4.5 Population and Human Health

The County of Galway is predominately rural in nature with approximately 15% of the population of County Galway living in towns with a population greater than 1,500[1]. Oranmore lies within three District Electoral Divisions (DEDs): Baile an Teampaill (includes the northern part of the town), Oranmore (the central area) and Clarinbridge (southern part of the town). See Figure 4k for DEDs and the Oranmore Plan area. Please note no DED lies fully within the plan area; all are partially within the LAP boundary.

According to the 2006 Census, the population of the town was 3,513, a 107% increase from the 2002 Census figure. Notably from the Census data available, the education levels of Oranmore residents were one of the best in Ireland, people who live here or moved here for work, were recorded as having a good level of education, with just 4.64% of the people educated to primary school level or with no formal education, while people with a third level degree or a higher qualification made up 38.35% of the Oranmore workforce. This was the highest in any Irish town and over double the national average of 16.57%. This high level of educational attainment is reflected in the occupations of persons living in Oranmore, 2006 census data showing that Oranmore DED had the largest proportion of professional workers and administrative and government workers in the County[2].

Additional work analysing the Census 2006 and 2002 data[3] estimated absolute and relative deprivation indexes for County Galway. Three dimensions of affluence/disadvantage are identified: Demographic Profile, Social Class Composition and Labour Market Situation. The Oranmore Electoral Area (not including the other part DEDs within the plan area) was the most advantaged in both 2002 and 2006 (with a Relative Index Score of 7.9 in 2002 and 8.7 in 2006). Between 2002 and 2006 the largest increase in population at electoral area level was in the Oranmore Electoral Area at 19.7%. The Oranmore Electoral Area had the highest proportion of population aged between 0-4 years and the lowest proportion aged 65 years and over

This trend of growth has been continued for Oranmore, with preliminary information on the Census 2011 indicating that the Oranmore Electoral District grew by a further 22.7% between 2006 -2011. Clarinbridge and Baile an Teampaill saw growth of 22.7% and 4.8%[4] respectively.

The socioeconomic profile of the county also showed for 2006, that the Oranmore Electoral Area had the highest labour force participation rate at 67.9%, though this is likely to have altered in light of the recession. Latest unemployment data is shown on the Live Register Figures. Oranmore is included within the Galway City area for the purpose of social welfare claims. Therefore the data presented covers the city and Oranmore. More detailed information for Oranmore is not available. The total live register figures for December 2011 are 11,609 for Galway City and environs including Oranmore.

Oranmore has been has been identified as a **'Key Town'** within the Core Strategy/Settlement Strategy of the Galway County Development Plan 2009-2015. It has also been designated a Galway Metropolitan Area Satellite town.

[1] SEA ER of West Regional Planning Guidelines

[2] Galway County Socio Economic Profile 2008. Galway County Council and Social Inclusion Unit.

[3] İbid

[4] Source: Central Statistics Office, Preliminary Census 2011 Figures. The identical percentage change for Oranmore and Clarinbridge may be amended as figures are only preliminary.

4.5.1 Human Health

Human health can be determined by social, environmental and economic factors, among others. Human health may be impacted upon in a variety of ways and by a number of environmental receptors such as water, biodiversity, climate, flooding, air and major accidents, etc. The exposure to contaminants or pollutants can have serious implications for human health. Potential impacts on population and human health include inadequate water and wastewater and waste infrastructure, contamination of soils, excessive noise, flooding and poor air quality in areas where there are large volumes of traffic and the associated health impacts of an over exposure to Radon. Oranmore is located within a high radon area with more than 20% of the homes in the 4 x 10km grid square estimated to be above the reference level for Radon.

Ascertaining health related data for a functional area such as Oranmore is difficult and unlikely to exist in the public domain. The Census 2011 preliminary findings have produced initial health statistics for the national population. Extracting this data is helpful to show emerging trends in the nation's health, and can be considered to have some bearing on the population of Oranmore. The principal causes of death[5] at national level are:

- Circulatory diseases (heart disease, strokes) – 9189
- Cancers – 7971
- External (traffic accidents, suicide) – 1601.

4.5.2 Key Environmental Problems for Population and Human health

The following is a summary of existing environmental pressures within the wider West Region:

- Air pollution due to areas of heavy traffic along main routes and intersections,
- Population growth and infrastructure capacity constraints results in waste infrastructure incapable of meeting demand, shortages of water supply and poor quality water serving urban and rural areas
- There are pressures on drinking water quality; contamination in public and private water supplies means that water supplies in the Region are not 'safe and secure'
- Increases in population can impact on biodiversity, water quality, landscape and cultural heritage and which would impact on human health
- Waste generation, old landfills and illegal dumping can impact on human health and biodiversity.
- Flooding due to heavy rainfall (or in Oranmore's case due to coastal or fluvial events) may impact on human health, on structures and the safety of water supply
- Additionally, submissions on the pre-draft Oranmore LAP highlighted problems for wheelchair users moving around Oranmore and the lack of ramps for wheelchair users to use around the centre;
- Other consultees also highlighted traffic problems in a number of areas including Maree Road
- Finally, consultees highlighted the need for walking/cycling non motorised transport options around Oranmore.

[5] Health in Ireland. Key Trends 2011. Department of Health.

4.5.3 Evolution of Populations and Human health in the absence of the LAP

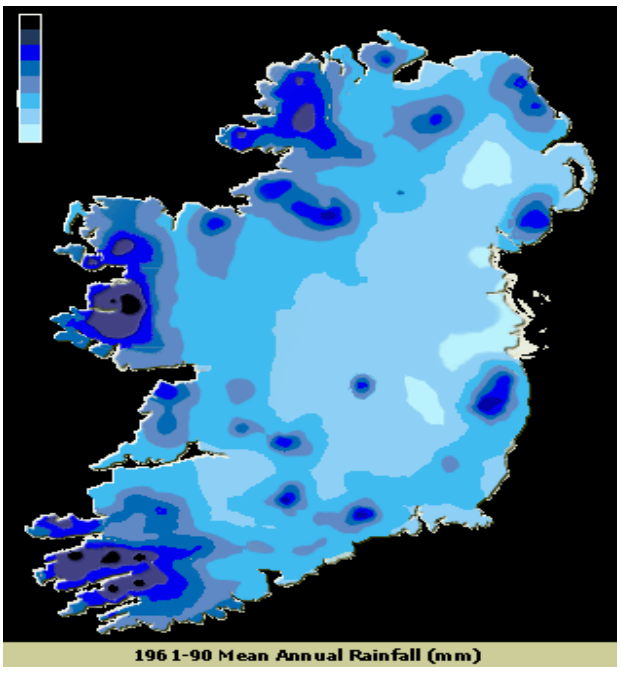
The Core Strategy of the Galway County Development Plan has identified a target population growth of up to 1,130 persons for Oranmore to 2015, which results in a requirement for 32.6ha of zoned residential. Given the significant growth patterns in Oranmore over the last two Census periods, ensuring appropriate, sustainable settlement patterns including the provision of the necessary planning framework to accommodate educational, community, leisure and recreational facilities to satisfactorily match the level of population growth is a key issue planning for the future of Oranmore. In the absence of a LAP there would be no framework directing developments to appropriate locations and this would have the potential to result in adverse impacts upon environmental components which could negatively affect human health.

4.6 Air Quality and Climate

4.6.1 Climate

Ireland has an abundance of rainfall with low evapotranspiration, high humidity, mild winters (4.5°C) and cool summers (15.5°C) (IFA, 2004). The following map of the country from Met Éireann indicates the high levels of rainfall that the wider West Region receives annually.

Average Rainfall in Ireland (Source: Met Eireann, 2009)



A recent publication from the EPA (2009) 'Climate Change – Refining the Impacts for Ireland' outlines predictions in relation to Irish climate and conditions to the end of this century. Climate change refers to changes in climatic conditions whether through natural variations or as a result of anthropogenic influences.

It is expected that temperature in Ireland will rise, with drier summers, wetter winters and more variable precipitation patterns and temperature in the coming years. It is explained that the changes likely to be experienced are due to the increasing amounts of CO2 and other greenhouse gases in the atmosphere which are continually rising.

It is estimated that global temperature change by 2100 will be 1.8 – 4°C. Mean annual temperatures in Ireland rose by 0.7°C over the past century. It is expected that mean temperatures will rise by 1.4 – 1.8°C by 2050 and by over 2°C by 2100.

Summer and autumn temperatures will warm more quickly than winter and spring. Winter rainfall is projected to increase by 10% by 2050 and 11-17% by 2080. Reductions in summer rainfall of 12-17% by 2050 and 20-28% by 2080 are expected and there will be a likelihood of longer heat waves, fewer days of frost, longer rainfall events in winter and more intense downpours in summer, and increased likelihood of summer drought (EPA, 2009).

All developments, agriculture, energy generation, industry and commercial activity and waste generation contribute emissions to air and greenhouse gas (GHG) emissions; however the

emission of pollutants from vehicles is one of the main threats to air quality in Ireland and contributes significantly to the increase of green house gases. Under the Kyoto Protocol Ireland agreed to a target of limiting its greenhouse gas emissions to 13% above 1990 levels by the first commitment period 2008 – 2012 as part of its contribution to the overall EU target.

The 'National Climate Change Strategy 2007-2012' builds on the Government's commitment to sustainable development as outlined in 'Towards 2016' and the 'National Development Plan 2007-2013' and is one of a number of inter-related Government initiatives that will address energy and climate change issues. It sets targets in relation to: energy supply; transport; residential; industry, commercial and services; agriculture, land-use and forestry; waste; public sector; cross sectoral; adaptation to climate change; and implementation, reporting and review.

The National Climate Change Strategy states that 'Local authorities can have a significant influence over emissions in their local areas, both directly in relation to reducing emissions through their own energy use and procurement activities, in raising awareness and stimulating action in local communities, and indirectly through the exercise of their housing, planning and other statutory functions'.

4.6.2 Air Quality Standards

Air quality standards are based on:

- EPA Act 1992;
- (Ambient Air Quality Assessment and Management) Regulations 1999;
- Air Quality Standards Regulations 2002;
- Ozone Regulations 2004 (DoEHLG, 2004) which correspond to EC Directives which came into effect in 2005; and
- Arsenic, Cadmium, Mercury, Nickel and Polycyclic Aromatic Hydrocarbons in Ambient Air Regulations 2009 which transposed European Directive 2004/107/EC into Irish law.

Air quality analysis is based on measurements of particulate matter, ozone, NOx, SO2, lead, CO and benzene (EPA, 2007). The 'Clean Air for Europe Directive 2008/50/EC' replaces the 'Air Framework Directive' and first three daughter Directives. The following emissions/ pollutants have implications for both human health and the environment:

The following information is sourced from EPA (2008) *Air Quality in Ireland 2007 – Key Indicators of Ambient Air* Quality.

- **Sulphur Dioxide** (SO2) is formed when fuel (mainly coal and oil) containing sulphur is burned at power plants and homes etc. Depending on concentrations, the gas can have health implications for asthmatics, can aggravate existing cardiovascular disease, respiratory illness and alter the lungs' defences. Sulphur dioxide and nitrogen oxides are the major precursors to acidic deposition (acid rain), which is associated with the acidification of soils, lakes and streams and the accelerated corrosion of buildings and
- **Oxides of Nitrogen** (NOx) include two pollutants nitric oxide (NO) and nitrogen dioxide (NO2). Power-generation plants and motor vehicles are the principal sources through high temperature combustion. It contributes to the formation of acid rain and is also a recognised ozone precursor. Short term exposure to NO2 is associated with reduced lung function and airway responsiveness and increased reactivity to natural allergens. Long term exposure is associated with increased risk of respiratory infection in children (EPA, 2007, p. 4).

- **Particulate Matter35** (PM10) is derived from the combustion of solid fuels and road traffic, in particular emissions from diesel engines. Other particulates include dust from roads, industrial emissions and natural substances such as windblown sea salt. The matter is very small and can penetrate deep into the respiratory tract and increase the risk, frequency and severity of respiratory and cardiopulmonary disorders (EPA, 2007, p. 6).
- **Black Smoke** consists of fine particles suspended in air which mainly arise from the incomplete burning of fossil fuels, such as coal, oil and peat, in domestic, industrial or transport sectors. Open fires in dwelling houses are a major source of the smoke. The particulates affect the respiratory system and remain there for long periods of time (EPA, 2007, p. 8).
- **Airborne Lead** (Pb) levels have dramatically reduced since the introduction of lead-free petrol. Excessive exposure to lead may cause neurological impairments, cause damage to the nervous system of foetuses and young children. It may be a factor in high blood pressure and heart disease; and it can also be deposited on the leaves of plants, presenting a hazard, through ingestion, to grazing animals and subsequently humans.
- Road traffic is the major source of **Benzene** (C_6H_6) in Ireland. Benzene is emitted from burning coal and oil, petrol services stations, motor-vehicle exhaust and cigarette smoke. Acute (short-term) inhalation exposure may cause drowsiness, dizziness, headaches, as well as eye, skin and respiratory tract irritation and, at high levels, unconsciousness. Chronic (long-term) inhalation has caused various disorders in the blood and is also a carcinogen (EPA, 2007, p.12).
- **Carbon Monoxide** (CO) is a colourless and odourless gas, formed when carbon in fuel is not burned completely. It is a component of motor-vehicle exhaust, which accounts for most of the CO emissions nationwide and concentrations are generally higher in areas with heavy traffic congestion. Studies have found that populations who live in areas with polluted air, containing high levels of combustion-derived nanoparticles (fine particulate matter), are more likely to suffer from respiratory and cardiovascular diseases. It reduces oxygen delivery to the body's organs and tissue and is a serious health threat to suffers of cardiovascular disease. It can be poisonous and result in visual impairment, reduced work capacity, reduced manual dexterity; poor learning ability and difficulty in performing complex tasks are all associated with exposure to elevated CO levels (EPA, 2007, p.14).
- **Ground-level Ozone** is a secondary pollutant formed from the interaction of NOx, CO and various volative organic compounds (VOCs) in the presence of sunlight. It is present in air masses and is transported from Atlantic and European regions. It occurs naturally in the stratosphere and provides a protective layer high above the Earth which filters dangerous UV radiation. Higher concentrations of ozone in the air have adverse implications for human health with potential to affect the respiratory system, crops and other vegetation (EPA, 2007, p.16)
- An EPA (2007) Report 'Dioxin Levels in the Irish Environment: Fifth Assessment (Summer 2007) Based on Levels in Cow's Milk' indicates that **dioxin levels** are below EU limits. Dioxins are of toxicological significance and are sourced from accidental fires, burning of household waste, cement kilns, copper production, forest fires, incineration, production of steel, traffic etc.

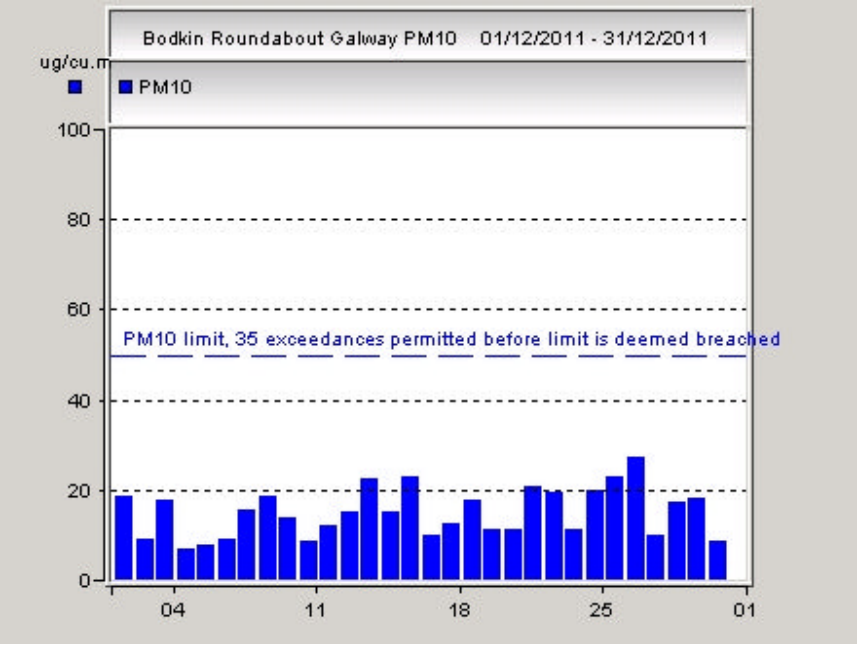
EPA Air Quality Zones

The Air Framework Directive 96/62/EC (CEC, 1996) requires that member states divide their territory into zones for the assessment and management of air quality. There are four zones identified in Ireland. 'Zone A' relates to Dublin and 'Zone B' relates to Cork. Galway City is

located in 'Zone C' (one of the 15 biggest towns with population greater than 15,000) and the majority of the 'Zone D' (remainder of country, includes Oranmore and environs). The air quality for Zone D (July, 2009) is classified as 'Good' (Mace Head, near Carna, Co. Galway).

The nearest monitoring station is Bodkin Road Roundabout in Galway City, approximately 9km distance from Oranmore. Whilst the traffic volumes are likely to be higher in this area, considering Oranmore's position along a number of national routes, and identified areas of local congestion, presenting this information is relevant. The following data is presented for air quality information for Bodkin Roundabout.

Table 4c Bodkin Roundabout PM 10 data January to December 2011.



The PM_{10} limit of 50 ug m^{-3} is deemed breached if more than 35 exceedances have occurred. There have been 4 exceedances at this site to date in 2011.

Table 4d presents information on other available data:

Air Quality Parameters	**Compliance**
Benzo (a) Pyrene	Average Concentration: 0.11 ng m^{-3} Averaging Period: 01/01/11 - 30/06/11.This is below the limit value of 1.0 ng m^{-3}
Heavy Metals	
Nickel	Average Concentration: 2.64 ng m^{-3} Averaging Period: 01/01/11 - 31/07/11.This is below the lower assessment threshold of 10.0 ng m^{-3}
Arsenic	Average Concentration: 0.20 ng m^{-3} Averaging Period: 01/01/11 - 31/07/11.This is below the lower assessment threshold of 2.4 ng m^{-3}

Cadmium	Average Concentration: 0.73 ng m^{-3} Averaging Period: 01/01/11 - 31/07/11.This is below the lower assessment threshold of 2.0 ng m^{-3}
Lead	Average Concentration: 0.002 ug m^{-3} Averaging Period: 01/01/11 - 31/07/11This is below the lower assessment threshold of 0.25 ug $m^{-3.}$

While air quality is generally of good quality in Zone C and D, localised areas of pollution are likely to occur throughout the County, especially in areas of traffic congestion, along national routes intersections and where demolition and construction is taking place. For Oranmore, this is likely to occur around Maree Road and other localised areas of congestion. In addition, there are IPPC licenses facilities concentrated around the Deerpark and Carrowkeel part of the town.

- Hygeia Chemicals Limited
- APW Galway Limited
- Cold Chon (Galway) Ltd.

These are licensed for a range of activities and products but require emission monitoring across a range of parameters. For example, Coldchon (Galway Ltd) is required to monitor Nitrogen Oxide, Sulphur Dioxide and Carbon monoxide; the limits set by the IPPC license were all in compliance for 2011. There are also numerous IPPC related activities within a 15km radius of the plan area.

4.6.3 Key Environmental Problems for Air Quality and climate

There may be localised air pollution from roads and industrial processes which impact on health and quality of life. Transport patterns especially commuter patterns cumulatively impact on air quality with the production of greenhouse gas emissions from traffic. Poor development design results in loss of energy from buildings and energy consumption is higher where there is poor insulation. Climate change has the potential to impact habitats and impact on species distribution. The loss of biodiversity will impact on human health. It will also impact on water resources. Three IPPC licensed sites are located in Oranmore and are discussed further in the Material Assets. Based on information available on the EPA website, including the Annual Environmental Reports for two the IPPC sites, they are in compliance with any air quality emissions limits set under the license.

4.6.4 Evolution of Air Quality and Climate in the absence of the LAP

The Draft LAPs set out a settlement and land use strategy for Oranmore and is allied to the County Galway CDP 2009-2015. The LAP consequently can aid the implementation of objectives of the National Climate Change Strategy and various Directives in relation to energy efficiency, settlement patterns and traffic generation, waste generation etc.
In the absence of the LAP, there is little strategic direction or policy to facilitate alternative transport modes, or energy efficiency measures for the area around Oranmore.

4.7 Cultural Heritage, Archaeology and Built Heritage

Given its strategic coastal location and proximity to the city of Galway, Oranmore supports a rich and diverse cultural heritage.

4.7.1 Archaeological Heritage

County Galway contains significant cultural heritage resources. Built heritage ranges from national monuments to ringforts, stone circles, towerhouses, gates and bridges. There are a range of categories under the National Monuments Acts 1934 to 2004. These are:

- National monuments in the ownership or guardianship of the Minister or a Local Authority or national monuments which are subject to a preservation order;
- Historic monuments or archaeological areas recorded in the Register of Historic Monuments; or
- Monuments or places recorded in the Record of Monuments and Places.

The following Table 4e presents information on known sites for each townland in Oranmore and indicates the range and diversity of archaeological resources. Figure 4l shows the location of SMR within the plan area. Photo 4 shows Oranmore Castle. Please note that the number of monuments in the table below is high, this is due to the GIS disaggregating all sites and monuments, so for example at one grid reference there may be two or three known sites. For example, at Garraun south, there is a field system and a ring fort (presented as separate archaeological sites) but are located on or extremely close to each other. The grid reference for the field system at this location is 127040.226100; the grid reference for the ring fort is 127040.226101.

Table 4e and Figure 4i: Sites and Monuments Record for Oranmore – please note a full and most up to date list is available from National Monuments Service, Department of Arts, Heritage and Gaeltacht.

Townland in Oranmore	SMR Code	Type
Carrowkeel (Dunkellin by.), Garraun south (d Dunkellin by.)	GA03678	ringfort - unclassified
Carrowmoneash	GA10355	house - 18th/19th century
Carrowmoneash	GA04437	well
Cartron (ballintemple ed)	GA04378	ringfort - cashel
Frenchfort	GA04512	fulacht fia
Frenchfort	GA04513	fulacht fia
Frenchfort	GA04399	enclosure
Frenchfort	GA10398	moated site
Garraun south (dunkellin by.)	GA04410	megalithic structure
Garraun south (dunkellin by.)	GA10362	redundant record
Garraun south (dunkellin by.)	GA04502	field system
Garraun south (dunkellin by.)	GA04501	ringfort - unclassified
Garraun south (dunkellin by.)	GA10361	redundant record
Millplot	GA04438	mill - corn
Moneyduff	GA04439	ritual site - holy well
Moneyduff	GA04440	castle - unclassified
Oran beg	GA10380	brewery
Oran more	GA04467	designed landscape - tree-ring
Oran more	GA04469	church
Oran more	GA10246	graveyard

Oran more	GA12607	church
Oran more	GA12608	graveyard
Oran more	GA04465	castle - tower house
Oran more	GA04468	enclosure
Oran more	GA04466	church
Oranhill (dunkellin by.)	GA04461	house - indeterminate date
Oranhill (dunkellin by.)	GA10381	redundant record
Oranhill (dunkellin by.)	GA04463	enclosure
Oranhill (dunkellin by.)	GA04458	ringfort - unclassified
Oranhill (dunkellin by.)	GA04460	souterrain
Oranhill (dunkellin by.)	GA04459	souterrain
Oranhill (dunkellin by.)	GA04464	house - indeterminate date
Oranhill (dunkellin by.)	GA04462	burial mound

Photo 4: Oranmore Castle

4.7.2 Architectural Heritage

The Planning and Development Act (2000) allows for the listing of important structures in County Development Plans in order to provide protection to these structures which must be of special architectural, historical, archaeological, artistic, cultural, scientific, social or technical interest. Details of protected structures are entered by the authority in its Record of Protected Structures, which is part of the Development Plan. Figure 4m shows protected structures within

the town's functional area. The following table presents information on type of protected structure found within the plan area (17 in total). Photos 5 and 6 below show two streetscapes in Oranmore that include vernacular architecture styles.

Photos 5 and 6. Streetscapes of Oranmore

Table 4f: Record of Protected Structures within Oranmore Town Boundary

Number, Name and townland	Description
920 **Roseville House** Moneyduff	Semi-detached 3 bay, 2 storey house, c.1860 with advanced central bay. 2 bay, 2 storey gable fronted extension to side, c. 1990
921 **Thatched Cottage** Oranhill	Detached 4 Bay, single storey with dormer attic thatched cottage, c. 1825
922 **Thatched Cottage** Oranhill	Semi-detached 3 bay, single storey, c.1825 thatched cottage, with extension to left.
923 **Cottage** Moneyduff	Detached 2 bay, 2 storey cottage, c.1860 renovated c. 1995, with single storey extension to rear
924 **Oranmore School House** Oranhill	Detached 3 bay, 2 storey former schoolhouse, c. 1900, with exterior flight of steps. Renovated c.1990 with extension to rear.
925 **Convent** Oranmore	7 bay, 3 storey convent building, c.1885 with c. 1950 extension
926 **Convent School House** Oranmore	Detached 9 bay, single storey former school house,c.1885.
927 **Oranmore Railway Station** Carrowmoneash	Detached 3 bay, single storey L plan former railway station, c. 1851 with cut stone platform to side
928 **The Olde Brewery** Oranmore	Detached 6 bay, 2 storey public house, originally 2 separate buildings c.1800
929 **House** Oranmore	Detached 3 bay, 2 storey house,c. 1880.
930 **Graveyards** Oranmore	Graveyard on site of former church;with boundary wall enclosing grave markers of various designs.
931 **House** Innplot	Semi-detached 2 bay, 2 storey house,c.1875.
932 **Liam Mellows Monument** Oranmore	Carved stone statue of Liam Mellows on plinth, commemorating 1916.
240 **Oranmore Library** Oranmore	Gothic style cruciform plan church, dated 1808. Altered c 1885, gable belfry added and some window opes altered. The facade is rendered and has stone dressings. The interior has unusual roof structures and gallery. Extensively renovated c. 1998 - 2000, to accommodate community facility, retaining interior features. Set within graveyard with numerous gravestones. Ashlar gate piers and iron gates.
241 **Oranmore Castle** Oranmore	Square tower house, c. 1450, with advanced bay on left. Re-roofed, restored and adjoining three-bay, two-storey house with connect ing single-storey corridor built c1940. Set on shoreline with and including quay and private jetty.
239 **McDonaghs Pub**	End-of-terrace seven-bay single-storey dormer attic public house, c. 1840, with deep reed thatch, carried over dormer windows, ground floor refenestrated c. 1985.
918 **Oranmore Lodge Hotel** Carrowmoneash	Originally detached 3 bay single storey with former attic house, c.1860. Now extended to each side, housing/hotel

Finally, legislation is provided for Architectural Conservation Areas (ACA). ACAs may be used to protect the following:

a) Groups of structures of distinctiveness or visual richness or historical importance;

b) The setting and exterior appearance of structures that are of special interest, but the interiors of which do not merit protection;
c) The setting of a Protected Structure where this is more extensive than its curtilage;
d) Designed landscapes where these contain groups of structures as in, for example, urban parks, the former demesnes of country houses and groupings of archaeological or industrial remains;
e) Groups of structures which form dispersed but unified entities but which are not within the attendant grounds of a single dominant Protected Structure.

The centre of Oranmore is designated as an ACA and this covers an area of 8.4 hectares.

Works materially affecting the character of a protected structure or to the exterior of a building/structure within an ACA require planning permission. Buildings of local significance which retain traditional features also contribute to the local distinctiveness and identity. Many sites and structures can be afforded dual protection under the National Monuments (Amendment) Acts and the Planning Legislation. However, there are no national monuments within the plan area.

4.7.3 Key Environmental Problems

Archeology

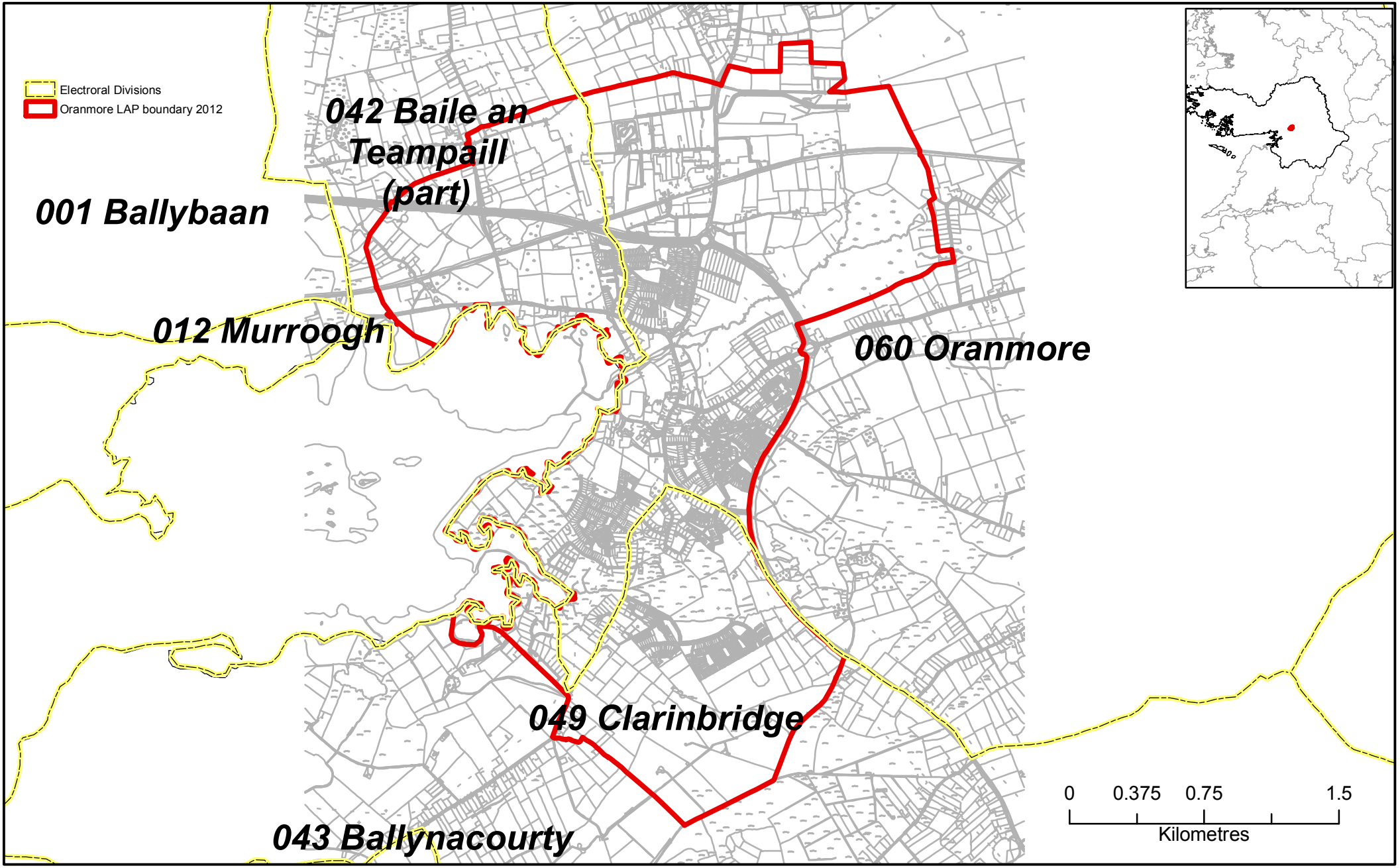
The archaeological and architectural heritage of the area is afforded protection through legislation. However, the cultural heritage of the town can still be impacted upon through development. Development on sites or land adjacent to protected sites can impact upon the context, if not mitigated. Previously unknown archaeology can be damaged as a result of development.

Architectural Heritage

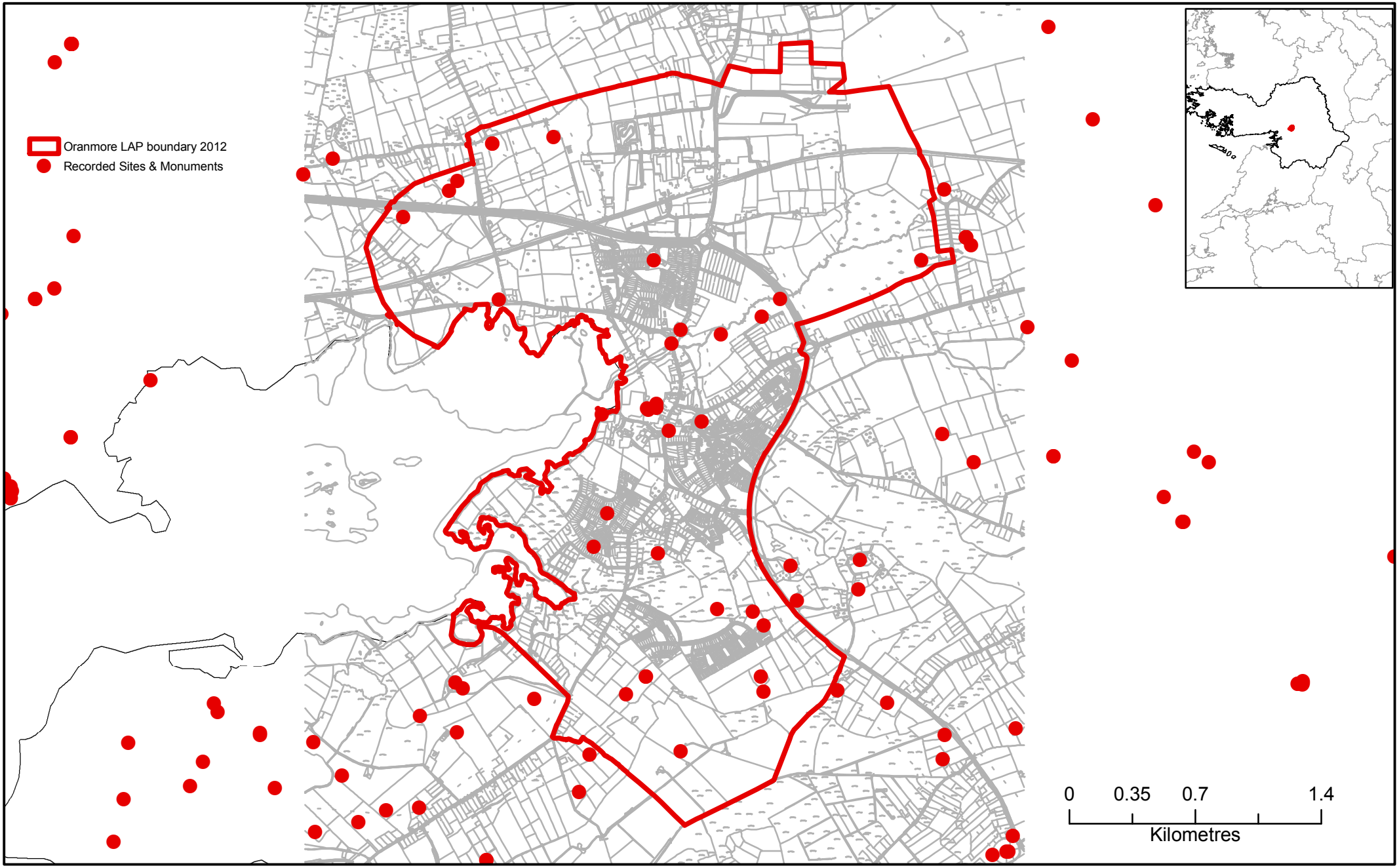
The setting of ACAs and protected structures is another consideration and insensitive or inappropriate developments that negatively impact on these resources may be another potential threat. Conversely promoting the maintenance and viability of older structures can present a challenge and ensuring their continued use as functioning buildings in an important consideration.

4.7.4 Evolution of Cultural Heritage in the absence of the LAP

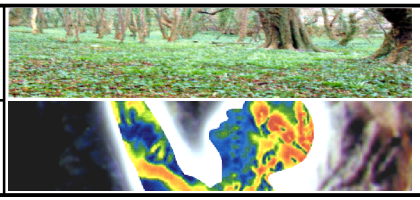
In the absence of a LAP, development would have no guidance as to where to be directed and planning applications would continue to be assessed on an individual basis with cultural heritage protected under a number of strategic actions relating to archaeological and architectural protection. Cultural heritage would be impacted upon by the nature of permitted applications.



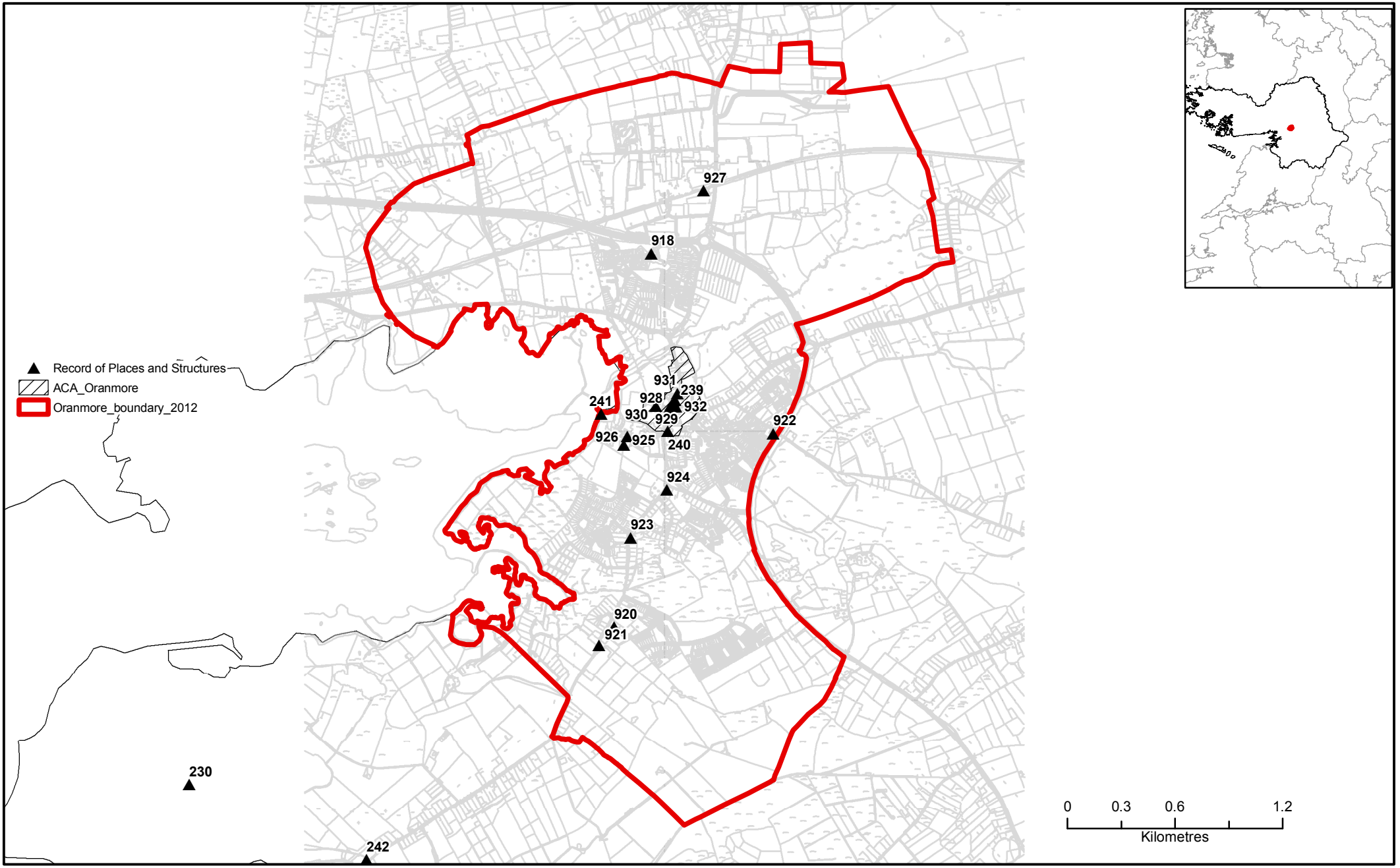
DATE: 12/3/2012	SCALE: 1:30,000	**FIGURE 4k: ELECTORAL DIVISIONS**	**minogue & associates** Tuamgraney, County Clare T: 061 640667 **ERA-MAPTEC** 40 Lwr. O'Connell St. Dublin 1 www.era.ie
REF:	SIZE: A4	Galway County Council Oranmore Local Area Plan SEA	
DRAWN: MFC	APPROVED: RM		



DATE: 12/3/2012	SCALE: 1:30,000	**FIGURE 4l: SITES AND MONUMENTS**	
REF:	SIZE: A4	Galway County Council Oranmore Local Area Plan SEA	
DRAWN: MFC	APPROVED: RM		



minogue & associates
Tuamgraney, County Clare
T: 061 640667
ERA-MAPTEC
40 Lwr. O'Connell St.
Dublin 1 www.era.ie



DATE: 12/3/2012	SCALE: 1:30,000	**FIGURE 4m: PROTECTED STRUCTURES**	**minogue & associates** Tuamgraney, County Clare T: 061 640667 **ERA-MAPTEC** 40 Lwr. O'Connell St. Dublin 1 www.era.ie
REF:	SIZE: A4	Galway County Council Oranmore Local Area Plan SEA	
DRAWN: MFC	APPROVED: RM		

4.8 Landscape

Landscapes are areas which are perceived by people and are made up of a number of layers: landform, which results from geological and geomorphological history; landcover, which includes vegetation, water, human settlements, and; human values, which are a result of historical, cultural, religious and other understandings and interactions with landform and landcover.

Galway County Council's (2003) Landscape Character Assessment classifies landscapes according to their sensitivity, their ability to accommodate change or intervention without suffering unacceptable effects to character and values. The most sensitive landscapes are 'Class 5 - Unique', 'Class 4- Special' and 'Class 3- High' while landscapes of lesser sensitivity are 'Class 2- Moderate' and 'Class 1- Low'. Figure 4m shows the Landscape Character Areas, designated views and viewsheds from the LCA; whilst Figure 4n shows the landscape sensitivity for Oranmore and environs. Figure 4p shows landscape designations (views and routes) within a 30km buffer of the town area, this encompasses Counties Galway and Clare.

The Landscape Character Assessment for Oranmore situates the town principally in Landscape Character Area Number Area 13**-East Galway Bay (Oranmore to Kinvara Bay and inland to N18 road).** The LCA provides the following description of this LCA:

'The coastline is intimate and sinuous with many sheltered inlets. The coast is scenic and relatively undeveloped. The landscape adjacent to the coast comprises pastureland in large fields bordered by mature hedgerows. The existing vegetation screens the coastline from roads and properties inland of the N18 road'

Advice for this LCA in terms of design and planning are as follows:

- The sinuous coastline is scenic and is relatively undeveloped. It is therefore highly sensitive. Future development should therefore be located further inland in order to protect this coastline and the panoramic views to be gained from it.
- In general, groups of dwellings or holiday homes should be located further inland within the area indicated as class 3 on the landscape sensitivity map. These developments are to be located close to existing settlements. As in other areas, advantage is to be taken of both landform and existing vegetation to carefully conceal these developments from view.

See Photo 7 below for photo of this LCA from Oranmore.

Photo 7 View across inlet of Galway Bay in LCA 13

The northern part of the town grades into LCA 3 -East central Galway (Oranmore, Ballinasloe to Portumna). The landscape character is described thus:
'The landscape is flat, coarse grassland, occasional clumps of coniferous forestry between 1-3 km² in size, fields defined principally by stone walls. There are no areas of particular scenic value although the stone walls are quite distinct.'

Advice for this LCA in terms of design and planning are as follows:

- The landscape is flat therefore height restrictions should apply to the built environment to avoid long distant visual intrusion.
- Development is prohibited in the areas (primarily bogs) that carry a nature designation.
- Development in the class 1 area should be either set close to existing medium sized blocks of forestry or screened by either new commercial forestry or mixed deciduous woodland, both of which are present in this area.
- Due to the rural nature of the area scattered development which cannot be screened by forestry should be of natural stone or rendered finish of a colour that is sympathetic to the colours of the landscape. Stonewalls are a distinct element of the character of this area and should be constructed to match traditional style around new development.

Photo 8. Garraun townland in LCA 3

A small part of eastern Oranmore lies within LCA 4 - **Area 4-Southeast Galway.** This LCA is described as follows**: (Clarinbridge to Gort).** The landscape is undulating scrubby grassland, bound by field hedgerows without mature trees. The landscape is scenic without being remarkable and there are long distance views of the Slieve Aughty Mountains to the east.

Landscape advice for this LCA is as follows:
Development is prohibited in the areas that carry a nature designation. Development is permitted in the class 2 area. Due to the undulating nature of the landscape, development of small-scale buildings will be easily accommodated and naturally screened in the natural hollows. Larger development may require earthworks (cut and fill) and the associated flattening of areas may alter the intimate character in existence.

There is little coniferous or deciduous forestry in this area therefore large scale screening by forestry is not appropriate, screening should be achieved using the natural topography.
Development should not block important long distant views of the Burren or Slieve Aughty Mountains or local focal points as these views are of regional landscape value.
New development should be surrounded by hedgerow to reinstate sections lost during construction and to continue the ecological corridor effect.

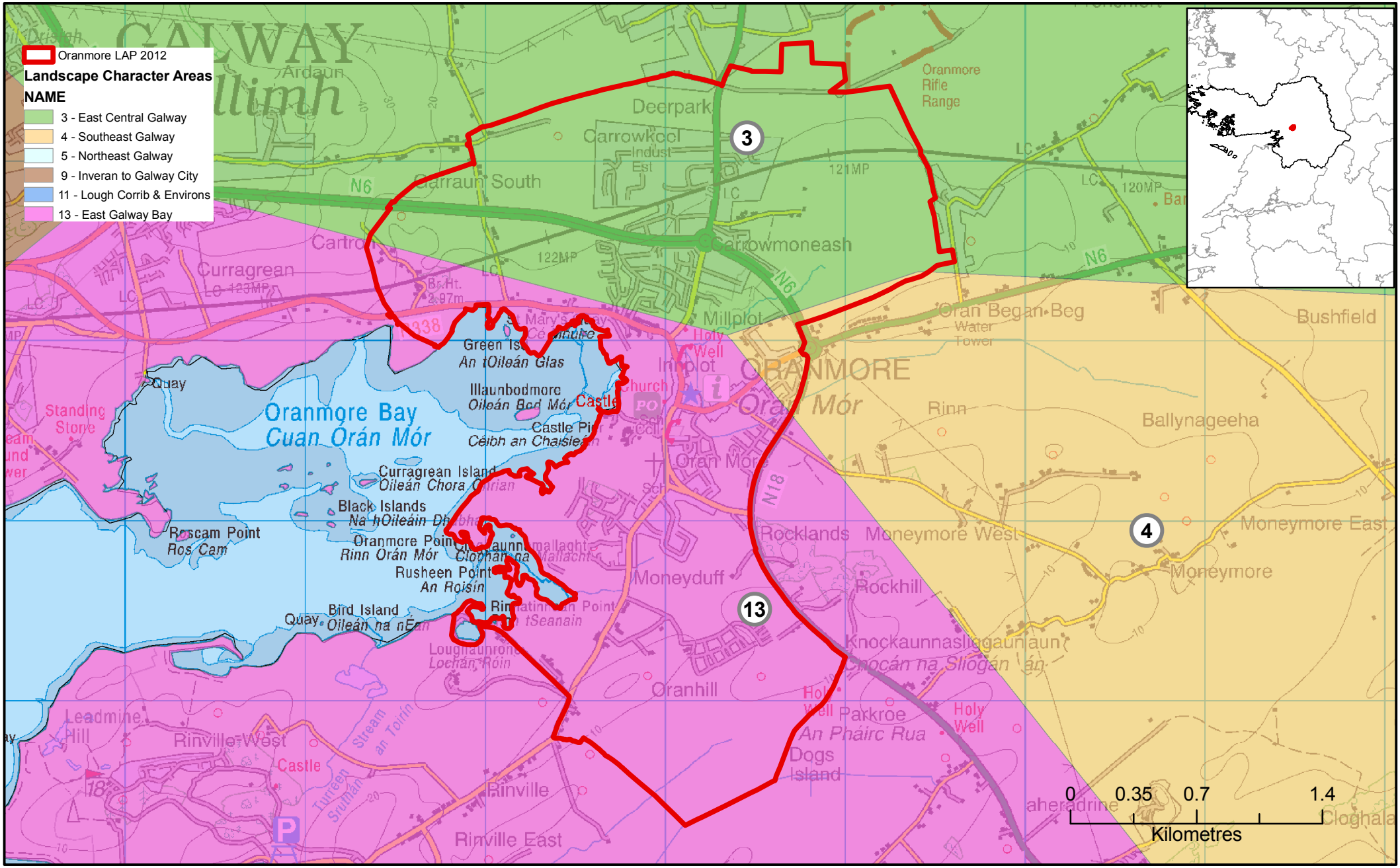
4.8.1 Key Environmental Problems for Landscape

Potential issues with regard to the landscape in Oranmore include developments which do not reflect local landscape character, insensitive siting of development and limited screening opportunities along the coastline. The pace and expansion of Oranmore has been significant and combined with some large infrastructural transport projects, the town and environs has seen significant change.

In addition, the largely lowlying coastal nature of the landscape in this area increases overall visual sensitivity to large developments such as infrastructural projects.

4.8.2 Evolution of Landscape in the absence of the LAP

It the absence of the LAP there would be no framework directing developments to appropriate locations in and around Oranmore. In addition, the policies around cultural heritage, landuse and urban design in the new LAP contribute to an overall enhancement and stronger protection of the landscape resources around Oranmore.



DATE: 12/3/2012	SCALE: 1:30,000	**FIGURE 4n LANDSCAPE CHARACTER AREAS**	
REF:	SIZE: A4	Galway County Council Oranmore Local Area Plan SEA	
DRAWN: MFC	APPROVED: RM		

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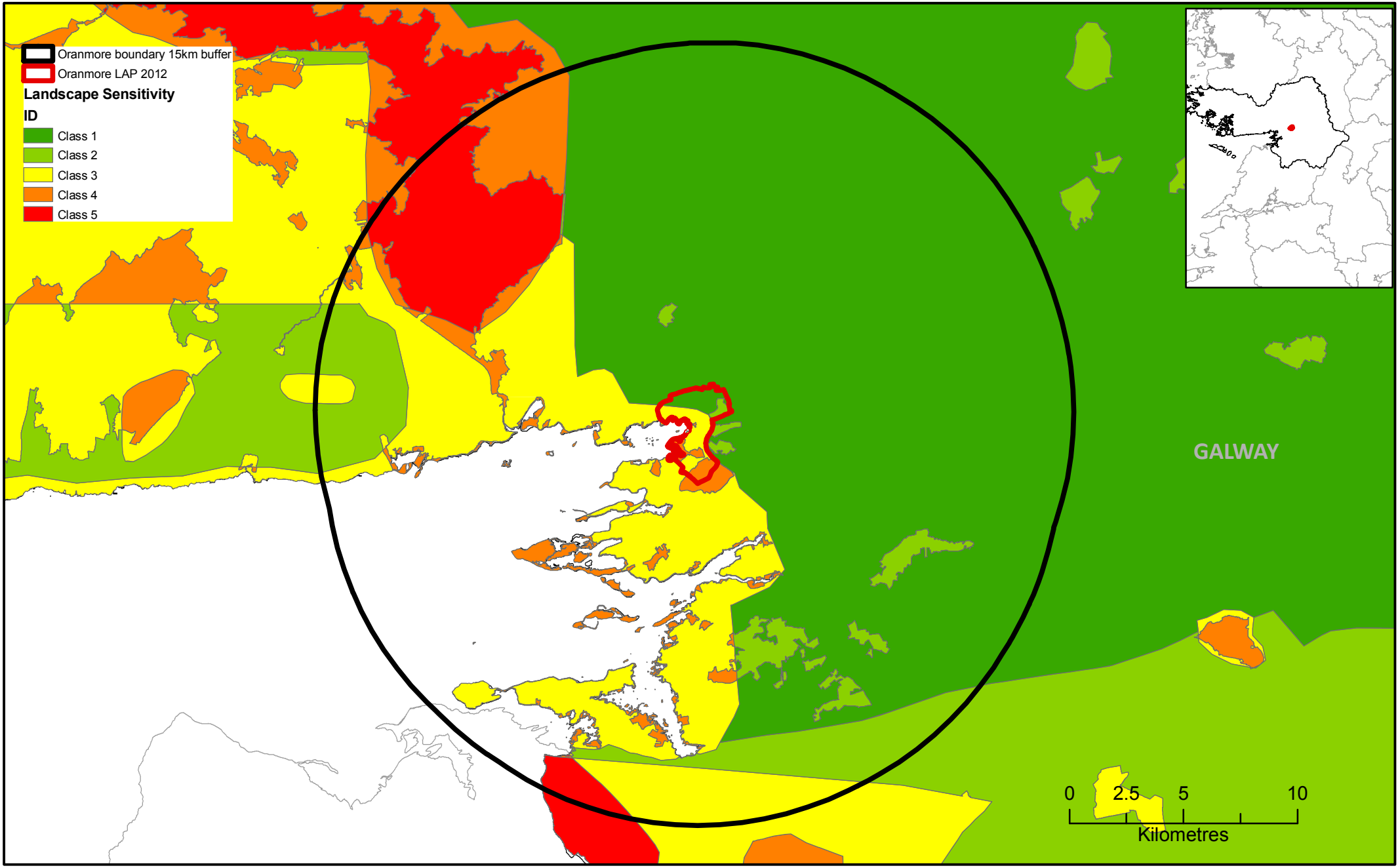

DATE: 12/3/2012	SCALE: 1:200,000	**FIGURE 4o LANDSCAPE SENSITIVITY**	
REF:	SIZE: A4	Galway County Council Oranmore Local Area Plan SEA	
DRAWN: MFC	APPROVED: RM		

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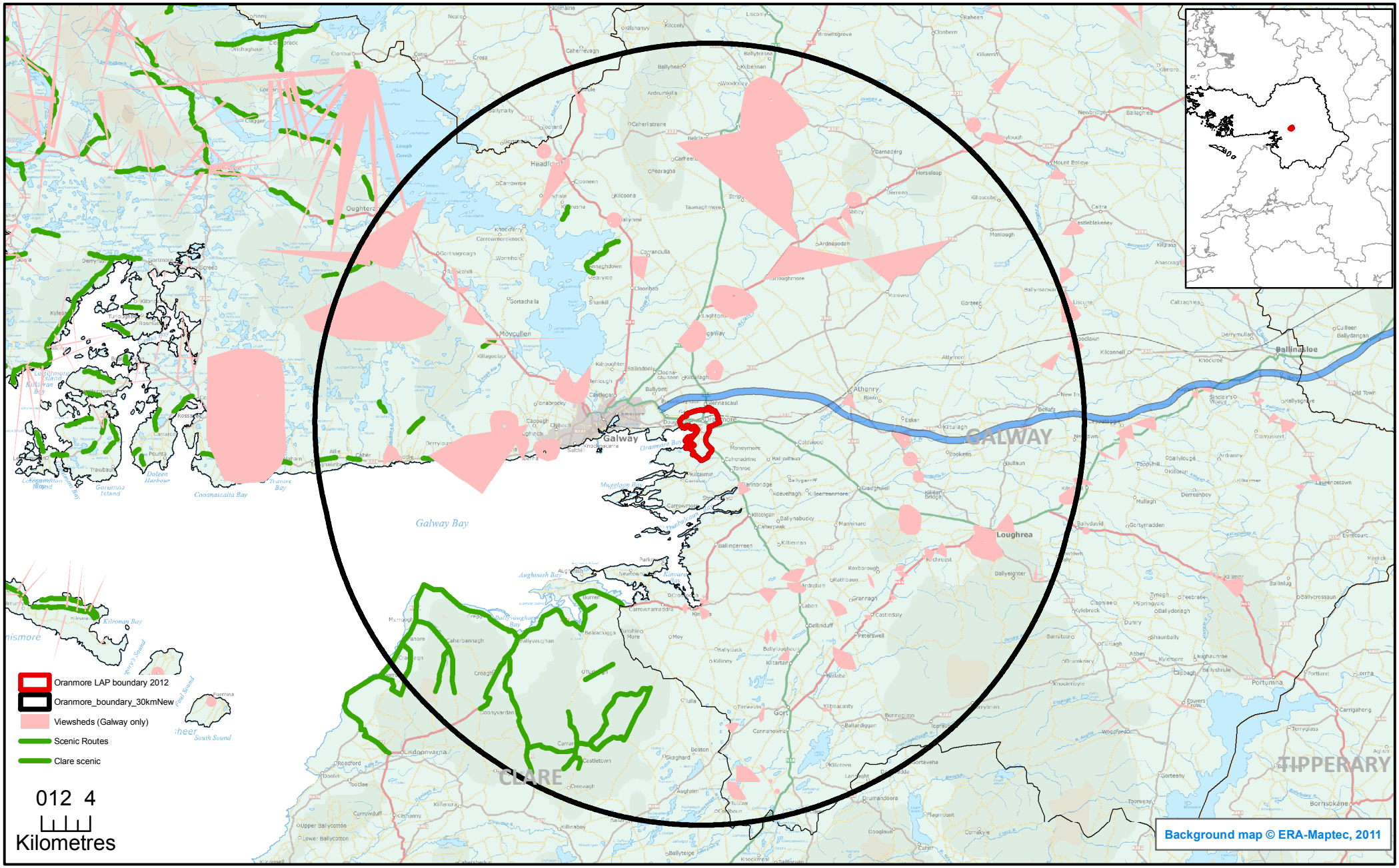


DATE: 12/3/2012	*SCALE: 1:200,000*	**FIGURE 4p: SCENIC ROUTES AND VIEWS**	**minogue & associates** Tuamgraney, County Clare T: 061 640667 **ERA-MAPTEC** 40 Lwr. O'Connell St. Dublin 1 www.era.ie
REF:	*SIZE: A4*	Galway County Council Oranmore Local Area Plan SEA	
DRAWN: MFC	*APPROVED: RM*		

4.9 Material Assets

The EPA SEA Process Draft Checklist (2008) defines material assets as the critical infrastructure essential for the functioning of society such as: electricity generation and distribution, water supply, wastewater treatment, transportation, etc. Thus this section will discuss the following;

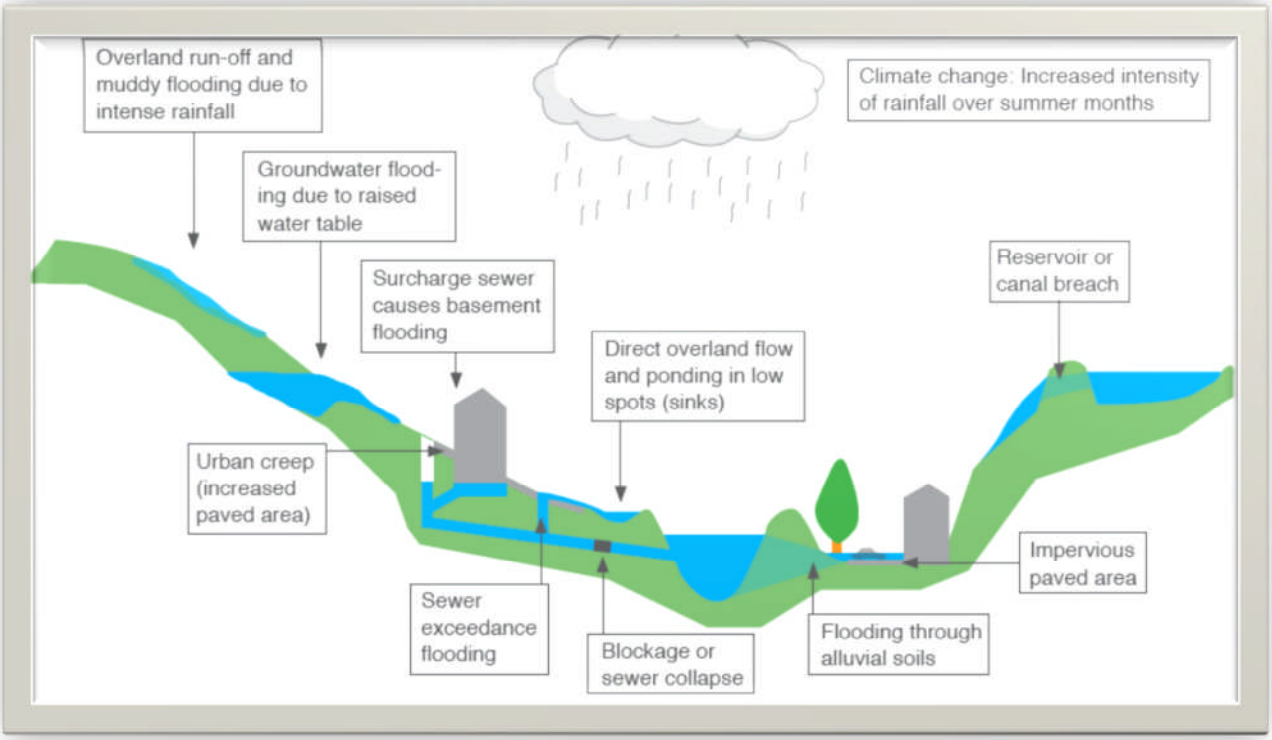
- Flooding
- Integrated Pollution Prevention Control (IPPC) Licensed Facilities, Waste Licensed Facilities and Seveso II Sites
- Water Services
- Transport
- Noise
- Waste Management

4.9.1 Flooding

The Planning System and Flood Risk Management Guidelines (OPW & DOEHLG, 2009) states that:

'Flooding is a natural process that can happen at any time in a wide variety of locations. Flooding from the sea and from rivers is probably best known but prolonged and intense rainfall can also cause sewer flooding, overland flow and groundwater flooding. When it impacts on human activities, it can threaten people, their property and the environment. Assets at risk can include housing, transport and public service infrastructure, and commercial, industrial and agricultural enterprises. The health, social, economic and environmental impacts of flooding can be significant and have a wide community impact.
The frequency, pattern and severity of flooding are expected to increase as a result of climate change. Development can also exacerbate the problems of flooding by accelerating and increasing surface water run-off, altering watercourses and removing floodplain storage.'

Box B below shows the common causes of flooding.



Box B: Sources and causes of flooding[1]

Whilst the causes of flooding (high sea levels, heavy rain) are difficult to control, the management of this risk and exposure to severity and extent of flooding can be addressed through application of flood risk management.

Oranmore supports a number of natural features that increase overall flood risk and these include:

a. Oranmore's coastal location and exposure to coastal flooding which is caused by higher sea levels than normal, largely as a result of storm surges, resulting in the sea overflowing onto the land.
b. the dominance of limestone bedrock in the area; commonly groundwater flooding typically occurs in areas underlain by limestone or other aquifers. It tends to be highly localised of long duration and generally results in significant damage to property. This represents a major issue for the West Region and this is particularly prevalent in South Galway[2].

The Office of Public Works (OPW) monitors flooding throughout Ireland and records significant flood events. In addition, as part of the preparation of the Draft Regional Planning Guidelines 2010 – 2022, a Regional Flood Risk Appraisal was also prepared in order to:

- Identify strategic flood risk and spatial planning issues for the area covered by the RPGs;

[1] Source: Planning System and Flood Risk Management, 2009.
[2] Source: Regional Flood Risk Appraisal West Regional Authority

- Set out a policy framework for development plans and local area plans of planning authorities to address the flood risk issues arising at a regional level; and
- Outline, with due consideration of the national flood risk assessment and management planning programme, any further requirements for flood risk assessments and/or studies.

It also sets out a policy framework for Development Plans and Local Area Plans by 'signposting' provisional risk areas in the larger urban centres of the West Region (those identified with population targets) and which are identified in current work on Preliminary Flood Risk Assessment (PFRA) by the OPW. This flags the need for preparing 'Strategic Flood Risk Assessments' at local authority level and will require closer analysis and appropriate planning policy at a lower level in the plan-making process.

The Preliminary Flood Risk Assessment prepared by the OPW for the area has been supplemented by additional Flood Risk assessment by consultants on behalf of Galway County Council and a verification exercise was carried out with Local Area Engineering staff on recent /recorded flood events to produce a Draft Flood Risk Management Map for the LAP Area. Figure 4o shows the most up to date information on flood risk in the plan area. It is noted that areas adjacent to Frenchfort River, Cregganna Marsh SPA, wetlands, coastal and low-lying areas and pockets throughout the town are subject to flooding within an indicative Flood Zone. However, this analysis is not exhaustive and areas not mentioned here could still be at risk of flooding. Where potential risk of flooding exists, the OPW Flood Risk Management approach should be considered in consultation with the OPW.

The 2009 Planning Guidelines provide information and guidance on planning implications arising from different flood risk zones and these are shown below. Clearly these have implications for land use zonings within the plan area, and these are discussed in more detail in Chapter Seven and Eight of this ER.

Flood zones are geographical areas within which the likelihood of flooding is in a particular range and they are a key tool in flood risk management within the planning process as well as in flood warning and emergency planning.

There are three types or levels of flood zones defined for the purposes of these Guidelines:
Flood Zone A – where the probability of flooding from rivers and the sea is highest (greater than 1% or 1 in 100 for river flooding or 0.5% or 1 in 200 for coastal flooding);
Flood Zone B – where the probability of flooding from rivers and the sea is moderate (between 0.1% or 1 in 1000 and 1% or 1 in 100 for river flooding and between 0.1% or 1 in 1000 year and 0.5% or 1 in 200 for coastal flooding);
and
Flood Zone C – where the probability of flooding from rivers and the sea is low (less than 0.1% or 1 in 1000 for both river and coastal flooding). Flood Zone C covers all areas of the plan which are not in zones A or B.

Zone A - High probability of flooding. Most types of development would be considered inappropriate in this zone. Development in this zone should be avoided and/or only considered in exceptional circumstances, such as in city and town centres, or in the case of essential infrastructure that cannot be located elsewhere, and where the Justification Test has been applied. Only water-compatible development, such as docks and marinas, dockside activities that require a waterside location, amenity open space, outdoor sports and recreation, would be considered appropriate in this zone.

Zone B - Moderate probability of flooding. Highly vulnerable development, such as hospitals, residential care homes, Garda, fire and ambulance stations, dwelling houses and primary strategic transport and utilities infrastructure, would generally be considered inappropriate in this zone, unless the requirements of the Justification Test can be met. Less vulnerable development, such as retail, commercial and industrial uses, sites used for short-let for caravans and camping and secondary strategic transport and utilities infrastructure, and water-compatible development might be considered appropriate in this zone. In general however, less vulnerable development should only be considered in this zone if adequate lands or sites are not available in Zone C and subject to a flood risk assessment to the appropriate level of detail to demonstrate that flood risk to and from the development can or will adequately be managed.

Zone C - Low probability of flooding. Development in this zone is appropriate from a flood risk perspective (subject to assessment of flood hazard from sources other than rivers and the coast) but would need to meet the normal range of other proper planning and sustainable development considerations.

4.9.2 Integrated Pollution Prevention Control (IPPC) Licensed Facilities, Waste Licensed Facilities and Seveso II Sites

Such facilities are licensed by the EPA who require emission standards (air, water, land, waste, energy) to be achieved and ensure that there will not be a significant adverse impact on the environment. There are 11 IPPC Licensed facilities in County Galway; IPPC licensed facilities within Oranmore include;

- Hygeia Chemicals manufacturers and distributes agrochemicals. Production operations are divided into 5 types including water based products, e.g. Herbicides, water based products including Fungicides and Insecticides', non-water based products including Herbicides, Fungicides and Insecticides, powder products and water based non-Herbicides[3].
- Coldchon (Galway) Ltd. manufactures a range of bitumen emulsions and bitumen additives which is used in road surfacing. The main manufacturing process is the emulsification of bitumen and a boiler oil to produce a bitumen and oil in water emulsion to internal and external (Department of the Environment) specifications. The emulsions are produced by a semibatch milling process in which bitumen, oil and an acidic aqueous emulsifier solution are processed through a colloidal mill.

The control of major accident hazards involving dangerous substances Directive - also referred to as the Seveso II or COMAH Directive - aims to ensure that, at locations where dangerous substances are handled in quantities above specified thresholds. The Directive is transposed into Irish law through the European Communities (control of major accident hazards involving dangerous substances) Regulations 2006 (SI No. 74 of 2006). There are two Seveso II sites within Galway both of which have their locations and buffers in Galway Port and within 15km of the plan area; these include the Topaz and the Leeside Oil Terminal. There is one Seveso Lower Tier site within the plan area, Chemoran, Glenascaul, Oranmore.

Other licenses include those issued by the Local Authority under the Local Government (Water Pollution) Act, 1977 and Amendment Act 1990. Section 4 relates to licenses for control point

[3] IPPC Annual Environmental Report March 2011.

source discharges and section 16 refers to the control and discharge to sewer that might in turn discharge to waters. There are no Section 4 Local Authority Licensed Discharges in the vicinity of Oranmore and one Wastewater Pumping Station that directs wastewater to the treatment plant at Mutton Island in Galway City.

4.9.3 Water Services and Wastewater

The EPA prepares a list of public water supplies where remedial action or management action is required to ensure compliance with Regulations into the future. This list is called the "Remedial Action List for Public Drinking Water Supplies" (RAL). County Galway originally had 34 supplies on this list; this is now reduced to 32. The water supply for Oranmore comes from the Tuam Regional Water Scheme which is undergoing a significant upgrade and capital investment programme. Water for this scheme will continue to be extracted from Lough Corrib to the Luimnagh Water Treatment Plant, where the treatment process produces high quality potable water to the highest modern standards in accordance with EU and National legislation. The treatment process uses clarification followed by filtration, disinfection, pH correction and UV treatment.

Until such time as the East Galway Main Drainage Scheme is constructed and operational, Oranmore is served by the Galway City sewerage system at Mutton Island, a modern wastewater collection and treatment system which complies with the E.U. Urban Waste Water Directive. There are network capacity issues at present and this system has been granted a discharge license approval from the EPA, providing for increased capacity. The discharge license relates to the Galway Agglomeration, including Galway City and areas in the county, namely Oranmore, Barna and Parkmore. A statement of the current population and capacity is provided below and is taken from the EPA Discharge License:

Box C: WWTP Discharge License (D0050-01)

This licence relates to the Galway Agglomeration, which is made up of Galway City and the surrounding areas of Parkmore, Oranmore and Barna. The current population of Galway City is approximately 72,000. Waste water from Galway City is treated in the existing waste water treatment plant (WWTP) on Mutton Island. This WWTP was designed to treat waste water for a population equivalent (PE) of 91,600 persons. The WWTP is a conventional activated sludge plant and provides full secondary treatment to the Agglomerations waste water. The final effluent meets the requirements of the 2001 Urban Waste Water Treatment Regulations. This licence requires Galway City Council to carry out works to upgrade the WWTP to increase its treatment capacity to serve a population equivalent of 170,000 persons. This licence is for the authorisation of the discharge of final treated effluent from the upgraded Mutton Island Waste Water Treatment Plant (WWTP) with a treatment capacity of 170,000 PE.
The main discharge point is located 900m south of Mutton Island. There are 6 secondary discharge points in the Agglomeration network. The licence requires appropriate remedial action, within specified timeframes, to be undertaken in order to address each of the secondary discharges within the agglomeration. This remedial action will ensure that appropriate protection is afforded to the receiving water environment.

In addition, to the WWTP, some properties at the fringes of the town are connected to individual septic tanks or proprietary wastewater treatment systems.

4.9.4 Transport

Road
Oranmore is at the crossroads to numerous important interconnected routes including the dual carriageway/motorway between Dublin and Galway (M6), the N17 north to Sligo and the N18 south to Limerick. The Galway City Outer Bypass has received planning permission for part of the route, whilst the final decision is before the European Commission in relation to the HDA.

The existing M6 runs from Galway City in the west to Kinnegad, County Westmeath in the east, where it joins the existing M4 and continues along this route to Dublin City. The section covered by this scheme in relation to the outer bypass for Galway City is 21.4 kilometres. The Scheme, partly in Galway County and partly in Galway City, extends from the R336 Regional Road west of Galway City and links up with the proposed M6 Galway to Ballinasloe Scheme east of the city.

As noted, Oranmore is a strategic node in the transport operations of the region. This has significant impacts on the local road usage of the town itself. In this regard a Proposed Traffic Management Plan for Oranmore is being prepared. It is envisaged that the plan will be organised in two phases, the first being to tackle the most urgent problems and to solve immediate problems that the village faces everyday including congestion and flow within the core of the village and also the easing of "through traffic" in the village. Measures including parking and minor road modifications will be addressed. The second phase identified will secure the medium and long term traffic management objectives for the village through the completion of infrastructure and key junctions.

It is recommended that both pedestrian and cycle paths are also facilitated within the overall traffic management plan for the town.

Rail
The Galway-Dublin rail route currently passes through Oranmore but there is as yet no facility for a stop. The service runs up to 7 trains daily to/from Dublin with proposals to increase its frequency. Planning permission has been granted for a new railway station at Garraun, to the northwest of the town, as part of the Limerick to Galway Railway project. The works include a new 174m platform, 150 bay car park, equipment room, platform shelter and associated infrastructure including access roads and all required services (gross floor space station services room 20sqm). This is due to be operational by the end of 2012. This will be an addition to the town's transport infrastructure and provide an important potential link to the southern reach of the Ardaun area, an area identified for longer term future strategic growth for both the Galway County and city areas.

Further trains using this route include the early morning and late evening commuter service between Athlone and Galway and the Ennis and Limerick/Ennis Rail link. Photo 9 shows the railway line close to where the new station will be built.

Photo 9. Railway Line at Garraun.

4.9.5 Noise

The Environmental Noise Regulations relate to community or environmental noise, which is classified in the draft International Institute of Noise Control Engineering (I-INCE) publication "A Global Approach to Noise Control Policy" (2006) as;

*'**Community/Environmental Noise***
Unwanted sound in a non-occupational setting, indoors or outdoors, caused by sources over which an individual has little or no control, including sounds produced by neighbours.'

Many different noise sources contribute to community/environmental noise, including:

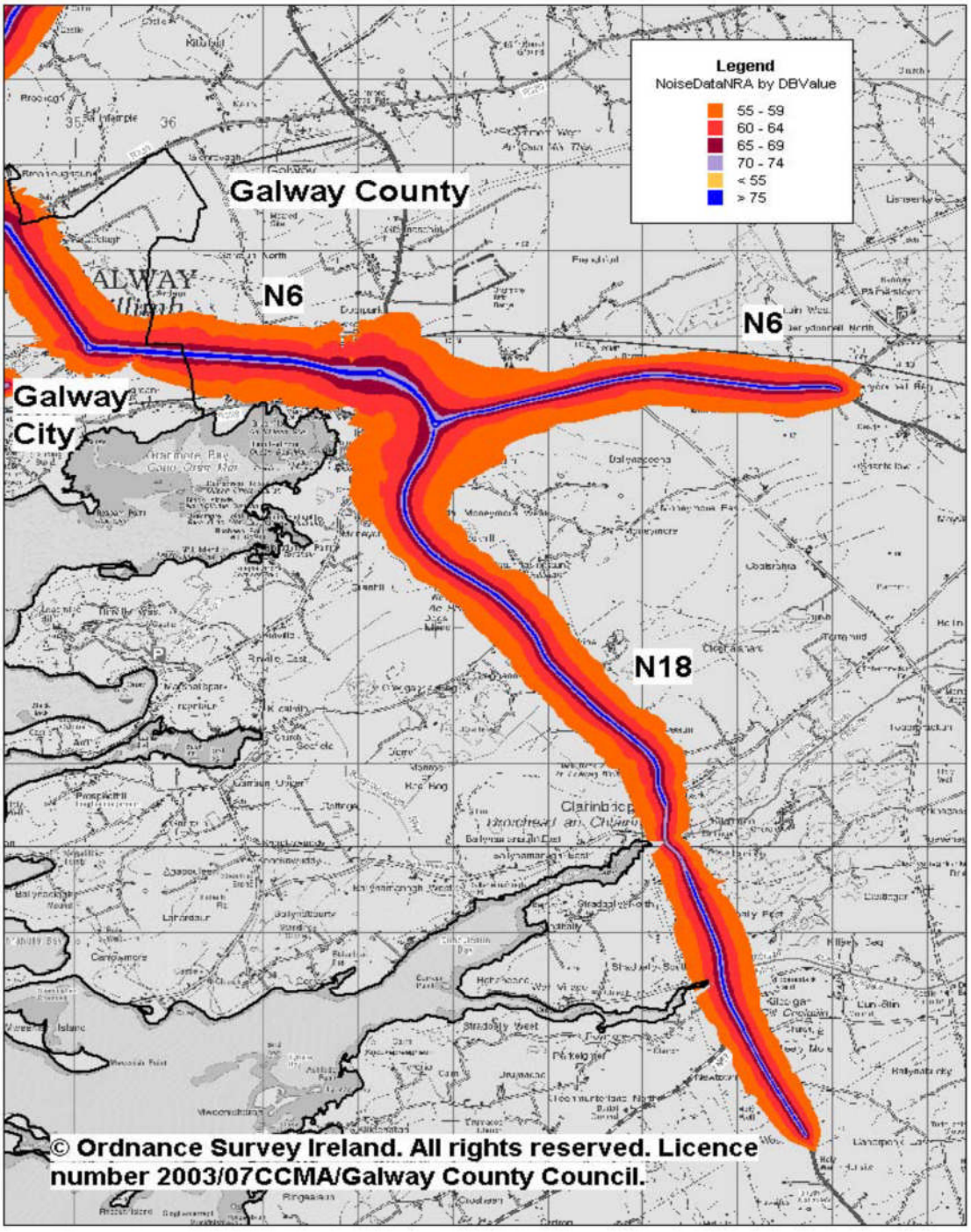
- Roads, railways, airports, industry or recreational activities adjacent to residential properties or noise sensitive premises such as schools or hospitals, or recreational spaces.
- Noisy neighbours, barking dog
- Gardening machinery, construction activities, ice cream vans, street cleaning, delivery vehicles.
- Air-conditioning equipment.
- Public house, nightclubs, restaurants or other recreational activities.
- Industrial operations, workshops and factories.

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

The roads identified as major roads in County Galway are:
• N6 (R446) from its junction with the R348 at Derrydonnell to the Galway City Boundary.
• N6 (R446)Ballinasloe from its junction with the R357 Shannonbridge Road to its junction with the L 4602 Pollboy Road.
• N17 from its junction with the N63 Roscommon Road to the Galway City Boundary.
• N18 from Kilcolgan to its junction with the N6(R446) Dublin Road at Oranmore.
• R336 from Bearna to the Galway City Boundary

Galway City Council produced a Noise Action Plan 2008 – 2013 for the City. The purpose of the Action Plan is to act as a means of managing environmental noise, and to meet the aim of the Directive of preventing, and reducing where necessary, environmental noise through the adoption of action plans. Strategic noise mapping was undertaken in 2007 by the designated noise mapping bodies of the major roads and junctions in the area. Galway County Council also produced a Draft Noise Action Plan for the County (2008) which presents a number of actions and mitigation measures. Figure 4r below show the noise monitoring results for the N18 (Oranmore area) developed for the draft Noise Action Plan.

Figure 4r: Noise Map taken from Noise Action Plan 2008-2014



Lden Contour Plots for N18 & N6 (Excluding N6 Ballinasloe)

4.9.6 Waste Management

The Waste Framework Directive (2008/98/EC) provides for a general framework of waste management requirements and sets the basic waste management definitions for the EU. The EPA National Waste Report 2009 confirms that on average, approximately 65% of waste in Ireland is sent to landfill. This amount of waste can be reduced by prevention, minimisation, reuse and recycling. The Connacht Region Waste Management Replacement Plan 2006-2011 has been developed by the Local Authorities of Galway City and County, Leitrim, Mayo, Roscommon and Sligo to address this issue. The Plan is aimed at securing the best environmental management of waste, including prevention and minimisation where possible and practical. The Plan aims to ensure that waste is used as a resource, resulting in a better solution for the people and the environment in the region.

The 2001 Plan adopted a regional approach to integrated waste management based on the waste hierarchy established in the EU Framework Directive on Waste and set the following targets for 2013 for municipal waste in the Region:

Significant progress has been made towards this target by reaching a municipal recycling rate of 29% in 2004. This can be attributed to the expansion of segregated collection of dry recyclables; provision of additional brings banks and the increased network of recycling centres. The achievements in waste prevention, minimisation and recycling have improved since the appointment of Environmental Awareness Officers by the local authorities.

Oranmore has a Bring Bank Centre located in the main car park next to the parish church. This received a National Tidy Towns Award in 2011 for the 'Best Bring Bank' nationally and regionally. This award is presented to recognise community support in maintaining local brings bank sites and assisting in their general appearance and usage. This initiative highlights the importance of local community and awareness that recycling reduces the use of raw materials, lowers energy costs and results in less waste going to landfill.

Galway County Council also provide home composters and encourage the composting of household organic waste thus reducing need for landfill.

4.9.7 Key Environmental Problems for Material Assets

- Oranmore has been subject to historical flooding in the past and its coastal location and bedrock increase flood risk; however the recent SFRA and application of relevant guidelines will enhance overall flood risk management and avoidance of developments in flood zones within the LAP boundary.

- Potential issues with regard to the material assets in Oranmore include the capacity of wastewater treatment at Mutton Island. Additionally this has implications on any future development, including the provision of residential developments.

- The management of waste and promoting better waste management both in developments and altering people's behavior around waste management and recycling also remains an ongoing issue.

- Oranmore has good public transport links particularly via its railway system; the provision of the railway station should assist in addressing modal shifts in transport patterns and help reduce localised air quality.

4.9.8 Evolution of Material Assets in the absence of the LAP

It the absence of the LAP there would be no framework directing developments to appropriate locations in and around Oranmore. This could result in significant impacts particularly around flooding and damage to human health, biodiversity, water quality and infrastructure.

5 Chapter Five Environmental Protection Objectives

5.1 Introduction

The overall aim of the SEA is to facilitate environmental protection and to allow the integration of environmental considerations into the development of the Draft LAP. To that end, the SEA process assesses the Draft LAP as it evolves in terms of its environmental impacts, positive, negative, neutral, cumulative and synergistic and also in terms of duration i.e.: short, medium, long term, temporary, permanent, and secondary effects. This process highlights how improvements can be integrated into the Draft LAP of Oranmore to increase its environmental performance and maintain environmental resources.

A series of environmental objectives are presented in this chapter and are developed into a monitoring programme in the form of targets and indicators which are presented in more detail in *Chapter Nine Monitoring*.

5.2 Environmental Protection Objectives

Establishing environmental objectives is a key element of SEA as it allows the assessment of the Strategy as it is implemented over time. The development of such objectives has been undertaken with regard for International, National and regional policies, the SEA guidelines and consultation.
SEA Objectives are different to objectives detailed in the Draft LAP, however, they are used to assess the development strategies of the LAP and allow its evaluation and identification of where conflicts may occur. This forms the basis of the environmental assessment of the Draft LAP, which is presented in *Chapter Seven.*

Table 5 Environmental Protection Objectives for each environmental topic.

SEA Parameter	Biodiversity
	Bio1 – Protect, conserve and avoid loss of the diversity and range of habitats, species and wildlife corridors.
	Bio2 - Protect designated sites including Natura 2000 sites (SACs & SPAs) under Article 6 of the Habitats Directive. Conserve and protect, or maintain and restore Natura 2000 sites and the Natura 2000 Network
	Bio3 - Conserve and protect other sites with nature conservation sites (NHAs,pNHAs, National Parks, Nature Reserves, Wildfowl Sanctuaries).
	Bio4 – Protect habitats (terrestrial and aquatic) from invasive species.
	Bio5 – Protect the inland and coastal aquatic environment.
	Bio6 – Meet the requirements of the WFD and the RBMP
	Water
	Wat 1 – Protect and enhance the status of aquatic ecosystems and, with regard to their water needs, terrestrial ecosystems and wetlands directly depending on the aquatic ecosystem (quality, level, flow).
	Wat 2 - Maintain or improve the quality of surface water (including estuarine) to status objectives as set out in the Water Framework Directive (WFD), SRBM &POMS.
	Wat 3 – Prevent pollution and contamination of ground water by adhering to aquifer protection plans.
	Soils and Geology
	Soil1 – Give preference to the use of derelict, disused and infill sites, rather than Greenfield

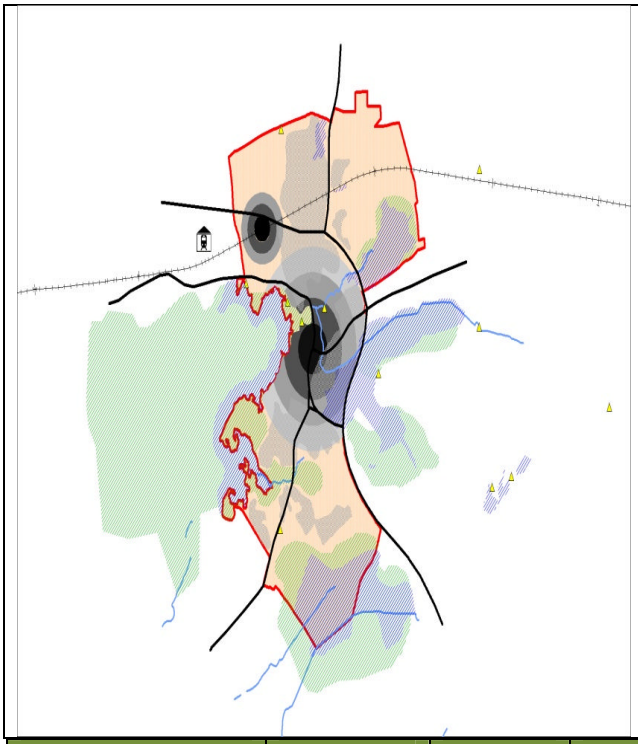
	sites.
	Soil2 – Protect, improve and maintain the quality of soils.
	Soil3 - Conserve, protect and avoid loss of diversity and integrity of designated habitats, geological features, species or their sustaining resources in designated ecological sites.
	Population and Human Health
	Pop1 – Protect, enhance and improve people's quality of life based on high quality residential, community, working and recreational environments and on sustainable travel patterns.
	Pop2 - To protect human health from risks or nuisances arising from exposure to incompatible land uses/developments
	Cultural Heritage
	CH1 – Protect and conserve the cultural heritage including the built environment and settings; archaeological (recorded and unrecorded monuments), architectural (Protected Structures, Architectural Conservation Areas, vernacular buildings, materials and urban fabric) and manmade landscape features (e.g. field walls, footpaths, gate piers etc.).
	CH2 – To ensure the restoration and re-use of existing uninhabited and derelict structures where possible opposed to demolition and new build (as opposed to demolition).
	Landscape
	Land1– Protect designated landscapes and scenic views, routes and landscape features of local value
	Land2 – Conserve and protect cultural landscapes including archaeological and architectural
	Land3- Minimise visual impacts through appropriate design, assessment and siting
	Air Quality and Climate
	AQ1 – Seek to avoid all forms of air pollution and maintain/improve ambient air quality.
	AQ2 – Minimise emissions of greenhouse gases through energy efficiency and promotion of renewable energy
	Material Assets
Flood Risk	**Mat 1** - Reduce risk of flooding through avoidance of inappropriate development in flood plains or in areas at risk of flooding
Water Services	**Mat 2 -** To ensure that drinking water supplies are free of contamination
	Mat 3: To protect residents from adverse noise levels
	Mat 4- To ensure that all development is adequately serviced to EPA standards prior to discharge.
Waste	**Mat 5 –** Implement the waste pyramid and encourage reuse/recycling of material wherever possible.
Energy	**Mat 6-** Reduce waste of energy, promote use of renewable energy sources and support energy conservation initiatives
Transport	**Mat 7–** Maximise sustainable modes of transport and provide for ease of movement for all road users and to promote development patterns that protect and enhance road safety

6 Consideration of Alternatives

6.1 Introduction

This section describes the alternatives considered in the development of the Draft LAP. The consideration of alternatives and the evaluation of their likely environmental impacts is a key function of the SEA process. Each alternative was assessed against the Environmental Protection Objectives (EPOs) and are presented in *Table 6a*. ***Annex A of this report also presents a detailed assessment of all the draft policies, objectives and landuse zonings in the draft LAP.***[1]

Table 6a: Evaluation of Alternatives



Development Option 1 – LAP informed solely by environmental assessments: Informed solely by the statutory environmental assessments required for Local Area Plans, including a Flood Risk Assessment, Habitats Directive Assessment and Strategic Environmental Assessment.

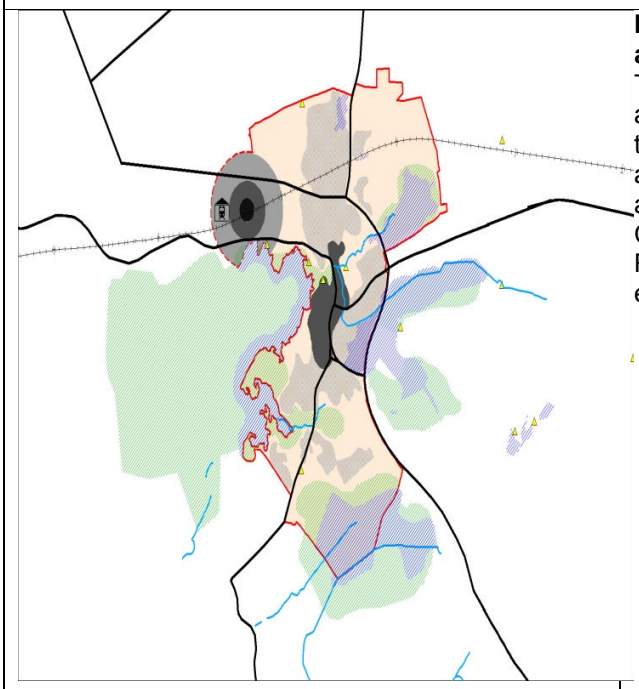
Alternative Considered	No likely interaction with EPOs	Likely to improve status of EPOs	Probable conflict with EPOs – unlikely to be mitigated	Potential conflict with EPOs – likely to be mitigated	Uncertain interaction with EPOs	Neutral Impacts with EPOs
Option 1		Bio1,2,3, 4,5,6 Wat 1,2,3 Soil 2,3 AQ1 MAT1		Soil 1 Pop1,2 CH 1,2 Land 1,2,3 AQ2 Mat 2,3,4,5, 6,7		

[1] This was inserted following a submission by the EPA.

This option would likely direct future development away from areas of low lying land and lands with ecological sensitivity In implementing the Core Strategy of the County Development Plan and ensuring the provision of the required level of zoned lands for future residential use, future growth would be directed towards the development and consolidation of appropriate sites from the town centre outwards, with the likely focus for new residential neighbourhoods on lands towards the north and northwest of Oranmore.

This option would exclude consideration of the planned railway station at Garraun further northwest of Oranmore and the potential contribution it can make to the future sustainable development of the town.

In this regard, whilst this option would improve many of the EPOs, it may act as an unbalanced check on many development proposals. Considering the significant growth of Oranmore and its desirability as a place to live and work, there is likely to be continued demand to facilitate certain development activities.



Development Option 2 – New development area at Garraun

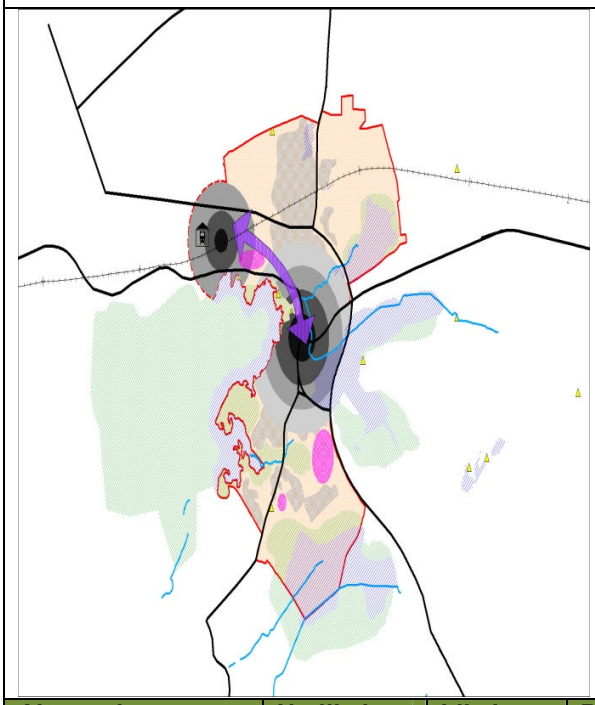
This option proposes a new development area around the rail station at Garraun capitalising on the potential of new public transport infrastructure and the availability of the necessary lands for anticipated population growth, as outlined in the Core Strategy for Oranmore. It also progresses the Regional Planning Guidelines objective of future expansion of the Garraun area.

Alternative Considered	No likely interaction with EPOs	Likely to improve status of EPOs	Probable conflict with EPOs – unlikely to be mitigated	Potential conflict with EPOs – likely to be mitigated	Uncertain interaction with EPOs	Neutral Impacts with EPOs
Development Option 2 – New development area at Garraun		Mat 7	Soil 1 Ch2	Bio 1,2,3,4,5,6 Wat 1,2,3, Soil 2,3 Pop 1,2 Ch1,		Bio 1, 2,3, Soil 2,3,

This approach recognises the area as a prime development quarter in terms of integrating land use and public transportation and directs all new development to this area. However, given its strategic importance, a detailed master plan would be necessary to guide development to ensure that it does not progress in an ad hoc and piecemeal manner.

Focussing on the growth of a new quarter could have the potential to shift the focus away from the

established town of Oranmore, which would compromise the sustainable development of the overall area. Developing a detailed master plan for a new development quarter would be beyond the scope of the Local Area Plan process and therefore this option is not considered the most suitable approach to be pursued, at this time.
In addition, this option would not encourage reuse of existing buildings within the existing core and may unnecessarily promote greenfield development above infill or consolidated development.



Development Option 3 Consolidation of the Town Centre and Surrounding Areas with a Future Strategic Development Area, Informed by Environmental Assessments
Informed also by environmental assessments, this option focuses primarily on the established town of Oranmore, seeking to consolidate the existing town centre and emerging commercial centres and examining the residential provision to meet the requirements of the Core Strategy.
Town centre consolidation is achievable through promoting appropriate densities at the right location and supporting the redevelopment of brownfield, derelict and back land sites within the urban core. Development within the remainder of the town is encouraged in a sequential manner, in order to maximise return on investment in services and to ensure the availability of optimal, residential lands to accommodate anticipated growth defined by the Core Strategy requirements. Refinement and amendments to existing zonings are required to align with the Core Strategy.

Alternative Considered	No likely interaction with EPOs	Likely to improve status of EPOs	Probable conflict with EPOs – unlikely to be mitigated	Potential conflict with EPOs – likely to be mitigated	Uncertain interaction with EPOs	Neutral Impacts with EPOs
Development Option 3 Consolidation of the Town Centre and Surrounding Areas with a Future Strategic Development Area, Informed by Environmental Assessments		Bio 1,6 Soil 1 Pop 1, 2 Ch1, 2,		Bio 1,2,3,4,5 Wat 1,2, 3, Soil 2,3, Land 1,2,3, AQ1, 2 MAT 1,2,3,4,5 ,6,7		

This development option would promote a managed and co-ordinated approach on a case by case basis to town centre & residential type developments from the centre outwards, based on infrastructure /service provision but in a more flexible manner than Option 2. This option also takes cognisance of the planned railway station at Garraun. It protects the associated surrounding lands through identifying a Strategic Reserve Area subject to future master planning, so as to ensure that the opportunities associated with the development of same is planned in a sustainable and coordinated manner. In the interim, strong sustainable transportation connections between the railway stations, the town centre and remainder of the town are key in establishing important connectivity between the areas, ensuring they

are linked and complement each other. This approach appears to be the most sustainable and practical for the long term development of the town. This approach is evaluated to be the most sustainable and balanced strategy for the long term development of Oranmore.

6.2 Preferred Alternative[2]

Development Option 3 Consolidation of the Town Centre and Surrounding Areas with a Future Strategic Development Area, Informed by Environmental Assessments is the development scenario adopted by Galway County Council as it allows for planned development and represents a sustainable approach to planning in the Oranmore LAP area. Development will be focused within zoned and serviced areas. This alternative is based on the principles of sustainable development which means that the Plan is promoted in accordance with International, National, Regional and County guidelines and the entire Plan area is also covered by the objectives and policies of the Galway County Development Plan 2009-2015 and the mitigation measures proposed in such. The SEA assessed all the options under consideration and Option Three was determined to generate positive impacts on biodiversity, material assets, population and human health, and cultural heritage. Whilst Option 1 would generate more positive direct impacts on biodiversity parameters, it is considered likely that a number of negative indirect impacts would arise including lack of viability of the town centre, increased greenfield development away from the centre in less environmentally sensitive areas, and moreover the loss of opportunity to facilitate integrated landuse and public transport at Garraun. In conclusion, a planned approach to the further development of the area incorporating the principles of sustainable development is the option best suited to Oranmore.

[2] Additional clarification on the selection of the preferred alternative was provided in response to a submission from the EPA.

7 Chapter Seven: Likely Significant Effects of the Draft Oranmore LAP

7.1 Introduction

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

SEA is an iterative process and the new policies and objectives developed for the Draft LAP have taken consideration of environmental issues raised during the scoping process. These issues have been incorporated into draft policies and objectives and the principal purpose of this chapter is to discuss the evaluation of these. The discussion of likely impacts is grouped around each environmental parameter listed in the SEA Regulations:

- Biodiversity, Flora & Fauna
- Water
- Soil & Geology
- Population & Human Health
- Cultural Heritage
- Landscape
- Air & Climatic Factors
- Material Assets

The individual evaluation of each policy/objective and landuse zoning across the draft LAP is presented in Annex A. The identification of impacts through the evaluation matrix and discussion of significant impacts detailed below, in turn informs the development of mitigation measures presented in Chapter Eight, Mitigation Measures.

7.2 Overview

The vision that underpins the draft LAP has been evaluated against all the EPOs and generally evaluated as having a positive impact on achieving the environmental protection objectives detailed in Chapter Five. This is primarily attributed to the goals of the Draft LAP referencing sustainable development, quality of life, social inclusion and Habitats Directive Assessment.
For other EPOs, development management and application of relevant guidelines will facilitate significant impacts being mitigated against. Nonetheless both the SEA and HDA identified a number of policies and objectives that merit additional mitigation measures to enhance environmental protection and compliance with the EPOs, these are discussed in Chapter Eight. The significant impacts on the SEA parameters are discussed in detail below.

7.3 Biodiversity, Flora and Fauna – Significant Impacts

The draft LAP was found to have generally positive impacts for the biodiversity, flora and fauna of the town. The promotion of a compact, sustainable town with support for brownfield development, the policies pertaining to Natura 2000 sites, NHAs, pNHAs and open spaces strengthens the protection of biodiversity resources. Moreover, there is an overarching Objective DS3 Natura 2000 Network and Habitats Directive Assessment that details and promotes protection of the relevant habitats and their sustaining resources in the LAP. A suite of other policies and objectives such as Policy NH1 Natural Heritage, Landscape and

Environment, Objective NH5 Biodiversity and Ecological Networks and Objective UD4 Green Networks and Landscaping all generate positive impacts on biodiversity.

However, considering the ecological sensitivities around Oranmore, Objective LU 15 Residential Densities has the potential to generate negative impacts on biodiversity through declining water quality and cumulative impacts associated with same. Additionally, Objective LU8 Open Spaces/Recreation and Amenity merits careful scrutiny in relation to potential disturbance on species, loss of open space and habitat fragmentation and loss of soil as a non renewable resource.

Policy contained within the plan to increase accessibility generally, including pedestrian and cycle access, to the coast and areas of natural recreation could have the potential to impact adversely on biodiversity resources through disturbance and fragmentation unless mitigation is provided for. This is particularly important in relation to Creganna Marsh and Galway Bay Natura 2000 sites, and the associated habitats and species that these areas support.

Finally, policies to support large infrastructural projects could have the potential to generate adverse impacts on biodiversity, with key potential impacts relating to disturbance, disruption, fragmentation and loss of habitats. However, the principal infrastructural development proposed in the LAP relates to the proposed train station which has been subject to project level HDA. For many of the remaining policies/objectives, it is determined that the development management process, associated guidelines and recommendations will provide sufficient mitigation measures to ensure significant impacts on biodiversity as a result of any future development are avoided.

A range of policies and objectives particularly in Section 3.9 Heritage, Landscape and Environment are identified as creating positive long term impacts for biodiversity, flora and fauna. See **Table 7a** below for a summary of potential impacts of the draft LAP on Biodiversity, Flora and Fauna.

Table 7a: Biodiversity Impacts

LAP Section	Biodiversity Impacts
Section 2: Strategic Vision and Development Strategy	Largely positive impacts associated with reference to national and regional guidelines and plans. Specific reference to Core Strategy and Development Management Guidelines of County Development Plan offer considerable protection of biodiversity through development control.
Section 3.1 Land Use Management	Most policies have positive to neutral impacts on biodiversity associated with intensification of uses in town centre; many impacts are associated with new development and development management standards are adequate to address these. Concern is raised in relation to Residential Densities with negative medium to long term impacts identified for biodiversity and supporting resources if development is permitted in the absence of sufficient wastewater treatment.
Section 3.2 Residential Development	Potential adverse impacts on biodiversity are associated with new housing development if it results in Greenfield development or loss of habitats. However, focus on higher densities and reference to guidelines generates neutral to positive impacts in relation to biodiversity for most policies. Mitigation measures are recommended for LU15 and careful monitoring will be required to meet requirements of Water Framework Directive.
Section 3.3 Social and	Again impacts on biodiversity would arise in relation to provision of

LAP Section	Biodiversity Impacts
Community	new facilities on greenfield sites but focus on concentrating such activities within town centre or close to residential areas assists in reducing potential impacts, many such impacts would also be mitigated through the development management regime. Positive impacts are identified for biodiversity EPOs for Policy CF4 Open Spaces (retention of existing open spaces)
Section 3.4 Economic Development	Potential adverse impacts relate to new developments and require mitigation at site level. However, focus on concentrating retail activities in town centre will likely have positive impacts on biodiversity due to reuse of brownfield sites, and opportunity for public transport and more sustainable transport options thus reducing need for additional road infrastructure. Overall positive medium to long term impacts particularly in relation to population and focus on service provision and concentrating economic activities in defined areas.
Section 3.5 Transportation Infrastructure	Large infrastructural development can impact adversely due to loss of habitat, and potential impacts on water quality and wildlife corridors. Such impacts may be permanent. Several other policies and objectives are considered to have impacts that can be mitigated through development control including Objectives TI 4 (Walking) and TI5 (Cycling). Additionally there may be positive indirect impacts on biodiversity arising from modal shift in transport within the town arising from the implementation of these objectives. Impacts associated with cycling and walking provision have potential to impact adversely on biodiversity if located close to sensitive habitats but these are likely to be mitigated.
Section 3.6 Utility and Environmental Infrastructure	Commitments associated with Policy UI1 Water Supply, Wastewater and Surface Water Infrastructure and Objective UI8 Groundwater and Aquifer will strengthen protection of biodiversity through improving water quality and wastewater treatment.
Section 3.7 Urban Design and Landscape	Many impacts identified in relation to these policies are neutral or likely to be addressed through development control. Many do not relate directly to biodiversity resources as the focus is largely on town centre and built design.
Section 3.8 Built Heritage and Cultural Heritage	Many impacts identified in relation to these policies are neutral or likely to be addressed through development control. Many do not relate directly to biodiversity resources as the focus is largely on town centre and residential design.
Section 3.9 Heritage, Landscape and Environment.	Overall positive medium to long term impacts on biodiversity relating to commitments to protection of designated sites, ecological corridors and wetlands and springs (Policy NH1, Objectives NH5 and NH7). The specific objective NH8 Frenchfort Stream Ecological Corridor regarding an ecological corridor around the Frenchfort River will also generate long term positive impacts for biodiversity.

7.4 Water – Significant Impacts

The draft LAP promotes intensification of town centre, population growth in line with the Core Strategy of the County Galway CDP 2009-2015, economic growth and various landuse zonings. These could impact potentially on water quality. Potable water is currently supplied from the Tuam Scheme and is not considered to be at risk in terms of drinking supply. Nonetheless,

conservation measures and increasing water efficiency are appropriate measures to consider in the LAP. The general impacts associated with water (and frequently biodiversity) include:

- A reduction in water quality in groundwater, springs and watercourses associated with the construction phase of new developments (short to medium term impacts);
- Surface water runoff from impermeable surfaces leading to reduced water quality in groundwater springs or surface waters affecting qualifying habitats and species downstream(impacts can range from short to longterm);
- Changes in the flow rate of watercourses arising from an increased footprint of impermeable surfaces within the Plan area - increasing the extent of impermeable surfaces will result in a decrease in infiltration and an increase in runoff;
- Inadequate wastewater treatment resulting in pollution of groundwater springs or surface watercourses.

The adjacent designated Shellfish Waters at Clarinbridge/Kinvarra Bay, Bay at Aughinish and Ballyvaughan/Poulnaclough Bay are also an issue which could be significantly impacted upon if water measures are not appropriately taken into account. In this regard the Pollution Reduction Programmes and associated Characterisation Reports for these areas will be considered as appropriate in all relevant future development proposals[3].

More positive permanent impacts are associated with indirect policies including wildlife corridors, open space provision and Sustainable Urban Drainage Systems. The recognition of the WFD and its roles and responsibilities currently act as a key driver toward long term positive impacts for water quality and water management generally. Table 7b summarises the significant impacts for each chapter in relation to water resources.

Table 7b: Water Impacts

LAP Section	Water Impacts
Section 2: Strategic Vision and Development Strategy	As per the biodiversity impacts, maintaining and enhancing overall water quality is the most significant issue. Whilst Objective DS3 references EU legislation including Habitats Directive and DS4 Development Management Guidelines in the Galway County Development Plan 2009-2015 which strengthens overall protection of water resources. Objective DS5 Service Led Development should also generate appropriate protection of water quality from wastewater.
Section 3.1 Land Use Management	Objective LU9 Environmental Management is identified as generating positive long term impacts on water quality. In addition, the Objective LU13 Flood Risk Areas and Land use Zones strengthen the overall management of flood risk and indirectly water quality through this objective.
Section 3.2 Residential Development	Potential adverse impacts on water resources are associated with new housing development if it results in Greenfield development or loss of habitats. Population increases both within the functional area and neighbouring areas may increase pressure on drinking water and wastewater infrastructure/capacity remains area of concern.
Section 3.3 Social and Community	Largely neutral or unlikely to interact with water resources; provision of new facilities, construction activities and increased

[3] This was inserted following a submission from the EPA.

LAP Section	Water Impacts
	demand for potable water and wastewater treatment are identified as potential adverse impacts in relation to new facilities but are likely to be mitigated through the development management process and control at site level.
Section 3.4 Economic Development	Provision of new facilities, construction activities and increased demand for potable water and wastewater treatment are identified as potential adverse impacts in relation to new facilities but are likely to be mitigated through development management and control at site level.
Section 3.5 Transportation Infrastructure	Infrastructural development can impact adversely due to potential impacts on water quality, disruption of water hydrology, increased surface run off and complex interactions between impacts on soil and biodiversity. Such impacts may be medium to permanent. Some uncertain impacts are identified as location and level of infrastructural provision is not yet available (eg: Objective TI10 Integrated Transport Hub)
Section 3.6 Utility and Environmental Infrastructure	Overall positive impacts associated with water quality monitoring, requirements of the WFD, wastewater provision, flood risk management and protection of groundwater and aquifers (Policies UI 1 and UI2, and Objectives UI 2 to UI 6, 7 and 8) . Flood Risk Management Policy UI4 and Objectives UI12, 13 and 14.
Section 3.7 Urban Design and Landscape	Largely neutral for many policies as they are principally concerned with design and sense of place. Impacts associated with new developments are addressed adequately through development management and control. Objective UD 4 Green network and landscaping identifies positive impacts on water quality and resources.
Section 3.8 Built Heritage and Cultural Heritage	Largely neutral impacts on water resources
Section 3.9 Natural Heritage and Biodiversity	Overall positive impacts on water resources relating to a range of policies and objectives including Policy NH1 Natural Heritage, Landscape and Environment, Objectives NH6 Water Resources and NH7 Protection of wetlands and springs, and NH8 Frenchfort Stream Ecological Corridor

7.5 Soil and Geology - Significant Impacts

The intensification of the town centre, promotion of reusing existing building stock, waste management, amenity and green corridors all offer positive impacts associated with the soil and geology objectives. Soil quality and function may be enhanced through particular measures associated with water quality and landuse and achieving the Water Framework Directive Objectives. Potential adverse impacts arise if new development occurs on Greenfield sites or major infrastructural developments occur close to the agricultural areas of the functional area or environs. Site specific mitigation measures are required relating to construction activities associated with new developments.

Table 7c: Soil and Geology Impacts

LAP Section	Soil and Geology Impacts
Section 2: Strategic Vision and Development Strategy	Significant positive impacts associated with sustainable development of Oranmore, focus of quality of life and environmental resources.
Section 3.1 Land Use Management	Key permanent impacts would arise in relation to soil and development on greenfield sites with accompanying sealing of soil and loss of soil function. The focus of the LAP on town intensification assists in reducing these impacts overall. For greenfield developments or other developments many impacts may be mitigated against at project level; nonetheless, greenfield development does represent permanent loss of soil in that particular area. Should a new EU Soil Directive be adopted, this will have positive implications for soil management generally.
Section 3.2 Residential Development	Potential adverse impacts on soil and geology are associated with new housing development if it results in Greenfield development. Careful consideration of wastewater provision and new infrastructure to service housing will be required to avoid permanent impacts on the groundwater which is identified as probably being at risk of not achieving good status by 2015.
Section 3.3 Social and Community	Again, impacts on soil and geology may arise in relation to provision of new facilities but focus on concentrating such activities within town centre/residential areas assists in reducing potential impacts, many such impacts would be mitigated through the planning regime.
Section 3.4 Economic Development	Potential adverse impacts relate to new developments and require mitigation at site level. However, focus on concentrating retail activities in town centre will likely have positive impacts on soil and geology due to reuse of brownfield sites, and opportunity for public transport and more sustainable transport options thus reducing need for additional road infrastructure. Overall positive impacts relating to intensification and promotion of town centre (avoiding greenfield sites). See for example Policy ED1 Economic Development and Objective ED4 Retail Development. Potential adverse impacts identified pertain to new developments and mitigation is required through adherence to development management guidelines.
Section 3.5 Transportation Infrastructure	Principal impacts are associated at site level relating to transport and can be mitigated through development control and management guidelines. Greenfield development for infrastructure generates permanent negative impacts. However, flood risk management and protection and enhancement of open space and corridors can also indirectly impact positively on soil function and integrity.
Section 3.6 Utility and Environmental Infrastructure	Objective UI8 Groundwater and Aquifer will result in positive impacts on groundwater quality and function. Maintaining ecological status of water bodies will impact indirectly on soil function and protection which is positive. Waste management policies can also impact positively on soil through reduction of materials to landfill and recycling of construction and demolition waste. Flood Risk Management Policy UI4 and Objectives UI12, 13 and 14 can also result in positive soil and geology impacts

LAP Section	Soil and Geology Impacts
	through avoidance of development activities in known flood risk areas.
Section 3.7 Urban Design and Landscape	Largely neutral impacts associated with these policies. Objective UD4 is identified as generating positive impacts on soil resources.
Section 3.9 Built Heritage and Cultural Heritage	Largely neutral to positive impacts on soil and geology, though reuse and promotion of existing buildings enhances soil and geology resources by avoiding new development and resource use – see Policy HC1 Built Heritage
Section 3.9 Natural Heritage and Biodiversity	Overall positive impacts on soil and geology objectives particularly relating to wildlife corridors, and green networks and Environmental Management Areas. Impacts are complex between soil function and biodiversity but several policies should enhance the soil and geological objectives through enhanced management and protection of resources

7.6 Population and Human Health – Significant Impacts

The policies of the draft LAP are found to likely improve the status of the EPO's on population and human health. The draft LAP promotes the development of a quality, sustainable, permeable and distinctive town with policies relating to integrated landuse and transport, environmental protection and energy efficiency balanced with economic vitality.

Water quality in surface waters is good around Oranmore, whilst groundwater is classed as 'poor'. The maintenance, protection and enhancement of water quality is important and is closely allied to human health generally. It is acknowledged that there is over zoning of lands in the functional area and fewer lands are required in order to achieve the target population in the Core Strategy.

The draft plan emphasises the need to integrate landuse and transportation and sets out a strategy for mixed-use, thriving economic and residential environment underpinned by recreational and community infrastructure provided in a timely fashion, in accessible locations and connected to, or within easy reach of, good public transport networks.

Furthermore, draft policies facilitate and encourage economic growth and renewal, to strengthen the town of Oranmore and take advantage of its strategic location on the main road and rail network. The promotion of sustainable development by balancing complex sets of environmental, social and economic goals in planning decisions can only prove to be positive for population and human health. Certain transport policies encourage a modal shift from private vehicular to other forms of transport. Accompanying this is positive impacts associated with improved air quality, noise impacts, reduced emissions and transport modal shifts.

In general policies are likely to improve the status of the EPO's on human health. Maximising the use of central urban areas contributes to the conservation and protection of the natural environment for the enjoyment and protection of all. Provision of green corridors, if taken up, will help in public transport provision, economic development strategy and provision of recreational and amenity areas contributing to the health and well-being of the population of Oranmore.

Table 7d: Population and Human Health Impacts

LAP Section	Population and Human Health Impacts
Section 2: Strategic Vision and Development Strategy	Significant positive impacts associated with sustainable development of Oranmore with a focus on promoting high quality built and natural environment, social inclusion and quality of life for those residents.
Section 3.1 Land Use Management	Largely positive impacts associated with various land use objectives ranging from housing to enterprise. Potential significant impacts on water quality and associated human health risks if un serviced lands are developed. However Policy RD2 Phased Development and Objective RD1 Phased Residential Development assist in addressing these potential impacts.
Section 3.2 Residential Development	Generally, positive impacts associated with these policies.
Section 3.3 Social and Community	Again, positive permanent impacts for population in relation to housing provision for all sectors of society. Encouraging the establishment of sustainable residential communities, facilitating specials needs of socially excluded groups including traveller accommodation. Additionally, provision of community facilities in town centre or within established residential areas promotes accessible facilities.
Section 3.4 Economic Development	Overall positive impacts associated with these objectives, particularly for EPO Pop 1.
Section 3.5 Transportation Infrastructure	Overall, positive permanent impacts associated with public transport policies, walking and cycling. In addition mobility management policies have positive permanent impacts on population and health. The provision of adequate infrastructure to support the needs of an expanding population is considered essential. Objectives TI 11 -12 regarding the new train station and linking access to same have positive impacts relating to population and human health.
Section 3.6 Utility and Environmental Infrastructure	Long term positive human health impacts are identified in relation to water services, waste management, energy efficiency of homes and commitments regarding Wastewater Treatment and general protection of water resources. The provision of a range of policies relating to flood risk management based on quality flood risk data will also provide positive impacts to human health and population. In turn, these impact positively on the general population of Oranmore
Section 3.7 Urban Design and Landscape	Overall long term positive impacts identified for population and human health through these objectives by improving urban fabric, consolidating and enhancing a sense of place and quality design and streetscapes (see Objectives UD1 and 2, UD 5 and UD 7 for example)
Section 3.8 Built Heritage and Cultural Heritage	Largely positive impacts associated with these policies and objectives in particular the promotion of cultural heritage. Long term positive impacts associated with supporting and enhancing these resources.
Section 3.9 Natural Heritage and Biodiversity	In particular, positive impacts associated with walks, protection of water resources and Frenchfort Stream corridor (Objectives NH 6 and 8)

7.7 Cultural Heritage - Significant Impacts

Overall the impacts of the draft LAP are long term and positive in relation to cultural heritage due to the recognition of the value of Oranmore's heritage and the range of cultural heritage features including built heritage and more intangible cultural heritage such as linguistic heritage.

The recognition that Oranmore's cultural heritage has a key role to play in tourism promotion also creates positive impacts for the cultural heritage of the town. Objective ED5 Tourism Development supports the appropriate development of tourism within Oranmore; this policy is identified as generating positive impacts relating to cultural heritage, landscape and population.

Potential cultural heritage impacts arise once more in relation to transport and landuse, though should any large infrastructural projects be proposed, they will be subject to project level assessment and therefore are not considered significant at strategic level.

Archaeology

Overall, impacts on archaeology are positive in light of a number of specific policies addressing a range of archaeological resources. Potential negative impacts may arise on new developments or infrastructural developments but generally these can be mitigated through the planning process.

Architecture

Architectural heritage impacts can be associated with negative long term impacts on the setting of protected structures or construction damage to protected structures such as gate entrances, or bridges. The built heritage of Oranmore is important and contributes to the sense of place and local identity so a range of policies and objectives in both Section 3.7: Urban Design and Landscape, and 3.8: Built Heritage and Cultural Heritage generate positive impacts.

Table7e: Cultural Heritage Impacts

LAP Section	Cultural Heritage Impacts
Section 2: Strategic Vision and Development Strategy	Generally positive impacts associated with sustainable development of town, focus on quality of life and environmental resources.
Section 3.1 Land Use Management	Policy LU 1 Land Use Management and Objective LU 1 Town Centre/Commercial generate positive impacts on cultural heritage via promotion of active town centre with intensification of uses. Other policies principally identified as meriting mitigation through site level/project level development control and national /regional guidelines.
Section 3.2 Residential Development	Most policies have impacts associated with development management at site level. Much of the land zoned R1 are greenfield areas adjoining existing residential development so impacts are likely to be site specific for any archaeology resources. Objective HC9 Archaeological Assessment provides for protection of archaeological heritage in relation to areas close (30m) to known sites.
Section 3.3 Social and Community	Generally, neutral impacts associated with these policies; however site level impacts for new developments will be captured by individual assessments.

LAP Section	Cultural Heritage Impacts
Section 3.4 Economic Development	Impacts identified range from likely to be mitigated if new development occurs to uncertain impacts. The consolidation of the town centre for services again supports reuse of brownfield sites and averts Greenfield site development which is a positive impact as it avoids potential disturbance to unknown archaeological resources.
Section 3.5 Transportation Infrastructure	Large infrastructural developments associated with road schemes or transport infrastructure may impact negatively on the setting of built heritage or provide excavation opportunities for archaeological resources. Again, such impacts are likely to be mitigated through the planning process and project assessments. The provision of cycling and walking facilities provide for positive indirect impacts through greater access, enjoyment and participation of cultural heritage and facilities
Section 3.6 Utility and Environmental Infrastructure	Cultural heritage impacts are identified as largely neutral impacts in relation to policies and objectives proposed for utility and environmental infrastructure. Site specific impacts may occur in relation to infrastructure provision but would be addressed at site level and through the development management process.
Section 3.7 Urban Design and Landscape	All of these policies and objectives are identified as creating positive impacts and enhancing the cultural heritage EPOs.
Section 3.8 Built Heritage and Cultural Heritage	Overall, positive long term impacts associated with these policies and objectives in particular the ACA Appraisal and Management Plan (Objective HC 10). Recognition of importance of vernacular architecture and structures of local interest HC6 also generates positive impacts for cultural heritage
Section 3.9 Natural Heritage and Biodiversity	Largely neutral impacts however, Objective NH9 Trees and Hedgerows contribute to overall setting of town and townscape so is identified as positive impacts on cultural heritage.

7.8 Landscape - Significant Impacts

Overall some positive impacts are associated with new policies and objectives that promote key landscape resources, identify key viewpoints and settings and promote landscape character and built environment. The focus on design statements for certain developments, enhancing sense of place and high quality urban realm provides further positive impacts for Oranmore's landscape resources.

Cumulative impacts are a particular issue in relation to landscape character, and the degradation and weakening of landscape character over time can present negative long term impacts. The coastal location of Oranmore creates an exposed landscape and screening opportunities may limited. Therefore the adherence to and implementation of landscape

policies such as Policy UD1 Urban Design and Landscape, Objective UD7 Landscape character, values, sensitivity and views/prospects and Objective UD4 Green network and Landscaping is important to protect the landscape resources of the area.

Table 7f: Landscape Impacts

LAP Section	Landscape Impacts
Section 2: Strategic Vision and Development Strategy	Significant positive impacts associated with sustainable development of Oranmore, focus on quality of life and environmental resources.
Section 3.1 Land Use Management	Largely positive impacts associated with reference to national and regional guidelines and plans.
Section 3.2 Residential Development	Potential adverse impacts on landscape resources are associated with new housing development if it results in Greenfield development. Reference to guidelines will result in positive landscape impacts associated with appropriate landscaping and planting regimes for new developments. Otherwise, largely neutral impacts in relation to housing policies and landscape.
Section 3.3 Social and Community	Again potential adverse impacts arise in relation to provision of new facilities, but overall neutral impacts identified for landscape.
Section 3.4 Economic Development	Objectives ED3 Business/Enterprise and Industrial Development and ED6 Quality Working Environments are identified as generating positive impacts for landscape in relation to high quality landscape design and screening. For other policies the impacts were identified as subject to mitigation through development control. ED5 Tourism Development can result in indirect positive impacts associated with a high quality landscape.
Section 3.5 Transportation Infrastructure	Large infrastructural development can impact adversely due to changes in landscape character and views. Oranmore has seen a significant amount of infrastructure with national roads and motorways in the LAP environs. Site specific mitigation measures through development management can contribute to managing this change.
Section 3.6 Utility and Environmental Infrastructure	Longer term indirect positive impacts on landscape quality can arise due to other environmental services including water quality and wastewater management.
Section 3.7 Urban Design and Landscape	All policies and objectives proposed are identified as generating long term positive impacts on the landscape and streetscapes of Oranmore.
Section 3.8 Built Heritage and Cultural Heritage	Generally positive impacts on landscape resources with focus on landscape character, wildlife corridors and networks. Overall, positive impacts associated with built heritage policies also in creating a sense of place.
Section 3.9 Natural Heritage and Biodiversity	Positive impacts identified for these policies especially Policy NH1 Natural Heritage, Landscape and Environment and Objective NH9 Trees and Hedgerows.

7.9 Air and Climatic factors – Significant Impacts

Overall the draft LAP policies and objectives will have significant beneficial impacts on air. Oranmore does not suffer from poor air quality generally although there may be localised issues

arising from transport. Energy related carbon dioxide emissions indicate that the transport sector is the single greatest contributor to energy related carbon dioxide emissions. There will be significant benefits relating to air quality and climatic factors due to the development of a number of specific policies/objectives addressing these issues. Some short-term impacts on climatic factors will occur (particularly in relation to the emissions of greenhouse gases and use of energy) as a result of increased development and construction however these are considered to be short-term impacts and can generally be mitigated against.

Again, positive impacts are identified for Air Quality and Climate associated with policies and objectives such as enhanced transport policies and promoting alternative transport methods. The policy focus on energy efficiency and buildings is also identified as being positive for air quality and climate EPOs.

Table7g: Air Quality and Climate Impacts

LAP Section	Air Quality and Climate
Section 2: Strategic Vision and Development Strategy	Generally positive impacts associated with sustainable development of town, focus of quality of life and environmental resources.
Section 3.1 Land Use Management	Policy LU1 and Objective LU1 by promoting town centre accessibility should enhance pedestrian access and mobility around the town. This will have indirect positive impacts if it results in modal shift in transport patterns around the town centre.
Section 3.2 Residential Development	Largely neutral or unlikely to interact impacts were identified for housing although increased housing densities can indirectly assist in public transport provision and reduction in greenhouse gases. Policy RD1 references the Smart Travel "A Sustainable Transport Future 2009 – 2020" and National Cycle Policy Framework 2009 – 2022 which should reduce car dependency with associated air quality benefits.
Section 3.3 Social and Community	Largely neutral impacts associated with these policies and objectives.
Section 3.4 Economic Development	Impacts identified as being likely to be mitigated through existing development management guidelines.
Section 3.5 Transportation Infrastructure	Overall, positive permanent impacts for air quality associated with public transport policies, and encouraging modal shift to more sustainable transport options. Policy TI1 Sustainable Transport, Walking and Cycling generates positive impacts and a number of related objectives promoting alternative travel modes such as Objectives TI3 Public Transport, and Objectives TI4 (walking) and TI5 (Cycling). A challenge for Oranmore is to promote a move away from car dependency, the provision of the train station should enhance commuter transport to Galway City via public transport on the train and also the provision of a Quality Bus Corridor (Objective TI15)
Section 3.6 Utilities and Environmental Infrastructure	Long term positive air quality impacts are identified in relation to Policy UI3 Climate Change and Air Quality and supporting Objectives UI9 and UI0
Section 3.7 Urban Design and Landscape	Objective UD4 has positive long term impacts on air quality through provision of Green Network and Landscape. Other policies and objectives have neutral, uncertain impacts or are addressed through development management mitigation

LAP Section	Air Quality and Climate
Section 3.8 Built heritage and cultural heritage	Largely neutral, however by promoting the town centre, and reuse of existing structures, this has an indirect positive impact on air quality and climate by reducing need for new development and associated greenhouse gas emissions.
Section 3.9 Natural Heritage and biodiversity.	Long term positive impacts associated with increased open space, and recreational provision. In turn, indirect positive impacts are associated with high quality biodiversity functions and air quality. Indirect impacts of increasing green space in and around Oranmore and carbon sinks are also identified.

7.10 Material Assets – flooding, wastewater, water services, waste management and transport – Significant Impacts

Several transport policies and objectives create positive impacts as they support more sustainable transport options with cumulative and in combination positive impacts relating to human health, biodiversity and air quality. The Flood Risk Management policies and objectives are developed in response to the flood risk assessment work and strengthen the overall policy response to flood risk in the plan area. Impacts associated with flooding include:

- Impacts on people and communities – Flooding can cause physical injury, illness and loss of life. Deep, fast flowing or rapidly rising flood waters can be particularly dangerous
- Floodwater contaminated by sewage or other pollutants (e.g. chemicals stored in garages or commercial properties) is particularly likely to cause such illnesses, either directly as a result of contact with the polluted floodwater or indirectly as a result of sediments left behind.
- Flood water may also hide other hazards for wading pedestrians, such as manhole openings where the covers have been lifted by flood flows
- Sea-water flooding may cause additional damage due to corrosion.
- Impacts on Infrastructure - The damage flooding can cause to businesses and infrastructure, such as transport or utilities like electricity and water supply, can have significant detrimental impacts on local and regional economies.
- Flooding of primary roads or railways can deny access to large areas beyond those directly affected by the flooding for the duration of the flood event, as well as causing damage to the road or railway itself. Flooding of water distribution infrastructure such as pumping stations or of electricity sub-stations can result in loss of water or power supply over large areas. This can magnify the impact of flooding well beyond the immediate community.
- The long-term closure of businesses, for example, can lead to job losses and other economic impacts.
- Impacts on the environment - Significant detrimental environmental effects of flooding can include soil erosion, bank erosion, land sliding and damage to vegetation as well as the impacts on water quality, habitats and flora and fauna caused by bacteria and other pollutants carried by flood water. Flooding can however play a beneficial role in natural habitats. Many wetland habitats are dependant on annual flooding for their sustainability and can contribute to the storage of flood waters to reduce flood risk elsewhere.

See Policy UI4 Flood Risk Management and Objective UI12 Flood Risk Management and Assessment in particular are identified as generating positive impacts. In addition, as will be discussed in the land use zoning discussion, the application of the SFRA for County Galway

during the development of the LAP has resulted in the avoidance of intensive and unsuitable development activities in areas identified as flood risk zones A or B. The draft LAP refers to *The Planning System and Flood Risk Management, Guidelines to Planning Authorities 2009* and Policy UI 4 Flood Risk Management supports implementation of these guidelines. These provide for additional identification of flood risk and mitigation measures of same; therefore this increases overall flood risk management in the plan area. Flood risk management is further enhanced through Objectives UI 12 Flood Risk Management and Assessment to UI 14 Coastal Flooding, and DM Guideline UI1 Flood Zones and Appropriate Land Uses. A Strategic Flood Risk Assessment has been undertaken for County Galway which considers Oranmore and this has guided the zoning of lands. The SEA has also assessed the lands zoned in the Draft LAP and the flooding history of the area to ensure that identified land for zoning is not within a flood risk area, and where necessary removed flood risk areas for future development use in favour of more appropriate alternative locations.

For transport, policies and objectives of particular relevance include Policy TI1 Sustainable Transport, Walking and Cycling, Objectives TI4 and 5 (walking and cycling respectively), and Objective TI12 Improved Sustainable Transport Linkages between the Town and City.

Waste management is very site specific and is difficult to assess at strategic level. Careful storage and treatment of excavated soils can mean their reinstatement post construction which contributes to a neutral impact. Identifying locations for Bring Banks (Objective UI18) and Waste Management Plans at application stage (Objective UI17 Waste Prevention, Reduction and Recycling) also create positive impacts for some of the Material Assets EPOs.

Wastewater Infrastructure and Management in Oranmore is a critical component of the SEA assessment. In this regard the SEA recommends that adequate and appropriate drinking water and waste water treatment infrastructure and capacity are in place prior to any further development within the Plan area. As previously stated the potable water supply from Tuam and the current WWTP at Mutton Island is considered sufficient. However, there is some capacity issues with the pumping station at Oranmore. A range of policies are included in the draft LAP that support water quality and water management, for example Policies UI1 Water Supply, Wastewater and Surface Water Infrastructure, and UI 2 Water Quality.

More positive permanent impacts are associated with indirect policies including Sustainable Urban Drainage Systems and the provision for green infrastructure throughout the plan area. The recognition of the WFD and its roles and responsibilities currently act as a key driver toward long term positive impacts for water quality and water management generally.

Table 7h: Material Assets

LAP Section	Material Assets
Section 2: Strategic Vision and Development Strategy	Positive impacts associated with sustainable development of Oranmore, focus on quality of life and environmental resources.
Section 3.1 Land Use Management	Impacts for material assets vary according to land use objective and type of material assets. EPOs for drinking water, waste management and energy efficiency are identified as being mitigated through existing development management guidelines for Objective LU1 Town Centre
Section 3.2 Residential	Overall, the promotion of higher densities can have positive impacts

LAP Section	Material Assets
Development	in relation to transport, for other material assets the impacts are generally associated with project level mitigation. Largely neutral or unlikely to interact impacts were identified for housing although increased housing densities can indirectly assist in public transport provision and reduction in greenhouse gases.
Section 3.3 Social and Community	Most impacts for material assets in this section are identified as likely to conflict with EPOs but mitigated. In this instance many of the potential impacts and mitigation are more suitable for assessment at project or site level Again, for most of these policies and objectives the impacts are unlikely to interact with the material assets EPOs, with the exception of some positive long term impacts associated with the support of services in the town centre.
Section 3.4 Economic Development	Most impacts for material assets in this section are identified as likely to conflict with EPOs but mitigated. In these instances, many of the potential impacts and mitigation are more suitable for assessment at project or site level.
Section 3.5 Transportation Infrastructure	Transport: a number of policies/objectives are identified as having a long term positive impact on the transport EPO by promoting a modal change to more sustainable forms of transport via smart travel, better public transport provision, walking and cycling facilities
Section 3.6 Utility and Environmental Infrastructure	Wastewater: Policy UI1 to Objectives UI 8 are likely to enhance Mat 2 and Mat 4. Flooding: The application of the flood management guidelines in Policy UI4 and supporting objectives should result in enhancing Mat 1. Energy: Policies are uncertain or neutral for most policies but Policy UI6 Energy and Communications and supporting objectives are identified as positive for Mat 6. Waste: Policy UI5 Waste Management and supporting objectives are positive for Mat 5; Objective UI23 Seveso Site addresses management of Seveso sites in Oranmore and generate positive impacts for Pop 1 and Pop2.
Section 3.7 Urban Design and Landscape	These policies and objectives are largely identified as having neutral or uncertain impacts across the Material Assets EPOs. Objective UD4 is identified as positive for Mat 7
Section 3.7 Built Heritage and Cultural Heritage	Largely neutral impacts identified
Section 3.8 Natural Heritage and Biodiversity	Indirect positive impacts on flood risk management may arise due to creation of wildlife corridors ; the linking of recreational space to provide alternative transport modes will also offer positive impacts for sustainable transport provision if a modal shift results

7.11 Cumulative and in combination effects

7.11.1 Environmental Sensitivity Mapping

Sensitivity mapping is a means of assessing the overall vulnerability of an area using many different indicators and key critical data sets. For the present analysis human health, natural

habitats and built heritage are the key items which could be affected by planning decisions. For this reason the following data sets were chosen for the sensitivity analysis[4].

1. Ground water vulnerability
2. Water courses/water bodies 100 m buffer
3. Natural habitats protected sites (SAC, SPA, NHA, pNHAs) - 100m buffer
4. Built heritage and geology sites SMR, RPS and Geological Heritage Sites (20m buffer)
5. Architectural Conservation Area
6. Viewsheds

There are two ways of combining this data to produce a sensitivity map. The first involves accumulating the evidence for presence or absence of each of the data types at all points on the map. This is termed 'sums of evidence' and is usually applied using thresholds of sensitivity for each data type. For example Ground Water Vulnerability may be coded as present if high to extreme and not present if below high (low, moderate etc). Point source data is treated by applying a suitable buffer around the points. The problems associated with this approach are the need to decide upon suitable thresholds for each data type and the sharp nature of boundaries between present and absent gives poor gradations in the sensitivity analysis at data boundaries.

A second approach, applied here, is to calculate relative sensitivities (in the range 0.1) for each data set and then sum these sensitivities to get an overall sensitivity. For point source (SMR, RPS, Geology) and line (rivers) data the relative sensitivities of each data set was proportional to the inverse of the distance from the point to the buffer (that is higher sensitivity closer to the point). For area/polygon data then the relative sensitivity for each polygon with the data set was proportional to the data value (thus for ground water vulnerability 0 = low, 0.5 = moderate and 1.0 = extreme, and so on). The resultant sum of the sensitivities is divided by the number of data types (8 in this case) to get an overall sensitivity score in the range 0.1 (where 0 is low sensitivity and 1 is extreme sensitivity – in practice a total score of 1 would only occur rarely where all the individual data set sensitivity values are at a maximum at the same location).Figure 7a shows the resulting sensitivity map.

7.11.2 Discussion of environmental sensitivities

Figure 7a highlights the areas identified as being of greatest sensitivity. Reflecting the designations and the hydrological regime within the plan area, the areas of greatest environmental sensitivity are the watercourses within the plan area, their associated habitats including fen areas and the coastal habitats and zone. The LAP has reflected these sensitivities through zoning these areas of greatest sensitivity as Environmental Management Areas (see for example the area adjoining the Business and Technology zoning or the Creganna Marsh area). The exception to this is the area in Oranhill that is already developed for residences, the zoning in this instance is Existing Residential in order to conform with the current land use.

The least sensitive areas are identified in the northern part of the plan area, north of the R446 (formerly N6) and zoned for industrial. This area already supports a range of established

[4] ***Landscape sensitivity was not included in this particular modelling; as much of the LAP Area is ranked Class 3 (high sensitivity) with pockets of coastal area Class 4 (special) – this frequently correlated with designated sites particularly around the coastal zone.*** This clarification was provided on foot of a submission by the EPA

industrial developments and activities and includes the IPPC licensed facilities within the plan area. The next least sensitive area is identified within the town centre that is intensively used, largely built up and away from the sensitive water features. For much of this area, the zonings are conforming to existing land use or providing opportunities for infill development and community or town centre/commercial use.

The following section discusses the proposed zonings in more detail, whilst Annex A evaluates each zoning against the EPOs.

7.12 Key effects due to changes in land use zonings in Draft LAP

A number of Zoning Objectives from the previous LAP have been changed to reflect existing/proposed uses. Many of these zoning changes reflect development activity over the past number of years, so for example a number of zonings now relate to constructed residential dwellings in the functional area and these are zoned as Residential (Existing). Within this zoning, there are very small infill strips that may be able to support single residential development. In terms of zoning objectives, the principal changes are for the following:

Environmental Management: Areas zoned as Environmental Management have been identified as lands with high biodiversity value and/or environmental sensitivity, including natural heritage designations such as Special Protection Areas and Special Areas of Conservation and thus the promotion of the sustainable use and management of these areas is required.

The objective associated with this is as follows:
Objective LU 9 – Environmental Management (EM)
Protect lands and sites with high biodiversity value and/or environmental sensitivity, and promote their sustainable management and use. This will include the protection of the integrity of European sites that form part of the Natura 2000 network, in particular Special Protection Areas and Special Areas of Conservation, in accordance with the ***conservation management objectives of these sites*** and the requirements of the EU Habitats Directive.

Objective DS 7 – Strategic Reserve Area

Protect and safeguard the lands within the designated Strategic Reserve Area from any development that would prejudice their potential as a reserve for the future, longer term strategic growth of Oranmore. ***Ensure that any future*** plan or project ***within the Strategic Reserve that has the potential to result in likely significant effects to the environment and/or Natura 2000 Sites undergo environmental and/or Habitats Directive assessments*****, including the evaluation of the*** ***cumulative/in combination effects. Any future plan or project within the Strategic Reserve Area will be subject to the*** requirements of The Planning System and Flood Risk Management Guidelines for Planning Authorities 2009, as appropriate***.***

Blue, bold font *shows mitigation measures proposed through SEA and HDA process, further detail provided in Chapter Eight.*

7.12.1 Summary of zonings

Table 7i presents the total zonings for the plan area that together comprise the plan area of approximately 709 hectares. Figure 7b shows the landuse zoning changes proposed for the Draft LAP.

Table 7i Total Zonings for Oranmore LAP

Total Areas Proposed for Land use Zoning	Size in hectares
Environmental Management	181.00
Industrial	72.16
Business and Technology	89.10
Open space/recreation and amenity	61.69
Transport Infrastructure	50.08
Agriculture	36.30
Residential R1	33.96
Strategic Reserve Area	32.82
Community Facilities	16.96
Town Centre/commercial C1	11.69
Commercial /mixed use C2	11.99
Residential R2	18.34
Business and Enterprise	3.47

7.13 Discussion of Zonings

Environmental Management

As can be seen from the preceding tables, the greatest area for zoning in the plan area is Environmental Management (181 hectares).

This is identified as a positive impact for a range of EPOs including Biodiversity, Water, Material Assets (flooding), Soil and Geology and Population and Human health. This is due to this zoning directing development away from environmentally sensitive areas including Natura 2000 sites and flood risk areas, and is reflective of the Natura Impact Report that has been prepared in tandem with the draft LAP and SEA.

Flood Risk

The majority of areas identified as Flood Zone A or B under the SFRA for County Galway are zoned either EM or Open Space within the plan area, thus avoiding incompatible uses and directing inappropriate development away from these zones. As the Land use matrix for the LAP shows, the only development open for consideration within the EM is Utilities Infrastructure and Public Service Installation and Open space. Such developments would be assessed in accordance with the Planning System and Flood Risk Management Guidelines (2009).

There are also small areas or strips of lands identified in the SFRA for County Galway that have been zoned open space in the LAP and these correspond to Flood Zone A or B. These are areas within the flood risk zone that adjoin existing residential areas, an example being an area zoned Open Space behind existing residential developments at the plan boundary in Moneyduff.

Finally, an area within the Strategic Reserve Zoning (see below), is identified as being flood risk A. This is in the southern part of the Strategic Reserve Zoning adjoining the coast road. Impacts associated with flooding and biodiversity and water quality can be significant and permanent including pollution of water, disruption to hydrological regime, soil erosion, and disturbance. Objectives DS7 Strategic Reserve Area and DS8 Flood Risk Management and Assessment will address any potential flood risk and land use issues in such areas.

Strategic Reserve Area Zoning

Another significant new area for zoning is an area of 32.82 hectares previously outside the plan boundary. The purpose of this zoning is to facilitate the coordinated management of the area associated with the approved train station at Garraun. The train station application was subject to Habitats Directive Assessment and habitat surveys were undertaken for this application. The following provides an overview of habitats found for this application.

The habitat survey undertaken as part of the planning application[5] and Appropriate Assessment determined that the majority of the project area was improved agricultural grassland (GA1), with ryegrasses (*Lolium spp*) and clover (*Trifolium spp*) dominant. Sections of the site were found to support dry calcereious and natural grassland being associated with shallow soils and limestone outcrops; this area although heavily grazed and poached in places supported a more diverse sward and included Lady's Bedstraw (*Gallum verum*) and occasional species such as wild thyme (*Thymus preecox*). Dry meadows and grassy verges (GS2) were present either side of the railway line and were dominated by tall rank grasses including False Oat Grasses (Arrhenatherum elatius), and some calcicolous species including Harebell (*Campunula rotundifolia*). A small section of salt marsh habitat was identified, and is present in an area immediately adjoining the R336 Coast Road. It is fed by seawater via a culvert and species including Thrift (*Armeria maritime*) and Sea Aster (*Aster Tripolium*) are present. Lower salt marsh (CM1) has links to several Annex I habitats and the AA Screening determined that this habitat may correspond to Atlantic Salt Meadows, however the report states the habitat area is small and again has been grazed and poached quite heavily. Finally, scrub (WS1) habitats are present in a number of areas around the site including the railway embankment and the southeast of the site, species include bramble, bindweed and blackthorn dominated scrub in the southeast area.

The purpose of the strategic reserve zoning is to protect this area around the train station from inappropriate and piecemeal development prior to a masterplan being prepared for the area. Impacts identified were positive for population, air quality and climate and transport EPOs. For the remaining EPOs, most impacts were neutral as the area is not yet subject to a masterplan so the scale and detail of development proposed is unknown at this stage. A mitigation measure is proposed in Chapter Eight to further ensure any masterplan is subject to SEA, Habitats Directive Assessment and according to the flood risk guidelines as appropriate.

Residential Zonings Phase 1 and Phase 2

Figure 7c shows the proposed residential zonings for Oranmore. The following Objective is proposed for these zonings:

Objective RD1 – Phased Residential Development (Refer to Map 1A/1B Land Use Zoning)

[5] Planning Reference 10/1877

Support the development of lands designated as Residential (Phase 1) within the lifetime of the Local Area Plan, subject to normal planning, access and servicing requirements, and reserve the lands designated as Residential (Phase 2) for the longer term growth needs of the town. Residential (Phase 2) lands are generally not developable within the lifetime of this Plan, with the exception of the following developments, which may be considered by the Planning Authority within the lifetime of this Local Area Plan subject to a suitable case being made for the proposal:

1. Single house developments for family members on family owned lands.
2. Non-residential developments that are appropriate to the site context, any existing residential amenity and the existing pattern of development in the area.
3. Where it is apparent that Residential (Phase 1) lands cannot or will not be developed within the plan period, residential development may be considered in a phased manner on some Residential (Phase 2) lands.

The above exceptions will be subject to compliance with the Core Strategy in the Galway County Development Plan, the policies and objectives in this Local Area Plan, the principles of proper planning and sustainable development and to meeting normal planning, access and servicing requirements. Developments will only be permitted where a substantiated case has been made to the satisfaction of the Planning Authority and the development will not prejudice the future use of the lands for the longer term growth needs of the town.

Due to the reduction in land zoned for residential development in line with the County Galway Core Strategy and the removal of lands zoned for residential within what is now the Environmental Management zoning, most of the impacts identified for residential development zones were for impacts that can be mitigated at site /project level. This was relevant to a range of EPOs including Population and Human Health, Landscape and Material Assets EPOs amongst others. In addition, the majority of the R1 land occurring within the Plan area is characterised by existing urban land cover. The habitats associated with this land cover include buildings and artificial surfaces and amenity grassland. Section 5.2.1 of the Natura Impact Report of the Oranmore LAP provides additional information on the habitats and potential impacts on Natura 2000 sites from residential (and other zonings).

Business and Technology

The northeastern corner of the Plan area has been zoned for Business and Technology (BT) development. The BT area is bisected by the Galway – Dublin Intercity Railway line which runs east-west through the site. The majority of the undeveloped land occurring to the north of the railway line is associated with an approved planning application[6] for the development of a Science and Technology Park by IDA Ireland. Habitat surveys undertaken in 2003 at this site as part of the Environmental Impact Statement concluded that the majority of the site was of low ecological value dominated by improved agricultural grassland. A small area of dry calcareous grassland and a pond were noted in the southwest of the proposed site. These features were considered to be of moderate ecological value.

A review of the 2010 ortho-photography suggests that the area of the BT zoned lands to the south of the railway line are dominated by improved agricultural grassland. Wetland habitats

[6] Planning Reference 05/2030

dominated by fen habitats occur immediately adjacent to the BT area to the south of the railway line. Throughout the majority of this southern area no physical boundary i.e. hedgerow, watercourse etc. separates the BT zoning from the SAC boundary. A narrow of strip of open space is present partially. Should new development applications arise in relation to this zoning, the SEA identifies that many EPOs can be addressed through mitigation; however any development on greenfield sites can potentially impact negatively and permanently on certain EPOs, principally Soil and Geology, due to the sealing and loss of soil associated with new build and supporting infrastructure.

Business and Enterprise

Only one parcel of Business and Enterprise zoning is located within undeveloped land within the Plan area. It is buffered from an area of qualifying alkaline fen associated with the Galway Bay Complex cSAC by the existing N18. It is located within/adjacent to the site of an existing business and enterprise centre and a review of 2010 Ortho-photography suggests that it consists of recolonising bare ground habitat. Again, for many EPOs this zoning was identified as presenting impacts that can be mitigated, principally through development management and policies and objectives contained in the draft LAP.

Industrial

Industrial land use zoned on undeveloped land is restricted to the west of the existing Carrowkeel Industrial Estate in the north of the Plan area. This undeveloped land is characterised by improved agricultural grassland with treeline and hedgerow field boundaries and is located approximately 500m to the north of the boundary of the Galway Bay Natura 2000 Sites. This undeveloped land is also buffered from these Natura 2000 Sites by the R338, agricultural grassland, the Galway Dublin railway line and the R446 (formerly the N6 national primary road). Again, for many EPOs this zoning was identified as presenting impacts that can be mitigated, principally through development management and policies and objectives contained in the draft LAP.

Agricultural Zonings

In total 36.30 hectares are proposed for agriculture in the draft LAP. The main agricultural zoning is around Oranhill, beside the EM zoning and adjacent to Creganna Marsh SPA. The provision of agricultural land is not of itself a significant change as the land is predominantly improved agricultural grassland in this area, however consideration must be given to the range of uses permitted in principle or open for consideration under this zoning and appropriate measures implemented to avoid disturbance to bird species or water quality in this area. Objective DS3 Natura 2000 Network and Habitats Directive Assessment will assist in ensuring these issues are considered should development applications present for this area. This zoning was found to have positive impacts for several biodiversity, water and soil EPOs.

Community Facilities

Community Facilities (CF) land use has been zoned on three areas within the Draft Plan. The largest area is located adjacent to the town centre and open space in Oranmore; another area is identified at Innplot, and smaller areas are identified in Oranhill, beside existing residential and another area at Garraun south beside R 1 and Open Space zoning. The range of uses permitted in principle for community facilities include schools, childcare, library, and community facilities amongst others. Again on undeveloped lands, negative impacts are identified for

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

Open Space/Recreation and Amenity

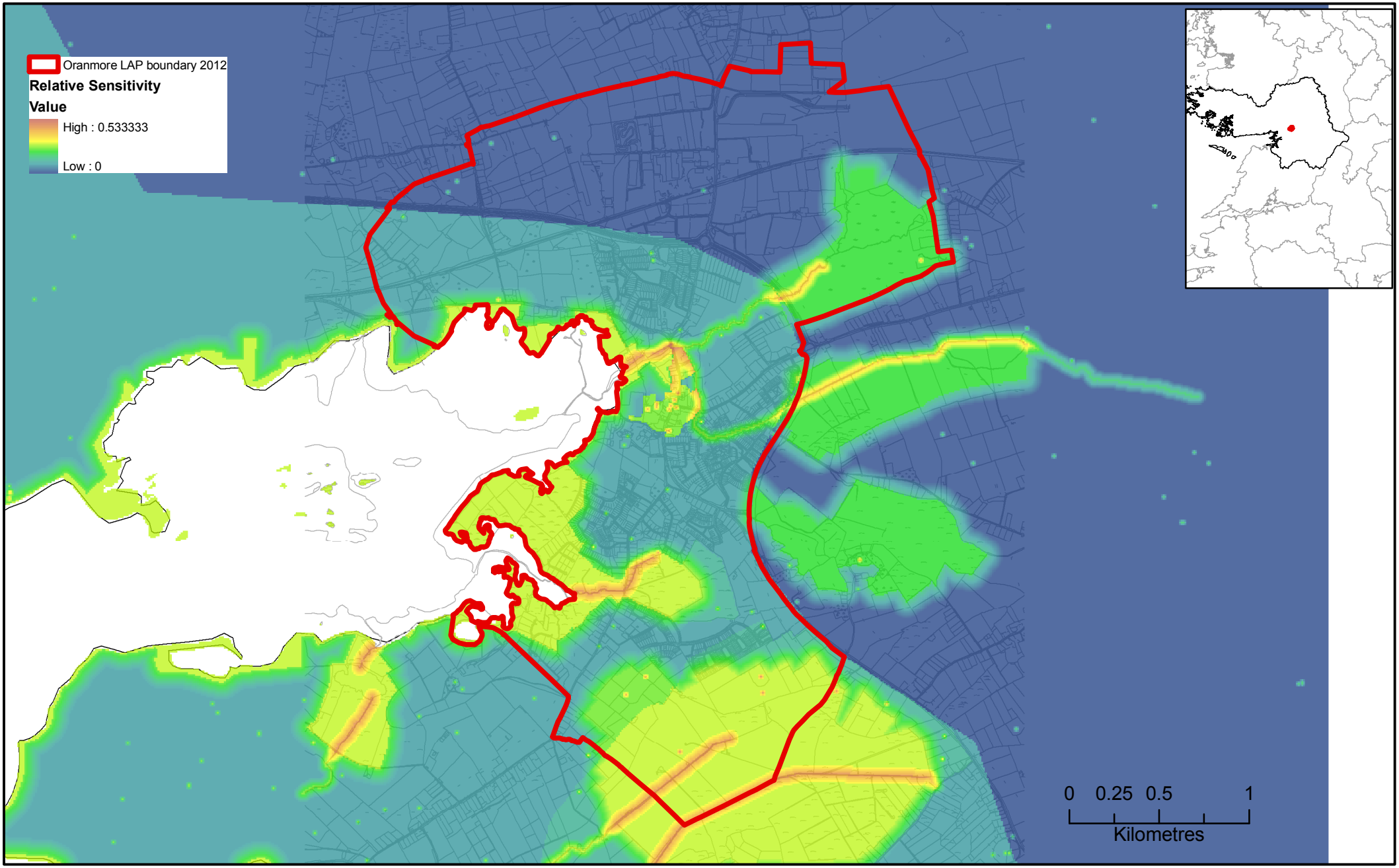
A total of 61.69 hectares are zoned for open space/recreation and amenity within the plan area. Many of these areas are composed of small areas that have either been rezoned following the Flood Risk Assessment or are areas of existing open green space associated with residential development. The largest area is that around the Frenchfort River. Other areas are zoned adjoining the EM zoning for example, south of the coastal road at Garraun, adjoining the town centre and close to the educational facilities, and finally in the Oranhill area in the southern part of the plan area. Impacts identified with such zonings can result in disturbance to species through increased access and accompanying noise or human presence. However, the land use matrix has curtailed a range of potential uses for this zoning and a limited number of uses are open for consideration (none are permitted in principle). The uses include agricultural buildings, utilities infrastructure, renewable energy, clubhouse and recreational/cultural facilities. Generally, for most of the small zonings, impacts were neutral or positive for a range of parameters including cultural heritage (neutral), population and human health (positive) and landscape (positive). For a number of supporting policies and objectives, the SEA and HDA identified potential impacts and recommended a number of mitigation measures at this level. These are detailed in the following chapter.

Finally, *Table 7k* identifies the key interrelationships of the environmental parameters. Although all such parameters may be considered interrelated and may impact on each other at some level, the purpose of this table is to show the significant relationships only.

Table 7k: Key Interrelationships of environmental parameters[7]

Topic	*Biodiversity*	*Water*	*Soil*	*Landscape*	*Cultural Heritage*	*Population*	*Human health*	*Air*	*Climatic factors*	*Material Assets*
Biodiversity		√	√	√		√	√	√	√	√
Water	√		√	√	√	√	√	√	√	√
Soil	√	√		√		√	√	√	√	√
Landscape	√	√	√		√	√				√
Cultural Heritage				√		√	√		√	√
Population	√	√	√	√	√		√	√	√	√
Human health	√	√	√			√		√	√	√
Air	√	√	√			√	√		√	√
Climatic Factors	√	√	√		√	√	√	√		√
Material Assets	√	√	√	√	√	√	√	√	√	

[7] These environmental parameters and their interactions were reviewed following a submission by the EPA



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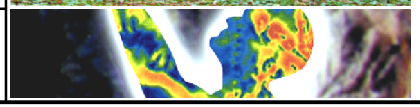
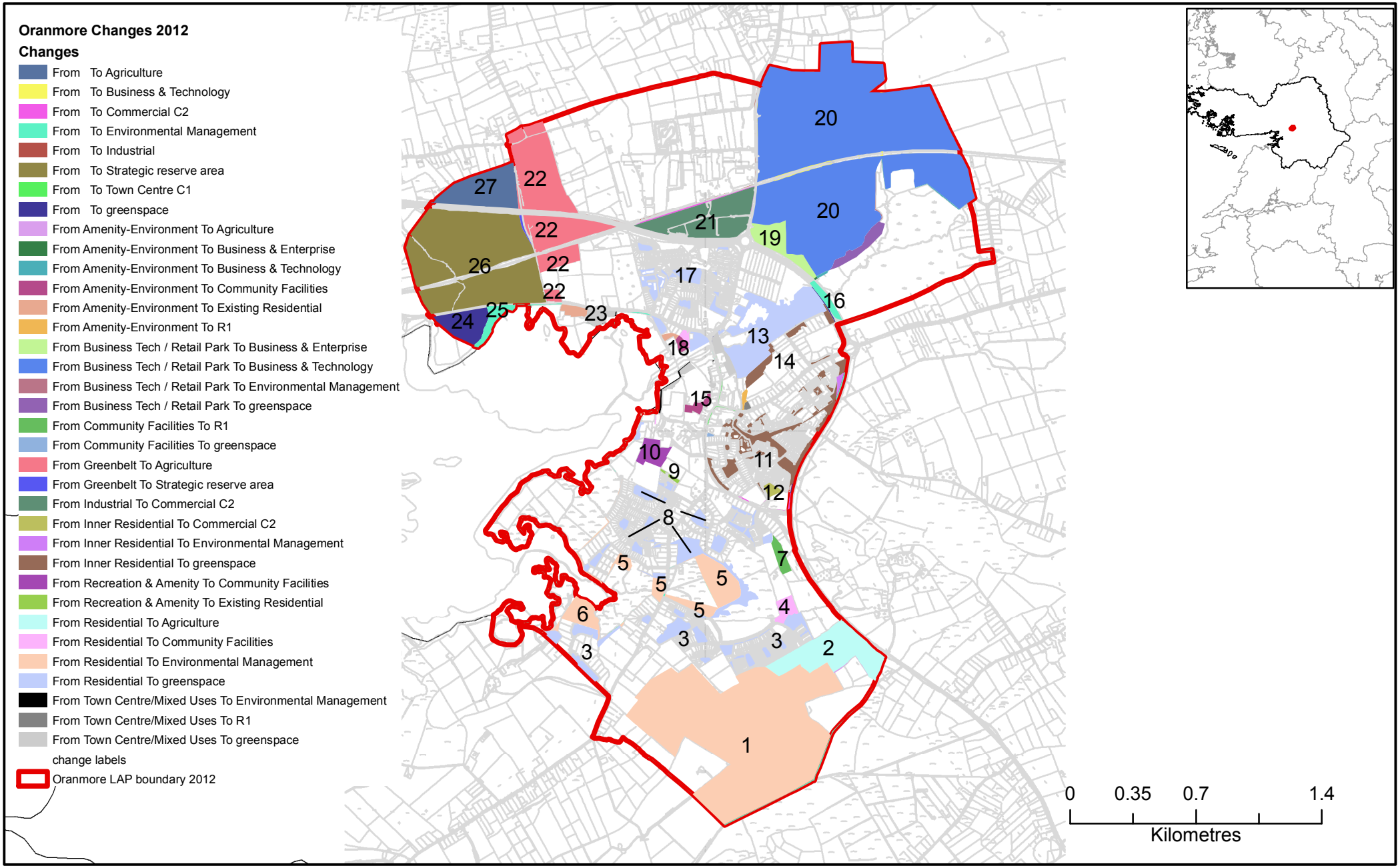
REF:	SIZE: A4	Galway County Council Oranmore Local Area Plan SEA		**ERA-MAPTEC** 40 Lwr. O'Connell St. Dublin 1 www.era.ie
DRAWN: MFC	APPROVED: RM			



DATE: 12/3/2012	SCALE: 1:30,000	**FIGURE 7b: Zoning Changes**	
REF:	SIZE: A4	Galway County Council Oranmore Local Area Plan SEA	
DRAWN: MFC	APPROVED: RM		

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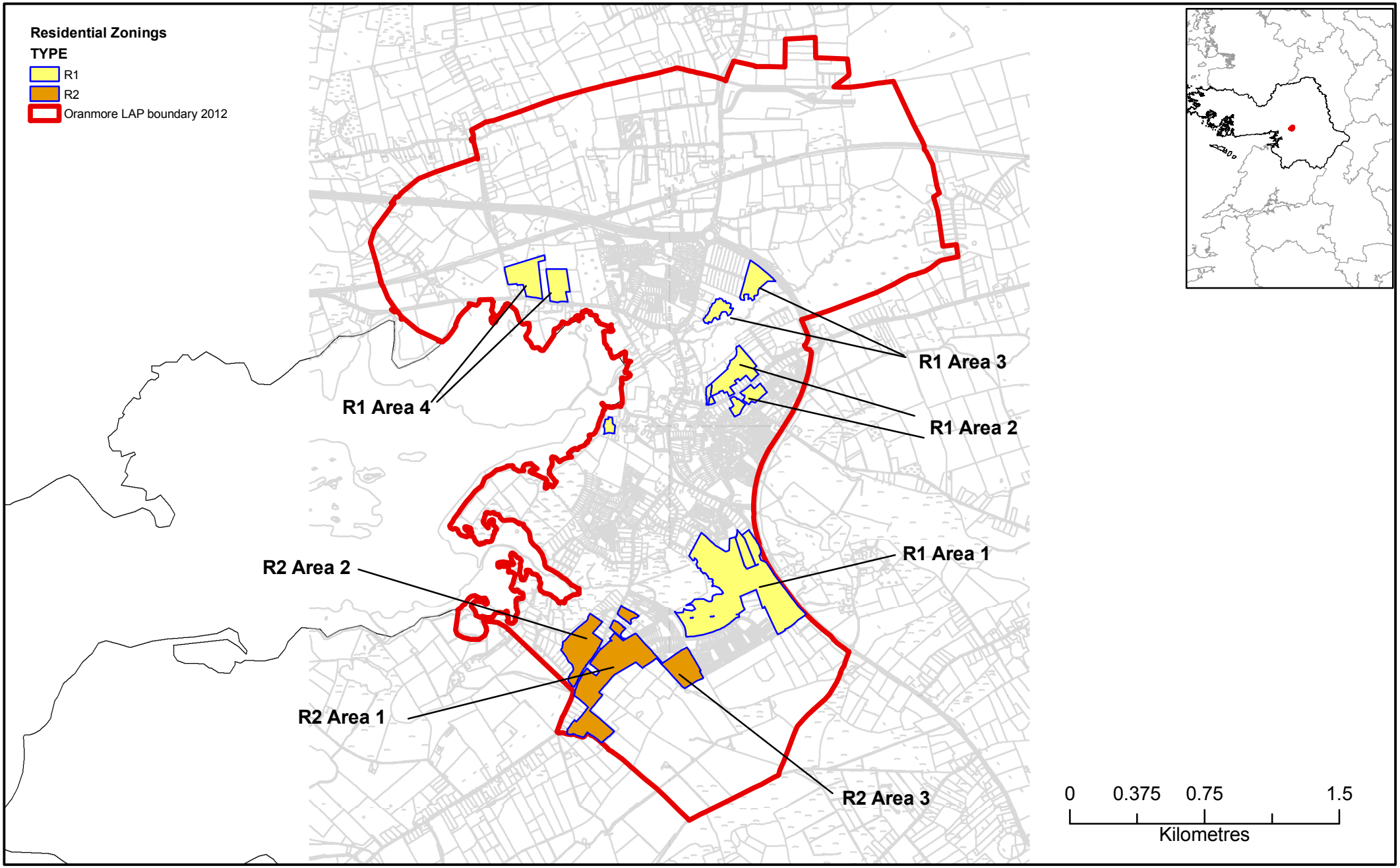
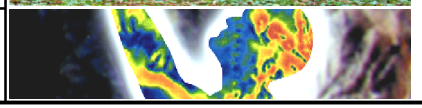


DATE: 12/3/2012	SCALE: 1:30,000	**FIGURE 7c: Residential Zonings**		**minogue & associates** Tuamgraney, County Clare T: 061 640667
REF:	SIZE: A4	Galway County Council Oranmore Local Area Plan SEA		**ERA-MAPTEC** 40 Lwr. O'Connell St. Dublin 1 www.era.ie
DRAWN: MFC	APPROVED: RM			

8 Chapter Eight, Mitigation Measures

8.1 Introduction

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

'The measures envisaged to prevent, reduce and as fully as possible offset any significant adverse effects on the environment of implementing the Plan'

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

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

In addition, many impacts will be more adequately identified and mitigated at project and EIA level.

Objective DS4: Development Management Guidelines of the LAP refers to the full application of all guidelines in the Galway County Development Plan 2009 -2015. In turn, the CDP presents a substantial number of mitigation measures under a range of themes therefore the mitigation measures proposed below take cognisance of these measures but add or strengthen them where significant potential impacts have been identified. In addition, the application of the SFRA has informed zoning, most particularly in avoiding unsuitable landuses and directing intensive developments away from flood risk areas. The provision of the EM zoning further mitigates against inappropriate development in sensitive areas particularly Natura 2000 sites in the plan area.

There are also a number of policies/objectives that are identified as potentially generating significant adverse impacts on the environment, and suggested rewording of these policies is put forward for consideration and recommended for adoption.

The mitigation measures detailed in the following section will assist in the development management process. Such mitigation measures could be useful to potential applicants as they provide guidance on the key environmental issues to be addressed.

8.2 Mitigation Measures – Suggested Rewording of Existing Draft Policies

Table 8a proposes a number of changes to the draft policies/objectives in order to strengthen protection of environmental resources. These have been informed by both the SEA and the HDA process.

It is recommended that all legislation, policy and guidelines outlined in both the Draft Oranmore LAP, and this Environmental Report are adhered to. In addition, future legislation, policy and guidelines should also be fully integrated where appropriate and necessary into the Draft Plan and Environmental Report.

Table 8a: Existing and Suggested Policies/Objectives in the draft LAP

Original Draft Policy/Objective	Recommended change	Reason	Policy or Objective in Draft LAP
Objective DS 3 – Natura 2000 Network and Habitats Directive Assessment Protect Natura 2000 sites, including Special Protection Areas and Special Areas of Conservation, that form part of the Natura 2000 network, in accordance with the requirements in the EU *Habitats Directive* (92/43/EEC), EU *Birds Directive 1979 79/409/EEC,* the *European Communities (Natural Habitats) Regulations 1997* (S.I. No 94 of 1997), the *Planning and Development (Amendment) Act 2010*, the *European Communities (Birds and Natural Habitats) Regulations 2011* (S.I. No. 477 of 2011) (and any subsequent amendments or updated legislation) and having due regard to the guidance in the *Appropriate Assessment Guidelines 2010* (and any subsequent or updated guidance). A plan or project (e.g. proposed development) within the Plan Area will only be authorised after the competent authority (Galway County Council) has ascertained, based on scientific knowledge and a Habitats Directive Assessment where necessary, that: 1.The plan or project will not give rise to significant adverse direct, indirect or secondary impacts on the integrity of any Natura 2000 site (either individually or in combination with other plans or projects); or	Additional number point as follows: ***3.The plan or project will adversely affect the integrity of a priority qualifying habitat or species any Natura 2000 site (that hosts a priority natural habitat type and/or a priority species) but interest. there are no alternative solutions and the plan or project must nevertheless be carried out for imperative reasons of overriding public interest, relating to human health or public safety, or where the proposed plan or project is of beneficial consequences of primary importance for the environment or, further to an opinion from the Commission, to other imperative reasons of overriding public interest. In this case, it will be a requirement to follow procedures set out in legislation and agree and undertake all compensatory measures necessary to ensure the protection of the overall coherence of Natura 2000.***	To strengthen and detail requirements of Habitats Directive Assessment	**Objective DS3 – Natura 2000 Network and Habitats Directive Assessment** Protect European sites that form part of the Natura 2000 network (including Special Protection Areas and Special Areas of Conservation) in accordance with the requirements in the EU *Habitats Directive (92/43/EEC)*, EU *Birds Directive (2009/147/EC)*, the *Planning and Development (Amendment) Act 2010*, the *European Communities (Birds and Natural Habitats) Regulations 2011 (SI No. 477 of 2011)* (and any subsequent amendments or updated legislation) and having due regard to the guidance in the *Appropriate Assessment Guidelines 2010* (and any updated/superseding guidance). A plan or project (e.g. proposed development) within the Plan Area will only be authorised after the competent authority (Galway County Council) has ascertained, based on scientific evidence and a Habitats Directive Assessment where necessary, that: 1. The plan or project will not give rise to significant adverse direct, indirect or secondary impacts on the integrity of any Natura 2000 site (either individually or in combination with other plans or projects); or 2. The plan or project will adversely affect the integrity of any Natura 2000 site (that does not host a priority

Original Draft Policy/Objective	Recommended change	Reason	Policy or Objective in Draft LAP
2.The plan or project will adversely affect the integrity of any Natura 2000 site but there are no alternative solutions and the plan or project must nevertheless be carried out for imperative reasons of overriding public interest, including those of a social or economic nature. In this case, it will be a requirement to undertake all compensatory measures necessary to ensure the protection of the overall coherence of Natura 2000; or			natural habitat type and/or a priority species) but there are no alternative solutions and the plan or project must nevertheless be carried out for imperative reasons of overriding public interest, including those of a social or economic nature. In this case, it will be a requirement to follow procedures set out in legislation and agree and undertake all compensatory measures necessary to ensure the protection of the overall coherence of Natura 2000; or 3. ***The plan or project will adversely affect the integrity of any Natura 2000 site (that hosts a priority natural habitat type and/or a priority species) but there are no alternative solutions and the plan or project must nevertheless be carried out for imperative reasons of overriding public interest, restricted to reasons of human health or public safety, to beneficial consequences of primary importance for the environment or, further to an opinion from the Commission, to other imperative reasons of overriding public interest. In this case, it will be a requirement to follow procedures set out in legislation and agree and undertake all compensatory measures necessary to ensure the protection of the overall coherence of Natura 2000.***
Objective DS 5 – Service Led Development Development under the Plan shall be preceded by sufficient capacity in the public waste	**Objective DS 5 – Service Led Development** Development under the Plan shall be preceded	To ensure lands are serviced for both wastewater and potable water in	**Objective DS 5 – Service Led Development** Development under the Plan shall be preceded by sufficient capacity in the public waste water

Original Draft Policy/Objective	Recommended change	Reason	Policy or Objective in Draft LAP
water infrastructure	by sufficient capacity in the public waste water ***and potable water infrastructure***	advance of development.	infrastructure ***and potable water infrastructure***
Objective DS 7 – Strategic Reserve Area Protect and safeguard the lands within the designated Strategic Reserve Area from any development that would prejudice their potential as a reserve for the future, longer term strategic growth of Oranmore.	**Objective DS 7 – Strategic Reserve Area** Protect and safeguard the lands within the designated Strategic Reserve Area from any development that would prejudice their potential as a reserve for the future, longer term strategic growth of Oranmore. ***Ensure that any future proposals within the Strategic Reserve that have the potential to result in likely significant effects to the environment and/or Natura 2000 Sites are identified and undergo environmental and/or Habitats Directive assessments. Cumulative/in combination effects of such future developments should be evaluated as part of such assessments.***	This will highlight the need to undertake cumulative/in combination assessment of developments within the Strategic Reserve Area, including the access road. This is required as there is a hydrological connection between the Strategic Reserve Area and the Galway Bay SAC	**Objective DS 7 – Strategic Reserve Area** Protect and safeguard the lands within the designated Strategic Reserve Area from any development that would prejudice their potential as a reserve for the future, longer term strategic growth of Oranmore. ***Ensure that any future*** **plan or project** ***within the Strategic Reserve that has the potential to result in likely significant effects to the environment and/or Natura 2000 Sites undergo environmental and/or Habitats Directive assessments,*** **including the evaluation of the** ***cumulative/in combination effects.*** Any future plan or project within the Strategic Reserve Area will be subject to the requirements of The Planning System and Flood Risk Management Guidelines for Planning Authorities 2009, as appropriate.
Objective LU 8 – Open Spaces/Recreation & Amenity (OS) Promote the development of open spaces and recreational activities in accordance with best practice on suitable lands with adequate access to the local community and retain existing open space and recreational facilities, unless it can be clearly demonstrated that these uses are no longer required	**Objective LU 8 – Open Spaces/Recreation & Amenity (OS)** Promote the development of open spaces and recreational activities in accordance with best practice on suitable lands with adequate access to the local community and retain existing open space and recreational facilities, unless it can be clearly demonstrated	To ensure GCC can determine open space retention and provision	**Objective LU 8 – Open Spaces/Recreation & Amenity (OS)** Promote the development of open spaces and recreational activities, in accordance with best practice, on suitable lands with adequate access to the local community and retain existing open space and recreational facilities, unless it can be clearly demonstrated ***to the satisfaction of Galway County Council*** that these uses are no longer required ***by the***

Original Draft Policy/Objective	Recommended change	Reason	Policy or Objective in Draft LAP
	to the satisfaction of Galway County Council that these uses are no longer required ***by the community***		***community***.
Objective LU 9 – Environmental Management (EM) Promote the sustainable use and management of lands with high biodiversity value and/or environmental sensitivity, including flood risk and those with natural heritage designations such as Special Protection Areas and Special Areas of Conservation.	**Objective LU 9 – Environmental Management (EM)** • Promote the sustainable use and management of lands with high biodiversity value and/or environmental sensitivity, including flood risk and those with natural heritage designations. • ***Support the conservation management objectives of natural heritage designations such as Special Protection Areas and Special Area Conservation***.	To provide greater clarity in terms of Habitats Directive requirements and function of Environmental Management Areas	**Objective LU 9 – Environmental Management (EM)** Protect lands and sites with high biodiversity value and/or environmental sensitivity ***and promote their sustainable management and use. This will include*** the protection of the integrity of European sites that form part of the Natura 2000 network, in particular Special Protection Areas and Special Areas of Conservation, in accordance with the conservation management objectives of these sites ***and the requirements of the EU Habitats Directive (92/43/EEC).***
Objective LU 15 – Residential Densities Promote a range of residential densities within the Plan Area appropriate to the prevailing development pattern, supporting infrastructure, urban character and heritage resources in accordance with the guidance in '*Sustainable Residential Development in Urban Areas Guidelines 2009'* (or as updated within the lifetime of this plan). Higher residential densities should be encouraged at locations where it is appropriate to the existing context and density of the Plan Area, for example around the town centre and within convenient walking distance of public transport facilities, and where it will not unduly impact on built or natural heritage	**Objective LU 15 – Residential Densities** Promote a range of residential densities within the Plan Area appropriate to the prevailing development pattern, supporting infrastructure, urban character and heritage resources in accordance with the guidance in '*Sustainable Residential Development in Urban Areas Guidelines 2009'* (or as updated within the lifetime of this plan). Higher residential densities should be encouraged at locations where it is appropriate to the existing context and density of the Plan Area, for example around the town centre	Surface run off, water extraction, soil disturbance and inadequate wastewater infrastructure could all impact on Cregganna Marsh and Galway Bay Natura 2000 sites	**Objective LU 15 – Residential Densities** Promote a range of residential densities within the Plan Area appropriate to the prevailing development pattern, supporting infrastructure, urban character and heritage resources in accordance with the guidance in '*Sustainable Residential Development in Urban Areas Guidelines 2009'* (or as updated within the lifetime of this plan). Higher residential densities should be encouraged at locations where it is appropriate to the existing context and density of the Plan Area, for example around the town centre and within convenient walking distance of public transport facilities, and where it will not unduly impact on built or natural heritage ***or impact adversely on the integrity of Natura 2000***

Original Draft Policy/Objective	Recommended change	Reason	Policy or Objective in Draft LAP
	and within convenient walking distance of public transport facilities, and where it will not unduly impact on built, natural heritage ***or impact adversely on integrity of Natura 2000 sites.***		***sites.*** The density of residential developments will generally be in accordance with the guidance set out under DM Guideline LU1, although the Planning Authority may consider higher residential densities where this is considered appropriate to the context and necessary to secure the urban design or other objectives of the Plan**.** Development will only be permitted where there is capacity and/or adequate services can be made available
Objective RD 9 – Strategic Reserve Area Protect and safeguard the lands designated as the Strategic Reserve Area from any development that would prejudice their potential as the land reserve for the future strategic growth of Oranmore. The development of these lands shall be realised in a plan led manner and must be subject to master planning, prior to their development being considered. It is an objective of Galway County Council to bring forward a master plan for a new development area, centred on the proposed rail stop and any future integrated transport hub at Garraun, which will assist in realising the full long-term potential of the Ardaun/Garraun area, in a plan led manner. Any masterplan undertaken shall be subject to the requirements of the Habitats Directive, as appropriate	**Objective RD 9 – Strategic Reserve Area** Protect and safeguard the lands designated as the Strategic Reserve Area from any development that would prejudice their potential as the land reserve for the future strategic growth of Oranmore. The development of these lands shall be realised in a plan led manner and must be subject to master planning, prior to their development being considered. It is an objective of Galway County Council to bring forward a master plan for a new development area, centred on the proposed rail stop and any future integrated transport hub at Garraun, which will assist in realising the full long-term potential of the Ardaun/Garraun area, in a plan led manner. Any masterplan undertaken shall be subject to the requirements of the Habitats Directive, ***and***	As this area has hydrological connections to the Galway Bay SAC and will be subject to a masterplan, it is recommended reference be made to the relevant Habitats Directive Assessment and SEA Regulations.	**Objective RD 9 – Strategic Reserve Area** Protect and safeguard the lands designated as the Strategic Reserve Area from any development that would prejudice their potential as the land reserve for the future strategic growth of Oranmore. The development of these lands shall be realised in a plan led manner and must be subject to master planning, prior to their development being considered. It is an objective of Galway County Council to bring forward a master plan for a new development area, centred on the proposed rail stop and any future integrated transport hub at Garraun, which will assist in realising the full long-term potential of the Ardaun/Garraun area, in a plan led manner. Any masterplan undertaken shall be subject to the requirements of the Habitats Directive, ***and SEA Regulations 2004-2011*** as appropriate

Original Draft Policy/Objective	Recommended change	Reason	Policy or Objective in Draft LAP
	SEA Regulations 2004-2011, as appropriate		
Objective CF 9 – Riverside Networks Encourage and support the development of riverside walkways and cycleways throughout the plan area where feasible and ensure that such proposals are considered or incorporated into the development of adjacent lands, as appropriate. **Refer to *Map 2 - Specific Objectives.***	**Objective CF 9 – Riverside Networks** Encourage and support the development of riverside walkways and cycleways throughout the plan area where feasible and ensure that such proposals are considered or incorporated into the development of adjacent lands, as appropriate. ***Impacts on natural heritage and designated conservation area arising from recreational activities will be considered as part of any proposals.***	Potential disturbance to bird and mammal species may arise along riverside habitats so requirement to highlight this as a potential consideration.	**Objective CF 9 – Riverside Networks** Encourage and support the development of riverside walkways and cycleways throughout the plan area where feasible and ensure that such proposals are considered or incorporated into the development of adjacent lands, as appropriate. ***Impacts on natural heritage and designated conservation areas arising from recreational activities will be considered as part of any proposal.***
Objective CF 10 – Coastal Park Encourage and support the development of a coastal park in Oranmore for the purpose of passive and active recreation, having regard to flood risk. **Refer to *Map 2 - Specific Objectives.***	**Objective CF 10 – Coastal Park** Encourage and support the development of a coastal park in Oranmore for the purpose of passive and active recreation, having regard to flood ***risk and requirements under the Habitats Directive. Such developments will be encouraged and supported by the Plan where they will not result in likely significant effects to the integrity of Galway Bay cSAC and SPA*** **Refer to *Map 2 - Specific Objectives.***	As above	**Objective CF 10 – Coastal Park** Encourage and support the development of a coastal park in Oranmore for the purpose of passive and active recreation, having regard to flood risk ***and requirements under the Habitats Directive. Such developments will be encouraged and facilitated where they will not result in likely significant effects to the integrity of Galway Bay cSAC and SPA.***
Objective CF 11 – Coastal Walkway/Cycleway Facilitate the development of a coastal amenity walkway/cycle route and ancillary development along Galway Bay (or in close proximity to the coast) towards Galway City.	**Objective CF 11 – Coastal Walkway/Cycleway** Facilitate the development of a coastal amenity walkway/cycle route and ancillary development	As above	**Objective CF 11 – Coastal Walkway/Cycleway** Facilitate the development of a coastal amenity walkway/cycle route and ancillary development along Galway Bay (or in close proximity to the coast) towards Galway City. This walk/cycle way

Original Draft Policy/Objective	Recommended change	Reason	Policy or Objective in Draft LAP
This walk/cycle way will link to the town centre and other recreation/amenity/community facilities, and shall be carried out in an environmentally sensitive manner, in consultation with all relevant stakeholders.	along Galway Bay (or in close proximity to the coast) towards Galway City. This walk/cycle way will link to the town centre and other recreation/amenity/community facilities, and shall be carried out in an environmentally sensitive manner in consultation with all relevant stakeholders. ***Such developments will only be facilitated where they will not result in likely significant effects to the integrity of the Galway Bay SAC and SPA***.		will link to the town centre and other recreation/amenity/community facilities, and shall be carried out in an environmentally sensitive manner, in consultation with all relevant stakeholders. ***Such developments will only be facilitated where they will not result in likely significant effects to the integrity of Galway Bay SAC and SPA.***
Objective TI 32– Access Road to Rail Station Provide for a new access road with pedestrian and cycling facilities, from the R338 Coast Road to serve the rail stop, which makes provision to pass/cross the rail line and which continues north to the R446 linking to the proposed road interchange on the R446. Route considerations will be informed by ecological impact assessment/ habitats directive assessment as appropriate	**Objective TI 32– Access Road to Rail Station** Provide for a new access road with pedestrian and cycling facilities, from the R338 Coast Road to serve the rail stop, which makes provision to pass/cross the rail line and which continues north to the R446 linking to the proposed road interchange on the R446. ***Route considerations will be informed by ecological impact assessment/ habitats directive assessment as appropriate***	As above	**Objective TI 32– Access Road to Rail Station** Provide for a new access road with pedestrian and cycling facilities, from the R338 Coast Road to serve the rail stop, which makes provision to pass/cross the rail line and which continues north to the R446 linking to the proposed road interchange on the R446. ***Route considerations shall be informed by an ecological impact assessment or Habitats Directive Assessment, as appropriate.***
Objective UI 9 – Climate Change & Air Quality Continue to implement Galway County Council's *Energy Action Plan* regarding energy efficiency and conservation in existing and future buildings, in energy use and procurement activities and in raising awareness and stimulating	**Objective UI 9 – Climate Change & Air Quality** Continue to implement Galway County Council's *Energy Action Plan* regarding energy efficiency and conservation in existing and future buildings, in	Reference to recent 2011 Statutory Instruments strengthens air quality protection and makes reference to specific standards.	**Objective UI 9 – Climate Change & Air Quality** Continue to implement Galway County Council's *Energy Action Plan* regarding energy efficiency and conservation in existing and future buildings, in energy use and procurement activities and in raising awareness and stimulating action within local

Original Draft Policy/Objective	Recommended change	Reason	Policy or Objective in Draft LAP
action within local communities. Promote the preservation of best ambient air quality compatible with sustainable development throughout the Plan Area by seeking to protect and maintain the regulatory standards contained with the EPA's *Air Quality in Ireland 2009 Key Indicators of Ambient Air Quality* (Environmental Protection Agency 2010, or any superseding document).	energy use and procurement activities and in raising awareness and stimulating action within local communities. Promote the preservation of best ambient air quality compatible with sustainable development throughout the Plan Area by seeking to protect and maintain the regulatory standards contained with the EPA's *Air Quality in Ireland 2009 Key Indicators of Ambient Air Quality* (Environmental Protection Agency 2010, or any superseding document) ***and ensure that all air emissions associated with new developments are within Environmental Quality Standards as set out in statutory regulations, namely SI 180/2011 Air Quality Standards Regulations 2011***		communities. Promote the preservation of best ambient air quality compatible with sustainable development throughout the Plan Area by seeking to protect and maintain the regulatory standards contained with the EPA's *Air Quality in Ireland 2009 Key Indicators of Ambient Air Quality* (Environmental Protection Agency 2010, or any superseding document) ***and ensure that all air emissions associated with new developments are within Environmental Quality Standards as set out in statutory regulations, namely SI 180/2011*** *Air Quality Standards Regulations 2011*
Objective UI 15 – Coastal Flooding Require development proposals in the coastal zone identified in the Flood Risk Assessment as vulnerable to flooding, to consider the implications of predicted sea-level rise and prohibit development that will be at risk from coastal erosion or inundation in the future, or that may result in an increase in coastal erosion or increase the risk of inundation, either at the subject site or at another location in the vicinity.	**Objective UI 15 – Coastal Flooding** Require development proposals in the coastal zone identified in the Flood Risk Assessment as vulnerable to flooding, to consider the implications of predicted sea-level rise and prohibit development that will be at risk from coastal erosion or inundation in the future, or that may result in an increase in coastal erosion or increase the risk of inundation, either at the subject site or at	Oranmore has a history of tidal flooding, therefore in addition to highlighting application of flood management guidelines, associated legislative provision is highlighted including Habitats Directive and Water Framework	**Objective UI 14 – Coastal Flooding** Ensure that any development proposals within/near areas at risk of coastal flooding, assess the implications of predicted sea level rise, and prohibit development that would be at unacceptable risk from coastal erosion or inundation, or that may result in an increased risk in coastal erosion or inundation elsewhere. ***Adherence to the following will be a requirement:*** • ***The Planning System and Flood Risk Management Guidelines 2009 (or any***

Original Draft Policy/Objective	Recommended change	Reason	Policy or Objective in Draft LAP
	another location in the vicinity. ***Adherence to the following will be a requirement:*** • ***Planning Guidelines for Flood Risk Management*** • ***Habitats Directive Assessment*** • ***Water Framework Directive***	Directive	***superseding document)*** • ***Habitats Directive*** • ***Water Framework Directive***
Objective NH 1 – Natura 2000 Sites Protect European 2000 sites, including Special Protection Areas and Special Areas of Conservation, that form part of the Natura 2000 network, in accordance with the requirements in the EU *Habitats Directive* (92/43/EEC), EU *Birds Directive* 2009/147/EC-codified version of Directive) the *Planning and Development (Amendment) Act 2010*, the *European Communities (Birds and Natural Habitats) Regulations 2011* (S.I. No. 477 of 2011) (and any subsequent amendments or updated legislation) and having due regard to the guidance in the *Appropriate Assessment Guidelines 2010* (and any subsequent or updated guidance). A plan or project (e.g. proposed development) within the Plan Area will only be authorised after the competent authority (Galway County Council) has ascertained, based on scientific evidence and a Habitats Directive Assessment where necessary, that: 1. The plan or project will not give rise to adverse direct, indirect or secondary impacts on the integrity of any Natura 2000 site (either	Additional number point as follows: ***3.The plan or project will adversely affect the integrity of any Natura 2000 site (that hosts a priority natural habitat type and/or a priority species) but there are no alternative solutions and the plan or project must nevertheless be carried out for imperative reasons of overriding public interest, restricted to reasons of human health or public safety, to beneficial consequences of primary importance for the environment or, further to an opinion from the Commission, to other imperative reasons of overriding public interest. In this case, it will be a requirement to follow to follow procedures set out in legislation and agree and***	To strengthen overall protection and management of Natura 2000 sites and adherence to Habitats Directive Assessment	**Objective NH1 – Natura 2000 sites.** Protect European sites that form part of the Natura 2000 network (including Special Protection Areas and Special Areas of Conservation) in accordance with the requirements in the EU *Habitats Directive (92/43/EEC)*, EU *Birds Directive (2009/147/EC)*, the *Planning and Development (Amendment) Act 2010*, the *European Communities (Birds and Natural Habitats) Regulations 2011 (SI No. 477 of 2011)* (and any subsequent amendments or updated legislation) and having due regard to the guidance in the *Appropriate Assessment Guidelines 2010* (and any updated/superseding guidance). A plan or project (e.g. proposed development) within the Plan Area will only be authorised after the competent authority (Galway County Council) has ascertained, based on scientific evidence and a Habitats Directive Assessment where necessary, that: 1. The plan or project will not give rise to significant adverse direct, indirect or secondary impacts on the integrity of any Natura 2000 site (either individually or in combination with other plans or projects); or 2. The plan or project will adversely affect the integrity of any Natura 2000 site (that

Original Draft Policy/Objective	Recommended change	Reason	Policy or Objective in Draft LAP
individually or in combination with other plans or projects); or 2. The plan or project will adversely affect the integrity of any Natura 2000 site (that does not host a priority natural habitat type and/or a priority species) but there are no alternative solutions and the plan or project must nevertheless be carried out for imperative reasons of overriding public interest, including those of a social or economic nature. In this case, it will be a requirement to follow procedures set out in legislation and agree and undertake all compensatory measures necessary to ensure the protection of the overall coherence of Natura 2000;	***undertake all compensatory measures necessary to ensure the protection of the overall coherence of Natura 2000.***		does not host a priority natural habitat type and/or a priority species) but there are no alternative solutions and the plan or project must nevertheless be carried out for imperative reasons of overriding public interest, including those of a social or economic nature. In this case, it will be a requirement to follow procedures set out in legislation and agree and undertake all compensatory measures necessary to ensure the protection of the overall coherence of Natura 2000; or ***3.The plan or project will adversely affect the integrity of any Natura 2000 site (that hosts a priority natural habitat type and/or a priority species) but there are no alternative solutions and the plan or project must nevertheless be carried out for imperative reasons of overriding public interest, restricted to reasons of human health or public safety, to beneficial consequences of primary importance for the environment or, further to an opinion from the Commission, to other imperative reasons of overriding public interest. In this case, it will be a requirement to follow to follow procedures set out in legislation and agree and undertake all compensatory measures necessary to ensure the protection of the overall coherence of Natura 2000.***
Objective NH 7 – Wetlands, Springs, Rivers and Streams	**Objective NH 7 – Wetlands, Springs,**		**Objective NH 7 – Wetlands, Springs, Rivers and Streams**

Original Draft Policy/Objective	Recommended change	Reason	Policy or Objective in Draft LAP
Seek to preserve the wetlands of Oranmore, identify and protect natural springs, streams/rivers, where possible	**Rivers and Streams** Seek to preserve the wetlands of Oranmore, identify and protect natural springs, streams/rivers, where possible and ***ensure that any plans/projects with the potential to adversely affect groundwater, springs, streams or rivers, identify the presence of these features and adequately assess the of impacts to them***. Protect springs identified on Ordnance Survey mapping ***or any springs newly identified during project development assessments*** so that they are not impeded		Seek to preserve the wetlands of Oranmore, identify and protect natural springs, streams/rivers, where possible and ***ensure that any plans/projects with the potential to adversely affect groundwater, springs, streams or rivers, identify the presence of these features and adequately assess the impacts to them.*** Protect springs identified on Ordnance Survey mapping or any springs newly identified during project development assessments so that they are not impeded.
Objective NH 8 – Frenchfort Stream Ecological Corridor Protect land for an Ecological Corridor linking two disjoint parts of the Galway Bay Complex cSpecial Area of Conservation and proposed Natural Heritage Area, along Frenchfort Stream (and require an Ecological Management Plan to be produced for any new development along this area). **Refer to the Map 2 - Specific *Objectives Map***.	**Objective NH 8 – Frenchfort Stream Ecological Corridor** Protect land for an Ecological Corridor linking two disjoint parts of the Galway Bay Complex cSpecial Area of Conservation and proposed Natural Heritage Area, along Frenchfort Stream (and require a HDA and Ecological Management Plan to be produced for any new development along this area, ***The Ecological Management Plan will ensure no disruption to the conservation management objectives of the N2K Sites and pNHA*** **Refer to the Map 2 - *Specific Objectives Map***.		**Objective NH 8 – Frenchfort Stream Ecological Corridor** Protect land for an Ecological Corridor linking two disjoint parts of the Galway Bay Complex cSpecial Area of Conservation and proposed Natural Heritage Area, along Frenchfort Stream (and require a Screening for Appropriate Assessment and/or Natura Impact Statement ***and an*** Ecological Management Plan to be produced for any new development along this area). ***The Ecological Management Plan will ensure no disruption to the conservation management objectives of the Natura 2000 sites and pNHAs.*** **Refer to the Map 2 - *Specific Objectives Map***.
Objective NH 10 – Geological	**Objective NH 10 –**	To strengthen	**Objective NH 10 – Geological**

Original Draft Policy/Objective	Recommended change	Reason	Policy or Objective in Draft LAP
and Geomorphological Systems Protect and conserve geological and geomorphological systems, sites and features from inappropriate development that would detract from their heritage value	**Geological and Geomorphological Systems** Protect and conserve geological and geomorphological systems, sites and features from inappropriate development that would detract from their heritage value ***and interpretation and ensure that any plan or project affecting karst formations are adequately assessed with regard to their potential geophysical, hydrological, hydrogeological or ecological impacts on the environment.***	overall protection of such features and systems	**and Geomorphological Systems** Protect and conserve geological and geomorphological systems, sites and features from inappropriate development that would detract from their heritage value ***and interpretation and ensure that any plan or project affecting karst formations are adequately assessed with regard to their potential geophysical, hydrological, hydrogeological or ecological impacts on the environment.***
New Objectives proposed for LAP from SEA and HDA process			
New Objectives		**Reason**	**Policy or Objective in Draft LAP**
Objective NH 11 – Summer Botanical Survey for Lands at Moneyduff ***Ensure that a Summer Botanical Survey is undertaken and submitted as part of any planning application for development of lands beside the SAC/pNHA designated site in Moneyduff.***		Moneyduff, beside Cregganna Marsh SPA was formerly proposed for NHA designation, though this is no longer the case. Nonetheless, the area was surveyed in 2006 and the survey suggested a mosaic of possible Annex I habitats occurs in this area. Recent aerial photos suggest little has changed although scrub may have been cleared. Although not	***Objective NH 11 – Summer Botanical Survey for Lands at Moneyduff*** ***Ensure that a Summer Botanical Survey is undertaken and submitted as part of any planning application for development of lands beside the cSAC/pNHA designated site in Moneyduff.*** ***Refer to the Map 2A/2B - Specific Objectives***

Original Draft Policy/Objective	Recommended change	Reason	Policy or Objective in Draft LAP
		designated, it remains an area of high ecological value, therefore the following mitigation measure is recommended prior to any future development in this area.	
Objective NH 12 – Best Practice Methodologies & Appropriately Qualified Professionals. ***Ensure that Natura Impact Statements and any other ecological impact assessments submitted in support of proposals for development are carried out by appropriately qualified professionals and that any necessary baseline assessments are carried out in line with best practice methodologies.***		To ensure appropriately qualified and experienced professionals with sufficient ecological knowledge prepare such assessments and follow best practice	Please note the mitigation measure has now been incorporated into the following: **Objective NH4 Impact Assessments** Ensure full compliance with the requirements of the EU *Habitats Directive (92/43/EEC)*, *SEA Directive (2001/42/EC)* and *EIA Directive (85/337/EEC)*, and the associated *European Communities (Birds and Natural Habitats) Regulations 2011 (SI No. 477 of 2011)*, *European Communities (Environmental Assessment of Certain Plans and Programmes) Regulations 2004-2011*, *Planning and Development (Strategic Environmental Assessment) Regulations 2004-2011* and the *European Communities (Environmental Impact Assessment) Regulations 1989-2011* (or any updated/superseding legislation). Planning applications for proposed developments within the Plan Area that may give rise to likely significant effects on the environment may need to be accompanied by one or more of the following: an Environmental Impact Statement, an Ecological Impact Assessment Report, a Habitats Directive Assessment Screening Report or a Natura Impact Statement, as

Original Draft Policy/Objective	Recommended change	Reason	Policy or Objective in Draft LAP
			appropriate. ***Ensure that Natura Impact Statements and any other environmental or ecological impact assessments submitted in support of proposals for development are carried out according to best practice methodologies and contain all necessary baseline assessments.***
Objective NH 13 – Consultation with Environmental Authorities Galway County Council will consult with the relevant Environmental Authorities when considering plans and projects which are likely to affect Natura 2000 sites.		To facilitate adequate and sufficient consultation with relevant Environmental authorities as appropriate	Objective NH13 Ensure that all development proposals are screened to determine whether they are likely to have a significant direct, indirect or cumulative effect on the integrity or conservation objectives of any Natura 2000 site and, where significant effects are likely or uncertain, there will be a requirement for ***consultation with the relevant environmental authorities*** as part of any Habitats Directive Assessment that may be required

9 Chapter Nine, Monitoring

9.1 Introduction

It is proposed, in accordance with the SEA Directive, to base monitoring on a series of indicators which measure changes in the environment, especially changes which are critical in terms of environmental quality, for example water or air pollution levels. Monitoring will focus on the aspects of the environment that are likely to be significantly impacted upon by the implementation of the Draft LAP. The targets and indicators are derived from the Environmental Protection Objectives (EPOs) discussed in Chapter Five. The target underpins the objective whilst the indictors are used to track the progress of the objective and targets in terms of monitoring of impacts.

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

9.1.1 Frequency of Monitoring and Reporting

It is proposed that the SEA monitoring reporting should go parallel with the reviewing of the draft LAP. However, in some cases as data becomes available, the Planning Authority may prepare an additional SEA Monitoring Report. In particular, should new data or the following occur, additional monitoring will be required:

- Significant unauthorised development (either large scale or cumulative small scale)
- Illegal waste activity
- Water pollution incidents (not resulting from oil spills).

In turn the list below is subject to review at each reporting stage to reflect new data. Should the monitoring regime identify significant impacts (such as impacts on designated sites) early on in the LAP implementation, this should trigger a review of the LAP and monitoring regime. In addition, the identification of positive impacts from monitoring should also be reported as this will assist in determining successful environmental policies.

It is recommended that data arising from planning applications, particularly in terms of environmental constraints mapping and Environmental Impact Statements be integrated into the GIS and monitoring system. This will assist in assessing cumulative impacts also, in particular ecology and water quality.

Finally, it is recommended that the monitoring report be made available to the public. It is recommended that this data be shared with neighbouring local authorities to assist in monitoring cross county effects should they arise.

Table 9a: Monitoring Table

Topic and SEA Objective	Indicators	Targets	Data sources	Responsible Body
Biodiversity				
Bio 1: Protect, conserve and avoid loss of the diversity and range of habitats, species and wildlife corridors	Habitat Loss	- No net habitat loss	NPWS/ Local Authority	Local Authority
Bio 2: Protect designated sites including Natura 2000 (SACs and SPAs) under Article 6 of the Habitats Directive. Conserve and protect, or maintain and restore Natura 2000 sites and the Natura 2000 network.	Habitat loss Compliance with Conservation Site Objectives for Natura 2000 sites	- Total area of designated sites (Natura 2000 and pNHA's) - Total area of Conservation Areas	NPWS/Local Authority	Local Authority
Bio 3 - Conserve and protect other sites with nature conservation sites (NHAs,pNHAs, National Parks, Nature Reserves, Wildfowl Sanctuaries).	Habitat loss .	Total area of designated sites -	NPWS/Local Authority	Local Authority
Bio 4: Protect habitats (terrestrial and aquatic) from invasive species	Spread of invasive species	- Survey and monitor extent and distribution of invasive species	NPWS/Local Authority	Local Authority
Bio 5: Protect the inland and coastal aquatic environment.	Biotic Quality Rating (Q Values) and Risk assessment	- Improve Q value status for river bodies in plan area and zone of influence - Aim to achieve Q4 value in line with Water Framework requirements by 2015. - No reductions in Q value in relevant watercourses	WFD/RMMP/ Local Authority	Local Authority
Bio 6 – Meet the requirements of the WFD and the RBMP	Status of waterbodies Compliance with RBMP	Aim to achieve WFD requirements by 2015. Comply with RBMP	WFD/RMMP/ Local Authority	Local Authority
Water	**Indicators**	**Targets**	**Data Sources**	**Responsible Body**
Wat 1 - Protect and enhance the status of aquatic ecosystems and with regard to their water needs, terrestrial ecosystems and wetlands directly depending on the	Biotic Quality Rating (Q Values) and Risk assessment	- Improve Q value status for river bodies in plan area and zone of influence - Aim to achieve Q4 value in line with	WFD/RMMP/ Local Authority	Local Authority

Topic and SEA Objective	Indicators	Targets	Data sources	Responsible Body
aquatic ecosystem (quality, level, flow)		Water Framework requirements by 2015. - No reductions in Q values in relevant watercourses		
Wat 2 - Maintain or improve the quality of surface water (including estuarine) to status objectives as set out in the Water Framework Directive, WRBM and POMS	Biotic Quality Rating (Q Values) and Risk assessment	- No severe pollution incident - Appropriate WWT Infrastructure in plan area	WFD/ Local Authority/ Western RBD Project	Local Authority
Wat 3 - Prevent pollution and contamination of groundwater by adhering to aquifer protection plans	Risk Assessment	-No change or improvement in groundwater quality associated with development	EPA / WRBD Project	Local Authority
Geology and Soil				
Soil 1: Encourage the use of derelict, disused and infill sites rather than Greenfield sites where appropriate	Number of developments granted for brownfield sites (or area)	-Infill developments on brownfield sites over lifetime of the plan.	Local Authority	Local Authority
Soil 2: Protect, improve and maintain the quality of soils	Specific soil management plans for large developments as part of construction management plans.	- No recorded soil contamination incidents - No invasive species due to poor soil management or topsoil	EPA and Local Authority	Local Authority
Soil 3: Conserve, protect and avoid loss of diversity and integrity of designated habitats, geological features, species or their sustaining resources in designated ecological sites.	Impacts to designated geological sites and their sustaining resources	- No impacts on such sites associated with the implementation of the LAP	Local Authority	Local Authority and GSI
Population and human health	**Indicators**	**Targets**	**Data sources**	**Responsible Authority**
Pop 1: Protect, enhance and improve people's quality of life based on high quality residential, community, working and recreational environments and on sustainable travel patterns.	- Drinking Water Sources to comply with the EC (Drinking Water) (No.2) Regulations, 2007 and EC (Quality of Surface Water Intended for the	- Status of drinking water and drinking water sources - Ecological status of water bodies - Average density of new residential development - Average of	Local Authority Health Service Executive	Local Authority

Topic and SEA Objective	Indicators	Targets	Data sources	Responsible Body
	Abstraction of Drinking Water) Regulations,1989 - All water bodies to achieve good status, or maintain high status, by 2015 as required by the EU WFD 2000/60/EC - Increase population and average net densities in new residential / mixed-use schemes. While also promoting employment opportunities and the development of Oranmore in line with Core Strategy - Reduce social exclusion. - Increase participation and accessibility of education to all levels of society	densities in new developments - Live register figures - Implementation of Social Inclusion measures as proposed in National Anti-Poverty Strategy Census data / - Population figures Education Participation rates - Crime rates		
Pop 2: To protect human health from risks or nuisances arising from exposure to incompatible land uses/developments	- No. of complaints relating to noise, odour, water quality and visual issues.	- Promote compatible land use where possible	Local Authority/ HSA	Local Authority
Cultural heritage				
CH1: Protect and conserve the cultural heritage including the built environment and settings; archaeological (recorded and unrecorded monuments), architectural (Protected Structures, Architectural Conservation Areas, vernacular buildings, materials and urban fabric) and manmade landscape features (e.g. field walls, footpaths, gate piers etc.).	- % of Protected Structures 'at risk' - No. of ACAs - No. of archaeological sites investigated	- Ensure that the cultural heritage of the town is maintained and protected from damage and deterioration	Local Authority	Local Authority
CH2: To ensure the restoration and reuse of existing uninhabited and	- No. of buildings restored over lifetime of the plan	- To ensure a positive increase in such development	Local Authority	Local Authority

Topic and SEA Objective	Indicators	Targets	Data sources	Responsible Body
derelict structures where possible, as opposed to demolition and new build		over lifetime of LAP.		
Landscape	**Indicators**	**Targets**	**Data Sources**	**Responsible Authority**
Land 1: Protect designated landscapes and scenic views, routes and landscape features of local value.	- Developments impacting on scenic views and routes	Promote, enhance landscape character through policy implementation	Local Authority	Local Authority
Land 2: Conserve and protect cultural landscapes including archaeological and architectural landscapes	- Number of developments requiring landscape impact assessment	Maintain cultural landscapes associated with Oranmore	Local Authority	Local Authority
Land 3: Minimise visual impacts through appropriate design, assessment and siting	- Number of developments requiring a visual impact assessment	Minimal negative visual impacts from new developments	Local Authority	Local Authority
Air Quality and Climate	**Indicators**	**Targets**	**Data sources**	**Responsible Body**
AQ1: Seek to avoid air pollution and maintain/improve ambient air quality	Maintenance of air quality standards and values	No decline in overall air quality	Local Authority	Local Authority
AQ2:Minimise emissions of greenhouse gases through energy efficiency and promotion of renewable energy	Average energy consumption of new residential housing stock Tonnes of CO2 /capita/year	Decrease Greenhouse gas emissions in line with 2020 commitments	EPA, Local Authority, SEAI	Local Authority
Topic and SEA Objective Material Assets	**Indicators**	**Targets**	**Data sources**	
Mat 1: Reduce risk of flooding through avoidance of inappropriate development in flood plains or in areas at risk of flooding and manage the risk of flooding	Number of planning permissions compliant with the Floods Directive and OPW / DoEHLG's 'Flood Risk Management in the Planning Process' standards Number of planning permissions incorporating flood risk assessment and conditions requiring appropriate flood resilient measures	Compliance with the Floods Directive and with OPW / DoEHLG 'Flood Risk Management in the Planning Process' standards Flood Risk Assessment be carried out for all new Developments within flood risk zones Identify Sustainable Urban Drainage	Local Authority	Local Authority

Topic and SEA Objective	Indicators	Targets	Data sources	Responsible Body
	for new developments Number of Sustainable Urban Drainage Systems and flood defence features required in new planning applications	Systems (and features which are identified as having a flood defence function) in all new developments		
Mat 2: Ensure that drinking water supplies are free from contamination	% compliance in potable water quality monitoring % compliance in wastewater discharges from municipal treatment	100% compliance with water quality monitoring	Local Authority /EPA	Local Authority
Mat 3: To protect residents from adverse noise levels	% complaints re; noise	Targets as set out in Draft Noise Action Plan	Local Authority	Local Authority
Mat 4: Ensure that all development is adequately serviced to EPA standards prior to discharge	% compliance in wastewater discharges from municipal treatment	Improved % compliance	Local Authority	Local Authority
Mat 5: Implement the waste pyramid and encourage reuse/recycling of material wherever possible	% of waste recycled Tonne of waste per capita per year Tonnes of (methane producing) organic waste diverted from landfill Landfill gas capture rates	% recycling from regional waste strategy	Local Authority	Local Authority
Mat 6: Reduce waste of energy, promote use of renewable energy sources and support energy conservation initiatives	Average energy consumption of new residential housing stock Tonnes of CO2 /capita/year	Decrease Greenhouse gas emissions in line with 2020 commitments	EPA, Local Authority, SEAI	Local Authority
Mat 7: Maximise sustainable modes of transport and provide for ease of movement for all road users and to promote development patterns that protect and enhance road safety.	% change in modal split	Extension and improvement of the cycling and walking network	Local Authority	Local Authority

9.2 Conclusion

The Draft Oranmore LAP sets out an overall strategy, goals, policies and objectives for the period 2012 to 2018 which seeks to provide for the long term planning and overall benefit of the town. This SEA Environmental Report demonstrates how environmental parameters have been addressed in the LAP preparation process to date. Consultation has been undertaken for the Scoping of the Environmental Report, and current baseline information has been described for all SEA parameters. This ER forms a key part of the consultation process and is accompanied by the Habitats Directive Assessment and draft Oranmore LAP which is subject to public display.

Policies, objectives and land use zonings were assessed in terms of the impacts on the environment and mitigation measures proposed through rewording of the policies/objectives or rezoning where necessary.
Mitigation measures were also developed that avoided sensitive areas or developed particular measures to address potential construction and operation impacts associated with the implementation of the LAP.

The SEA and Habitats Directive Assessment (HDA) have informed the Draft LAP through an ongoing iterative process that incorporated environmental considerations and sensitivities throughout the LAP development. The SEA and HDA has been undertaken in line with the Planning and Development (Strategic Environmental Assessment) Regulations 2004 to 2011(as amended) and the European Union (Natural Habitats) Regulations 94 of 1999, as amended SI 233/1998 and SI 378/2005**. Subject to the full and proper implementation of the mitigation measures outlined in this ER, including appropriate site level investigations, it is considered that significant adverse impacts on the environment will be avoided**.

9.2.1 Implications for Galway County Council and the Elected Members

This Environmental Report, which identifies the likely significant effects on the environment of implementing the LAP has been submitted to the Elected Members for their consideration and should be read in conjunction with the draft Oranmore LAP and Natura Impact Report. The Environmental Report and Natura Impact Report must be taken account before adopting the Plan.

Glossary

Please note this Glossary is amended from the EPA SEA Process Checklist 2008

Appropriate Assessment	An assessment of the effects of a plan or project on the Natura 2000 network. The Natura 2000 network comprises Special Protection Areas under the Birds Directive, Special Areas of Conservation under the Habitats Directive and Ramsar sites designated under the Ramsar Convention (collectively referred to as European sites).
Baseline environment:	A description of the present state of the environment of the P/P area.
Birds Directive:	Council Directive of 2nd April 1979 on the conservation of wild birds (79/409/EEC).
Cumulative effects:	Effects on the environment that result from incremental changes caused by the strategic action together with other past, present, and reasonably foreseeable future actions. These effects can result from individually minor but collectively significant actions taking place over time or space.
Data:	Includes environmental data, proxy data, any other relevant statistical data.
Designated authority (Designated environmental authority):	An organisation that must be consulted in accordance with the SEA Regulations. For Ireland these are the Environmental Protection Agency (EPA), the Department of the Environment, Heritage and Local Government (DoEHLG) and the Department of Communications, Energy and Natural Resources (DCENR).
Environmental Assessment:	The preparation of an environmental report, the carrying out of consultations, the taking into account of the environmental report and the results of the consultations in decision-making and the provision of information on the decision (in accordance with Articles 4 to 9 of the SEA Directive).
Environmental Characteristics:	Environmental resources, issues and trends in the area affected by the P/P.
Environmental indicator:	An environmental indicator is a measure of an environmental variable over time, used to measure achievement of environmental objectives and targets.
Environmental objective:	Environmental objectives are broad, overarching principles which should specify a desired direction of environmental change.
Environmental receptors:	Include biodiversity, population, human health, fauna, flora, soil, water, air, climatic factors, material assets, cultural heritage (including architectural and archaeological) and landscape as listed in the SEA Directive. This list is not exhaustive, and can include other receptors which may arise for a particular P/P.
Environmental Report (ER):	A document required by the SEA Directive as part of an environmental assessment which identifies, describes and evaluates the likely significant effects on the environment of implementing a plan or programme.
Environmental targets:	A target usually underpins an objective often having a time deadline that should be met and should be accompanied by limits or thresholds.
Evolution of the baseline:	A description of the future state of the baseline in the absence of a plan or programme assuming 'business as usual' or 'do nothing' scenarios, depending on which is more reasonable for the P/P being proposed.
Habitats Directive:	Council Directive 92/43/EEC of 21 May 1992 on the conservation of natural habitats and of wild fauna and flora.
Hierarchy of Plans:	Both higher and lower level P/P relevant to the P/P being assessed.

Indirect effect:	Any aspect of a P/P that may have an impact (positive or negative) on the environment, but that is not a direct result of the proposed P/P. May also be referred to as a secondary effect
Interrelationships:	Associations or linkages, related to environmental impact of the proposed P/P usually on environmental receptors.
Issues Paper:	Paper produced as part of the consultation process, usually for Land Use Plans, to facilitate consultation with stakeholders on key issues.
Key environmental issues:	Those significant environmental issues, which are of particular relevance and significance within a P/P area and/or the zone of influence of that P/P. These issues should be identified during SEA Scoping process.
Key environmental receptors:	Aspects of the environment likely to be significantly impacted by the proposed P/P.
Material Assets:	Critical infrastructure essential for the functioning of society such as: electricity generation and distribution, water supply, wastewater treatment transportation etc.
Member States:	Those countries that belong to the European Union.
Mitigation measures:	Measures to avoid/prevent, minimise/reduce, or as fully as possible, offset/compensate for any significant adverse effects on the environment, as a result of implementing a P/P.
Monitoring:	A continuing assessment of environmental conditions at, and surrounding, the plan or programme. This determines if effects occur as predicted or if operations remain within acceptable limits, and if mitigation measures are as effective as predicted. The primary purpose of monitoring is to identify significant environmental effects which arise during the implementation stage against those predicted during the plan preparation stage.
Monitoring Programme:	A detailed description of the monitoring arrangements to be put in place to carry out the monitoring of the impact of the proposed P/P on the environment including; frequency of monitoring, who has responsibility for monitoring, and responses if monitoring identifies significant negative impacts.
Non-technical summary:	A summary of the findings of the ER, summarized under the headings listed in Annex 1 of the SEA Directive that can be readily understood by decision-makers and by the general public. It should accurately reflect the findings of the ER.
Plan or Programme:	Including those co-financed by the European Community, as well as any modifications to them: - which are subject to preparation and/or adoption by an authority at national, regional or local level or which are prepared by an authority for adoption, through a legislative procedure by Parliament or Government, and - which are required by legislative, regulatory or administrative provisions. In accordance with the SEA Directive, P/P that require SEA are those that fulfil the conditions listed in Article 2(a) and Article 3 of the SEA Directive.
Post-mitigation residual impacts:	Environmental effects that remain after mitigation measures have been employed.

Proxy data: Is a measure of activity resulting from a P/P which provides information on environmental impact without the need for a direct measure of an environmental receptor. For example, an increase in the number of vehicles (activity resulting from a P/P) can provide information on the impact on air quality and greenhouse gases without having to measure the concentration of these parameters in the receiving environmental receptor.

Public: One or more natural or legal persons and, in accordance with national legislation or practice, their associations, organisations or groups.

Reasonable alternatives: Alternatives should take into account the objectives and geographical scope of the P/P. There can be different ways of fulfilling the P/P objectives, or of dealing with environmental problems. The alternatives should be realistic, capable of implementation and should fall within the legal and geographical competence of the authority concerned.

Scoping: The process of deciding the content and level of detail of an SEA, including the key environmental issues, likely significant environmental effects and alternatives which need to be considered, the assessment methods to be employed, and the structure and contents of the Environmental Report.

Screening: The determination of whether implementation of a P/P would be likely to have significant environmental effects on the environment.The process of deciding whether a P/P requires SEA.

SEA Directive: Directive 2001/42/EC 'on the assessment of the effects of certain plans and programmes on the environment'.

SEA Statement: A statement summarising:

- how environmental considerations have been integrated into the P/P
- how the ER, the opinions of the public and designated authorities, and the results of transboundary consultations have been taken into account
- the reasons for choosing the P/P as adopted in the light of other reasonable alternatives.

Secondary effect: Effects that are not a direct result of the P/P, same as indirect effect.

Short-term effects: These are typical of those effects that may occur during construction stage of a development, for example, the increased traffic going to and from a site during construction, or, the noise associated with construction activities.

Significant effects: Effects on the environment, including on issues such as biodiversity, population, human health, fauna, flora, soil, water, air, climatic factors, material assets, cultural heritage including architectural and archaeological heritage, landscape and the interrelationship between the above factors.

Statutory authority: The authority by which or on whose behalf the plan or programme is prepared.

Statutory Instrument: Any order, regulation, rule, scheme or bye-law made in exercise of a power conferred by statute.

Synergistic effect: Effects that, when totalled, result in a greater or lesser effect than the sum of the individual effects.

Transboundary Consultation:	If a plan or programme is being prepared that is likely to have significant effects on the environment in another Member State, or where a Member State likely to be significantly affected so requests, the Member State in whose territory the plan or programme is being prepared shall, before the plan or programmes adoption or submission to the legislative procedure, forward a copy of the draft plan or programme and the relevant environmental report to the other Member State.
Zone of Influence:	The area over which a plan can impact on the environment.