns to support enhanced infrastructure and services. These settlements would act as focal points for their rural catchments.

Development outside of these centres would be strictly controlled to retain the character of existing rural areas and a strong environmental protection policy would be implemented.

Growth is distributed across the County in line with the adopted Settlement Hierarchy, also having regard to the Regional Planning Guidelines. This scenario advocates and implements strong and robust environmental protection policies which are applied to various environmental zones within the County.

The majority of the coast and the Conamara Highlands are managed and planned as natural amenities subject to strict interpretation of EU Directives - with the exception of areas designated for natural resource enterprises such as forestry, wind energy and mineral extraction.

The east of the County supports rural enterprises - based on agri-business and service functions set in a matrix of strengthening villages and towns as well as some rural settlement in planned areas.

Rural areas of the County sustain recreation and tourism enterprises as well as environmental services. Quality of life is the priority in strong towns and villages. A separate and distinctive coastal complex sustains a mixture of marine enterprises, tourism, settlement, and culture and service facilities in an overwhelmingly natural context.

Rural Settlements would be planned in order to evolve into small mixed use urban centres, providing a range of services and employment to their local population.

4.1.2.2 Scenario B

Focussing growth predominantly into the Hub town of Tuam

Scenario B provides for a population target of 13,160 persons for the Plan period 2015-2021, the vast majority of which is assigned to the town of Tuam and its environs.

The Tuam and Environs area contains the vast majority of new settlement, infrastructure and enterprise at the expense of other towns and villages within the County which weaken and experience declines in population. As a result, the footprint of Tuam expands significantly.

Development outside of Tuam and Environs would be strictly controlled to retain the character of existing rural areas and a strong environmental protection policy would be implemented.

Rural areas that are not within an area influenced by the Tuam Hub weaken and rural populations decline.

The Plan limits physical development and economic growth in the County's east-west central economic corridor.

4.1.2.3 Scenario C

Promoting dispersed development throughout the County

Scenario C provides for a population target of 13,160 persons for the Plan period 2015-2021 and meets the minimum RPGs requirement for population allocation to the town of Tuam.

Apart from the required allocation to Tuam, the location and nature of development is completely dependent upon market demand and applications are evaluated on a case-by-case basis by the Council - with minimal consideration of planning or environmental protection - and favourable consideration is given to new development wherever it is applied for across the County.

The creation of critical mass in certain locations is not a consideration in this development strategy and, apart from the minimum RPGs requirement for population allocation to the town of Tuam, no specific targets for or limitations on growth are set in the settlement strategy.

The influence of Galway City and Tuam on growth within their commuter zones is strong and significant levels of suburbanisation develop along the roads in the vicinity of these settlements.

Low density greenfield ribbon development emanates from existing settlements along the road corridors thereby expanding the footprints of settlements. Extensive areas of weakly controlled rural housing occur:

- throughout the eastern half of the County around the towns of Tuam, Ballinasloe, Baile Chláir, Athenry, Portumna and Gort;

- in coastal areas stretching from the outer reaches of Galway City westwards to Conamara and on to, and beyond, Clifden;

- in certain areas of inland Conamara;

- between Galway City and Oughterard, Oughterard and Maam, and Maam and the environs of Cong adjacent to County Mayo.

Due to the highly dispersed nature of new settlement and the disproportionate occurrence of rural housing; villages and towns weaken. Limited brownfield development occurs in built up areas which are in need of regeneration. Instances of inappropriately scaled and designed development do occur however at certain locations within a number of the County's larger settlements.

In areas outside of the County's towns and villages, natural resource enterprises such as forestry, wind energy and mineral extraction are interspersed with large areas of rural housing.

Wind energy development occurs in the western half of the County and in the Slieve Aughty Mountains. There is no strategy as to how to accommodate this development within these areas.

4.1.2.4 Scenario D

Developing the Hub town of Tuam, supporting the Gateway and key towns while encouraging the development of other settlement centres and appropriate development in the rural areas

Scenario provides for a population target of 13,160 persons for the Plan period 2015-2021 and meets (and provides more than) the minimum RPGs requirement for population allocation to the town of Tuam.

This scenario follows a strong yet flexible approach to development, placing emphasis on:

- Supporting the Gateway of Galway City and the associated Galway Metropolitan Area;
- Focusing on fostering a critical mass in the Hub town (Tuam) to compliment the Gateway; and
- Promote the development of key towns and smaller villages along strategic development corridors (which focus on established and planed transportation infrastructure), thereby energising rural areas within the County.

Existing settlement strategy to be rationalised based on existing and proposed service infrastructure whilst providing a focus for the continued support of the rural areas.

Rural populations to be supported through this settlement strategy and through a sustainable, flexible approach to maintaining rural economy and population, balanced against responsible environmental protection.

Large areas of natural habitat remain in the West of the County interspersed with recreation and tourism enterprises adjoining extensive areas of natural resource enterprises such as forestry, renewable energy, fishing/marine, agriculture and mineral extraction.

The east-west central corridor of the County contains the majority of the settlement, infrastructure and enterprise.

4.1.3 Evaluation of Alternative Scenarios

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

Table 4.1 Evaluation of Alternative Scenarios against SEOs

	Likely to **Improve** status of SEOs	Probable **Conflict** with status of SEOs- unlikely to be mitigated	Potential **Conflict** with status of SEOs- likely to be mitigated
Scenario A: **Concentrating growth in urban areas and settlements**	By limiting greenfield development and allowing densities to be maximised, this scenario would be likely to have beneficial effects upon: - the protection of biodiversity and flora and fauna, water resources, human health and the landscape; and - efforts to maximise sustainable transport, minimise flood risk and provide water services.	By providing for restrictive rural planning policies there is a likelihood that existing sustainable rural management practices would not be sustained and that there would be consequent effects upon certain habitats and species.	Potential adverse effects that would arise with regard to various environmental components (human health, biodiversity and flora and fauna, soil, water, flood risk, water services, waste, sustainable mobility, cultural heritage and the landscape landscape) would be mitigated.
Scenario B: **Focussing growth predominantly into the Hub town of Tuam**	By limiting greenfield development in all areas apart from Tuam, this scenario would be likely to have beneficial effects upon: - the protection of biodiversity and flora and fauna, water resources, human health and the landscape; and - efforts to maximise sustainable transport, minimise flood risk and provide water services.	By providing for restrictive rural planning policies beyond the Tuam and Environs area there is a likelihood that existing sustainable rural management practices would not be sustained and that there would be consequent effects upon certain habitats and species.	Potential adverse effects that would arise with regard to various environmental components (soil, flood risk, waste, sustainable mobility, cultural heritage and the landscape landscape) would be mitigated. Other potential adverse effects arising as a result of difficulties in providing waste water services (including those relating to human health, biodiversity and flora and fauna, water and water services) would be more difficult to mitigate. In order to mitigate these conflicts and prevent the occurrence of exceedances in the assimilative capacities of the River Nanny, River Clare and Lough Corrib, significant investment in waste water treatment infrastructure would be needed.
Scenario C: **Promoting dispersed development throughout the County**	By ensuring the continuation of human occupancy and use in rural areas, this scenario would allow for existing sustainable rural management practices (and associated habitats and species) to be sustained.	By allowing highly dispersed low density greenfield ribbon development and extensive areas of weakly controlled rural housing, this scenario would be likely to result in adverse effects upon: - the protection of biodiversity and flora and fauna, water resources, human health and the landscape; and - efforts to maximise sustainable transport, minimise flood risk and provide water services.	Potential adverse effects that would arise with regard to cultural heritage and waste would be mitigated.

	Likely to **Improve** status of SEOs	Probable **Conflict** with status of SEOs- unlikely to be mitigated	Potential **Conflict** with status of SEOs- likely to be mitigated
Scenario D: **Developing the Hub town of Tuam, supporting the Gateway and key towns while encouraging the development of other settlement centres and appropriate development in the rural areas**	By accommodating populations and development through the redevelopment of strategic urban areas this scenario would be likely to have beneficial effects upon: - the protection of biodiversity and flora and fauna, water resources, human health and the landscape; and - efforts to maximise sustainable transport, minimise flood risk and provide water services.		Potential adverse effects that would arise with regard to various environmental components (human health, biodiversity and flora and fauna, rural management practices, soil, water, flood risk, water services, waste, sustainable mobility, cultural heritage and the landscape landscape) would be mitigated.

4.2 The Plan

4.2.1 The Selected Alternative Scenario for the Plan

The Alternative Scenario for the County Development Plan which has emerged from the Plan/SEA/AA/SFRA preparation process is Scenario D.

Scenario D was developed by the Planning Team, placed on public display by the Elected Members and adopted by the Elected Members having regard to both:

1. The environmental effects which were identified by the SEA and are detailed above; and
2. Planning - including social and economic - effects which were also considered by the Council.

In summary the Plan represents a pragmatic recognition and continuation of established patterns and trends of development in County Galway. These have been modified to take account of the significant environmental sensitivities that exist over very large portions of the County with a view to stabilising both environmental conditions and the populations of those communities who continue to sustain these environments.

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

The Core Strategy Map from the Plan is reproduced on Figure 4.1 overleaf.

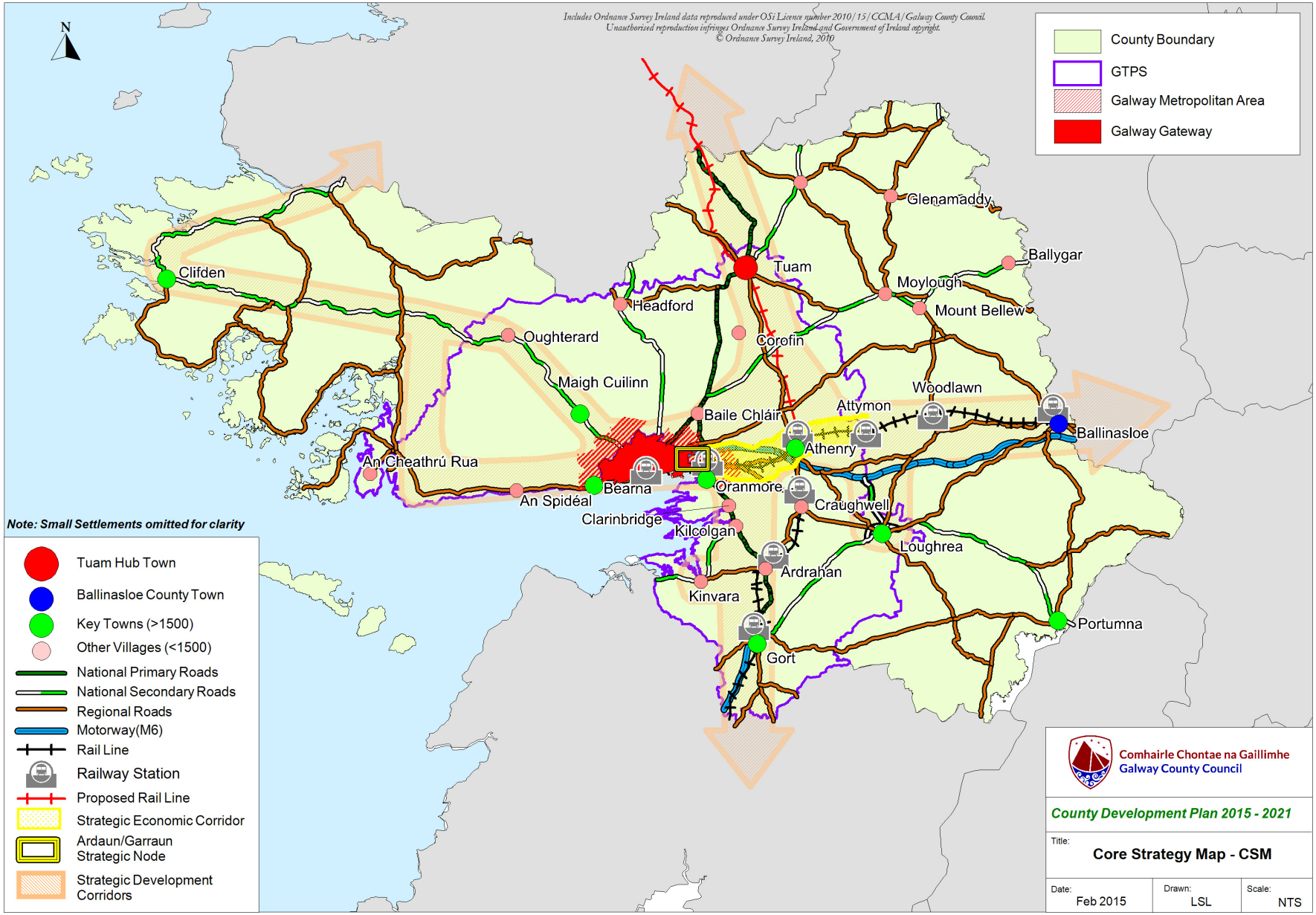

Figure 4.1 Core Strategy Map from the Plan
Source: Galway County Council (2015)

4.2.2 Evaluation of Plan Provisions

4.2.2.1 Overall Findings

The overall findings from the evaluation of Plan provisions that is detailed in the main Environmental Report are as follows:

- The Council have integrated all recommendations arising from the SEA, AA and SFRA into the Plan;
- Some Plan provisions would be likely to result in significant positive effects upon all of the environmental components; and
- Some provisions would have the potential to result in significant negative environmental effects however these effects are mitigated by the mitigation measures which have been integrated into the Plan.

4.2.2.2 Potential Impacts arising from the Plan

Environmental impacts which occur, if any, will be determined by the nature and extent of multiple or individual projects and site specific environmental factors.

The potentially significant adverse environmental effects[15] arising from implementation of the Plan are summarised on Table 4.1 overleaf.

Avoidance of conflict with SEOs and the environment is dependent upon compliance with the mitigation measures which have emerged through the SEA, AA and SFRA processes and which have been integrated into the Plan. Section 5.1 outlines the measures that will mitigate the potential effects that are likely to arise as a result of implementing the Plan.

[15] Effects considered by the assessment include secondary, cumulative, synergistic, short, medium and long-term permanent and temporary, positive and negative effects

Environmental Component	Potential Effect
Biodiversity and Flora and Fauna	○ Loss of biodiversity with regard to Natura 2000 Sites and Annexed habitats and species (see baseline summarised under Section 3.4) ○ Loss of biodiversity with regard to ecological connectivity and stepping stones (see baseline summarised under Section 3.4) ○ Loss of biodiversity with regard to designated sites including Wildlife Sites and species listed on Schedule 5 of the Wildlife Act 1976 (see baseline summarised under Section 3.4) ○ Failure to sustain rural management practices (see baseline summarised under Section 3.4)
Population and Human Health	○ Spatially concentrated deterioration in human health (see baseline summarised under Section 3.5)
Soil	○ Damage to the hydrogeological and ecological function of the soil resource (see baseline summarised under Section 3.6)
Water	○ Adverse impacts upon the status and quality of water bodies, including bathing waters (see baseline summarised under Section 3.7) ○ Increase in the risk of flooding (see baseline summarised under Section 3.7)
Material Assets	○ Failure to provide adequate and appropriate waste water treatment (see baseline summarised under Section 3.9) ○ Failure to comply with drinking water regulations and serve new development with adequate drinking water that is both wholesome and clean (see baseline summarised under Section 3.9) ○ Increases in waste levels (see baseline summarised under Section 3.9)
Air and Climatic Factors	○ Failure to contribute towards sustainable transport and associated impacts (see baseline summarised under Section 3.8)
Cultural Heritage	○ Effects on entries to the Record of Monuments and Places and other archaeological heritage (see baseline summarised under Section 3.10) ○ Effects on entries to the Records of Protected Structures and other architectural heritage (see baseline summarised under Section 3.10)
Landscape	○ Occurrence of adverse visual impacts (see baseline summarised under Section 3.11)

Table 4.1 Potentially Significant Adverse Environmental Effects arising from Plan

4.2.2.3 Residual Adverse Effects

Residual adverse effects likely to occur - considering the extent of detail provided by the Plan and assuming that all mitigation measures are complied with by development - are identified for each of the environmental components on Table 4.2 below.

Environmental Component	Residual Adverse Effects
Biodiversity and Flora and Fauna	Loss of an extent of non-protected habitats arising from the replacement of semi-natural land covers with artificial surfaces
Population and Human Health	None
Soil	Loss of an extent of soil function arising from the replacement of semi-natural land covers with artificial surfaces
Water	Flood related risks remain due to uncertainty with regard to extreme weather events
Air and Climatic Factors	None
Material Assets	Residual wastes to be disposed of
Architectural Heritage	Potential alteration to the context and setting of architectural heritage (Protected Structures) however these will occur in compliance with legislation
Archaeological Heritage	Potential alteration to the context and setting of archaeological heritage (Recorded Monuments) however this will occur in compliance with legislation Potential loss of unknown archaeology however this loss will be mitigated by measures integrated into the Plan
Landscape Designations[16]	None

Table 4.2 Potentially Significant Adverse Environmental Effects arising from Plan

[16] The Plan contributes towards the protection of landscape designations. The county's landscapes will change overtime as a result of natural changes in vegetation cover combined with new developments.

Section 5 Mitigation and Monitoring Measures

5.1 Mitigation

5.1.1 Introduction

Mitigation measures are measures envisaged to prevent, reduce and, as fully as possible, offset any significant adverse impacts on the environment of implementing the Plan.

Various environmental sensitivities and issues have been communicated to the Council through the SEA, AA and SFRA processes. By integrating all related recommendations into the Plan, the Council have ensured that both the beneficial environmental effects of implementing the Plan have been and will be maximised and that potential adverse effects have been and will be avoided, reduced or offset.

5.1.2 Integration of Environmental Considerations

All recommendations made by the SEA, AA and SFRA processes were integrated into the Plan.

Table 5.1 links key mitigation measure(s) - which have been integrated into the Plan - to the likely significant effects of implementing the Plan, if unmitigated, as well as showing monitoring measures. The integration of these measures into the Plan occurred over a number of iterations and was informed by, inter alia, various communications through the SEA, AA and SFRA processes.

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

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

5.2 Monitoring

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

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

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

Table 5.1 SEA Summary Table: Likely Significant Effects, Mitigation Measures and Indicators for Monitoring

Likely Significant Effect, if unmitigated	Mitigation Measure Reference(s) from the Plan	Primary Indicator(s) for Monitoring
Loss of biodiversity with regard to Natura 2000 Sites and Annexed habitats and species & Loss of biodiversity with regard to designated sites including Wildlife Sites and species listed on Schedule 5 of the Wildlife Act 1976	• Policies NHB 1, NHB 5, NHB 6, NHB 7 and NHB 8 • Objectives DS 6, DS 9, EQ1, EQ 4, ICT 1, NHB 1, NHB 4, NHB 5, NHB 6, NHB 7, NHB 13, AFF 6 and DS10	B1: Conservation status of habitats and species as assessed under Article 17 of the Habitats Directive B3i: Number of significant impacts on relevant habitats, species, environmental features or other sustaining resources in designated sites including Wildlife Sites resulting from development provided for by the Plan B3ii: Number of significant impacts on the protection of species listed on Schedule 5 of the Wildlife Act 1976.
Loss of biodiversity with regard to ecological connectivity and stepping stones	• Policies NHB 2 and NHB 3 • Objectives NHB 2, NHB 8, NHB 10 and NHB 11	B2: Percentage loss of functional connectivity without remediation resulting from development provided for by the Plan
Loss of population of the county involved in land management	• Policy NHB 8 • Objective NHB 13 • Also see various measures providing for populations in rural and supporting areas.	B4: Population of the county involved in land management
Spatially concentrated deterioration in human health	• Objectives TI 13 and EQ 2 • Policy CC 8 • Also see measures related to soil, water quality, flooding, waste water treatment and drinking water supply and quality.	PHH1: Occurrence (any) of a spatially concentrated deterioration in human health arising from environmental factors resulting from development provided for by the Plan, as identified by the Health Service Executive and Environmental Protection Agency
Damage to the hydrogeological and ecological function of the soil resource	• Objective NHB12 • Also see measures related to water quality and waste water treatment.	S1: Soil extent and hydraulic connectivity
Adverse impacts upon the status and quality of water bodies, including bathing waters	• Policies NHB 4 and AFF 5 • Objectives NHB 3, NHB 8, NHB 10, NHB12 , EQ1, AFF 5, AFF 6, AFF9, CS 4, WS 1, WS 2, WS 7, WS 9, WS 11, WW 1, FL 2, FL 3 and RA 1	W1i: Classification of Overall Status (comprised of ecological and chemical status) under the European Communities Environmental Objectives (Surface Waters) Regulations 2009 (SI No. 272 of 2009) W1ii: Mandatory and Guide values as set by the EU Bathing Water Directive and transposing Bathing Water Quality Regulations (SI No. 79 of 2008) W2: Groundwater Quality Standards and Threshold Values under Directive 2006/118/EC

Likely Significant Effect, if unmitigated	**Mitigation Measure Reference(s) from the Plan**	**Primary Indicator(s) for Monitoring**
Increase in the risk of flooding	• Objectives FL 1, FL 2, FL 3, FL 4, FL 5, FL 6, DS 7, DS 8 and DS 9 • Policies FL 1, FL 2, FL 3, FL 4 and FL 5	W3: Number of incompatible developments granted permission on lands which pose - or are likely to pose in the future - a significant flood risk
Failure to provide adequate and appropriate waste water treatment & Failure to comply with drinking water regulations and serve new development with adequate drinking water that is both wholesome and clean	• Policies WS 1 WS 2 WS 3 WS 4 WS 5 WS 6 WW 1 • Objectives WS 1, WS 2, WS 3, WS 4, WS 5, WS 6, WS 7, WS 8, WS 9, WS 10, WS 11, WS 12, WS 13, WS 14, WS 15, WW 1, WW 2, WW 3, WW 4, WW 5, WW 6, WW 7, WW 8, WW 10, CS 4, RHO -5 and EDT 5	M1: Number of new developments granted permission which can be adequately and appropriately served with waste water treatment over the lifetime of the Plan M2: Number of non-compliances with the 48 parameters identified in the European Communities (Drinking Water) Regulations (No. 2) 2007 which present a potential danger to human health as a result of implementing the Plan
Failure to contribute towards sustainable transport and associated impacts	• Strategic Aims 6 and 7 • Policies CC 1, CC 7, TI 1, TI 2, TI 3 and TI 4 • Objectives DS 1, DS 2, DS 3, CS 3, CS 5, TI 1, TI 2, TI 3, TI 4, TI 16, TI 17, TI 18, TI 19, DS 8, CC 2 and CC 4	C1: Percentage of population travelling to work, school or college by public transport or non-mechanical means
Increases in waste levels	• Policies WM 1 and WM 2 • Objectives WM 1, WM 2, WM 3, WM 4, WM 5 and WM 6	M3i: Total collected and brought household waste M3ii: Packaging recovered (t) by self-complying packagers
Effects on entries to the Record of Monuments and Places and other archaeological heritage	• Policies ARC 1, ARC 2, ARC 3, ARC 4 and ARC 5 • Objectives ARC 1, ARC 2, ARC 3, ARC 4, ARC 5, ARC 6 and ARC 7	CH1: Percentage of entries to the Record of Monuments and Places - including Zones of Archaeological Potential (and the context of the above within the surrounding landscape where relevant) – protected from adverse effects resulting from development which is granted permission under the Plan
Effects on entries to the Records of Protected Structures, Architectural Conservation Areas and other architectural heritage	• Policies AH 1 and AH 2 • Objectives AH 1, AH 2, AH 3, AH 4, AH 5, AH 6, AH 7, AH 8, AH 9, AH 10 and AH 11	CH2: Percentage of entries to the Record of Protected Structures and Architectural Conservation Areas and their context protected from adverse effects resulting from development which is granted permission under the Plan
Occurrence of adverse visual impacts	• Policy LCM 1 • Objectives LCM 1, LCM 2, LCM 3, FPV 1 and WH 1	L1: Number of complaints received from statutory consultees regarding avoidable impacts on the landscape - especially with regard to the County's landscapes which are most valuable and most sensitive to change and protected focal points and views - resulting from development which is granted permission under the Plan