



**Galway City Council**  
**Comhairle Cathrach na Gaillimhe**

# **Draft Ardaun Local Area Plan 2018-2024**

## **Strategic Environmental Report**



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## Non-Technical Summary

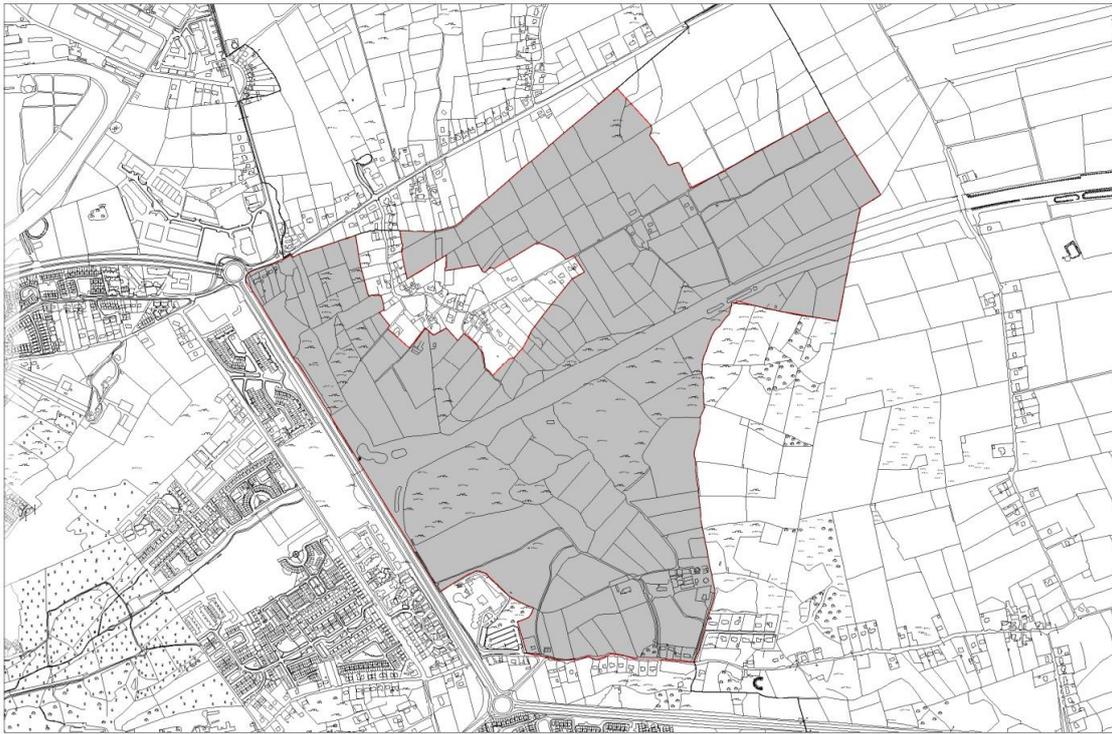


Figure 1 Ardaun LAP area

This is the Environmental Report of the Strategic Environmental Assessment (SEA) of the Draft Ardaun Local Area Plan (LAP). The purpose of the report is to provide a clear understanding of the likely environmental consequences of decisions regarding the future development of Ardaun. The SEA is being carried out in order to comply with the provisions of the SEA Regulations, promote the sustainable development and proper planning of Ardaun and in order to inform planning and environmental management. This report should be read in conjunction with the Ardaun LAP.

The Ardaun area, approx. 164ha, is located on the east-side of the city. Ardaun lands are located on the key eastern access corridor between Galway and Dublin and Limerick/Shannon Gateways. The area is adjacent to the M6/N6 and Galway Clinic, emerging and established communities at Roscam and Doughiska and the traditional nucleated settlement of Coolagh and Garraun train station. The N6/M6 link road divides the area. Ardaun is considered as the most optimal area for growth under the West Regional Planning Guidelines 2010-2020 and City Development Plan 2017-2023, with the integration of land use and sustainable transportation being a key core principle. The area can accommodate the future targeted population growth of the city and is capable of being extended in the longer term into the county.

The LAP is consistent with the Core Strategy of the City Development Plan 2017-2023 which requires the integrated and sustainable development of Ardaun by the implementation of a LAP, in consultation with stakeholders and the public. The LAP establishes the spatial planning framework for the development of Ardaun. The Ardaun LAP is prepared in accordance with the provisions of the Planning and Development Act 2000 (as amended). The LAP is intended to fit within the existing planning and policy hierarchy of the City Development Plan.

The EU Directive on Strategic Environmental Assessment (SEA) (2001/42/EC) came into force in July 2001 and requires Member States to assess the likely significant environmental effect of plans and programmes prior to their adoption. SEA is the systematic evaluation of the likely significant environmental effects of implementing a plan or programme at an early stage of the decision-making process before a decision is made to adopt the plan or programme. The SEA process is also intended to facilitate the identification and appraisal of alternative

development strategies, raise awareness of the environmental impacts of the LAP and encourage the inclusion of measurable targets and indicators.

The SEA has guided the preparation of policies, objectives and development scenarios for the LAP, with the overall aim of achieving the sustainable development of the area. Submissions received and consultations with environmental authorities, Galway County Council, other bodies, and the public are taken into account in the preparation of this Environmental Report and the LAP. Following the adoption of the LAP, a statement must be provided outlining how the Environmental Report and consultation process was taken into account. The significant environmental effects of implementing the LAP are then monitored.

Table 1: Summary of the Strategic Assessment Process of SEA

Stage	Description
Screening	Screening is the process for deciding whether a particular plan, other than those for which SEA is mandatory, would be likely to have significant environmental effects, and would thus warrant a SEA.
Scoping	Scoping is the procedure whereby the range of environmental issues and the level of detail to be included in the Environmental Report are decided upon, in consultation with prescribed environmental authorities. Scoping was conducted to determine the baseline environmental data and issues to be considered in the Environmental Report. Submissions received from prescribed Environmental Authorities, outlined the scope and level of detail of baseline environmental data to be included in the Environmental Report.
Consultation with prescribed Environmental Authorities	Consultation with Environmental Authorities, Galway County Council and other bodies is conducted during the SEA and LAP process. Consultation with the public, stakeholders and other interest bodies occurs at pre-draft, draft and material alterations to draft (if any) stages as required by the Planning and Development Acts 2000 (as amended).
Preparation of the Environmental Report	Environmental Report is the document which identifies, describes and evaluates the likely significant effects on the environment of implementing the Ardaun LAP. The Environmental Report includes the following information: <ul style="list-style-type: none"> <li>• Content, main objectives of the LAP and its relationship with other relevant plans.</li> <li>• Description of the current state of the environment, environmental characteristics of the Ardaun LAP and identification of any existing environmental problems.</li> <li>• Establish the Strategic environmental objectives (EPO) relevant to Ardaun LAP.</li> <li>• Description of the likely significant effects on the environment.</li> <li>• Description of mitigation measures to prevent, reduce or as fully as possible offset any significant adverse environmental effects of implementing the Ardaun LAP.</li> <li>• Assessment of alternative development scenarios for the area.</li> <li>• Proposed monitoring measures.</li> <li>• A non-technical summary of the above information.</li> </ul>
Adoption of the LAP	SEA Statement is prepared and made available to the public and summaries how environmental considerations have been integrated into the LAP, how the submissions, observations and consultations were taken into account, and the reasons for choosing the LAP as adopted in the light of other reasonable alternatives considered and finally the measures decided upon to monitor the significant environmental effects of the implementation of the LAP.
Monitoring	Monitoring the significant environmental effects of implementing the LAP.

A number of environmental issues were highlighted during the scoping process of particular interest and critical to the sustainable development of the area. The following list includes those of particular importance to Ardaun.

Table 2: Summary of environmental Issues highlighted during Scoping process

Environmental Issue	Summary
Ecology and Biodiversity	<p>There is two Annex 1 Habitats in the LAP area, exposed limestone pavement and dry calcareous and neutral grassland.</p> <p>There are occurrences of a rare and legally protected plant, the Small white orchid (<i>Pseudorchis albida</i>). The protection of Annex 1 habitats and the incorporation of green infrastructure are required in development proposals. The plan should take into account the ecological mitigation measures associated with N6/M6.</p> <p>There is potential for indirect and cumulative effects on European Sites near the LAP area.</p> <p>The LAP requires Appropriate Assessment Screening as per Article 6(3) of the Habitats Directive.</p> <p>Include policies to conserve and protect designated sites within and adjacent to the plan area and should promote the protection of local biodiversity features informed by habitats mappings and ecological surveys.</p>
Population and Human Health	<p>LAP should be consistent with the Core Strategy of the City Development Plan which adheres to the population targets for Galway City, (a target of 88,500 by 2016 and 98,700 by 2022) outlined in <i>DCHLG Population Targets (2009)</i> and the <i>Regional Planning Guidelines for the West Region 2010-2020</i>.</p> <p>Support the development of Ardaun to meet the needs of Galway City as a gateway of regional importance.</p>
Soils including geology	<p>LAP should protect any designated Geological and Geomorphological NHAs/pNHAs, which may be present/designated within or adjacent to the Plan area in consultation with the Geological Survey of Ireland.</p>
Water	<p>Groundwater quality needs to be safeguarded as Ardaun is located on a regionally important aquifer.</p> <p>LAP should include commitments to protect surface water and groundwater and their associated habitats and species.</p> <p>The recorded presence of a turlough (OPW floodmaps.ie and GSI) on lands necessitates the carrying out of a flood risk assessment (FRA).</p> <p>Development and vulnerable land uses within the LAP area should avoid any flood zone A/B areas in accordance with the <i>Flood Risk Management Guidelines (DHPLG 2009)</i> and Western CFRAM Study.</p> <p>The use of sustainable urban drainage (SUDS) should be considered within the plan area.</p>
Air and Climate factors	<p>LAP should consider how key national level commitments for climate adaptation and climate change mitigation. Available Noise Action Plan and the integration of climate change adaptation and mitigation measures should be reflected in plan.</p> <p>Promote the use of renewable energy sources.</p>
Material Assets	<p>Include a commitment to support and collaborate with relevant stakeholders, including Irish Water, in the provision of service infrastructure (safe and secure drinking water supply, adequate and appropriate wastewater treatment, waste) to support future development.</p> <p>Support and promote the provision of adequate and appropriate critical service infrastructure, surface and storm water drainage, public transport, water management, community services and amenities on a planned and phased basis to meet needs of projected population.</p> <p>Concerns regarding water services, water and wastewater infrastructure capacity and adequacy to serve Ardaun area.</p> <p>The need for an integrated transport and planning policy for the LAP addressing all transport modes including sustainable transportation and having regard to national transport guidelines.</p> <p>Provide for sustainable modes of transport</p> <p>The presence of overhead transmission high voltage power lines and N6 link road bisecting the site requires the LAP to address noise and visual impact.</p>
Landscape/Urban Design	<p>Areas of visual amenity and significant landscape character should be protected.</p> <p>New development needs to create a place of distinction.</p> <p>An urban design framework for Ardaun should be considered to guide development, ensure good quality urban design, and enhance the public realm.</p>
Archaeology	<p>Potential impacts on archaeological heritage should have regard to international conventions, national and local policies. Any potential impacts on archaeological heritage should be subject to full assessment.</p>
Transboundary effects	<p>Phases of development, city and county, should be taken into account in the assessment of environmental and cumulative effects.</p>
Screening for Appropriate Assessment (AA)	<p>Screening for AA may be required.</p> <p>Screening for AA should apply precautionary principle in determination for the need for AA and take into consideration in combination effects of plans/projects.</p> <p>Screening for AA must be carried out on the basis of best scientific knowledge and carried out with respect to the conservation objectives of European site(s).</p>

Environmental Issue	Summary
	Highlight projects that may need EIA and screening for AA under EIA and Planning and Development Regulations.
General	<p>LAP should be consistent with key relevant higher level plans/programmes in the national and regional planning hierarchy and SEA regulations and associated guidelines.</p> <p>Existing EU and Irish SEA guidance should be followed in addition to EU and national legislation.</p> <p>SEOs should be developed to encompass all key elements of biodiversity, flora and fauna.</p> <p>The interrelationships of the different aspects of the environment should be assessed.</p> <p>Any plan level mitigation for higher tier plan(s) including any mitigation specified in SEA environmental report(s) and NIR(S) to be reviewed in context of LAP.</p> <p>SEA monitoring programme should be clearly set out to ensure it will identify the effects on the environment that are likely to arise, monitor the effectiveness of mitigation and establish responsibility for monitoring.</p>

Baseline data was collected to report on the current state of the environment in Ardaun. The baseline data relates to the following indicators set out in the SEA Directive: biodiversity, flora and fauna, population and human health, soil including geology, water, air and climatic factors, material assets, cultural heritage and landscape. Data was collated through a review of currently available data and assessment, as recommended in the SEA Guidelines. Table no. 3 gives a summary of issues identified.

Table 3: Summary of Issues identified in the Baseline Data Section

Indicator	Summary of Issues identified in the Baseline Data Section
Biodiversity, Flora and Fauna	<p>Recent draft habitat and species datasets associated with N6 Galway City Ring Road project have also informed the baseline assessment in particular with regard to Annex 1 habitats under the EU Habitats Directive in the Ardaun area.</p> <p>The Ardaun Habitat Assessment Report 2012 presents the findings of a habitat survey of the LAP area and examines of the identified habitats of high ecological value. The Report expands and updates the findings of an earlier Habitat Survey Report conducted in 2009. The Report finds that most of the LAP area is composed predominantly of improved agricultural grassland which is of low ecological value. Nevertheless there are a number of habitats of national and county ecological importance within the LAP area; exposed limestone pavement and dry calcareous and neutral grassland, which are located on the western side of the site and south of the M6/N6 link road. These habitats are listed as priority Annex I habitats under the EU Habitats Directive.</p> <p>A Small white orchid (<i>Pseudorchis albida</i>) survey was undertaken in June 2012. Six plants were identified. This plant is protected under the Flora Protection Order (1999).</p> <p>The <i>Ardaun Local Area Plan Ecology Report (2017)</i> has identified five ecologically sensitive sites (ESS) within Ardaun and makes recommendations for each ecologically sensitive site and has informed the preparation of the LAP.</p> <p>There are no European Sites within the LAP area and the nearest European site is Galway Bay SAC and SPA located 0.5km to the south. There are no designated or proposed NHAs within the LAP area. The <i>Ardaun Local Area Plan AA Screening Report (2017)</i> finds that significant effects on European Sites within 15 km of the LAP boundary are not likely to arise because of LAP policies and objectives either alone or in-combination with other plans and projects.</p> <p>The black-headed gull, a feature of interest of both Inner Galway Bay SPA and Lough Corrib SPA, has been noted within LAP lands. The Screening for AA Report concludes that any potential impact due to displacement of bird species is likely to be insignificant.</p>
Population and Human Health	<p>Key issues in the development of Ardaun LAP is balancing development with protecting the environment and delivering supporting social and physical infrastructure along with development, in particular transport, water and waste water infrastructure, community, commercial, cultural and recreation facilities and services. A key challenge of the LAP is to create a high quality urban environment through good urban design, which can foster healthy living, sense of place, accessibility and socially inclusive community.</p>
Soils including geology	<p>The area is characterised by shallow soil depths over fissured limestone with occurrences of exposed surface limestone pavement and outcropping. SUDS proposals will need to have regard of prevailing site specific soil and geological conditions and may require hydrogeological studies in order to minimise the risk of contamination to groundwater resources and associated habitats.</p>
Water	<p>There are no watercourses within the LAP area. The protection of groundwater resources is an important issue as groundwater in the area is classified as being a regionally important aquifer. The <i>Draft River Basin Management Plan</i></p>

Indicator	Summary of Issues identified in the Baseline Data Section
	<p><i>for Ireland 2018-2021</i> provides an integrated mechanism for setting standards and achieving objectives for water quality.</p> <p>The OPW/GSI recorded a possible turlough near the western boundary of the site close to the N6/M6. In line with the DECLG'S <i>Planning System and Flood Risk Management Guidelines for Planning Authorities (2009)</i>, a Strategic Flood Risk Assessment (SFRA) of the area was carried out, <i>SFRA for Three Local Area Plan Areas 2012</i>. The SFRA (2012) assessed the vulnerability of land and development to flooding from potential flood risks in the LAP areas and produced a flood zone map. Its findings note that it is not apparent that a turlough exists on lands immediately south of the N6 roundabout. Nevertheless the SFRA recommends that no development be allowed in the immediate vicinity of this location. Pluvial flooding risk was also identified at a number of locations. However the flood extent under this category of flooding is deemed not to be significant. The SFRA advises on flood risk mitigation measures and surface water drainage policy. The reported turlough site has also been redefined by findings of the <i>Habitat Assessment Report 2012</i> to be a wet grassland habitat.</p> <p>The <i>NIR of the Galway City Development Plan 2017-2023</i> highlights the potential for contamination of water resources as a result of the karst geology in the city area. The <i>Draft River Basin Management Plan for Ireland 2018-2021</i> will provide a mechanism for addressing potential groundwater contamination and the LAP shall support its implementation. Where appropriate SUDS proposals will require hydrogeological studies in order to minimise the risk of contamination to groundwater resources and associated habitats. The <i>Ardaun LAP Screening for AA Report 2017</i> considers that it is unlikely that there is potential for impacts on groundwater that could extend beyond the LAP boundary giving rise to effects on European Sites.</p>
Air and Climatic factors	<p>Air quality in the city is good. High levels of traffic congestion can generate emissions and noise and in this regard it is important to provide for the accommodation of sustainable transport alternatives, such as public transport services, walking and cycling and green open spaces. Best practices in terms of renewable energy, energy conservation and efficiency should be encouraged to limit emissions and safeguard good air quality. Environmental noise will need to be addressed in the LAP, particularly in relation to the N6/M6 link road and the proposed N6 Galway City Ring Road reservation. Climate change adaptation measures including SUDS, sustainable transport and a green network of park and open spaces should be a feature of the LAP.</p>
Material Assets	<p>A key challenge for the LAP is to balance growth with protecting the environment and delivering physical infrastructure and services to meet future community needs. The development of new water and wastewater drainage infrastructure to serve the LAP is a key priority to be implemented on a phased basis.</p> <p>Transportation policies of the LAP, in line with the policies of the City Development Plan 2017-2023, should continue to promote the achievement of a sustainable integrated transportation system and aim to facilitate an increased modal shift away from the private car, promote measures to reduce traffic congestion in the city and support a reduction in energy consumption. There is a need to create an accessible urban form which encourages sustainable transport modes such as public transport, cycling and walking. The Galway Transportation Strategy (2016) recommends an implementation programme to deliver a high quality public transport network, and to provide and encourage the use of other sustainable modes of transport.</p> <p>Proposed SUDS schemes will have to have regard to localised geology and soil conditions and protect underlying groundwater resource. Integrated waste management will need to be implemented for development within the LAP area.</p> <p>In terms of urban design, the LAP must have due regard to high voltage overhead transmission lines, Coolagh Village, the M6/N6 motorway and proposed N6 Galway City Ring Road reservation. Green measures including energy efficient design, energy conservation, accommodation of renewable energy sources and eco-construction should be encouraged.</p>
Cultural Heritage	<p>The Record of Monuments and Places (RMP) lists one site located within the boundaries of the LAP area. Tumulus, (burnt mound), dating from Bronze Age (SMR no. GA082-043) is located immediately to the north of the M6/N6 link road roundabout abutting the N6. An ancient road, (known as Hags Road/Bóthar na Caillighe), dating from early or late medieval period (SMR no. GA082-044) is located outside the LAP boundary on commercial/industrial CI zoned lands adjoining the N6 in Doughiska.</p> <p>The development of cultural and arts infrastructure of appropriate scale and function will be required in order to serve the needs of residents and contribute to the sense of place, attractiveness and marketability of Ardaun. The Irish language should be promoted in the LAP in line with City Development Plan 2017-2023 policy.</p>
Landscape	<p>Landscape is an important contributor to quality of life for people. A green network of areas of ecological importance, parks, open spaces and greenways is required in Ardaun. Areas of ecological importance should be protected as potential 'stepping stone' links to green spaces outside the LAP area including Doughiska/Merlin Park Woods.</p>

The Environmental Report includes strategic environmental objectives (SEOs) against which the environmental effects of implementing the LAP are assessed and tested. The objectives are based on a current understanding of the key environmental issues summarised above.

The report includes an evaluation of the likely environmental impacts of alternative development strategies for Ardaun in order to achieve the best sustainable development option.

Five development strategy alternatives were considered;

1. Do-nothing
2. Unrestricted Development
3. Urban Village
4. Protectionist
5. New Town

The 'Urban Village' development scenario is considered to be the preferred development option which best achieves the sustainable and balanced development of Ardaun to the benefit of its future community. The development strategy of the LAP will integrate land use, urban form, transportation and natural environment to create a new sustainable living and working urban village within the city. The LAP, with its policies and objectives, has been developed to achieve and implement this preferred plan scenario. This development approach is also consistent with the Core Strategy of the City Development Plan.

The policies and objectives of the LAP were assessed in respect of sustainability and specifically against the Strategic Environmental Objectives (SEO). A matrix was used to rate the impact of the policies and objectives, as having potential positive, indirectly positive, neutral, uncertain, negative, or indirectly negative impacts on SEOs. Where potential unknown or negative impacts occur, they will be overcome by mitigation policies, objectives and development management standards to ensure there is no deterioration in environmental quality.

The Environmental Report describes measures for monitoring significant environment effects of implementing the LAP. Monitoring will begin once the LAP is adopted and will be carried out on an ongoing basis through the assessment of planning applications and environmental monitoring programmes as part of the overall monitoring regime for the City Development Plan. It is intended that a monitoring and progress report on the implementation of the LAP will be prepared every two years.



## Section 1: Introduction and Background

### 1.1 Introduction

The Planning and Development (Strategic Environmental Assessment) Regulations 2004 (amended) (*S.I. No. 436 of 2004*) requires that a Strategic Environmental Assessment (SEA) be carried out in respect of particular land use plans, including LAPs for areas with a population of 5,000 persons or more, where the area covered by the plan is greater than 50 square kilometres, or where the LAP is being prepared for a town and its wider environs<sup>1</sup>. The preparation of LAP for Ardaun requires a SEA as the ultimate population of the LAP would exceed the 5,000 persons threshold.



Figure 3 Ardaun LAP area

The Ardaun LAP area is located to the east of the city. This bank of land, approx. 164ha, is part of a dual settlement strategy for Galway City; to consolidate the city and to focus new settlement demand in proximity to the significant employment opportunities to the east of the city. The site has strategic access to the national road network and is capable of being extended in the longer term into the county, strengthening and consolidating the Galway Metropolitan Area. Ardaun is capable of benefiting from proposed and existing sustainable transport infrastructure including the train station at Garraun and connections to adjacent amenities such as Merlin Park Woods and the coast. It can provide opportunities for mixed use development structured and co-ordinated with supporting facilities and services and develop good employment opportunities having close physical links with the existing technology parks at Mervue, Ballybrit /Parkmore and strategic IDA sites at Oranmore and Athenry. Ardaun is also well placed to link in with nearby health and educational institutes, including GMIT, Merlin Park Hospital and the Galway Clinic.

The presence of the Small white orchid, dry calcareous grassland and exposed limestone pavement in Ardaun are unique features of the site's landscape character.

The presence of the Small white orchid, dry calcareous grassland and exposed limestone pavement in Ardaun are unique features of the site's landscape character.

It is recognised that in order to create a sustainable environment at Ardaun and to establish a phased development framework, a LAP is required. The policies and objectives of the LAP are consistent with the Development Plan's Core Strategy and relevant national and regional policies. The plan provides a development strategy which will contribute to the integration of land uses, urban form and structure, transportation and the natural environment to create a sustainable living and working environment as an extension to the existing built up city area.

It is envisaged that the development of Ardaun will be carried out on a phased basis to ensure an integrated approach between development and availability of services and infrastructure. A schedule of phasing will also ensure that development, in particular residential development, occurs at a pace whereby it is supported by all the necessary infrastructure, services, amenities and community facilities.

The Environmental Report identifies and appraises alternative plan strategies, raises awareness of environmental impacts, and includes measurable targets and a monitoring programme. The Environmental Report has guided the preparation of policies, objectives and development scenarios for the LAP with the overall aim of achieving the sustainable development of Ardaun.

<sup>1</sup>Article 14 (b) of the Planning and Development (Strategic Environmental Assessment), (Amendment) Regulations 2011 S.I. No. 201 of 2011).

## 1.2 Strategic Environmental Assessment Definition

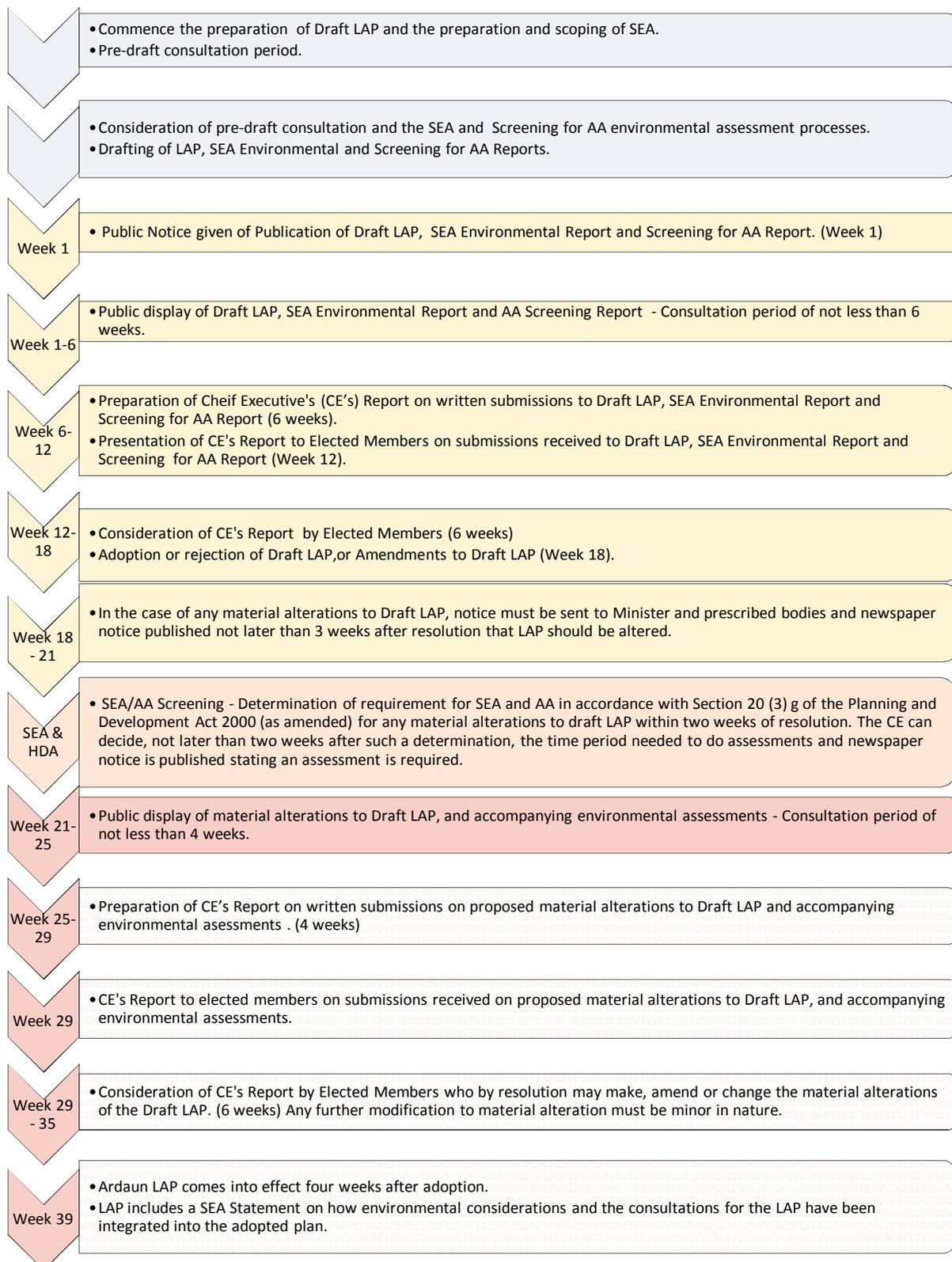
SEA is the formal evaluation of the likely significant environmental effects of implementing the LAP before a decision is made to adopt the plan. The process ensures that any potential environmental impacts are identified and assessed at an early stage of the decision-making process, and this allows for the development of sustainable policies and objectives. SEA is required by EU Directive on SEA (2002/42/EC), which was transposed into Irish law under the Planning and Development (SEA) Regulations 2004. It is a mandatory and separate process, carried out in parallel with the preparation of the LAP.

SEA improves the quality of plan-making process ensuring that the LAP is informed by environmental considerations from the outset. The SEA process also gives interested parties an opportunity to comment on the environmental impacts of the LAP and related decision-making process.

## 1.3 SEA and LAP Preparation

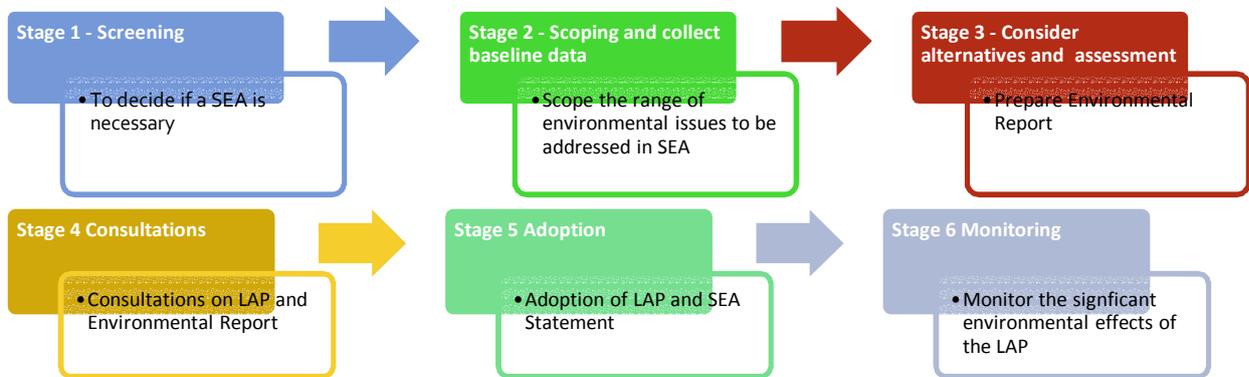
The LAP is prepared under Sections 18-20 of the Planning and Development Act 2000 (as amended) and takes a period of 18 weeks or 39 weeks if there are amendments to the Draft LAP. From the date of its adoption by the Council, the LAP will be valid for a period of 6 years. The lifespan of the LAP may be extended for a period of not more than 5 years by Council resolution. The findings of the SEA are expressed in the Environmental Report, which is prepared alongside the relevant LAP. When the LAP is adopted a statement must be prepared, summarising how environmental considerations have been integrated into the LAP and the reasons for choosing the development scenario outlined therein over other alternatives detailed in the Environmental Report. Table 4 summarises the process for preparing a LAP and accompanying environmental assessments, SEA and Screening for Appropriate Assessment (AA).

Table 4: The making a LAP with accompanying SEA and screening for AA processes



## Section 2: SEA Methodology

### 2.1 SEA Process

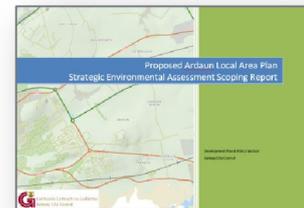


#### Screening

There are a number of steps in the SEA process, the first step is **Screening**. Screening is the process for deciding whether a particular plan, other than those for which SEA is mandatory, would be likely to have significant environmental effects, and would thus warrant a SEA. A SEA is mandatory for the Ardaun LAP as its ultimate population would exceed the 5,000 person threshold set out under the SEA Regulations 2004-2011. As an Environmental Report is mandatory for the Ardaun LAP, Screening was not necessary.

#### Scoping

The next step is **Scoping**. This is a procedure whereby the range of environmental issues and the level of detail to be included in the Environmental Report is decided in consultation with designated Environmental Authorities, including the Environmental Protection Agency (EPA), Minister for the Environment, Community and Local Government, Minister for Communications, Energy and Natural Resources, Minister for Arts, Heritage and the Gaeltacht and Minister for Agriculture, Food and the Marine and Galway County Council. The SEA Guidelines recommend that scoping should take place as early as possible during the pre-plan consultation process required under Section 20(1) of the Planning and Development Act 2000 (as amended), as it will be necessary to complete preparation of the Environmental Report prior to publication of the statutory notice under Section 20(3) of the 2000 Act. Section 2.3 Consultation outlines the Scoping process of this Environment Report. The submissions received have informed the Environmental Report. A SEA Scoping Report was prepared and made available during the pre-draft LAP and SEA public consultation.



#### SEA Environmental Report

Following this, the **Environmental Report** is prepared in tandem with the LAP. The aim of the Environmental Report is to provide;

- A summary of the LAP and its relationship to other plans, environmental baseline information and environmental objectives.
- Details on alternative development strategies considered.
- Assessment of significant environmental affects and proposed mitigation strategy.
- Reasons for choosing a preferred development strategy for the LAP.
- Description of proposed monitoring measures.

The public and interested parties have the opportunity to make written submissions/observations on the Draft LAP, Environmental Report and Screening for AA Report during the public consultation period. Any submission received and consultations with Environmental Authorities will be taken into account. Following the adoption

of the LAP, a statement must be provided outlining how the Environmental Report and consultation process was taken into account. The significant environmental effects of implementing the LAP are then monitored.

## 2.2 Author of Report

The Development Plan and Policy Unit of Galway City Council compiled this Environmental Report. The preparation process included consultation with other sections of the City Council, environmental authorities, stakeholders, and the public. Expert advice, strategies and reports, (some of which are outlined in Appendix 1 of this report), informed the report on a number of issues. These include the *Strategic Flood Risk assessment (SFRA) for Three Local Area Plan Areas (November 2012)* and the *Ardaun Habitat Survey 2009* and the *Ardaun Habitat Assessment Report 2012*. *Ardaun LAP Appropriate Assessment (AA) Screening Report 2017* has also contributed to the preparation of the Environmental Report.

## 2.3 Scoping

Galway City Council formally consulted the designated Environmental Authorities during the ‘Scoping’ stage of the SEA process. The Environmental Protection Agency (EPA), the Department of Housing, Planning and Local Government (DHPLG), formally the Department of Environment, Heritage and Local Government and the Department of Communications, Climate Action and Environment (DCCA), formally Department of Communications, Energy and Natural Resources, were send notices on 21<sup>st</sup> December 2010 indicating that submissions or observations in relation to the scope and level of detail of the information to be included in the Environmental Report could be made to the Planning Authority.

In addition consultation letters was issued to a number of authorities to identify any other key environmental issues that would need to be addressed in the Environment Report. These authorities included Galway County Council, Office of Public Works (OPW), the Northern and Western Regional Assembly and the Transport Infrastructure Ireland (TII) formally National Roads Authority. SEA scoping submissions were made by the EPA, the Northern and Western Regional Assembly, DHPLG, Galway County Council and TII. The following is a summary of the submissions received during the scoping stage.

### EPA

The EPA submission dated 9/2/11 provided extensive information and guidance on undertaking an Environmental Assessment as per the *Planning and Development (Strategic Environmental Assessment) Regulations 2004 (amended)*. In addition specific comments to be considered were provided and incorporated as appropriate into the draft LAP and Environmental Report. The EPA submission states that in assessing the potential for likely significant environmental effects, the Environmental Report should take into account phases of proposed Ardaun development (city and county phases) in the context of assessing the full range of environmental effects, including in particular cumulative effects. The EPA advised that consideration should be given as appropriate to the inclusion of the following issues;

- Amount of greenfield development proposed.
- Wastewater treatment capacity and adequacy.
- Drinking water treatment capacity and adequacy.
- Protection of nationally and internationally designated conservation sites (NHA's, pNHAs, European Sites) within and adjacent to the plan area.
- Protection of ecological linkages/corridors and incorporation of green infrastructure into development proposals.
- Adherence to exclusion zones from development adjacent to the airport.
- Flood risk assessment in line with DECLG Flood Risk Management Guidelines (2009).
- Incorporation of SUDS into developments as appropriate.
- Assessment of noise pollution and air pollution in relation to transportation.

### DHPLG

The submission from the DHPLG, dated 25/2/11, outlines a number of points regarding archaeology, architectural heritage and nature conservation. The submission states that the assessment of impacts on the archaeological heritage should have regard to international conventions, national policies, and relevant policies

and plans at local city/county level. The submission advises that there should be liaison with National Monuments Section on drafting the archaeological content of the LAP. The LAP should address in detail the potential archaeological impacts of any proposed development. Any potential impacts on archaeological heritage should be subject to full archaeological assessment.

With regard to architectural heritage, new development should enhance the local environment and contribute to creating a place of distinction. The response notes there is a need to develop an architectural framework for Ardaun which will guide development within the locality and ensure good quality urban design which will enhance the public realm. It is advised that the LAP should attempt to make use of all the features of built heritage merit in the locality to engender an evolving new identity as a familiar and recognisable place to trade and reside. It should also attempt to integrate the disparate parts of the locality into a single entity. In order to enhance local distinctiveness, new development needs to respond to local character and respect the visual context of the plan area. If the locality is attractive, it will encourage inward investment in terms of commercial, manufacturing, retail and service industries, even of a low key nature.

The submission advises that Scoping should take into account the ecological impacts that are likely to arise from predicted/planned land use changes, development types, infrastructure and services requirements and amenity and recreational facilities for Ardaun and its population during the life span of LAP. The potential for wider impacts arising from the provision of services and infrastructure within the city networks should be noted. The SEA should cover; the likely effects on biodiversity, flora and fauna arising from the plan, including likely direct, indirect and cumulative effects on European Sites, in view of their conservation objectives, other legally protected and nature conservation sites, strictly protected species Annex IV (Habitats Directive) species and their breeding and resting places including all bat species and rare and legally protected flora, the Flora Protection Order (1999) species, Small white orchid (*Pseudorchis albida*), rare and legally protected fauna including species protected by the Wildlife Acts and natural and semi-natural habitats including Annex 1 habitats and the habitats of annexed species.

The DHPLG advises the LAP will require Screening for AA as per Article 6(3) of the Habitats Directive. The LAP should also take into account and dovetail with any ecological mitigation measures associated with the N6/M6 motorway in the plan area, for example habitat retention area and mammal underpasses. The latter includes two habitat patches located adjacent to the Coolagh Roundabout and are linked by linear planting of hazel and willow to encourage east to west animal movements replacing north to south movement across this road. An underpass suitable for badgers and other similar mammals was constructed between chainages 900 to 1300.<sup>2</sup>

#### DCCA

The response from the DCCA, dated 21/12/10, states that the department has no observations to make at this time.

#### Northern and Western Regional Assembly:

The Northern and Western Regional Assembly, (formally Western Regional Authority), submission, dated 8/2/11, states that the Scoping and Environmental Report process should take account of lands located in the proposed Ardaun LAP and the wider Galway City area. The SEA process should take account of the potential in combination effects of implementing the LAP (city and county areas) on the surrounding environment. The submission notes that the LAP area contains limestone pavement and a possible turlough, which are Annex 1 habitats. The submission advises that Screening for AA must be undertaken as part of the LAP process in consultation with NPWS. Appropriate mitigation measures may be required to protect rare and legally protected plants where they are found within the LAP area. The submission states that flood risk should be a consideration of the Environmental Report, in view of the presence of a marshy area, limestone bedrock and the regionally important aquifer. The submission notes that the proposed strategic long-term report on water requirements for the city and its environs over the next 20 years, the Galway East Main Drainage proposals and the use of SUDS may be important implementation measures. It also advises that the LAP should be consistent with the Core Strategy of the City Development Plan which adheres to the population targets for Galway City, (a target of 88,500 by 2016 and 98,700 by 2022) outlined in *DCHLG Population Targets (2009)* and the *Regional Planning Guidelines for the West Region 2010-2020*.

<sup>2</sup>N6 Galway to East Ballinsole EIS Volume 3A – Doughiska to Glennascaul, Section 6 Terrestrial environment.

## TII

The submission from the TII, dated 4/3/11, supports the development of an integrated transport and land use planning policy framework that seeks to address the reliance on car based transport to more sustainable forms of public transport, walking and cycling as expressed in the City Development Plan and anticipates it will be developed further in the LAP. The submission advises that the LAP should be in accordance with the provisions of the *Spatial Planning and National Road Guidelines for Planning Authorities (2012)*.

The TII states that a traffic model is a pre-requisite to the preparation of the LAP and it would be a valuable tool in assessing and providing robust evidence base for the LAP and could be utilised to determine the effects of traffic growth and trip distribution/model split variations on the road network. The LAP must link the delivery of sustainable transport options with the building of LAP development areas.

Pending the completion of the adoption of a sustainable transport solution for the city, the TII is of the opinion that local transport solutions, such as public transport corridors, park & ride facilities and the diversion of car based trips to walking and cycling by dedicating more road space to such users, should be developed in association with the primary strategic role of the national road network to cater for interregional and interurban traffic. The submission notes that junctions on the existing N6 are experiencing capacity issues and the primary function of the existing national road network should be safeguarded pending the development of a transport solution for the city. The impact of the LAP on the existing national road network must be identified and any improvements required incorporated into the phasing of the plan. A number of specific points are also made with regards to the SEA. These are as follows;

- Have regard to locations of existing and future national road schemes/projects and the impact thereof.
- Take into consideration any EIS and conditions and or modifications imposed by An Bord Pleanala regarding road schemes in the area.
- Have regard to any potential cumulative impacts of the development area on traffic grounds especially interchanges in close proximity.
- Have regard to the likely significant impacts development may have on human beings due to proximity to national routes that is safety, noise, air and accessibility.
- Have regard to TII's Environmental Assessment and Construction Guidelines including the Guidelines for the Treatment of Air Quality during the Planning and Construction of National Road Schemes (TII, 2006).
- Consider the *Environmental Noise Regulations 2006 (SI 140 of 2006)* and, in particular, how development will affect future noise action plans. In this respect, the Environmental Report may need to consider the incorporation of noise barriers to reduce noise impacts, see Guidelines for the Treatment of Noise and Vibration in National Road Schemes, (TII, 2004).
- A transport assessment should be carried out for key development areas in accordance with relevant guidelines and best practice.
- Assess visual impacts from and to the existing and proposed national road network.

## Galway County Council

Meeting was held with representatives of the Planning Department of Galway County Council on 20/4/11, Planning Department. The meeting facilitated the identification of key environmental and trans-boundary issues likely to arise during plan preparation. The issues raised included the following;

- Planning policy context – The strategy of the West Regional Guidelines and the core strategy of Galway County Council Development Plan with regard to Ardaun and Garraun was outlined.
- Policies and Core Strategy of the County Development Plan supports the role of Ardaun, Garraun and the Galway Metropolitan Area as key elements in the future strategic growth of the Galway Gateway and Galway County in a plan led, sustainable manner focussed on integrated land uses and transportation opportunities.
- Other relevant spatial plans within the hinterland of Ardaun referenced including Oranmore LAP.
- Infrastructure issues raised including the adequacy and capacity of drainage network to serve Ardaun development. The capacity of drainage infrastructure to cater for the IDA lands should be safeguarded in terms of strategic economic development.
  - Good Linkages and connections between Ardaun and the county area including Garraun required.
  - The sensitive nature of ecological and natural features in the area including exposed limestone

- pavement, possible turlough and the protection of the Small white orchid.
- Flood risk assessment required for area.
- Development should have regard to aerodrome safeguarding plan.

### Supplementary Information to Consider for SEA Scoping

In view of the time lapsed since the initial scoping responses and the publication of the draft LAP, submissions or observations in relation to any supplementary and/or updated information to be included in the environmental report were invited from the environmental authorities on 7<sup>th</sup> July 2017 including; Department of the Housing, Planning, Community & Local Government, EPA, Department of Culture, Heritage and Gaeltacht, Department of Communications, Climate Action and Environment. A copy of scoping response made previously by the environmental authority and previously circulated 'SEA Scoping Information Sheet for Environmental Authorities', was sent to environmental authorities in order to assist in the review of previous submissions.

A response was received on 24<sup>th</sup> July 2017 from the **EPA** outlining a number of key aspects which should be considered in the draft LAP and SEA, including;

- SEA should describe whether invasive alien species are present in the area, and if present include a commitment to implement appropriate management and control measures.
- Include a commitment to support and collaborate with relevant stakeholders, including Irish Water, in the provision of service infrastructure (safe and secure drinking water supply, adequate and appropriate wastewater treatment, waste) to support future development.
- Advises of the *Draft River Basin Management Plan for Ireland 2018-2021 (DHPLG)* and *EPA WFD Catchment Management Portal*.
- Development and vulnerable land uses within the LAP area should avoid any flood zone A/B areas in accordance with the *Flood Risk Management Guidelines (DHPLG 2009)* and Western CFRAM Study.
- Areas of visual amenity and significant landscape character should be protected.
- LAP should be consistent with key relevant higher level plans/programmes in the national and regional planning hierarchy and SEA regulations and associated guidelines.
- Key influential plans should be considered including Draft National Planning Framework Ireland 2040 Our Plan (DHPLG), National Mitigation Plan (DCCA 2017) and Regional Spatial and Economic Strategy (to commence 2017/2018).
- LAP should consider how key national level commitments for climate adaptation and climate change mitigation can be advanced at local level and advises of *EPA Local Authority Adaptation Strategy Development Guidelines*.
- Advises on *EPA Guidance on Developing and Assessing Alternatives in SEA (2015)*, *State of the Environment Report for 2016 - Ireland's Environment – An Assessment (2016)* and SEA WebGIS search and reporting tool.
- LAP should include policy to protect surface water and groundwater and their associated habitats and species.
- LAP should promote the development of flood risk adaptation measures including SUDS.
- Include policies to conserve and protect designated sites within and adjacent to the plan area and should promote the protection of local biodiversity features informed by habitats mappings and ecological surveys.
- LAP should protect any designated Geological and Geomorphological NHAs/pNHAs, which may be present/designated within or adjacent to the Plan area in consultation with the Geological Survey of Ireland.
- LAP should be subject to Appropriate Assessment screening.
- Available Noise Action Plan and the integration of climate change adaptation and mitigation measures should be reflected in plan.
- LAP should promote the use of renewable energy sources and provide for sustainable modes of transport.
- LAP shall support and promote the provision of adequate and appropriate critical service infrastructure, surface and storm water drainage, public transport, water management, community services and amenities on a planned and phased basis to meet needs of projected population.
- Should highlight projects that may need EIA and Screening for AA under EIA and Planning and Development Regulations.

A response was received from **Department of Culture, Heritage and the Gaeltacht** on 25<sup>th</sup> July 2017 stating the following points:

- Previous submissions in relation to City Development Plan 2017-2023, variations to City Development Plan 2017-2023, Galway Transport Strategy and N6 Galway City Ring Road project that are relevant to the current plan area should be taken into account in the preparation of the LAP.
- Earlier submissions in respect to Ardaun LAP preceded new legislation concerning appropriate assessment of plans and projects in Part XAB of the Planning and Development Act 2000 (as amended) and Part 5 of the European Communities (Birds and Natural Habitats) Regulations 2011.
- Any plan level mitigation from higher tier plan(s), including any mitigation specified in SEA environment report(s) and NIR(s) should be reviewed and applied in the context of the draft plan.
- The likely effects on biodiversity, flora and fauna must be assessed including sites, habitats, species of flora and fauna and ecological networks.
- The interrelationships between biodiversity, flora and fauna, population, human health, water, soil, air, climatic factors, landscape and architectural/archaeological heritage should be assessed.
- SEA should address any relevant provision in respects of Articles 6(1), 6(2) and 10 of the Habitats Directive.
- Plan should integrate biodiversity considerations in positive and precautionary manner and the SEA should influence the content of the plan.
- Account should be taken of the loss of natural and semi-natural habitats over the last 10 years and available data and information associated with relevant plan and project should be reviewed.
- The biodiversity, flora and fauna section of the environmental report should be prepared or in conjunction with a suitably qualified ecologist(s).
- Strategic Environmental Objectives (SEOs) should be developed to encompass all key elements of biodiversity, flora and fauna and not just protected nature conservation sites including the obligations of Habitat, Birds, Water Framework, Flood Directives and Wildlife Acts 1976-2000.
- SEA monitoring programme should be clearly set out to ensure it will identify the effects on the environment that are likely to arise, monitor the effectiveness of any mitigation and establish responsibilities for monitoring programme.
- Existing EU and Irish SEA guidance should be followed in addition EU and national legislation in particular Article 6 of Habitats Directive.
- Advises of NPWS website as a key source of data for SEA and plan.
- The Council is responsible for the screening for appropriate assessment (AA), the precautionary principle should be applied in the determination as to the need for an AA and taken into consideration in combination effects of other plans/projects. Screening for AA must be carried out on the basis of best scientific knowledge and carried out with respect to the conservation objectives of European site(s).

A meeting was held with **Galway County Council** on 26<sup>th</sup> of July of 2017 and submission received from the County Council raises the following points:

- Supports the development of Ardaun to meet the needs of Galway City as a gateway of regional importance.
- Notes the LAP is being progressed in respect of lands within the city boundary.
- Support a framework strategy to for adjacent lands in the county area including Ardaun (county), Garraun and Briarhill, eastern metropolitan area. Notes previous 2008 framework plan has now been superseded by strategic infrastructure developments.
- Notes that proposed access arrangement will have to consider the proposed N6 GCRR project and its impacts on the surrounding transportation network.
- Notes the importance of built form design unique to Galway and local context and other strategic development lands within the city and county.
- Impacts on the R339 would need to be examined in terms of capacity, safety and operational efficiency.

Table no.6 gives a summary of the scoping responses received from the various agencies and a reference where these responses have been addressed in the Environmental Report. All of the issues raised as part of scoping have been taken into consideration in carrying out the SEA and in the preparation of the LAP.

Table 5: Scoping Responses and associated reference in the Environmental Report.

Environmental Authority / Consultee	Summary of Scoping Responses	Reference in Environmental Report	
EPA	Detailed guidance and advice given on all aspects of the SEA process.	Informed all sections of the Environmental Report	
	Cumulative effects of the amount of green field development proposed.	Section 6.2 Cumulative Effects	
	Wastewater and drinking water treatment capacity and adequacy.	Section 5.7 Material Assets	
	Protection of nationally and internationally designated conservation sites (NHA's, pNHAs, European Sites) within and adjacent to the plan area.	Section 5.2 Biodiversity, flora and fauna	
	Protection of ecological linkages/corridors and incorporation of green infrastructure.	Section 5.2 Biodiversity, flora and fauna	
	Adherence to the aerodrome safeguarding plan.	Section 5.7 Material Assets	
	Flood risk assessment.	Section 5.5 Water	
	Incorporation of SUDS into developments as appropriate.	Section 5.7 Material Assets	
	Assessment of noise pollution and air pollution in relation to transportation.	Section 5.6 Air and Climatic Factors	
	<i>Supplementary Scoping Response</i>		
	Include a commitment to implement appropriate management and control measures for invasive alien species.	Section 5.2 Biodiversity, flora and fauna	
	Include a commitment to support and collaborate with relevant stakeholders, including Irish Water, in the provision of service infrastructure (safe and secure drinking water supply, adequate and appropriate wastewater treatment, waste) to support future development.	Section 5.7 Material Assets	
	Development and vulnerable land uses within the LAP area should avoid any flood zone A/B areas in accordance with the <i>Flood Risk Management Guidelines (DHPLG 2009)</i> and Western CFRAM Study.	Section 5.5 Water	
	Areas of visual amenity and significant landscape character should be protected.	Section 5.9 Landscape	
	LAP should consider how key national level commitments for climate adaptation and climate change mitigation.	Section 5.6 Air and Climate Factors	
	LAP should be consistent with key relevant higher level plans/programmes in the national and regional planning hierarchy and SEA regulations and associated guidelines.	Section 3.1 Planning Policy Context	
	LAP should include commitments to protect surface water and groundwater and their associated habitats and species.	Section 5.5 Water	
	LAP should promote the development of flood risk adaptation measures including SUDS.	Section 5.5 Water	
	Include policies to conserve and protect designated sites within and adjacent to the plan area and should promote the protection of local biodiversity features informed by habitats mappings and ecological surveys.	Section 5.2 Biodiversity, flora and fauna	
	Available Noise Action Plan and the integration of climate change adaptation and mitigation measures should be reflected in plan	Section 5.6 Air and Climatic Factors	
	Promote the use of renewable energy sources.	Section 5.6 Air and Climatic Factors	
	Promote and provide for sustainable modes of transport.	Section 5.7 Material Assets	
	Support and promote the provision of adequate and appropriate critical service infrastructure, surface and storm water drainage, public transport, water management, community services and amenities on a planned and phased basis to meet needs of projected population	Section 5.7 Material Assets	
Appropriate Assessment Screening.	See accompanying screening for appropriate assessment report		
Highlight projects that may need EIA and Screening for AA under EIA and Planning and Development Regulations.	Sections 11.30 and 11.31 of the City Development Plan 2017-2023		
Northern and Western Regional Assembly	Combined impact of phased Ardaun development, city and county, on the environment.	Section 5.10 Transboundary Issues	
	Address the presence of Annex 1 habitats Limestone Pavement and Turlough.	Section 5.2 Biodiversity, flora and fauna	
	Flood risk assessment.	Section 5.5 Water	
	Presence of Regionally Important Aquifer.	Section 5.5 Water	
	Water and Drainage infrastructural provision.	Section 5.7 Material Assets	
	Incorporation of SUDS.	Section 5.7 Material Assets	
DHPLCG (formally DECLG and DEHLG)	Consistency with Development Plan Core Strategy, DECLG Population Targets and West Regional Planning Guidelines.	Section 3.1 Planning Policy Context	
	Archaeological and architectural heritage should be addressed.	Section 5.8 Cultural Heritage	
	Need to develop an architectural framework.	Section 5.9 Landscape	
	Respond to local character, identity and visual context.	Section 5.9 Landscape	
	Advises of the need for AA.	Screening for AAhas been carried out for the LAP.	

Environmental Authority / Consultee	Summary of Scoping Responses	Reference in Environmental Report
	Address likely effects on biodiversity, flora and fauna including Small white orchid and Annex 1 habitats.	Section 5.2 Biodiversity, flora and fauna
	<i>Supplementary Scoping Response</i>	
	Previous submissions in relation to City Development Plan 2017-2023, variations to City Development Plan 2017-2023, Galway Transport Strategy and N6 Galway City Ring Road project that are relevant to the current plan area should be taken into account in the preparation of the LAP.	Informed all sections of the Environmental Report
	Earlier submissions in respect to Ardaun LAP preceded new legislation concerning appropriate assessment of plans and projects in Part XAB of the Planning and Development Act 2000 (as amended) and Part 5 of the European Communities (Birds and Natural Habitats) Regulations 2011.	See accompanying screening for appropriate assessment report
	Any plan level mitigation from higher tier plan(s), including any mitigation specified in SEA environment report(s) and NIR(s) should be reviewed and applied in the context of the draft plan.	Section 9 Mitigation Measures
	The likely effects on biodiversity, flora and fauna must be assessed including sites, habitats, species of flora and fauna and ecological networks.	Section 5.2 Biodiversity, flora and fauna
	The interrelationships between biodiversity, flora and fauna, population, human health, water, soil, air, climatic factors, landscape and architectural/archaeological heritage should be assessed.	Section 6.2 Cumulative Effects
	SEA should address any relevant provision in respects of Articles 6(1), 6(2) and 10 of the Habitats Directive.	Section 5.2 Biodiversity, flora and fauna
	Plan should integrate biodiversity considerations in positive and precautionary manner and the SEA should influence the content of the plan.	Section 5.2 Biodiversity, flora and fauna
	Account should be taken of the loss of natural and semi-natural habitats over the last 10 years and available data and information associated with relevant plan and project should be reviewed.	Section 5.2 Biodiversity, flora and fauna
	The biodiversity, flora and fauna section of the environmental report should be prepared or in conjunction with a suitably qualified ecologist(s).	Section 5.2 Biodiversity, flora and fauna informed by 20009, 2012 and 2017 habitat surveys. Assessments and ecology report carried by suitably qualified ecologists
	Strategic Environmental Objectives (SEOs) should be developed to encompass all key elements of biodiversity, flora and fauna and not just protected nature conservation sites including the obligations of Habitat, Birds, Water Framework, Flood Directives and Wildlife Acts 1976-2000.	Section 8 Evaluation of LAP policies and objectives
	SEA monitoring programme should be clearly set out to ensure it will identify the effects on the environment that are likely to arise, monitor the effectiveness of any mitigation and establish responsibilities for monitoring programme.	Section 10 Monitoring
	Existing EU and Irish SEA guidance should be followed in addition EU and national legislation in particular Article 6 of Habitats Directive.	Informed all sections of the Environmental Report
	Advises of NPWS website as a key source of data for SEA and plan.	Section 5.2 Biodiversity, flora and fauna
	The Council is responsible for the screening for appropriate assessment (AA), the precautionary principle should be applied in the determination as to the need for an AA and taken into consideration in combination effects of other plans/projects. Screening for AA must be carried out on the basis of best scientific knowledge and carried out with respect to the conservation objectives of Europeans site(s).	See accompanying screening for appropriate assessment report
DCCA	No observation to make at this time.	-
TII	A transport assessment should be carried out for key development areas in accordance with relevant guidelines and best practice.	Section 5.7 Material Assets
	Potential cumulative impacts of the development area on traffic grounds especially existing and proposed road network, interchanges in close proximity and accessibility.	Section 5.7 Material Assets
	Should have regard to any EIS and conditions and or modifications imposed by An Bord Pleanála regarding road schemes in the area.	Section 5.7 Material Assets
	Air Quality.	Section 5.6 Air and Climatic Factors
	Noise including Environmental Noise Regulations 2006 and noise action plan.	Section 5.6 Air and Climatic Factors
	Assess visual impact in the context of existing and proposed national road network.	Section 5.9 Landscape
Galway County Council	Have regard to strategic planning policy context including the West Regional Guidelines, Galway County Council Development Plan and adjoining Oranmore LAP.	Section 3.1 Planning Policy Context
	Address the adequacy and capacity of drainage network.	Section 5.7 Material Assets
	Linkages and connections between Ardaun and county including Garraun important.	Section 5.10 Transboundary Issues

Environmental Authority / Consultee	Summary of Scoping Responses	Reference in Environmental Report
	Address sensitive ecological and natural features in the area including exposed limestone pavement, possible turlough and the protection of the Small white orchid.	Section 5.2 Biodiversity, flora and fauna
	Flood risk assessment	Section 5.5 Water
	Have regard to aerodrome safeguarding plan	Section 5.7 Material Assets
	<i>Supplementary Scoping Response</i>	
	Supports the development of Ardaun to meet the needs of Galway City as a gateway of regional importance.	Section 3.1 Planning Policy Context
	Supports a framework strategy to for adjacent lands in the county area including Ardaun (county), Garraun and Briarhill.	Outside the remit of the LAP, Section 5.10 addresses Transboundary Issues
	Notes that proposed access arrangement will have to consider the proposed N6 GCRR project and its impacts on the surrounding transportation network.	Section 5.7 Material Assets
	Notes the importance of built form design unique to Galway and local context and other strategic development lands within the city and county.	See Local Area Plan policy document
	Impacts on the R339 would need to be examined in terms of capacity, safety and operational efficiency	Section 5.7 Material Assets

## 2.4 Technical Difficulties Encountered

In accordance with the SEA Guidelines, the preparation of the SEA involved the collation of currently available data from published and public documents, (*see Appendix 1*). Where new baseline data was not provided as a result of the proposed LAP process, existing data sources were used as baseline data. A number of data sources, at the time of writing the Environmental Report, were in the process of being updated and have not been finalised.

The LAP is a lower tier land use plan which sits under the strategic policy context of the City Development Plan and is intended to provide more detailed planning policies for Ardaun. The LAP plays a key role in achieving the objectives contained in higher-level plans and strategies many of which are currently being revised, the National Planning Framework is being prepared and regional planning guidelines for the Western and Northern Regional Assembly are under review. The *Draft River Basin Management Plan for Ireland 2018-2021* which replaces the *Western River Basin District Management Plan 2009-2015* is currently on public display and consultation.

The SEA and NIR of the City Development Plan 2017-2023 indicated that some aspects of the environment would require further examination from the onset of the LAP, most notably a finer level mapping of habitats as recommended by *Ardaun Habitats Survey Report 2009*. The *Ardaun LAP Habitat Assessment Report (2012)* provides ground truthing of habitats delineated in each field area to Level 3 of the Heritage Council Habitat Classification Scheme (*Fossitt 2000*) and a dedicated survey of the legally protected Small White Orchid (*Pseudorchis albida*). More up to date habitat surveys of the area (2015) and reports associated with the Draft EIS for the N6 Galway City Ring Road (N6 GCRR) project, (currently unpublished), have informed the SEA and the *Ardaun Local Area AA Screening Report (Atkins 2017)*. The *Ardaun Local Area Plan Ecology Report (Atkins 2017)* identifies five ecologically sensitive sites and includes recommendations for each site. These habitat and ecology reports have informed the environment baseline (*Section 5*) and the preparation of the LAP.

The GSI and OPW floodmaps.ie identified a turlough at the south-east vicinity of the N6/M6 Coolagh roundabout. In order to verify the presence and the physical extent of the turlough, a strategic flood risk assessment (SFRA) of the area was carried out, *Galway City Council Strategic Flood Risk Assessment of Three LAP Areas 2012*, in line with the DHPLG'S *Planning System and Flood Risk Management Guidelines for Planning Authorities (2009)*. The SFRA (2012) assessed the vulnerability of land and development to flooding from potential flood risks in the LAP area, collimating in a flood risk zone map and provides advice on flood risk mitigation measures and surface water drainage policy.

Where feasible the cross-boundary impacts of the LAP have been examined in relation to any future development in the County Council areas of Ardaun and Garraun. The detailed examination of any cumulative environmental effects is limited at this stage given the absence of plans for the latter areas. The enactment of mitigation and monitoring measures in conjunction with Galway County Council and other agencies during the

lifetime of the LAP will monitor the significant environmental effects of implementing this plan.

There are also uncertainties relating to the effects of climate change, notwithstanding a significant amount of research into climate change undertaken on both a national and international level. The *National Climate Change Adaptation Framework 2012* provides the policy context for a strategic national adaptation response to climate change. The *Climate Action and Low-Carbon Development Act 2015* will facilitate the approval of plans by government in relation to climate change for the purpose of pursuing the transition to a low carbon, climate resilient and environmentally sustainable economy by the year 2050. A precautionary approach to climate change is adopted in this Environmental Report due to the level of uncertainty involved in the potential effects.

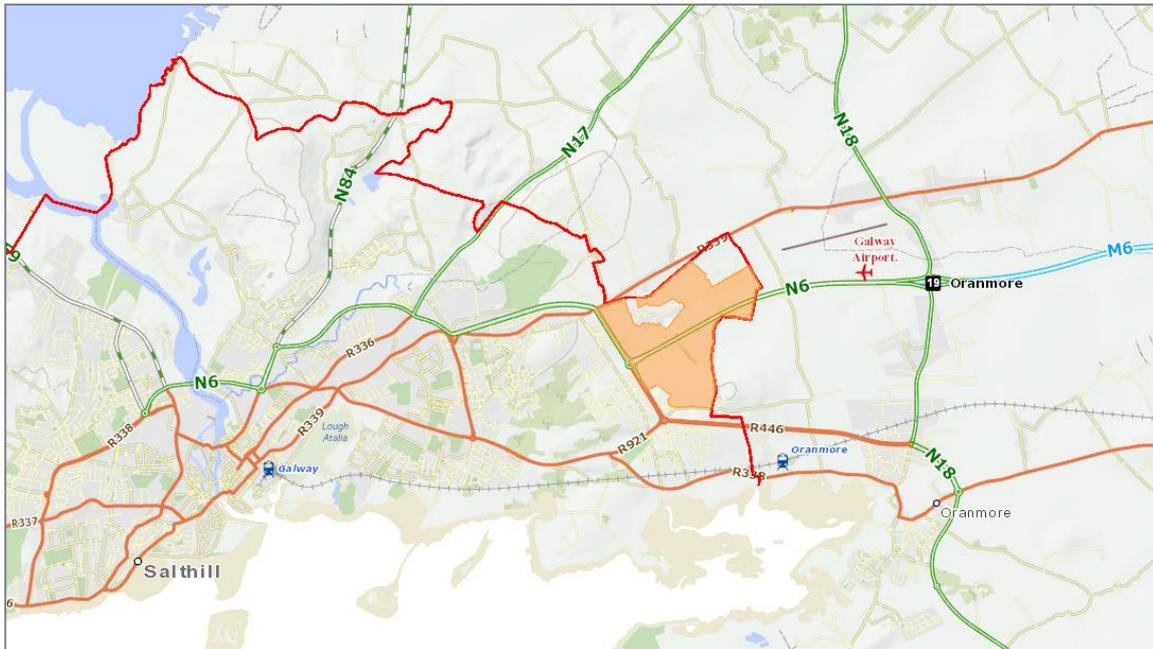


Figure 4 Ardaun LAP area

## Section 3: Context

### 3.1 Location

Ardaun LAP area forms part of the main eastern approach into the city. It is a strategic area for development located along the key access route corridor between Galway, Dublin and Limerick/Shannon. Ardaun is located near the IDA technology and business park at Parkmore, Merlin Park Hospital, Galway Clinic, Galway Airport lands, Briarhill Shopping Centre and important infrastructure and services including the rail stop at Garraun. The Galway Clinic is located just outside the south-western LAP boundary, adjoining the N6. The lands are bounded to the south and west by the R446 and N6 dual carriageway, to the north by the R339. The N6/M6 link road runs through the LAP lands on a west-east axis and physically divides the lands into a northern and southern section. Adjoining the northern section of the LAP area is Coolagh village envelope, a traditional clachan type settlement. There are a number of residential neighbourhoods in the surrounding area, including Doughiska directly west, Briarhill to the north and Roscam to the south. The natural amenities of Merlin Park Woods and coast line are located to the west and south of the LAP lands. The total area of Ardaun LAP lands is approx.164ha. The site is currently zoned for a LAP under the current City Development Plan.

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*"It is a natural extension of the agreeable south-eastern edge of the City, associated with the Merlin Park area; much of it shelves gently southward toward the sea and the sun, affording good views of the bay over generally open land; and it is reasonably endowed with mature tree planting. It seems ...to be generally an area with which both future employers and future residents would be happy to be associated"*

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GTPS

### 3.2 Planning Policy Context

The Ardaun LAP is a lower tier plan and must be consistent with national, regional planning policy and the Core Strategy of the City Development Plan. The Galway City Council Development Plan 2017-2023 is the parent document for the LAP and it sets out the strategic framework within which the zoning and other objectives of the LAP must be formulated. As the LAP sits under the strategic policy context of the City Development Plan, the policy and specific objective to prepare a Draft Local Area Plan for Ardaun was subject to SEA process detailed in the SEA Environmental Report and Statement.

The Ardaun LAP has been prepared having regard to various relevant national strategies, plans and guidelines regarding proper planning and sustainable development. Plans and legislation associated with the Development Plan and SEA process are listed in Appendix no. 1. Key plans are listed in Table 7.



Table 6: Policy Context of LAP

Policy Context	Policy Documents
National	National Spatial Strategy 2002-2020
	Capital Investment Plan 2012-2016
	Sustainable Development, A Strategy for Ireland 1997 and Making Ireland's Development Sustainable 2002
	National Climate Change Adaptation Framework 2012
	Draft River Basin Management Plan for Ireland 2018-2021
	State of the Environment 2016 EPA
	Transport 21
	Rebuilding Ireland Action Plan for Housing and Homeless 2016
	National Mitigation Plan July 2017
	Smarter Travel, A Sustainable Transport Future 2009-2020
	National Biodiversity Plan 2002
	National Landscape Strategy for Ireland 2015-2025
	National Heritage Plan 2002
	Irish Water Water Services Strategic Plan (2015)
	National Anti-Poverty Strategy (NAPS) and recommendations from National Disability Authority
	National Action Plan for Social Inclusion
	Healthy Ireland A Framework for improved health and well being 2013-2025
	A Resource Opportunity Waste Management Policy In Ireland 2012
	National Renewable Energy Action Plan 2010
	National Cycle Policy Framework 2009-2020
Construction 2020 A Strategy for a Renewed Construction Sector 2014	
Draft Renewable Electricity Policy and Development Framework 2016	
Ministerial Guidelines for Planning Authorities – various issues including sustainable urban housing, urban design, retail, flood risk, architecture and local area plans	
National Inventory of Architectural Heritage (AAH) and Record of Monuments and Places Archaeological Survey of Ireland.	
Regional	West Region Authority Planning Guidelines 2010-2020
	Connacht Ulster Regional Waste Plan, 2015-2021
Local	Galway City Development Plan 2017 - 2023
	SEA Environmental Report and Natura Impact Report of Galway City Development Plan 2017-2023
	Galway City Council Local Economic and Community Plan (LECP) and Socio-Economic Statement (2015)
	Galway City and County Councils Economic Baseline Summary Overview Galway City Whitaker Institute 2015
	Galway City Biodiversity Action Plan 2014-2024
	Galway City Habitats Inventory 2005
	Galway City and County Councils Galway-Ardaun LAP Habitat Survey Final Report 2009 & Galway City Council Ardaun LAP Habitat Assessment 2012, Natura Environmental Consultants Ltd.
	Galway City Council Recreation and Amenity Needs Study 2008
	Galway City Council Heritage Plan 2015-2020
	Galway Transport Strategy (GTS) 2016
	Galway City Noise Action Plan 2013-2018
	Galway City Council Strategic Flood Risk Assessment for City Development Plan 2017-2023
	Galway City Council Strategic Flood Risk Assessment of Three LAP Areas, 2012
	Galway City Council Cultural Strategy 2016-2025

## Section 4: Policy Framework of the LAP

The LAP is prepared in accordance with the provisions of the Planning and Development Act 2000 (as amended). The Act requires that the LAP sets out an overall strategy for the proper planning and sustainable development of the Ardaun plan area and that the LAP must be consistent with the policies and objectives of the City Development Plan and its Core Strategy. The policies and objectives of the LAP detail the strategy for the sustainable development of the area, including, objectives regarding the development of the lands on a phased basis and detail on community facilities and amenities and development design standards.

The key policies and objectives of the LAP provide for the proper planning and sustainable development of Ardaun over the six year lifetime of the plan. These policies and objectives are specific to Ardaun LAP area. They are complemented by the various policies and objectives of the City Development Plan which will also apply to the LAP area.

## Section 5: Baseline Environment

### 5.1 Introduction

This section reports on the current state of the environment in the Ardaun LAP lands where baseline data was collected relating to the indicators described in the SEA Directive:

- Biodiversity, flora and fauna,
- Population and human health,
- Soil including geology,
- Water,
- Air and climatic factors,
- Material assets,
- Cultural heritage and landscape.

Baseline data has been collated through a review of currently available data, as recommended in SEA Guidelines. A number of reports were carried out, including flood risk and habitat assessments, which have informed the description of the environment baseline. The baseline assessment presents key issues for the LAP regarding each aspect of the environment and the state of the environment pending the non-implementation of the LAP.

### 5.2 Biodiversity, Flora and Fauna

Most of the land within Ardaun can be defined as improved agricultural grassland. There are habitats of ecological importance, located mainly to the south of the N6/M6 motorway and within the north-western section of the LAP area. Habitats include small areas of exposed limestone pavement, calcareous grassland and heath, wet grassland, and hazel scrub. Exposed limestone pavement (exposed calcareous rock) (ER2) and Dry calcareous and neutral grassland (important orchid sites) (GS1) are listed as priority Annex 1 habitats under the EU Habitats Directive.

There are records of a rare and legally protected plant<sup>3</sup>, the Small white orchid (*Pseudorchis albida*), contained on a section of calcareous grassland within



Figure 5 Annex 1 habitats in Ardaun area. Draft Habitat and Species Datasets recorded for the N6 GCRR Project Annex 1 Habitats (peach) and Non-Annex 1 local habitats of high importance (pink).

<sup>3</sup> Wildlife Act 2000

the LAP boundary, immediately south of N6/M6 roundabout. This site is also a designated Local Biodiversity Area in the current City Development Plan and *Biodiversity Action Plan 2014-2024*.

A number of habitat assessments of the LAP lands have been undertaken to identify and describe habitats of ecological significance within the site. Recent unpublished draft habitat and species datasets associated with N6 Galway City Ring Road project have also informed the baseline assessment (fig.4), in particular with regard to Annex 1 habitats under the EU Habitats Directive. In addition the *Ardaun Local Area Plan Ecology Report (Atkins, 2017)* has informed the preparation of the Draft LAP. The Ecology Report has identified five ecologically sensitive sites within Ardaun and makes recommendation for each ecologically sensitive site, see figure no. 9.

The *Ardaun LAP Habitat Survey (2009)* was undertaken to identify habitats of ecological significance within the site and areas of ecological sensitivity near the site that could be directly or indirectly impacted by development. This survey was augmented by further detailed investigation, conducted in 2012 on the Ardaun LAP lands within the city. The *Ardaun Habitats Assessment Study (2012)* concentrated on the resurvey of habitats delineated in each field area to Level 3 of Habitat Council Habitat classification scheme and assessment of habitats of ecological importance. The Report mapped and evaluated sites which range from Internationally Important Annex 1 habitats and County Important Sites and included a survey of the protected Small white orchid. The orchid survey conducted in June 2012, during the flowering period of the orchid identified 6 specimens of the plant.

### European Sites

There is no European Site located within the LAP boundary. The nearest European Site is the Galway Bay Special Area of Conservation (SAC) and Special Protection Area for Birds (SPA) located approximately 0.5km to the south. There are no designated or proposed NHAs within Ardaun. The AA of the current Development Plan notes that a potential impact associated with the Ardaun LAP could be construction and operational run-off contamination of surface and groundwater to adjacent European Sites. Screening for AA of the Draft LAP has been carried out, according to the *cause-pathway-effect model* and its recommendations have informed the Draft LAP. The *Ardaun LAP AA Screening Report (2017)* considers that there is no potential pathway for impacts such as habitat loss or pollution of surface waters given the lack of surface level connectivity between the LAP area and European Sites. However, the effect of the potential impacts on ground water and the displacement of bird species, black-headed gull, could extend beyond the LAP boundaries to European Sites. The *AA Screening Report (2017)* finds that significant effects on European Sites within 15 km of the LAP boundary are not likely to arise because of LAP policies and objectives either alone or in-combination with other plans and projects.

### Habitats

The various habitats present in Ardaun are closely associated with exposed limestone bedrock or thin soils overlying the limestone. The habitats of higher international ecological importance identified in the LAP area are as follows:

- Exposed calcareous rock – Annex 1 EU Habitats Directive habitat, Limestone pavements.
- Dry calcareous and neutral grassland - Annex 1 EU Habitats Directive habitat, Semi-natural dry grassland and scrubland facies on calcareous substrates (Festucioo-brometea) Important orchid sites.

The *Ardaun Local Area Plan Ecology Report (Atkins 2017)* has identified five ecologically sensitive sites (ESS) within Ardaun and makes recommendation for each ESS and has informed the preparation of the LAP.

Other habitats/natural features identified in the LAP area include dry calcareous heath, scrub, oak, ash and hazel woodland and hedgerows and stone walls.

### Exposed Calcareous Rock (ER2)

Exposed calcareous rock is a typical habitat of the east Galway region. It often occurs in association with dry calcareous and neutral grassland (GS1) and scrub (WS1).<sup>4</sup> This category includes areas of limestone bedrock that are fissured, broken or weathered along natural joints and faults to produce classic ‘clint and gryke’ features. Areas of loose limestone rubble known as ‘shattered pavement’ are also included.<sup>5</sup> It is a habitat of many distinctive species of flora and fauna.

An area of exposed limestone that conforms to the priority Annex I habitat Limestone Pavements (8420), is located at the western side of the southern section of the LAP area (see figures no. 10 and 11). The limestone pavement includes fragmented areas of exposed weathered limestone bedrock with fissures along natural joints, as well as areas of shattered limestone. The plant species are few on the bare limestone and are confined to the fissures and cracks. The *Ardaun Habitats Survey 2009* found species such as *Mycelis muralis* and ferns *Asplenium ruta muraria*, *A. trichomanes* and *Phyllitis scolopendrium*. Carlina thistle (*Carlina acaulis*) and Juniper (*Juniperis communis*). This habitat forms a mosaic of habitats with pockets of species-rich calcareous grassland and heath in which typical Burren species such as blue gentian (*Gentiana verna*), and blue moor-grass (*Sesleria albicans*) occur.

### Dry Calcareous and Neutral Grassland (GS1)

This habitat is often found in association with other habitats including exposed calcareous rock (ER2) and scrub (WS1), and occurs in the northern areas of Menlough and Castlegar as well as parts of the coastal zone around Rusheen Bay and Roscam<sup>6</sup>. This habitat occurs on thin soils near outcropping limestone and has a good diversity of species typical of calcareous grasslands in the Burren. Orchid-rich calcareous grassland occurs at three main locations within LAP lands as shown on figures no. 10 and 11.

In the *Habitat Survey 2009* this area included species typical of calcareous grassland and included lady’s bedstraw (*Galium verum*), quaking grass (*Briza media*), birds-foot trefoil (*Lotus corniculatus*), hair bell (*Campanula rotundifolia*), as well as areas with more typical neutral grassland species such as sweet vernal grass (*Anthoxanthum odoratum*) and crested dogs-tail (*Cynosurus cristatus*). At the western side of the LAP area, the calcareous grassland forms a mosaic with Dry calcareous heath (HH2) and scrub (WS1) over a shallow heathy substrate. It has a very high species diversity of plants that are indicators of both calcareous, and acidic conditions as well as a degree of dampness.



Figure 6 Orchid rich dry calcareous grassland (June 2012) Two specimens of Small white Orchid are located centre of photograph.

Calcareous grasslands with either high numbers or diversity of orchids correspond to the priority habitat, ‘semi-natural dry grasslands and scrubland facies on calcareous substrates (Festuco-Brometea) (\*important orchid sites) (6210).<sup>7</sup> The area of dry calcareous grassland immediately south of the N6/M6 roundabout, see Figure 11, is the habitat of the rare and legally protected Small white orchid (*Pseudorchis albida*), of which six plants were found during the *2012Habitat Assessment*. This habitat conforms to the priority Annex I habitat Important Orchid Site (6210) as described in *the Interpretation Manual of the EU Habitats (2007)* and is a habitat of high ecological value.

<sup>4</sup> Galway City Habitat Inventory, 2005, pg.26.

<sup>5</sup> A Guide to Habitats in Ireland, Julie A. Fossitt, The Heritage Council, 2000, pg.59.

<sup>6</sup> Galway City Habitat Inventory, 2005, pg.22.

<sup>7</sup> A Guide to Habitats in Ireland, Julie A. Fossitt, The Heritage Council, 2000, pg.29.

### Wet Grassland (GS4)

The 2009 *Habitat Survey Report*, OPW flood maps (informed by GSI turlough data) and scoping submissions from environmental authorities refer to the presence of a possible turlough, (seasonal lake), on lands at the western part of the site in the vicinity of the N6. On foot of this information, the area was examined both in terms of hydrology/flood risk and ecology to establish whether a turlough occurs on these lands. The *City Council Strategic Flood Risk Assessment of Three LAP Areas Report, 2012* found that the 'turlough' location was identified on high land elevations and these lands generally do not flood. Aerial photos taken on during the November 2009 flood event do not show any flooding in the vicinity of the turlough or at the Coolagh Roundabout area. The Report notes that a detailed ecological report would verify the status of any turlough on these lands. The *Ardaun LAP Habitat Assessment 2012* notes that some wet grassland (GS4) were identified in the 2009 survey as potential Turlough habitats (FL6). The area was reassessed and it was found that the area did have fragments of wet grassland vegetation covering an area of 5m<sup>2</sup> which indicate some water logging of the substrate. However the moss *Calliergonella cuspidate*, which is indicative of atypical turlough conditions, which was extensive in 2009, is not now present. The wet habitat was found to be very limited and is likely to be due to retention of surface water rather than a fluctuation in ground water levels. The 2012 *Habitat Assessment Report* finds that the habitat does not conform to the priority Annex 1 habitat turlough and the habitat is classified as Wet Grassland (GS4).

### Protected Species of Flora and Fauna

The Small white orchid (*Pseudorchis albida*) is a rare plant species, which is legally protected under the Wildlife Act Flora Protection Order (1999) and is listed as vulnerable in the *Red Data Book*. The Small white orchid grows in semi-natural grasslands and the species is tolerant of alkaline and slightly acidic soil conditions. The plant can live for thirty years and requires the development of seeds, good drainage, sunny site, short grass sward for its survival. It requires a fine balance in grazing to achieve the aforementioned conditions. The flowering season of the plant in Ireland is normally June. The main threats to its future are the spread of scrub because of the reduction in traditional grazing, the use of fertilisers or development works.

The presence of the Small white orchid on lands in Ardaun, been recorded in the 1991, 1992, and 2005 by Dr. C. Roden, (see *Appendix no.1*). It is noted that the orchid has not been found during the fieldwork surveys conducted for the M6 road development (*Doughiska to Glennascaul August 2004*). However the orchid was found in June 2006 by BES during a survey commissioned as part of the EIS mitigation measures of the N6 road development scheme. Another survey carried out in May 2007, (a little early in the typical flowering season of the plant), did not record the presence of the plant. Other orchid species were recorded during fieldwork highlighting the biodiversity value of the site. The Small white orchid was not found during the site visit in July 2009 during the course of the *Habitat Survey 2009* however the timing of the survey was late. Nevertheless the Survey Report stated that there is still a suitable habitat for this species within the calcareous grassland, heath and limestone pavement mosaic in the western part of the site and the presence of the orchid was assumed.



Figure 7 Small white orchid (*Pseudorchis albida*)

A dedicated survey for the species was carried out in June 2012, the main flowering period of the orchid, as part of the *City Council Habitat Assessment Report 2012*. Six plants of the Small white orchid were found. The plants were growing in species-rich grassland highlighted in earlier studies, with areas of hazel scrub and exposed limestone in the vicinity. Other species of note included mountain everlasting (*Antennaria dioica*), kidney vetch (*Anthyllis vulneraria*), fragrant orchid (*Gymnadaconopsea*) and twayblade (*Listera ovata*).

### Bird Species

The *Ardaun Local Area Plan AA Screening Report, (2017)* examines the the policies and objectives of the LAP with potential to result in effects on European Sites, including disturbance and /or displacement of bird species using habitats within the LAP. The black-headed gull, a feature of interest of both Inner Galway Bay SPA and Lough Corrib SPA, has been noted within LAP lands<sup>8</sup>. The AA Screening Report states that the principal

<sup>8</sup> Draft Habitat and Species Datasets recorded for the N6 GCRR Project, 2017.

supporting habitat for this species is intertidal mud and sand flats and sheltered and shallow sub-tidal, indicating that terrestrial habitats such as grassland are less important for foraging. The Report concludes that any potential impact due to displacement of bird species is likely to be insignificant.

### Fauna

Signs of fauna were noted in the various habitat surveys of Ardaun. Hare were seen on the site and signs of fox and badgers were also noted. The absence of watercourses and drainage ditches, render the area unsuitable for otter and aquatic species. Bats, protected species listed under Annex II of the EU Habitats Directive, are likely to forage in the semi-natural habitats and use the hedgerows as commuting routes. Other mammals that are likely to frequent the area include hedgehog, stoat, field mouse and shrew. Birds typical of farmland and woodland were present on the site. The areas of dry calcareous grassland are rich in invertebrates.

### Key Biodiversity, Flora and Fauna Issues

The *Habitat Assessment Report (2012)* advises that land use zoning should facilitate the protection of the habitat of International ecological significance exposed limestone pavement and protect the identified location of the Small white orchid. The Report states that priority should be given to avoidance of development on lands, see figure no. 8. The *Ardaun Local Area Plan Ecology Report 2017* has identified five ecological sensitive sites within Ardaun and includes recommendations for the management of these sites, see figure no. 9.



Figure 8 Area of high international ecological value and Annex I habitats

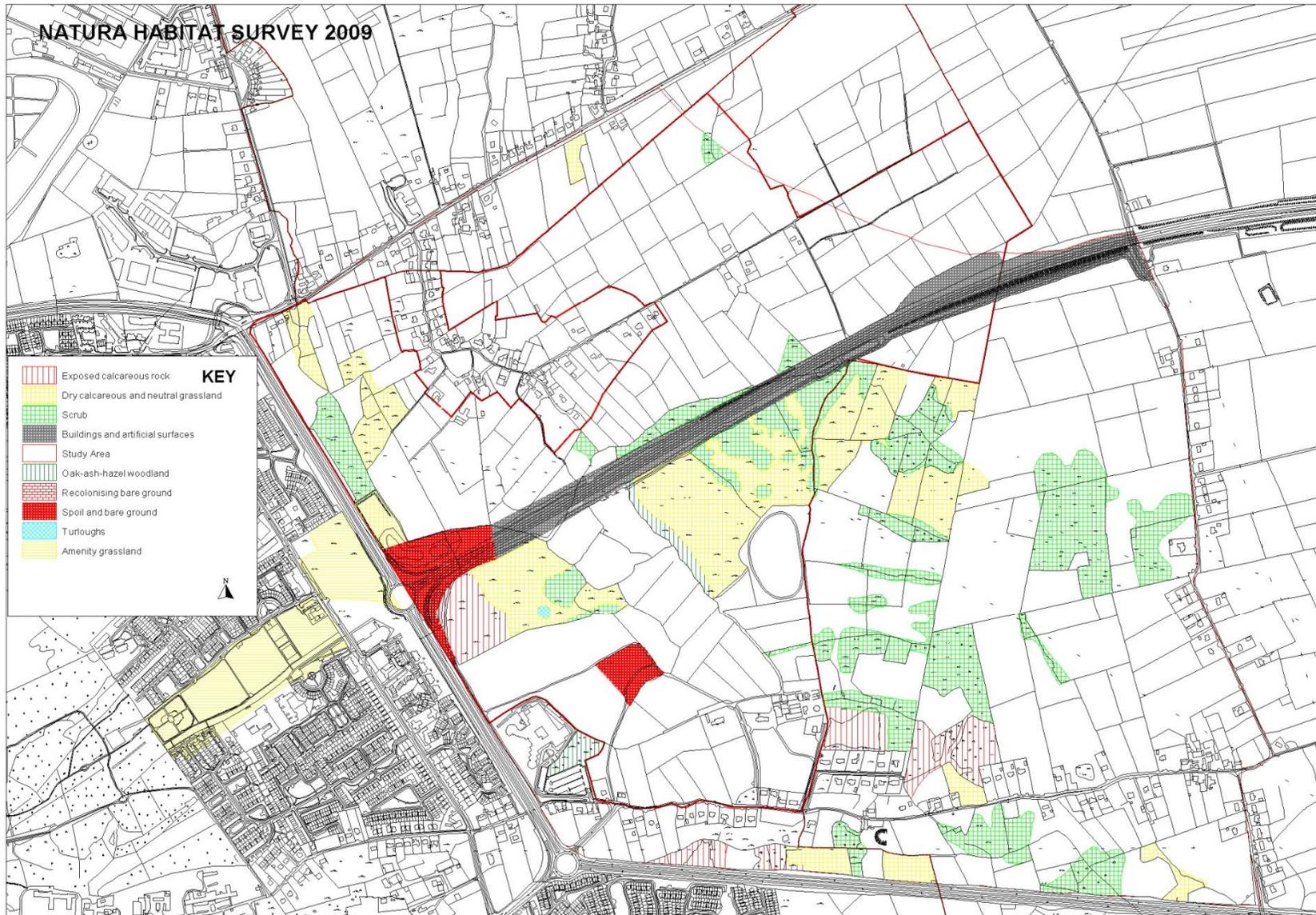
### Non-implementation of the LAP

The LAP can through its policies ensure the protection of Annex I habitats in collaboration with the NPWS safeguarding these areas from future development and increasing biodiversity within the future urban environment of Ardaun. The *Green City Guidelines* state that from a biodiversity viewpoint, habitats of low ecological value including improved agricultural grassland, the predominant habitat type in Ardaun, provide the most suitable areas for development. New developments can provide an opportunity for creating ecologically valuable habitats that can replace existing low quality habitats.<sup>9</sup> Ardaun can accommodate development without having a negative effect on existing Annex I habitats of higher biodiversity. Features of higher biodiversity value have been identified in the various habitat and ecology surveys of Ardaun enabling the protection of these habitats and features in the LAP.



Figure 9 Five ecological sensitive sites identified within the LAP area, *Ardaun Local Area Plan Ecology Report, 2017*

<sup>9</sup>*Green City Guidelines, Advice for the protection and enhancement of biodiversity in medium to high-density urban developments, UCD Urban Institute Ireland, 2008, p.79.*



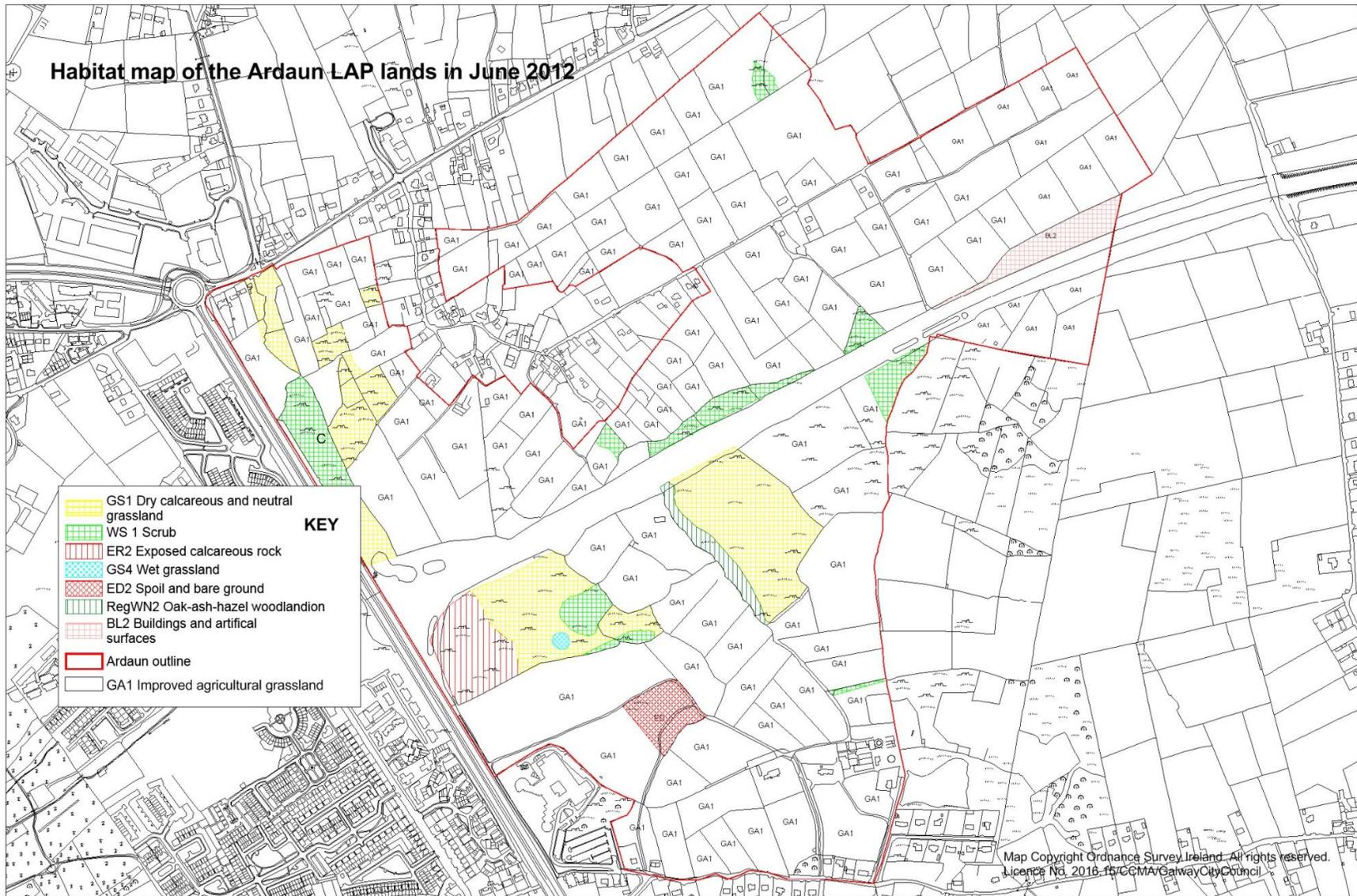


Figure 11 Habitat Assessment of Ardaun LAP area 2012

## 5.3 Population and Human Health

### Population

The National Spatial Strategy (NSS) has designated Galway City as a Gateway, a centre for regional socio-economic development. The city is identified as having a strategic threshold, a critical mass, in terms of its concentration of population, education and job opportunities that is favourable for future growth. The 2016 population of Galway Gateway<sup>10</sup> is 79,504. There was a 3,975 increase (5.3%) in total population of the city from 2011 to 2016.

The *Regional Planning Guidelines Review: Gateway, Hub Population Targets (October 2009)* highlights that the changing economic climate creates a greater need to focus development into Gateways as this delivers improvements in critical mass, achieves economic competitiveness and cost effectiveness in investment. The DECLG have set targets for gateway population growth. The population target for the city in 2022 is 98,700. Ardaun has been identified in the Core Strategy of the Development Plan as an area that can accommodate a significant portion of this future population growth of the gateway. A key challenge will be to balance growth of population in Ardaun with the protection of environment, the phased delivery of infrastructure and services and the creation of a sustainable new neighbourhood within the city.

The total area of Ardaun LAP lands is approx. 164ha. It is acknowledged that not all of these lands will be deemed suitable for development taking into account the need to protect habitats of ecological importance and existing and proposed infrastructure provision. In addition the area will accommodate a mix of land uses, not solely residential.

The total area of residential zoned lands is estimated to be approx. 89ha. In order to estimate the future population of Ardaun, an average density of 35 units per hectare is used. Average house hold size 2.72 as per City Development Plan<sup>11</sup> gives potential residential population of approx. 8400 persons<sup>12</sup>. In addition the urban village centre (UVC land use zone 20ha) will also include a residential content in development and promote a mix of housing types and create a vibrant place to live which could give an estimated population of 952-1333 persons presuming minimum 50% residential content in development (living over commercial/apartments etc.) subject to an upper limit of 70% of lands dedicated to residential/residential commercial uses<sup>13</sup>. A potential estimated population of 9,500 could be delivered at Ardaun.

### Human Health

The *Healthy Ireland Framework for Improved Health and Wellbeing Framework (2013-2025)* outlines actions to improve health and wellbeing and highlights that the quality of the urban environment and accessibility to services and amenities can impact on a person's quality of life. The City Development Plan 2017-23 encourages healthy lifestyles and social inclusion and by promoting accessibility in the built environment through the Councils commitment as a signatory of the *Barcelona Declaration*. Galway City participates in the *WHO Healthy Cities Project, National Healthy Cities and Counties of Ireland Network* which aims to enhance the health of the city, its environment and its people.

The quality of the urban environment, accessibility to services and amenities can impact on a person's quality of life. Community life is supported by the existence of convivial meeting places such as a village centre, safe streets and access to local facilities. The propensity of people to walk, cycle or play in the open air is affected by the availability of local open space and by the convenience and quality of pedestrian and cycling routes. Elements of the green network in Ardaun such as open spaces and walk/cycleways will provide opportunities and spaces dedicated for recreation and leisure. Identified areas of ecological importance are to be protected in order to promote biodiversity and to create 'green lungs' in the urban environment. The LAP proposes the creation of an attractive and safe public realm that cultivates community interaction and has positive impact on health and social inclusion.

<sup>10</sup>City and environs.

<sup>11</sup>Table 1.1 CSO Census Records and NSS Population Targets and Household Projections, City Development Plan 2017-2023.

<sup>12</sup>Potential estimated population of 8,473.

<sup>13</sup>Residential content can include hotel/apartment hotel uses.

### Community Facilities

A range of different community, cultural facilities and social services exist within the hinterland of the LAP area including Galway Clinic, Merlin Park Hospital, Briarhill Shopping Centre, Briarhill Retail Park and the racecourse. The Garraun Train Station is located 5kms to the south-east of the LAP lands. Coláiste Mhuirinne primary and secondary schools, and Briarhill National School are among the education establishments within the immediate hinterland of Ardaun. GMIT is located approx. 4kms from Ardaun. In the adjoining neighbourhood of Doughiska local services include Cumasu Community Centre, Ardaun Roscam Doughiska (ARD) Family Resource Centre, church, adult education courses, pre-school, primary care centre, employment supports, and a park and woodland area, recreation and amenity facilities and Castlegar GAA club.

While Ardaun can be serviced by the regional level facilities and services in the city and local facilities within the immediate hinterland, in addition the needs of its population for local based services and facilities required for daily life should be satisfied in a sustainable manner. Community, cultural facilities and social services of appropriate scale are accommodated in the LAP. Section 7.5 Specific Objectives of the Development Plan states that the provision of education, childcare and other community services and facilities shall be an integral part of emerging new communities within the city, including Ardaun.

The policy of City Development Plan promotes the development of Galway as a socially inclusive city community. This policy shall be promoted in the development of Ardaun, particularly by creating an accessible physical environment that provides for ease of mobility with good linkages to the city and accommodating everyday activities such as community and cultural facilities and encouraging life-time adaptability. In view of a new emerging community at Ardaun, the promotion of 'Child Friendly City' policy and the provision of diverse opportunities for play and safe and accessible recreational areas will be important.

With regards to education, pre-draft LAP submissions from the Department of Education and Skills specify that site(s) should be reserved for schools and these should be made as close as possible to other proposed community, cultural and recreation facilities and public transport/sustainable transport routes so that these can be shared between the school and the community.

The LAP will seek to achieve the actions of the Local Economic and Community Plan and work with the Local Enterprise Office to improve the well-being of the community and economy of Ardaun.

### Employment opportunities and Enterprise

Enterprise within in the city is characterised by clusters of economic activity in particular medical technologies, ICT services and light engineering. Tourism, services, healthcare and education are also significant employers. Ardaun is also strategically located near other employment and service centres such as Parkmore IDA Technology Park, Ballybrit Industrial Estate, Galway Clinic, Merlin Park Hospital, GMIT and Oranmore Business Park. Areas identified for expansion of the city such as Ardaun can also provide potential for a range of commercial and employment opportunities. Section 5.3.1 Retail Hierarchy of the current City Development Plan states that *"it is anticipated that Ardaun will have the characteristics of an area deserving of a district centre, this has been supported by the Gateway Innovation Fund application for a town centre."* Opportunities for enterprise, employment, retail and commercial activity in Ardaun will be facilitated in land use zoning of the LAP.

### Landownership

Landownership is held by approx. 20 land owners. A number of holdings particularly in the southern section are of considerable size while the northern section is characterised by smaller plot sizes. The co-ordination of major landowners will be a fundamental element in the delivery of the LAP and sequence of development.

### Key Population and Human Health Issues

A key issue in the development of Ardaun is balancing the creation of a sustainable neighbourhood with protecting the environment, and delivering infrastructure along with development, in particular transport, water and waste water infrastructure, recreation and community facilities. The LAP should address the provision of necessary infrastructure to serve the emerging community. The provision of a mix of housing types and life-time adaptable housing to provide for the needs of a varied population is required in order to cater for a wide range of people. Accessible public realm, open spaces and sustainable transport infrastructure

will be needed to encourage healthy living choices. Quality of life indicators shall be included as part of the monitoring of the plan.

### Non-implementation of the LAP

Ardaun is considered an optimal location for the future growth of the city under the City Development Plan. In the absence of a LAP the Council would not have the development framework to determine a balanced phasing of development on these zoned development lands. A lack of controlled development could lead to an imbalance in the provision of services and infrastructure. The population will not be provided for by an adequate level of supporting services which may have a negative effect on the quality of life and health of the future population. The provision of a critical mass to support services, facilities and sustainable transport investment would not be realised.

## 5.4 Soils including geology

The geology of the LAP area consists of Burren limestone of lower carboniferous age. This limestone is pale to medium grey in colour, coarse-medium grained, slightly bedded and fossiliferous.<sup>14</sup> This limestone has a very high calcium carbonate content which makes it susceptible to dissolution by rain and surface water, creating fissures and fractures in the bedrock, leading to the development of karst features in the landscape including exposed limestone pavement which occurs within the LAP area.

In some areas thin soil layer overlies the limestone bedrock. The Geological Survey of Ireland (GSI) and the *N6 Galway to East Ballinasole EIS Volume 3A – Doughiska to Glennascaul (2004)* indicates that the subsoil in the area is essentially glacial till derived chiefly from limestone of relatively shallow depth of approximately 0 to 6m and it includes grey brown podzolics and brown earths. In terms of flood risk this soil type is defined under the *1975 Flood Studies Report (FSR)* as being soil type 1 which has a very high winter rain acceptance potential, suggesting that most rainfall drains through infiltration.<sup>15</sup> There is no known contaminated land, quarries or landfill within the LAP area. In addition, no sites or features of geological heritage importance have been identified by the GSI in the area. An area of spoil and bare ground occurs in the southern section of the LAP area.



Figure 12 Exposed limestone pavement

### Key Soils including geology Issues

Sections of Ardaun have shallow soil depths, with other sections having exposed fissured and shattered limestone pavement. These physical characteristics will need to be taken into consideration in the design of SUDS proposals for developments in this terrain. Where appropriate SUDS proposals will require hydrogeological studies in order to minimise the risk of contamination to groundwater resources and associated habitats. Sections of exposed limestone pavement, an Annex 1 habitat will need to be protected. The development of greenfield sites can affect soil conservation by the removal of existing soil resources.

### Non-implementation of the LAP

In the absence of the LAP, the areas of exposed limestone pavement, Annex I habitat, are protected under the Habitats Directive.

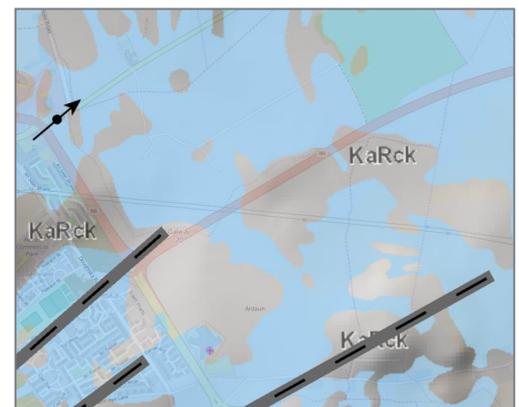


Figure 13 Quaternary geomorphology of the LAP area. Blue is Irish Sea till derived from limestone, KaRck grey is kartsified bedrock outcrop or subcrop, and grey lines are subglacial lineations, crag and tail.

<sup>14</sup> *N6 Galway to East Ballinsole EIS Volumes 3A – Doughiska to Glennascaul, Section 9.3.3 Solid Geology, (2004).*

<sup>15</sup> *Galway City Council Strategic Flood Risk Assessment (SFRA) for Three Local Area Plans, 2012.*

## 5.5 Water

For the purposes of this section of the Environmental Report, water is taken to include groundwater and flood risk.

### Groundwater/Hydrogeology

There are no watercourses within the site. Ardaun encompasses a regionally important aquifer, hosted by the Lower Carboniferous Burren Karst Limestone bedrock. Based on the high well yield the aquifer is classified by the GSI as a Regionally Important Aquifer<sup>16</sup>. Water flow is predominantly through fissures or fractures and not through pore spaces in the rock itself. Thus, any contaminants present in the groundwater in combination with overlying thin and highly permeable soil cover and high groundwater table would undergo minimum attenuation. This type of aquifer is of high to extreme vulnerability to pollution.

EU and Irish legislation require that all groundwater be protected. The *Groundwater Directive (2006/118/EC)* and *European Communities Environmental Objectives (Groundwater) Regulations 2010* establishes a regime for the protection of groundwater against pollution and deterioration. The *Draft River Basin Management Plan for Ireland 2018-2021* will build on progress made during the first cycle of River Basin District Management Plans to further progress towards the objectives of the Water Framework Directive for the protection of waters.

Section 3.5 of the Natura Impact Report of the City Development Plan identified the potential impact on European Sites within 15 km radius of the LAP area, to be increased urban development and land take with potential construction stage run-off and the associated potential risk of contamination of surface and groundwater to adjacent sites. Table 4.3 *Mitigation Measures to Ameliorate Potential Impacts from Development Plan in European Site* of the NIR notes various mitigation policies to ameliorate potential impacts.

Section 4.20 of the *Ardaun LAP AA Screening Report (2017)* states that pollution of groundwater is most likely to occur during construction and operation of the proposed multi-use developments within the LAP boundary. However, the policies and objectives of the LAP include the requirement that development proposals identify how the principles of SUDS will be applied to manage surface water discharges in accordance with Galway City Council requirements and include measures to ensure the protection of groundwater quality. To support the application of SUDS and the management of surface water discharge hydrogeological studies will be required to be undertaken by a suitably qualified person for any proposed development within the LAP area. Therefore, the AA screening concludes that it is unlikely that there is potential for impacts on groundwater that could extend beyond the LAP boundary giving rise to effects on Natura 2000 sites.

The OPW<sup>17</sup> recorded the presence of a turlough, in the GSI turlough database<sup>18</sup> occurring near the western boundary of the southern section of the LAP lands close to the N6/M6 Coolagh Roundabout. A turlough is a seasonal lake, typically drying out in the summer and replenished by raising groundwater flood levels in the winter period and is a distinctive karst landscape feature in the west of Ireland. Groundwater flooding may take weeks or months to dissipate because groundwater flow is much slower than surface flow and water levels thus take much longer to fall.<sup>19</sup> The *SFRA for the Three Local Area Plans Report (2012)* did not indicate the presence of a turlough on these lands. As outlined in Section 5.2, the *Ardaun LAP Habitat Assessment 2012* found that the habitat on site did not conform to a priority Annex 1 Turlough habitat.

<sup>16</sup>Geological Survey of Ireland (GSI) – [www.GSI.ie](http://www.GSI.ie)

<sup>17</sup>Informed by a list of turloughs from GSI – [www.floodmaps.ie](http://www.floodmaps.ie)

<sup>18</sup>[www.floodmaps.ie](http://www.floodmaps.ie)

<sup>19</sup>Planning Policy Statement 25: Development and Flood Risk Dept. Of Communities and Local Government UK December 2006

### Strategic Flood Risk Assessment

Ardaun due to its landscape setting, is vulnerable to two sources of flood risk, groundwater and pluvial<sup>20</sup>. The DECLG's *Planning System and Flood Risk Management Guidelines for Planning Authorities (2009)* states that, where flood risk may be an issue for any proposed development, a flood risk assessment should be carried out that is appropriate to the scale and nature of the development and the risks arising. The flood risk assessment should be sufficiently detailed to quantify risks and the effects of any necessary mitigation, together with the measures needed to manage residual risks. To comply with the *EU Floods Directive* and *Section 28 of the Planning & Development Act 2000 (as amended)*, an assessment of flood risk was carried out in the preparation of the LAP. The *Strategic Flood Risk Assessment (SFRA) for Three Local Area Plans 2012* was undertaken in order to fully assess the vulnerability of land and development to potential flood risks for three proposed LAP areas, Ardaun, Headford Road and Murrrough.

The *National Preliminary Flood Risk Assessment (PFRA) 2012* carried out by OPW under the CFRAM Study identified the Coolagh Roundabout area as an area of significant flooding risk from the rising groundwater table (an approximate area of 0.15km<sup>2</sup>). The *SFRA for the Three Local Area Plans Report (2012)* notes that the land elevation at this location is higher than the lands located in its immediate vicinity. The land elevation at this location is approximately 37.5mOD, while the lowest point in the vicinity has an elevation of 28mOD and is located 350m away northwest of M6 Coolagh Roundabout. The SFRA reports that during site visits<sup>21</sup>, no water was present at the location of the turlough. Given the higher land elevations, lands at this location generally do not flood. It was reported from local sources that the low lying areas north and northwest of the Coolagh Roundabout area generally flood following prolonged rainfall events. Aerial Photos taken during the November 2009 flood event<sup>22</sup> however do not show any flooding in the vicinity of the turlough or at the Coolagh Roundabout area. The ecological studies of the City Council's *Habitat Assessment 2012*, suggests that the turlough is not present. The SFRA assessment of site visits, flood records and the groundwater flood level estimation method showed that there has been no known flooding of the Coolagh roundabout area in the past to the extent identified in the OPW PFRA Study (2012). In the absence of any dates or other flood records the frequency of the above mentioned flood event at the Coolagh roundabout area could not be determined. The SFRA states that it is not clear if an actual turlough exists at the location of the GSI identified Doughiska turlough. The SFRA recommends, as a precautionary measure, that no development be allowed in the immediate vicinity of this location. This area also should not be used as an infiltration basin.

The SFRA notes that surface water runoff from the N6/M6 road drains through the road side drainage system into two attenuation ponds located on both the north and south sides of the Coolagh roundabout. The attenuation ponds are designed for the retention of 100 year return period storm flows from the surrounding catchment areas. The SFRA states that given the higher land elevations in the majority of the Ardaun LAP areas compared to these attenuation pond areas, any flooding risk to be caused from the failure of this attenuation system to any development can be expected to be minimal.

Any other localised flooding within the Ardaun LAP area can be generally categorised as pluvial which generally occurs in the absence of an adequate surface water drainage system following a heavy and prolonged rainfall when the soil gets saturated and no further infiltration is possible. Pluvial flooding risk was also identified at a number of locations within the LAP Area. However the flood extent under this category of flooding is not significant.

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<sup>20</sup> Pluvial flooding is a result of rainfall-generated overland flows which arise before run-off enters any watercourse or sewer.

<sup>21</sup> Conducted on 9<sup>th</sup> March and 30<sup>th</sup> April 2012

<sup>22</sup> 23<sup>rd</sup> November 2009.

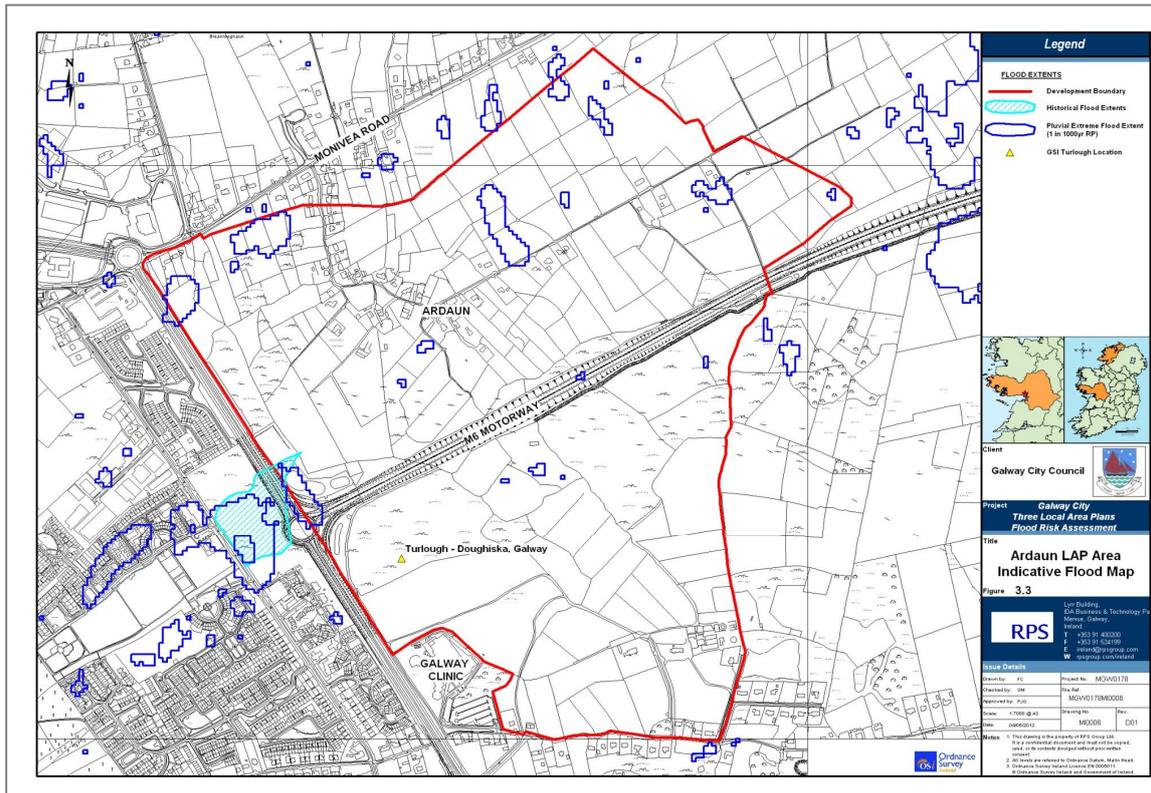


Figure 14 Indicative Flood Risk Map from the Strategic Flood Risk Assessment (SFRA) for Three Local Area Plans 2012.

### Sustainable Urban Drainage Systems (SUDS)

The SFRA (2012) states that some degree of pluvial flood risk to the adjacent lands can be expected from the runoff as a result of the increased impermeable areas associated with proposed development. In order to minimise volumes and rates of water run-off, it is recommended that SUDS is required for developments with Ardaun in line with current recognised best practice and the policies of the City Development Plan subject to appropriate treatment of storm water from site before discharge to receiving watercourses and the protection of groundwater.

The SFRA (2012) states that based on the existing topography of Ardaun, storm run-off from new development located in the west and north-western parts of the LAP area could be drained westwards to Galway Bay through the Merlin Park Area Drainage System. Run-off from this area was included in the design of Merlin Park Drainage System. Surface run-off from the remaining LAP area can be discharged to ground via infiltration. Alternatively, where infiltration is not an option, a surface water outfall pipe may be required to discharge this run-off to Galway Bay.

It would be desirable within Ardaun to have a mix of different SUDS types based on site characteristics, examples include surface water attenuation ponds, swales, porous paving, green roofs, filter drains and rainwater harvesting. There is an opportunity to incorporate these systems as positive landscape features contributing to biodiversity. The type and design of SUDS employed in Ardaun should reflect prevailing soil depths, underlying geology, groundwater table elevation, vulnerability classification of the aquifer and infiltration of storm water into the ground. SUDS proposals will require hydrogeological studies in order to ensure that the risk of contamination to groundwater resources and associated habitats is minimised, where appropriate. The SFRA (2012) includes advice on components of SUDS suitable for Ardaun, see *Schedule 5 SUDS Design Advice of Ardaun LAP* document. Current best practice in the design and implementation of SUDS should be utilised in order not to reduce the water quality in the receiving environment as advised by the findings of the SFRA (2012).

### Key Water Issues

The LAP will need to incorporate measures to safeguard groundwater quality. The groundwater aquifer will be vulnerable during the construction and operation phases as a pathway for potential effect of contamination of groundwater and to nearby European Sites and mitigation measures will be required. In this regard the *NIR of the Galway City Development Plan 2017-2023* highlights the potential for contamination of water resources as a result of the karst geology in the city area. The *Ardaun LAP Screening for AA Report 2017* considers that it is unlikely that there is potential for impacts on groundwater that could extend beyond the LAP boundary giving rise to effects on European Sites. The policies and objectives of the LAP should include the requirement that development proposals identify how the principles of SUDS will be applied to manage surface water discharges in accordance with Galway City Council requirements and include measures to ensure the protection of groundwater quality.

The *Draft River Basin Management Plan for Ireland 2018-2021* will provide a mechanism for addressing potential groundwater contamination and the LAP shall support its implementation. The identified wet grassland habitat forms part of the green network of recreation and amenity open spaces.

### Non-implementation of the LAP

In the absence of the LAP, it is likely that flood risk management would not be addressed in development proposals at a strategic level. The implementation of a comprehensive SUDS and surface water drainage system for the LAP area would not be realised.

## 5.6 Air and Climatic Factors

### Air Quality

Ambient air quality assessment is the responsibility of the EPA and air quality monitoring is a matter for the City Council, informed by the national EPA air quality monitoring network. Monitoring establishes whether air quality in the city meets standards considered adequate for the protection of human health and the environment. Air-quality analysis is based on concentration measurements of the following pollutants: particulate matter, ozone, nitrogen oxides, sulphur dioxide, lead, carbon monoxide and benzene. The results of air quality monitoring are compared to the limit and target values in the EU legislation, the *Clean Air for Europe (CAFE) Directive 2008*. The EPA report *Air Quality in Ireland (2015)* indicates that the current air quality in the city is good and complies with air quality standards, due largely to the prevailing westerly air-flow and the absence of heavy industry. One of the future challenges for air quality will be nitrogen oxides emissions from road traffic. The LAP seeks to facilitate and encourage sustainable modes of transport through its strategic goals, policies and urban design framework so that levels of nitrogen oxides are controlled.

### Environmental Noise

The *Galway City Noise Action Plan 2013-2018* (NAP) has been adopted by the City Council under the provisions of the Environmental Noise Directive 2002/49/EC. The purpose of the NAP is to manage, ameliorate and reduce environmental noise. In the case of Galway, noise maps are required for all major roads with a traffic flow threshold above 3 million vehicle trips per annum including the N6 and M6. The long term aim of the NAP is to reduce the impact of environmental noise from major road sources to acceptable levels below 70dB (A) Lden and 57dB(A) Lnight at residential properties along major roads in the city. Noise impact mitigation shall be considered in the design of development in Ardaun, where appropriate.

One of the noise management procedures referred to within the NAP is mitigation through traffic planning. This specifically refers to a ring road for Galway City as a management procedure for reducing traffic volumes along existing routes across the city. The EIS of the proposed N6 GCRR will address the issue of construction and operation noise and vibration impacts upon the surrounding area.

### Climate Change

Climate change adaptation is a fundamental part of sustainable development. The *National Climate Change Adaptation Framework 'Building Resilience to Climate Change' (DECLG 2012)* provides the policy context for a strategic national adaptation response to climate change in Ireland. The *National Climate Change Adaptation Framework* recommends that local authorities should integrate climate change adaptation and mitigation

considerations into their statutory plans. The *Climate Action and Low Carbon Development Act, 2015* sets out measures to achieve transition to a low carbon, climate resilient and environmentally sustainable economy in the period up to and including the year 2050. The *National Mitigation Plan (2017)* sets out the government's approach to reducing national greenhouse gas emissions. A National Adaptation Plan is also being prepared.

The Government is currently preparing a new National Planning Framework to provide for future development and investment in Ireland over the next twenty years and to coordinate key areas such as housing, jobs, health, transport environment, energy and communications into an overall coherent strategy. *Ireland 2040 – Our Plan Issues and Choices (2017)* publication notes that there is potential to incorporate climate considerations into the hierarchy of spatial plans, including LAPs, in order to address both mitigation, adaptation and achieve the national transition objective to achieve a low carbon economy by 2050.

The *Strategic Flood Risk Assessment (SFRA) for Three Local Area Plans 2012* has catered for the potential implications of the predicted impacts of climate change. The SFRA considers two future scenarios the mid range future scenario with allowances for increased flow, rainfall depths and sea level rise and high-end future scenario a more extreme potential future scenario in its flood risk assessment of Ardaun LAP, see *Section 5.5 Water*.

### Key Air and Climatic Issues

Air quality in the city is good, however high levels of traffic congestion can generate nitrogen oxides emissions and noise. Although technological advances continue to lead to lower emissions from individual cars, this is offset by the increase in the number of vehicles on the road. It is important to effectively manage our traffic in urban areas. The creation of a permeable street network, promoting walking, cycling and public transport can lead to reductions in vehicular traffic and less concentration of traffic and consequently of noise and air pollution.<sup>23</sup> Road generated noise from the M6 and the N6 will be an issue to be addressed in the design of adjacent development proposals.

The possible impacts of climate change are subject to continued scientific study. The *Green City Guidelines* note that as climate change occurs and weather events become more erratic the role of urban vegetation and wetlands in maintaining the hydrological balance will become more important.<sup>24</sup> Climate adaptation actions that should be addressed in the LAP including the creation of green spaces within the urbanised environment, protection of habitats, the use of sustainable travel modes, creation of a permeable urban structure, and the use of SUDS, renewable energy sources and green low-carbon design.

### Non-implementation of the LAP

The LAP, through its strategic goals and policies can have a positive influence in reducing the carbon footprint of Ardaun. In the absence of the LAP, there would be no strategic development framework for Ardaun. The critical mass would not be achieved to support a viable public transport service, allowing continued reliance on private vehicular transport, leading to increased traffic congestion which in turn affects air quality and environmental noise. The creation of an urban design layout that is conducive to walking and cycling and includes green open spaces would not be realised.

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<sup>23</sup>*Design Manual for Urban Roads and Streets, DTTAS and DECLG, 2013*

<sup>24</sup>*Green City Guidelines, Advice for the protection and enhancement of biodiversity in medium to high-density urban developments, UCD Urban Institute Ireland, 2008, p.5.*

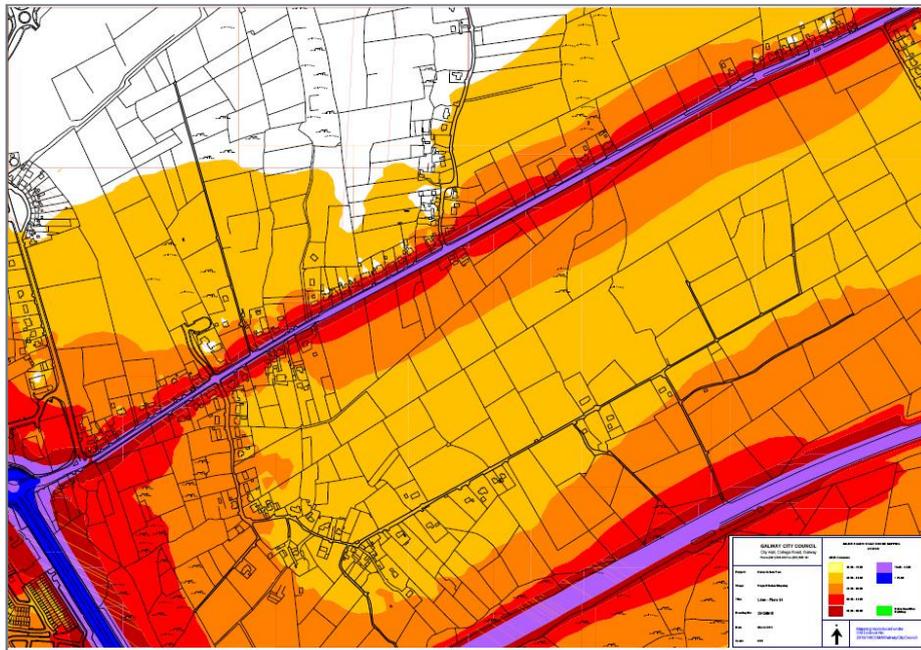


Figure 15 Daytime Strategic Environmental Noise Map of northern lands

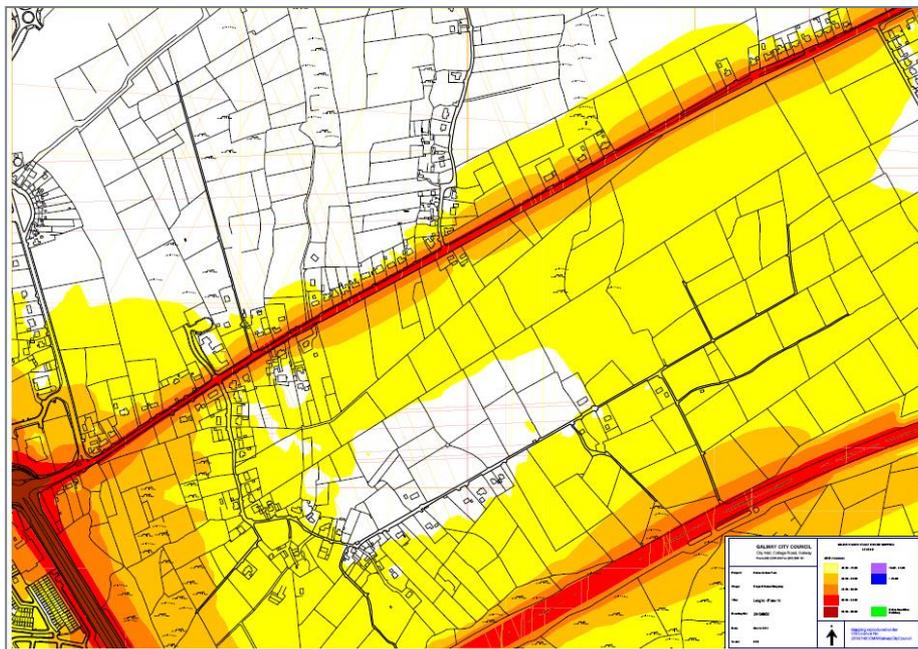


Figure 16 Night time Strategic Environmental Noise Map of northern lands

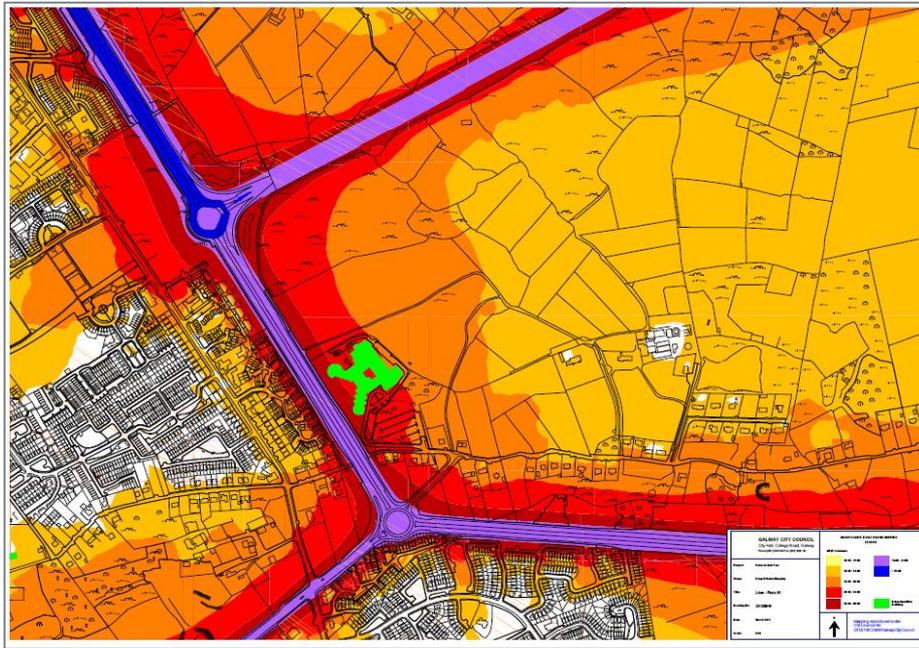


Figure 17 Day time Strategic Environmental Noise Map of southern lands

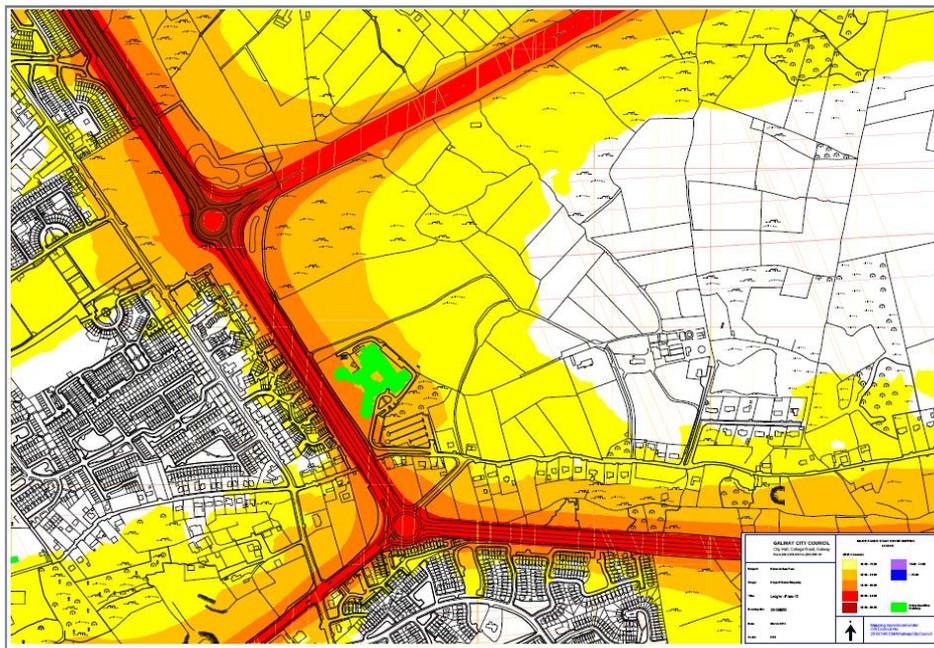


Figure 18 Night time Strategic Environmental Noise Map of southern lands.

## 5.7 Material Assets

### Water Services

The provision of water services is required to support the proposed phased delivery of development at Ardaun. A pre-draft submission<sup>25</sup> received from Irish Water states that it is an objective of Irish Water to provide both drinking water and wastewater capacity to facilitate the core strategies of Local Authorities in line with national and regional planning policies and objectives subject to the availability of funding. It is Irish Water's intention to provide sustainable water services to cater for the planned growth and phased demand of water service infrastructure within Ardaun. The submission also supports the accommodation of SUDS in the LAP, see *Section 5.5 Water*.

### Water Supply Infrastructure

The provision of drinking water infrastructure for the LAP is under the control of Irish Water. The public water supply is sourced from Terryland River, which is linked to the River Corrib. To adequately serve this area, a new elevated storage reservoir is required along with a distribution watermain network.

### Wastewater Infrastructure

The provision of waste water infrastructure for the LAP is the responsibility of Irish Water. Ardaun is not currently served by a wastewater collection system. Houses in the area are served by septic tank systems. There is an existing foul sewer<sup>26</sup> on the R446 (north of the Galway Clinic) which serves, the Galway Clinic and discharges to the existing pumping station at Merlin Park. The foul waste is then pumped to Mutton Island Wastewater Treatment Plant.

The Merlin Park Area Drainage (MPAD) constructed in the early 2000s included provision for a sewerage connection for the Ardaun area which will facilitate the development of the southern section (phase one) of the LAP area. The load arising from southern section (phase one) is expected to be in the order of 4,000pe and this can be accommodated at Mutton Island Waste Water Treatment Plant. It will require an upgrade to the existing MPAD including the provision of storage at Merlin Park pump station as well as the removal of existing infiltration in Oranmore and MPAD.

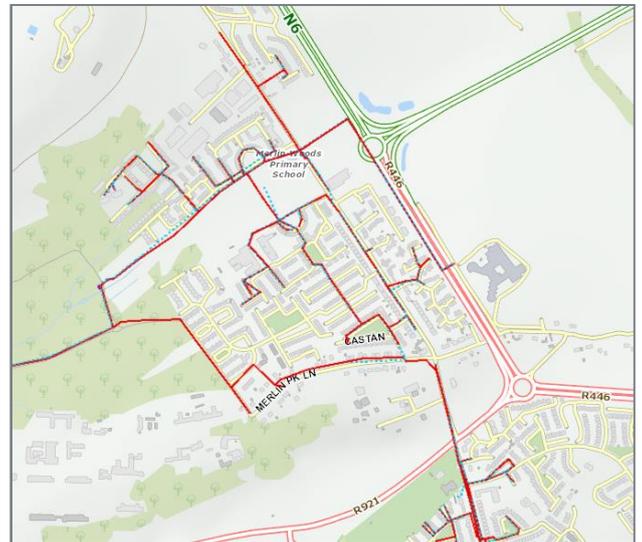


Figure 19 Wastewater drainage network in the vicinity of LAP area

Policy 9.7 Water Services of the City Development Plan 2017-2023 states that the City Council will ensure adequate treatment capacity to cater for the future needs of the city, in partnership with Irish Water. The completion of a Drainage Area Plan would determine the long term strategy for the Galway Wastewater network.

### Waste Management Infrastructure

Over the past decade, there has been significant progress in sustainable waste management in the city, including significant increases in recycling and composting rates. The *Connacht-Ulster Regional Waste Management Plan (2015-2021)* is a co-ordinated plan setting out policies for the development of waste treatment infrastructure. The LAP will comply with the objectives of the Regional Waste Management Plan. The City Council Litter Management Plan and other initiatives, will seek to control litter in the LAP area.

<sup>25</sup> Dated 14<sup>th</sup> August 2014

<sup>26</sup> 450mm foul sewer



Figure 20 The location of overhead electrical lines within the LAP area.

### Electricity, Gas and Telecommunications

Utilities including electricity, gas and telecommunications are key infrastructural components to achieve the development of any area. In Ardaun, four overhead transmission lines traverse the site on an east-west axis, see figure no. 20. There are two high voltage power lines 110kV lines are from Briarhill to Glennascaul and also two 38kV lines from Briarhill to Oranmore. The main 38kV station supplying the Ardaun area is Oranmore 38kV station which is in Deerpark Industrial Estate in Oranmore approx, 2kms from Ardaun.

In terms of electricity supply, the ESB have indicated that the anticipated electrical load levels of the Ardaun development will determine whether an up-rated Oranmore station alone can cater for all local needs. It is advised that some provision be made for a 38kV station in Ardaun, (land take approx. 30m<sup>2</sup>). Two major 10kV lines approx. 2 kms in length will be required to be built by ESB Networks from Oranmore to feed Ardaun. There may be potential to underground these cables but a wayleave reservation from development is required.

The layout and form of development will have to take the presence of overhead lines into account. Views of pylons can be obscured in the public realm, by development layout and orientation, lessening the perception of the transmission infrastructure.<sup>27</sup> A strip of land along the transmission route of the 110kV lines needs to be kept clear of development, in order to secure safety clearances and maintenance access and a reservation has been provided for in the urban design framework of the LAP. Provision for electricity supply should be provided for in the service ducting of the area in consultation with energy providers.

The LAP lands are not currently serviced by a gas pipeline or telecommunication fibre optic line due to their agricultural nature. To the north of the Galway Airport lands is a major 750mm diameter, 70 bar Galway City Transmission Pipeline and there is also a 180mm diameter distribution pipe in the Doughiska area. According to Bord Gais the distribution line to Oranmore will be adequate for the Ardaun development in the short term. The distribution pipe in Doughiska could also service some of the area from the west, it is likely that an above ground installation will be required in the Ardaun area in the long term.<sup>28</sup> The main telecommunications fibre optic line serving the city runs around the perimeter of the site via the major road network, and sections of R446. The network can be upgraded as required to service future development.

### Existing Transportation Network

A number of national and local roads occur in the area. The N6/M6 link, completed in late 2009, traverses the area, segregating the LAP area into two sections, north and south. This link route relieves the existing R446/N6 route which bounds the southern and western sides of the Ardaun area. A local road leads into the Coolagh village area. In the northern section, the north-west corner of the site fronts an important intersection at Ballybrit, N6, Monivea Road (R339) and Parkmore Road. The Monivea Road forms part of the northern boundary of lands, while the north-eastern portion can potentially access the Monivea Road by crossing lands outside the LAP boundary in the County area. In the



Figure 21 N6/M6 Motorway.

<sup>27</sup>The components of overhead power lines, *A Sense of Place Design Guidelines for development near high voltage overhead lines*, National Grid UK.

<sup>28</sup>Annex 1 - Ardaun Town Centre Urban Avenue and Bus Corridor Galway Gateway Innovation Fund Submission November 2007

southern section, the R446 forms the western boundary and the site is bounded to the south by the old Doughiska Road, a rural road lined with ribbon development which continues eastward and crosses the southern R449 giving access to the coast and rail line and the Coast Road R338. The old Doughiska Road accesses the Martin Roundabout on the R446/Dublin Road which forms the access point for Galway Clinic and the LAP lands. The railway line to the south of the site and the Garraun Rail Station including 150 bay park and ride is approx. 2km from the south-eastern boundary of the site. The proximity of the LAP lands to the rail station has the potential to create a public transportation link. There is a cycle route going north/south through Doughiska. The Dublin to Galway Cycle Route is proposed to the south of the site along the coastline.



Figure 22 N6 GCR route corridor

### Integrated Transportation

The City Development Plan states that Local Area Plans will be used to give direction for future settlement expansion, including for the integration of land use with transportation. The Galway Transport Strategy (GTS) 2016 represents a partnership approach between Galway City Council, Galway County Council and the National Transport Authority. It includes a series of measures which will address the serious transport problems experienced across the city particularly during peak hours. The GTS builds on previous transport studies carried out for Galway City and environs and sets out an overview of actions and measures for implementation over a phased and co-ordinated basis over the next 20 years, based on priority needs. The GTS has established that the reduction in traffic congestion requires both improvements to public transport, cycling and walking networks and the provision of a new orbital route the N6 Galway City Ring Road (N6 GCR). The route of the N6 GCR goes through the north-western section of the LAP area, see figure no. 22. The road scheme is currently at Phase 3 Design and Phase 4 Environment Impact Statement/Environment Assessment Report.

The GTS notes that road upgrades and new road links may be necessary for new developments such as Ardaun. It is an objective of the GTS to provide an on-road quality bus corridor to serve Merlin Park Hospital, Doughiska and Ardaun. The provision of a bus corridor to serve Ardaun was proposed by earlier studies the *Galway Strategic Bus Study 2007* and *'Robust Foundations' Galway Public Transportation Feasibility Study 2010*.

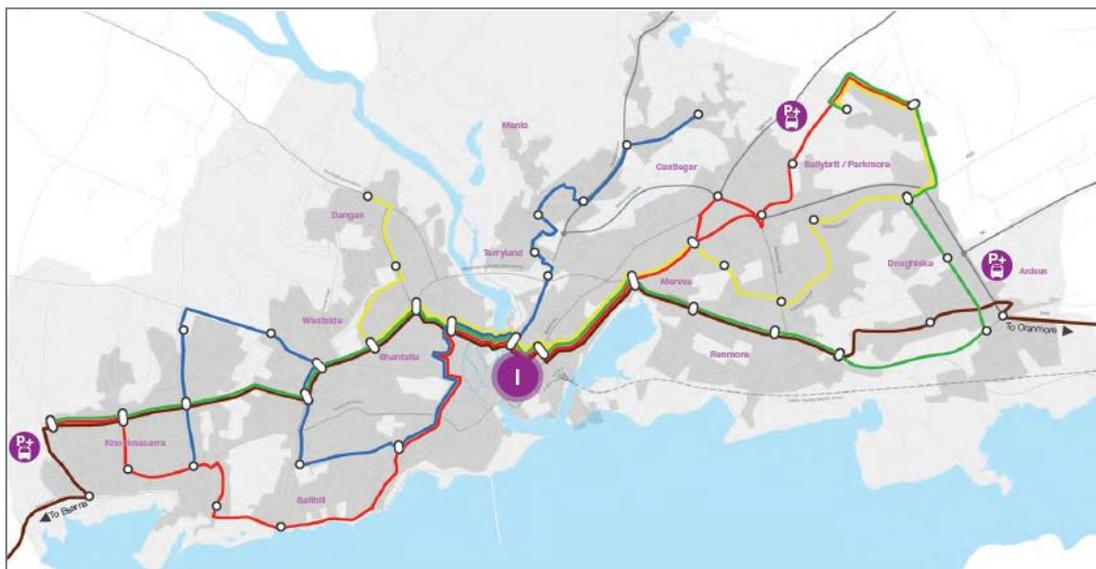


Figure 23 Proposed Bus Routes, source: GTS.

The GTS proposes a new public transport-only bridge over Bóthar na dTreabh along the line of the Old Doughiska Road. This will link Doughiska and Ardaun and the hospitals in the area. The bridge, some 400m in length, will include footpaths and cycle lanes providing direct access for pedestrians and cyclists and will link

into the future cycle network in Ardaun.

The GTS proposes the redesign of a number of junctions in the city including the Briarhill Junction from the northern end of Doughiska Road to the southern end of Parkmore Road to cater for all movements by all modes in particular cyclists and buses crossing the N6. The GTS notes that Parkmore Technology Park is a key employment designation and movements through this junction must prioritise safe movement of pedestrians and cyclists. It is further noted that the development of Ardaun may have an effect on this junction and should be taken into account as part of its design.

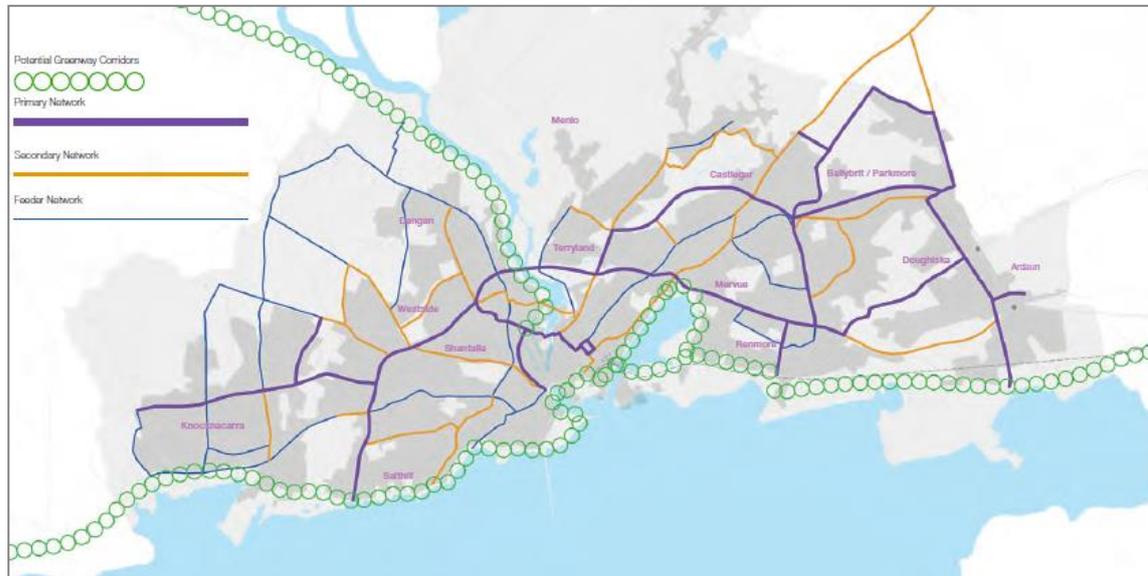


Figure 24 Proposed Cycle Network, source: GTS.

### Galway Airport Lands

Galway Airport lands includes 115 acres of land are located immediately outside the LAP lands to the north-east within the administrative boundary of Galway County Council at Carnmore. Commercial flight operations ceased in July 2012 and Galway City Council and Galway County Council jointly purchased the site in 2013 as a strategic opportunity site.

### Seveso III Directive Sites

The EU Directive (96/82 EC) on the Control of Major Accident Hazards, known as the Seveso III Directive aims to prevent major accident hazards involving dangerous substances and chemicals and the limitation of their consequences for people and the environment. The Directive covers both industrial activities and the storage of dangerous substances. There is no Seveso III site located within the LAP area.

### Renewable Energy, Energy Efficiency and Conservation

Energy conservation and the use of renewable energy technologies such as wind power, geothermal, combined heat and power systems and solar power can reduce the energy needs of buildings and operating costs, and greenhouse emissions. The Planning and Development Regulations 2007 introduced exemptions from planning requirements to encourage the development of micro renewable energy sources in domestic dwellings, business premises and industrial buildings for example solar panels, heat pumps, biomass and wind turbines subject to certain conditions. Part L of the Building Regulations Conservation of fuel and energy in dwellings requires the mandatory use of Renewable Energy Sources - a minimum of 10 kilowatt hours per square metre per annum. This requirement promotes the use of district heating fuelled by renewables and cogeneration schemes in new housing developments. The *Sustainable Residential Development in Urban Areas Guidelines for Planning Authorities (DCELG 2009)* notes that residential developments offer the potential to benefit from renewable energy sources within the district or the site. Suitable technologies may include small-scale wind energy plants and combined heat and power schemes. *A Guide to District Heating in Ireland (Codema and BioXL on behalf of the Irish Bio-energy Association 2016)* states there is an opportunity in Ardaun to consider District Heating for the future development with the potential to connect to existing heat demands of adjacent

hospitals and residential estates.

### Key Material Assets Issues

A key challenge for the LAP is to balance growth with delivering physical infrastructure and services to meet population projection targets while protecting the environment. The servicing of the site is reliant on the phased provision of new water and wastewater infrastructure. An integrated approach to land use and transportation should be followed in the LAP with a permeable and accessible urban form that encourages sustainable transport modes such as public transport, cycling and walking limiting private vehicle journeys and congestion. The form and layout of development adjacent to the overhead transmission lines, N6/M6 link motorway and proposed N6 GCR route corridor should aim to promote the best possible environmental quality. The LAP should encourage the use of sustainable green measures to address climate change, including renewable energy sources and energy efficient design. Energy efficient design and high levels of energy conservation can minimise energy usage and the capital and operation costs of buildings. In order to address climate change adaptation, to comply with national policy, renewable energy use sources and energy conservation should be encouraged in order to achieve high energy performance targets and a reduced carbon footprint in the plan.

### Non-implementation of the LAP

The LAP can provide a framework to support the phased development of essential infrastructure for Ardaun, minimise adverse impacts on the environment and human health and well being. In the absence of the LAP, it is likely that sporadic development would occur in the area, making it more difficult to meet infrastructural needs in a planned and phased manner. The delivery of integrated transport and the creation of the critical mass to support public transport would remain unrealised with continued traffic congestion associated with heavy dependency on car transport. The future growth scenarios for Galway as a Gateway set out at a national and regional level, as outlined in *Section 3.2 Planning Policy Context* of this report, would not be realised.

## 5.8 Cultural Heritage

### Arts and Linguistic Heritage

Galway City has a valuable cultural, arts and linguistic heritage, which needs to be protected and promoted within the LAP. The Irish language forms an integral part of the cultural identity of the city and there is great potential to further develop this bilingual cultural identity in Ardaun. The name Ardaun derives from two Irish words, 'Ard – high' and 'Aun – place'.

The potential accommodation of new cultural and arts facilities and infrastructure in order to foster a sense of place and community identity is facilitate in the policies and land use strategy of the LAP. A public art strategy would contribute to the creation of an attractive public realm and local identity and is a key objective of the LAP, see *Section 4.5 Key Objectives to support the Strategic Goals, Policies and Development Strategy*.

### Archaeology and Architectural Heritage

The Record of Monuments and Places, (RMP), lists two sites of archaeological interest in the Ardaun LAP area:

- Tumulas, (burnt mound, fulachta fiadh), dating from Bronze Age is located within the boundary of the LAP immediately to the north of the N6 link road roundabout abutting the N6.
- Ancient road, (known as Hags Road/Bóthar na Caillighe), dating from early or late medieval period is located outside the LAP boundary on CI zoned lands adjoining the N6 in Doughiska.

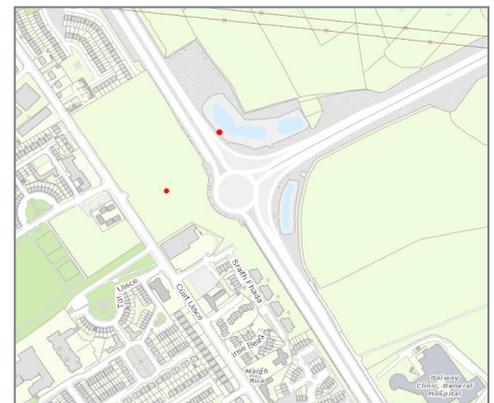


Figure 25 Archaeological Sites (in red).

The tumulus is located in a very flat, open and locally low-lying area of partially reclaimed scrub land.<sup>29</sup> The *Archaeological Inventory of County Galway, Volume 1 West Galway, (OPW and Archaeological Survey of Ireland 1993)* states the site of the tumulus or fulachta fiadh was surveyed in 1989.<sup>30</sup> Radiocarbon dating indicates that the majority of these sites were constructed during the mid to late Bronze Age (c.1500-c.500 BC) while some were still in use up to medieval times. It is generally agreed that their primary function was to heat water by depositing fired stones into a water-filled trough and it is widely believed that these sites were used as cooking places. The *Archaeological Inventory of County Galway* describes the site as being a large kidney-shaped grassy mound, open towards the west/south-west, (dimensions north/north west-south/south-east 17.5m, east/north-east/west/south-west 14m and height 1m). A portion of the general area was investigated in 1994/1995 as part of archaeological fieldwork undertaken prior to the construction of the Galway Eastern Approach Road. This revealed the presence of five burnt mounds. The number of sites involved and their close proximity to one another suggest that the area was a focal point of activity in the Bronze Age. Two adjacent mounds excavated yielded radiocarbon dates calibrated to approx. 2452-2200 BC and 1516-1618BC.<sup>31</sup> The dates from the two sites excavated suggest that burning associated with these mounds took place in this area over a long period of time. The lack of associated habitation evidence suggests that the people who used them did not live at the sites, but may have had a settlement close by<sup>32</sup>. The excavations at Doughiska in 1994/95 produced little in the way of artefacts with only one find of note, a polished stone axe head was recovered from topsoil in an area between two of the mounds.<sup>33</sup>



Figure 26 Hags Road located outside LAP area

The *Archaeology Inventory of County Galway* notes that an ancient road known as Bóthar na Caillighe/Hags Road is situated on level but rocky grassland outside the LAP boundary on CI zoned lands adjoining the N6 in Doughiska. The ancient road is approx. 400m stretch of kerbed roadway (width circa 5.5m) running north-west to south-east. The road is defined on either side by lines of large limestone and granite boulders and may have been the vestiges of the old road from Oranmore to Galway.

There are no protected structures or buildings of outstanding architectural merit or historical interest in the area listed on the Council's Record of Protected Structure (RPS). The City Development Plan does not list any particular views of special interest and amenity within Ardaun for protection. A feature of note is the network of dry stone walling and hedgerows delineating field boundaries in the area.

### Key Cultural Heritage Issues

The continued promotion of the Irish language, for example through the naming of new roads, residential place names, and signage shall be included in the policies of the LAP. The flexibility to accommodate cultural and arts infrastructure of appropriate scale and function and a public arts strategy for the area is required in order to serve the needs of residents, contribute to the sense of place, attractiveness and marketability of Ardaun.

### Non-implementation of the LAP

In absence of the LAP, the City Development Plan 2017-2023 includes policies to promote Galway as a city for culture and arts excellence. The City Development Plan encourages the use of the Irish language in developments, public realm and place naming throughout the city including Ardaun. *Everybody Matters: A Cultural Sustainability Strategy Framework for Galway 2016-2025* sets out strategic aims and objectives for cultural and arts development in the city. The protection of archaeological heritage is afforded by the National Monuments Acts.

<sup>29</sup> Fitzpatrick, M. And Crumlish, R. (2000) 'The excavation of three burnt mounds on the outskirts of Galway City' *Journal of the Galway Archaeological and Historical Society*, 52, pg. 135-143.

<sup>30</sup> *The Archaeological Inventory of County Galway, Volume 1 West Galway, (OPW and Archaeological Survey of Ireland 1993)*, pg. 27.

<sup>31</sup> Fitzpatrick, M. And Crumlish, R. (2000) 'The excavation of three burnt mounds on the outskirts of Galway City' *Journal of the Galway Archaeological and Historical Society*, 52, pg. 135-143.

<sup>32</sup> *Archaeological Assessment at Doughiska, Co. Galway*, Helen Bermingham and Martin Fitzpatrick, Archaeological Consultancy Ltd, 2003.

<sup>33</sup> *Ibid*, (2003).

## 5.9 Landscape

The LAP area is largely divided into three distinct landscape character areas; south, north west and north east areas.

The largest block of land is to the south of the N6/M6 comprising of 70ha adjoining Galway Clinic. This southern parcel of land is currently a mix of large fields, smaller housing plots and a stone spoil area. It contains Annex I habitats, calcareous grassland and exposed limestone pavement and has numerous stone walls hedges and trees. A thin north-south belt of woodland occurs within the area terminating at the N6/M6 boundary.

The highest point of the LAP area is located in the southern portion of the land behind Galway Clinic, rising to 49 metres. This level falls away to the north, before rising again in the northwest corner to 42 metres and 29 in the northeast corner. At the southern boundary the land falls to 40 metres.

The northwest area is characterised by a number of trees in the northern part of the site, along with grassland and scrub. The area comprises of 34ha and its location adjoining the Lynch Junction and Monivea Road renders this a highly visible parcel of land. This area has a close connection to more urban elements of the lands to the west and north and relatively denser and smaller plots of land. This presence of the proposed N6 GCRR route corridor is within this area.

The northeast section of the site comprises of 44 ha. This area has the most rural character of the three landscape areas. The northeast area is generally flat topography with long stone walls dividing plots and devoid of trees. It connects into Coolagh Village by a long straight road, and has a number of houses on approx. one hectare sites. The field divisions increase at this location. The village envelop of Coolagh, a traditional cluster of dwellings and farms, is located outside the northern boundary of the LAP area and is characterised by linear development of traditional and modern dwellings along existing roads.

### Key Landscape Issues

Landscape is an important contributor to quality of life for people. It is a resource to be used and managed in a sustainable manner in the development process. Landscape can accommodate change and development, while having regard to its sensitivity and character. The *Galway City Recreation and Amenity Needs Study (2008)* advocates the sustainable and sensitive use and management of ecological areas and recreational and amenity open spaces in the city. The green network approach of the City Development Plan 2017-2023 would support the development of a network of green infrastructure and open spaces in Ardaun. In doing this, the challenge is to conserve the identified important habitats, while creating recreational and amenity areas. Hedgerows, trees, and stonewalls should be incorporated into developments wherever possible. Green open spaces, SUDS, landscaped areas and planting associated with developments would have a positive visual impact within the urban environment.

Views of the overhead transmission lines should be minimised within the urban form in order to lessen the visual impact. In their scoping response the TII stated that the Council should assess visual impacts from and to the existing and proposed national road network including the proposed N6 GCRR if approved. The interface between development and the existing



Figure 27 Southern area



Figure 28 North western area



Figure 29 North eastern area



Figure 30 Southern area of Ardaun

rural village settlement of Coolagh requires sensitive definition allowing for transition between the village and LAP development.

### Non-implementation of the LAP

The landscape of the area would continue to be shaped by agricultural practices. The continued protection of the identified habitats of importance through the objectives of the LAP can ensure new green spaces are created within the urban environment and other features of landscape value including trees, hedgerows and stone walls are protected within an urban environment.

## 5.10 Transboundary Issues

The *West Authority Regional Planning Guidelines 2010-2020* prioritises the Ardaun and Garraun<sup>34</sup> areas to the east of the city as a strategic development areas served by public transport. The previous City Development Plan for the period 2011-2017 established the policy framework for the sequencing for the development of the Ardaun area into two distinctive phases, 'phase 1' Galway City Council lands and 'phase 2' Galway County Council lands. The baseline environmental assessment provides a description of the present state of the environment in the Ardaun LAP area, however it also includes some aspects of environment in the area of Ardaun located within the administrative area of the County Council, where known, most notably transportation, material assets and biodiversity, flora and fauna.

In terms of transportation, the GTS includes a series of measures to address transport issues in the city and surrounding county area in a partnership manner between Galway City Council, Galway County Council and the National Transport Authority. It is notable that the core strategy of the Oranmore LAP 2012-2018 recognises the important role of the Garraun railway station has in providing transport access to the Ardaun area and in supporting the development of Ardaun. The objectives of the Oranmore LAP state that the rail stop will assist in realising the full potential of the Ardaun and Garraun areas in a plan led manner and is designed to complement the public transport facilities for the identified growth area at Ardaun, serving both the local and wider commuter catchment.

*Section 5.7 Material Assets* outlines a number of transboundary issues with regard to material assets and servicing including wastewater, transportation and energy provision of the LAP lands. The joint Galway City and County Councils Habitat Survey 2009 surveyed and examined habitats within both phases.

In the interests of proper planning and sustainable development, consultation with Galway County Council has occurred during the preparation of the LAP and SEA process. This assisted the mutual appreciation of key environmental issues and the avoidance of development which could adversely effect the environment. A number of environmental issues were identified during the scoping process of particular interest and critical to the sustainable development of the area by Galway County Council have been addressed in the environmental baseline. The LAP has considered the cross-boundary impact of development on both areas, where feasible, especially along the northern and western boundaries of the LAP area and the need for linkages between the two phases. The detailed examination of any cumulative environmental effects of both phases 1 and 2 of Ardaun is limited at this stage given the absence of a plan for the latter area. It is considered that the proposed mitigation and monitoring measures in conjunction with Galway County Council, environmental authorities and stakeholders during the lifetime of the LAP will monitor the significant environmental effects of implementing this plan. Policy 10.5 of the Development Plan states that the Council will support the future development of Ardaun which consists of lands within the county area, ensuring co-ordination of key elements such as land use, infrastructure and sustainable transportation and the timely co-ordination of development phasing.

### Key Transboundary Issues

A number of key issues were identified by Galway County Council during the scoping and consultation stage of the SEA. These issues include the need to create sustainable linkages and connections between Ardaun, the county area and the train station at Garraun. It is the policy of the City Development Plan to develop the overall area of Ardaun, in conjunction with the County Council, key stakeholders in a strategic and co-ordinated manner, that will contribute to the integrated of land use, urban form and structure, transportation and natural

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<sup>34</sup> Located in Galway County Council area.

heritage to create a sustainable living environment. In this regard the LAP must consider the long term development of future lands in the county area by creating potential linkages. The treatment of the interface and transitional areas between the two administrative boundaries is an important urban design and land use issue.

### Non-implementation of the LAP

The city, as a regional gateway, continues to attract inward investment and it's concentration of population, education and job opportunities, is favourable to growth for the city and the wider county area. The Development Plans of both City Council and County Council have core strategies which seek to set out a structured approach for the future sustainable long-term growth and development of their respective areas. Ardaun has been designated as a long term strategic growth area for the city. In absence of a LAP, there would not be a structured framework within which to plan for the phased development of these lands into the future.

## Section 6: Strategic Environmental Objectives

### 6.1 Introduction

The SEA process involves setting Strategic Environmental Objectives (SEO) against which the environmental effects of implementing the LAP are assessed and tested. These SEOs relate to aspects of the environment of Ardaun. The primary source used in formulating the SEOs, was Table 4b of the *SEA Guidelines for Regional and Planning Authorities (DECLG 2004)*. These SEOs were amended and supplemented with additional SEOs relevant to the Ardaun LAP area. Table no. 8 details the SEOs that are being considered to test the LAP. Targets are also stated providing strategic goals for the LAP to strive towards. These objectives are based on a current understanding of the key environmental issues identified in the LAP area in the environmental baseline section.

### 6.2 Cumulative Effects

While individual effects on a SEA may be insignificant, the interactions between a combination of various policies and objectives of the LAP can be significant. In this regard sensitive receptors were identified through the environmental baseline (*Section 5*) when considering the cumulative effects of the policies and objectives of the LAP.

Table 7 Inter-relationship between SEA environmental topics

Population & Human Health	✓		✓	✓	✓	✓	✓
Soils including geology	✓	✓		✓	X	✓	✓
Water	✓	✓	✓		✓	✓	✓
Air & Climatic factors	✓	✓	X	✓		✓	✓
Material Assets	✓	✓	✓	✓	✓		✓
Cultural Heritage	✓	✓	✓	✓	✓	✓	
Landscape	✓	✓	✓	✓	✓	✓	✓
	Biodiversity, flora & fauna	Population & Human Health	Soils including geology	Water	Air & Climatic factors	Material Assets	Cultural Heritage

In accordance with the SEA Directive, the inter-relationship between the SEA environmental topics, discussed in the environmental baseline, must be taken into account in the assessment of development scenarios/alternatives. The SEA Directive refers to important elements of the receiving environment to include

people, species and habitats these valued environmental resources are at risk from cumulative effects<sup>35</sup>. Due to the uncertainties in assessing and predicting cumulative effects, the precautionary principle has been adopted in the evaluation of the alternatives and policies and objectives of the LAP, table no. 9 and table no. 10. A number of potential cumulative effects, both negative and positive, have been identified these include as follows:

- Degradation, changes in the ecological integrity and loss of Annex I habitats.
- Loss of biological diversity.
- Contamination of groundwater.
- Increase in traffic congestion affecting urban environment, air quality and increased noise.
- Increased demand for infrastructure and services.
- Creation of a strategic new settlement area for the city.

In order to assess the potential cumulative effects of the strategic goals, policies and objectives of the LAP, the strategic environmental objectives and targets were informed by the above identified cumulative effects.

Table 8: Strategic Environmental Objectives and Targets

SEO	Target
<b>Biodiversity, Flora and Fauna</b>	
Protect, conserve and promote habitats, species and their sustaining resources in international and national designated sites and prevent adverse impacts (direct, cumulative and indirect) from development within or adjacent to these sites.	Control significant adverse impacts (direct, cumulative and indirect impacts) to relevant habitats, species or their sustaining resources in designated ecological sites and networks.
Protect and conserve rare and threatened habitats and species, including those listed in the Habitats Directive and the Wildlife Acts.	Control significant adverse impacts on rare and threatened habitats and species or their sustaining resources, including those in the Habitats Directive and the Wildlife Acts.
Support measures to control and manage alien/invasive species.	Biodiversity encouraged in developments.
Protect areas of local biodiversity value and stepping stones which provide connectivity for species and prevent wildlife habitat fragmentation.	
Promote ecological awareness and biodiversity	
<b>Population &amp; Human Health</b>	
Create a high-quality residential, working and recreational environments that enable sustainable travel patterns	Create a good quality of life, the provision of improved physical and social infrastructure, and reduce travel times and traffic congestion and allow for an integrated sustainable transport and land use system that eases movement to and within the city and promotes sustainable transport modes.
Promote social inclusion and well being/healthy living in the LAP area	Create a good quality of life by the provision of improved physical and social infrastructure, promotion of high quality residential and urban environments, provision of a sustainable transport system, and to maintain and improve recreation and amenity opportunities in the city.
<b>Soils including geology</b>	
Maintain the quality of soils and geology	Safeguard soil quality and to ensure that soils remain healthy and capable of supporting human activities and ecosystems and protect Annex I exposed limestone habitat.
Minimise the consumption of non-renewable sand, gravel and rock deposits	Reuse and recycle C&D waste at source and encourage use of appropriate materials from local sources which will have less 'embodied energy'.

<sup>35</sup>Guidelines for Cumulative effects Assessment in SEA of Plans, Lourdes M Cooper, Imperial College London, 2004.

SEO	Target
<b>Water</b>	
Maintain and improve, where possible, the quality of groundwater and avoid discharges of polluting substances to groundwater to meet the requirements of the Draft River Basin Management River for Ireland 2018-2021 and future Management Plans.	Maintain and improve status and quality rating of groundwater to achieve good water status under the Water Framework Directive.
Provide, maintain and improve the quality of drinking water supplies	Provide, maintain and improve drinking water quality to comply with the requirements of the EU (Drinking Water) Regulations.
Promote water conservation	Provide, maintain and improve capacity of water supply in a sustainable manner, and to encourage water conservation.
Progressively reduce discharges of polluting substances to waters.	Maintain and improve status and quality rating of surface water, groundwater, transitional and coastal waters, to achieve good water status under the Water Framework Directive
Mitigate the effects of flood risk	Minimise development of lands susceptible to significant flood risk.
<b>Air &amp; Climatic Factors</b>	
Facilitate measures to reduce all forms of air pollution	Maintain and, wherever possible, improve air quality levels.
Assess, plan and manage adaptation to climate change impacts	Increase the percentage of population travelling by public transport including cycling and walking, and to reduce private vehicle dependency to and within LAP area.  Encourage new developments to limit greenhouse gas emissions and make use of renewable and low carbon energy and energy conservation and efficiency measures.
Reduce energy wastage, encourage energy efficiency and conservation, and maximise use of renewable energy sources	Encourage use of renewable energy, increased energy efficiency and conservation for domestic, community, commercial and industrial developments.
Minimise noise, vibration and emissions from traffic and minimise impact on residential amenities	Have no spatial concentrations of health problems arising from environmental factors.
<b>Material Assets</b>	
Maximise use of the built environment in a sustainable and efficient manner	Maintain and improve the image of the city by promoting a high quality built environment.  To meet EU, national and regional targets for water quality and for the recycling of municipal waste and its diversion from landfill.
Encourage sustainable modes of transport	To have an integrated sustainable transport and land use system that eases movement to and within the LAP area and promotes sustainable transport modes.
Serve new development with an appropriate public water and wastewater system in a phased and sustainable manner.	To have an adequate public water and wastewater system to serve the LAP area.
<b>Cultural Heritage</b>	
Promote the protection and conservation of the cultural, built architectural, archaeological and linguistic heritage.	To protect archaeological sites and heritage and promote cultural and linguistic heritage in the LAP area.
<b>Landscape</b>	
Conserve and enhance the landscape features of the Ardaun area.	Protect and enhance the green network in a sustainable manner

## Section 7: Assessment of development alternatives and selection of preferred alternative

### 7.1 Consideration of Alternative Plan Scenarios

An important function of the SEA is the consideration and evaluation of the likely environmental impacts of alternative development strategies for the LAP in order to achieve the best sustainable development option. Article 5 of the SEA Directive requires the Environmental Report to consider reasonable alternatives taking into account the objectives and the geographical scope of the plan or programme and the significant environmental effects of the alternative selected. Alternatives must be realistic and capable of implementation and should present a range of different approaches within the statutory and operational requirements of the LAP. The SEA Guidelines states that lower tier plans, such as LAPs, will be framed in a policy context set by national, regional and city level plans; and strategic options for alternative plan scenarios may be limited. The preparation of the LAP must have regard to the NSS and West Region Planning Guidelines and be consistent with the policies of the City Development Plan. The LAP must be sustainable, balancing environmental and infrastructural challenges with the delivery of maximum quantitative efficiency of new population, density and floor space of development in line with the city's gateway designation. This section describes and evaluates alternative plan scenarios and strategic development options for the LAP. Five alternative plan scenarios were considered:

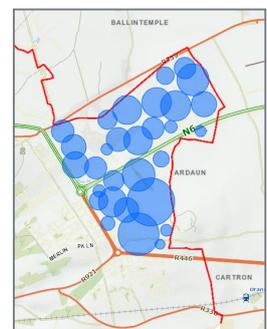
1. Do-nothing
2. Unrestricted Development
3. Urban Village
4. Protectionist
5. New Town

### 7.2 Alternative Plan Scenario 1 – Do-nothing

This development approach does not reflect the strategic context of the LAP lands as a bank of development lands within the confines of a city. This approach would reduce the achievement of critical mass for the delivery of critical infrastructure provision, in particular public transport, social and cultural services and reduced employment opportunities. The Core Strategy of the City Development Plan focuses a significant amount of growth anticipated for the city at Ardaun. The policy of the City Development Plan to develop the overall area of Ardaun in a strategic and co-ordinated manner would not be achieved by the 'do-nothing' scenario. In adopting this approach the area would experience sporadic low density development with heavy dependency on car transport. It may also place future excessive development pressures in other areas within the city, undermining policies and objectives of the City Development Plan for east-west balanced development. The Do-nothing approach would limit inward investment and the future long term growth and strategic development of the city. It is therefore not considered a reasonable urban development alternative as required under the SEA Directive and nor is it in keeping with the principle of sustainable development.

### 7.3 Alternative Plan Scenario 2 – Unrestricted Development

Alternative Plan Scenario 2 is essentially a market-led development approach. This approach would lead to development proceeding in an unplanned manner within the LAP functional area. Development would be dispersed throughout the LAP area irrespective of the prevailing character or environmental amenity and quality of the surrounding area. This could result in adverse consequences such as a lack of corresponding physical and social infrastructure, and the loss of environmental quality and important habitats. This approach would enable unfettered application of uncontrolled densities across the area reducing the capacity of the LAP area to achieve compact critical mass to support public transport services and important community, social and cultural facilities and services. The quality of life for future residents would be negatively impacted upon as the lack of facilities and the lack of sustainable transport alternatives would encourage trip generation by private car. Greater commuting by private car would result in greater levels of congestion and emissions, with related negative impacts on air quality and climate change. The lack of a



phasing regime in controlling the sequencing of development would not allow the provision of necessary infrastructure in a strategic manner and would not ensure the timely delivery of facilities and services for a sustainable urban community. The economic and commercial primacy of the city centre and other centres in the county area could be undermined by the uncontrolled expansion of suburban retail and commercial developments. An absence of supporting services needed for daily life may occur, encouraging increased travelling by the population in order to avail of these facilities. The approach would encourage the development of unsustainable residential areas without the concurrent development of supporting facilities and services. Furthermore, with development spreading over the LAP area, fewer opportunities would present themselves to allow the creation of urban spaces, green open spaces, and cycle/walk ways.

#### 7.4 Alternative Plan Scenario 3 – Urban Village

The approach of Alternative Plan Scenario 3 is to develop the Ardaun LAP area in the form of an ‘urban village’. An urban village is an urban form characterised by mixed use zoning, the provision of public transport and an emphasis on urban design to achieve a walkable place with a network of public spaces. The findings of the Ardaun Urban Design Charette Workshop held on 11th September 2013, with various stakeholders, advocated an urban village approach to the development of these lands. One urban village with two nodes as secondary centres was proposed in order to reflect the physical characteristics of the area and to address urban design issues arising from past decisions in respect of strategic infrastructure. Because of the N6/M6 crossing the site and the presence of Coolagh village, the site divides naturally into three parcels, southern section and north-western and north-eastern sections. The idea of urban cells with 5 minute walking circles lends itself to a three part division, as the three nodes can cover nearly all the site within the desired walking distance. The location of the urban village centre at the southern node was perceived to have the advantages of being on the largest parcel of land, along with the future public transport route and adjoins Galway Clinic. Its prominence and visibility across the entire LAP area makes it a logical choice as the village centre.



The urban village and nodes are not viewed as stand alone entities but rather integrated new places within the city similar to another urban village in the city, Salthill. The nodes would have different form and function responding to their physical context. This alternative plan scenario can lead to a more compact urban structure with mixed uses in order to avoid typical suburban layouts with little supporting services. The urban village form contributes to the creation of a pedestrian and cyclist friendly environment. Densities associated with this urban village scenario would tend to be graduated with concentrations of more dense development at key locations and along public transport corridors. The approach enables the building of critical mass for phased infrastructural provision in particular public transport, drainage and social infrastructure and community services. The mixed-use nature of the urban village centres seek to allow the development of new commercial and community based services and consolidate existing hubs of activity addressing the needs of the emerging community. The urban village approach seeks to create a network of public spaces thereby allowing opportunities for green spaces, cycle/walk ways, and the protection of habitats.

#### 7.5 Alternative Plan Scenario 4 – Protectionist

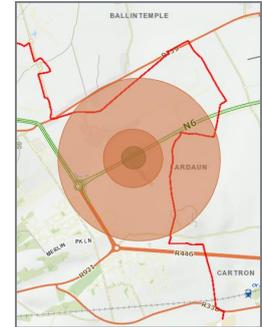
Under Alternative Plan Scenario 4 the LAP would take a restrained and cautious approach to the development of Ardaun by prioritising the protection of the existing environment. This approach would involve the incorporation of policies into the LAP providing for the preservation and protection of the existing rural and semi-rural environment, thereby limiting development potential by the blanket application of environment protection policies. While the protectionist approach would safeguard the existing environment in its current form, the socio-economic implications of this approach would be negative. It would greatly restrict the future growth and development of the city, limiting inward investment and reduced opportunities for employment. The creation for new places to live within the city for future population growth would not be realised. The approach would reduce the achievement of critical mass in the city for the delivery of necessary infrastructure and services provision, in particular public transport and social and cultural services. Restrictions on development at Ardaun may encourage the leapfrogging of development to other unsustainable locations within the city, placing



unanticipated pressure on infrastructure, services and the environment at those locations. The approach would prevent the development of Ardaun as a designated future growth area for the city.

## 7.6 Alternative Plan Scenario 5 – New Town

The development strategy of the *Galway Transport Planning Study (GTPS)*, in the late 1990s, which has been superseded by the *Galway Transport Study 2016*, envisaged the development of the Ardaun lands as a separate self-contained urban settlement, a sub-regional 'new town'. A number of strategic infrastructure developments since the GTPS, have had significant impact on the original Ardaun land bank. *Ardaun Urban Design Advices 2012* notes that there are socio-economic, infrastructure and ecological challenges at Ardaun. Within the site there are sections where development is restricted by the presence of infrastructure, such as the motorway, transmission lines wayleaves and areas of ecological importance. This has reduced the availability of development land, fragmenting the land into northern and southern sections. The core development and urban design strategy for Ardaun must be robust and realistic in view of its physical and socio-economic context. The remaining land bank available for development, (which would also need to accommodate open spaces, roads, walk/cycleways, services), is limited in its ability to accommodate the critical mass for a stand alone new town. The *Design Advice Study* states that the land parcels in their current form would not contribute to a new town settlement at Ardaun. It is noted that a population of 32,000<sup>36</sup> is established as a reasonable base-line figure for new town settlements, particularly with respect to transport sustainability. The size of new towns is related to location and context and more remote sites require a large population size for any degree of self containment. In this regard Ardaun is just on the edge of a city, it is not located within a remote location but rather an established hierarchy of settlement centres, the city, Oranmore and the surrounding neighbourhoods of Doughiska, Briarhill and Roscam. The development of these lands is not capable of delivering a stand along new town by reason of its location and the available bank of development land. Its context and size lends itself more to the development of an integrated neighbourhood(s) within the city where the day-to-day needs of its residents are accommodated with good sustainable transportation links to other service centres. The baseline study, *Section 5.7 Material Assets*, has indicated that there are issues with regard to infrastructural provision which would be critical for the large scale development associated with a 'new town'. Major elements of existing infrastructure, roads and drainage would not be able to accommodate the associated population of a new town. This would have a negative impact on the environment, biodiversity and residential amenities in the area, Coolagh village and surrounding hinterland.



## 7.7 Evaluation of Development Options

In order to assess the development options, each scenario is evaluated against the SEOs identified in respect of biodiversity, population & human health, soils including geology, water, air & climatic factors, material assets, cultural heritage and landscape. The different development options are appraised to view how each scenario would affect the status of the SEO. The appraisal identifies which interactions, if any, would cause significant impacts on different aspects of the environment. This is based on three criteria; positive, neutral and negative interaction with the SEOs. The following table gives a summary of the evaluation of the development alternatives.

<sup>36</sup>Transferable Lessons from the New Towns, Department of Communities and Local Government UK, July 2006, Section 5.6.2. p.70.

Table 9: Evaluation of development alternatives and interaction with the SEOs

Strategic Environment Objective	1 Do-nothing	2 Unrestricted Development	3 Urban Village	4 Protectionist	5 New Town
<b>Biodiversity, Flora and Fauna</b>					
Protect, conserve and promote habitats, species and their sustaining resources in designated ecological sites and prevent adverse impacts (direct, cumulative and indirect) from development within or adjacent to these sites.	Negative	Negative	Positive	Positive	Negative
Protect and conserve rare and threatened habitats and species, including those listed in the Habitats Directive and the Wildlife Acts.					
Support measures to control and manage alien/invasive species.					
Protect areas of local biodiversity value and stepping stones which provide connectivity for species and prevent wildlife habitat fragmentation.					
Promote ecological awareness and biodiversity					
<b>Population &amp; Human Health</b>					
Promote good quality of life based on high-quality residential, working and recreational environments and on sustainable travel patterns.	Negative	Negative	Positive	Negative	Negative
Promote social inclusion and well being/healthy living in the LAP area.					
<b>Soils including geology</b>					
Maintain the quality of soils and geology.	Neutral	Negative	Neutral	Positive	Neutral
Minimise the consumption of non-renewable sand, gravel and rock deposits.	Neutral	Negative	Negative	Positive	Negative
<b>Water</b>					
Maintain and improve, where possible, the quality of groundwater and avoid discharges of polluting substances to groundwater to meet the requirements of the Draft River Basin Management Plan for Ireland 2018-2021 and future Management Plans.	Neutral	Negative	Negative	Positive	Negative
Provide, maintain and improve the quality of drinking water supplies.	Neutral	Negative	Positive	Neutral	Negative
Promote water conservation	Neutral	Negative	Positive	Positive	Negative
Progressively reduce discharges of polluting substances to waters.	Neutral	Negative	Negative	Positive	Negative
Mitigate the effects of flood risk	Neutral	Negative	Positive	Positive	Negative
<b>Air &amp; Climatic Factors</b>					
Facilitate measures to reduce all forms of air pollution.	Neutral	Negative	Positive	Positive	Negative
Assess, plan and manage adaptation to climate change impacts.	Neutral	Negative	Positive	Neutral	Negative
Reduce energy wastage, encourage energy efficiency and conservation, and maximise use of renewable energy sources.	Neutral	Negative	Positive	Neutral	Positive
Minimise noise, vibration and emissions from traffic and minimise impact on residential amenities.	Neutral	Negative	Positive	Positive	Negative
<b>Material Assets</b>					
Maximise use of the built environment in a sustainable and efficient manner.	Neutral	Negative	Positive	Negative	Negative
Encourage sustainable modes of transport.	Negative	Negative	Positive	Negative	Positive
Serve new development with an appropriate public wastewater system in a phased and sustainable manner.	Negative	Negative	Positive	Neutral	Negative



The urban village model promotes a mixed land use approach encouraging variety of commercial, community and residential uses required for daily living needs. The approach seeks to foster a sense of place, while connecting into the city and serving neighbouring key hubs such as Galway Clinic, Merlin Park Hospitals, Parkmore IDA Technology Park, GMIT and neighbourhoods of Dougiska and Briarhill.

The preferred strategy would ensure optimum use should be made of the infrastructural servicing of the land, avoiding the creation of significant negative effects on the receiving environment. Where a negative occurs under the preferred scenario in table no. 9 the potential conflict with the status of the Environmental Protection Objective can be mitigated by policies objectives and development standards integrated into the LAP. These mitigation measures are detailed in Section 9 of this report. The LAP with its strategic goals, policies and objectives has been developed to achieve and implement the preferred plan scenario.

## **Section 8: Evaluation of LAP Policies and Objectives**

### **8.1 Introduction**

This section evaluates the LAP's policies and objectives to assess sustainability. As part of the methodology, a matrix was used to assess the policies and objectives of the LAP against the SEOs identified in Section 6. The assessment process involved testing whether the policies and objectives would have a potential positive, indirectly positive, neutral, uncertain, negative or indirectly negative effect on the SEO. This process enables an overview of where potential environmental problems may arise from implementation of the LAP and allows for additional policies and objectives to be generated, if necessary. In addition the time frame of the effect is also taken into consideration in the process, whether the effect is short, medium or long term.

The results of the assessment demonstrate that the LAP will not have a significant negative impact on the environment. Where there is a potential impact, it is predominately positive. Where uncertain impacts occur, they will be overcome by mitigation policies, specific objectives, development management standards and monitoring to ensure no deterioration in environmental quality. Table no. 10 displays the evaluation of LAP Policies and Objectives with SEOs.

Table 10: Evaluation of LAP Policies and Objectives and Strategic Environmental Objectives

Direct Potential Positive Environmental Effects = + Indirect Potential Positive Environmental Effects = Direct Potential Negative Environmental Effects = - Indirect Potential Negative Environmental Effects = -- Unknown Potential Environmental Effects = ? Neutral Environmental Effects = 0	Strategic Environmental Objectives (SEOs)							
	Biodiversity, Flora & Fauna	Population & Human Health	Geology and Soil	Water	Air & Climate Factors	Material Assets	Cultural Heritage	Landscape
<b>Strategic Goal 1: Create a high quality, mixed use, urban village that will support a strong sustainable neighbourhood and facilitate access to a range of services and community facilities – Policy</b>								
Pursue a model of development in Ardaun that would support the concept of an urban village where good opportunities exist for a mix of residential and employment activities, sustainable transport, recreation and open space and where neighbourhoods can develop and cultivate a distinctive community identity.	?	+	?	?		+		
Support and facilitate the development of Ardaun in a strategic and coordinated manner, that will contribute to the integration of land use, urban form and structure, transportation and natural heritage to create a high quality living and working environment, a place where people wish to live and work, have a sense of belonging and feel socially inclusive.		+	?			+		
Support and facilitate the development of Ardaun to meet the needs of the projected future population of the city as set out in the Core Strategy of the City Development Plan 2017-2023.	?	+	?	?		+		?
Develop and facilitate the development of community, social and recreational facilities and services to sustain Ardaun as an urban village.	?	+	?	?	0			?
Support and facilitate the provision of new school(s) in conjunction with the Department of Education and Skill taking cognisance of the recommendations outlined in <i>The Provision of Schools and the Planning System, A Code of Practise for Planning Authorities (2008)</i> and <i>Local Area Plans Guidelines for Planning Authorities (2013)</i> and the policies of the City Development Plan regarding educational facilities.	0	+	0	0	0	0	0	0
<b>Strategic Goal 2: Create a business friendly urban village and support sustainable economic growth of Ardaun – Policy</b>								
Support and facilitate the development of Ardaun as a business friendly urban village open to inward investment, and sustainable employment opportunities.	?	+	?	?		+	0	?
Explore the potential of Ardaun to develop as an economic hub working in conjunction with IDA, Enterprise Ireland, Galway County Council and Higher Education Institutes capitalising on its advantageous location within the city.	?	+	?	?			0	?
Support the development of ICT infrastructure and SMART technologies to enhance the quality and performance of urban services working with relevant services providers and stakeholders.	0	+	0	0			0	0
Promote developments that can support the integration of employment, housing and transportation.	0	+	0	0			0	0
<b>Strategic Goal 3: Promote a sustainable environment through integration of landscape features and through promotion of the use of renewable, low carbon energy and green design – Policy</b>								
Guide the long term development, management, enhancement and use of the public amenity and recreation area through the preparation of an <i>Ardaun Landscape Management Strategy</i> .	+							+
Supports the sustainable use, biological diversity and management of areas of ecological importance, amenity areas, open spaces and facilities in accordance with the policies of the City Development Plan 2017-2023 and the future <i>Ardaun Landscape Management Strategy</i> once prepared.	+	+				+	+	+
Ensure that new development include for connectivity that provides for well designed pedestrian and cycle links to and within the green network as identified in the Urban Design Framework.		+		0		+	+	

Ensure that development and activities in the area identified as hosting the habitat of the protected species know as the Small white orchid ( <i>Pseudorchis albida</i> ), is compatible with the ongoing management of this sensitive ecological environment.	+					?		
Encourage the retention and inclusion of natural features and wildlife corridors, including trees, hedgerow, stone walls in the design and layout of developments.	+	+		0		0		+
Encourage the use of low carbon and renewable energy sources and green design features in developments.		+	0		+	+	0	
Ensure that development proposals identify how the principles of SUDS will be applied to development sites to manage surface water discharges in accordance with Galway City Council requirements and include measures to ensure the protection of groundwater quality.				+	+	+	0	+
<b>Strategic Goal 4: Facilitate the development of an urban village that is well connected, walkable and accessible and that is so designed to encourage the use of sustainable transport modes – Policy</b>								
Promote interconnectivity between all modes of transport, in particular sustainable and public transport modes in order to efficiently link Ardaun with the main hubs for activity including the city centre in accordance with the GTS.		+	0	0		+	0	
Support and link with the cycling and pedestrian network as provided for in the <i>Urban Design Framework</i> to facilitate safe and convenient journeys and offset the need for reliance on cars.		+	0	0		+	0	
Promote and facilitate the provision of bus service infrastructure in the design of the road and street network associated with developments.	0	+	0	0		+	0	0
Facilitate the development of a bus terminus/loop as part of the Ardaun Village Centre in conjunction with the public transport network as proposed in the GTS.	?	+	?	?		+	0	?
<b>Strategic Goal 5: Require a high standard of urban design to achieve a vibrant public realm with a distinct sense of place – Policy</b>								
Encourage and prioritise developments that will help realise the vision for Ardaun to develop as an urban village within a high quality built and natural environment.		+				+		
Ensure that development complies with the policies and development standards of the City Development Plan.		+				+		
Require developments in Ardaun to accord with the urban design framework as provided for in the LAP.		+				+		
<b>Specific Objectives: Implementation</b>								
<i>Strategic Goal 1: Create a high quality, mixed use, urban village that will support a strong sustainable neighbourhood and facilitate access to a range of services and community facilities</i>								
Promote the sustainable phased development of Ardaun.		+				+		
Implement a phased programme for the development of Ardaun to ensure the co-ordination of services and infrastructure in tandem with new development.		+				+		
Require development to co-ordinate with the delivery of an appropriate level of infrastructure, services and key community facilities.		+		+		+		
Reserve suitable land for development of educational facilities to meet the needs of the future primary/post-primary school going population of Ardaun.	0	+	0	0	0	0	0	0
Liaise with Department of Education and Skills regarding the development of school sites.	0	+	0	0	0	0	0	0
Develop an arts and cultural programme to animate the public realm with an ambition to attract patronage from visitors and residents.	0	+	0	0	0	0	+	
Ensure that the design of public spaces can facilitate and encourage the development of a programme of arts and culture for both residents and visitors.	0	+	0	0	0	0	+	
Work with the Housing Delivery Office of the DHPLG to secure the expeditious development of Ardaun identified as a Regional Pathfinder Site and designated a Major Urban Housing Delivery Site (MUHDS) under the “Rebuilding Ireland – an Action Plan for Housing and Homelessness”.	0	+	0		0	+	0	0
Work with the DHPLG and other stakeholders to deliver enabling infrastructure and essential services at Ardaun through the Local Infrastructure Housing Activation Fund (LIHAF) and other funding initiatives and co-ordination mechanisms.	0	+	0	+	0	+	0	0

Encourage and facilitate the provision of community facilities and services of a nature and scale appropriate to the vision for Ardaun as an Urban Village in tandem with residential development.	0	+	0	0	0	+		0
Liaise and engage in pre-planning consultation with private sector developers and Approved Housing Bodies to facilitate the delivery of housing in accordance with the Core Strategy and the vision and urban design framework of the LAP.	0	+	0	0	0		0	0
<i>Strategic Goal 2: Create a business friendly urban village and support sustainable economic growth of Ardaun.</i>								
Reserve lands in the southern section of Ardaun to function as an Urban Village Centre that can provide opportunities for a vibrant, mixed-use, urban centre with an appropriate balance of commercial, residential and leisure uses.		+				+		
Lands reserved for Urban Village Centre uses shall support district centre uses as provided for in the Core Strategy of the City Development Plan 2017-2023.	0	+	0	0	0	+	0	0
Reserve lands in the north-west section of Ardaun to function as an local centre that can support local services to meet the needs of the resident population.	0	+	0	0	0	+	0	0
Reserve lands in the north east section of Ardaun to function as a service centre that can support services to meet the needs of the resident population and with potential to create employment generating uses for a wider community.	0	+	0	0	0	+	0	0
Work with Local Enterprise Office, IDA and other agencies to support business, enterprise and employment opportunities in Ardaun.	0	+	0	0	0			0
Support opportunities for the development of health related services, building on the concentration of health care services in the area.	0	+	0	0	0		0	0
<i>Strategic Goal 3: Promote a sustainable environment through integration of landscape features and through promotion of the use of renewable, low carbon energy and green design</i>								
Prepare Ardaun Landscape Management Strategy in consultation with relevant stakeholders to enable the best development and management of open space amenity and recreation.	+							+
Seek the preparation of landscape briefs for each development parcel.	+							+
Explore the potential to acquire and manage in conjunction with NPWS the area identified as hosting the habitat of the protected species know as the Small white orchid ( <i>Pseudorchis albida</i> ), with the objective of preserving it as a living habitat resource and a signature landscape area for Ardaun.	+					0		+
Prepare and establish a management regime for the habitat of the small white orchid, ( <i>Pseudorchis albida</i> ), in consultation with the NPWS.	+					0		+
<i>Strategic Goal 4: Facilitate the development of an urban village that is well connected, walkable and accessible and that is so designed to encourage the use of sustainable transport modes</i>								
Support and facilitate the provision of an integrated public transport network to service Ardaun through the implementation of the Galway Transport Strategy and in conjunction with relevant transport providers, NTA and other stakeholders.	0	+	0	0		+	0	0
Prioritise the servicing of Ardaun by public transport in the implementation programme of the Galway Transport Strategy.	0	+	0	0		+	0	0
Prioritise walking and cycling in Ardaun, that will be supported by a network of walking and cycling routes to promote sustainable transport and permeability to and within Ardaun.		+	0			+		
<i>Strategic Goal 5: Require a high standard of urban design to achieve a vibrant public realm with a distinct sense of place</i>								
Ensure developments employ high quality sustainable design and adhere to the vision and Urban Design Framework and the policies and development standards of the City Development Plan.		+				+		
Seek the preparation of urban design briefs for the individual development parcels in the Urban Design Framework that adhere to the policies and design standards of the City Development Plan and the vision, urban design framework and polices of the Ardaun LAP.		+				+		
Seek the preparation of urban design briefs for proposed development of a lesser scale than the development parcel but greater than one hectare in area which will demonstrate the relationship between the proposed development to the site context within the wider urban design brief and framework, adjoining development, the achievement of safe and convenient movement within the site and how existing features are to be integrated into the development.		+				+		

Support the implementation of a phased undergrounding of the ESB lines on progression of development in the interests of visual amenity.	?	+	?	?		+	?	+
Prepare a public realm strategy for the Ardaun to guide the enhancement, management, use and development of publically accessible areas.		+		0		+	+	+
Explore potential to secure excellence standards for new developments, as exemplars for achieving sustainable neighbourhoods, through Building Research Establishment Environmental Assessment Methodology (BREEAM), Leadership in Energy and Environmental Design (LEED) or other appropriate certification (in conjunction with SEAI, IGBC or other appropriate bodies).		+				+		
<i>Supporting Infrastructure: To achieve the vision for Ardaun.</i>								
Continue to seek and secure available public funding for supporting infrastructure and services.		+	0			+		
Work with Irish Water as a key service provider so as to secure the expeditious delivery of water and waste water infrastructure to enable the phased development of Ardaun.	0	+	0		0	+	0	0
Support the development of Information and Communications Technology and the use of underground common service corridors for all linear infrastructure and services.	?	+	?	?		+	?	+
Support the development of energy infrastructure in Ardaun and encourage sustainable energy initiatives.	?	+	?	?	+	+	0	+
Prepare a Contribution Scheme in accordance with Section 48 and 49 of the Planning and Development Act 2000 (amended) for the provision of infrastructure and facilities in the area.		+	0			+		

## Section 9: Mitigation Measures

### 9.1 Introduction

The SEA Regulations require the inclusion of measures to prevent, reduce and, as fully as possible offset any significant adverse effects on the environment from implementing a plan or programme. Environmental considerations have informed all stages of the LAP preparation process, minimising the potential for significant adverse impacts arising from its implementation. While the SEA has sought to ensure that the impact of the LAP on the environment is neutral to positive, some uncertain and unavoidable negative or indirectly negative impacts may occur as a result of implementing the LAP. Mitigation measures will reduce, eliminate and/or compensate for adverse environmental effects.

The LAP is a mechanism to manage development and, in turn, prevent adverse environmental impacts. Development proposals will be required to have due consideration of environmental issues outlined in the LAP. Any negative or indirect negative impacts can be addressed as part of an Environmental Impact Assessment of a particular project and by the development management process. In cases where a development proposal is deemed to be acceptable while still having minor negative impact, mitigation measures will be conditioned as part of the permission, in order to limit and offset any adverse impact. Planning enforcement is another method of mitigation, enabling the Council to take action if a development does not have the required permission, or where conditions of permission have not been met. Where deemed to be appropriate, the Council will take enforcement action, in accordance with the provisions of the Planning and Development Act 2000 (as amended).

Galway City Council will also continue to work and liaise with Galway County Council, government departments, agencies and other stakeholders whose remit is to protect the environment (and different aspects thereof) including the NPWS, Irish Water and OPW. In addition, the Council and state agencies, such as the EPA, are responsible for the monitoring and enforcement of noise, air and water environmental standards under Air Pollution, Water Pollution and Waste Management Acts. This monitoring will continue during the lifetime of the LAP and key indicators will be monitored on an ongoing basis, see *Section 10*.

## 9.2 Mitigation of negative impacts

The overall strategy of the LAP is to protect and improve the environment of the city and its various aspects, including landscape, air and water quality, and biodiversity, through balanced and controlled sustainable development. The 'urban village approach' seeks to protect of the environment while enabling development of the LAP area and mitigating against any unforeseen significant negative impacts. A review of the policies and specific objectives contained within the LAP was carried out. Table 11 summarises mitigation measures recommended to be integrated in the LAP. The aim of these key policies is to avoid, reduce, eliminate and/or compensate for potential adverse environmental effects. They in turn inform the specific objectives and development management standards of the LAP.

Table 11: SEO, Associated Significant Effects of the LAP and Proposed Mitigation Measure

Significant Effects of the LAP	Proposed Mitigation Measure and Associated Policy Reference in the LAP
<b>Biodiversity, Flora and Fauna</b>	
Natural heritage mitigation measures	<p>The <i>Habitat Assessment Report 2012</i> advises that land use zoning of the LAP should facilitate the protection of the habitats of International ecological significance and protect the identified location of the Small white orchid. The ecological value of this area largely depends on the continuation of extensive grazing to maintain a species-rich vegetation with a short sward and to prevent the encroachment of scrub or trees. The present type of extensive farming use is the ideal method of managing the area for conservation. However, given that this area will be ultimately be surrounded by different land uses and developments, it is recommended that the area should be treated as permanent open space with retention of the existing vegetation. If the lands could be taken into public ownership a designation as local biodiversity area or local nature reserve may be possible. In the absence of continued grazing, it will be necessary to introduce a mowing regime for these grasslands in order to ensure the survival of calcareous grassland with a high diversity of native plants and invertebrate species. The Report recommends that the exact management prescription would require data on previous management regimes, soil types and a review of the specific requirements of some of the more sensitive species. This type of management prescription could be commissioned from a qualified ecologist or academic botanist in consultation with NPWS.</p> <p>Non-native and invasive plant species should be avoided within the LAP area, Policy 4.2 Protected Spaces of City Development Plan 2017-2023 and Section 5.2 Key Site Objectives and Associated Guiding Principles of LAP.</p> <p>Strategic Goal 3: Promote a sustainable environment through integration of landscape features and through promotion of the use of renewable, low carbon energy and green design policy protects the Small white Orchid habitat, and its sensitive management as advised by the <i>Habitat Assessment Report 2012</i>. The habitats is to be zoned RA to provide for and protect recreational, open spaces, amenity uses and natural heritage to ensure its continued conservation in the land use strategy of the plan.</p> <p>The <i>Ardaun Local Area Plan Ecology Report (2017)</i> recommendation for the five identified ecologically sensitive sites have informed the policies and area-specific development management standards and guidelines of the LAP.</p>
<b>Population &amp; Human Health</b>	
Community	Strategic Goal 1: Create a high quality, mixed use, urban village that will support a strong sustainable neighbourhood and facilitate access to a range of services and community facilities policy facilitates the development of community facilities in Ardaun in order to create a sustainable and vibrant residential neighbourhood and community.
<b>Soils including geology</b>	
Reuse of soils and protection of Annex I exposed limestone pavement areas	<p>Table no. 13 <i>Evaluation of development alternatives and interaction with the SEOs</i> records a negative in terms of the consumption of non-renewable sand, gravel and rock deposits. The policies of the City Development Plan 2017-2023 regarding sustainable building practices and construction shall apply and the LAP seek high standards for new developments.</p> <p>The policies of the LAP will protect identified areas of Annex I exposed limestone pavement, <i>Strategic Goal 3: Promote a sustainable environment through integration of landscape features and through promotion of the use of renewable, low carbon energy and green design</i>.</p>

Significant Effects of the LAP	Proposed Mitigation Measure and Associated Policy Reference in the LAP
<b>Water</b>	
Flood risk mitigation measures including SUDS	Development in the LAP area shall adhere to the policies of the City Development Plan in relation to SUDS Policy 9.8 and Strategic Goal 3: Promote a sustainable environment through integration of landscape features and through promotion of the use of renewable, low carbon energy and green design policy through integration of landscape features and through promotion of the use of renewable, low carbon energy and green design policy of the LAP and the recommendations of the <i>Strategic Flood Risk Assessment of Three LAP areas, 2012</i> , Appendix C SUDS Design Advice of the LAP policy document.
Groundwater protection	Table no. 13 <i>Evaluation of development alternatives and interaction with the SEOs</i> records a potential negative impact to groundwater resources in the development of an urban village. Development in the LAP area shall adhere to the policies of the City Development Plan in relation to Policy 9.6 Water Quality and Policy 9.8 SUDS and the recommendations of the <i>Strategic Flood Risk Assessment of Three LAP areas, 2012</i> , Appendix C SUDS Design Advice of the LAP policy document.
<b>Air &amp; Climatic Factors</b>	
Noise Air & climate change	Development in the LAP area shall adhere to the policies of the City Development Plan in relation to Policy 9.10 Air Quality and Noise
<b>Material Assets</b>	
Infrastructure provision	Implementation specific objectives of the LAP addresses the various aspects of support infrastructure required for development within the LAP area.
Undergrounding of ICT, telecommunication, energy power lines.	Table 10 <i>Evaluation of LAP Policies and Strategic environmental objectives</i> indicated that the undergrounding of ICT and the provision of energy infrastructure and may give rise to unknown potential environmental effects. In order to mitigate any unforeseen negative impacts on the environment, protected habitats, flora and fauna and archaeology, development of this nature shall comply with Policy 9.13 Telecommunications and Policy 9.14 Energy and associated Infrastructure of the City Development Plan.
<b>Cultural Heritage</b>	
Archaeology, Irish language and arts & culture	Strategic Goal 1: Create a high quality, mixed use, urban village that will support a strong sustainable neighbourhood and facilitate access to a range of services and community facilities policy seeks to develop an arts and cultural programme to animate the public realm of Ardaun for the benefit of residents and visitors. Development within the LAP area shall comply with the policies of Section 7 Community and Culture and Section 8 Built Heritage and Urban Design of the City Development Plan.
<b>Landscape</b>	
Landscape	The existing landscape and it's the protection, conservation and enhancement has shaped the landscape strategy for Ardaun, which is an integral part of the Urban Design Framework of the plan. In order to protect against uncertain impacts Strategic Goal 3: Promote a sustainable environment through integration of landscape features and through promotion of the use of renewable, low carbon energy and green design policy protects the landscape and features therein as part of a bio-diverse environment.

## Section 10: Monitoring

Monitoring of the LAP and its implications for the environment is important to ensure that the environment of the Ardaun area is not adversely affected by the implementation of the plan. The SEA Regulations specify that the Environment Report describe measures for monitoring significant environment effects of implementing the LAP. An important function of monitoring is to examine whether or not the LAP is achieving its environmental protection objectives and targets. In this regard, the strategic environmental objectives and targets are linked to indicators, which measure changes in environmental quality and which can facilitate monitoring the implementation of the adopted LAP. Stakeholders responsible for monitoring of indicators are also identified. The SEA Guidelines state that monitoring should concentrate on likely significant environmental effects, which have been identified in the Environmental Report, and measures identified as necessary to prevent, reduce and offset any significant adverse effects. Monitoring enables the Council to evaluate emerging data with a view to considering the need for appropriate remedial action.

The monitoring process will begin when the LAP is adopted and shall continue over the period of the plan. The

frequency of monitoring shall be carried out on an ongoing basis through the assessment of planning applications and environmental monitoring programmes.

Monitoring is carried out by examining whether or not the LAP is achieving Strategic Environmental Objectives (SEO) and targets. The following table describes the measures for monitoring the significant environmental effects of implementing the LAP. SEO and targets are linked to indicators, which measure changes in environmental quality and which can facilitate the monitoring of the implementation of the LAP. Stakeholders responsible for monitoring of indicators are also identified. In this regard Galway City Council and state agencies, such as the EPA, are responsible for the monitoring and enforcement of noise, air and water environmental standards under Air Pollution, Water Pollution and Waste Management Acts. The Council will continue to work and liaise with government departments, agencies and other stakeholders whose remit it is to protect the environment (and different aspects thereof) including Irish Water, NPWS, EPA, NTA, OPW, and Galway County Council. Monitoring will be carried out on an ongoing basis through the assessment of planning applications and environmental monitoring programmes. It is proposed that a biennial monitoring report will be prepared outlining the progress reached in achieving the vision, objectives and targets of the LAP.

Table 12 Monitoring Measures

SEO	Target	Indicator	Responsibility
<b>Biodiversity, Flora and Fauna</b>			
Protect, conserve and promote habitats, species and their sustaining resources in international and national designated sites and prevent adverse impacts (direct, cumulative and indirect) from development within or adjacent to these sites.	Control significant adverse impacts (direct, cumulative and indirect impacts) to relevant habitats, species or their sustaining resources in designated ecological sites and networks.	Number of significant adverse impacts (direct, cumulative and indirect impacts) to relevant habitats and species in designated ecological sites.	Galway City Council, NPWS, DCHG, EPA, Galway Biodiversity Action Plan and Galway Heritage Plan stakeholders WRBD stakeholders
Protect and conserve rare and threatened habitats and species, including those listed in the Habitats Directive and the Wildlife Acts.	Control significant adverse impacts on rare and threatened habitats and species or their sustaining resources, including those in the Habitats Directive and the Wildlife Acts.	Control of significant adverse impacts (direct, cumulative and indirect impacts) to relevant habitats and species in designated ecological sites.	
Support measures to control and manage alien/invasive species.	Biodiversity encouraged in developments.	Improvements to the green network whilst projecting the city's ecological heritage.	
Protect areas of local biodiversity value and steeping stones which provide connectivity for species and prevent wildlife habitat fragmentation.		Delivery of actions identified under Galway Biodiversity Action Plan and Heritage Plan.	
Promote ecological awareness and biodiversity		Implementation of Western RBDMP 2009-2015 and future RBDMP.	
<b>Population and Human Health</b>			
Create a high-quality residential, working and recreational environments that enable sustainable travel patterns	Create a good quality of life, the provision of improved physical and social infrastructure, and reduce travel times and traffic congestion and allow for an integrated sustainable transport and land use system that eases movement to and within the city and promotes sustainable transport modes.	Reduction in travel times to and within the city and alleviation of traffic congestion Increased modal shift from private car to public transport, walking and cycling.  Improvements to provision of social and physical infrastructure including availability of public transport / smarter travel initiatives, public and community facilities, services and amenities.	Galway City Council, Galway County Council, NTA, DTTAS, public transportation operators and other transport stakeholders, social infrastructure stakeholders

SEO	Target	Indicator	Responsibility
Promote social inclusion and well being/healthy living in the LAP area	Create a good quality of life by the provision of improved physical and social infrastructure, promotion of high quality residential and urban environments, provision of a sustainable transport system, and to maintain and improve recreation and amenity opportunities in the city.	Increased social inclusion and accessibility in built environment, public realm and sustainable transportation system.  CSO health results and delivery of actions identified in Galway WHO Healthy City Plan and LECP.	Galway City Council, Galway WHO Healthy City Forum, LECP stakeholders
<b>Soils including geology</b>			
Maintain the quality of soils and geology	Safeguard soil quality and to ensure that soils remain healthy and capable of supporting human activities and ecosystems and protect Annex I exposed limestone habitat.	Enforcement and implementation of waste permit regulations	Galway City Council and EPA
Minimise the consumption of non-renewable sand, gravel and rock deposits	Reuse and recycle C&D waste at source and encourage use of appropriate materials from local sources which will have less 'embodied energy'.	Increase in recycling, and recovery of C&D waste, enforcement and implementation of waste permit regulations.	Galway City Council, private developers and operators
<b>Water</b>			
Maintain and improve, where possible, the quality of groundwater and avoid discharges of polluting substances to groundwater to meet the requirements of the Draft River Basin Management Plan for Ireland 2018-2021 and future Management Plans.	Maintain and improve status and quality rating of groundwater to achieve good water status under the Water Framework Directive.	Changes in water quality as identified during water quality, monitoring programmes	EPA, Galway City Council, Galway County Council, WRBD stakeholders
Provide, maintain and improve the quality of drinking water supplies	Provide, maintain and improve drinking water quality to comply with the requirements of the EU (Drinking Water) Regulations.	Drinking water quality standards	Galway City Council, Irish Water, EPA and Galway County Council
Promote water conservation	Provide, maintain and improve capacity of water supply in a sustainable manner, and to encourage water conservation.	Trends in water conservation,	Galway City Council and Irish Water
Progressively reduce discharges of polluting substances to waters.	Maintain and improve status and quality rating of surface water, groundwater, transitional and coastal waters, to achieve good water status under the Water Framework Directive	Changes in water quality as identified during water quality monitoring programmes, implementation and enforcement of discharge licence procedure	EPA, Galway City Council, Galway County Council, WRBD stakeholders
Mitigate the effects of flood risk	Minimise development of lands susceptible to significant flood risk.	Flood risk assessment are incorporated into development proposals, where required.	Galway City Council and OPW and CFRAM stakeholders
<b>Air and Climatic Factors</b>			
Facilitate measures to reduce all forms of air pollution	Maintain and, wherever possible, improve air quality levels.	Changes in air quality as identified during air quality monitoring programmes and improvements to green network.	Galway City Council and EPA.

SEO	Target	Indicator	Responsibility
Assess, plan and manage adaptation to climate change impacts	<p>Increase the percentage of population travelling by public transport including cycling and walking, and to reduce private vehicle dependency to and within LAP area.</p> <p>Encourage new developments to limit greenhouse gas emissions and make use of renewable and low carbon energy and energy conservation and efficiency measures.</p>	<p>Traffic volumes and percentage of modal shift from car to sustainable transport modes.</p> <p>Number and type of renewable energy technologies and energy efficiency and conservation measures including SUDS employed in new developments.</p>	Galway City Council, NTA, DCCAE, Galway County Council, DTTAS
Reduce energy wastage, encourage energy efficiency and conservation, and maximise use of renewable energy sources	Encourage use of renewable energy, increased energy efficiency and conservation for domestic, community, commercial and industrial developments.	Number and type of renewable energy technologies and energy efficiency and conservation measures employed in new developments.	Galway City Council and DCCAE
Minimise noise, vibration and emissions from traffic and minimise impact on residential amenities	Have no spatial concentrations of health problems arising from environmental factors.	<p>Implementation of recommendations of Noise Action Plan.</p> <p>Regulate demolition and construction activities through planning conditions and enforcement.</p>	Galway City Council and EPA.
<b>Material Assets</b>			
Maximise use of the built environment in a sustainable and efficient manner	<p>Maintain and improve the image of the city by promoting a high quality built environment.</p> <p>To meet EU, national and regional targets for water quality and for the recycling of municipal waste and its diversion from landfill.</p>	<p>Improvements in the public realm</p> <p>Changes in water quality as identified during water quality monitoring programmes</p> <p>Volume of waste recycled and to landfill.</p>	Galway City Council, Irish Water, Regional Waste Authority, private developers, and operators.
Encourage sustainable modes of transport	To have an integrated sustainable transport and land use system that eases movement to and within the LAP area and promotes sustainable transport modes.	<p>Increase in use of sustainable transport modes, increase in sustainable transport facilities and infrastructure</p> <p>Number of people travelling to work or school by public transport, walking and cycling.</p>	Galway City Council, Galway County Council, NTA, DTTAS, public transportation operators and other transport stakeholders.
Serve new development with an appropriate public water and wastewater system in a phased and sustainable manner.	To have an adequate public water and wastewater system to serve the LAP area.	Provision of required water and wastewater infrastructure.	Irish Water Galway City Council and Galway County Council.

SEO	Target	Indicator	Responsibility
<b>Cultural Heritage</b>			
Promote the protection and conservation of the cultural, built architectural, archaeological and linguistic heritage.	To protect archaeological sites and heritage and promote cultural and linguistic heritage in the LAP area.	Conservation of archaeological sites in LAP and regulation of development proposals and activities through planning conditions including archaeological monitoring of works and enforcement.  Increased use of Irish in signage, and place names.	Galway City Council DPLG, and DCHG
<b>Landscape</b>			
Conserve and enhance the landscape features of the Ardaun area.	Protect and enhance the green network in a sustainable manner	Delivery of local area plan and its urban design framework plans  Improvements to the green network  Delivery of actions identified under Galway Biodiversity Action Plan and Galway Heritage Plan	Galway City Council, NPWS, DCHG, Galway Biodiversity Action Plan and Gaway City Heritage Plan stakeholders, private developers and landowners.

## Appendix 1 Documentation considered in the formulation of the Environmental Report:

The Ardaun LAP is set within a hierarchy of Plans. A number of national policy documents and guidelines associated with the LAP and SEA preparation process guided the Ardaun LAP and associated environmental assessments and include the following listed below.

Appropriate Assessment of Plans and Projects in Ireland, Guidance for Planning Authorities, Revised 2010.

Childcare Facilities, Guidelines for Planning Authorities 2001.

Conversations about Architecture and the Built Environment 2007.

Development Plans Guidelines for Planning Authorities 2007.

Best Practice Urban Design Manual 2009 Parts 1& 2.

Development Contribution Guidelines 2013.

Development Management Guidelines 2007.

Draft Guidance for Planning Authorities on Drainage & Reclamation of Wetlands 2011.

Government Policy Statement on Transmission and Other Energy Infrastructure 2012.

Guidance Note on Core Strategies 2010.

Government Policy on Architecture 2009-2015.

Interim guidelines for planning authorities on statutory plans, renewable energy and climate change 2017

Irish Design Manual for Urban Roads and Streets 2013.

Landscape and Landscape Assessment Guidelines for Ireland.

Local Area Plans Guidelines for Planning Authorities, and Manual for Local Area Plans a companion document to the Guidelines for Planning Authorities on Local Area Plans, DECLG, 2013.

National Cycle Policy Framework 2009.

National Biodiversity Action Plan 2002.

National Heritage Plan 2002.

National Spatial Strategy 2010-2020.

National Inventory of Architectural Heritage Survey.

National Climate Change Strategy 2007-2012.

Part V of the Planning and Development Act, 2000, Housing Supply, Guidelines for Planning Authorities 2000.

Planning and Development (Amendment) Act 2010 Circular PPL 1/201.0

Planning Policy Statement, DECLG, 2015.

Provision of Schools and the Planning System, Code of Practice for Planning Authorities 2008.

Residential Density, Guidelines for Planning Authorities 1999.

Retail Planning Guidelines and Retail Design Manual 2012.

Smarter Travel – Sustainable Transport 2009-2020.

Spatial Planning and National Roads Guidelines 2012.

Strategic Environmental Assessment, Assessment of the Effects of Certain Plans and Programmes on the Environment, Guidelines 2004.

Sustainable Residential Development in Urban Areas, Guidelines for Planning Authorities, December 2008.

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## Appendix 2 Glossary and Acronyms

### Glossary

**Biodiversity** – A measure of the diversity of species of plants and animals.

**Child Friendly City** - Following the 1996 Istanbul City Summit, UNICEF launched the Child Friendly Cities Initiative to reach urban children, particularly the poor and marginalised with basic services and protection to guarantee their fundamental rights. Many cities world-wide are working to become more child-friendly and a number of local networks have been created like the European Network of Child Friendly. The network was established under the Wurzburg Declaration June 1999. There is no single definition of what a child friendly city is or ought to be. In developing nations the focus is more frequently found on increasing access to basic services while in developed countries the emphasis seems to be on environmental and physical issues such as improving recreational areas, developing parks and green spaces, controlling traffic in order to make streets safer for children.

**Citizen/Citizenship** – an inhabitant and resident of Galway City.

**db(A) Lden** - Decibel A-weighted Day-evening-night equivalent level, Leq. (equivalent sound level) noise level, measured over the 24 hour period, with a 10 dB penalty added to the levels between 23.00 and 07.00 hours and a 5 dB penalty added to the levels between 19.00 and 23.00 hours to reflect people's extra sensitivity to noise during the night and the evening.

**db(A) Lnight** - Night equivalent level : Leq. A-weighted, Sound Level, measured overnight 23.00 -0700 hours. Also known as the Night Noise Indicator.

**Ecological sites** – Sites of wildlife value.

**Environmental Report** - The report is 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 Assessment** - This is a method or procedure for predicting the effects on the environment of a proposal, either for an individual project or a higher-level “strategy” (a policy, plan or programme), with the aim of taking account of these effects in decision making.

**Environmental Authority** - This refers to designated authorities, who must be consulted by planning authorities when they are undertaking Strategic Environmental Assessment.

**European Sites** - Natura 2000 is a network of sites selected to ensure the long-term survival of Europe's most valuable and threatened species and habitats. These sites include Special Protection Area for the Birds (SPA) and Special Areas of Conservation (SAC) and are collectively known as ‘European Sites’. The Natura 2000 network stems from the Habitats Directive (92/43/EEC).

**EU Water Framework Directive** - Directive 2000/60/EC, the EU Water Framework Directive is environmental legislation aimed at improving water quality in rivers, lakes, groundwater, estuaries and coastal waters. The Directive requires achieving ‘good’ status to all waters, maintaining existing ‘high’ status waters and preventing any deterioration of waters, by 2021.

**EU Urban Waste Water Treatment Directive** - The aim of Directive 91/271/EEC (as amended 98/15/EEC) is to protect the environment from the adverse effects of discharges of urban wastewater, by the provision of urban wastewater collecting systems (sewerage) and treatment plants for urban centres. The Directive also provides general rules for the sustainable disposal of sludge arising from wastewater treatment.

**Gateway City** - The National Spatial Strategy (NSS) identifies five Gateway Cities, including Galway City. A Gateway City is a regional centre of socio-economic growth and critical mass supporting more balanced patterns of national level development.

**Green Network** – A linked network of green areas, parks, and open spaces ensuring a strategic integrated policy approach to the sustainable use and management of these areas.

**Greenways** - Greenway is an EU term established in a *Declaration towards a European Greenway Network*, Lille, 12th Sept 2000 for “*circulation routes reserved exclusively for non-motorised journeys, developed in an integrated manner, which enhances both the environment and quality of life of the surrounding area*”.

**Indicator** - A measure of variables over time, often used to measure achievement of objectives.

**Mitigation** - Measures used to avoid, reduce or offset significant adverse effects on the environment.

**Natura Impact Assessment (Appropriate Assessment)** Article 6 of the Habitats Directive (92/43/EEC) - An ecological assessment of the likely impact of any plan, programme, or project on the conservation objectives of European Sites, (Special Protection Areas and candidate Special Areas of Conservation).

**Natural Heritage** - The Heritage Act (1995) defines natural heritage as including flora, fauna, wildlife habitats, landscapes, seascapes, wrecks, geology, inland waterways, heritage gardens and parks.

**Natural Heritage Areas (NHAs)** - These designated areas form a network of sites of national importance by reason of their flora, fauna, habitat type and/or geomorphologic interest and are protected under the Wildlife Act 2000.

**Objectives** – These are specific statements that carry out a plan in the short term. Objectives are measurable benchmarks that can be used to assess incremental progress in achieving the broader purposes expressed in policies and goals.

**Polluter Pays Principle** - Polluter Pays Principle means that the polluter should bear the expenses of carrying out the measures required to ensure that the environment is in an acceptable state. This environmental liability aims both to prevent and restore environmental damage. On the side of prevention, the principle highlights that if a situation is caused

that could lead to environmental damage, preventive measures should be taken to avoid that. When environmental damage nevertheless occurs, it is required by the principle that environmental damage is restored.

**Policies** – These set out the approach to carry out the Plans goals in the foreseeable future. SEA

**Precautionary Principle** – The precautionary principle is an approach where there is a presumption against any action whose environmental impact is uncertain and there is a strong bias towards avoiding potential environmental risks.

**Scoping** - The process of deciding the scope and level of detail of an SEA, including the environmental effects and alternatives which need to be considered, the assessment methods to be used, and the structure and contents of the Environmental Report. Scoping is carried out in consultation with the appropriate bodies.

**SEVESO III Sites** - Sites involved in the storage and/or production of dangerous substances that present a major accident hazard, subject to the Control of Major Accident Hazards (COMAH) Directive or Seveso III Directive 2012/18/EU, which seeks to reduce the risk and limit the consequences of accidents.

**Significant Environmental Effect**- Significance is a function of impact magnitude and the importance/sensitivity of the resources of the receptor. Effects on the environment which are significant in the context of a plan or programme. Criteria for assessing significance are set out in Annex II of the SEA Directive.

**Social Housing** - Rented housing provided either by the Council or a voluntary or co-operative housing body.

**Special Areas of Conservation (SAC)** – The Habitats Directive (92/43/EEC) was transposed into Irish law by S.I. 94 of 1997, the European Communities (Natural Habitats) Regulations 1997. SACs are marine and terrestrial areas of international importance that have been designated for the protection of wildlife habitats and species (other than birds), which form part of EU Natura 2000 (European sites) network of ecologically significant sites throughout Europe. Special protection measures should be applied regarding these habitats of specified wildlife species, in order to ensure the survival and reproduction in their distribution area. Two SACs designated areas exist in the city, the Galway Bay Complex and Lough Corrib Complex.

**Special Protection Areas for Protection of Birds (SPAs)** - Ireland is required under the terms of the EU Birds Directive (2009/147/EC) to designate Special Protection Areas (SPAs) for the protection of endangered species of wild birds. SPAs are sites designated to protect international important and rare bird species and their associated habitats. The Inner Galway Bay SPA encircles the coastal and offshore area including the bay and islands. The designated protection area provides for a wide range of seabirds and waterfowl and their associated breeding colonies and habitats including Annex 1 bird species. Annex 1 is a catalogue of species and subspecies that, in the European Union, are threatened with extinction, or vulnerable in certain changes of their habitats, or scarce due to small populations or restricted regional distribution, or demand special caution due to the special nature of their habitats. The Inner Galway Bay SPA also includes other nationally important bird species.

**Strategic Environmental Assessment** - The Strategic Environmental Assessment (SEA) Directive (2001/42/EC) requires that an environmental assessment is carried out on certain plans and programmes which are likely to have significant effects on the environment. A SEA is a systematic process of predicting and evaluating the likely environmental effects of implementing a proposed plan in order to ensure that these effects are appropriately addressed at the earliest appropriate stage of decision-making.

**Strategic Environmental Objectives (SEO's)** - Methodological measure against which the environmental effects of the plan can be tested. SEA objectives are distinct from the plan objectives although will often overlap. SEA Objectives are developed from, national, international and regional policy.

**Sustainable Development** - Sustainable Development is usually defined as development that meets the 'needs of the present without compromising the ability of future generations to meet their own needs without undermining the integrity and conservation objectives of European Sites and NHAs. It contains within it two key concepts: the concept of needs, in particular the essential needs of the world's poor, to which overriding priority should be given; and the idea of limitations imposed by the state of technology and social organization on the environment's ability to meet present and future needs.' (*Taken from Our Common Future, Un World Commission on Environment and Development, 1987, also known as the Brundtland Report*).

**Waste Hierarchy** - The waste management model, espoused by the E.U. and nationally, gives priority to, respectively: Prevention, Minimisation, Reuse and Recycling (including biological treatment), Energy Recovery and Environmentally sustainable disposal of waste, which cannot be prevented or recovered.

## Acronyms

AA <i>Appropriate Assessment</i>	HSE <i>Health Service Executive</i>
BRE <i>Building Research Establishment</i>	IDA <i>Industrial Development Authority</i>
BREEAM <i>Building Research Establishment Environmental Assessment Methodology</i>	IGBC <i>Irish Green Building Council</i>
BRT <i>Bus Rapid Transit</i>	ITMP <i>Integrated Transport Management Programme.</i>
CE <i>Chief Executive</i>	LAP <i>Local Area Plan</i>
CFRAM <i>Catchment Flood Risk Assessment and Management Study</i>	LECP <i>Local Economic and Community Plan</i>
C&D <i>Construction and Demolition Waste</i>	LEED <i>Leadership in Energy and Environmental Design</i>
CHP <i>Combined Heat and Power</i>	MMP <i>Mobility Management Plan</i>
COMAH <i>Control of Major Accident Hazards Involving Dangerous Substances, (Seveso III Directive)</i>	MPAD <i>Merlin Park Area Drainage</i>
CGS <i>County Geological Sites</i>	MUHDS <i>Major Urban Housing Delivery Site</i>
CSO <i>Central Statistics Office</i>	NAP <i>Noise Action Plan</i>
DAHRRAG <i>Department of Arts, Heritage, Regional, Rural and Gaeltacht Affairs</i>	NHA <i>Natural Heritage Area</i>
DCCAIE <i>Department of Communications, Climate Adaptation and Environment</i>	NIR <i>Natura Impact Report</i>
DCHG <i>Department of Culture, Heritage and Gaeltacht</i>	NPF <i>National Planning Framework</i>
DHPLG <i>Department of Housing, Planning and Local Government</i>	NPWS <i>National Parks and Wildlife Service</i>
DPER <i>Department of Public Expenditure and Reform</i>	NSS <i>National Spatial Strategy 2002-2020</i>
DMURS <i>Design Manual for Urban Roads and Streets</i>	NTA <i>National Transport Authority</i>
DTTAS <i>Department of Transport, Tourism and Sport</i>	NUIG <i>National University of Ireland Galway</i>
EIA <i>Environmental Impact Assessment</i>	OPW <i>Office of Public Works</i>
EIS <i>Environmental Impact Statement</i>	OS <i>Ordnance Survey</i>
EPA <i>Environmental Protection Agency</i>	PE <i>Population Equivalent</i>
ESS <i>Ecologically Sensitive Site</i>	RANS <i>Recreation and Amenity Needs Study</i>
EU <i>European Union</i>	RPG <i>Regional Planning Guidelines for West Regional 2010-2020</i>
EV <i>Electric Vehicle</i>	SAC <i>Special Area of Conservation</i>
FRA <i>Flood Risk Assessment</i>	SEA <i>Strategic Environmental Assessment</i>
GMIT <i>Galway Mayo Institute of Technology</i>	SEAI <i>Sustainable Energy Authority of Ireland</i>
GSI <i>Geological Survey of Ireland</i>	SEO <i>Strategic Environmental Objectives</i>
GTS <i>Galway Transport Strategy</i>	SFRA <i>Strategic Flood Risk Assessment</i>
GTPS <i>Galway Transport and Planning Study</i>	SPA <i>Special Protection Areas</i>
GTU <i>Galway Transportation Unit</i>	SPC <i>Special Policy Committee</i>
HSA <i>Health and Safety Authority</i>	SUDS <i>Sustainable Urban Drainage Systems</i>
	TII <i>Transport Infrastructure Ireland</i>
	TIA <i>Transport Impact Assessment</i>
	WHO <i>World Health Organisation</i>
	WRA <i>Northern and Western Regional Assembly</i>
	WWTW <i>Waste Water Treatment Work</i>