

STRATEGIC ENVIRONMENTAL ASSESSMENT ENVIRONMENTAL REPORT

FOR THE

INTEGRATED IMPLEMENTATION PLAN 2019-2024

for: National Transport Authority

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List of Abbreviations

AA	Appropriate Assessment
ACA	Architectural Conservation Area
BRT	Bus Rapid Transport
CFRAM	Catchment Flood Risk Assessment and Management
CBC	Core Bus Corridor
CGS	County Geological Sites
CSO	Central Statistics Office
DAFM	Department of Agriculture, Food and Marine
DCHG	Department of Culture, Heritage and the Gaeltacht
DCCAE	Department of Communication, Climate Action and Environment
DHPLG	Department of Housing, Planning and Local Government
EIA	Environmental Impact Assessment
EPA	Environmental Protection Agency
EU	European Union
GSI	Geological Survey of Ireland
NHA	Natural Heritage Area
NTA	National Transport Authority
NPF	National Planning Framework
OPW	Office of Public Works
RAL	Remedial Action List
RBD	River Basin District
RMP	Record of Monuments and Places
RPA	Register of Protected Areas
RPS	Record of Protected Structures
RPGs	Regional Planning Guidelines
RBMP	River Basin Management Plan
RSES	Regional Spatial and Economic Strategy
SAAO	Special Amenity Area Order
SAC	Special Area of Conservation
SEA	Strategic Environmental Assessment
SEO	Strategic Environmental Objective
SFRA	Strategic Flood Risk Assessment
SI No.	Statutory Instrument Number
SPA	Special Protection Area
WFD	Water Framework Directive
WHO	World Health Organisation
WMU	Water Management Unit

Glossary

Appropriate Assessment

The obligation to undertake Appropriate Assessment derives from Article 6(3) and 6(4) of the Habitats Directive 92/43/EEC. AA is a focused and detailed impact assessment of the implications of a strategic action (such as a plan or programme) or project, alone and in combination with other strategic actions and projects, on the integrity of a European Site in view of its conservation objectives.

Biodiversity and Flora and Fauna

Biodiversity is the variability among living organisms from all sources including inter alia, terrestrial, marine and other aquatic ecosystems and the ecological complexes of which they are a part; this includes diversity within species, between species and of ecosystems' (United Nations Convention on Biological Diversity 1992).

Flora is all of the plants found in a given area.

Fauna is all of the animals found in a given area.

Environmental Problems

Annex I of Directive 2001/42/EC of the European Parliament and of the Council of Ministers, of 27th June 2001, on the assessment of the effects of certain Plans and programmes on the environment (the Strategic Environmental Assessment Directive) requires that information is provided on 'any existing environmental problems which are relevant to the plan or programme', thus, helping to ensure that the proposed strategic action does not make existing environmental problems worse.

Environmental problems arise where there is a conflict between current environmental conditions and ideal targets. If environmental problems are identified at the outset they can help focus attention on important issues and geographical areas where environmental effects of the plan or programme may be likely.

Environmental Vectors

Environmental vectors are environmental components, such as air, water or soil, through which contaminants or pollutants, which have the potential to cause harm, can be transported so that they come into contact with human beings.

Mitigate

To make or become less severe or harsh.

Mitigation Measures

Mitigation measures are measures envisaged to prevent, reduce and, as fully as possible, offset any significant adverse impacts on the environment of implementing a human action, be it a plan, programme or project. Mitigation involves ameliorating significant negative effects. Where there are significant negative effects, consideration should be given in the first instance to preventing such effects or, where this is not possible, to lessening or offsetting those effects. Mitigation measures can be roughly divided into those that: avoid effects; reduce the magnitude or extent, probability and/or severity of effects; repair effects after they have occurred; and compensate for effects, balancing out negative impacts with other positive ones.

Protected Structure

Protected Structure is the term used in the Planning and Development Act and Regulations (as amended) to define a structure included by a planning authority in its Record of Protected Structures. Such a structure shall not be altered or demolished in whole or part without obtaining planning permission or confirmation from the planning authority that the part of the structure to be altered is not protected.

Recorded Monument

A monument included in the list and marked on the map which comprises the Record of Monuments and Places that is set out county by county under Section 12 of the National Monuments (Amendment) Act, 1994 by the Archaeological Survey of Ireland. The definition includes Zones of Archaeological Potential in towns and all other monuments of archaeological interest which have so far been identified. Any works at or in relation to a recorded monument requires two months' notice to the former Department of the Environment, Heritage and Local Government (now Department of Culture, Heritage and the Gaeltacht) under Section 12 of the National Monuments (Amendment) Act, 1994.

Scoping

Scoping is the process of determining what issues are to be addressed, and setting out a methodology in which to address them in a structured manner appropriate to the plan or programme. Scoping is carried out in consultation with appropriate environmental authorities.

Strategic Actions

Strategic actions include: *Policies/Strategies*, which may be considered as inspiration and guidance for action and which set the framework for Plans and programmes; *Plans*, sets of co-ordinated and timed objectives for the implementation of the policy; and *Programmes*, sets of projects in a particular area.

Strategic Environmental Assessment (SEA)

Strategic Environmental Assessment (SEA) is the formal, systematic evaluation of the likely significant environmental effects of implementing a plan or programme before a decision is made to adopt it.

Strategic Environmental Objective (SEO)

Strategic Environmental Objectives (SEOs) are methodological measures developed from policies which generally govern environmental protection objectives established at international, Community or Member State level and are used as standards against which the provisions of the Plan and the alternatives can be evaluated in order to help identify which provisions would be likely to result in significant environmental effects and where such effects would be likely to occur, if - in the case of adverse effects - unmitigated.

Section 1 SEA Introduction and Background

1.1 Introduction and Terms of Reference

This is the Strategic Environmental Assessment (SEA) Environmental Report for the Integrated Implementation Plan 2019-2024 (hereafter referred to as "Plan"). It has been undertaken by CAAS Ltd. on behalf of the National Transport Authority.

The purpose of this report is to provide a clear understanding of the likely environmental consequences of decisions regarding the adoption and implementation of the Plan. The SEA is carried out in order to comply with the provisions of the European Communities (Environmental Assessment of Certain Plans and Programmes) Regulations 2004 (Statutory Instrument Number (SI No. 435 of 2004) as amended. This report should be read in conjunction with the Plan.

1.2 SEA Definition

Environmental assessment is a procedure that ensures that the environmental implications of decisions are taken into account before such decisions are made. *Environmental Impact Assessment*, or EIA, is generally used for describing the process of environmental assessment for individual projects, while *Strategic Environmental Assessment* or SEA is the term which has been given to the environmental assessment of plans and programmes, which help determine the nature and location of individual projects taking place. SEA is a systematic process of predicting and evaluating the likely significant environmental effects of implementing a proposed plan or programme, in order to insure that these effects are adequately addressed at the earliest appropriate stages of decision-making in tandem with economic, social and other considerations.

1.3 SEA Directive and its transposition into Irish Law

Directive 2001/42/EC of the European Parliament and of the Council of Ministers, of

27th June 2001, on the Assessment of the Effects of Certain Plans and Programmes on the Environment, referred to hereafter as the SEA Directive, introduced the requirement that SEA be carried out on plans and programmes which are prepared for a number of sectors, including transport.

The SEA Directive was transposed into Irish Law through the European Communities (Environmental Assessment of Certain Plans and Programmes) Regulations 2004 (Statutory Instrument Number (SI No. 435 of 2004) and the Planning and Development (Strategic Environmental Assessment) Regulations 2004 (SI No. 436 of 2004). Both sets of Regulations became operational on 21st July 2004. The Regulations have been amended by the European Communities (Environmental Assessment of Certain Plans and Programmes) (Amendment) Regulations 2011 (SI No. 200 of 2011) and the Planning and Development (Strategic Environmental Assessment) (Amendment) Regulations 2011 (SI No. 201 of 2011).

1.4 Implications for the Plan

Article 9 of the European Communities (Environmental Assessment of Certain Plans and Programmes) Regulations 2004, as amended, sets out criteria for determining whether SEA should be undertaken on certain types of plans. Considering these criteria, the National Transport Authority concluded that an SEA was required for the Plan, as it comprises a 'plan or programme' as defined by the SEA Directive which is likely to have significant environmental effects. The findings of the SEA are expressed in this Environmental Report, an earlier version of which accompanied the Draft Plan on public display and was altered in order to take account of recommendations contained in submissions and in order to take account of changes that were made to the Draft Plan on foot of submissions. The findings of this report and other related SEA output is taken into account during the consideration of the Plan and before it is finalised. On finalisation of the Plan, an SEA Statement is prepared which summarises, inter alia, how environmental considerations have been integrated into the Plan.

Section 2 The Plan

2.1 Requirement for an Integrated Implementation Plan

The Minister for Transport, Tourism and Sport approved the Greater Dublin Area Transport Strategy 2016-2035 on 24th February 2016.

Under Section 13 of the Dublin Transport Authority Act 2008, the Authority is required, within nine months of that approval date, to make an Integrated Implementation Plan ("Plan") covering the first six year period of the Transport Strategy. However, because the Government decided to undertake a review of capital spending in 2016, and because the legislation does not permit any amendments to an adopted Plan until a new Transport Strategy is approved by the Minister, it was agreed to postpone the development of the Plan until the Government's review concluded.

Earlier this year the Government published its National Development Plan 2018-2027. This publication has enabled the Integrated Implementation Plan to be prepared.

2.2 Geographical Scope and Required Content for the Implementation Plan

While the initial legislation governing the Plan was more clearly limited to the delivery of the Transport Strategy for the Greater Dublin Area, subsequent amendments have somewhat diluted this position. While the bulk of the Plan relates solely to the Greater Dublin Area, certain areas such as public transport services and activities related to small public service vehicles will be dealt with on a national basis.

Section 13 of the Dublin Transport Authority Act 2008 (the "Act") sets out the required contents of an integrated implementation plan ("Plan"). A Plan is required to comprise the following:

- an infrastructure investment programme, identifying the key objectives and outputs to be pursued

by the Authority over the period of the Plan;

- the actions to be taken by the Authority to ensure the effective integration of public transport infrastructure over the period of the Plan;
- an integrated service plan, identifying the key objectives and outputs to be pursued by the Authority in relation to the procurement of public passenger transport services over the period of the Plan;
- the actions to be taken by the Authority in relation to small public service vehicles,
- the actions to be taken by the Authority to ensure the effective integration of public passenger transport services over the period of the Plan; and
- such other matters as the Authority considers appropriate or as may be prescribed by the Minister for Transport, Tourism and Sport ("the Minister").

2.3 Plan Informants for and Content of the Integrated Implementation Plan

The emergence of increasing road congestion in recent years has underlined the need to deliver an enhanced level of public transport to provide an alternative to car-based commuting. Congestion is a challenge that must be addressed by the transport system in a context where significant population growth, and associated economic, social, cultural and recreational activity is being planned for.

The significance of the need for action to reduce the use of fossil fuels and diminish the generation of greenhouse gases is recognised and required by legislation.

The National Transport Authority is required to adhere to the National Climate Change Adaptation Framework, which was published by the Minister for Communications, Climate Action and Environment in 2018, and the

Department of Transport, Tourism and Sport's Sectoral Adaptation Plan, published in 2017.

The Transport Strategy for the Greater Dublin Area 2016-2035, which established an overall framework for transport investment over the next two decades and was subject to full SEA and Stage 2 AA, is a key policy shaping the six-year Integrated Infrastructure Plan. The priorities in the Integrated Infrastructure Plan align with the objectives and priorities set out in the Transport Strategy, focused on improving public and sustainable transport across the Greater Dublin Area.

Taking all of the above into account, the Authority has focused on improving public and sustainable transport across the Greater Dublin Area while seeking to ensure primacy for transport options that provide for unit reductions in carbon emissions. This can most effectively be done by promoting public transport, walking and cycling, and by actively seeking to reduce car use in circumstances where alternative options are available. In addition, transitioning to lower emission vehicles for transport use is also fundamental to reducing transport related carbon emissions.

To date the Authority has focused significant levels of investment in these sustainable modes, including the reopening of the Phoenix Park Tunnel and the delivery of Luas Cross City. It is intended that this will continue under the Implementation Plan.

The Implementation Plan identifies investment proposals for a number of areas including:

- Bus;
- Light Rail;
- Heavy Rail;
- Integration Measures and Sustainable Transport Investment;
- Integrated Service Plan; and
- Integration and Accessibility.

Most proposals included within the Plan have been already included within plans that have already been subject to SEA including the Transportation Strategy for the Greater Dublin Area 2016-2035, Project Ireland 2040 (including the National Planning Framework 2018) and the Greater Dublin Area Cycle Network Plan 2016.

2.4 Relationship with other Relevant Plans and Programmes

The Plan sits within a hierarchy of strategic actions such as plans and programmes, including those listed and detailed in Appendix I ¹ (see also Section 3.2, Section 4, Section 5 and Section 9). The Plan must comply with relevant higher level strategic actions and may, in turn, guide lower level strategic actions.

The Plan is subject to a number of high level environmental protection policies and objectives with which it must comply, including those which have been identified as Strategic Environmental Objectives in Section 5. Examples of Environmental Protection Objectives include the aim of the EU Habitats Directive - which is to contribute towards ensuring biodiversity through the conservation of natural habitats and of wild fauna and flora in the European territory of Member States - and the purpose of the Water Framework Directive - which is to establish a framework for the protection of inland surface waters, transitional waters, coastal waters and groundwater which, among other things, prevents deterioration in the status of all water bodies and protects, enhances and restores all waters with the aim of achieving good status.

¹ Appendix I is not intended to be a full and comprehensive review of EU Directives, the transposing regulations or the regulatory framework for environmental protection and management. The information is not exhaustive and it is recommended to consult the Directive, Regulation, Plan or Programme to become familiar with the full details of each.

Section 3 SEA Methodology

3.1 Introduction to the Iterative Approach

Figure 3.1 provides an overview of the iterative Plan preparation, SEA and AA processes. The preparation of the Plan, SEA and AA has taken place concurrently and the findings of the SEA and AA have informed the Plan. The process is currently at a stage where this SEA Environmental Report has been prepared.

Taking into account the content of SEA scoping submissions from environmental authorities and continuous scoping of the SEA, environmental impacts have been predicted, evaluated and mitigated. The findings of the assessment are presented in this SEA Environmental Report, an earlier version of which accompanied the Draft Plan on public

display as part of the required statutory public consultation.

A Stage 2 Appropriate Assessment (AA) Natura Impact Report (also referred to as Natura Impact Statement) also accompanies the Plan. The Plan and associated SEA and AA documents were prepared in an iterative manner whereby multiple revisions of each document were prepared, each informing subsequent iterations of the others. Submissions made on the Plan were responded to and the Plan has been updated as appropriate. On finalisation of the Plan, an SEA Statement, which will include information on how environmental considerations were integrated into the Plan, is prepared. The Plan will be implemented and environmental monitoring – as well as lower tiers of environmental assessment – will be undertaken.

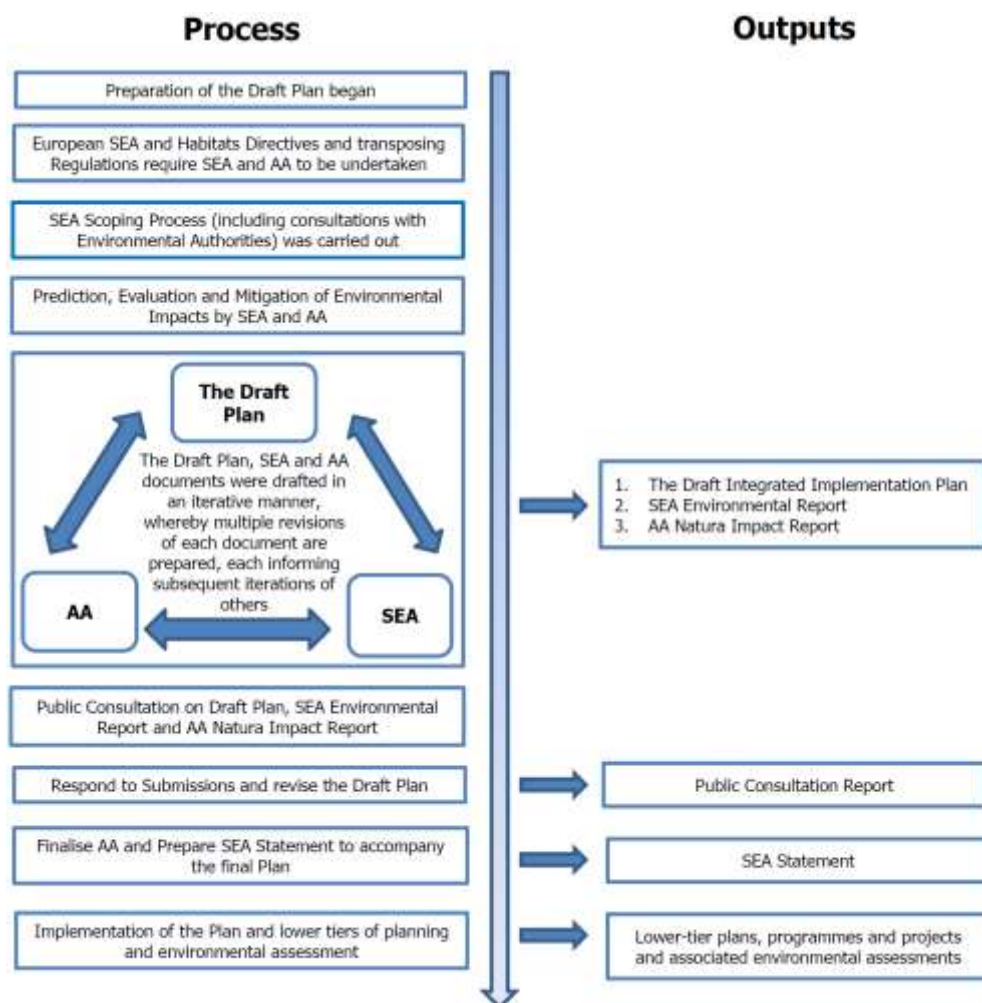


Figure 3.1 Overview of the Plan, SEA and AA Process

3.2 Hierarchy of Planning and Environmental Assessment

The hierarchy of planning and environmental assessment in which the Integrated Implementation Plan is situated is detailed on Figure 3.2 below.

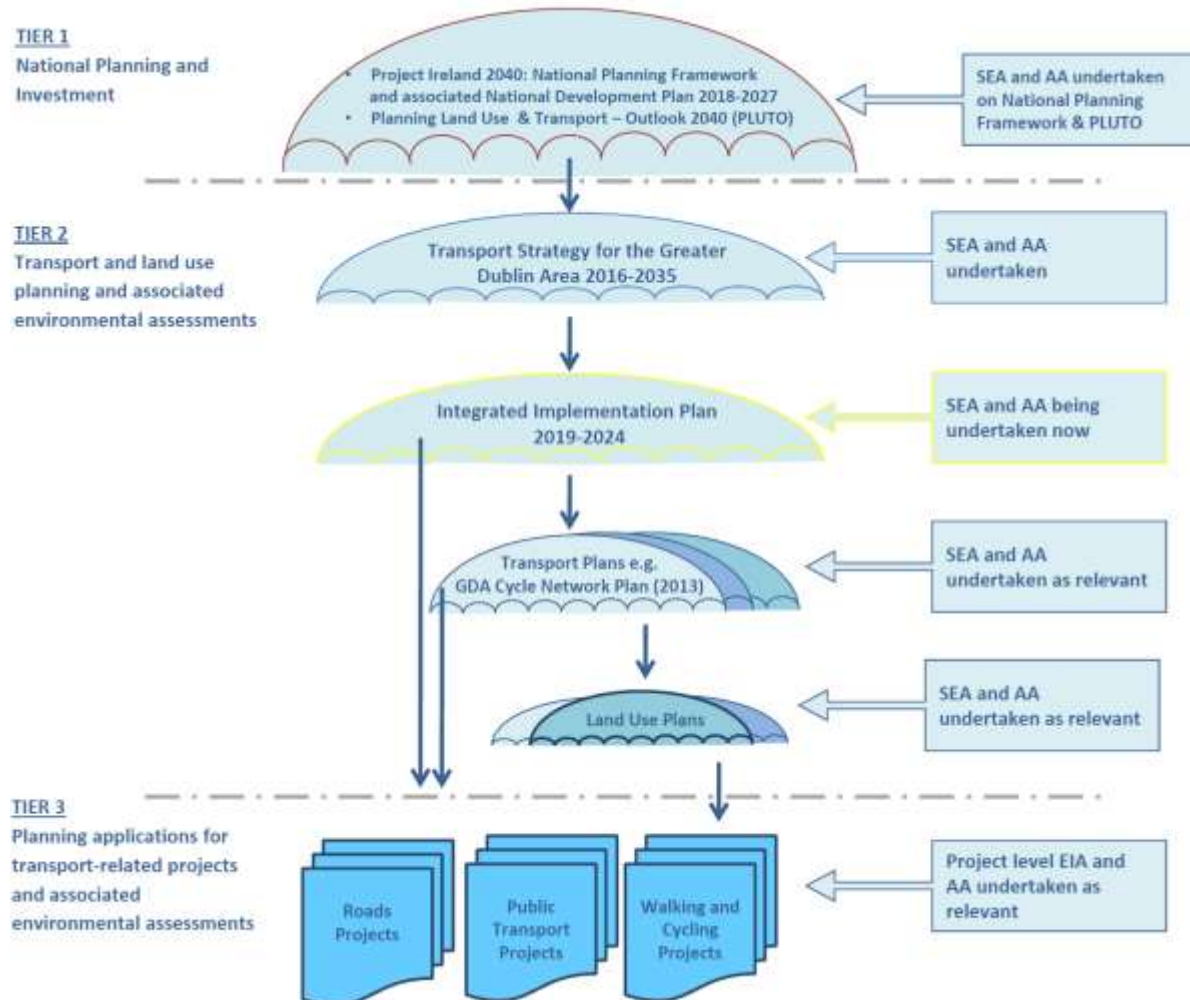


Figure 3.2 Hierarchy of Planning and Environmental Assessment

In order to develop a coherent spatial planning hierarchy, and as a means of addressing imbalances between spatial planning trends and the provision of services the Government published the National Planning Framework (NPF) as part of Project Ireland 2040 in February 2018. It places a strong emphasis on the role of the five cities in accommodating population growth and growth in all associated activities within and adjacent to their existing built-up areas, as a means of facilitating sustainable travel. In each city, transport infrastructure and services are seen as key future growth enablers, with focus paid in particular to bus enhancement, MetroLink, expansion of DART and the Cycle Network in Dublin, and much enhanced Citywide public transport networks in the other cities. The NPF was subject to full SEA and Stage 2 AA.

The NPF is given regional expression through land use plans including the Regional Spatial and Economic Strategies (RSES), which are being subject to SEA and AA. Within the Greater Dublin Area, each local authority will continue to ensure their City and County Development Plans, and their local plans, are consistent with the Authority's Transport Strategy for the Greater Dublin Area in accordance with legislation. The Transport Strategy has been subject to SEA and AA and SEA and AA requirements apply to City and County Development Plans and Local Area Plans. The Transport Strategy for the Greater Dublin Area 2016-2035, which established an overall framework for transport investment over the next two decades, is a key policy shaping the six-year Integrated Infrastructure Plan. The priorities in the Integrated Infrastructure Plan align with the objectives and priorities set out in the Transport Strategy, focused on improving public and sustainable transport across the Greater Dublin Area.

It is anticipated that, during the lifetime of the Integrated Implementation Plan, the transport planning functions of the National Transport Authority, and their engagement with land use planning, will be extended to the other Metropolitan Areas, in line with the NPF. As such, the mechanisms for the closer integration of land use planning, with transport planning and investment, will be rolled out and extended nationally, leading to a more coherent relationship between the location of housing, employment, retail and commercial development, and transport services. Any future Transportation Strategies

for these Metropolitan Areas will be required to be subject to SEA and AA as appropriate.

3.3 Appropriate Assessment and Integrated Biodiversity Impact Assessment

3.3.1 Appropriate Assessment

A Stage 2 Appropriate Assessment (AA) has been undertaken alongside the preparation of the Plan.

The requirement for AA is provided under the EU Habitats Directive (Directive 1992/43/EEC).

The AA concluded that the Plan will not affect the integrity of the European Sites².

The preparation of the Plan, SEA and AA has taken place concurrently and the findings of the AA have informed both the Plan and the SEA. All recommendations made by the AA were integrated into the Plan.

3.3.2 Integrated Biodiversity Impact Assessment

Many elements of Integrated Biodiversity Impact Assessment as detailed in the EPA's (2013) Practitioner's Manual have been aligned with in the undertaking of the SEA for the Plan. These include:

Scoping

- Biodiversity-relevant issues were identified for consideration at scoping stage and these are now detailed in Section 4.
- Reference to a zone of influence is provided, including at Section 4.

Current State of the Environment

- Biodiversity data sources relevant for this regional level assessment have been identified.
- Designated sites and other habitats and species of ecological value are identified.
- AA information has been incorporated into the SEA.

Alternatives

- Impacts upon biodiversity are considered under each of the alternatives and certain potential conflicts can be mitigated.

² Except as provided for in Article 6(4) of the Habitats Directive, viz. There must be:

(a) no alternative solution available;
(b) imperative reasons of overriding public interest for the plan/programme/project to proceed; and
(c) adequate compensatory measures in place.

Impact assessment

- Effects on biodiversity are identified and assessed and the AA gives consideration to the interrelationship between biodiversity and potential effects on European sites.

Mitigation and monitoring

- Taking into account all measures contained within the Plan, all the proposed mitigation measures deriving from the various processes were generally consistent and compatible.
- Indicators and associated targets have been included in SEA for monitoring European Sites.

Reporting

- This SEA ER addresses all biodiversity-related considerations relevant for this level of assessment.
- This SEA ER contains all biodiversity-relevant information, data, figures and maps relevant for this level of assessment.
- This SEA ER has been informed by the AA findings.

Communication and consultation

- Submissions from various environmental authorities have been taken on board.
- The preparation of the Plan, SEA and AA has taken place concurrently and the findings of the AA have informed both the Plan and the SEA.

3.4 Scoping

3.4.1 Introduction

The scope of environmental issues to be dealt with by the SEA together with the level of detail to which they are addressed was decided upon taking into account the level of detail included in the Plan and submissions from environmental authorities. Scoping allowed the SEA to become focused upon key issues relevant to the environmental components which are specified under the SEA Directive³.

3.4.2 Scoping Notices

Relevant environmental authorities identified under the European Communities (Environmental Assessment of Certain Plans and Programmes), as amended, were sent SEA scoping notices by the National Transport Authority 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 Authority.

³ These components comprise biodiversity, fauna, flora, population, human health, soil, water, air, climatic factors, material assets, cultural heritage including architectural and archaeological heritage, landscape and the interrelationship between the above factors.

3.4.3 Submissions

Submissions were made by four environmental authorities: Northern Ireland Environment Agency, Environmental Protection Agency, Department of Communications, Climate Action and Environment and Department of Culture, Heritage and the Gaeltacht.

Submissions from the Northern Ireland Environment Agency provided information/suggestions on topics including the following that informed the preparation of the Plan and SEA:

- A clear statement indicating the opinion (and the reasons for it), about whether or not the implementation of the Plan, in combination with any identified measures envisaged to prevent, reduce and as fully as possible offset any significant adverse effects on the environment, is likely to have a significant effect on Northern Ireland;
- Marine environment and in particular any transboundary issues;
- Air quality issues; and
- Biodiversity, flora and fauna issues.

A submission from the Environmental Protection Agency provided information/suggestions on topics including the following, which informed the preparation of the Plan and SEA:

- *Ireland's Environment - An Assessment 2016* (EPA, 2016) report and key plans and programmes;
- Implications for greenhouse gas emissions and air quality issues;
- Climate change mitigation and adaptation;
- Alternative fuels, biofuels obligation scheme/smarter travel;
- Noise pollution and lighting; and
- Biodiversity, flora and fauna issues.

A submission from the Department of Communications, Climate Action and Environment provided information/suggestions on topics including the following that have been taken into account by the relevant parts of this report:

- Soil and Geology;
- Material Assets; and

- Datasets and viewers to help with the compilation of the SEA.

A submission from the Department of Culture, Heritage and the Gaeltacht provided information/suggestions on topics including the following that informed the preparation of the Plan and SEA:

- Integration of biodiversity, flora and fauna issues into the Plan; and
- SEA guidance, scope of the Environmental Report and information sources available.

3.5 Environmental Report

In this SEA Environmental Report, an earlier version of which was placed on public display alongside the Draft Plan, the likely environmental effects of the Plan and the alternatives are predicted and their significance evaluated. The Environmental Report provides the Department, stakeholders and the public with a clear understanding of the likely environmental consequences of the Plan.

Mitigation measures to prevent or reduce significant adverse effects posed by the Plan are identified in Section 9 - these have been integrated into the Plan.

The Environmental Report has been updated in order to take account of recommendations contained in submissions and in order to take account of changes that were made to the original Plan that was placed on public display.

The Environmental Report contains the information specified in Schedule 2 of the European Communities (Environmental Assessment of Certain Plans and Programmes) Regulations 2004 (SI No. 435 of 2004), as amended.

No significant difficulties have been encountered during the undertaking of the assessment.

3.6 SEA Statement

On finalisation of the Plan, an SEA Statement is prepared that includes information on:

- How environmental considerations have been integrated into the Plan,

highlighting the changes to the Plan which resulted from the SEA process;

- How the SEA Environmental Report and consultations have been taken into account, summarising the key issues raised in consultations and in the Environmental Report indicating what action was taken in response;
- The reasons for choosing the Plan in the light of other alternatives considered, identifying these alternatives, commenting on their potential effects and explaining why the final Plan was selected; and
- The measures decided upon to monitor the significant environmental effects of implementing of the Plan.

Table 3.1 Checklist of Information included in this Environmental Report

Information Required to be included in the Environmental Report	Corresponding Section of this Report
(A) Outline of the contents and main objectives of the plan or programme, and of its relationship with other relevant plans and programmes	Sections 2, 5 and 8
(B) Description of relevant aspects of the current state of the environment and the evolution of that environment without implementation of the plan or programme	Section 4
(C) Description of the environmental characteristics of areas likely to be significantly affected	Sections 4, 7 and 8
(D) Identification of any existing environmental problems which are relevant to the plan or programme, particularly those relating to European protected sites	Section 4
(E) List environmental protection objectives, established at international, EU or National level, which are relevant to the plan or programme and describe how those objectives and any environmental considerations have been taken into account when preparing the Plan	Sections 5, 7, 8 and 9
(F) Describe the likely significant effects on the environment	Sections 7 and 8
(G) Describe any measures envisaged to prevent, reduce and as fully as possible offset any significant adverse environmental effects of implementing the plan or programme	Section 9
(H) Give an outline of the reasons for selecting the alternatives considered, and a description of how the assessment was undertaken (including any difficulties)	Sections 6, 7 and 8
(I) A description of proposed monitoring measures	Section 10
(J) A non-technical summary of the above information	Non-Technical Summary
(K) Interrelationships between each environmental topic	Addressed as it arises within each Section

Section 4 Relevant aspects of the current state of the Environment

4.1 Introduction

Reflecting the specifications in the SEA Directive, the relevant aspects of the current state of the environment for the following environmental components are identified in this section:

- Air and Climatic Factors;
- Population and Human Health;
- Biodiversity, Flora and Fauna;
- Material Assets;
- Water;
- Landscape;
- Cultural Heritage;
- Soil; and
- The interrelationship between the above factors.

Information which is relevant to lower tier planning and project development and associated environmental assessments is identified (note that Article 5 of the SEA Directive, in accordance with the established European principle of subsidiarity, requires that the Environmental Report includes the information that may reasonably be required taking into account, inter alia, the extent to which certain matters are more appropriately assessed at different levels in that process in order to avoid duplication of the assessment).

4.2 Geographical Scope of the Assessment

The spatial scope of the Plan provisions generally corresponds to the jurisdictions of the seven local authorities of the Greater Dublin Area⁴. However, while the initial legislation governing the Plan was more clearly limited to the delivery of the Transport Strategy for the Greater Dublin Area, subsequent amendments have somewhat diluted this position. While the bulk of the Plan relates solely to the Greater Dublin Area, certain areas such as public transport services

⁴ Dublin City Council, Dún Laoghaire Rathdown County Council, Fingal County Council, South Dublin County Council, Kildare County Council, Meath County Council and Wicklow County Council in addition to an area of County Louth to take account of the Dublin to Drogheda rail line.

and activities related to small public service vehicles, will be dealt with on a national basis. The spatial specificity of the Plan beyond the Greater Dublin Area is reduced and relatively insignificant. Therefore, the spatial scope of the SEA provides greater focus on the Greater Dublin Area while providing sufficient information on national sensitivities and opportunities (through both the baseline and Strategic Environmental Objectives – see Section 5) to allow for an adequately scaled assessment of Plan provisions.

Under the Plan, beyond the Greater Dublin Area, projects are only capable of being proceeded with if they have been included in adopted lower-tier land use/transport Plans and have been subjected to associated appropriate levels of SEA and AA.

Projects that have not been included in adopted lower-tier land use/transport Plans and that have not been subject to associated appropriate levels of SEA and AA cannot be proceeded with until they have been included in adopted lower-tier Plans and subjected to associated appropriate levels of SEA and AA.

The Plan provides a context for lower tier planning, including the specification of mitigations measures/targets (see Section 9 of this report).

Most proposals included within the Plan have been already included within plans that have already been subject to SEA including the Transportation Strategy for the Greater Dublin Area 2016-2035, Project Ireland 2040 (including the National Planning Framework 2018) and the Greater Dublin Area Cycle Network Plan 2016.

4.3 National Reporting on the Environment

The EPA's *"Ireland's Environment - An Assessment 2016"* report provides an integrated assessment of the overall quality of Ireland's environment, the pressures being placed on it and the societal responses to current and emerging environmental issues. This report has informed various parts of the

environmental baseline provided below. The key environmental challenges or messages identified by the report are:

Environment and Health and Wellbeing

Recognising the benefits of a good quality environment to health and wellbeing.

Climate Change

Accelerating mitigation actions to reduce greenhouse gas emissions and implement adaptation measures to increase resilience in dealing with adverse climate impacts.

Implementation of Legislation

Improving the tracking of plans and policies and the implementation and enforcement of environmental legislation to protect the environment.

Restore and Protect Water Quality

Implementing measures that achieve ongoing improvement in the environmental status of water bodies from source to the sea.

Sustainable Economic Activities

Integrating environmental sustainability ideas and performance accounting across economic sectors and sectoral plans should be a key policy for growth.

Nature and Wild Places

Protecting pristine and wild places that act as biodiversity hubs, contributing to health and wellbeing, and providing tourism opportunities

Community Engagement

Informing, engaging and supporting communities in the protection and improvement of the environment.

Chapter 11 of the State of the Environment Report focuses specifically on transport and includes the following key high level messages:

- a. The need to support a modal shift away from the private car to an efficient sustainable transport system through better alignment of land use and transport planning and by making public transport faster, cleaner, more convenient and more affordable.
- b. Ensure that all major transport forms (HGVs, car, bus, train) become much more fuel efficient, as well as incentivising a very significant increase in alternative fuels and electric vehicle use.
- c. Develop a prudent mix of planning, infrastructural investment and fiscal measures to bring about a reduction in transport demand.
- d. For larger urban areas, we need to change our current silo approach and work on many different levels to have a much more integrated network, where all streets are walkable, bikeable and pleasant to live and work in.

The Integrated Implementation Plan facilitates an advancement of these transport related actions.

4.4 Likely Evolution of the Environment in the Absence of a New Plan

The implementation of the Plan is likely to give rise to the following residual adverse environmental effects:

- An extent of travel related greenhouse gas and other emissions to air. This has been mitigated by provisions which have been integrated into the Plan, including those relating to sustainable mobility;
- An extent of travel related greenhouse gas and other emissions to air. This has been mitigated by provisions which have been integrated into the Plan, including those relating to sustainable mobility;
- Loss of an extent of non-protected habitats as a result of new or widened transport infrastructure that involves the replacement of semi-natural land covers with artificial surfaces;
- Losses or damage to ecology (these would be in compliance with relevant legislation);
- Residual wastes (these would be disposed of in line with higher level waste management policies);
- Potential residual losses to built/amenity assets and infrastructure including as a result of new or widened transport infrastructure;
- Flood related risks remain due to uncertainty with regard to extreme weather events;
- Residual visual effects (these would be in compliance with landscape designation provisions);
- Potential alteration to the context and setting of designated cultural heritage however these will occur in compliance with legislation. Potential loss of unknown archaeology however this loss will be mitigated by measures integrated into the Plan; and
- Loss of an extent of soil function arising from the replacement of semi-natural land covers

with artificial surfaces and from sea level rise/coastal erosion.

In the absence of a new Plan, none of the adverse effects detailed above would result due to the implementation of the Plan. However, lower-tier Plans would continue to be reviewed and implemented and applications for permission for new projects would continue to be made. Compliance with the mitigation measures outlined under Section 9 of this report would be necessary in order to help ensure that the following significant adverse environmental effects do not occur:

- Emissions to air and associated issues;
- Potential interactions if effects upon environmental vectors such as air are not mitigated;
- Arising from both construction and operation of transport infrastructure and services and associated facilities/ infrastructure: loss of/damage to biodiversity in designated sites, ecological connectivity and non-designated habitats; and disturbance to biodiversity and flora and fauna;
- Habitat loss, fragmentation and deterioration, including patch size and edge effects;
- Disturbance (e.g. due to noise and lighting along transport corridors) and displacement of protected species and coastal squeeze;
- Effects in riparian zones where new crossings of waters, if any, are progressed;
- Potential effects on vegetation from transport emissions;
- Generation of construction waste;
- Loss or damage to built/amenity assets and infrastructure including as a result of new or widened transport infrastructure;
- Adverse impacts upon the status of water bodies and entries to the WFD Register of Protected Areas, arising from changes in quality, flow and/or morphology;
- Increase in the risk of flooding;
- Occurrence of adverse visual impacts and conflicts with the appropriate protection of statutory designations relating to the landscape;
- Potential effects on protected and unknown archaeology and protected architecture arising from construction and operation activities, including as a result of increasing traffic flows;
- Adverse impacts on the hydrogeological and ecological function of the soil resource as a result of construction of transport and associated transport facilities/ infrastructure;
- Adverse impacts on features or areas of geological / geomorphological interest as a result of construction of transport and associated transport facilities/ infrastructure; and
- Potential for increase in coastal erosion.

In the absence of the Plan, it would be less certain as to which public transport, cycling and walking projects would be progressed or prioritised. Lower-tier plans and projects would be less coordinated. It would be less certain as to whether the positive effects (that would be

facilitated by implementation of the Plan), such as the following, would be achieved:

- A shift from car to more sustainable and non-motorised transport modes;
- Management of traffic flows and associated effects on air quality;
- Reductions in travel related greenhouse gas and other emissions to air and energy usage;
- The development of transport infrastructure and services in locations which will facilitate use by those living and working in urban/suburban areas;
- Reuse and regeneration of brownfield lands thereby contributing towards a higher efficiency of land utilisation, sustainable mobility and a reduction in the need to develop greenfield lands; and
- Enhancement of the public realm (including cultural heritage and its context) in urban areas by facilitating the replacement of motorised modes of transport with more sustainable and non-motorised modes such as walking, cycling and light rail/metro.

4.5 Air and Climatic Factors

4.5.1 Overview

The Plan facilitates a mode shift away from the private car to public transport, walking and cycling and associated positive effects, including those relating to:

- Contributions towards reductions in greenhouse gas emissions and associated achievement of legally binding targets – directly and as a result of facilitating development within urban and suburban areas;
- Contributions towards reductions in consumption of non-renewable energy sources and achievement of legally binding renewable energy targets;
- Energy security; and
- Contributions towards reductions in emissions to air (including noise) and associated achievement of air quality objectives, thereby contributing towards improvement of air quality and protection of human health.

4.5.2 Greenhouse Gas Emissions

The key issue involving the assessment of the effects of implementing the Plan on climatic factors relates to greenhouse gas emissions arising from transport. Interactions are also present with flooding (see Section 4.9.3).

Ireland's Provisional Greenhouse Gas Emissions 1990-2017 (EPA, 2018) details provisional estimates of greenhouse gas emissions for the period 1990-2017. For 2017, total national greenhouse gas emissions are estimated to be 60.75 million tonnes carbon dioxide equivalent (Mt CO₂eq). This is 0.9% lower (0.53 Mt CO₂eq) than emissions in 2016. Greenhouse gas emissions from the Transport sector decreased by 2.4% or 0.29 Mt CO₂eq in 2017. This is the first year of decreased emissions after four successive years of increases in transport emissions. In road transport in 2017, petrol use continued to decrease by 9.8% while diesel use increased by 0.4% and biofuels use increased by 35.6%.

The EPA 2018 publication *Ireland's Greenhouse Gas Emission Projections 2017-2035* provides an assessment of Ireland's

progress towards achieving its emission reduction targets set down under the EU Effort Sharing Decision (Decision No 406/2009/EC) for the years 2013-2020 and a longer term assessment based on current projections. Ireland's 2020 target is to achieve a 20% reduction of non-Emission Trading Scheme (non-ETS) sector emissions (i.e. agriculture, transport, the built environment, waste and non-energy intensive industry) on 2005 levels with annual limits set for each year over the period 2013-2020. Key Insights identified as part of the report's package of documents are that:

- Latest EPA greenhouse gas emissions projections indicate an overall increase in greenhouse gas emissions from most sectors. The projected growth in emissions is largely underpinned by projected strong economic growth and relatively low fuel prices leading to increasing energy demand over the period.
- The positive impact on emissions of existing and planned policies and measures is tempered by the strong economic outlook and associated increase in energy demand.
- Ireland is not projected to meet 2020 emissions reduction targets and is not on the right trajectory to meet longer term EU and national emission reduction commitments.
- Fossil fuels such as coal and peat continue to be key contributors to emissions from the power generation sector and the extent of their use will be a key determinant in influencing future emissions trends from this sector.
- A strong growth in emissions projections from the transport sector is attributed to a rise in fuel consumption particularly for diesel cars and diesel freight up to 2025. A projected accelerated deployment of electric vehicles between 2025 and 2030 does however result in a projected decline in emissions during this period.
- Agriculture emissions are projected to continue to grow steadily over the period. This is based on an updated outlook which sees an increase in animal numbers particularly for the dairy herd.
- The gap between the two scenarios – With Existing Measures and With

Additional Measures – is narrowing over the period to 2020 indicating that mitigation options in the short-term are largely established.

- These projections do not consider the impact of policies and measures that form part of the recently announced National Development Plan or the full impact of policies and measures included in the National Mitigation Plan. It is anticipated that additional impact will be provided to the EPA by relevant Government Departments and Agencies and included in the 2019 Emission Projections.

The contribution by the transport sector to Ireland's greenhouse gas emissions highlights the need for a concerted effort to reduce transport emissions. In the transport sector, emissions are projected to increase from current levels by 14-15% by 2020, peaking at 24-26% in 2025, and falling to by 18-21% by 2030. The projected decline in emissions from 2025 to 2030 is due to the assumption of an acceleration in the number of electric vehicles on Irish roads. After 2030, emissions from transport are projected to start increasing again.

Ireland's National Policy position is to reduce CO₂ emissions in 2050 by 80% on 1990 levels across the Energy Generation, Built Environment and Transport sectors, with a goal of Climate neutrality in the Agriculture and Land-Use sector. The 2016 emissions for all of these sectors are rising, making achievement of long-term goals more difficult.

The National Mitigation Plan (Department of Communications, Climate Action and Environment, 2017), represents an initial step to set Ireland on a pathway to achieve the level of decarbonisation required. It is a whole-of-Government Plan, reflecting in particular the central roles of the key Ministers responsible for the sectors covered by the Plan – Electricity Generation, the Built Environment, Transport and Agriculture, as well as drawing on the perspectives and responsibilities of a range of other Government Departments.

The National Adaptation Framework (Department of Communications, Climate Action and Environment, 2018), sets out the national strategy to reduce the vulnerability of the country to the negative effects of climate change and to avail of positive impacts. The National Adaptation Framework outlines a

whole of government and society approach to climate adaptation. Under the Framework a number of Government Departments will be required to prepare sectoral adaptation plans in relation to a priority area that they are responsible for. A non-Statutory sectoral adaptation plan for the transport sector "Adaptation Planning: Developing Resilience to Climate Change in the Irish Transport Sector" was published by the Department of Transport, Tourism and Sport in 2017. It is understood that a statutory Adaptation Plan for the transport sector to comply the requirements of the Climate Action and Low Carbon Development Act 2015 will be prepared.

Since the base year (1990), Northern Ireland's total greenhouse gas emissions have decreased by 17.8% from 25.2 to 20.7 million tonnes of carbon dioxide equivalent (MtCO₂e). This is less than the reduction seen for the UK as a whole, which saw a decrease of 38.2% compared to the base year. The largest sources of emissions in 2015 were agriculture (29%), transport (21%) and energy supply (19%). Most sectors showed a decreasing trend since the base year, the largest decreases were in the energy supply, residential and waste sectors. They were driven by improvements in energy efficiency, fuel switching from coal to natural gas, which became available in the late 1990s, and the introduction of methane capture and oxidation systems in landfill management. Between 2014 and 2015, emissions from the transport and agriculture sectors accounted for most of the increase⁵.

4.5.3 Alternative Fuels and Renewable Electricity Generation Targets

The use of alternative fuels, including electricity, forms a significant part of government policy to reduce transport emissions. The Plan facilitates a mode shift away from the private car to public transport, walking and cycling and provisions relating to electric vehicles. This will contribute towards reductions in the consumption of non-renewable energy sources and achievement of legally binding renewable energy targets.

⁵ Information in this paragraph is taken from Northern Ireland's Environmental Statistics Report 2018

Renewable Energy Directive (Directive 2009/28/EC) requires each Member State to adopt a national renewable energy action plan (NREAP) to set out Member States' national targets for the share of energy from renewable sources consumed in transport, electricity and heating in 2020 that will ensure delivery of the overall renewable energy target. These sectoral targets are referred to as RES-E (electricity), RES-T (transport) and RES-H (heat).

The overall target for Ireland in Directive 2009/28/EC is a 16% share of renewable energy in Gross Final Consumption (GFC) by 2020. Under the Directive (2009/28/EC), Ireland is obliged to deliver 10% of transport energy by renewable sources by 2020⁶.

The Draft Bio Energy Plan commitment to continuation of the Bio Fuels Obligation Scheme is relevant to the Plan and will remain a key means by which Ireland's 2020 10% renewable transport target is likely to be met.

4.5.4 Energy Security

Greater use of alternative fuels, including renewable energy, has the potential to further contribute towards energy security.

Indigenous production accounted for 32% of Ireland's energy requirements in 1990. However, since the mid-1990s import dependency had grown significantly, due to the increase in energy use together with the decline in indigenous natural gas production at Kinsale since 1995 and decreasing peat production. Ireland's overall import dependency reached 90% in 2006. It varied between 85% and 90% until 2016 when it fell to 69%. This trend reflects the fact that Ireland is not endowed with significant indigenous fossil fuel resources and has only in recent years begun to harness significant quantities of renewable resources and more recently natural gas from the Corrib field.

4.5.5 Journeys in the Greater Dublin Area

Operating under a contract with the Authority, Dublin Bus carried a total of c.136 million passengers in 2017. When combined with Bus

Éireann commuter services in the Dublin region, 143 million passengers were carried on State operated bus services in the Dublin area, compared with 38 million on Luas and 33 million passengers on the DART and rail commuter services.

In percentage terms, the bus system accounts for over 67% of public transport passenger journeys in the Greater Dublin Area. That means that whilst the bus carries two thirds of all public transport passengers, Luas carries 18% and DART plus commuter rail services deliver the remaining 15%.

Figure 4.1 maps journeys by car taken as a percentage of all journeys taken (2011 base year). The lowest amount of journeys by car taken as a percentage of all journeys taken occur in areas in Dublin within the M50, in areas surrounding the M50 along the M4, M7, N81 and R156. The highest amount of journeys by car taken as a percentage of all journeys taken occur in more rural areas, away from settlements.

⁶ Department of Communications, Climate Action and Environment (2017) National Renewable Energy Action Plan Fourth Progress Report submitted under Article 22 of Directive 2009/28/EC

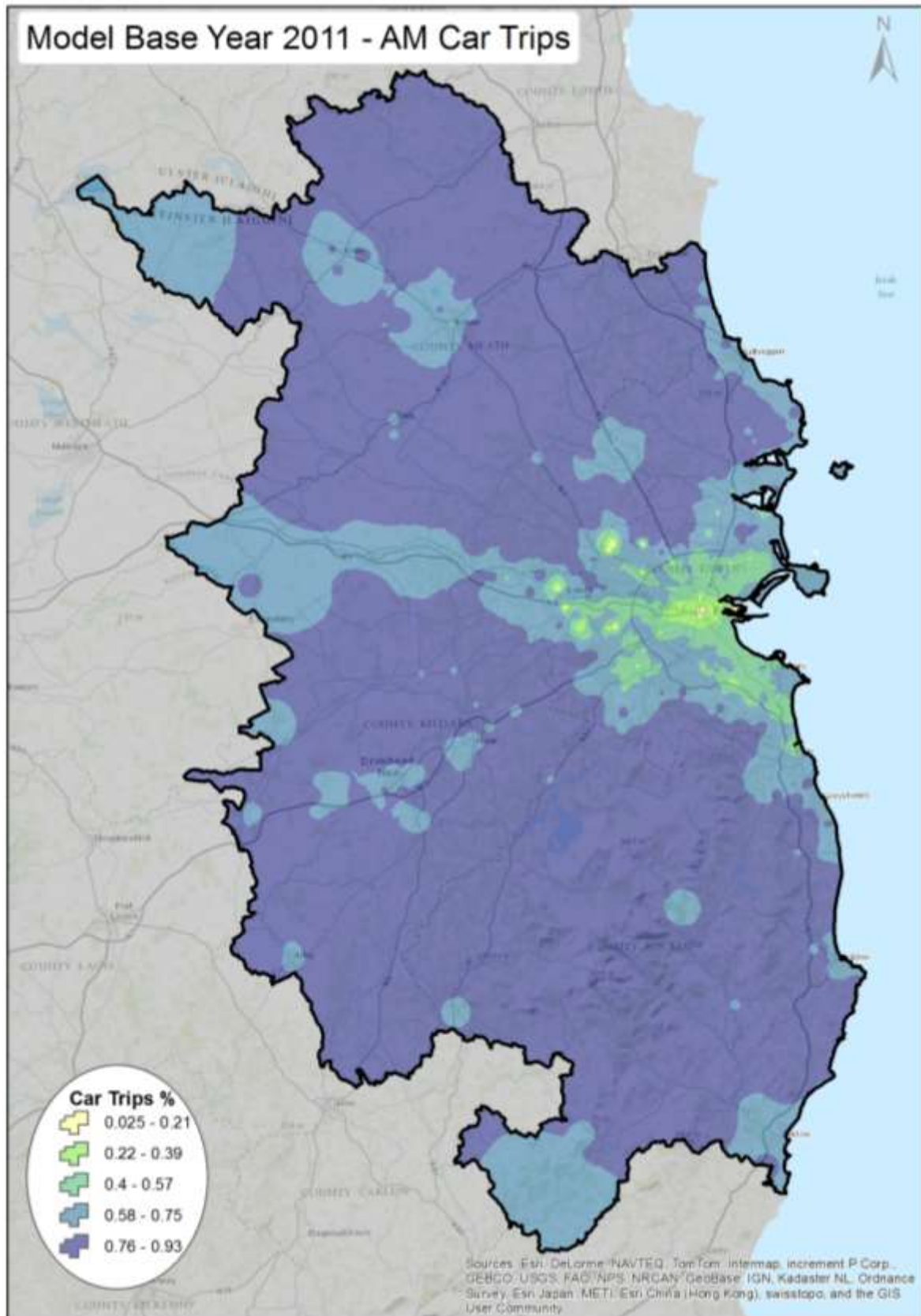


Figure 4.1 Journeys by car taken as a percentage of all journeys taken (2011 base year)

4.5.6 Ambient Air Quality

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

The principles to this European approach are set out in the Ambient Air Quality and Cleaner Air for Europe (CAFE) Directive (2008/50/EC) (which replaces the earlier Air Quality Framework Directive 1996 and the first, second and third *Daughter Directives*; the fourth *Daughter Directive* will be included in CAFE at a later stage).

In order to comply with the directives mentioned above, the EPA measures the levels of a number of atmospheric pollutants. For the purposes of monitoring in Ireland, four zones are defined in the Air Quality Standards Regulations 2002 (SI No. 271 of 2002).

The EPA's (2018) *Air Quality in Ireland 2017* identifies that:

- No levels above the EU limit value were recorded at any of the ambient air quality network monitoring sites in Ireland in 2017;
- The tighter World Health Organisation (WHO) guideline values were exceeded at a number of monitoring sites for particulate matter (PM₁₀ and PM_{2.5}), ozone and NO₂; and
- 2017 dioxin survey shows that concentrations of dioxins and similar pollutants remain at a consistently low level in the Irish environment.

Air pollution from transport is dominated by NO_x emissions. Of these, NO₂ is particularly impactful from a health perspective. The report describes that concentrations of NO₂ at urban areas in Ireland are close to the EU annual limit value. The potential implications for air quality with increases in traffic numbers or from certain weather conditions unfavourable to dispersion of pollutants could result in exceedances of the EU limit value.

The report states that:

- "Short-term exposure to NO₂ is linked to adverse respiratory effects including airway inflammation in healthy people and increased respiratory symptoms in asthmatics.
- Long-term exposure is associated with increased risk of respiratory infection in children. NO_x is a major precursor in the formation of ground level ozone. It is also a major precursor in the formation of photochemical 'smog'."

With regards to solutions, the report identifies possible actions that could help improve and maintain local air quality. These include:

- Any shift from the burning of solid fuel to cleaner, more energy efficient methods of home heating which will result in cleaner air quality for the consumer, their family and neighbours with a resultant improvement in their health; and
- A transition in modes of transport away from the use of the private diesel and petrol powered motor cars to alternative modes of transport such as walking, cycling and forms of transport that are environmentally friendly and sustainable such as electric motor powered vehicles. This is especially important in our at-risk urban environments.

The most recent air quality report for Northern Ireland "Air Pollution in Northern Ireland 2017" (Department of Agriculture, Environment and Rural Affairs, 2019) identifies that EU limit values, target values and corresponding Air Quality Strategy objectives, have been met by the due dates for the following pollutants in Northern Ireland: particulate matter as PM₁₀ and PM_{2.5}, carbon monoxide, benzene, sulphur dioxide and elements lead, arsenic, cadmium and nickel. However, two monitoring sites with sufficient data for a valid annual mean did not meet the limit values and objectives for nitrogen dioxide in 2017; Belfast Stockman's Lane and Downpatrick Roadside. All are traffic-related sites.

The Plan facilitates improvements in sustainable mobility, thereby facilitating reductions in and limiting increases of emissions to air. Such emissions would occur

otherwise with higher levels of motorised transport and associated traffic.

4.5.7 Noise

Noise is unwanted sound. The Noise Directive - Directive 2002/49/EC relating to the assessment and management of environmental noise - is part of an EU strategy setting out to reduce the number of people affected by noise in the longer term and to provide a framework for developing existing EU policy on noise reduction from source. The Directive requires competent authorities in Member States to:

- Draw up *strategic noise maps* for major roads, railways, airports and agglomerations, using harmonised noise indicators⁷ and use these maps to assess the number of people which may be impacted upon as a result of excessive noise levels;
- Draw up action plans to reduce noise where necessary and maintain environmental noise quality where it is good; and,
- Inform and consult the public about noise exposure, its effects, and the measures considered to address noise.

In compliance with the Directive and transposing Environmental Noise Regulations (S.I. No. 140 of 2006), Noise Action Plans have been prepared for each local authority area within the country. These action plans address the agglomeration of Dublin and major roads, railways and airports. The Action Plans include noise mapping and are required to include measures to manage noise issues and effects, including noise reduction if necessary.

Noise mapping across the Greater Dublin Area from the EPA's third round of strategic noise mapping of roads, rail and Dublin airport, in the form of noise contours for the L_{den} (day, evening, night; a measurement over 24 hours) period harmonised noise indicator for the Dublin agglomeration and the major roads outside of the agglomeration is provided on Figure 4.2.

4.5.8 Existing Problems

Legislative objectives governing air and climatic factors were not identified as being conflicted with.

However, the Climate Change Advisory Council's Annual Review 2018 has identified that Ireland will miss 2020 and 2030 emissions reduction targets unless urgent action that leads to tangible and substantial reductions in greenhouse gas emissions is taken. The Integrated Implementation Plan will, in combination with various plans and programmes from the transport sector and from other sectors, contribute towards reducing greenhouse gas emissions and moving in the direction of these targets.

With regard to air quality, it is the transport sector which has the greatest impact on NO_2 concentrations, particularly in urban areas where the WHO guideline value, approaching the EU limit value and could face exceedances of this EU limit in the future if vehicle numbers continue to rise. The Transport Plan will help to facilitate reductions in emissions and a transition from dependence on fossil fuel combustion powered transport.

⁷ L_{den} (day-evening-night equivalent level) and L_{night} (night equivalent level)

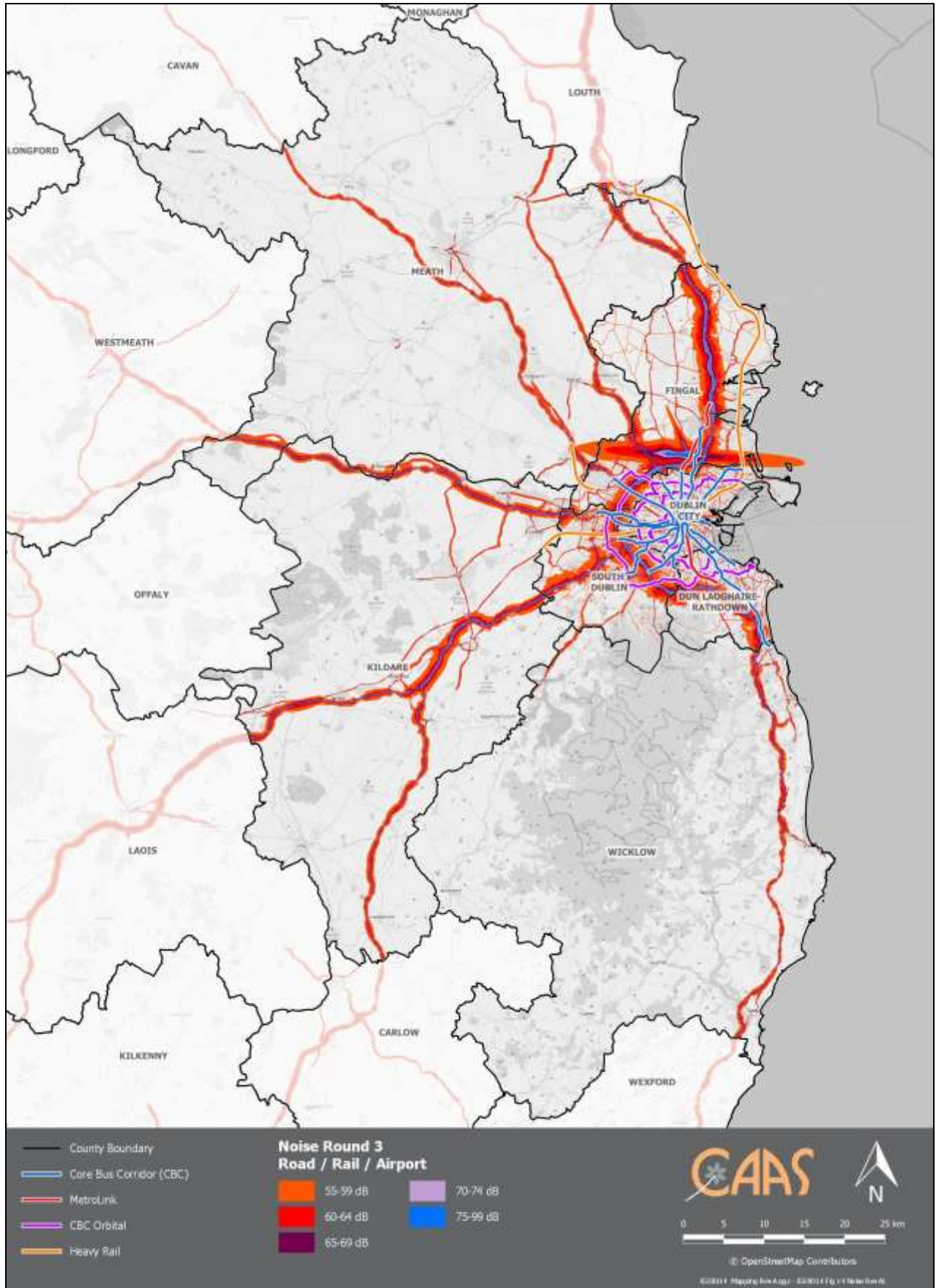


Figure 4.2 Noise Mapping L_{den} (day, evening, night; a measurement over 24 hours)

4.6 Population and Human Health

4.6.1 Population

Most users of transport infrastructure and services will reside in and commute to and from urban/suburban areas.

A spread of settlement areas occurs throughout the country with a generally higher concentration of settlement areas in the eastern half of the country. The biggest settlements comprise Dublin, Galway, Cork, Limerick and Belfast in Northern Ireland

Figure 4.3 shows population density per Electoral Division across the Greater Dublin Area. Population for each division has been classified into ten categories with an equal number of units in each category. The most populous divisions are generally concentrated within and surrounding the M50 motorway, along the coast (as far south as Wicklow), in areas of Meath closest to Dublin and within North-East Kildare and along the M7 corridor. The uplands in County Wicklow, North-West and South Kildare and North County Meath are among the least populous divisions.

Locating transport infrastructure and services closer to urban/suburban areas (which have higher populations and densities) will allow for a greater number of journeys via sustainable transport modes and associated positive environmental effects on energy usage and air and noise emissions.

4.6.2 Human Health

With regard to human health, impacts relevant to the SEA are those which arise as a result of interactions with environmental vectors (i.e. environmental components such as air, water or soil through which contaminants or pollutants, which have the potential to cause harm, can be transported so that they come into contact with human beings). Hazards or nuisances to human health can arise as a result of exposure to these vectors e.g. interactions with human health that could occur in urban locations that experience high levels of traffic congestion and associated particulate matter and noise emissions to air.

Transport issues that present potential interactions with human health include

emissions to air including noise and other emissions. These issues are identified under the relevant environmental component and potential interactions have been taken into account by the provisions contained within the Integrated Implementation Plan.

Emission limits for discharges to air, soil and water are set with regards to internationally recognised exposure limit values. These are generally set to be many times the safe exposure limit - in order to provide protection. In the event that a plan or programme began to have adverse health effects on surrounding populations it is likely that it would have been identified as being in breach of such emission standards at a very early stage - and long before the manifestation of any adverse health effects in the population.

4.6.3 Existing Problems

There is historic and predictive evidence of flooding across the country (see Section 4.9.3).

Issues relating to emissions to air are detailed under Section 4.5.

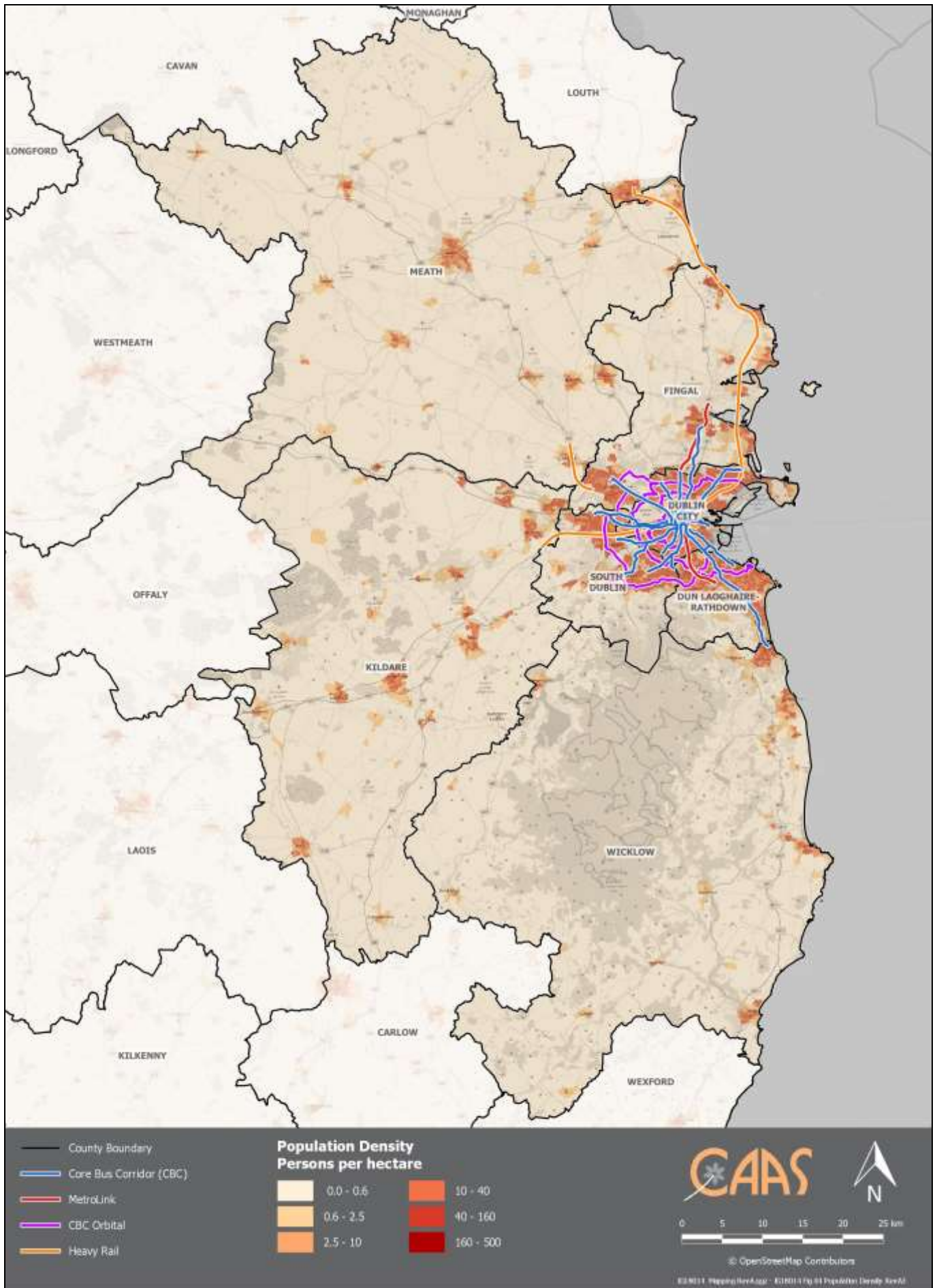


Figure 4.3 Population Density

4.7 Biodiversity and Flora and Fauna

Information on biodiversity and flora and fauna which is relevant to lower tier project planning and development and associated environmental assessment includes available information on designated ecological sites and protected species, ecological connectivity (including stepping stones and corridors) and non-designated habitats.

Habitats occurring in Ireland include:

- Coastal habitats including sand and machair systems and sea inlets;
- Upland habitats including blanket bogs, heaths and forests;
- Lowland habitats including raised bogs and agricultural lands;
- Surface waters including rivers, lakes and estuaries;
- Limestone pavements, calcareous springs and turloughs, including those concentrated in the Burren (an example of geological heritage); and
- Ancient and semi-natural woodlands of oaks, yew and pine.

Ecological designations include:

- Special Areas of Conservation⁸ (SACs), including candidate SACs;
- Special Protection Areas⁹ (SPAs);
- UNESCO World Heritage and UNESCO Biosphere sites¹⁰;

⁸ SACs have been selected for protection under the European Council Directive on the conservation of natural habitats and of wild fauna and flora (92/43/EEC) due to their conservation value for habitats and species of importance in the European Union. The Habitats Directive seeks to establish Natura 2000, a network of protected areas throughout the EU. It is the responsibility of each member state to designate SACs to protect habitats and species, which, together with the SPAs designated under the 1979 Birds Directive, form Natura 2000. The European Communities (Birds and Natural Habitats) Regulations 2011 consolidate the European Communities (Natural Habitats) Regulations 1997 to 2005 and the European Communities (Birds and Natural Habitats) (Control of Recreational Activities) Regulations 2010. The Regulations have been prepared to address several judgments of the Court of Justice of the European Union (CJEU) against Ireland, notably cases C-418/04 and C-183/05, in respect of failure to transpose elements of the Birds Directive and the Habitats Directive into Irish law.

⁹ SPAs have been selected for protection under the 1979 European Council Directive on the Conservation of Wild Birds (79/409/EEC) - referred to as the Birds Directive - due to their conservation value for birds of importance in the European Union.

- Ramsar Sites¹¹;
- Salmonid Waters¹²;
- Shellfish Waters¹³;
- Freshwater Pearl Mussel catchments¹⁴;
- Flora Protection Order¹⁵ sites;
- Wildlife Sites (including Nature Reserves¹⁶);
- Certain entries to the Water Framework Directive Register of Protected Areas¹⁷;

¹⁰ United Nations Educational, Scientific and Cultural Organization (UNESCO) World Heritage List comprises sites of outstanding universal value: cultural, natural or mixed. The UNESCO Biosphere Reserves List comprises areas of terrestrial and coastal ecosystems promoting solutions to reconcile the conservation of biodiversity with its sustainable use.

¹¹ Ramsar sites are designated and protected under the Convention of Wetlands of International Importance, especially as Water Fowl Habitat, which was established at Ramsar in 1971 and ratified by Ireland in 1984. Ireland presently has 45 sites designated as Wetlands of International Importance, with surface areas of 66,994 hectares. The objective of a Ramsar site is the conservation of wetlands for wildfowl. While Ireland ratified the Ramsar Convention in 1984 there is no legal backing for Ramsar sites unless they are also Nature Reserves or SPAs and as such are protected by the Wildlife Acts 1976-2012 or the Birds or Habitats Directives.

¹² Salmonid waters are designated and protected as under the European Communities (Quality of Salmonid Waters) Regulations 1988 (SI No. 293 of 1988). Designated Salmonid Waters are capable of supporting salmon (*Salmo salar*), trout (*Salmo trutta*), char (*Salvelinus*) and whitefish (*Coregonus*).

¹³ In order to protect existing shellfish waters and to ensure the future protection of these areas, the European Union introduced the Shellfish Waters Directive (2006/113/EC). The purpose of this Directive is to put in place concrete measures to protect waters, including shellfish waters, against pollution and to safeguard certain shellfish populations from various harmful consequences, resulting from the discharge of pollutant substances into the sea. The Directive applies to the aquatic habitat of bivalve and gastropod molluscs only (includes oysters, mussels, cockles, scallops and clams). It does not include crustaceans such as lobsters, crabs and crayfish.

¹⁴ Freshwater pearl mussel is a globally threatened, long-lived and extremely sensitive species that can be impacted by many forms of pollution, particularly sediment and nutrient pollution and by hydrological and morphological changes, which may arise from developments, activities or changes in any part of the catchment.

¹⁵ The current list of plant species protected by Section 21 of the Wildlife Act, 1976 is set out in the Flora (Protection) Order, 1999.

¹⁶ A Nature Reserve is an area of importance to wildlife, which is protected under Ministerial order. There are currently 78 Statutory Nature Reserves. Most are owned by the State but some are owned by organisations or private landowners.

¹⁷ In response to the requirements of the Water Framework Directive a number of water bodies or parts of water bodies which must have extra controls on their quality by virtue of how their waters are used by wildlife have been listed on Registers of Protected Areas (RPAs). RPAs include those for Protected Habitats or Species, Shellfish, Salmonid, Nutrient Sensitive Areas, Recreational Waters and Drinking Water.

- Natural Heritage Areas (NHAs) and proposed Natural Heritage Areas (pNHAs)¹⁸;
- Wildfowl Sanctuaries (see S.I. 192 of 1979)¹⁹;
- National Parks²⁰;
- Refuges for Flora and Fauna²¹;
- Biogenic Reserves²²; and
- Tree Preservation Orders (TPOs)²³.

Ecological designations in Northern Ireland include:

- European Sites (see description above);
- Areas of Special Scientific Interest (ASSIs)²⁴;
- Nature Reserves²⁵; and
- Ramsar Sites (see description above).

Protected Species include:

- Annex IV (Habitats Directive) species of flora and fauna, and their key habitats (i.e. breeding sites and resting places), which are strictly protected wherever they occur,

whether inside or outside the above sites, e.g. Otter and bats;

- Other species of flora and fauna and their key habitats which are protected under the Wildlife Acts, 1976-2012, wherever they occur; and
- 'Protected species and natural habitats' as defined in the European Liability Directive (2004/35/EC) and European Communities (Environmental Liability) Regulations, 2008, including: Birds Directive – Annex I species and other regularly occurring migratory species, and their habitats (wherever they occur) and Habitats Directive – Annex I habitats, Annex II species and their habitats, and Annex IV species and their breeding sites and resting places (wherever they occur).

The following information is relevant to ecological networks and connectivity and non-designated habitats:

- CORINE land cover mapping (including areas likely to contain a habitat listed in Annex 1 of the Habitats Directive)²⁶;
- Watercourses, wetlands and peatlands;
- Other relevant County Development Plan designations;
- The EPA's Framework National Ecological Network for Ireland²⁷;
- Areas that are recognised as locally important for biodiversity or nature (e.g. in County Biodiversity and/or Development Plans, semi-natural habitats including wetlands and woodlands); and
- Other sites of high biodiversity value or ecological importance as identified by, for example, the Department of Agriculture, Food and the Marine

¹⁸ NHAs are designated due to their national conservation value for ecological and/or geological/geomorphological heritage. They cover nationally important semi-natural and natural habitats, landforms or geomorphological features, wildlife plant and animal species or a diversity of these natural attributes. NHAs are designated under the Wildlife (Amendment) Act 2000. pNHAs were published on a non-statutory basis in 1995, but have not since been statutorily proposed or designated. These sites are of significance for wildlife and habitats.

¹⁹ Wildfowl Sanctuaries are areas that have been excluded from the 'Open Season Order' so that game birds can rest and feed undisturbed. There are 68 sanctuaries in the State. Shooting of game birds is not allowed in these sanctuaries.

²⁰ Designated as per criteria of the International Union for the Conservation of Nature 1969.

²¹ As provided for by the Wildlife Acts 1976-2012.

²² The objective of this designation is conservation of representative examples of natural European heritage, scientific research and exchange of information. The Council of Europe launched the concept of a European Network of Biogenetic Reserves in 1973, the programme was started in 1976.

²³ TPOs are a planning mechanism whereby individual trees or groups of trees can be identified as important and protected by a TPO.

²⁴ Areas of Special Scientific Interest (ASSIs) are protected areas that represent the best of Northern Ireland's wildlife and geological sites that make a considerable contribution to the conservation of Northern Ireland's most valuable natural places.

²⁵ Nature reserves are chosen from among the very best examples of Northern Ireland's wildlife, habitats and geology. They contain a wide range of species, communities and geology and their designation is a public recognition of their importance.

²⁶ The CORINE land cover mapping classifies land cover under various headings. This dataset allows for the identification of lands that are likely to be most valuable to biodiversity including those which are likely to contain a habitat listed in Annex 1 of the Habitats Directive e.g. natural grasslands, peat bogs, salt marshes. CORINE Land Cover (CLC) is a map of the European environmental landscape based on interpretation of satellite images. Land cover is the observed physical cover, as seen from the ground or through remote sensing, including for example natural or planted vegetation, water and human constructions which cover the earth's surface.

²⁷ The EPA's Framework National Ecological Network provides a classification of the relative importance of areas by virtue of the biodiversity and flora that they contain and the connectivity they provide. Many of the areas identified are corridors.

(badger sets), relevant datasets from the National Biodiversity Data Centre and BirdWatch Ireland's 'Important Bird Areas' (Crowe et al., 2009).

Ecological networks are important in connecting areas of local biodiversity with each other and with nearby designated sites so as to prevent islands of habitat from being isolated entities. They are composed of linear features, such as treelines, hedgerows and rivers/streams, which provide corridors or stepping stones for wildlife species moving within their normal range. They are important for the migration, dispersal and genetic exchange of species of flora and fauna particularly for mammals, especially for bats and small birds and facilitate linkages both between and within designated ecological sites, the non-designated surrounding countryside and urban areas.

Article 10 of the Habitats Directive recognises the importance of ecological networks as corridors and stepping stones for wildlife, including for migration, dispersal and genetic exchange of species of flora and fauna. The

Directive requires that ecological connectivity and areas of ecological value outside the Natura 2000 network of designated ecological sites are maintained.

Ecological islands or areas of habitat that are not connected to surrounding ecologically valuable habitats can also be important.

In general, and on a national level, ecological sensitivities occur in greatest concentrations in the western half of the country and in particular along the western seaboard (including north-western and south-western coasts). Designated inland areas are generally concentrated around water bodies, bogs and upland areas. Other areas of significant extent designated include estuaries, islands and mountain areas, including those at the Wicklow Mountains to the south of Dublin.

Within the Greater Dublin Area, areas containing the greatest extent of sensitive ecological features include coastal habitats (including intertidal flats, islands, sand and dunes) and those in the uplands of County Wicklow (including peat bogs and forests). In addition to coastal waters there are a number of rivers and lakes draining the area which provide habitats for sensitive species. Dublin has the least concentration of sensitive

habitats, although Dublin Bay is heavily designated. Wicklow's sensitivities include peat bogs and forest areas, including those found in the uplands, and coastal areas. Kildare's sensitivities include peat bogs in the North-West of the County. Dispersed areas of marginal agricultural lands that may include ecological sensitivities generally occur in Counties Meath, Kildare and Wicklow.

4.7.1 Further Detail

4.7.1.1 European Sites

Additional information on European Sites is provided in the AA Natura Impact Report which accompanies the Plan and this Environmental Report on public display.

Figure 4.4 maps European Sites within 15km of the Greater Dublin Area. The greatest extent of area designated within the Greater Dublin Area comprises the Wicklow Mountains. Lands at the coastal margins and coastal waters are also designated. Other European Sites designations include river systems (e.g. River Boyne and Blackwater in West and North Meath, River Barrow and Nore in West and South Kildare and River Slaney in South Kildare) and patches of bog designations (primarily in West Kildare).

4.7.1.2 Natural Heritage Areas, Proposed Natural Heritage Areas and Areas likely to contain Annex I Habitats

Natural Heritage Areas (NHAs), proposed Natural Heritage Areas (pNHAs) and areas likely to contain habitats listed on Annex I of the Habitats Directive are illustrated on Figure 4.5. Where they occur, pNHA and NHA designations often overlap with European Site boundaries. On national level greater concentrations of these sites occur in the western half of Ireland (including counties of Kerry, Clare, Galway, Mayo, Sligo and Donegal) and elsewhere in the country around lakes, bog areas, the Grand and Royal Canals, Shannon Estuary, Wicklow uplands, and coastal areas including islands and marine waters. Within the Greater Dublin Area they include lakes, bog areas, the Grand and Royal Canals and coastal areas including islands and waters.

Areas likely to contain Annex I Habitats comprise selected 2012 CORINE land cover mapping entries which are indicative of these

areas: broad-leaved forest, peat bog, natural grassland, water bodies, coastal lagoons, mixed forests, moors and heaths, intertidal flats, beaches dunes sand, inland marshes, stream courses, estuaries, sparsely vegetated areas, burnt areas, salt marshes, bare rocks, transitional woodland scrub and land principally occupied by agriculture with areas of natural vegetation. In the Greater Dublin Area, these areas cover much of the uplands and foothills of County Wicklow, the bogs in Kildare and smaller pockets elsewhere.

4.7.2 Existing Problems

Previous changes in land uses arising from human development have resulted in a loss of biodiversity and flora and fauna however legislative objectives governing biodiversity and fauna were not identified as being conflicted with.

The Plan includes robust measures to contribute towards the protection of biodiversity and flora and fauna.

CAAS for the National Transport Authority

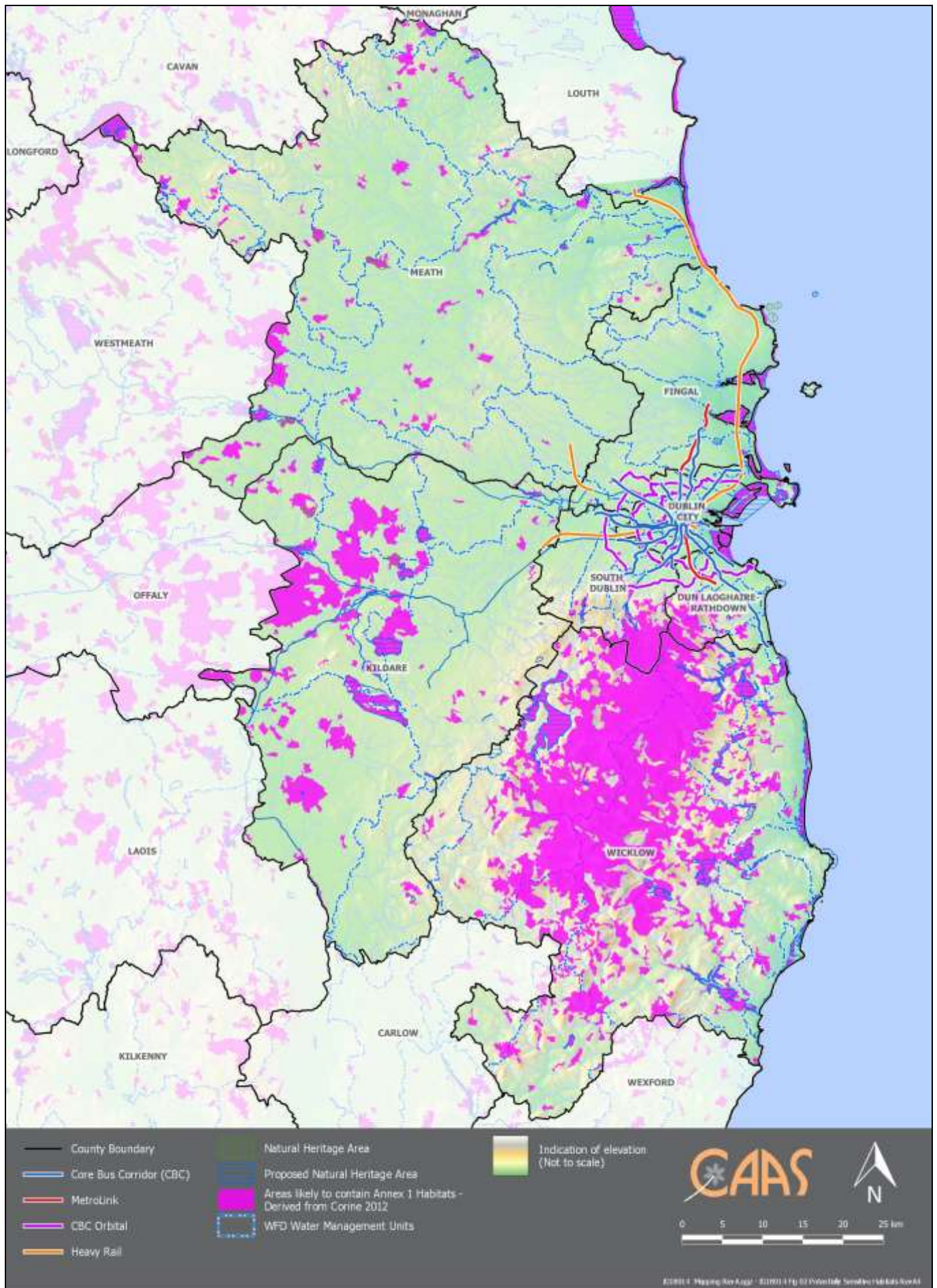


Figure 4.5 Potential Habitat Sensitivity

4.8 Material Assets

4.8.1 Introduction

Resources that are valued and that are intrinsic to specific places are called 'material assets'. Material Assets relevant to this SEA include:

- Built/amenity assets and infrastructure;
- Land; and
- Waste management.

Other material assets covered by the SEA include archaeological and architectural heritage (see Section 4.11) natural resources of economic value, such as air and water (see Sections 4.5 and 4.9).

4.8.2 Built/Amenity Assets and Infrastructure

Built/amenity assets and infrastructure which have the potential to be impacted upon by the development of transport infrastructure, if unmitigated, include public open spaces, parks and recreational areas, public buildings and services, housing and utility infrastructure (electricity, gas, telecommunications, water supply, wastewater infrastructure etc.). These resources are generally located within the immediate outskirts of urban/suburban areas.

4.8.3 Land

The development of transport infrastructure and services has the potential to enable the reuse and regeneration of brownfield sites thereby contributing towards sustainable mobility and reducing the need to develop greenfield lands and associated adverse environmental effects. Brownfield lands are generally located within urban/suburban areas. Further information on land cover types and land take is provided under Sections 4.10 and 4.12.

4.8.4 Waste Management

Any construction waste arising from the development of infrastructure is required to be dealt with in compliance with relevant EU and National waste management policy, including that relating to the waste hierarchy of

prevention, recycling, energy recovery and disposal.

For the purposes of waste management planning, Ireland is now divided into three regions: Southern, Eastern-Midlands and Connacht-Ulster. Waste management plans for each waste management region were published in 2015.

The 2016 EPA Report "Ireland's Environment - An Assessment 2016" identifies that 11.91 Mt of waste was generated in Ireland during 2014. Of this total, 23% was generated by municipal sources, 28% by construction and demolition sources and 49% by other sources such as industry and agriculture. The bulk of construction and demolition waste is made up of uncontaminated soil and stones, with the remainder segregated wastes such as rubble, concrete, bricks, glass, plastic, wood, metals and mixed construction and demolition waste.

4.8.5 Existing Problems

No existing problems relevant to the SEA relating to material assets were identified by the assessment.

4.9 Water

4.9.1 The Water Framework Directive

Since 2000, Water Management in the EU has been directed by the Water Framework Directive 2000/60/EC (WFD). The WFD requires that all Member States implement the necessary measures to prevent deterioration of the status of all waters - surface, ground, estuarine and coastal - and protect, enhance and restore all waters with the aim of achieving *good status*. All public bodies are required to coordinate their policies and operations so as to maintain the *good status* of water bodies which are currently unpolluted and improve polluted water bodies to *good status*.

Article 4 of the WFD sets out various exemptions for deterioration in status caused as a result of certain physical modifications to water bodies. This is provided: all practicable mitigation measures are taken; there are reasons of overriding public interest or the benefits to human health, safety or sustainable development outweigh the benefits in

achieving the WFD objective; there are no better alternatives; and the reasons for the physical modification are explained in the River Basin Management Plan (RBMP).

The EU's Common Implementation Strategy Guidance Documents No. 20 and 36 provide guidance on exemptions to the environmental objectives of the WFD.

For the purpose of assessment, reporting and management, water is divided into groundwater, rivers, lakes, estuarine waters and coastal waters which are in turn divided into specific, clearly defined water bodies.

4.9.2 Catchment Characterisation

4.9.2.1 Status of surface and ground waters

WFD Monitoring Programmes are undertaken in Ireland by the Environmental Protection Agency and in Northern Ireland by the Department of the Environment's Northern Ireland Environmental Agency. Overviews of the status for monitored waterbodies are published and made available online. The WFD defines surface water status as the general expression of the status of a body of surface water, determined by the poorer of its ecological status and its chemical status. For example, if the ecological status is *good* and the chemical status *moderate* the overall status of the surface water body is identified as the poorer of the two i.e. as *moderate* status. Thus, to achieve *good* surface water status both the ecological status and the chemical status of a surface water body need to be at least *good*.

Ecological status is an expression of the structure and functioning of aquatic ecosystems associated with surface waters. Such waters are classified as being of *good* ecological status when they meet Directive requirements.

Chemical Status is a pass/fail assignment with a failure defined by a face-value exceedance of an Environmental Quality Standards (EQS) for one or more Priority Action Substances (PAS) listed in Annex X of the Water Framework Directive (WFD). The EQS values for individual PAS substances are set at European level. *Good* surface water chemical status means that concentrations of pollutants in the water body do not exceed the

environmental limit values specified in the Directive.

The most recent EPA assessment of water quality monitoring data in Ireland was undertaken for 2013-2015²⁸. The 2013-15 status information shows 57% of river water bodies, 46% of lakes, 31% of transitional waters and 79% of coastal waters achieving "good" or "high" status. For groundwater, 91% of water bodies are at "good" status. Nationally the number of monitored river water bodies and lakes at "good" or "high" status appears to have declined by 4% since 2007-2009. However, this decline also masks an underlying trend of improvement and dis-improvement across monitored river water bodies and lakes since 2009²⁹. The Department of Agriculture, Environment and Rural Affairs (Northern Ireland) publish an annual Northern Ireland Environmental Statistics Report which includes information on the status of waterbodies. The 2018 report identifies that:

- In 2015, 32.7% of NI river waterbodies were classified as "high" or "good" quality;
- In 2015, five of the 21 lake waterbodies in Northern Ireland were classified as having a "good" status and 16 lake waterbodies were classified as having a less than "good" status; and
- In 2015, 9 marine water bodies were classified as "high" or "good" status whilst the remaining 16 were at "moderate", "poor" or "bad" status.

Rivers for which classifications have been provided are generally of good, moderate or poor status. Lakes for which classifications have been provided are generally of good or moderate status. WFD water surface status within Greater Dublin Area is shown on Figure 4.6.

For groundwater bodies, the approach to classification is different from that for surface water. For each body of groundwater, both the chemical status and the quantitative status

²⁸ Other sources of information from the EPA that are available for use in lower tier assessments include the Geoportal and Envision websites and reports including Water Quality in Ireland (various), Integrated Water Quality Reports (various) and Quality of Estuarine and Coastal Waters (various).

²⁹ Department of Housing, Planning and Local Government (2018) River Basin Management Plan for Ireland 2018 - 2021

must be determined. Both have to be classed as either *good* or *poor*. The WFD sets out a series of criteria that must be met for a body to be classed as good chemical and quantitative status. Nationally, for groundwater, 91% of water bodies are at *good* status.

Groundwater within the Greater Dublin Area is generally identified as being of *good* status however there are some areas which are identified as being of poor status (as shown on Figure 4.7) as a result of, for example, historical mining or industrial activities.

4.9.2.2 Groundwater productivity and vulnerability

The Geological Survey of Ireland (GSI) rates groundwaters according to both their vulnerability to pollution and their productivity.

Groundwater vulnerability is a term used to represent the intrinsic geological and hydrogeological characteristics that determine the ease with which groundwater may be contaminated by human activities. Groundwater vulnerability maps are based on the type and thicknesses of subsoils (sands, gravels, glacial tills (or boulder clays), peat, lake and alluvial silts and clays), and the presence of karst features.

Groundwater is most at risk where the subsoils are absent or thin and, in areas of karstic limestone, where surface streams sink underground at swallow holes³⁰.

Groundwater vulnerability varies across the Greater Dublin Area (as shown on Figure 4.8). The most of County Kildare and north-west/south-west of County Meath are underlain by "High" and "Moderate" groundwater vulnerability. The south-east parts of County Meath, northern parts of County Fingal, coastal areas of County Wicklow and some pocket areas in County Kildare and surrounding Dublin City are having "Low" groundwater vulnerability. The Wicklow Mountains and upland areas within the Greater Dublin Area are generally identified as having either "Extreme" or "Extreme (Rock near surface)" vulnerability.

The GSI also rates aquifers based on the hydrogeological characteristics and on the value of the groundwater resource. This is

referred to as aquifer productivity. Ireland's entire land surface is divided into nine aquifer productivity classifications that encompass various types of regionally, locally important and poor aquifers.

Groundwater productivity within the Greater Dublin Area is shown on Figure 4.9. The aquifer underlying parts of north/north-east part of County Meath and west/south-west parts of County Kildare is classified as "regionally important aquifer (karstified bedrock)" with "regionally" and "locally important gravel aquifer" overlying in places.

Regionally important aquifers are capable of supplying regionally important abstractions (e.g. large public water supplies), or excellent yields (>400 m³/d). Bedrock aquifer units generally have a continuous area of >25 km² and groundwater predominantly flows through fractures, fissures, joints or conduits. Regionally important sand/gravel aquifers are >10 km², and groundwater flows between the sand and gravel grains.

4.9.2.3 Groundwater Source Protection Areas

Groundwater Source Protection Area delineation provides an assessment of the land that contributes groundwater to a borehole or spring. Source reports have been undertaken by the GSI on behalf of Local Authorities since the mid-1990s. Since then, more than 120 have been completed.

There are number of Source Protection Areas located within the Greater Dublin Area (as mapped on Figure 4.10). Groundwater vulnerability classifications within these areas are also shown.

4.9.2.4 WFD Registers of Protected Areas

The WFD requires that Registers of Protected Areas (RPAs) are compiled for a number of water bodies or part of water bodies which must have extra controls on their quality by virtue of how their waters are used by people and by wildlife.

The WFD requires that these RPAs contain: areas from which waters are taken for public or private water supply schemes; designated shellfish production areas; bathing waters; areas which are affected by high levels of substances most commonly found in fertilizers, animal and human wastes - these areas are

³⁰ Source: Geological Survey of Ireland (2014) Metadata

considered nutrient sensitive; areas designated for the protection of habitats or species e.g. Salmonid areas; Special Areas of Conservation (SACs); and, Special Protection Areas (SPAs).

Entries to the RPAs in Ireland include:

- Drinking Water Rivers and Lakes;
- Nutrient Sensitive Rivers, Lakes and Estuaries;
- Shellfish Areas;
- Salmonid Rivers;
- Bathing Areas; and
- Groundwater for Drinking Water.

For presentation purposes, SACs and SPAs (although entries on the RPAs) are not included on this map – these are shown separately on Figure 4.4.

Entries to the WFD RPAs within Greater Dublin Area are shown on Figure 4.11.

4.9.2.5 Bathing Waters

For bathing waters, Mandatory and Guide Values are set out for bathing waters in the 2006 EU Bathing Water Directive and transposing Regulations. Mandatory Values are values which must be observed if the bathing area is to be deemed compliant with the Directive. Compliance with Guide Values exceeds guidance with Mandatory Values and can be regarded as quality objectives which bathing sites should endeavour to achieve.

The EPA report “*Bathing Water Quality in Ireland 2017*” presents the assessment of Ireland’s 142 bathing waters identified under the Bathing Water Quality Regulations 2008 and is based on the results of monitoring covering the period 2014 to 2017. It also provides information on water quality at other locations where bathing activities occur and the water quality monitoring is undertaken by local authorities as a public health measure.

The key findings of the EPA report identified that:

- 93% (132) of coastal and lake beaches across the country met the minimum standard of sufficient water quality;
- 84.5% (120) were classed as either excellent or good water quality;
- 8 beaches showed some deterioration in quality – five of which are in the Dublin area (namely: Sandymount,

Claremont, Donabate, Rush South, Skerries;

- 7 beaches were classed as poor – five of which are in the Dublin area; and
- 4 beaches showed an improvement in water – all from rural or small urban areas.

4.9.2.6 Potential Water Sensitivity Map

A potential water sensitivity map (see Figure 4.12) has been prepared as part of the SEA process. The purpose of the map is to indicate at a regional level where the main concentrations of water sensitivities might occur within and surrounding the Greater Dublin Area.

The map is prepared at the regional scale and different layers or weightings would produce different map outputs. Where the sensitivity mapping shows a concentration of water sensitivities there is an increased likelihood that development will conflict with this sensitivities and cause environmental deterioration, if mitigation is not applied. It is emphasised that the occurrence of water sensitivities does not preclude development; rather it flags at a strategic level that the mitigation measures - which have already been integrated into the Plan - will need to be adhered to at lower tiers of decision making in order to ensure that the implementation of the Plan contributes towards the objectives of the Water Framework Directive. It is emphasised that the map is a high scale, regional map and additional, local water sensitivities may become apparent during the consideration of projects at local level.

The potential water sensitivity map (Figure 4.12) has been prepared by weighting layers relating to water sensitivity and overlaying them using GIS software. The layers and associated weightings are detailed on Table 4.1.

Table 4.1 Water Sensitivity Layers and Weighting

Layer	Weight
WFD River, Coastal, Transitional Waters of Moderate / Poor / Bad Status	10
WFD Groundwater of Poor Status	10
GSI Groundwater Vulnerability Extreme or Karst	10
GSI Groundwater Vulnerability High	5

Layer	Weight
WFD RPA Entries for Drinking Water (surface and ground), Bathing Waters, Shellfish Waters, Salmonid Rivers and Nutrient Sensitive Areas	10

On Figure 4.12 areas with higher water sensitivities are indicated by darker orange colours, areas with moderate water sensitivities are indicated by yellow colours and areas with lower water sensitivities are indicated with green colours.

Sensitive rivers are generally found away from upland areas, draining lowland areas of settlement and agriculture. Heightened sensitivities arising from groundwater vulnerability and poor status data are found in much of County Wicklow, North-West and East Meath, Dublin County and central Kildare. Areas of sensitivity are also found in coastal areas.

Figure 4.12 should be viewed alongside figures under Section 4.7 which provide information including ecological designations.

4.9.3 Flooding

Flooding is an environmental phenomenon which, as well as causing economic and social impacts, could in certain circumstances pose a risk to human health. The existence of flood risk across the country is illustrated by various sources of information on historical flooding events – including those available from the Office of Public Works, the lead Authority on flooding in the country, National Flood Hazard Mapping website. In addition to this historic mapping there is predictive, modelled Preliminary Flood Risk Assessment and Flood Risk and Hazard mapping available from the OPW including through the National Catchment Flood Risk Management Programme (CFRAM). These mapping sources identify flood risk from various sources, including fluvial, pluvial, coastal and groundwater.

4.9.4 Existing Problems

Subject to exemptions provided for by Article 4 of the WFD³¹, based on available water data, certain surface and groundwater bodies will need improvement in order to comply with the objectives of the WFD.

There are various bathing water locations across the country that do not meet mandatory bathing water values.

There is historic and predictive evidence of flooding in locations across the country.

³¹ Article 4 of the WFD sets out various exemptions for deterioration in status caused as a result of certain physical modifications to water bodies. This is provided: all practicable mitigation measures are taken; there are reasons of overriding public interest or the benefits to human health, safety or sustainable development outweigh the benefits in achieving the WFD objective; there are no better alternatives; and the reasons for the physical modification are explained in the relevant River Basin Management Plan.

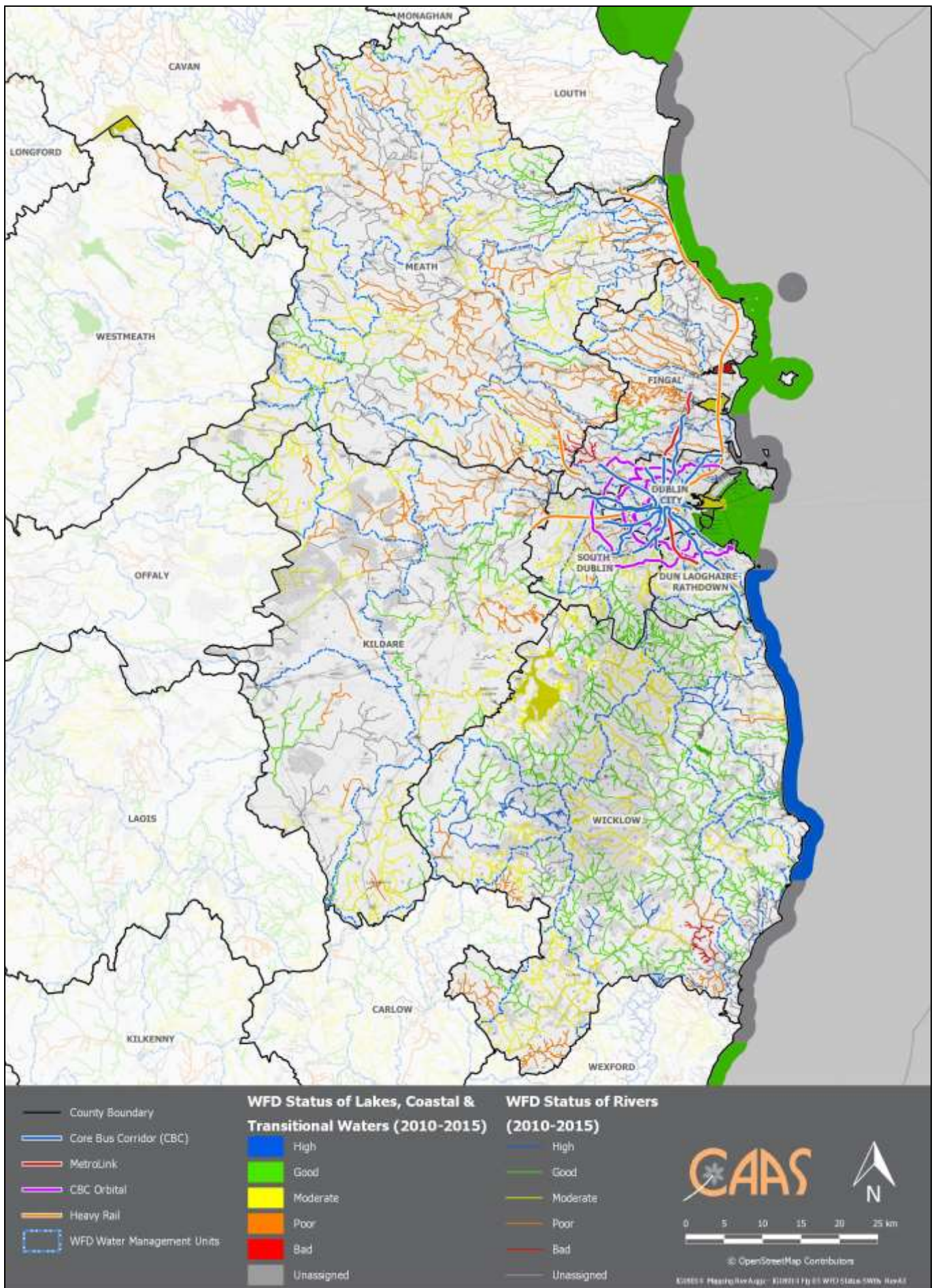


Figure 4.6 WFD Surface Water Status

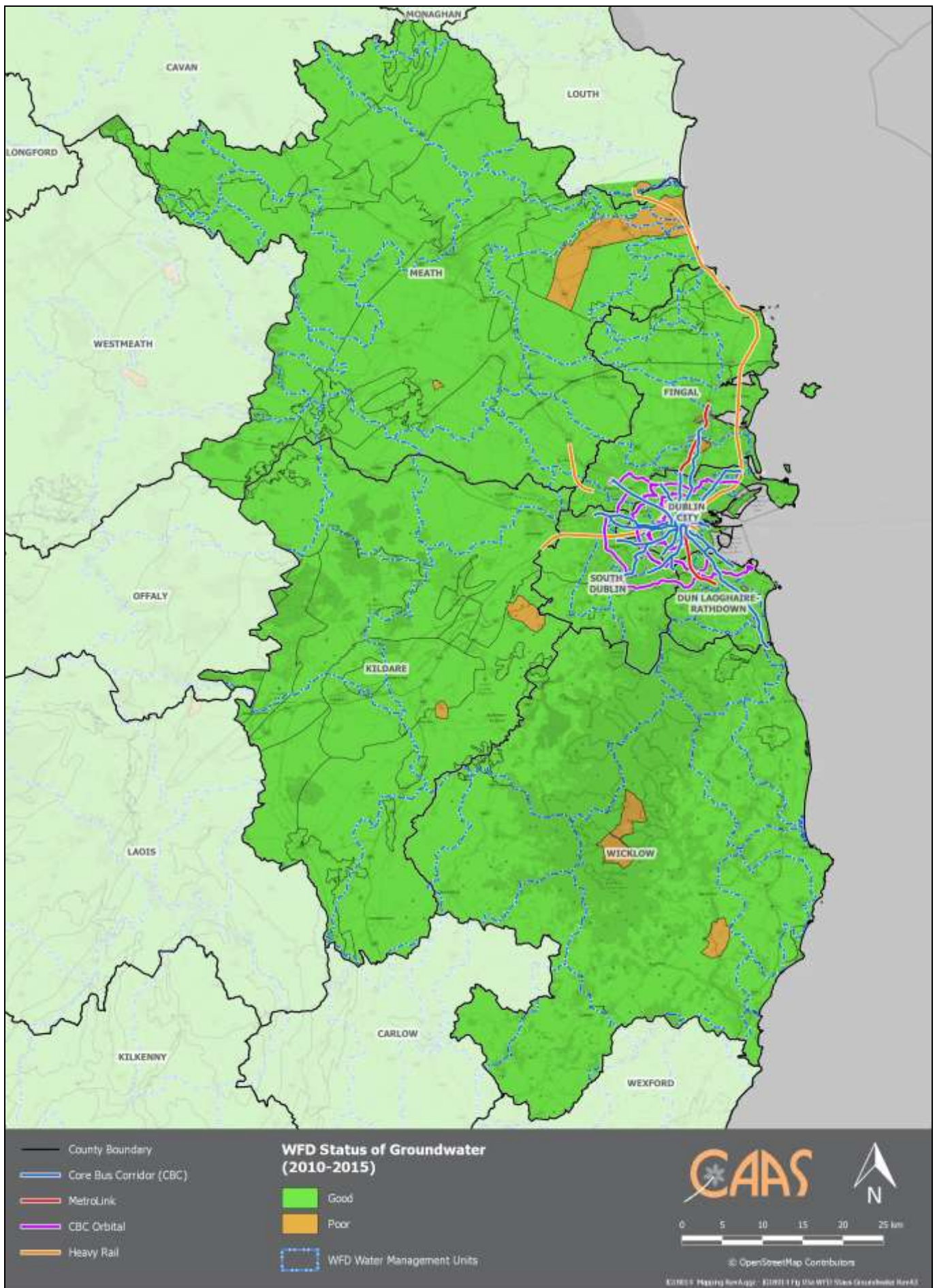


Figure 4.7 WFD Groundwater Status

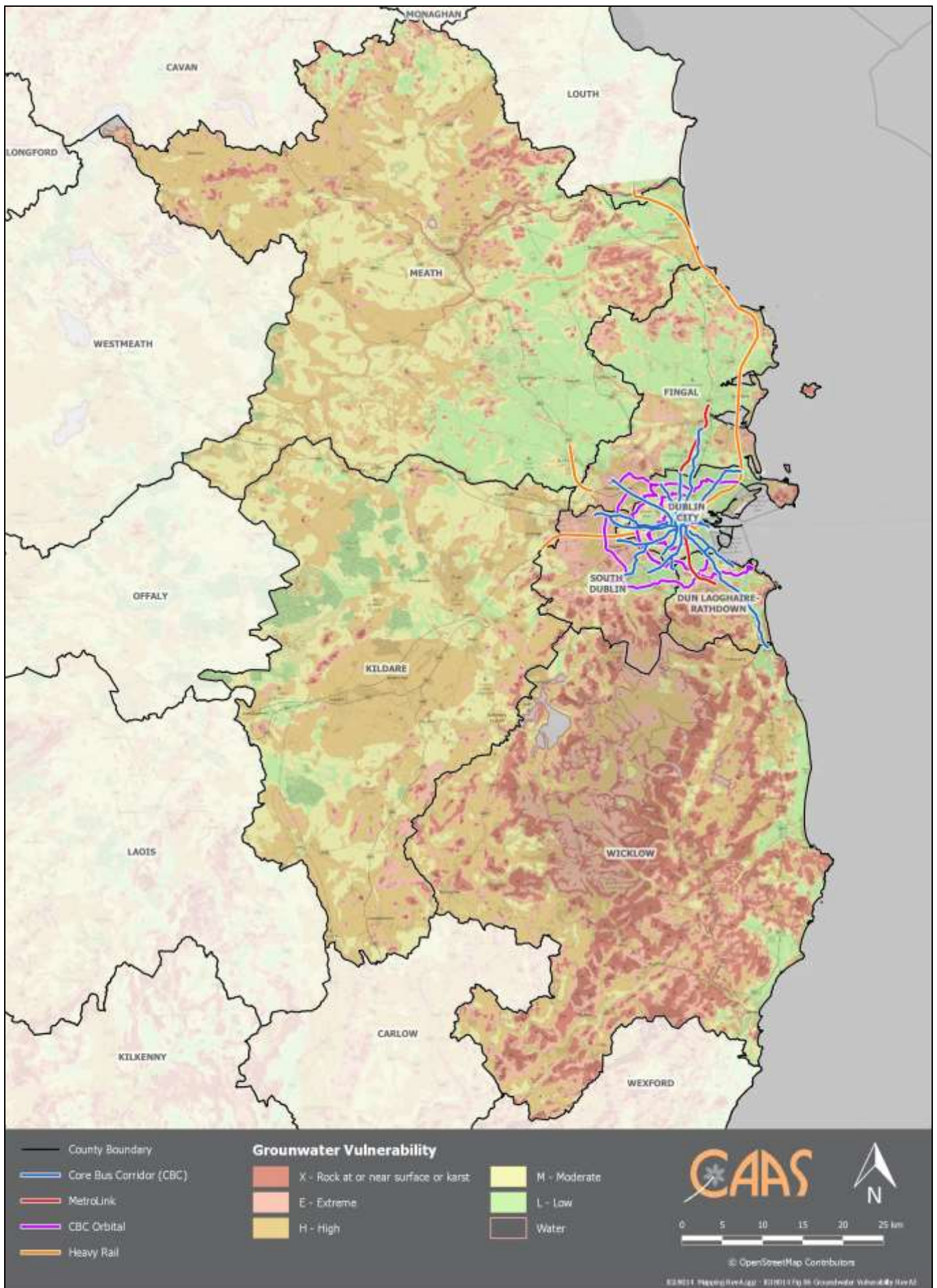


Figure 4.8 Groundwater Vulnerability

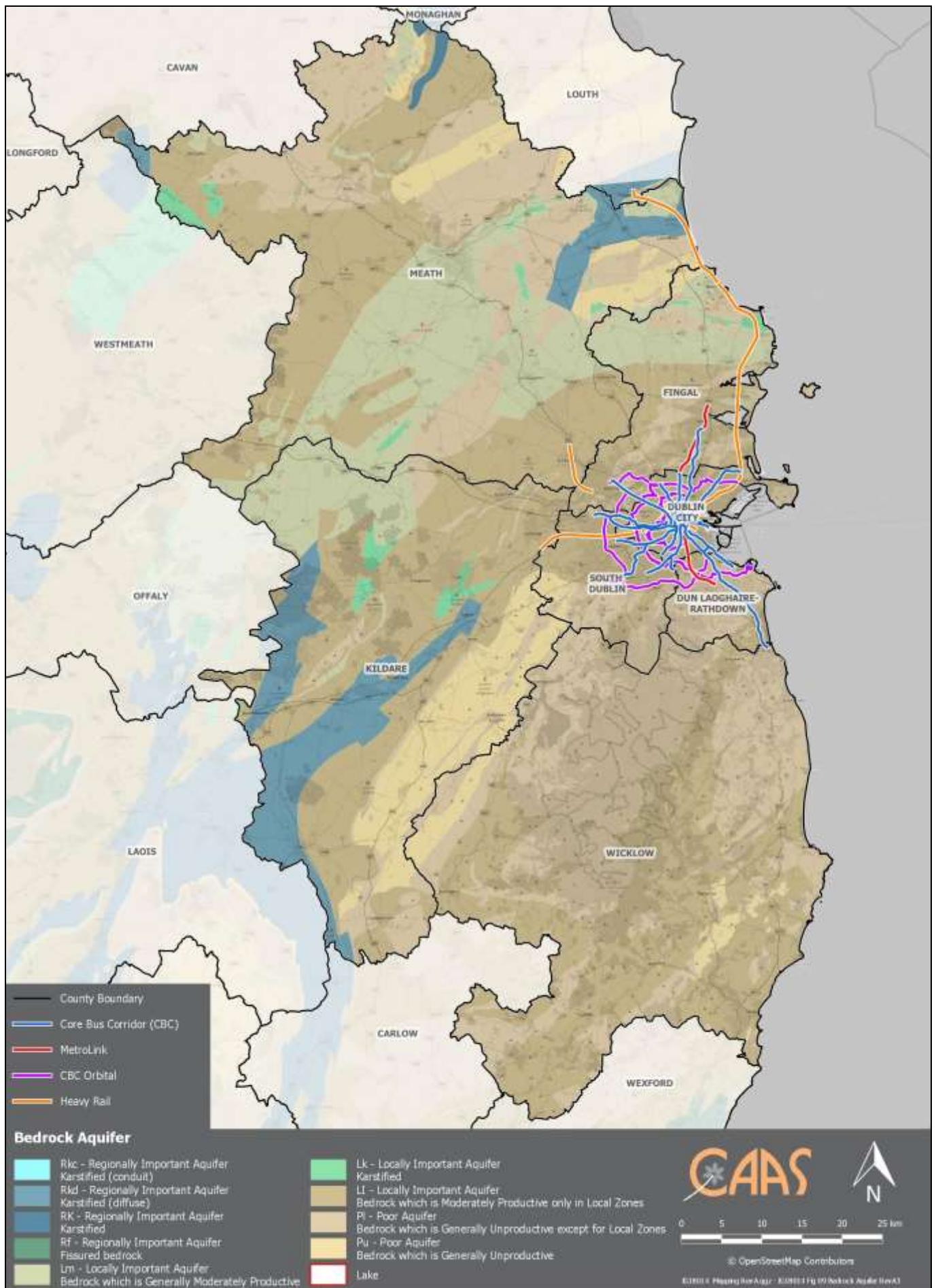


Figure 4.9 Groundwater Productivity

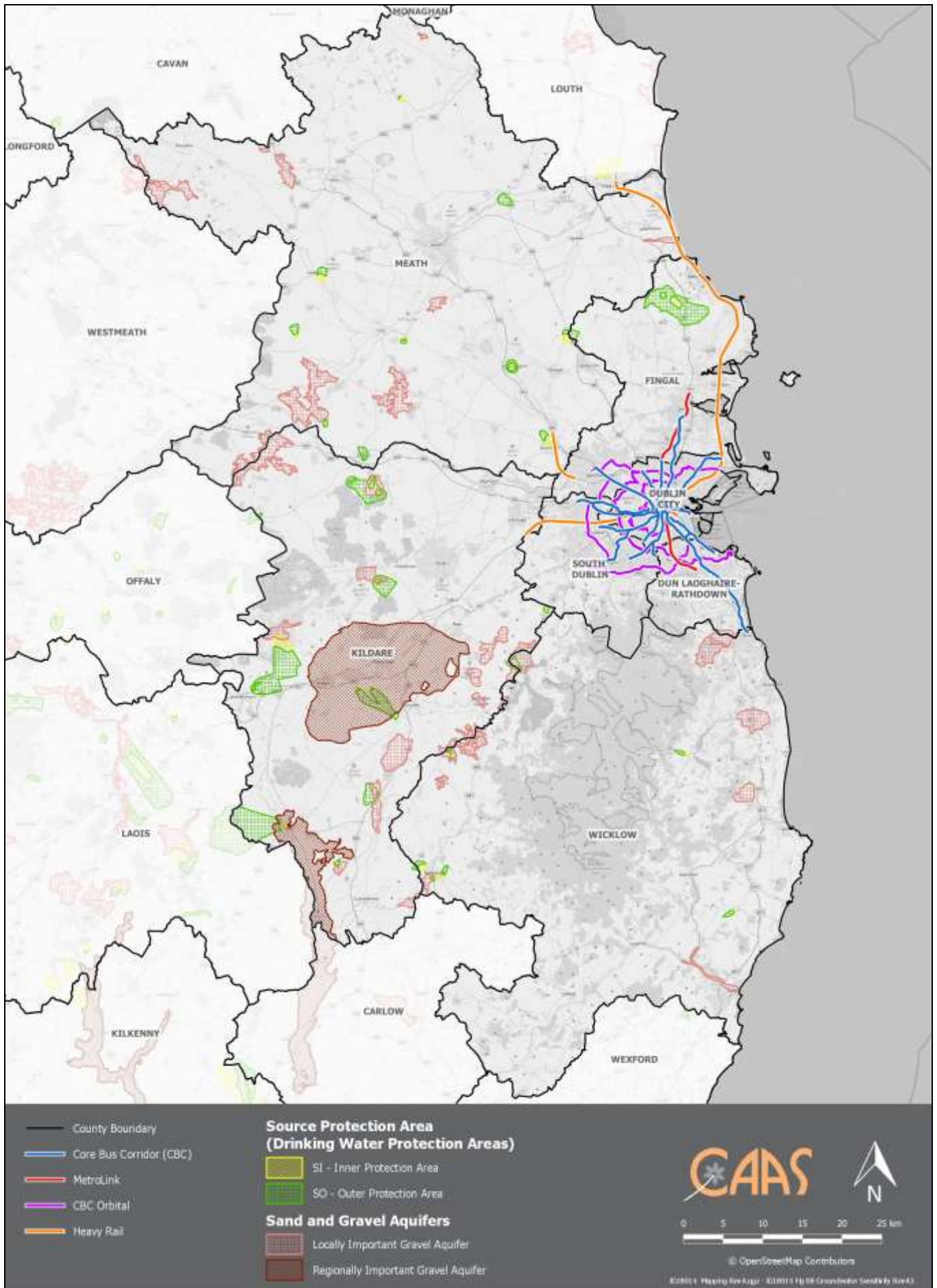


Figure 4.10 Source Protection Areas

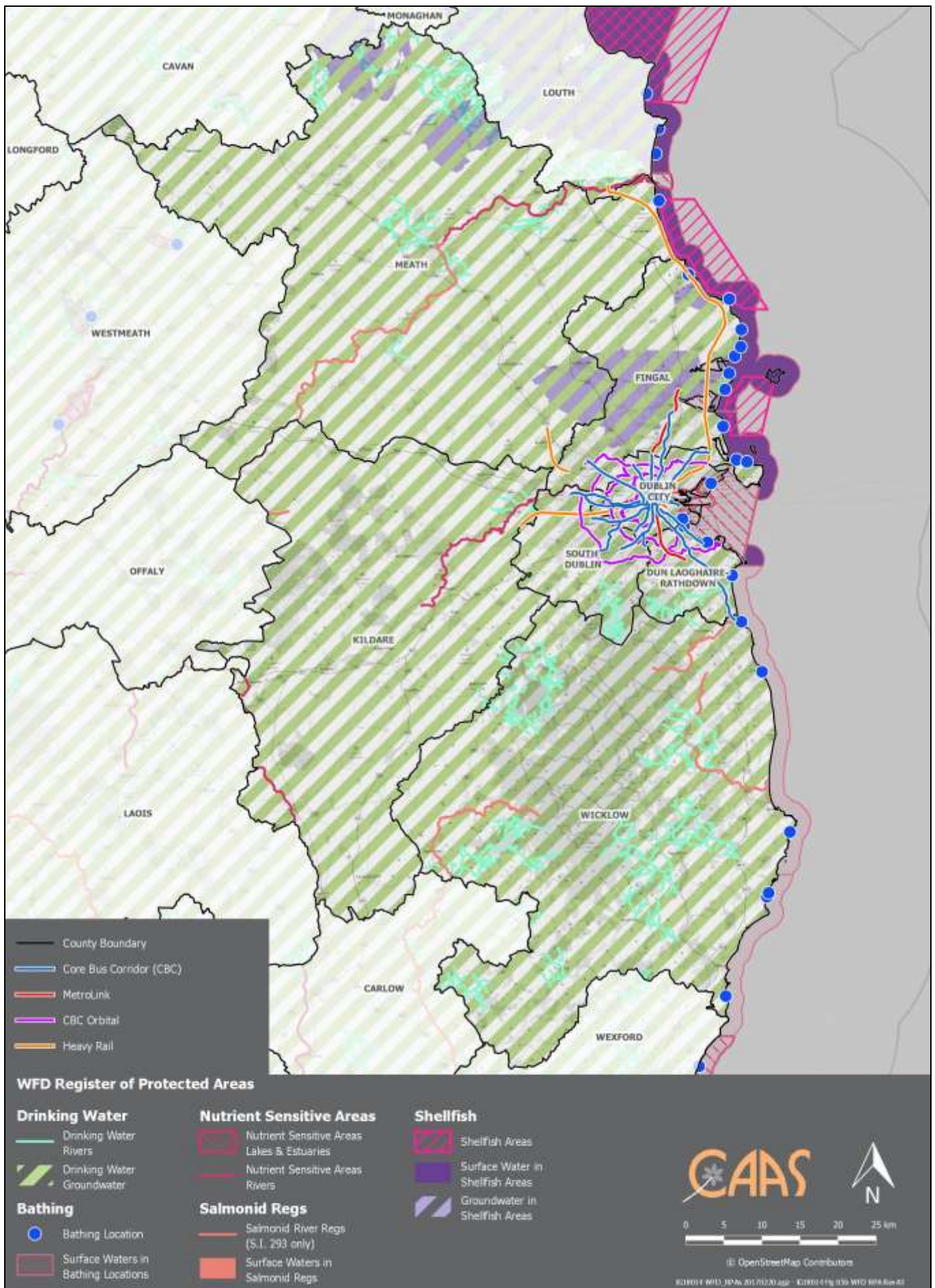


Figure 4.11 WFD Register of Protected Areas

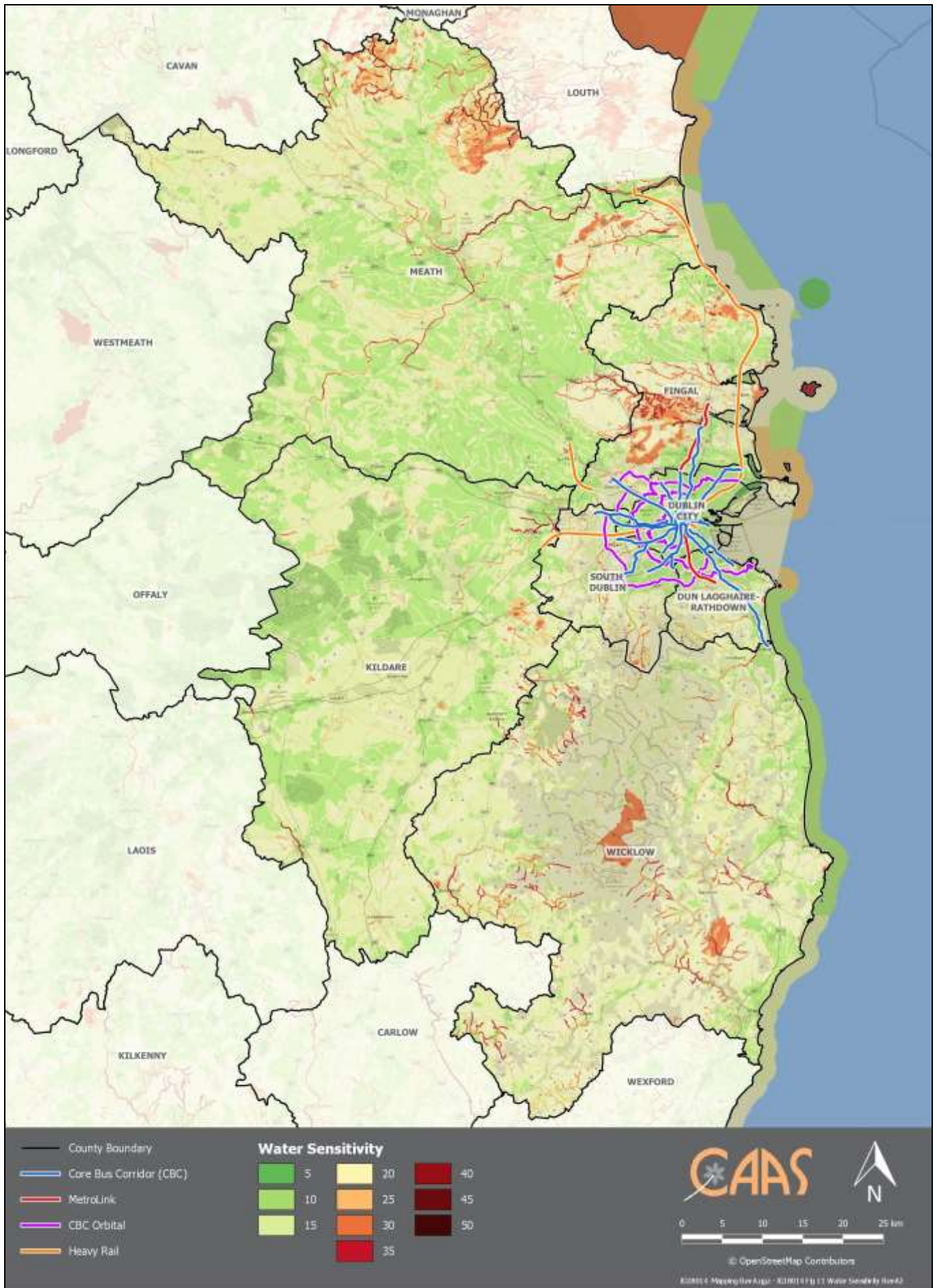


Figure 4.12 Overlay of Potential Water Sensitivity

4.10 Landscape

4.10.1 Introduction

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

4.10.2 Designations

The importance of landscape and visual amenity and the role of its protection are recognised in the Planning and Development Act 2000 as amended, which requires that Development Plans include objectives for the preservation of the landscape, views and the amenities of places and features of natural beauty. These objectives and associated plan content often designate different aspects of the landscape such as the following:

- Landscape character areas;
- Landscape sensitivity and value areas;
- High amenity zones;
- Scenic views and prospects; and
- Land use objectives relating to landscape protection.

The European Landscape Convention - also known as the Florence Convention, - promotes the protection, management and planning of European landscapes and organises European co-operation on landscape issues. The Convention defines landscape as *'an area, as perceived by people, whose character is the result of the action and interaction of natural and/or human factors'*. As a signatory of the Convention, Ireland fulfilled an obligation to prepare a National Landscape Strategy in 2015.

Land cover (see below) is one factor which is taken into account in the designation of these aspects.

Such designations, which vary from local authority to local authority and change over time, should be taken into account by lower tier planning and environmental assessments.

In addition to the aforementioned landscape designations, planning authorities are empowered (under section 202 of the Planning and Development Act 2000), to make a Special Amenity Area Order for reasons of outstanding natural beauty or an area's special recreational value and having regard to any benefits for nature conservation. The purpose of these Orders is to preserve/enhance landscape character and to prevent/limit development. Such areas should also be taken into account by lower tier planning and environmental assessments where/if relevant. There are four SAAOs in the Greater Dublin Area as follows: North Bull Island; Howth Head; Liffey Valley; and County Wicklow (Bray Head).

4.10.3 Land Cover

CORINE land cover mapping classifies land cover under various headings. This dataset allows for the identification of areas that are likely to be most visually sensitive and robust.

Land cover is the observed physical cover, as seen from the ground or through remote sensing, including for example natural or planted vegetation, water and human constructions which cover the earth's surface.

Artificial surfaces in Ireland account for just under 2.46% of the land surface, significantly below the European Union average of 4.2% (European Environment Agency 2012 CORINE mapping).

The CORINE Land Cover map is based on interpretation of satellite images. Three categories of potential land cover sensitivity have been identified on Figure 4.13 by combining the following land cover layers below.

Category 1 Robust Land Cover

- Sport and leisure facilities
- Continuous urban fabric
- Discontinuous urban fabric
- Industrial or commercial units
- Road and rail networks
- Sea ports
- Airports
- Mineral extraction sites
- Dump
- Construction sites

Category 2 Normal Land Cover

- Non-irrigated land
- Coniferous forest
- Complex cultivation patterns
- Pasture
- Transitional woodland scrub
- Land principally occupied by agriculture with areas of natural vegetation

Category 3 Sensitive Land Cover

- Fruit trees and berry
- Green urban sites
- Broad-leaved forest
- Peat bog
- Natural grassland
- Water bodies
- Coastal lagoons
- Mixed Forests
- Moors and Heaths
- Intertidal Flats
- Beaches Dunes Sand
- Inland marshes
- Stream Courses
- Estuaries
- Sparsely Vegetated Areas
- Burnt Areas
- Salt Marshes
- Bare Rocks

In the Greater Dublin Area, normal land cover is the predominant land cover type and is generally found throughout much of County Meath, County Kildare, County Wicklow and Dublin County. Robust land cover is found within and surrounding the M50 motorway and in pockets throughout the Greater Dublin Area. Sensitive land cover are most common in the Wicklow Mountain uplands/foothills, in bog areas in North-West Kildare and in coastal areas and parklands.

4.10.4 Existing Environmental Problems

New developments have resulted in changes to the visual appearance of lands over time however legislative objectives governing landscape and visual appearance were not identified as being conflicted with.

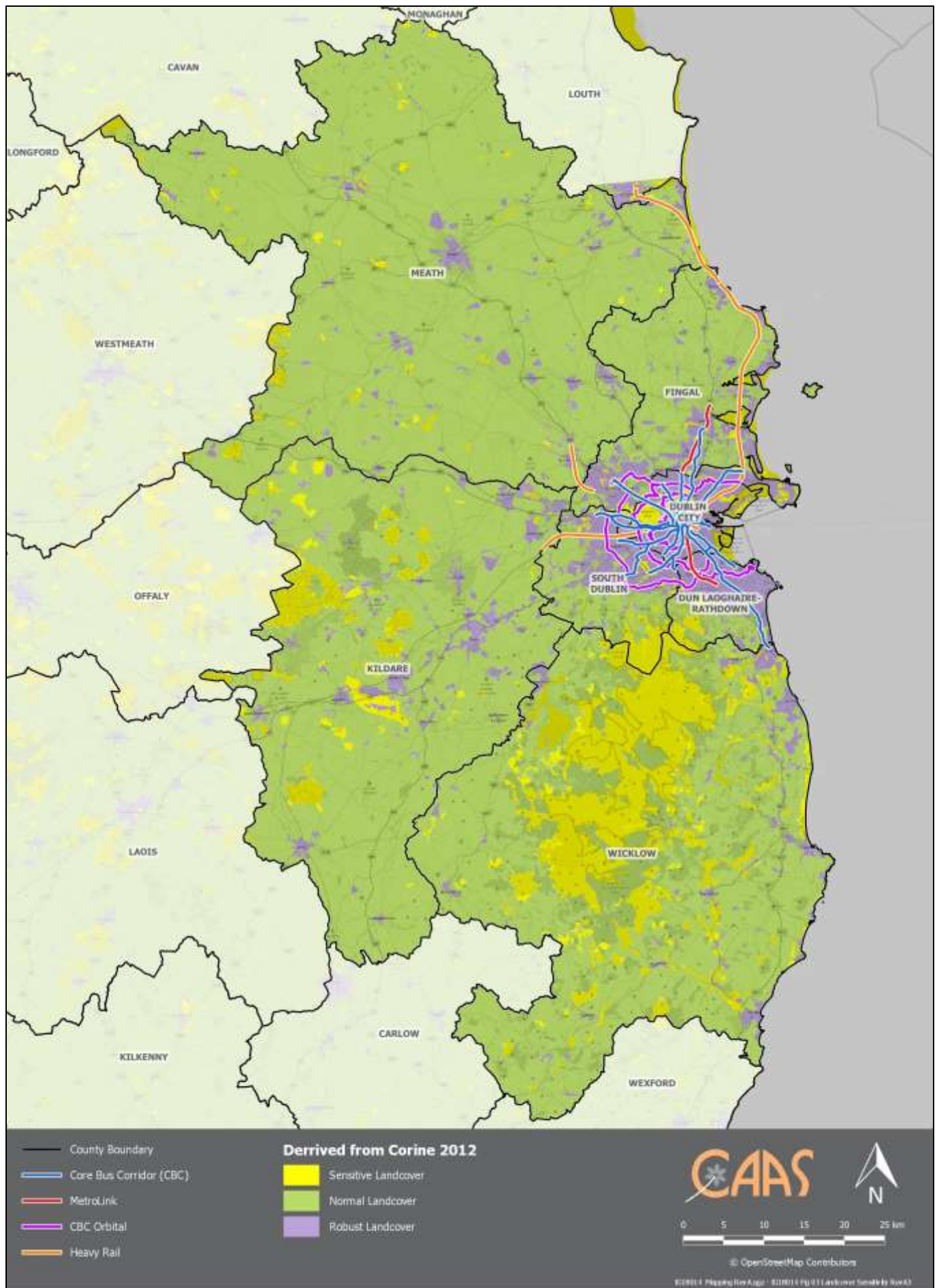


Figure 4.13 Potential Land Cover Sensitivity Mapping

4.11 Cultural Heritage

4.11.1 Archaeological Heritage

Archaeology is the study of past societies through the material remains left by those societies and the evidence of their environment. Archaeological sites and monuments vary greatly in form and date; examples include earthworks of different types and periods, (e.g. early historic ringforts and prehistoric burial mounds), megalithic tombs from the Prehistoric period, medieval buildings, urban archaeological deposits and underwater features.

The European Convention on Protection of the Archaeological Heritage known as the Valletta Convention of 1992. This was ratified by Ireland in 1997 and requires that appropriate consideration be given to archaeological issues at all stages of the planning and development process.

Archaeological heritage is protected under the National Monuments Acts (1930-2004), Natural Cultural Institutions Act 1997 and the Planning Acts.

The Record of Monuments and Places (RMP) is an inventory, put on a statutory basis by amendment to the National Monuments Act 1994, of sites and areas of archaeological significance, numbered and mapped. It is available from the National Monuments Service and at archaeology.ie.

The term 'monument' includes all man-made structures of whatever form or date except buildings habitually used for ecclesiastical purposes. All monuments in existence before 1700 A.D. are automatically considered to be historic monuments within the meaning of the Acts. Monuments of architectural and historical interest also come within the scope of the Acts. Monuments include: any artificial or partly artificial building, structure or erection or group of such buildings, structures or erections; any cave, stone or other natural product, whether or not forming part of the ground, that has been artificially carved, sculptured or worked upon or which (where it does not form part of the place where it is) appears to have been purposely put or arranged in position; any, or any part of any, prehistoric or ancient tomb, grave or burial deposit, or, ritual, industrial or habitation site;

and any place comprising the remains or traces of any such building, structure or erection, any such cave, stone or natural product or any such tomb, grave, burial deposit or ritual, industrial or habitation site, situated on land or in the territorial waters of the State', but excludes 'any building or part of any building, that is habitually used for ecclesiastical purposes' (National Monuments Acts 1930-2004).

A recorded monument is a monument included in the list and marked on the map which comprises the RMP set out county by county under Section 12 of the National Monuments (Amendment) Act, 1994 by the Archaeological Survey of Ireland. The definition includes Zones of Archaeological Potential in towns and all other monuments of archaeological interest which have so far been identified.

Archaeological heritage designations in Northern Ireland include entries to the Northern Ireland Sites and Monuments Record and Areas of Significant Archaeological Interest and Archaeological Potential.

Entries to the Record of Monuments and Places within the Greater Dublin Area are shown on Figure 4.14. A buffer of 250m (radius) has been applied to make these designations noticeable at the regional scale of the mapping produced. Where zones associated with the monuments have been provided by the National Monuments Service these have been used instead. National Monuments that are in State care are differentiated on the map. Monuments are concentrated within urban/suburban areas and are less common in areas which are not settled, most noticeably much of the Wicklow Mountains.

Also included on Figure 4.14 is the Brú na Bóinne archaeological landscape World Heritage Site in the north east of County Meath at the bend in the Boyne.

4.11.1.1 Underwater Archaeology ³²

The Underwater Archaeology Unit was established within the National Monuments Service to manage and protect Ireland's underwater cultural heritage, including the quantification of the underwater resource and assessing development impacts in order to manage and protect this aspect of Ireland's

³² DCC (2013) *North Lotts and Grand Canal Dock Planning Scheme*

heritage. The Shipwreck Inventory is principally a desktop survey with information gathered from a broad range of cartographic, archaeological and historical sources, both documentary and pictorial. An inventory of wrecks covering the coastal waters off County Dublin was published in 2008. Wrecks over 100 years old and archaeological objects found underwater are protected under the National Monuments (Amendment) Acts 1987 and 1994. Significant wrecks less than 100 years old can be designated by Underwater Heritage Order (UHO) on account of their historical, archaeological or artistic importance. UHOs can also be used to designate areas of seabed or land covered by water to more clearly define and protect wreck sites and archaeological objects. Under the legislation all diving on known protected wreck sites or with the intention of searching for underwater cultural heritage is subject to licensing requirements. There are a number of historically recorded shipwrecking events located in vicinity of the Dublin Bay area.

4.11.2 Architectural Heritage

4.11.2.1 Architectural Heritage

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

4.11.2.2 National Inventory of Architectural Heritage

The National Inventory of Architectural Heritage (NIAH) is a State initiative under the administration of the Department of Culture, Heritage and the Gaeltacht and was established on a statutory basis under the provisions of the Architectural Heritage (National Inventory) and Historic Monuments (Miscellaneous Provisions) Act 1999.

The purpose of the NIAH is to identify, record, and evaluate the post-1700 architectural heritage of Ireland, uniformly and consistently as an aid in the protection and conservation of the built heritage. NIAH surveys provide the basis for the recommendations of the Minister of Culture, Heritage and the Gaeltacht to the local authorities for the inclusion of particular

structures in their Record of Protected Structures (RPS). The NIAH encompasses a survey of Historic Gardens and Designed Landscapes.

Figure 4.14 shows entries to NIAH in within the Greater Dublin Area for planning authority areas where the NIAH survey has been completed (this survey has not been completed in Dún Laoghaire-Rathdown County and Dublin City Councils' areas and the Record of Protected Structures dataset is used in these areas instead). Similar to the general spatial spread of archaeological heritage, clusters of architectural heritage are indicated within already developed urban and suburban areas.

4.11.2.3 Records of Protected Structures and Architectural Conservation Areas

Records of Protected Structures are legislated for under Section 12 and Section 51 of the Planning and Development Act 2000 as amended. Protected Structures are defined in the Planning and Development Act 2000 as amended as structures, or parts of structures that are of special interest from an architectural, historical, archaeological, artistic, cultural, scientific, social or technical point of view.

In relation to a protected structure or proposed protected structure, the following are encompassed:

- (i) The interior of the structure;
- (ii) The land lying within the curtilage³³ of the structure;
- (iii) Any other structures lying within that curtilage and their interiors; and,
- (iv) All fixtures and features which form part of the interior or exterior of any structure or structures referred to in subparagraph (i) or (iii).

³³ Curtilage is normally taken to be the parcel of ground immediately associated with the Protected Structure, or in use for the purposes of the structure. Protection extends to the buildings and land lying within the curtilage. While the curtilage sometimes coincides with the present property boundary, it can originally have included lands, features or even buildings now in separate ownership, e.g. the lodge of a former country house, or the garden features located in land subsequently sold off. Such lands are described as being attendant grounds, and the protection extends to them just as if they were still within the curtilage of the Protected Structure.

In addition to Protected Structures, the Planning and Development Act, 2000 provides the legislative basis for the protection of Architectural Conservation Areas (ACAs). An ACA is a place, area or group of structures or townscape which is of special architectural, historical, archaeological, artistic, cultural, scientific, social or technical interest or value, or contributes to the appreciation of protected structures, whose character it is an objective to preserve in a development plan. The ACA designation requires that planning permission must be obtained before significant works can be carried out to the exterior of a structure in the ACA which might alter the character of the structure or the ACA.

Entries from the Records of Protected Structures are identified in the relevant planning authority Development Plan and at myplan.ie.

Architectural heritage designations in Northern Ireland include those relating to Listed Buildings and Historical Parks and Gardens.

Entries from the Records of Protected Structures within the administrative areas of Dún Laoghaire-Rathdown County and Dublin City Councils are shown on Figure 4.14. These datasets are shown on this map as the NIAH survey has not been completed in these areas. A buffer of 250m (radius) has been applied to make these designations noticeable at the regional scale of the mapping produced. Similar to the general spatial spread of monuments, Protected Structures are concentrated within urban/suburban areas and are less common in areas which are not settled, most noticeably much of the Wicklow Mountains.

4.11.3 Existing Problems

The context of archaeological and architectural heritage has changed over time however no conflicts with legislative objectives governing archaeological and architectural heritage have been identified.

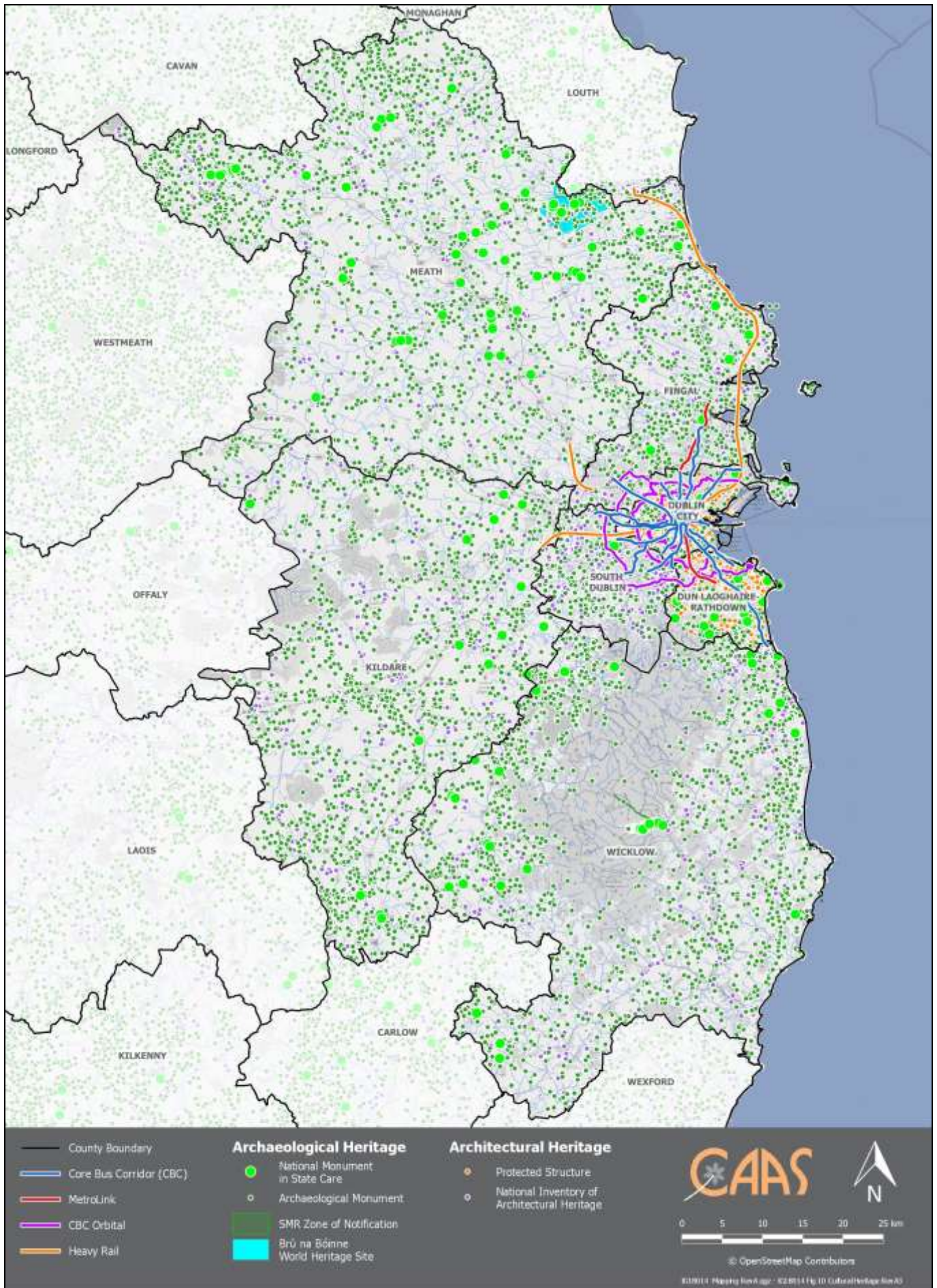


Figure 4.14 Potential Cultural Heritage Sensitivity

4.12 Soil

4.12.1 Introduction

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

To date, there is no legislation which is specific to the protection of soil resources. However, there is currently an EU Thematic Strategy on the protection of soil which includes a proposal for a Soil Framework Directive which proposes common principles for protecting soils across the EU.

4.12.1 Land Take and Soil Sealing

Land take results from the expansion of cities and spread of urban areas, including development of transport infrastructure, and involves the replacement of formerly open soil with impermeable layers – this process is known as soil sealing.

Soil sealing can place pressure on water resources, increase the risk of flooding, affect the carbon cycle, reduce agricultural and extractive industry potential and adversely affect biodiversity.

4.12.2 Sources

Information sources relevant to the environmental component of soil which may be used in lower tier planning and environmental assessments includes:

- Soil types (2006) published by Teagasc, Geological Survey of Ireland (GSI), Forest Service & EPA;
- Soils and Subsoils Class (2006) published by Teagasc, GSI, Forest Service & EPA (2006);
- Sites of Geological Interest which have been published for some counties and provisional information on same for other counties (both available from GSI);
- Other datasets published by and available from GSI including those relating to Bedrock Geology, Quaternary Geology, Mineral deposits, Groundwater Resources and Landslides; and
- Datasets on contaminated soils which may be kept by planning authorities (these occur most often in urban areas).

4.12.3 County Geological Sites

Sites that are appraised, but which are not selected for NHA designation, are classified as 'County Geological Sites' (CGS), as recognised in the National Heritage Plan (2002). This enables their integration into County Development Plans. All sites of geological heritage importance are currently classified as CGS until such time that the most significant sites can be designated as geological NHAs. Nationally, audits of geological sites in 19 counties have been completed to date.

There are 170 County Geological Sites located within the Greater Dublin Area (shown on Figure 4.15):

- Co. Wicklow (65)
- Co. Kildare (22)
- Co. Meath (28)
- Co. Fingal (21)
- Co. South Dublin (10)
- Co. Dublin (12)
- Co. Dún Laoghaire-Rathdown (12)

4.12.4 Existing Problems

Legislative objectives governing soil were not identified as being conflicted with.

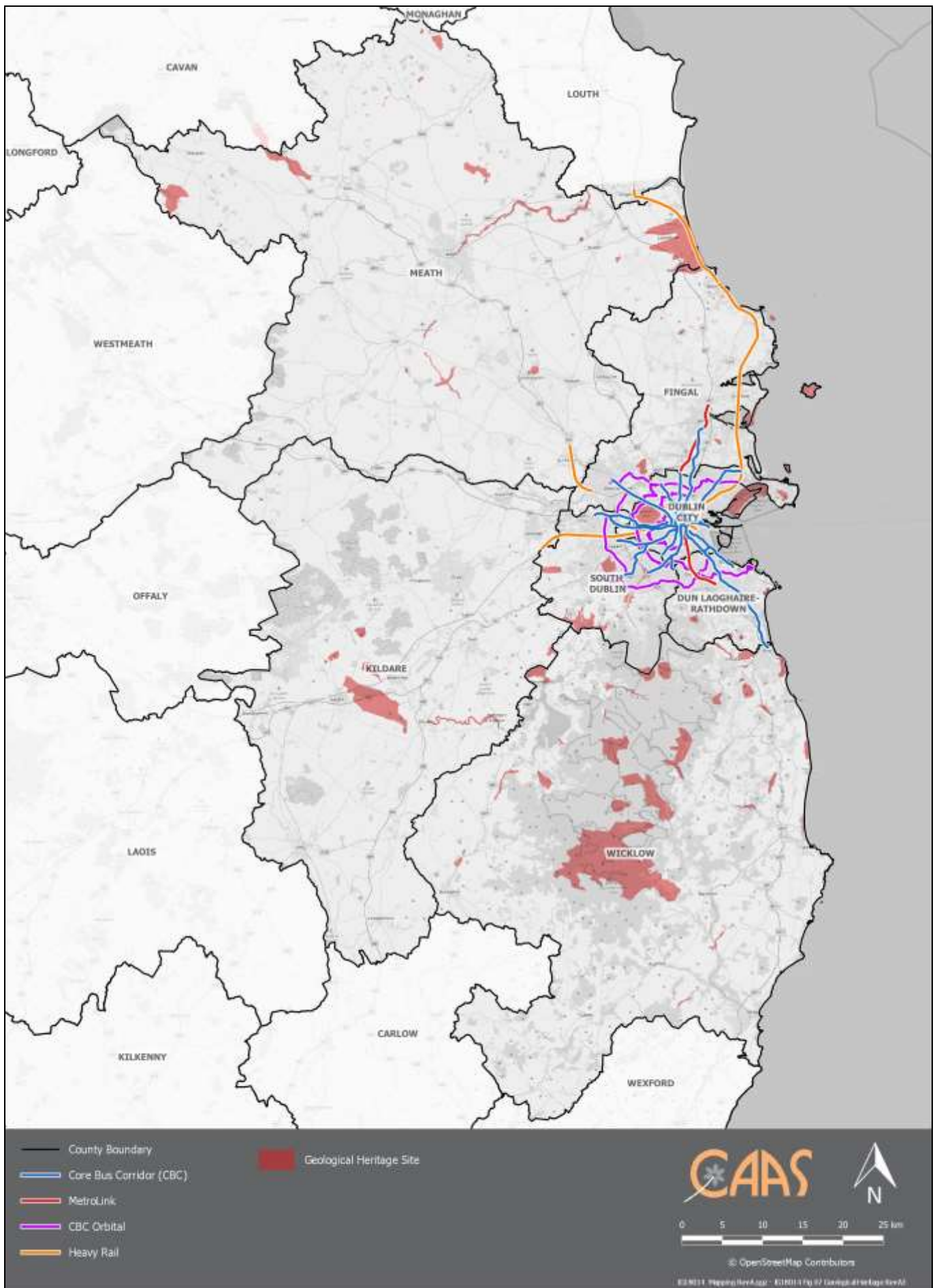


Figure 4.15 County Geological Sites

4.13 Overall Environmental Sensitivities and Opportunities/Robustness

4.13.1 Overview

Some of the environmental information for the Greater Dublin Area detailed under previous subsections has been weighted and mapped to show overall environmental sensitivity (see Figure 4.16) and overall environmental opportunities/robustness (see Figure 4.17) with regard to the development of transport projects. The purpose of the mapping is to indicate at a regional level where the main concentrations of sensitivities might occur.

The maps are prepared at the regional scale and different layers or weightings would produce different map outputs. Where the sensitivity mapping shows a concentration of environmental sensitivities there is an increased likelihood that development will conflict with these sensitivities and cause environmental deterioration, if mitigation is not applied. It is emphasised that the occurrence of environmental sensitivities does not preclude development; rather it flags at a strategic level that the mitigation measures - which have already been integrated into the Plan - will need to be adhered to at lower tiers of decision making in order to ensure that the implementation of the Plan contributes towards environmental protection.

Where the robustness mapping shows a concentration of environmental opportunities there is a decreased likelihood that development will conflict with the environment.

It is emphasised that the maps are high scale, regional maps and additional, local sensitivities and opportunities may become apparent during the consideration of projects at local level.

A weighting system applied through Geographical Information System (GIS) software was used in order to calculate sensitivity and opportunities/robustness.

The maps have been prepared by weighting layers relating to environmental sensitivity and opportunities/robustness and overlaying them using GIS software. The layers and associated weightings are detailed on Table 4.2 and Table 4.3 below.

4.13.2 Environmental Sensitivities

For the environmental sensitivity mapping shown on Figure 4.16 weightings were applied as per Table 4.2. On Figure 4.16, which also includes River Basin District boundaries, areas with higher environmental sensitivities are indicated by darker orange/red colours, areas with moderate environmental sensitivities are indicated by yellow colours and areas with lower environmental sensitivities are indicated with green colours. Heightened areas of sensitivity include those in the uplands and foothills of the Wicklow Mountains, in the bog areas of west Kildare, in river valleys (e.g. the River Boyne in central and North Meath, the River Barrow in West and South Kildare and Slaney in South Wicklow) and at lakes. Lands at the coastal margins and coastal waters are also sensitive, especially within and to the north of Dublin Bay. Lower levels of sensitivity occur elsewhere.

Table 4.2 Environmental Sensitivity Layers and Weighting

Layer	Weight
Any areas covered by SACs or SPAs (see Figure 3.2)	10
Any areas covered by NHAs (see Figure 4.5)	10
Any areas covered by pNHAs or potential Annex I land covers (see Figure 4.5)	5
Sensitive Land Covers (see Figure 4.13)	10
Recorded Monuments and Protected Structures and associated 250m buffers (see Figure 4.14)	10
Highest Water Sensitivity (highest scores on Figure 4.12 from 35 to 50 inclusive)	15
Moderate Water Sensitivity (middle scores on Figure 4.12 from 20 to 30 inclusive)	10
Lowest Water Sensitivity lowest scores on Figure 4.12 from 5 to 15 inclusive)	5

4.13.3 Environmental Opportunities/Robustness

For the environmental opportunities/robustness mapping shown on Figure 4.17, weightings were applied as per Table 4.3. On Figure 4.17, which also includes River Basin District boundaries, areas with higher environmental opportunities/robustness are indicated by darker green colours, areas with moderate environmental robustness are indicated by yellow colours and areas with lower environmental opportunities/robustness are indicated with red/pink colours.

Heightened areas of opportunities/robustness include those within and surrounding the M50 motorway, in much of County Meath, especially south and south-east Meath, in much of County Kildare, especially north-east Kildare, and in County Wicklow, between the Mountains and the coast. Lower levels of opportunities/robustness occur elsewhere.

Table 4.3 Environmental Opportunities/Robustness Layers and Weighting

Layer	Weight
Any areas not covered by SACs or SPAs (see Figure 3.2)	10
Any areas not covered by NHAs, pNHAs or potential Annex I land covers (see Figure 4.5)	10
Robust Land Covers (see Figure 4.13)	10
Normal Land Covers (see Figure 4.13)	5
Areas not covered by Recorded Monuments and Protected Structures and associated 250m buffers (see Figure 4.14)	10
Water Sensitivity High (lowest scores on Figure 4.12 from 5 to 15 inclusive)	15
Water Sensitivity Moderate (middle scores on Figure 4.12 from 20 to 30 inclusive)	10
Water Sensitivity Low (highest scores on Figure 4.12 from 35 to 50 inclusive)	5
Population Density High (highest 4 intervals on Figure 4.3)	15
Population Density Moderate (middle 3 intervals on Figure 4.3)	10
Population Density Low (middle 3 intervals on Figure 4.3)	5

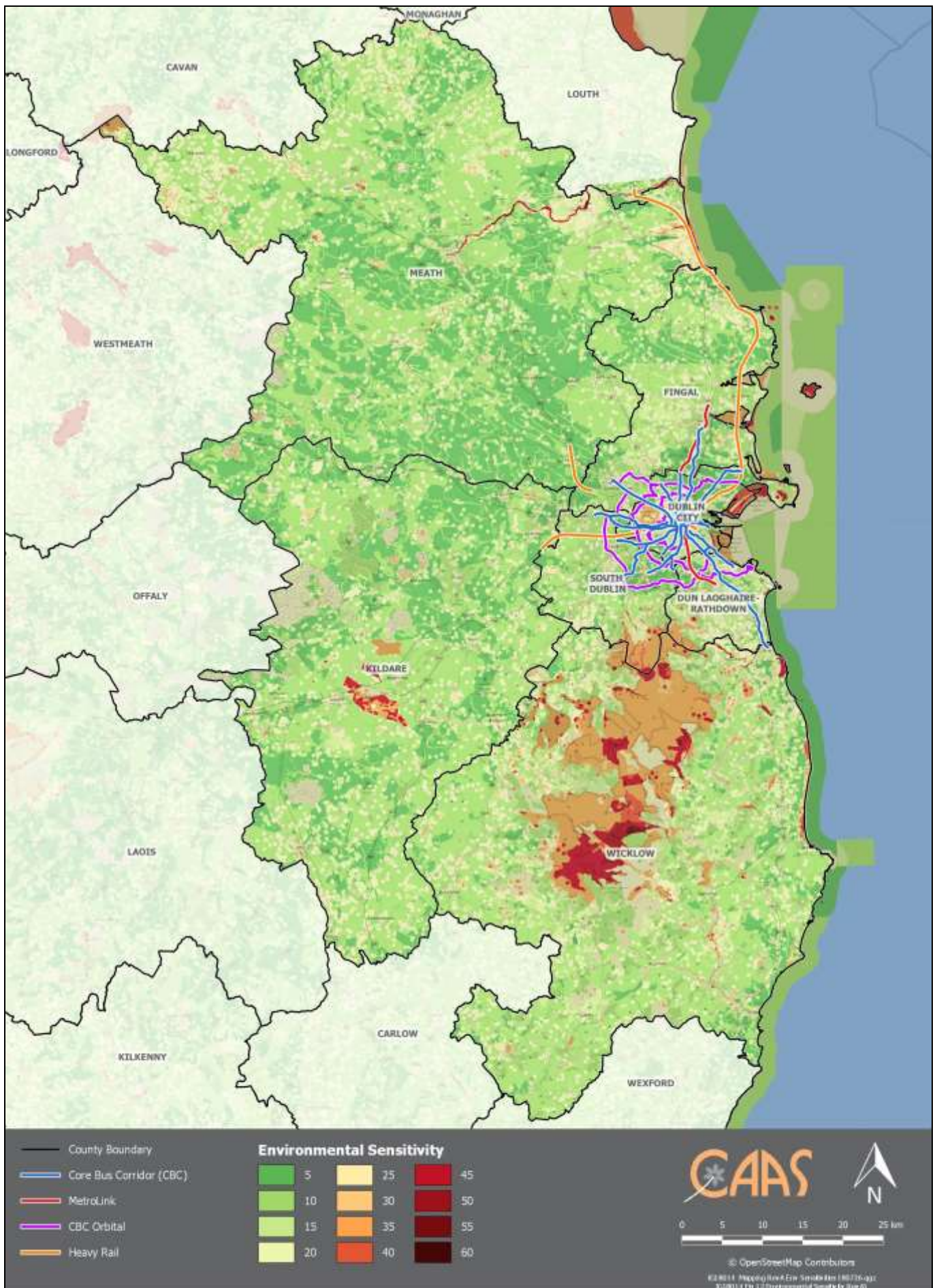


Figure 4.16 Overall Potential Environmental Sensitivity

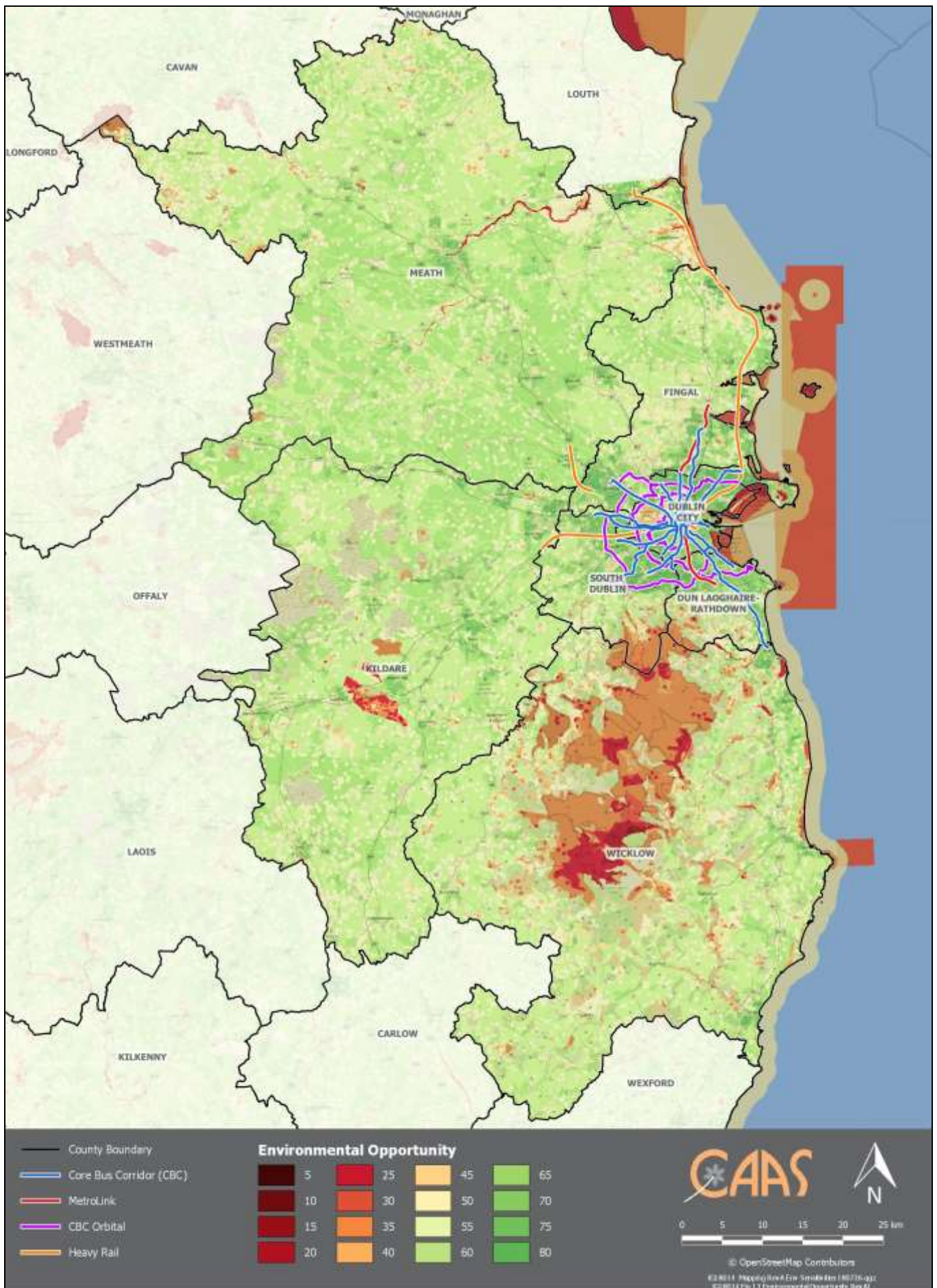


Figure 4.17 Overall Potential Environmental Opportunities/Robustness

Section 5 Strategic Environmental Objectives

Strategic Environmental Objectives (SEOs) are methodological measures developed from policies which generally govern environmental protection objectives established at international, Community or Member State level e.g. the environmental protection objectives of various European Directives which have been transposed into Irish law and which are required to be implemented.

The SEOs are set out under a range of topics and are used as standards against which the provisions of the Plan and the alternatives are evaluated in order to help identify which provisions would be likely to result in significant environmental effects and where such effects would be likely to occur, if - in the case of adverse effects - unmitigated.

The SEOs are linked to indicators which can facilitate monitoring the environmental effects of the Plan as well identifying targets which the Plan can help work towards.

All SEOs, indicators and targets are provided on Table 5.1 overleaf while background to these measures is provided in the subsections below.

Further detail on legislation, plans and programmes are provided under Section 2 (and associated Appendix I "Relationship with Legislation and Other Plans and Programmes") and Section 4.

Table 5.1 Strategic Environmental Objectives, Indicators and Targets

Environmental Component	Strategic Environmental Objectives	Indicators	Targets
Air and Climatic Factors	AC1: To contribute towards reductions in travel related emissions (including pollutants, noise and greenhouse gas emissions) to air	AC1i: Compliance with Ambient Air Quality and Cleaner Air for Europe (CAFE) Directive and associated legislation AC1ii: Greenhouse gas emissions from transport	AC1i: To contribute towards compliance with legislative air quality limits and target values AC1ii: To facilitate a reduction in greenhouse gas emissions from transport AC1iii: The incorporation of Integrated Implementation Plan objectives into the preparation and review of the National Mitigation Plan, National Adaptation Framework and relevant Sectoral Adaptation Plan(s) and the incorporation of the necessary targets/ actions/ provisions arising from these developing policies once they are in place
	AC2: To encourage modal change from car to more sustainable forms of transport	AC2: Percentage of population travelling to work, school or college by public transport or non-mechanical means	AC2: An increase in the percentage of the population travelling to work, school or college by public transport or non-mechanical means See also Target AC1iii
	AC3: To facilitate a reduction in energy use by the transport sector and an increase in the proportion of energy from renewable sources by the transport sector	AC3i: Energy use by the transport sector as a percentage of Total Final Energy Consumption AC3ii: Proportion of energy from renewable sources	AC3i: To facilitate a reduction in energy use by the transport sector as a percentage of Total Final Energy Consumption AC3ii: To facilitate an increase in the proportion of energy from renewable sources by the transport sector See also Target AC1iii
Population and Human Health	PHH1: To develop transport infrastructure and services closer to urban/suburban areas thereby facilitating consolidation of growth and limiting urban sprawl	PHH1: Extent of urban/suburban areas within the catchment of transport infrastructure and services	PHH1: To maximise the extent of urban/suburban areas within the catchment of transport infrastructure and services
	PHH2: To contribute towards the protection of populations and human health from exposure to incompatible land uses	PHH2: Occurrence (any) of a spatially concentrated deterioration in human health arising from environmental factors resulting from development provided for by the Plan, as identified by the Health Service Executive and Environmental Protection Agency	PHH2: No spatial concentrations of health problems arising from environmental factors as a result of implementing the Plan

Environmental Component	Strategic Environmental Objectives	Indicators	Targets
Biodiversity, Flora and Fauna	B1: To contribute towards compliance with the Habitats and Birds Directives with regard to the protection of European Sites and Annexed habitats and species ³⁴	B1: Conservation status of habitats and species as assessed under Article 17 of the Habitats Directive	B1: Maintenance of favourable conservation status for all habitats and species protected under National and International legislation to be unaffected by implementation of the Plan ³⁵
	B2: To contribute towards compliance with Article 10 of the Habitats Directive with regard to the management of features of the landscape which - by virtue of their linear and continuous structure or their function as stepping stones (designated or not) - are of major importance for wild fauna and flora and essential for the migration, dispersal and genetic exchange of wild species	B2: Percentage loss of functional connectivity without remediation resulting from development provided for by the Plan	B2: No significant ecological networks or parts thereof which provide functional connectivity to be lost without remediation resulting from development provided for by the Plan
	B3: To contribute towards avoidance of significant impacts on relevant habitats, species, environmental features or other sustaining resources in designated sites including Wildlife Sites and to contribute towards compliance with the Wildlife Acts 1976-2012 with regard to the protection of listed species	B3i: Number of significant impacts on relevant habitats, species, environmental features or other sustaining resources in designated sites including Wildlife Sites resulting from development provided for by the Plan B3ii: Number of significant impacts on the protection of listed species resulting from development provided for by the Plan	B3i: Avoid significant impacts on relevant habitats, species, environmental features or other sustaining resources in designated sites including Wildlife Sites resulting from development provided for by the Plan B3ii: No significant impacts on the protection of listed species
Material Assets	MA1: To contribute towards the protection of built/amenity assets and infrastructure	MA1: Protection of built/amenity assets and infrastructure such as	MA1: Minimisation of impacts upon the use of and access to built/amenity assets and infrastructure
	MA2: To contribute towards the reuse and regeneration of brownfield sites	MA2: Extent of brownfield land reused and regenerated which has been facilitated by the Plan	MA2: To maximise the sustainable reuse and regeneration of brownfield sites
	MA3: To reduce waste volumes, minimise waste to landfill and increase recycling and reuse	MA3: Preparation and implementation of construction and environmental management plans	MA3: For construction and environmental management plans to be prepared and implemented for relevant projects

³⁴ 'Annexed habitats and species' refer to those listed under Annex I, II & IV of the EU Habitats Directive and Annex I of the EU Birds Directive.

³⁵ Except as provided for in Article 6(4) of the Habitats Directive, viz. There must be:

- (a) No alternative solution available;
- (b) Imperative reasons of overriding public interest for the plan/programme/project to proceed; and
- (c) Adequate compensatory measures in place.

Environmental Component	Strategic Environmental Objectives	Indicators	Targets
Water	W1: To contribute towards the maintenance and improvement, where possible, of the quality and status of surface waters	W1i: Interactions with classification of Overall Status (comprised of ecological and chemical status) under the European Communities Environmental Objectives (Surface Waters) Regulations 2009 (SI No. 272 of 2009) resulting from development provided for by the Plan W1ii: Mandatory and Guide values as set by the EU Bathing Water Directive and transposing Bathing Water Quality Regulations (SI No. 79 of 2008)	W1i: Not to cause deterioration in the status of any surface water or affect the ability of any surface water to achieve 'good status', subject to exemptions provided for by Article 4 of the WFD ³⁶ W1ii: To contribute towards the achievement of - as a minimum - Mandatory values and, where possible, to achieve Guide values as set by the EU Bathing Water Directive and transposing Bathing Water Quality Regulations (SI No. 79 of 2008)
	W2: To contribute towards maintaining and improving, where possible, the chemical and quantitative status of groundwaters	W2: Interactions with Groundwater Quality Standards and Threshold Values under Directive 2006/118/EC resulting from wind energy development (including associated development) permitted by planning authorities adhering to the Guidelines	W2: Not to affect the ability of groundwaters to comply with Groundwater Quality Standards and Threshold Values under Directive 2006/118/EC, subject to exemptions provided for by Article 4 of the WFD
	W3: To contribute towards compliance with the provisions of the Flood Risk Management Guidelines	W3: Compliance of relevant lower tier assessments and decision making with the Flood Risk Management Guidelines	W3: For lower tier assessments and decision making to comply with the Flood Risk Management Guidelines
Landscape	L1: To contribute towards avoidance or, where infeasible, minimisation of conflicts with the appropriate protection of statutory designations relating to the landscape, including those included in the land use plans of planning authorities	L1: Number of unmitigated conflicts with the appropriate protection of statutory designations relating to the landscape, including those included in the land use plans of planning authorities, resulting from development provided for by the Plan	L1: No unmitigated conflicts with the appropriate protection of statutory designations relating to the landscape
Cultural Heritage	CH1: To contribute towards the protection of archaeological heritage (including entries to the Record of Monuments and Places) and its context	CH1: Percentage of entries to the Record of Monuments and Places - including Zones of Archaeological Potential (and the context of the above within the surrounding landscape where relevant) - protected from significant adverse effects resulting from development provided for by the Plan	CH1: Contribution towards the protection of archaeological heritage (including entries to the Record of Monuments and Places) and its context
	CH2: To contribute towards the protection of architectural heritage (including entries to the Record of Protected Structures, entries to the National Inventory of Architectural Heritage and Architectural Conservation Areas) and its context	CH2: Percentage of entries to the Record of Protected Structures and Architectural Conservation Areas and their context protected from significant adverse effects resulting from development provided for by the Plan	CH2: Contribution towards the protection of architectural heritage (including entries to the Record of Protected Structures, entries to the National Inventory of Architectural Heritage and Architectural Conservation Areas) and its context
Soil	S1: To minimise land take and loss to extent of soil resource	S1: Artificial surfaces land cover extent	S1: Contribute towards the target of the National Planning Framework's SEA (2018) to "Maintain built surface cover nationally to below the EU average of 4%."

³⁶ Article 4 of the WFD sets out various exemptions for deterioration in status caused as a result of certain physical modifications to water bodies. This is provided: all practicable mitigation measures are taken; there are reasons of overriding public interest or the benefits to human health, safety or sustainable development outweigh the benefits in achieving the WFD objective; there are no better alternatives; and the reasons for the physical modification are explained in the relevant River Basin Management Plan.

Section 6 Description of Alternatives

6.1 Need for the Plan

The emergence of increasing road congestion in recent years has underlined the need to provide an enhanced level of public transport provision to provide an alternative to car-based commuting. Congestion is a challenge that must be addressed by the transport system in a context where significant population growth, and associated economic activity and social, cultural and recreational activity is being planned for.

Furthermore, the significance of the need for action to reduce the use of fossil fuels and diminish the generation of greenhouse gases is recognised and required by legislation. The National Transport Authority is required to adhere to the National Climate Change Adaptation Framework, which was published by the Minister for Communications, Climate Action and Environment in 2018, and the Department of Transport, Tourism and Sport's Sectoral Adaptation Plan, published in 2017.

The National Transport Authority is required by the Dublin Transport Authority Act 2008 to prepare a six year Integrated Implementation Plan to, inter alia, facilitate the implementation of the Transport Strategy for the Greater Dublin Area 2016-2025. The Transport Strategy, which was subject to full SEA and Stage 2 AA, is therefore a key in shaping the six-year Integrated Infrastructure Plan.

6.2 Existing provisions already in place

The Transport Strategy for the Greater Dublin Area 2016-2035 establishes an overall framework for transport investment in Counties Dublin, Meath, Kildare and Wicklow over the next two decades.

The Transport Strategy (and consequently the Implementation Plan) focuses on improving public and sustainable transport across the Greater Dublin Area while seeking to ensure primacy for transport options that provide for unit reductions in carbon emissions. This involves: promoting public transport, walking and cycling; seeking to reduce car use in circumstances where alternative options are

available; and transitioning to lower emission vehicles for transport use. Transport Strategy provisions include those relating to: light rail; including the development of the MetroLink project; heavy rail (inclusive of expanded electrification on the suburban rail lines); cycling facilities; pedestrian movement; interchange facilities; information provision; and park and ride developments. To date the Authority has focused significant levels of investment in these sustainable modes, including the reopening of the Phoenix Park Tunnel and the delivery of Luas Cross City. The continuation of this focus is facilitated by the Transport Strategy and it is intended that it will continue under the Implementation Plan.

Most proposals included within the Plan have been already included within plans that have already been subject to SEA including the Transportation Strategy for the Greater Dublin Area 2016-2035, Project Ireland 2040 (including the National Planning Framework 2018) and the Greater Dublin Area Cycle Network Plan 2016.

In addition to aligning with the Transportation Strategy, the Implementation Plan aligns with other existing provisions including those included within the Project Ireland 2040 (including the National Planning Framework 2018) and the Greater Dublin Area Cycle Network Plan 2016. These existing provisions have been subject to SEA.

6.3 Alternatives

The various elements of the Plan are at different stages in the planning/environmental process. Furthermore, different elements of the Plan will be developed by different agencies, at different times, according to different funding allocations. For these reasons the alternatives are expressed as alternative scenarios about the sequence and degree of implementation of key elements that make up the Plan.

Transportation is highly integrated with both land-use planning and the provision of other public infrastructure, such as water services. Different alternative scenarios will give rise to different land-use patterns, resulting in different environmental effects.

The following three alternative scenarios are examined:

- Scenario A: Balanced Bus and Rail;
- Scenario B: MetroLink Prioritisation of Funding; and
- Scenario C: MetroLink Reduced Funding.

Each scenario has been developed in line with government priorities in investment and taking into account the overarching provisions of the Transport Strategy for the Greater Dublin Area 2016-2035.

6.3.1 Scenario A: Balanced Bus and Rail

This scenario will advance the implementation of the National Transport Authority's Transport Strategy in a manner which balances investment into rail and bus projects (including both the Core Bus Network and the new MetroLink urban light rail metro service project), along with the complimentary implementation of cycling and walking infrastructure across the Greater Dublin Area.

This scenario will give rise to orderly development with balanced patterns of land use allocation – resulting in a greater likelihood of financially viable supporting utilities and amenities – as well as earlier attainment of income generation goals (through fares from orderly provision of new housing concentrations at scale). Growth will be balanced as a result of this scenario.

6.3.2 Scenario B: MetroLink Prioritisation of Funding

This scenario will advance the implementation of the National Transport Authority's Transport Strategy in a manner which prioritises investment into rail projects (specifically the new MetroLink) along with the complimentary implementation of cycling and walking infrastructure across the Greater Dublin Area.

In established urban nodes served by the MetroLink project and its associated feeder routes, this scenario will give rise to orderly development with very concentrated patterns of land use allocation within the immediate catchment of new stations. This will result in a

in a greater likelihood of financially viable supporting utilities and amenities – as well as earlier attainment of income generation goals (through fares from orderly provision of new housing concentrations at scale). However, elsewhere in the Greater Dublin Area, growth will be uneven as a result of this scenario.

6.3.3 Scenario C: MetroLink Reduced Funding

This scenario will advance the implementation of the National Transport Authority's Transport Strategy in a manner which prioritises investment into bus projects (including the Core Bus network), along with the complimentary implementation of cycling and walking infrastructure across the Greater Dublin Area.

This scenario will give rise to orderly development with very dispersed patterns of land use allocation within the Greater Dublin Area. This will result in a significantly reduced and/or deferred likelihood of financially viable supporting utilities and amenities – as well as much later attainment of income generation goals (through loss of fares from orderly provision of new housing concentrations at scale). Growth will be very uneven as a result of this scenario.

Section 7 Evaluation of Alternatives

7.1 Introduction

This section provides a comparative evaluation of the environmental effects of implementing the alternative scenarios described in Section 6. This determination sought to understand whether each alternative was likely to improve, conflict with or have a neutral interaction with environmental components.

7.2 Methodology

The relevant aspects of the current state of the environment (see Section 4) and the Strategic Environmental Objectives (see Section 5 and Table 7.1) are used in the evaluation of alternatives.

The alternatives are evaluated using compatibility criteria (see Table 7.2) in order to determine how they would be likely to affect the status of the SEOs. The SEOs and the alternatives are arrayed against each other to identify which interactions - if any - would cause effects on specific components of the environment. Where the appraisal identifies a likely conflict with the status of an SEO the relevant SEO code is entered into the conflict column - e.g. B1 which stands for the SEO likely to be affected - in this instance *'to contribute towards compliance with the Habitats and Birds Directives with regard to the protection of European Sites and Annexed habitats and species'*³⁷.

The interactions identified are reflective of likely significant environmental effects³⁸.

The degree to which effects can be determined is limited as the Plan will be implemented through the lower tier environmental assessments and decision making of planning authorities and An Bord Pleanála. Nonetheless a comparative evaluation of the various alternatives can be provided.

³⁷ 'Annexed habitats and species' refer to those listed under Annex I, II & IV of the EU Habitats Directive and Annex I of the EU Birds Directive.

³⁸ These effects include secondary, cumulative, synergistic, short, medium and long-term permanent and temporary, positive and negative effects.

Table 7.1 Strategic Environmental Objectives

Environmental Component	SEO Code	SEO
Air and Climatic Factors	SEO AC1	To contribute towards reductions in travel related emissions (including pollutants, noise and greenhouse gas emissions) to air
	SEO AC2	To encourage modal change from car to more sustainable forms of transport
	SEO AC3	To facilitate a reduction in energy use by the transport sector and an increase in the proportion of energy from renewable sources by the transport sector
Population and Human Health	SEO PHH1	To develop transport infrastructure and services closer to urban/suburban areas thereby facilitating consolidation of growth and limiting urban sprawl
	SEO PHH2	To contribute towards the protection of populations and human health from exposure to incompatible land uses
Biodiversity, Flora and Fauna	SEO B1	To contribute towards compliance with the Habitats and Birds Directives with regard to the protection of European Sites and Annexed habitats and species ³⁹
	SEO B2	To contribute towards compliance with Article 10 of the Habitats Directive with regard to the management of features of the landscape which - by virtue of their linear and continuous structure or their function as stepping stones (designated or not) - are of major importance for wild fauna and flora and essential for the migration, dispersal and genetic exchange of wild species
	SEO B3	To contribute towards avoidance of significant impacts on relevant habitats, species, environmental features or other sustaining resources in designated sites including Wildlife Sites and to contribute towards compliance with the Wildlife Acts 1976-2012 with regard to the protection of listed species
Material Assets	SEO MA1	To contribute towards the protection of built/amenity assets and infrastructure
	SEO MA2	To assist with the reuse and regeneration of brownfield sites
	SEO MA3	To reduce waste volumes, minimise waste to landfill and increase recycling and reuse
Water	SEO W1	To contribute towards the maintenance and improvement, where possible, of the quality and status of surface waters
	SEO W2	To contribute towards maintaining and improving, where possible, the chemical and quantitative status of groundwaters
	SEO W3	To comply as appropriate with the provisions of the Flood Risk Management Guidelines
Landscape	SEO L1	To contribute towards avoidance or, where infeasible, minimisation of conflicts with the appropriate protection of statutory designations relating to the landscape, including those included in the land use plans of planning authorities
Cultural Heritage	SEO CH1	To contribute towards the protection of archaeological heritage (including entries to the Record of Monuments and Places) and its context
	SEO CH2	To contribute towards the protection of architectural heritage (including entries to the Record of Protected Structures, entries to the National Inventory of Architectural Heritage and Architectural Conservation Areas) and its context
Soil	SEO S1	To minimise land take and loss to extent of soil resource

Table 7.2 Criteria for appraising the effect of Alternatives on SEOs

Likely to Improve status of SEOs to a greater degree	Likely to Improve status of SEOs to a lesser degree	Least Potential Conflict with status of SEOs- likely to be mitigated	Potential Conflict with status of SEOs- likely to be mitigated	Most Potential Conflict with status of SEOs- likely to be mitigated	Probable Conflict with status of SEOs- unlikely to be mitigated
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³⁹ 'Annexed habitats and species' refer to those listed under Annex I, II & IV of the EU Habitats Directive and Annex I of the EU Birds Directive.

7.3 Cumulative Effects

Cumulative effects are one of the types of effects which have been considered by the assessment. Cumulative effects can be described as the addition of many small impacts to create one larger, more significant, impact.

There are 2 types of cumulative effects that have been considered, namely:

- *Intra-Plan* cumulative effects - these arise from the interactions between different types of environmental effects resulting from a plan, programme, etc. The interrelationships between environmental components that help determine these effects are identified on Table 8.4 e.g. interrelationships between: human health and air quality; human health and water quality; air quality and vegetation; human health and flood risk; and ecology and water quality. Effects that have been identified by the assessment (see Table 8.4) include those which are interrelated; implementation of the Plan will not affect the interrelationships between these components.
- *Inter-Plan* cumulative effects - these arise when the effects of the implementation of one plan occur in combination with those of other plans, programmes, projects, etc. With regard to potential *inter-Plan* cumulative environmental effects, these occur as a result of the combination of: environmental effects which are identified by the assessment; and the effects arising from other policies, plans and programmes.

Other legislation, plans, programmes or developments arising that have been considered by the assessment of environmental effects include those which are detailed under Sections 2, 3, 4, 5, 6 and Appendix I. The types of plans and programmes which are most likely to interact with the Transport Plan include those relating to transport and land use planning. Figure 3.2 details the Hierarchy of Planning and Environmental Assessment and the levels at which environmental assessment is undertaken. This assessment of the Plan recognises the existence of other environmental assessments (of both transport and land use related plans and developments) with a view to avoid duplication of assessment, in compliance with the SEA Directive.

Other policies, plans and programmes that have been considered by the assessment of effects include those which are detailed under Sections 2.4 (and associated Appendix I "Relationship with Legislation, Plans and Programmes") and 3.2 "Hierarchy of Planning and Environmental Assessment. Policies, plans and programmes from various sectors will interact with the Guidelines, including those relating to transport and land use planning. These policies, plans and programmes are subject to their own environmental assessment requirements (SEA, EIA, AA and FRA) as relevant. Examples include policy, plans and programmes for:

- Transport (e.g. Transportation Strategy for the Greater Dublin Area 2016-2035, Project Ireland 2040 - including the National Planning Framework 2018 - and the Greater Dublin Area Cycle Network Plan 2016);
- Land use (e.g. Project Ireland 2040 - including the National Planning Framework 2018 -, Regional Spatial and Economic Strategies, Development Plans, Local Area Plans and Planning Schemes);
- Water services, waste management and energy infrastructure (e.g. Irish Water's Water Services Strategic Plan and associated Capital Investment Plan and Regional Waste Management Plans); and
- Environmental protection and management (e.g. River Basin Management Plan 2018-2021, National Mitigation Plan 2017, National Adaptation Framework 2018 and Flood Risk Management Plans).

Potential cumulative/in-combination effects include:

- Contributions towards management of traffic and a shift from motorised transport modes to more sustainable and non-motorised transport modes, in combination with plans and programmes from various sectors, including transport and land use planning.

- Contributions towards reductions in greenhouse gas and other emissions to air and associated achievement of legally binding targets (in combination with plans and programmes from all sectors, including energy, transport and land use planning) as a result of facilitating:
 - A shift from car to more sustainable and non-motorised transport mode;
 - A transition to lower emission vehicles for transport use; and
 - More consolidated urban areas and reductions in sprawl.
- Contributions towards in travel related greenhouse gas and other emissions to air (in combination with plans and programmes from all sectors, including transport and land use planning) as a result of facilitating transport infrastructure and services. This has been mitigated by provisions which have been integrated into the Plan, including those relating to sustainable mobility.
- Contributions towards energy security and reductions in energy usage (in combination with plans and programmes from all sectors, including energy, transport and land use planning) as a result of facilitating:
 - A shift from car to more sustainable and non-motorised transport mode;
 - A transition to lower emission vehicles for transport use; and
 - More consolidated urban areas and reductions in sprawl.
- Contributions towards the enhancement of cultural heritage (archaeological and architectural) and its context in urban areas and their surrounds (in combination with the provisions of land use plans that have undergone SEA), as a result of replacing motorised transport modes with more sustainable and non-motorised modes such as walking, cycling and light rail.
- Potential effects on all environmental components arising from the construction of new transport related development (in combination with all development arising from plans and programmes from all sectors). The type of these effects are consistent with those described on Table 7.3.

The SEA undertaken for the Plan has taken account of the need for the implementation of the Plan to comply with all environmental legislation and align with and cumulatively contribute towards – in combination with other users and bodies and their plans etc. – the achievement of the objectives of the regulatory framework for environmental protection and management.

7.4 Detailed Evaluation of Alternatives

7.4.1 Effects Common to all Alternatives

Significant positive effects likely to occur and potentially significant adverse effects, if unmitigated, that are common to all alternatives are identified on Table 7.3.

Table 7.3 Effects Common to all Alternatives

Environmental Component	Significant Positive Effect likely to occur	Potentially Significant Adverse Effect, if unmitigated
Air and climatic factors	<ul style="list-style-type: none"> Contributions towards reductions in greenhouse gas and other emissions to air and associated achievement of legally binding targets (in combination with plans and programmes from all sectors, including energy, transport and land use planning) as a result of: facilitating a shift from car to more sustainable and non-motorised transport modes; and facilitating more consolidated urban areas and reductions in sprawl. Contributions towards reductions in consumption from non-renewables and associated achievement of legally binding renewable energy targets, including sectoral targets for transport (in combination with plans and programmes from all sectors, including energy, transport and land use planning). Contributions towards managing traffic flows (and associated management of adverse effects as a result of traffic on air quality and noise levels). 	<ul style="list-style-type: none"> Emissions to air and associated issues.
Population and human health	<ul style="list-style-type: none"> Provides for the development of transport infrastructure and services in locations which will facilitate use by those living and working in urban/suburban areas. Facilitates contribution towards the protection of human health as a result of contributing towards the protection of environmental vectors, especially air. 	<ul style="list-style-type: none"> Potential interactions if effects upon environmental vectors such as air are not mitigated
Biodiversity and flora and fauna	<ul style="list-style-type: none"> Facilitates lower overall effects on ecology (including designated sites, ecological connectivity, habitats) – due to increased utilisation of lands within existing development boundaries and use of existing utilities and brownfield sites. Contributions towards the protection of vegetation as a result of contributing towards the protection of environmental vectors, especially air. Potential ecological enhancement interventions along transport corridors. 	<ul style="list-style-type: none"> Arising from both construction and operation of transport infrastructure and services and associated facilities/ infrastructure: loss of/damage to biodiversity in designated sites, ecological connectivity and non-designated habitats; and disturbance to biodiversity and flora and fauna. Habitat loss, fragmentation and deterioration, including patch size and edge effects. Disturbance (e.g. due to noise and lighting along transport corridors) and displacement of protected species and coastal squeeze. Effects in riparian zones where new crossings of waters, if any, are progressed. Potential effects on vegetation from transport emissions.

Environmental Component	Significant Positive Effect likely to occur	Potentially Significant Adverse Effect, if unmitigated
Material Assets	<ul style="list-style-type: none"> Contributions towards energy security (in combination with plans and programmes from all sectors, including energy, transport and land use planning) as a result of reducing traffic flows and associated energy use. Contributions towards a mode shift away from the private car to public transport, walking and cycling and associated enhancement of the public realm. Contributions towards the protection of built/amenity assets and infrastructure. Contributions towards the reuse and regeneration of brownfield lands thereby contributing towards a higher efficiency of land utilisation, sustainable mobility and a reduction in the need to develop greenfield lands. By facilitating increased utilisation of lands within existing development boundaries and use of existing utilities and brownfield sites there will be lower adverse effects upon ecology, landscape designations, architectural and archaeological heritage and soil. Contributions towards appropriate waste management. 	<ul style="list-style-type: none"> Generation of construction waste. Loss or damage to built/amenity assets and infrastructure including as a result of new or widened transport infrastructure.
Water	<ul style="list-style-type: none"> Contributions towards lower effects on ground and surface waters due to higher levels of development within established and serviced settlement centres that have installed/upgraded water services capable of delivering Water Framework Directive targets. Contributions towards compliance with the Flood Risk Management Guidelines. 	<ul style="list-style-type: none"> Adverse impacts upon the status of water bodies and entries to the WFD Register of Protected Areas, arising from changes in quality, flow and/or morphology. Increase in the risk of flooding.
Landscape	<ul style="list-style-type: none"> Contributions towards the protection of landscape designations as a result of facilitating compliance with relevant plans. 	<ul style="list-style-type: none"> Occurrence of adverse visual impacts and conflicts with the appropriate protection of statutory designations relating to the landscape.
Cultural Heritage	<ul style="list-style-type: none"> Contributions towards the protection of cultural heritage (archaeological and architectural) as a result of facilitating compliance with relevant legislation. Contributions towards the enhancement of cultural heritage and its context in urban areas and their surrounds as a result of replacing motorised modes with more sustainable and non-motorised modes of transport such as walking, cycling and light rail/metro. 	<ul style="list-style-type: none"> Potential effects on protected and unknown archaeology and protected architecture arising from construction and operation activities, including as a result of increasing traffic flows.
Soil	<ul style="list-style-type: none"> Minimises land-take and loss of extent of soil resource – as a result of facilitating increased utilisation of lands within existing development boundaries and use of existing utilities and brownfield sites. Contributions towards the protection of the environment from contamination arising from brownfield development. Contributions towards the protection of features or areas of geological / geomorphological interest. 	<ul style="list-style-type: none"> Adverse impacts on the hydrogeological and ecological function of the soil resource as a result of construction of transport and associated transport facilities/ infrastructure. Adverse impacts on features or areas of geological / geomorphological interest as a result of construction of transport and associated transport facilities/ infrastructure. Potential for increase in coastal erosion.

7.4.2 Scenario A: Balanced Bus and Rail⁴⁰

This scenario will advance the implementation of the Transport Strategy for the Greater Dublin Area 2016-2035 in a manner which balances investment into rail and bus projects (including both the Core Bus Network and the new MetroLink urban light rail metro service project), along with the complimentary implementation of cycling and walking infrastructure across the Greater Dublin Area.

This scenario will give rise to orderly development with balanced patterns of land use allocation – resulting in a greater likelihood of financially viable supporting utilities and amenities – as well as earlier attainment of income generation goals (through fares from orderly provision of new housing concentrations at scale). Growth will be balanced as a result of this scenario.

This scenario will give rise to the least adverse environmental effects⁴¹ as it would facilitate the concentration of development around planned nodes – which will have appropriate social, environmental and mobility resources – because development will occur on lands that have been zoned and subject to SEA, AA and SFRA. Orderly development of this kind will give rise to the least adverse effects on populations, biodiversity and environmental components including air and water. The orderly and timely provision of services will help to anticipate and avoid effects on water and associated interactions with ecology and human health.

This scenario will:

- Facilitate the greatest improvement in sustainable mobility of all alternatives (reducing and limiting increases in the number of journeys by car taken as a percentage of all journeys taken), thereby facilitating the greatest reduction and limit of increases in greenhouse gas emissions, noise emissions and other emissions to air (with associated effects on human health). Such emissions would occur otherwise with higher levels of motorised transport and associated traffic. By significantly increasing the potential for plan-led, integrated development, greater usage of public transportation and less movement within denser settlements, this alternative would also be likely to result in a higher efficiency of energy resource utilisation.⁴²
- Provide for the development of transport infrastructure and services in locations which will facilitate use by those living and working in urban/suburban areas.⁴³
- Facilitate lower overall effects on ecology (including designated sites, ecological connectivity, habitats) – due to increased utilisation of lands within existing development boundaries and use of existing utilities and brownfield sites.⁴⁴
- Facilitate the reuse and regeneration of brownfield lands thereby contributing towards a higher efficiency of land utilisation, sustainable mobility and a reduction in the need to develop greenfield lands. By facilitating increased utilisation of lands within existing development boundaries and use of existing utilities and brownfield sites there will be lower adverse effects upon ecology, landscape designations, architectural and archaeological heritage and land take/ soil.⁴⁵
- Facilitate lower effects on ground and surface waters due to higher levels of development within established and serviced settlement centres that have installed/upgraded water services capable of delivering Water Framework Directive targets (and associated effects on the protection of ecology and human health).⁴⁶

⁴⁰ Footnotes like this are used in this section in order to identify instances where interactions between the relevant alternative and the relevant SEOs occur. The nature of these interactions is identified on Table 7.4.

⁴¹ SEOs AC1 PHH2 B1 B2 B3 MA1 MA3 W1 W2 W3 L1 CH1 CH2 S1

⁴² SEOs AC1 AC2 AC3 PHH2

⁴³ SEO PHH1

⁴⁴ SEOs B1 B2 B3 MA1

⁴⁵ SEOs MA2 AC1 AC2 AC3 PHH1 B1 B2 B3 W1 W2 W3 PHH2 CH1 CH2 L1 S1

⁴⁶ SEOs W1 W2 W3 B1 B2 B3 PHH2

- Facilitate the enhancement of cultural heritage and its context in urban areas and their surrounds as a result of replacing motorised transport modes with more sustainable and non-motorised modes such as walking, cycling and the new MetroLink.⁴⁷
- The higher levels of certainty under this alternative is likely to increase spatial concentrations of market-led development – residential, commercial and industrial – in areas that are consistent with regional and local land-use planning objectives. These planning objectives are required to be subject to SEA, AA and SFRA that facilitate the integration of environmental considerations. Also, the timely availability of transportation infrastructure will significantly increase the likelihood of co-location of other services – especially water services – in areas that are consistent with the principles of proper planning and sustainable development.⁴⁸

7.4.3 Scenario B: MetroLink Prioritisation of Funding

This scenario will advance the implementation of the Transport Strategy for the Greater Dublin Area 2016-2035 in a manner which prioritises investment into rail projects (specifically the new MetroLink) along with the complimentary implementation of cycling and walking infrastructure across the Greater Dublin Area.

In established urban nodes served by the MetroLink project and its associated feeder routes, this scenario will give rise to orderly development with very concentrated patterns of land use allocation within the immediate catchment of new stations. This will result in a greater likelihood of financially viable supporting utilities and amenities – as well as earlier attainment of income generation goals (through fares from orderly provision of new housing concentrations at scale). However, elsewhere in the Greater Dublin Area, growth will be uneven as a result of this scenario.

In established urban nodes served by the MetroLink project and its associated feeder routes, this scenario will give rise to a low amount and extent of adverse environmental effects⁴⁹ as it would facilitate the concentration of development around planned nodes – which will have appropriate social, environmental and mobility resources, because development will occur on lands that have been zoned and subject to SEA, AA and SFRA. Orderly development of this kind will give rise to least adverse effects on – and therefore would contribute towards the protection of – populations, biodiversity and environmental components including air and water⁵⁰. The orderly and timely provision of services will help to anticipate and avoid effects on water and associated interactions with ecology and human health.

In established urban nodes served by the MetroLink project and its associated feeder routes, Scenario B will give rise to the effects described under Section 7.4.2.

However, elsewhere in the Greater Dublin Area, under this scenario:

- There will be uneven growth which would mean that unsustainable patterns of mobility and land-use will persist – with unchanged trend levels of effects on populations, biodiversity and environmental components including air and water.⁵¹
- There would be an increased likelihood of congestion and delay issues at critical locations including major junctions, especially along the M50 in the near term; and over-crowding on key public transport routes, especially within the M50. Congestion will mean that there will be significant delays in reaching targets for lower emissions to air – including noise and pollutants – and this will be compounded by lower utilisation of public transportation. There would be a failure to maximise contributions towards improving sustainable mobility (there would be increases in the number of journeys by car taken as a percentage of all journeys

⁴⁷ SEOs CH1 CH2

⁴⁸ SEOs AC1 AC2 AC3 PHH1 PHH2 B1 B2 B3 MA1 MA2 MA3 W1 W2 W3 L1 CH1 CH2 S1

⁴⁹ SEOs AC1 PHH2 B1 B2 B3 MA1 MA3 W1 W2 W3 L1 CH1 CH2 S1

⁵⁰ SEOs AC1 PHH2 B1 B2 B3 MA1 MA3 W1 W2 W3 L1 CH1 CH2 S1

⁵¹ SEOs AC1 PHH2 B1 B2 B3 MA1 MA3 W1 W2 W3 L1 CH1 CH2 S1

taken) and a failure to contribute towards managing traffic flows. Uneven growth would also be likely to result in a reduced efficiency of energy resource utilisation.⁵²

- There would not be enough transport infrastructure and services to maximise use by those living and working in urban/suburban areas.⁵³

7.4.4 Scenario C: MetroLink Reduced Funding

This scenario will advance the implementation of the Transport Strategy for the Greater Dublin Area 2016-2035 in a manner which prioritises investment into bus projects (including the Core Bus network), along with the complimentary implementation of cycling and walking infrastructure across the Greater Dublin Area.

This scenario will give rise to orderly development with very dispersed patterns of land use allocation within the Greater Dublin Area. This will result in a significantly reduced and/or deferred likelihood of financially viable supporting utilities and amenities, as well as much later attainment of income generation goals (through loss of fares from orderly provision of new housing concentrations at scale). Growth will be very uneven as a result of this scenario.

This scenario would:

- Through the progression of bus projects, facilitate the improvements in sustainable mobility (reducing and limiting increases in the number of journeys by car taken as a percentage of all journeys taken), thereby facilitating the greatest reduction and limit of increases in greenhouse gas emissions, noise emissions and other emissions to air (with associated effects on human health). Such emissions would occur otherwise with higher levels of car transport and associated traffic. By increasing the potential for plan-led, integrated development in some areas and greater usage of bus transportation, this alternative would also be likely to contribute towards a higher efficiency of energy resource utilisation.⁵⁴
- Facilitate orderly development in some (dispersed) locations, including lands that have been zoned and subject to SEA, AA and SFRA; this would contribute towards sustainable development and environmental protection and management locally⁵⁵.

This scenario gives rise to the most potential adverse environmental effects⁵⁶ as:

- Development will not concentrate solely around planned nodes – which will have appropriate social, environmental and mobility resources. Very uneven growth means that unsustainable patterns of mobility and land-use will persist throughout the Greater Dublin Area on both zoned and unzoned lands as well as in areas with poor public transport.⁵⁷
- There would be an increased likelihood of congestion and delay issues at critical locations including major junctions, especially along the M50 in the near term; and over-crowding on key public transport routes, especially within the M50. Congestion will mean that there will be significant delays in reaching targets for lower emissions to air – including noise and pollutants – and this will be compounded by lower utilisation of public transportation. There would be a failure to maximise contributions towards improving sustainable mobility (there would be increases in the number of journeys by car taken as a percentage of all journeys taken) and a failure to contribute towards managing traffic flows. Uneven growth would also be likely to result in a reduced efficiency of energy resource utilisation.⁵⁸

⁵² SEOs AC1 AC2 AC3 PHH2

⁵³ SEO PHH1

⁵⁴ SEOs AC1 AC2 AC3 PHH2

⁵⁵ SEOs AC1 AC2 AC3 PHH1 PHH2 B1 B2 B3 MA1 MA2 MA3 W1 W2 W3 L1 CH1 CH2 S1

⁵⁶ SEOs AC1 PHH2 B1 B2 B3 MA1 MA3 W1 W2 W3 L1 CH1 CH2 S1

⁵⁷ SEOs AC1 AC2 AC3 PHH1 PHH2

⁵⁸ SEOs AC1 AC2 AC3 PHH2

- There would not be enough transport infrastructure and services to maximise use by those living and working in urban/suburban areas.⁵⁹
- Very uneven development will give rise to adverse effects on populations, biodiversity and environmental components including air and water.⁶⁰
- The lack of orderly and timely provision of services will generally not avoid effects on water and associated interactions with ecology and human health.⁶¹

Table 7.4 Evaluation of Alternatives against SEOs

Alternative	Likely to <u>Improve</u> status of SEOs to a <u>greater</u> degree	Likely to <u>Improve</u> status of SEOs to a <u>lesser</u> degree	<u>Least Potential Conflict</u> with status of SEOs- likely to be mitigated	<u>Potential Conflict</u> with status of SEOs- likely to be mitigated	<u>Most Potential Conflict</u> with status of SEOs- likely to be mitigated	Probable <u>Conflict</u> with status of SEOs- unlikely to be mitigated
Scenario A: Balanced Bus and Rail	AC1 AC2 AC3 PHH1 PHH2 B1 B2 B3 MA1 MA2 MA3 W1 W2 W3 L1 CH1 CH2 S1		AC1 AC2 AC3 PHH1 PHH2 B1 B2 B3 MA1 MA2 MA3 W1 W2 W3 L1 CH1 CH2 S1			
Scenario B: MetroLink Prioritisation of Funding		AC1 AC2 AC3 PHH1 PHH2 B1 B2 B3 MA2 W1 W2 W3 L1 CH1 CH2 S1		AC1 AC2 AC3 PHH1 PHH2 B1 B2 B3 MA1 MA2 MA3 W1 W2 W3 L1 CH1 CH2 S1		
Scenario C: MetroLink Reduced Funding		AC1 AC2 AC3 PHH1 PHH2 B1 B2 B3 MA2 W1 W2 W3 L1 CH1 CH2 S1			AC1 AC2 AC3 PHH1 PHH2 B1 B2 B3 MA1 MA2 MA3 W1 W2 W3 L1 CH1 CH2 S1	

7.5 Selected Alternative

The most preferable outcome from the environmental assessment of alternatives is identified as being Alternative Scenario A and the approach outlined by this alternative is the one that is followed by the Plan.

This alternative will give rise to orderly development with balanced patterns of land use allocation – resulting in a greater likelihood of financially viable supporting utilities and amenities – as well as earlier attainment of income generation goals (through fares from orderly provision of new housing concentrations at scale). Growth will be balanced as a result of this alternative.

This alternative will also facilitate the greatest improvement in sustainable mobility of all alternatives (reducing and limiting increases in the number of journeys by car taken as a percentage of all journeys taken), thereby facilitating the greatest reduction and limit of increases in greenhouse gas emissions, noise emissions and other emissions to air (with associated effects on human health).

Potentially significant adverse environmental effects will be mitigated by the various provisions that have been integrated into the Plan (see Section 9 of this report).

⁵⁹ SEO PHH1

⁶⁰ SEOs PHH1 PHH2 B1 B2 B3 MA1 MA3 W1 W2 W3 L1 CH1 CH2 S1

⁶¹ SEOs MA1 MA2 W1 W2 B1 B2 B3 PHH2

Section 8 Evaluation of Plan Provisions

8.1 Introduction

The relevant aspects of the current state of the environment (see Section 4) and the Strategic Environmental Objectives (see Section 5 and Table 8.1) are used in the evaluation of alternatives.

The provisions are evaluated using compatibility criteria (see Table 8.2 overleaf) in order to determine how they would be likely to affect the status of the SEOs. The SEOs and the Plan provisions are arrayed against each other to identify which interactions - if any - would cause effects on specific components of the environment. Where the appraisal identifies a likely conflict with the status of an SEO the relevant SEO code is entered into the conflict column - e.g. B1 which stands for the SEO likely to be affected - in this instance 'to contribute towards compliance with the Habitats and Birds Directives with regard to the protection of European Sites and Annexed habitats and species ⁶²'.

The interactions identified are reflective of likely significant environmental effects⁶³:

1. Interactions that would be likely to improve the status of a particular SEO would be likely to result in a significant positive effect on the environmental component to which the SEO relates.
2. Interactions that would potentially conflict with the status of an SEO and would be likely to be mitigated would be likely to result in potential significant negative effects however these effects will be mitigated by measures which have been integrated into the Plan (see Section 9).
3. Interactions that would probably conflict with the status of an SEO and would be unlikely to be mitigated would be likely to result in a significant negative effect on the environmental component to which the SEO relates.

The degree to which effects can be determined is limited as the Plan will be implemented through the lower tier environmental assessments and decision making of planning authorities.

⁶² 'Annexed habitats and species' refer to those listed under Annex I, II & IV of the EU Habitats Directive and Annex I of the EU Birds Directive.

⁶³ These effects include secondary, cumulative (see Section 7.3), synergistic, short, medium and long-term permanent and temporary, positive and negative effects.

Table 8.1 Strategic Environmental Objectives

Environmental Component	SEO Code	SEO
Air and Climatic Factors	SEO AC1	To contribute towards reductions in travel related emissions (including pollutants, noise and greenhouse gas emissions) to air
	SEO AC2	To encourage modal change from car to more sustainable forms of transport
	SEO AC3	To facilitate a reduction in energy use by the transport sector and an increase in the proportion of energy from renewable sources by the transport sector
Population and Human Health	SEO PHH1	To develop transport infrastructure and services closer to urban/suburban areas thereby facilitating consolidation of growth and limiting urban sprawl
	SEO PHH2	To contribute towards the protection of populations and human health from exposure to incompatible land uses
Biodiversity, Flora and Fauna	SEO B1	To contribute towards compliance with the Habitats and Birds Directives with regard to the protection of European Sites and Annexed habitats and species ⁶⁴
	SEO B2	To contribute towards compliance with Article 10 of the Habitats Directive with regard to the management of features of the landscape which - by virtue of their linear and continuous structure or their function as stepping stones (designated or not) - are of major importance for wild fauna and flora and essential for the migration, dispersal and genetic exchange of wild species
	SEO B3	To contribute towards avoidance of significant impacts on relevant habitats, species, environmental features or other sustaining resources in designated sites including Wildlife Sites and to contribute towards compliance with the Wildlife Acts 1976-2012 with regard to the protection of listed species
Material Assets	SEO MA1	To contribute towards the protection of built/amenity assets and infrastructure
	SEO MA2	To assist with the reuse and regeneration of brownfield sites
	SEO MA3	To reduce waste volumes, minimise waste to landfill and increase recycling and reuse
Water	SEO W1	To contribute towards the maintenance and improvement, where possible, of the quality and status of surface waters
	SEO W2	To contribute towards maintaining and improving, where possible, the chemical and quantitative status of groundwaters
	SEO W3	To comply as appropriate with the provisions of the Flood Risk Management Guidelines
Landscape	SEO L1	To contribute towards avoidance or, where infeasible, minimisation of conflicts with the appropriate protection of statutory designations relating to the landscape, including those included in the land use plans of planning authorities
Cultural Heritage	SEO CH1	To contribute towards the protection of archaeological heritage (including entries to the Record of Monuments and Places) and its context
	SEO CH2	To contribute towards the protection of architectural heritage (including entries to the Record of Protected Structures, entries to the National Inventory of Architectural Heritage and Architectural Conservation Areas) and its context
Soil	SEO S1	To minimise land take and loss to extent of soil resource

Table 8.2 Criteria for appraising the effect of Plan provisions on SEOs

Likely to Improve status of SEOs	Potential Conflict with status of SEOs- likely to be mitigated	Probable Conflict with status of SEOs- unlikely to be mitigated	No Likely interaction with status of SEOs
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⁶⁴ 'Annexed habitats and species' refer to those listed under Annex I, II & IV of the EU Habitats Directive and Annex I of the EU Birds Directive.

8.2 Overall Findings

The overall findings of the SEA are that:

- **Compliance with Legislation and Guidelines – Environmental Protection and Sustainable Development**

The National Transport Authority have integrated all recommendations arising from the SEA and AA processes into the Integrated Implementation Plan, facilitating compliance of the Plan with various European and National legislation and Guidelines relating to the protection of the environment and the achievement of sustainable development.

Implementation of the Plan will contribute towards efforts to achieve a number of the 17 Sustainable Development Goals⁶⁵ of the 2030 Agenda for Sustainable Development, which were adopted by world leaders in 2015 at a United Nations Summit and came into force in 2016.

- **Improvements in Sustainable Mobility and Associated Effects (emissions, noise and energy usage)**

The Plan facilitates improvements in sustainable mobility, including a shift from car to more sustainable and non-motorised transport modes, through the development of transport infrastructure and services and transitioning to lower emission vehicles. Improvements in sustainable mobility will result in the following positive effects:

- Reductions in/limits in increases of greenhouse gas emissions and associated achievement of legally binding greenhouse gas emissions targets;
- Reductions in/limits in increases of all emissions to air and associated achievement of air quality objectives, thereby contributing towards improvement of air quality and protection of human health;
- Reductions in/limits in increases of consumption of non-renewable energy sources and achievement of legally binding renewable energy targets; and
- Energy security.

- **Positive Effects in Urban Areas**

In combination with other plans and programmes, including those from the land use sector, the Plan facilitates more consolidated urban areas, reuse and regeneration of brownfield lands and reductions in sprawl. In this way the Plan would facilitate a higher efficiency of land utilisation, increases in sustainable mobility and a reduction in the need to develop greenfield lands. The reduced need to develop greenfield lands further away from existing urban areas would result in lower adverse effects upon ecology, landscape designations, architectural and archaeological heritage and soil.

Among other positive environmental effects, the Plan facilitates the enhancement of the public realm (including cultural heritage and its context) in urban areas by facilitating the replacement of motorised transport modes with more sustainable and non-motorised modes such as light rail/metro, cycling and walking.

⁶⁵ Including:

- Goal 3. Ensure healthy lives and promote well-being for all at all ages
- Goal 8. Promote sustained, inclusive and sustainable economic growth, full and productive employment and decent work for all
- Goal 9. Build resilient infrastructure, promote inclusive and sustainable industrialization and foster innovation
- Goal 11. Make cities and human settlements inclusive, safe, resilient and sustainable
- Goal 12. Ensure sustainable consumption and production patterns
- Goal 13. Take urgent action to combat climate change and its impacts
- Goal 14. Conserve and sustainably use the oceans, seas and marine resources for sustainable development
- Goal 15. Protect, restore and promote sustainable use of terrestrial ecosystems, sustainably manage forests, combat desertification, and halt and reverse land degradation and halt biodiversity loss

- **Potentially Significant Adverse Effects to be mitigated**

Potentially significant adverse environmental effects arising from the Plan are detailed on Table 8.3. These effects will be mitigated by the various provisions which have been integrated into the Plan including those which have arisen through the SEA and AA processes (see Section 9). These mitigating provisions together with the contribution that the Plan will make to sustainable mobility means that the Plan facilitates various significant positive effects upon the protection and management of environmental components.

Table 8.3 overleaf details the various types of environmental effects likely to arise with respect to the Integrated Implementation Plan as a direct result of development and activities under the Plan and in combination with the wider planning framework (see also Section 7.3). Environmental impacts which occur will be determined by the nature and extent of multiple or individual projects and site specific environmental factors. By complying with appropriate mitigation measures - including those which have been integrated into the Plan - potentially significant adverse environmental effects which could arise as a result of implementing the Plan would be likely to be avoided, reduced or offset.

8.3 Transboundary Effects (Northern Ireland)

Taking into account the geographical scope of Plan provisions (including the limited provisions contained in the Integrated Implementation Plan that apply outside of the Greater Dublin Area) and the detailed Plan provisions relating to environmental protection and management (please refer to Table 8.3 overleaf and Section 9 of this SEA Environmental Report), it is determined that significant environmental effects will not occur in Northern Ireland.

8.4 Alignment with the Transport Strategy for the Greater Dublin Area and Associated Issues/Assessment

The National Transport Authority is required by the Dublin Transport Authority Act 2008 to prepare a six year Integrated Implementation Plan to, inter alia, facilitate the implementation of the Transport Strategy for the Greater Dublin Area 2016-2025. The Transport Strategy, which was subject to full SEA and Stage 2 AA, is therefore a key in shaping the six-year Integrated Infrastructure Plan.

The Transport Strategy for the Greater Dublin Area 2016-2035 establishes an overall framework for transport investment in Counties Dublin, Meath, Kildare and Wicklow over the next two decades.

The Transport Strategy (and consequently the Implementation Plan) focuses on improving public and sustainable transport across the Greater Dublin Area while seeking to ensure primacy for transport options that provide for unit reductions in carbon emissions. This involves: promoting public transport, walking and cycling; seeking to reduce car use in circumstances where alternative options are available; and transitioning to lower emission vehicles for transport use.

Transport Strategy provisions include those relating to: light rail, including the development of the MetroLink project; the development of a Core Bus Network, inclusive of Bus Rapid Transit routes; heavy rail (inclusive of expanded electrification on the suburban rail lines); cycling facilities; pedestrian movement; interchange facilities; information provision; and park and ride developments.

To date the Authority has focused significant levels of investment in these sustainable modes, including the reopening of the Phoenix Park Tunnel and the delivery of Luas Cross City. The continuation of this focus is facilitated by the Transport Strategy and it is intended that it will continue under the Implementation Plan.

The Plan will further contribute towards the following effects identified by the SEA of the Transport Strategy for the Greater Dublin Area 2016-2025:

- **Mode Share**

The implementation of the Strategy will have a significant positive impact on the objective of reducing the proportion of all trips undertaken by private car from 59.9%, in 2011, to 52.2% in 2035⁶⁶, with a corresponding positive impact on the proportions using public transport, walking and cycling.

- **Journey Time**

The area within 1 hour's travel time to the city centre is far more extensive in the future and accordingly, the areas within shorter journey times are correspondingly greater. Of particular note, is the impact of the MetroLink on the northern corridor, including Dublin Airport, which facilitates significantly shorter journey times within this area.

- **Land Use Benefits**

The implementation of the Strategy will facilitate a more efficient use of land within the GDA and will improve the accessibility of central areas, which will potentially lead to the greater consolidation of trip intensive developments such as employment and retail into locations served by public transport.

- **Modelled Emissions**

All types of vehicle emissions (Carbon Monoxide, Carbon Dioxide, Nitrous Oxides and Hydrocarbons) reduce under the Transport Strategy, in comparison with a do minimum scenario. This highlights the air quality improvements associated with the introduction of the Strategy's provisions.

- **Modelled Noise**

There is significant improvements to noise levels within the Core City Centre network, where the Dublin City Centre Transport Plan measures are implemented.

- **Modelled Severance**

There is significant improvements to severance within the Core City Centre Network, where the Dublin City Centre Transport Plan measures are implemented. Substantial improvements to severance are noted on the quays, and at the Westmoreland Street / D'Olier Street public transport interchange area.

⁶⁶ Transport model output for all trip purposes, AM peak (2011 & 2035)

Table 8.3 Overall Effects Arising from the Integrated Implementation Plan

Environmental Component	Likely Environmental Effects, as a direct result of development and activities under the Plan and in combination with the wider planning framework (see also Section 7.3)			SEOs
	Significant Positive Effect likely to occur	Potentially Significant Adverse Effect, if unmitigated	Residual Adverse Effect ⁶⁷	
Air and climatic factors	<ul style="list-style-type: none"> Contributions towards reductions in greenhouse gas and other emissions to air and associated achievement of legally binding targets (in combination with plans and programmes from all sectors, including energy, transport and land use planning) as a result of: facilitating a shift from car to more sustainable and non-motorised transport modes; and facilitating more consolidated urban areas and reductions in sprawl. Contributions towards reductions in consumption from non-renewables and associated achievement of legally binding renewable energy targets, including sectoral targets for transport (in combination with plans and programmes from all sectors, including energy, transport and land use planning). Contributions towards managing traffic flows (and associated management of adverse effects as a result of traffic on air quality and noise levels). 	<ul style="list-style-type: none"> Emissions to air and associated issues. 	<ul style="list-style-type: none"> An extent of travel related greenhouse gas and other emissions to air. This has been mitigated by provisions which have been integrated into the Plan, including those relating to sustainable mobility. 	AC1 AC2 AC3
Population and human health	<ul style="list-style-type: none"> Provides for the development of transport infrastructure and services in locations which will facilitate use by those living and working in urban/suburban areas. Facilitates contribution towards the protection of human health as a result of contributing towards the protection of environmental vectors, especially air. 	<ul style="list-style-type: none"> Potential interactions if effects upon environmental vectors such as air are not mitigated 	<ul style="list-style-type: none"> An extent of travel related greenhouse gas and other emissions to air. This has been mitigated by provisions which have been integrated into the Plan, including those relating to sustainable mobility. 	PHH1 PHH2

⁶⁷ Residual adverse environmental effects would be generally non-significant. Significant residual adverse effects would be in compliance with the relevant environmental protection legislation.

Environmental Component	Likely Environmental Effects, as a direct result of development and activities under the Plan and in combination with the wider planning framework (see also Section 7.3)			SEOs
	Significant Positive Effect likely to occur	Potentially Significant Adverse Effect, if unmitigated	Residual Adverse Effect ⁶⁷	
Biodiversity and flora and fauna	<ul style="list-style-type: none"> • Facilitates lower overall effects on ecology (including designated sites, ecological connectivity, habitats) – due to increased utilisation of lands within existing development boundaries and use of existing utilities and brownfield sites. • Contributions towards the protection of vegetation as a result of contributing towards the protection of environmental vectors, especially air. • Potential ecological enhancement interventions along transport corridors. 	<ul style="list-style-type: none"> • Arising from both construction and operation of transport infrastructure and services and associated facilities/infrastructure: loss of/damage to biodiversity in designated sites, ecological connectivity and non-designated habitats; and disturbance to biodiversity and flora and fauna. • Habitat loss, fragmentation and deterioration, including patch size and edge effects. • Disturbance (e.g. due to noise and lighting along transport corridors) and displacement of protected species and coastal squeeze. • Effects in riparian zones where new crossings of waters, if any, are progressed. • Potential effects on vegetation from transport emissions. 	<ul style="list-style-type: none"> • Loss of an extent of non-protected habitats as a result of new or widened transport infrastructure that involves the replacement of semi-natural land covers with artificial surfaces • Losses or damage to ecology (these would be in compliance with relevant legislation) 	B1 B2 B3
Material Assets	<ul style="list-style-type: none"> • Contributions towards energy security (in combination with plans and programmes from all sectors, including energy, transport and land use planning) as a result of reducing traffic flows and associated energy use. • Contributions towards a mode shift away from the private car to public transport, walking and cycling and associated enhancement of the public realm. • Contributions towards the protection of built/amenity assets and infrastructure. • Contributions towards the reuse and regeneration of brownfield lands thereby contributing towards a higher efficiency of land utilisation, sustainable mobility and a reduction in the need to develop greenfield lands. By facilitating increased utilisation of lands within existing development boundaries and use of existing utilities and brownfield sites there will be lower adverse effects upon ecology, landscape designations, architectural and archaeological heritage and soil. • Contributions towards appropriate waste management. 	<ul style="list-style-type: none"> • Generation of construction waste. • Loss or damage to built/amenity assets and infrastructure including as a result of new or widened transport infrastructure. 	<ul style="list-style-type: none"> • Residual wastes (these would be disposed of in line with higher level waste management policies) • Potential residual losses to built/amenity assets and infrastructure including as a result of new or widened transport infrastructure 	MA1 MA2

Environmental Component	Likely Environmental Effects, as a direct result of development and activities under the Plan and in combination with the wider planning framework (see also Section 7.3)			SEOs
	Significant Positive Effect likely to occur	Potentially Significant Adverse Effect, if unmitigated	Residual Adverse Effect ⁶⁷	
Water	<ul style="list-style-type: none"> Contributions towards lower effects on ground and surface waters due to higher levels of development within established and serviced settlement centres that have installed/upgraded water services capable of delivering Water Framework Directive targets. Contributions towards compliance with the Flood Risk Management Guidelines. 	<ul style="list-style-type: none"> Adverse impacts upon the status of water bodies and entries to the WFD Register of Protected Areas, arising from changes in quality, flow and/or morphology. Increase in the risk of flooding. 	<ul style="list-style-type: none"> Flood related risks remain due to uncertainty with regard to extreme weather events 	W1 W2 W3
Landscape	<ul style="list-style-type: none"> Contributions towards the protection of landscape designations as a result of facilitating compliance with relevant plans. 	<ul style="list-style-type: none"> Occurrence of adverse visual impacts and conflicts with the appropriate protection of statutory designations relating to the landscape. 	<ul style="list-style-type: none"> Residual visual effects (these would be in compliance with landscape designation provisions) 	L1
Cultural Heritage	<ul style="list-style-type: none"> Contributions towards the protection of cultural heritage (archaeological and architectural) as a result of facilitating compliance with relevant legislation. Contributions towards the enhancement of cultural heritage and its context in urban areas and their surrounds as a result of replacing motorised modes of transport such as walking, cycling and light rail/metro. 	<ul style="list-style-type: none"> Potential effects on protected and unknown archaeology and protected architecture arising from construction and operation activities, including as a result of increasing traffic flows. 	<ul style="list-style-type: none"> Potential alteration to the context and setting of designated cultural heritage however these will occur in compliance with legislation. Potential loss of unknown archaeology however this loss will be mitigated by measures integrated into the Plan 	CH1 CH2
Soil	<ul style="list-style-type: none"> Minimises land-take and loss of extent of soil resource – as a result of facilitating increased utilisation of lands within existing development boundaries and use of existing utilities and brownfield sites. Contributions towards the protection of the environment from contamination arising from brownfield development. Contributions towards the protection of features or areas of geological / geomorphological interest. 	<ul style="list-style-type: none"> Adverse impacts on the hydrogeological and ecological function of the soil resource as a result of construction of transport and associated transport facilities/ infrastructure. Adverse impacts on features or areas of geological / geomorphological interest as a result of construction of transport and associated transport facilities/ infrastructure. Potential for increase in coastal erosion. 	<ul style="list-style-type: none"> Loss of an extent of soil function arising from the replacement of semi-natural land covers with artificial surfaces and from sea level rise/coastal erosion 	S1

8.5 Appropriate Assessment

Stage 2 Appropriate Assessment (AA) has been undertaken alongside the preparation of the Plan. The requirement for AA is provided under the EU Habitats Directive (Directive 1992/43/EEC).

The emerging conclusion of the AA is that it will not affect the integrity of the Natura 2000 network⁶⁸.

Various content has been integrated into the Plan through the SEA and AA processes (see Section 9). The preparation of the Plan, SEA and AA has taken place concurrently and the findings of the AA have informed both the Plan and the SEA.

8.6 Interrelationship between Environmental Components

The SEA Directive requires the Environmental Report to include information on the likely significant effects on the environment, on issues such as biodiversity, fauna, flora, population, human health, soil, water, air, climatic factors, material assets, cultural heritage including architectural and archaeological heritage, landscape and the interrelationship between the above factors.

Likely significant effects on environmental components which are identified include those which are interrelated; implementation of the Plan will not affect the interrelationships between these components. The presence of significant interrelationships between environmental components is identified on Table 8.4.

⁶⁸ Except as provided for in Article 6(4) of the Habitats Directive, viz. There must be:

(a) no alternative solution available;
(b) imperative reasons of overriding public interest for the plan/programme/project to proceed; and
(c) adequate compensatory measures in place.

Table 8.4 Presence of Interrelationships between Environmental Components

Component	Biodiversity, flora and fauna	Population and human health	Soil	Water	Air and Climatic factors	Material assets	Cultural heritage	Landscape
Biodiversity, flora and fauna		No	Yes	Yes	Yes	Yes	No	Yes
Population and Human Health			Yes	Yes	Yes	Yes	No	Yes
Soil				Yes	Yes	Yes	No	No
Water					Yes	Yes	No	No
Air and Climatic Factors						Yes	No	No
Material Assets							Yes	Yes
Cultural Heritage								Yes
Landscape								

8.7 Detailed Evaluation of Plan Provisions⁶⁹

8.7.1 Chapter 4: Overall Infrastructure Investment Programme

	Likely to Improve status of SEOs	Potential Conflict with status of SEOs- likely to be mitigated	Probable Conflict with status of SEOs- unlikely to be mitigated	No Likely interaction with status of SEOs																																																
<p>Integrated Implementation Plan provisions:</p> <p>The Infrastructure Investment Programme forms an integral and central part of the Plan. Over the six year period of the Plan, just over €4.6 billion will be invested through the Authority in public transport infrastructure and related cycling/walking infrastructure, aligned with the transport strategy for the GDA and with relevant national policies.</p> <p>The overall Infrastructure Investment Programme is divided into four sub-programmes over six years as detailed below.</p> <p>Profile for the Integrated Implementation Plan by Sub-Programme by Year</p> <table><tr><th>Sub-Programme</th><th>2019 (€m)</th><th>2020 (€m)</th><th>2021 (€m)</th><th>2022 (€m)</th><th>2023 (€m)</th><th>2024 (€m)</th><th>Total (€m)</th></tr><tr><td>Bus</td><td>108.9</td><td>186.5</td><td>242.5</td><td>215.0</td><td>255.0</td><td>260.0</td><td>1267.9</td></tr><tr><td>Light Rail</td><td>16.2</td><td>72.0</td><td>262.0</td><td>275.7</td><td>569.0</td><td>579.0</td><td>1773.9</td></tr><tr><td>Heavy Rail</td><td>67.7</td><td>108.0</td><td>167.0</td><td>166.0</td><td>225.8</td><td>315.0</td><td>1049.5</td></tr><tr><td>Integration Measures & Sustainable Transport</td><td>52.3</td><td>87.0</td><td>110.0</td><td>95.0</td><td>95.0</td><td>85.0</td><td>524.3</td></tr><tr><td>Yearly Totals</td><td>245.1</td><td>453.5</td><td>781.5</td><td>751.7</td><td>1,144.8</td><td>1,239.0</td><td>4615.6</td></tr></table> <p>Further details on the four constituent sub-programmes are provided under other sub-sections below.</p> <p>Various environmental mitigation measures have been integrated into Section 4.6 'Environmental Considerations' of the Plan.</p>	Sub-Programme	2019 (€m)	2020 (€m)	2021 (€m)	2022 (€m)	2023 (€m)	2024 (€m)	Total (€m)	Bus	108.9	186.5	242.5	215.0	255.0	260.0	1267.9	Light Rail	16.2	72.0	262.0	275.7	569.0	579.0	1773.9	Heavy Rail	67.7	108.0	167.0	166.0	225.8	315.0	1049.5	Integration Measures & Sustainable Transport	52.3	87.0	110.0	95.0	95.0	85.0	524.3	Yearly Totals	245.1	453.5	781.5	751.7	1,144.8	1,239.0	4615.6	AC1 AC2 AC3 PHH1 PHH2 B1 B2 B3 MA1 MA2 MA3 W1 W2 W3 L1 CH1 CH2 S1	AC1 AC2 AC3 PHH1 PHH2 B1 B2 B3 MA1 MA2 MA3 W1 W2 W3 L1 CH1 CH2 S1		
Sub-Programme	2019 (€m)	2020 (€m)	2021 (€m)	2022 (€m)	2023 (€m)	2024 (€m)	Total (€m)																																													
Bus	108.9	186.5	242.5	215.0	255.0	260.0	1267.9																																													
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Heavy Rail	67.7	108.0	167.0	166.0	225.8	315.0	1049.5																																													
Integration Measures & Sustainable Transport	52.3	87.0	110.0	95.0	95.0	85.0	524.3																																													
Yearly Totals	245.1	453.5	781.5	751.7	1,144.8	1,239.0	4615.6																																													
<p>SEA Commentary:</p> <p><i>The Infrastructure Investment Programme will contribute towards the achievement of the selected alternative scenario for the Plan, including the facilitation of land use allocation and development, and associated effects and interactions (see evaluation at Section 7 of this report).</i></p> <p><i>The various types of environmental effects likely to arise with respect to the Integrated Implementation Plan as a direct result of development and activities under the Plan and in combination with the wider planning framework are detailed on Table 8.3.</i></p>																																																				

⁶⁹ The Plan's provisions include proposals for transport infrastructure and services that are at various stages in the design and planning process and refer to specific locations. Other proposals that are provided for but are at preliminary stages and therefore specific locations / routes and other project details have yet to be selected or decided upon.

Further commentary on the four constituent sub-programmes are provided under other sub-sections below.

The SEA and AA processes that have been undertaken alongside the preparation of the Plan have brought about changes to the emerging Plan, the bulk of which make up '4.6 Environmental Considerations' under Chapter 4 of the Plan (these are reproduced at Section 9 of this SEA Environmental Report). By integrating all SEA and AA recommendations into the Integrated Implementation Plan, the Authority has helped to ensure that: the potential significant adverse effects of implementing the Plan are avoided, reduced or offset; and the beneficial environmental effects of implementing the Plan are maximised.

8.7.2 Chapter 5: Bus Investment

	Likely to Improve status of SEOs	Potential Conflict with status of SEOs- likely to be mitigated	Probable Conflict with status of SEOs- unlikely to be mitigated	No Likely interaction with status of SEOs
<p>Integrated Implementation Plan provisions:</p> <p>All of aspects of bus investment is provided under one programme or brand called BusConnects. The objective of BusConnects Dublin is to overhaul the current bus system in the Dublin region by:</p> <ul style="list-style-type: none"> building a network of new bus corridors on the busiest bus routes to make bus journeys faster, predictable and reliable; completely redesigning the network of bus routes to provide a more efficient network, connecting more places and carrying more passengers; developing a state-of-the-art ticketing system supporting the use of credit and debit cards, mobile phones and bar codes to link with payment accounts and making payment much more convenient; implementing a cashless payment system to vastly speed up passenger boarding times; revamping the fare system to provide a simpler fare structure, allowing seamless movement between different transport services without financial penalty; implementing a new bus livery providing a modern look and feel to the new bus system; rolling out new bus stops with better signage and information and increasing the provision of additional bus shelters; developing park and ride facilities at key locations; and transitioning to a new bus fleet using low emission vehicle technologies. <p>Within this sub-programme⁷⁰, the proposals in relation to Bus investment are encompassed in three investment areas:</p> <ul style="list-style-type: none"> Core Bus Corridors and Improved Interchange Facilities⁷¹; Proposed Radial Core Bus Corridors include: Clongriffin – City Centre; Swords – City Centre; Ballymun – City Centre; Finglas – Phibsborough; Blanchardstown – City Centre; Lucan – City Centre; Liffey Valley – City Centre; Clondalkin – Drimnagh; Kimmage – City Centre; Tallaght – Terenure; Rathfarnham – City Centre; Bray – City Centre; UCD Ballsbridge – City Centre; Blackrock – Merriem; and Ringsend – City Centre. Orbital Core Bus Corridors will include: Dún Laoghaire – Dundrum; Dundrum / UCD – Tallaght; Dundrum – Finglas; Ranelagh – Drumcondra; Tallaght – Blanchardstown; and Blanchardstown – Kilbarrack. <p>The focus of interchange investment will be on the key suburban interchanges which will form the hubs of the</p>	<p>AC1 AC2 AC3 PHH1 PHH2 B1 B2 B3 MA1 MA2 MA3 W1 W2 W3 L1 CH1 CH2 S1</p>	<p>AC1 AC2 AC3 PHH1 PHH2 B1 B2 B3 MA1 MA2 MA3 W1 W2 W3 L1 CH1 CH2 S1</p>		

⁷⁰ Note that the ticketing system is covered by Chapter 10 "Integration and Accessibility"

⁷¹ Given the statutory remit of the Authority, the proposals under this item – Core Bus Corridors and Improved Interchange Facilities – are related to the Greater Dublin Area only, while the proposals in respect of the two other investment areas below encompass the full State.

<p>emerging network, including those served by rail. These include Blanchardstown, Liffey Valley, Clongriffin, Finglas, Tallaght and Dundrum. Consideration of how passengers will interchange between services within Dublin City Centre will also be important, while facilities for all locations where DART, Luas and Bus meet will also require examination, particularly as passenger numbers increase. Investment undertaken according to the following principles:</p> <ul style="list-style-type: none"> - Seamless and efficient transfer between all intended transport modes; - Better integration with the local urban context, including public realm and existing and future land uses; - High quality passenger information relating to all public transport modes serving the interchange and to the interchange surrounds; - Safe and secure passenger interchange in terms of shelters, lighting, seating, cycle parking and pedestrian/cycling accessibility; and - Integration of management systems, maintenance, architecture, property etc. across operators. <ul style="list-style-type: none"> • Bus Fleet Investment; and It is proposed to invest in a fleet renewal programme that seeks to ensure that the average bus fleet age for publicly subsidised services maintains an average of between 6 and 7 years. It is also proposed to put in place an arrangement to transition to an alternative low emission vehicle type from mid-2019. In particular, it will monitor the potential, as the technology matures, for fully electric bus vehicles to be utilised in urban areas, with the benefits of zero tailpipe emissions and low noise levels. • Bus Stop and Shelter Provision This includes putting in place a programme to improve the quality of roadside facilities for bus services incorporating a common design approach, uniform styling and standardised information formats, such as: <ul style="list-style-type: none"> - A standardised style of pole, flag and information panel; - Rationalisation of bus stop poles and sharing of nearby bus stops between operators; - Bus Shelters provided at key bus stop locations; - Preparation of design guidelines for bus stopping areas. <p>The Authority has commenced the rollout of the standardised type of bus pole, flag and information panels and will proceed with the transition of all bus stops to the new layouts. Within the main urban areas, these new bus stops will be delivered as part of the overall BusConnects programme. The Authority will continue to coordinate the provision of bus stop facilities for publicly subsidised bus services and will also prescribe standards of bus stop facilities, layouts and information provision for privately operated services. It is intended that the full roll-out of the new bus stop poles, flags and information panels will be completed across the State during the period of the Plan</p> 				
<p>SEA Commentary:</p> <p><i>BusConnects is already provided for by the National Planning Framework and associated National Development Plan (Project 2040) and Core Bus Networks are already a key part of the Transport Strategy for the Greater Dublin Area 2016-2035⁷².</i></p> <p><i>The Bus Investment sub-programme will contribute towards the achievement of the selected alternative scenario for the Plan, including the facilitation of land use allocation and development, and associated effects and interactions (see evaluation at Section 7 of this report).</i></p> <p><i>The various types of environmental effects likely to arise with respect to the Integrated Implementation Plan as a direct result of development and activities under the Plan, including those relating to BusConnects, and in-combination with the wider planning framework are detailed on Table 8.3.</i></p> <p><i>The SEA and AA processes that have been undertaken alongside the preparation of the Plan have brought about changes to the emerging Plan, the bulk of which make up '4.6 Environmental Considerations' under Chapter 4 of the Plan (these are reproduced at Section 9 of this SEA Environmental Report). By integrating all SEA and AA recommendations into the Integrated Implementation Plan, the Authority has helped to ensure that: the potential significant adverse effects of implementing the Plan are avoided, reduced or offset; and the beneficial environmental</i></p>				

⁷² The Transport Strategy recognised the role of the bus system as the backbone of public transport in the Dublin area. It identified the need for the development of a Core Bus Network to deliver much improved bus movement on the identified corridors within the GDA, and proposed delivery of that network during the earlier period of the Transport Strategy.

effects of implementing the Plan are maximised.

Investment in **BusConnects** (including in **Core Bus Corridors**, **interchange facilities** and **optimisation of the network**) would help to avoid delays, improve performance, increase bus speeds and allow for reliable journey times and would contribute towards an overall improvement in sustainable mobility, including a shift from car to more sustainable transport modes, and improving traffic flows. The bus system that will be delivered under BusConnects will enable more people to travel by bus than ever before, and allow bus commuting to become a viable and attractive choice for increasing numbers of employees, students, shoppers and visitors. All of this would lead to positive environmental effects including (SEOs AC1 AC2 AC3 PHH2):

- Reductions in/limits in increases of greenhouse gas emissions and associated achievement of legally binding greenhouse gas emissions targets;
- Reductions in/limits in increases of all emissions to air and associated achievement of air quality objectives, thereby contributing towards improvement of air quality and protection of human health;
- Reductions in/limits in increases of consumption of non-renewable energy sources and achievement of legally binding renewable energy targets; and
- Energy security.

Although this sub-programme would contribute towards reductions in emissions to air including noise, an increase noise levels could be experienced at specific locations (SEOs AC1 PHH2).

In combination with other parts of the Integrated Implementation Plan and other plans and programmes, including those from the land use sector, BusConnects would help to: improve the development potential of certain zoned lands; facilitate consolidation of urban areas; facilitate reuse and regeneration of brownfield lands; and reduce sprawl (SEO PHH1). In this way, BusConnects would help to facilitate a higher efficiency of land utilisation, increases in sustainable mobility and a reduction in the need to develop greenfield lands. The reduced need to develop greenfield lands further away from existing urban areas would result in lower adverse effects upon environmental components such as ecology (SEOs B1 B2 B3), landscape designations (SEO L1), archaeological (SEO CH1) and architectural (SEO CH2) heritage and soil (SEO S1). Land use zoning objectives in force through existing land use plans have already been subject to SEA and AA processes. Any variation to or review of these plans and associated zoning objectives would also be required to be subject to SEA and AA processes. Potential significant adverse effects on various environmental components (SEOs AC1 AC2 AC3 PHH1 PHH2 B1 B2 B3 MA1 MA2 MA3 W1 W2 W3 L1 CH1 CH2 S1) as a result of developing these lands would be mitigated by environmental requirements, including those contained within the relevant land use plans.

BusConnects would also facilitate enhancement of the public realm (SEOs MA1 CH1 CH2) in urban areas by facilitating the replacement of motorised transport modes with more sustainable and non-motorised modes such as low emission/fully electric bus vehicles and cycling.

Bus fleet investment and **bus stop and shelter investment** will improve vehicle appearance, availability and reliability and improve the quality of the bus service provided to the customer. Provision of a quality bus service will improve the likelihood that this service is used by the customer thereby improving sustainable mobility with associated interactions with emissions and energy usage. **Newer vehicles** will be more energy efficient and will emit less emissions, further contributing towards protection of the environment including with respect to air quality and greenhouse gas emissions targets (SEOs AC1 AC3 PHH2).

The types of environmental effects, including the range of adverse effects, likely to or with the potential to, if unmitigated, arise from this sub-programme are consistent with those as detailed on Table 8.3. At this Programme level, there is an unavoidable lack of specificity of associated with **Core Bus Corridor** and associated proposals. This specificity and associated environmental assessment will be provided at project level. Notwithstanding this, it is possible to identify potentially significant adverse effects for specific features, including:

- Land take resulting from new or widened bus corridors, interchange facilities or bus stop and shelter provision (SEO S1);
- Potential loss of built/amenity assets and infrastructure (SEO MA1) such as: parts of public open spaces, parks and recreational areas; parts of gardens (with associated rebuilding of new garden walls back from the existing road boundary); lands in front of commercial properties parts of pathways; and on-street parking.
- Potential loss of/damage to biodiversity including removal of old trees, tree lines or areas of vegetation along some of the corridors and interactions with designated ecological sites (SEO B1 B2 B3);
- Potential impacts upon the status of water bodies (SEOs W1 W2), including morphological status, especially at the crossing points of rivers and streams;
- Potential loss of protected structures and/or context and potential damage to the special character or architectural interest of Architectural Conservation Areas (SEO CH2);
- Potential loss of designated and unknown archaeology (SEO CH1); and
- Traffic, noise, dust and vibration during construction (SEO PHH2).

Potentially significant adverse effects would be mitigated by compliance with measures, including those that have been integrated into the Plan (see Section 9) and those that will arise from lower tier assessments e.g. EIA for BusConnects Core Bus Corridor Projects.

8.7.3 Chapter 6: Light Rail Investment

	Likely to Improve status of SEOs	Potential Conflict with status of SEOs- likely to be mitigated	Probable Conflict with status of SEOs- unlikely to be mitigated	No Likely interaction with status of SEOs
<p>Integrated Implementation Plan provisions:</p> <p>The objectives for light rail (Luas) and metro infrastructure are to:</p> <ul style="list-style-type: none"> Provide additional, high capacity, public transport services in the GDA where demand on prospective routes is in excess of what can reasonably be provided by bus-based transport but less than the capacity of heavy rail; Provide additional capacity on the Luas Green Line through additional fleet, longer trams and other associated works, in advance of its upgrade to metro standard; Complete the planning and design for the MetroLink scheme and commence its construction in 2021; Preserve and enhance the performance of the existing light rail network through investment in fleet capacity (infrastructural enhancements), ticketing systems, customer information improvements and enhanced access and facilities at Luas stops; Improve interchange arrangements with other transport modes; and Undertake planning and design work on a number of proposed extensions to the overall light rail network. <p>The proposals in relation to light rail investment are encompassed in three investment areas⁷³:</p> <ul style="list-style-type: none"> MetroLink; The MetroLink project will provide a north-south urban railway service that will run between Swords and Sandyford, connecting key destinations including Dublin Airport and the City Centre along the 26km route. <p>A large proportion of the route will be underground, including where it passes under the important city centre area and Dublin Airport.</p> <p>The Luas Green Line as far as Sandyford will be upgraded to metro level of service as part of the project - this will:</p> <ul style="list-style-type: none"> Cater for the increased demand for travel being experienced along that corridor, including from the expanding employment zone at Sandyford; and Facilitate a higher frequency and higher capacity Luas service from Bride's Glen which, via interchange at Sandyford, will serve the travel demand from the Cherrywood Strategic Development Zone and the expanding districts of Ballyogan and Carrickmines. In the longer-term, the development of Bray and Old Conna will benefit from the additional capacity provided by MetroLink. <p>Work on the design and planning of MetroLink was commenced in 2016 by the Authority in collaboration with Transport Infrastructure Ireland. It is intended that the project will commence construction in 2021 and will be completed in 2027.</p> <ul style="list-style-type: none"> Fleet and Network Enhancement; and Including: <ul style="list-style-type: none"> Increasing carrying capacity by investment in longer vehicles and additional rolling stock; 	AC1 AC2 AC3 PHH1 PHH2 B1 B2 B3 MA1 MA2 MA3 W1 W2 W3 L1 CH1 CH2 S1	AC1 AC2 AC3 PHH1 PHH2 B1 B2 B3 MA1 MA2 MA3 W1 W2 W3 L1 CH1 CH2 S1		

⁷³ Given the statutory remit of the Authority, the proposals under this Plan in respect of the above investment areas are related to the Greater Dublin Area only.

<ul style="list-style-type: none"> - Upgrading of the capacity of the Green Line to include lengthening the existing Green Line fleet, the purchase of additional vehicles and modifications to Sandyford Depot to maintain the longer and larger fleet; and - Improving accessibility to and facilities at Luas stops (including cycle parking, better footpath connections, and additional parking and drop-off facilities). <ul style="list-style-type: none"> • Network Development. In addition to MetroLink (which constitutes the main extension of the light rail system that will proceed to construction during the period of the Plan), it is intended to undertake the planning and design of further extensions to the light rail network. Those additional extensions will be constructed subsequent to the Integrated Implementation Plan period. The Transport Strategy for the Greater Dublin Area identified four extensions to the light rail network (Luas to Finglas, Lucan, Bray and Poolbeg) and the National Development Plan 2018-2027 provides for the undertaking of appraisal, planning and design of these four network expansions. In addition to the planning work on these extensions, investment will be also be required to maintain the existing light rail network in a steady state and to ensure that services continue to be delivered efficiently. This will include expenditure to maintain, renew and manage the existing infrastructure and rolling stock. In addition, other smaller interventions will be undertaken during the period of the Plan, including the potential conversion of the Luas stop at Connolly to other transport uses, the enlargement of the Luas Park & Ride site at Red Cow and other park and ride enhancements. 				
<p>SEA Commentary:</p> <p><i>The National Planning Framework and associated National Development Plan (Project 2040) and/or the Transport Strategy for the Greater Dublin Area 2016-2035 already:</i></p> <ul style="list-style-type: none"> • Provide for the MetroLink (an earlier iteration of this project was included in the Transport Strategy as Metro North) and associated Luas Green Line upgrades; • Include various provisions relating to fleet and network enhancement of light rail; • Provide for the appraisal, planning and design of four proposed extensions to the Luas light rail network; and • Provide for the maintenance, renewal and management the existing infrastructure and tram fleet. <p><i>The light rail sub-programme will contribute towards the achievement of the selected alternative scenario for the Plan, including the facilitation of land use allocation and development, and associated effects and interactions (see evaluation at Section 7 of this report).</i></p> <p><i>The various types of environmental effects likely to arise with respect to the Integrated Implementation Plan as a direct result of development and activities under the Plan, including those relating to light rail, and in-combination with the wider planning framework are detailed on Table 8.3.</i></p> <p><i>The SEA and AA processes that have been undertaken alongside the preparation of the Plan have brought about changes to the emerging Plan, the bulk of which make up '4.6 Environmental Considerations' under Chapter 4 of the Plan (these are reproduced at Section 9 of this SEA Environmental Report). By integrating all SEA and AA recommendations into the Integrated Implementation Plan, the Authority has helped to ensure that: the potential significant adverse effects of implementing the Plan are avoided, reduced or offset; and the beneficial environmental effects of implementing the Plan are maximised.</i></p> <p>Investment in the MetroLink, upgrading of the Luas and fleet and network maintenance and enhancement would provide additional, high capacity, public transport services in the Greater Dublin Area. The reliability, speed and frequency of light rail/metro (which derive, in part, from a high degree of segregated running) enable it to secure a modal shift from private car use to public transport and associated positive environmental effects including (SEOs AC1 AC2 AC3 PHH1 PHH2):</p> <ul style="list-style-type: none"> • Reductions in/limits in increases of greenhouse gas emissions and associated achievement of legally binding greenhouse gas emissions targets; • Reductions in/limits in increases of all emissions to air and associated achievement of air quality objectives, thereby contributing towards improvement of air quality and protection of human health; • Reductions in/limits in increases of consumption of non-renewable energy sources and achievement of legally binding renewable energy targets; and • Energy security. 				

Although this sub-programme would contribute towards reductions in emissions to air including noise, an increase noise levels could be experienced at specific locations (SEOs AC1 PHH2).

In combination with other parts of the Integrated Implementation Plan and other plans and programmes, including those from the land use sector, investment in light rail would help to: improve the development potential of certain zoned lands; facilitate consolidation of urban areas; facilitate reuse and regeneration of brownfield lands; and reduce sprawl (SEO PHH1). In this way, investment in light rail would help to facilitate a higher efficiency of land utilisation, increases in sustainable mobility and a reduction in the need to develop greenfield lands. The reduced need to develop greenfield lands further away from existing urban areas would result in lower adverse effects upon environmental components such as ecology (SEOs B1 B2 B3), landscape designations (SEO L1), archaeological (SEO CH1) and architectural (SEO CH2) heritage and soil (SEO S1). Land use zoning objectives in force through existing land use plans have already been subject to SEA and AA processes. Any variation to or review of these plans and associated zoning objectives would also be required to be subject to SEA and AA processes. Potential significant adverse effects on various environmental components (SEOs AC1 AC2 AC3 PHH1 PHH2 B1 B2 B3 MA1 MA2 MA3 W1 W2 W3 L1 CH1 CH2 S1) as a result of developing these lands would be mitigated by environmental requirements, including those contained within the relevant land use plans.

Investment in light rail would also facilitate enhancement of the public realm (SEOs MA1 CH1 CH2) in urban areas by facilitating the replacement of motorised transport modes with more sustainable and non-motorised modes.

*The effects of constructing and operating **MetroLink** (which constitutes the main extension of the light rail system that will proceed to construction during the period of the Plan) are currently being subject to public consultation and Environmental Impact Assessment. Potentially significant adverse effects that may be identified by this assessment include:*

- Temporary land take (SEO S1) and loss of built/amenity assets and infrastructure (SEO MA1), such as parts of public open spaces, parks and recreational areas and individual houses, for construction areas;*
- Permanent land take (SEO S1) and loss of built/amenity assets and infrastructure (SEO MA1), such as parts of public open spaces, parks and recreational areas and individual houses, for above ground structures such as air vents and emergency accesses;*
- Potential loss of/disturbance to biodiversity including areas of habitat and fauna species (SEO B1 B2 B3) - these may be temporary in the case of construction areas;*
- Potential impacts upon the status of water bodies (SEOs W1 W2);*
- Potential loss of designated and unknown archaeology (SEO CH1);*
- Traffic, noise, dust and vibration during construction (SEO PHH2).*

Environmental mitigation for such effects would be considered as part of the Environmental Impact Assessment process that is underway for this project.

8.7.4 Chapter 7: Heavy Rail Investment

	Likely to Improve status of SEOs	Potential Conflict with status of SEOs- likely to be mitigated	Probable Conflict with status of SEOs- unlikely to be mitigated	No Likely interaction with status of SEOs
<p>Integrated Implementation Plan provisions:</p> <p>The objectives of rail investment⁷⁴ are to:</p> <ul style="list-style-type: none"> Implement key elements of the DART Expansion Programme; Eliminate the current signalling restrictions in the city centre through the completion of the City Centre Re-signalling project; Protect the safety and reliability of the Greater Dublin Area railway system through investment in upgrading of train control and monitoring systems; Continue investment in a level crossing closure programme; Enhance customer information systems and ticketing systems; and Continue the upgrading and enhancement of train stations in the Greater Dublin Area. <p>Within this sub-programme, the proposals in relation to heavy rail investment are encompassed in seven investment areas:</p> <ul style="list-style-type: none"> DART Expansion Programme This will provide fast, high-frequency electrified services to Drogheda on the Northern Line, Hazelhatch (or further southwards) on the Kildare Line, and Maynooth and M3 Parkway on the Maynooth/Sligo Line, while continuing to provide DART services on the South-Eastern Line as far south as Greystones⁷⁵. The programme also includes the DART Underground Project, allowing services on the Kildare line and connection with services on the other three rail lines. <p>As confirmed in the National Development Plan 2018-2027, the initial sequencing of investment will focus on delivery of non-underground tunnel elements of the programme using the recently opened rail link and existing connector tunnel under the Phoenix Park. This will enable additional services to be put in place much earlier, using existing infrastructure with some enhancements. The initial focus will be on use of existing infrastructure, fleet acquisition and measures necessary to allow the services to be introduced such as resignalling, and junction and station changes.</p> <p>As part of the DART Expansion Programme, it is intended to purchase diesel electric multiple units (DEMU) that can operate as electric powered or diesel powered train sets. This will allow DART to be expanded initially without electrification, with the units running in electric powered mode along the electrified sections of line and in diesel mode along the other sections. Electrification⁷⁶ will follow to provide a more energy efficient rail network with lower carbon emissions and will enable DART services to be extended as far as Drogheda on the Northern Line, Celbridge/Hazelhatch (or potentially further southwards) on the Kildare Line, and Maynooth and M3 Parkway on the Maynooth/Sligo Line, while continuing to provide DART services on the South-Eastern Line as far south as Greystones. Electric multiple units (EMUs) will also be purchased to facilitate the DART enlargement. New stations to</p>	<p>AC1 AC2 AC3 PHH1 PHH2 B1 B2 B3 MA1 MA2 MA3 W1 W2 W3 L1 CH1 CH2 S1</p>	<p>AC1 AC2 AC3 PHH1 PHH2 B1 B2 B3 MA1 MA2 MA3 W1 W2 W3 L1 CH1 CH2 S1</p>		

⁷⁴ The Authority's statutory remit in relation to the provision of rail infrastructure encompasses the Greater Dublin Area only and the investment programme for heavy rail is, accordingly, directed to this region.

⁷⁵ Subject to compliance with the EU Habitats and Birds Directives

⁷⁶ Subject to compliance with the EU Habitats and Birds Directives

<p>provide interchange with bus, Luas and Metro networks and a new depot, or depots, to cater for the expanded DART fleet, will also be provided.</p> <p>The route for the remaining element of the overall DART Expansion Programme, the DART Underground Tunnel, will be established and protected to allow for its future delivery.</p> <ul style="list-style-type: none"> City Centre Re-signalling Project One of the most significant constraints on the existing rail network is the limitation on the number of train paths through the city centre section between Connolly and Grand Canal Dock stations. The ongoing City Centre Re-signalling project provides for significant capacity enhancement between Connolly and Grand Canal Dock stations by upgrading the signalling system and by providing additional turn-back facilities. This will increase capacity capacity through the city centre to cater for other projects within the Greater Dublin Area, including in particular, additional DART services under the DART Expansion Programme. This project is underway and is expected to be completed during the first half of the Plan period. National Train Control Centre This project will provide an upgraded National Train Control Centre to cater for immediate and future rail control requirements, integrating signalling and communications control across the entire Iarnród Éireann network, thereby optimising rail traffic management, providing accurate real-time travel information for trip planning and reducing the impact of delay and disruption on the network. The new centre will provide the ability to increase the capacity on the network and support the enhanced services proposed by the DART Expansion Programme. It is proposed to provide a new facility in Heuston Station and a back-up facility in Connolly station. Planning and development work has commenced and the new facilities will be completed over the period of the Plan. Ticketing / Revenue Systems Includes integration of systems for customer interactions and transactions and information provision under a Customer Communications Centre to be established within and co-ordinated by the planned National Train Control Centre. Station Improvement / Other Enhancements Programme <ul style="list-style-type: none"> Replacement of the roof in Pearse Station (to be completed by 2020) Smaller scale improvement works, including enhanced passenger information provision, at various other stations, with the objective of enhancing the overall attractiveness of the rail network. Continuing investing in the accessibility programme to improve access for all to the heavy rail network. Non-DART Fleet <ul style="list-style-type: none"> Refurbishment and modernisation of certain carriages that are currently in storage In order to address the short term demands on services in the early years of the Plan, it is proposed to supplement the existing fleet with additional carriages and/or second hand fleet. The Enterprise Intercity cross border service is likely to require new fleet in 2025-2027; during the period of the Plan, it is expected that a procurement process for this fleet would commence in 2023. Network Development While the main network development over the period of the Plan will be the DART Expansion Programme, other network developments are envisaged. It is anticipated that a number of additional stations will be opened or added to the network in developing areas which have a sufficient level of demand to support the provision of a train station. Exact locations will be determined at the relevant time, but likely locations include Kishogue on the Kildare line, Pelletstown on the Maynooth Line and, subject to sufficient development in its vicinity, Woodbrook on the South-Eastern Line. <p>In addition, works may be undertaken on the Bray to Greystones section of the network to provide enhanced service capacity along this section. The exact works to be undertaken will be identified and assessed during the Plan period.</p>				
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Other works are envisaged to occur at various stations, where enhancement works such as accessibility improvements, platform changes, passenger access arrangements, information systems and other alterations will be constructed. It is also proposed to deliver a car park expansion programme, including a number of large new strategic park and ride sites at key locations.				
<p>SEA Commentary:</p> <p><i>The National Planning Framework and associated National Development Plan (Project 2040) and/or the Transport Strategy for the Greater Dublin Area 2016-2035 already include provisions relating to each of this sub-programme's investment areas:</i></p> <ul style="list-style-type: none"> • <i>DART Expansion Programme</i> • <i>City Centre Re-signalling Project</i> • <i>National Train Control Centre</i> • <i>Ticketing / Revenue Systems</i> • <i>Station Improvement / Other Enhancements Programme</i> • <i>Non-DART Fleet</i> • <i>Network Development</i> <p><i>This sub-programme will contribute towards the achievement of the selected alternative scenario for the Plan, including the facilitation of land use allocation and development, and associated effects and interactions (see evaluation at Section 7 of this report).</i></p> <p><i>The various types of environmental effects likely to arise with respect to the Integrated Implementation Plan as a direct result of development and activities under the Plan, including those relating to heavy rail, and in-combination with the wider planning framework are detailed on Table 8.3.</i></p> <p><i>The SEA and AA processes that have been undertaken alongside the preparation of the Plan have brought about changes to the emerging Plan, the bulk of which make up '4.6 Environmental Considerations' under Chapter 4 of the Plan (these are reproduced at Section 9 of this SEA Environmental Report). By integrating all SEA and AA recommendations into the Integrated Implementation Plan, the Authority has helped to ensure that: the potential significant adverse effects of implementing the Plan are avoided, reduced or offset; and the beneficial environmental effects of implementing the Plan are maximised.</i></p> <p><i>The investment identified for heavy rail would provide additional high capacity public transport services in the Greater Dublin Area with associated positive environmental effects including (SEOs AC1 AC2 AC3 PHH1 PHH2):</i></p> <ul style="list-style-type: none"> • <i>Reductions in/limits in increases of greenhouse gas emissions and associated achievement of legally binding greenhouse gas emissions targets;</i> • <i>Reductions in/limits in increases of all emissions to air and associated achievement of air quality objectives, thereby contributing towards improvement of air quality and protection of human health;</i> • <i>Reductions in/limits in increases of consumption of non-renewable energy sources and achievement of legally binding renewable energy targets; and</i> • <i>Energy security.</i> <p><i>Although this sub-programme would contribute towards reductions in emissions to air, including noise, an increase in emissions could be experienced at specific locations (SEOs AC1 PHH2).</i></p> <p><i>In combination with other parts of the Integrated Implementation Plan and other plans and programmes, including those from the land use sector, investment in heavy rail would help to: improve the development potential of certain zoned lands; facilitate consolidation of urban areas; facilitate reuse and regeneration of brownfield lands; and reduce sprawl (SEO PHH1). In this way, investment in heavy rail would help to facilitate a higher efficiency of land utilisation, increases in sustainable mobility and a reduction in the need to develop greenfield lands. The reduced need to develop greenfield lands further away from existing urban areas would result in lower adverse effects upon environmental components such as ecology (SEOs B1 B2 B3), landscape designations (SEO L1), archaeological (SEO CH1) and architectural (SEO CH2) heritage and soil (SEO S1). Land use zoning objectives in force through existing land use plans have already been subject to SEA and AA processes. Any variation to or review of these plans and associated zoning objectives would also be required to be subject to SEA and AA processes. Potential significant adverse effects on various environmental components (SEOs AC1 AC2 AC3 PHH1 PHH2 B1 B2 B3 MA1 MA2 MA3 W1 W2 W3 L1 CH1 CH2 S1) as a result of developing these lands would be mitigated by environmental requirements, including those contained within the relevant land use plans.</i></p> <p><i>With regard to the DART Expansion component of the sub-programme, the initial sequencing of investment will focus on delivery of non-underground tunnel elements. This will enable additional</i></p>				

services to be put in place much earlier, using existing infrastructure with some enhancements. The Plan does not provide for the delivery of the DART underground tunnel but allows for its route to be established and protected in order to allow for its future delivery. Such establishment of a route would be informed by environmental considerations as per other provisions included within the Plan.

Extending electrification to additional stretches of the network and using electrical multiple units would contribute towards reductions in emissions to air. Electrification on the Northern Line has the potential to impact upon ecologically designated sites (Rogerstown Estuary cSAC / SPA, Malahide Estuary cSAC and Broadmeadow/Swords Estuary SPA). Implementation of the Plan, including any works to achieve electrification, must be in compliance with environmental requirements, as relevant, including those relating to the EU Habitats and Birds Directives.

The **City Centre Re-signalling project** extends from Howth in the north of County Dublin to Grand Canal Dock in the south and will contribute towards sustainable mobility and associated interactions (SEOs AC1 AC2 AC3 PHH1 PHH2). This project will provide for significant capacity enhancement through the city centre section between Connolly and Grand Canal Dock stations by upgrading the signalling system and by providing additional turn-back facilities. This will provide the necessary capacity through the city centre to cater for other projects within the Greater Dublin Area, including in particular, the Phoenix Park Tunnel Link.

By facilitating an intensification of the use of heavy rail infrastructure, the new **National Train Control Centre** (and associated **Customer Communications Centre** that will integrate systems for customer interactions and transactions and information provision) would contribute towards sustainable mobility and associated interactions (SEOs AC1 AC2 AC3 PHH1 PHH2).

The further **development of the network**, including the construction of additional train stations located within developing areas where there is sufficient demand, the **enhancement of existing stations** and the **expansion of the active fleet** would all help to facilitate a shift from car to heavy rail, thereby contributing towards sustainable mobility and associated interactions (SEOs AC1 AC2 AC3 PHH1 PHH2). Upgrading and enhancing certain structures could potentially conflict with the protection of environmental components including architectural heritage (SEO CH2). The Plan does not provide for details in relation to the enhancement of service capacity on the Bray to Greystones section of the network - the Plan commits to the identification and assessment of these works during the Plan period. There is potential for adverse impacts upon the Bray Head SAC, land-take, habitat loss and disturbance along this section. Implementation of the Plan, including the identification of any works and future updates (if any), must be in compliance with environmental requirements, as relevant, including those relating to the EU Habitats and SEA Directives (SEO B1).

Various types of development are provided for under this sub-programme that would result potential significant adverse effects, in advance of mitigation, upon the full range of environmental components including emissions to air from diesel/generation of electricity for electrical vehicles (SEOs AC1 AC2 AC3 PHH1 PHH2), ecology (SEOs B1 B2 B3), land take/soil (SEO S1), water bodies (SEOs W1 W2), cultural heritage (SEOs CH1 CH2) and material assets (SEOs MA1 MA2 MA3).

8.7.5 Chapter 8: Integration Measures and Sustainable Transport Investment

	Likely to Improve status of SEOs	Potential Conflict with status of SEOs- likely to be mitigated	Probable Conflict with status of SEOs- unlikely to be mitigated	No Likely interaction with status of SEOs
<p>Integrated Implementation Plan provisions:</p> <p>The main objective is to encourage the continuation of modal shift to cycling, walking and public transport in the context of increased regional demand for travel. Within that overall objective, key priorities include:</p> <p>Cycling/Walking⁷⁷, including:</p> <ul style="list-style-type: none"> • Delivery of the Greater Dublin Area Cycle Network Plan, including both commuting and recreational routes; • Identification, and enhancement, of a strategic pedestrian network in urban areas; • Delivery of “permeability” schemes, providing attractive short-cuts and direct routes for pedestrians and cyclists; • Provision of cycle parking facilities, including at public transport interchange points and Park and Ride Sites; • Expansion of bike sharing schemes; • Pedestrianisation and pedestrian improvement schemes; and • Pedestrian / cycle / tourist signage. <p>Traffic Management, including:</p> <ul style="list-style-type: none"> • Traffic management schemes, in particular within Dublin City Centre; • Development of integrated bus/cycling/walking transport corridors; • Traffic re-routing projects in urban areas, to enhance facilities for shoppers, pedestrians and cyclists; • Traffic control and information schemes, including public transport prioritisation systems; and • Development of parking facilities, including both local Park & Ride sites, and strategic Park & Ride sites, in conjunction with TII and the relevant Local Authority. <p>Safety, including:</p> <ul style="list-style-type: none"> • Removal of accident black spots, especially those involving vulnerable road users; • Implementation of lower speed limits where appropriate; • Provision of pedestrian / cycle crossings; and • Junction safety improvement schemes. <p>Integration Projects, including:</p> <ul style="list-style-type: none"> • Real Time Passenger Information; • Integrated Ticketing; • Integrated Journey Planner; and • Other transport Information systems. 	<p>AC1 AC2 AC3 PHH1 PHH2 B1 B2 B3 MA1 MA2 MA3 W1 W2 W3 L1 CH1 CH2 S1</p>	<p>AC1 AC2 AC3 PHH1 PHH2 B1 B2 B3 MA1 MA2 MA3 W1 W2 W3 L1 CH1 CH2 S1</p>		

⁷⁷ Subject to compliance with the EU Habitats and Birds Directives

<p>The investment will be across four key areas which are:</p> <ul style="list-style-type: none"> • Cycling / Walking; <p>Cycling Network</p> <ul style="list-style-type: none"> - Implementation of an extent of the Greater Dublin Area Cycle Network Plan during the Integrated Implementation Plan period, including cycle-friendly routes in urban areas and a series of high quality inter-urban cycle routes that will also supporting leisure and recreational cycling. - Routes will include two-way segregated cycle tracks, off-road greenways, contra-flow lanes and locations where cyclists will share with general traffic. Traffic management changes will also be necessitated, in particular, enhancements to junctions which are hostile to cycling, and it may also incorporate some reallocation of road-space to cycling, particularly on-street parking at certain locations. Under BusConnects, it is intended to provide for segregated cycle facilities on all Core Bus Corridors in each metropolitan area. <p>Public Cycle Parking</p> <ul style="list-style-type: none"> - The Authority will assess the need for and make investment in more public bicycle parking with the objective of providing high quality cycle parking as close as possible to main destinations, while continuing to facilitate pedestrian movements and accessibility for those with mobility impairments. <p>Walking Facilities</p> <ul style="list-style-type: none"> - To support existing walking trips and to promote an increase in its mode share, improvements to walking facilities are a key focus of this sub-programme. Such improvements take the form of more direct linkages, with new pedestrian links and footpaths provided where none currently exist, better surface quality, reduced waiting times at road crossings, safer routes for all pedestrians including children and people with mobility impairments, pavement widening, longer pedestrian phases at signals, shared space where appropriate, and the provision of an enhanced overall pedestrian environment. - As part of this process, a strategic pedestrian network plan will be developed, in collaboration with the local authorities, encompassing the main urban centres of the region, which will identify the key pedestrian linkages in those areas and propose measures to enhance the key identified routes. This may include widening footpaths where appropriate, providing better surfacing and by removing unnecessary poles, signs, street cabinets, advertising and other street clutter. <p>Public Bike Sharing Schemes</p> <ul style="list-style-type: none"> - Over the period of the Plan it is intended to facilitate an enlarged area of bike sharing in Dublin, in addition to introducing public bike sharing schemes to other appropriate areas of the GDA. - Bike schemes have also been introduced in the cities of Cork, Galway and Limerick, with all three schemes commencing operations in at the end of 2014. Further expansions of these schemes and the introduction of additional schemes will be assessed and progressed during the Plan. • Traffic Management; <ul style="list-style-type: none"> - Traffic Re-routing Schemes with the objective of increasing public transport capacity and performance, improve pedestrian and cyclist access and enhance the overall urban environment for shoppers, visitors and residents, while still providing appropriate capacity for car based transport. - Development of Parking Facilities, including park and ride facilities along high capacity public transport corridors (e.g. at Liffey Valley, Greystones) and additional off-street public car parking in urban locations. - Traffic management schemes take a multitude of forms, from junction upgrades to assist traffic flow to the introduction of speed restraints. These projects deliver significant benefits, predominately on a localised basis, at relatively low costs. It is intended to deliver a programme of such projects each year of the Plan period, with the details of the individual projects being determined on an annual basis in line with identified needs and priorities. - Traffic control and information schemes including coordinated traffic signal control in the Greater Dublin Area and the other metropolitan areas, as well as elements of intelligent transport systems. An important part of 				
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<p>this investment will be the provision of bus priority at appropriate signal control junctions.</p> <ul style="list-style-type: none"> - A demand management scheme including measures to: reduce the need to travel; reduce the use of mechanically propelled vehicles and particularly private cars; increase travel by public transport, bicycle or on foot as an alternative to the private car; encourage travel at less congested periods other than by means of a congestion charge; reduce trip length; and/or work with Local Authorities to coordinate car parking standards for new developments across the GDA. - A strategic traffic management plan for the GDA, identifying the actions to be taken to secure, in the view of the Authority, the optimal movement of persons, goods and vehicles. - The Authority supports the roll out of electric vehicles as a more sustainable form of vehicular transport. In particular, the Authority will support the provision of electric vehicle charging points, including at Strategic Park and Ride and other facilities. <ul style="list-style-type: none"> • Safety; <ul style="list-style-type: none"> - Safer roads and streets and junctions throughout the national transport network. - Address issues at high accident frequency locations, where feasible. - Increase pedestrian and cyclist safety at junctions where current arrangements may not be adequate. - Increase provision of pedestrian and cyclist crossing facilities where none may currently exist. - Deliver a programme of such projects each year of the Plan period, with the details of the individual projects being determined on an annual basis, in consultation with local authorities, An Garda Síochána and other relevant bodies, in line with identified needs and priorities. • Integration; and <ul style="list-style-type: none"> - Various integration measures will be supported by capital investment. Such measures are particularly oriented to the customer experience, including travel information online, integrated ticketing, and information at public transport stops and stations. These measures are described more fully in Chapter 10 given that they are best explained within the context of service delivery to public transport customers. • Accessibility. <ul style="list-style-type: none"> - Further facilities and features will be provided to support those with disabilities to access public transport in as seamless a manner as possible. These will include: lifts/ramps at railway stations where these are either not present or need to be improved; disability friendly App for smart phones which gives audible directions, location information and vehicle/service updates in real time; and improved audible and visual announcements on the rail and bus networks. 				
<p>SEA Commentary:</p> <p><i>The National Planning Framework and associated National Development Plan (Project 2040), the Transport Strategy for the Greater Dublin Area 2016-2035 and/or the Greater Dublin Area Cycle Network Plan already include provisions relating to each of this sub-programme's investment areas:</i></p> <ul style="list-style-type: none"> • <i>Cycling/Walking</i> • <i>Traffic Management</i> • <i>Safety</i> • <i>Integration</i> <p><i>This sub-programme will contribute towards the achievement of the selected alternative scenario for the Plan, including the facilitation of land use allocation and development, and associated effects and interactions (see evaluation at Section 7 of this report).</i></p> <p><i>The various types of environmental effects likely to arise with respect to the Integrated Implementation Plan as a direct result of development and activities under the Plan, including those relating to cycling, walking and traffic management, and in-combination with the wider planning framework are detailed on Table 8.3.</i></p> <p><i>The SEA and AA processes that have been undertaken alongside the preparation of the Plan have brought about changes to the emerging Plan, the bulk of which make up '4.6 Environmental Considerations' under Chapter 4 of the Plan (these are reproduced at Section 9 of this SEA Environmental Report). By integrating all SEA and AA recommendations into the Integrated</i></p>				

Implementation Plan, the Authority has helped to ensure that: the potential significant adverse effects of implementing the Plan are avoided, reduced or offset; and the beneficial environmental effects of implementing the Plan are maximised.

The investment identified under this sub-programme would help to facilitate a shift towards more sustainable modes of transport such as walking, cycling and light rail/metro with associated positive environmental effects including (SEOs AC1 AC2 AC3 PHH1 PHH2):

- Reductions in/limits in increases of greenhouse gas emissions and associated achievement of legally binding greenhouse gas emissions targets;
- Reductions in/limits in increases of all emissions to air and associated achievement of air quality objectives, thereby contributing towards improvement of air quality and protection of human health;
- Reductions in/limits in increases of consumption of non-renewable energy sources and achievement of legally binding renewable energy targets; and
- Energy security.

In combination with other parts of the Integrated Implementation Plan and other plans and programmes, including those from the land use sector, investment in under this sub-programme would help to: improve the development potential of certain zoned lands; facilitate consolidation of urban areas; facilitate reuse and regeneration of brownfield lands; and reduce sprawl (SEO PHH1). In this way, this sub-programme would help to facilitate a higher efficiency of land utilisation, increases in sustainable mobility and a reduction in the need to develop greenfield lands. The reduced need to develop greenfield lands further away from existing urban areas would result in lower adverse effects upon environmental components such as ecology (SEOs B1 B2 B3), landscape designations (SEO L1), archaeological (SEO CH1) and architectural (SEO CH2) heritage and soil (SEO S1). Land use zoning objectives in force through existing land use plans have already been subject to SEA and AA processes. Any variation to or review of these plans and associated zoning objectives would also be required to be subject to SEA and AA processes. Potential significant adverse effects on various environmental components (SEOs AC1 AC2 AC3 PHH1 PHH2 B1 B2 B3 MA1 MA2 MA3 W1 W2 W3 L1 CH1 CH2 S1) as a result of developing these lands would be mitigated by environmental requirements, including those contained within the relevant land use plans.

The **Greater Dublin Area Cycle Network Plan** has been subjected to SEA and AA (the AA identified that the Plan would not adversely affect the integrity of any European Site, unless there are no alternative solutions and it is demonstrated that the project is of overriding public interest). The SEA Environmental Report for the Plan identifies significant positive effects on environmental topics including sustainable mobility, accessibility to built/amenity assets and infrastructure, air and climatic factors, landscape and cultural heritage. Potential disturbance of archaeological resources during scheme development will generally be mitigated by preservation in-situ where possible and preservation by recording.

The development of the **strategic pedestrian network plan** will be required to be informed by environmental consideration as per other provisions included within the Plan. The progression of this plan must also be in compliance with environmental requirements, as relevant, including those relating to the EU Habitats and SEA Directives (SEO B1).

The development of **walkways and cycleways** – including segregated cycle facilities on all Core Bus Corridors in each metropolitan area and greenways – presents a variety of potentially adverse environmental effects that would be likely to arise from both the construction and operation of such developments and/or their ancillary infrastructure upon environmental components including land take/soil (SEO S1), water (SEOs W1 W2), ecology (SEOs B1 B2 B3), landscape (SEO L1), cultural heritage (SEOs CH1 CH2) and traffic, noise, dust and vibration during construction (SEO PHH2). These types of infrastructure are sometimes constructed in ecologically and visually sensitive areas adjacent to the banks of rivers and streams. Potential adverse effects would be mitigated both by measures which have been integrated into the Plan that provide for and contribute towards environmental protection, environmental management and sustainable development, by measures included within the Greater Dublin Area Cycle Network Plan and by measures arising from lower tier assessments (including those for the preparation of lower tier strategies, plans, programmes or projects e.g. EIA for BusConnects Core Bus Corridor Projects).

Further expansions of these **public bike sharing schemes** and the introduction of additional schemes will be assessed during the lifetime of the Integrated Implementation Plan.

Improvements in **traffic management** will help to facilitate the operation of transport in the Greater Dublin Area, prioritising more sustainable modes as appropriate and associated positive environmental effects (SEOs AC1 AC2 AC3 PHH1 PHH2). Traffic routing could provide required space for the introduction, or improvement, of public transport, including light rail, Core Bus Corridors and cycle schemes. The development of Parking Facilities is part of traffic management; potential significant adverse effects on various environmental components (SEOs AC1 AC2 AC3 PHH1 PHH2 B1 B2 B3 MA1 MA2 MA3 W1 W2 W3 L1 CH1 CH2 S1) as a result of developing these facilities would be mitigated by environmental requirements, including those contained within the relevant land use plans.

Safety measures will make walking and cycling more attractive and likely to be chosen, thereby improving sustainable mobility and associated positive environmental effects (SEOs AC1 AC2 AC3 PHH1 PHH2). **Integration and accessibility measures**, such as travel information online, integrated ticketing, and information at public transport stops and stations, will make use of public transport more attractive thereby improving sustainable mobility and associated positive environmental effects (SEOs AC1 AC2 AC3 PHH1 PHH2).

8.7.6 Chapter 9: An Integrated Service Plan, Chapter 10: Integration and Accessibility & Chapter 11 Risks and Constraints

	Likely to Improve status of SEOs	Potential Conflict with status of SEOs- likely to be mitigated	Probable Conflict with status of SEOs- unlikely to be mitigated	No Likely interaction with status of SEOs
<p>Integrated Implementation Plan provisions:</p> <p>An integrated service plan, identifying the key objectives and outputs to be pursued by the Authority in relation to public passenger transport services, is essential to influence travel behaviour and secure this modal shift. Chapter 9 of the Integrated Implementation Plan identifies the service outputs that the Authority will pursue and integrate over the period of the Plan under the following headings:</p> <ul style="list-style-type: none"> BusConnects – Metropolitan Network Reviews; Bus networks continually evolve and change in tandem with changes in population and employment patterns. The on-going development of rail, light rail, and the Core Bus Networks over the period of the Plan will also lead to a reconfiguration of the bus network to reflect those changes and to seek to optimise the efficiency and attractiveness of the overall public transport provision. The BusConnects programme will deliver a fully redesigned network of routes and services to address the deficiencies in the current network. <p>The following outlines the high level key objectives for the bus network:</p> <ul style="list-style-type: none"> Provide a well-designed and effective bus network that optimises routes and services to meet passenger demand; Ensure the efficient use of available resources in delivering bus services; Seek to reduce overall journey times and improve the reliability of bus services; Improve service patterns by enhancing services in off-peak periods, in the evenings, and at weekends. 24-hour bus services will be introduced on key cross-city corridors in Dublin; Develop greater interchange with other transport modes; Provide increasingly simple and convenient means of payment for public transport journeys; Provide an attractive, comfortable, clean, accessible and modern bus fleet; Ensure value for money for bus passengers; Improve the environmental performance of the bus fleet; and Assess and progress the appropriate delivery model for Public Service Obligation (PSO) bus services in the general economic interest. <ul style="list-style-type: none"> Rail Services; and Over the period of the Plan, and similar to those set out above in relation to the bus system, the Authority's broad objectives for rail services are as follows: <ul style="list-style-type: none"> To optimise services in order to meet passenger demand; To maximise connectivity by rail between the main centres of economic activity and Dublin City Centre; To improve overall journey times and reliability for trains and trams in the Greater Dublin Area; To manage effectively the operating contracts for rail services; and To constantly seek to improve the quality of the customer's experience. Taxis and Hackneys. The objectives of the Authority in relation to small public service vehicles (SPSV), comprising taxis, hackneys and limousines, over the period of the Plan, are as follows: <ul style="list-style-type: none"> To increase the number and availability of wheelchair accessible vehicles in the SPSV fleet; 	AC1 AC2 AC3 PHH1 PHH2 B1 B2 B3 MA1 MA2 MA3 W1 W2 W3 L1 CH1 CH2 S1	AC1 AC2 AC3 PHH1 PHH2 B1 B2 B3 MA1 MA2 MA3 W1 W2 W3 L1 CH1 CH2 S1		

<ul style="list-style-type: none"> - To promote the provision and maintenance of quality, customer oriented, appropriately regulated SPSV services for the benefit of both the service providers and public users; - To increase the level of regulatory compliance through communication and enforcement; - To develop a professional, safe, efficient and customer friendly service by small public service vehicle operators and booking services, promoting protection of service users and providers alike; and - To support the provision of additional taxi ranks in appropriate locations. - strategic actions <p>Chapter 10 of the Integrated Implementation Plan provides Integration and Accessibility Measures under the following headings:</p> <ul style="list-style-type: none"> • Leap Card; • Next Generation Ticketing; • Journey Planning; • BusConnects – Fares Review; • Public Transport Brand; • Accessibility; and • Safety and Personal Security. <p>Chapter 11 of the Integrated Implementation Plan details the main constraints and risks that could impact the delivery of Plan provisions as well as measures that might help to avoid mitigate such impacts.</p>				
<p>Commentary on certain interactions:</p> <p><i>The National Planning Framework and associated National Development Plan (Project 2040), the Transport Strategy for the Greater Dublin Area 2016-2035 and/or the Greater Dublin Area Cycle Network Plan already include provisions relating to areas covered by sub-programmes above, including:</i></p> <ul style="list-style-type: none"> • <i>BusConnects - Metropolitan Network Reviews;</i> • <i>Rail Services; and</i> • <i>Taxis and Hackneys</i> <p><i>These sub-programmes will contribute towards the achievement of the selected alternative scenario for the Plan, including the facilitation of land use allocation and development, and associated effects and interactions (see evaluation at Section 7 of this report).</i></p> <p><i>The various types of environmental effects likely to arise with respect to the Integrated Implementation Plan as a direct result of development and activities under the Plan, including those relating to the integrated services plan, integration and accessibility and associated changes in behaviour and modal shift, and in-combination with the wider planning framework are detailed on Table 8.3.</i></p> <p><i>The SEA and AA processes that have been undertaken alongside the preparation of the Plan have brought about changes to the emerging Plan, the bulk of which make up '4.6 Environmental Considerations' under Chapter 4 of the Plan (these are reproduced at Section 9 of this SEA Environmental Report). By integrating all SEA and AA recommendations into the Integrated Implementation Plan, the Authority has helped to ensure that: the potential significant adverse effects of implementing the Plan are avoided, reduced or offset; and the beneficial environmental effects of implementing the Plan are maximised.</i></p> <p><i>The investment identified under these sub-programmes would help to change behaviour and facilitate a shift towards more sustainable modes of transport including walking, cycling, bus, light rail/metro and heavy rail with associated positive environmental effects including (SEOs AC1 AC2 AC3 PHH1 PHH2):</i></p> <ul style="list-style-type: none"> • <i>Reductions in/limits in increases of greenhouse gas emissions and associated achievement of legally binding greenhouse gas emissions targets;</i> • <i>Reductions in/limits in increases of all emissions to air and associated achievement of air quality objectives, thereby contributing towards improvement of air quality and protection of human health;</i> • <i>Reductions in/limits in increases of consumption of non-renewable energy sources and achievement of legally binding renewable energy targets; and</i> • <i>Energy security.</i> 				

In combination with other parts of the Integrated Implementation Plan and other plans and programmes, including those from the land use sector, investment in under these sub-programmes would help to: improve the development potential of certain zoned lands; facilitate consolidation of urban areas; facilitate reuse and regeneration of brownfield lands; and reduce sprawl (SEO PHH1). In this way, these sub-programmes would help to facilitate a higher efficiency of land utilisation, increases in sustainable mobility and a reduction in the need to develop greenfield lands. The reduced need to develop greenfield lands further away from existing urban areas would result in lower adverse effects upon environmental components such as ecology (SEOs B1 B2 B3), landscape designations (SEO L1), archaeological (SEO CH1) and architectural (SEO CH2) heritage and soil (SEO S1). Land use zoning objectives in force through existing land use plans have already been subject to SEA and AA processes. Any variation to or review of these plans and associated zoning objectives would also be required to be subject to SEA and AA processes. Potential significant adverse effects on various environmental components (SEOs AC1 AC2 AC3 PHH1 PHH2 B1 B2 B3 MA1 MA2 MA3 W1 W2 W3 L1 CH1 CH2 S1) as a result of developing these lands would be mitigated by environmental requirements, including those contained within the relevant land use plans.

Contributions towards sustainable mobility and associated effects (SEOs AC1 AC2 AC3 PHH1 PHH2) will be made under various components within these sub-programmes:

- *Ongoing reconfiguration of the metropolitan networks, which will allow for further development of the bus network and help to increase interchange between rail and bus and maximise benefits from the increased capacity of rail networks;*
- *Provisions in relation to local and rural transport;*
- *Increasing capacity of railcars on the Green Luas line, providing enhanced priority for Luas, enhancing the customer experience at rail stations and stops, further development of rail customer systems; and*
- *Integrating new technology into taxi and hackney services, including electric vehicles.*

In combination with other parts of the Integrated Implementation Plan, including those BusConnects and associated provision of Core Bus Corridors, seating, shelters and interchange facilities, potentially significant adverse effects would be likely to include:

- *Land take resulting from new or widened bus corridors, interchange facilities or bus stop and shelter provision (SEO S1);*
- *Potential loss of built/amenity assets and infrastructure (SEO MA1) such as: parts of public open spaces, parks and recreational areas; parts of gardens (with associated rebuilding of new garden walls back from the existing road boundary); lands in front of commercial properties parts of pathways; and on-street parking.*
- *Potential loss of/damage to biodiversity including removal of old trees, tree lines or areas of vegetation along some of the corridors and interactions with designated ecological sites (SEO B1 B2 B3);*
- *Potential impacts upon the status of water bodies (SEOs W1 W2), including morphological status, especially at the crossing points of rivers and streams;*
- *Potential loss of protected structures and/or context and potential damage to the special character or architectural interest of Architectural Conservation Areas (SEO CH2);*
- *Potential loss of designated and unknown archaeology (SEO CH1); and*
- *Traffic, noise, dust and vibration during construction (SEO PHH2).*

Potentially significant adverse effects would be mitigated by compliance with measures, including those that have been integrated into the Plan (see Section 9) and those that will arise from lower tier assessments e.g. EIA for BusConnects Core Bus Corridor Projects.

Chapter 11 contains information but no new proposal that would have environmental interactions for the purpose of this assessment.

Section 9 Mitigation Measures

9.1 Introduction

Mitigation measures are measures envisaged to prevent, reduce and, as fully as possible, offset any significant adverse impacts on the environment of implementing the Integrated Implementation Plan. Various environmental sensitivities and issues have been communicated to the Authority through the SEA and Appropriate Assessment (AA) processes.

By integrating all SEA and AA recommendations into the Integrated Implementation Plan, the Authority has helped to ensure that:

- The potential significant adverse effects of implementing the Plan are avoided, reduced or offset; and
- The beneficial environmental effects of implementing the Plan are maximised.

Mitigation was achieved through the following:

- Early work undertaken by the Authority to ensure contribution towards environmental protection and sustainable development;
- Consideration of alternatives; and
- Integration of individual measures into the Plan.

9.2 Early work undertaken by the Authority to ensure contribution towards environmental protection and sustainable development

Far in advance of the placing of the Plan (and associated SEA and AA) on public display, the National Transport Authority undertook early work that has helped to ensure that the Plan contributes towards environmental protection and sustainable development.

This work includes the adoption of the closely related Transport Strategy for the Greater Dublin Area 2016-2035 that establishes an overall framework for transport investment in Counties Dublin, Meath, Kildare and Wicklow over the next two decades and already contributes towards the environmental protection and management.

Most proposals included within the Plan have been already included within plans that facilitate sustainable mobility including the Transportation Strategy, the National Planning Framework 2018 and the Greater Dublin Area Cycle Network Plan 2016.

The Transport Strategy (and consequently the Implementation Plan) focuses on improving public and sustainable transport across the Greater Dublin Area while seeking to ensure primacy for transport options that provide for unit reductions in carbon emissions. This involves: promoting public transport, walking and cycling; seeking to reduce car use in circumstances where alternative options are available; and transitioning to lower emission vehicles for transport use. Transport Strategy provisions include those relating to: light rail; including the development of the MetroLink project; heavy rail (inclusive of expanded electrification on the suburban rail lines); cycling facilities; pedestrian movement; interchange facilities; information provision; and park and ride developments.

To date, the Authority has focused significant levels of investment in these sustainable modes, including the reopening of the Phoenix Park Tunnel and the delivery of Luas Cross City. The continuation of this focus is facilitated by the Transport Strategy and it is intended that it will continue under the Implementation Plan.

9.3 Consideration of alternatives

As part of the Plan-preparation/SEA process, the National Transport Authority considered three alternative scenarios regarding the sequence and degree of implementation of key elements that make up the Plan. These scenarios were as follows:

- Scenario A: Balanced Bus and Rail;
- Scenario B: MetroLink Prioritisation of Funding; and
- Scenario C: MetroLink Reduced Funding.

The most preferable outcome from the environmental assessment of alternatives is identified as being Alternative Scenario A and the approach outlined by this alternative is the one that is followed by the Plan.

This alternative will give rise to orderly development with balanced patterns of land use allocation – resulting in a greater likelihood of financially viable supporting utilities and amenities – as well as earlier attainment of income generation goals (through fares from orderly provision of new housing concentrations at scale). Growth will be balanced as a result of this alternative.

This alternative will also facilitate the greatest improvement in sustainable mobility of all alternatives (reducing and limiting increases in the number of journeys by car taken as a percentage of all journeys taken), thereby facilitating the greatest reduction and limit of increases in greenhouse gas emissions, noise emissions and other emissions to air (with associated effects on human health).

9.4 Integration of individual measures into the Plan

The SEA and AA processes that have been undertaken alongside the preparation of the Plan have brought about changes to the emerging Plan thereby enabling the mitigation of any potentially adverse environmental effects. All recommendations made by the SEA and AA processes were integrated into the Plan. The changes which have been brought about by the SEA and AA processes are detailed in Table 9.1 and Table 9.2 below.

These tables also link the various mitigation measures to specific environmental components and the potential adverse effects that would be present if the changes were not made. The measures generally benefit multiple environmental components i.e. a measure providing for the protection of biodiversity, flora and fauna could beneficially impact upon the minimisation of flood risk and the protection of human health, for example.

Table 9.1 SEA/AA recommendations included within the Integrated Implementation Plan

Plan Chapter No.	Text inserted into the Plan arising from SEA/AA processes
Chapter 2 Background to the Implementation Plan, Sub-section 2.3 Spatial Planning	Any future Transportation Strategies for these Metropolitan Areas will be required to be subject to SEA and AA as appropriate.
Chapter 4 Overall Infrastructure Investment Programme, Sub-section 4.6 Environmental considerations	<p>4.6.1 Regulatory Framework for Environmental Protection and Management</p> <p>In implementing this Plan, the Authority will cumulatively contribute towards – in combination with other users and bodies – the achievement of the objectives of the regulatory framework for environmental protection and management, in compliance with EU Directives - including the Habitats Directive (92/43/EEC, as amended), the Birds Directive (2009/147/EC), the Environmental Impact Assessment Directive (2011/92/EU, as amended by 2014/52/EC) and the Strategic Environmental Assessment Directive (2001/42/EC) – and relevant transposing Regulations.</p>
Chapter 4 Overall Infrastructure Investment Programme, Sub-section 4.6 Environmental considerations	<p>4.6.2 Lower-level Decision Making</p> <p>Lower levels of decision making and environmental assessment should consider the sensitivities identified in Section 4 of the SEA Environmental Report, including the following:</p> <ul style="list-style-type: none"> • Special Areas of Conservation (SACs) and Special Protection Areas (SPAs) and Candidate SACs and SPAs; • Features of the landscape that provide linkages/connectivity to designated sites (e.g. watercourses, areas of semi-natural habitat such as linear woodlands etc); • Salmonid waters; • Shellfish waters; • Freshwater pearl mussel catchments; • Natural Heritage Areas and proposed Natural Heritage Areas; • Areas likely to contain a habitat listed in Annex 1 of the Habitats Directive; • Un-designated sites of importance to wintering or breeding bird species of conservation concern; • Entries to the Record of Monuments and Places and Zones of Archaeological Potential; • Entries to the Record of Protected Structures; • Architectural Conservation Areas; and • Relevant landscape designations.
Chapter 4 Overall Infrastructure Investment Programme, Sub-section 4.6 Environmental considerations	<p>4.6.3 Corridor and Route Selection Process for Relevant New Infrastructure</p> <p>The following Corridor and Route Selection Process will be undertaken for relevant new infrastructure:</p> <p>Stage 1 – Route Corridor Identification, Evaluation and Selection</p> <ul style="list-style-type: none"> • Environmental constraints (including those identified in Section 4 of the SEA Environmental Report) and opportunities (such as existing linear infrastructure) will assist in the identification of possible route corridor options; • Potentially feasible corridors within which infrastructure could be accommodated will be identified and these corridors assessed. The selection of the preferred route corridor will avoid constraints and meet opportunities to the optimum extent, as advised by the relevant specialists; and • In addition to the constraints identified above, site-specific field data may be required to identify the most appropriate corridors. <p>Stage 2 – Route Identification, Evaluation and Selection</p> <ul style="list-style-type: none"> • Potentially feasible routes within the preferred corridor will be identified and assessed. The selection of preferred routes will avoid constraints and meet opportunities to the optimum extent, as advised by the relevant specialists, taking into account project level information and potential mitigation measures that are readily achievable; • In addition to the constraints identified above, site specific field data may be required to identify the most appropriate routes; and • In addition to environmental considerations, the identification of route corridors and the refinement of route lines is likely to be informed by other considerations.

Plan Chapter No.	Text inserted into the Plan arising from SEA/AA processes
Chapter 4 Overall Infrastructure Investment Programme, Sub-section 4.6 Environmental considerations	<p>4.6.4 Appropriate Assessment</p> <p>All projects and plans arising from this Plan will be screened for the need to undertake Appropriate Assessment under Article 6 of the Habitats Directive. A plan or project will only be authorised after the competent authority has ascertained, based on scientific evidence, Screening for Appropriate Assessment, and subsequent Appropriate Assessment where necessary, that:</p> <ol style="list-style-type: none"> 1. The plan or project will not give rise to significant adverse direct, indirect or secondary effects on the integrity of any European site (either individually or in combination with other plans or projects); or 2. The plan or project will have significant adverse effects on the integrity of any European site (that does not host a priority natural habitat type/and or a priority species) but there are no alternative solutions and the plan or project must nevertheless be carried out for imperative reasons of overriding public interest, including those of a social or economic nature. In this case, it will be a requirement to follow procedures set out in legislation and agree and undertake all compensatory measures necessary to ensure the protection of the overall coherence of Natura 2000; or <p>The plan or project will have a significant adverse effect on the integrity of any European site (that hosts a natural habitat type and/or a priority species) but there are no alternative solutions and the plan or project must nevertheless be carried out for imperative reasons for overriding public interest, restricted to reasons of human health or public safety, to beneficial consequences of primary importance for the environment or, further to an opinion from the Commission, to other imperative reasons of overriding public interest. In this case, it will be a requirement to follow procedures set out in legislation and agree and undertake all compensatory measures necessary to ensure the protection of the overall coherence of Natura 2000.</p>
Chapter 4 Overall Infrastructure Investment Programme, Sub-section 4.6 Environmental considerations	<p>4.6.5 Protection of European Sites</p> <p>No plans or projects giving rise to significant cumulative, direct, indirect or secondary impacts on European sites arising from their size or scale, land take, proximity, resource requirements, emissions (disposal to land, water or air), transportation requirements, duration of construction, operation, decommissioning or from any other effects shall be permitted on the basis of this Plan (either individually or in combination with other plans or projects⁷⁸).</p>
Chapter 4 Overall Infrastructure Investment Programme, Sub-section 4.6 Environmental considerations	<p>4.6.6 Climate Change, Emissions and Energy</p> <p>As identified in the SEA Environmental Report that accompanies this Plan, the Plan facilitates sustainable mobility and associated positive effects, including those relating to:</p> <ul style="list-style-type: none"> • Reductions in/limits in increases of greenhouse gas emissions and associated achievement of legally binding greenhouse gas emissions targets; • Reductions in/limits in increases of all emissions to air and associated achievement of air quality objectives, thereby contributing towards improvement of air quality and protection of human health; • Reductions in/limits in increases of consumption of non-renewable energy sources and achievement of legally binding renewable energy targets; and • Energy security. <p>In implementing the Plan, the Authority will support relevant provisions contained in the National Climate Change Adaptation Framework (2018), the National Mitigation Plan (2017) and the Department of Transport, Tourism and Sport's 2017 "Adaptation Planning – Developing Resilience to Climate Change in the Irish Transport Sector", the National Energy and Climate Plan, Climate Change Action Plans of local authorities and any Regional Decarbonisation Plan prepared on foot of commitments included in the RSEs.</p> <p>The implementation of the Plan will incorporate relevant targets and actions arising from the sectoral adaptation plan for transport that will be prepared to comply the requirements of the Climate Action and Low Carbon Development Act 2015.</p>

⁷⁸ Except as provided for in Article 6(4) of the Habitats Directive, viz. There must be:

- a) no alternative solution available,
- b) imperative reasons of overriding public interest for the plan/programme/strategy/project etc. to proceed; and
- c) Adequate compensatory measures in place.

Plan Chapter No.	Text inserted into the Plan arising from SEA/AA processes
	<p>Cognisant of the imperative to reduce emissions, the Authority will seek to ensure primacy for transport options that provide for unit reductions in carbon emissions. This can most effectively be done by promoting public transport, walking and cycling, and by actively seeking to reduce car use in circumstances where alternative options are available.</p> <p>During the preparation and/or review of policies and plans relating to climate change, carbon emissions and energy usage, the Authority will seek to integrate Plan objectives, as appropriate.</p>
Chapter 4 Overall Infrastructure Investment Programme, Sub-section 4.6 Environmental considerations	<p>4.6.7 Other SEA Recommendations</p> <p>In implementing the Plan, the Authority will ensure that the mitigation measures included in Table 9.2 of the SEA Environmental Report are complied with.</p>

The SEA and AA recommendations detailed in Table 9.2 below have been integrated into the Plan through the commitment provided at sub-section 4.6.7 of the Plan. These measures are linked to specific environmental components and the potential adverse effects that would be present if the measures were not integrated into the Plan.

Table 9.2 Provisions referred to in Integrated Transport Plan sub-section 4.6.7 “Other SEA Recommendations”

Environmental component benefitting	Potential adverse effect mitigated	Requirement
Various	Various – see below	<p>Construction and Environmental Management Plans</p> <p>Construction Environment Management Plans (CEMPs) shall be prepared in advance of the construction of larger projects and implemented throughout. Such plans shall incorporate relevant mitigation measures which have been integrated into the Plan and any lower tier Environmental Impact Assessment Report or Appropriate Assessment. CEMPs typically provide details of intended construction practice for the proposed development, including:</p> <ol style="list-style-type: none"> location of the sites and materials compound(s) including area(s) identified for the storage of construction refuse, location of areas for construction site offices and staff facilities, details of site security fencing and hoardings, details of on-site car parking facilities for site workers during the course of construction, details of the timing and routing of construction traffic to and from the construction site and associated directional signage, measures to obviate queuing of construction traffic on the adjoining road network, measures to prevent the spillage or deposit of clay, rubble or other debris, alternative arrangements to be put in place for pedestrians and vehicles in the case of the closure of any public right of way during the course of site development works, details of appropriate mitigation measures for noise, dust and vibration, and monitoring of such levels, containment of all construction-related fuel and oil within specially constructed bunds to ensure that fuel spillages are fully contained; such bunds shall be roofed to exclude rainwater, disposal of construction/demolition waste and details of how it is proposed to manage excavated soil, a water and sediment management plan, providing for means to ensure that surface water runoff is controlled such that no silt or other pollutants enter local water courses or drains, details of a water quality monitoring and sampling plan. if peat is encountered - a peat storage, handling and reinstatement management plan. measures adopted during construction to prevent the spread of invasive species (such as Japanese Knotweed). appointment of an ecological clerk of works at site investigation, preparation and construction phases. details of appropriate mitigation measures for lighting specifically designed to minimise impacts to biodiversity including bats.

Environmental component benefitting	Potential adverse effect mitigated	Requirement
Various	Various – see below	Maintenance Plan Lower tier assessments should examine the need for Maintenance Plans informed by environmental considerations to be prepared and implemented.
Air and Climatic Factors	Emissions to air	Please refer to the overall approach and detail provided for by the Plan focusses significant levels of investment in sustainable transport modes and other climate related provisions integrated into the Plan. Air and Energy Contribute towards: compliance with air quality legislation; greenhouse gas emission targets; management of noise levels; and reductions in energy usage.
Population and human health	Potential interactions if effects upon environmental vectors such as air are not mitigated	Human Health Assess proposals for development in terms of, inter alia, potential impact on existing adjacent developments, existing land uses and/or the surrounding landscape. Where proposed developments would be likely to have a significant adverse effect on the amenities of the area through pollution by noise, fumes, odours, dust, grit or vibration, or cause pollution of air, water and/or soil, mitigation measures shall be introduced in order to eliminate adverse environmental impacts or reduce them to an acceptable operating level. In implementing the Plan, the Authority will also seek to prevent traffic noise and protect designated quiet areas where feasible. Also see requirements under other headings including soil, water and air below.
Biodiversity and flora and fauna	- Arising from both construction and operation of transport infrastructure and services and associated facilities/ infrastructure: loss of/damage to biodiversity in designated sites, ecological connectivity and non-designated habitats; and disturbance to biodiversity and flora and fauna - Habitat loss, fragmentation and deterioration, including patch size and edge effects - Disturbance (e.g. due to noise and lighting along	Protection of Biodiversity including Natura 2000 Network Contribute, as appropriate, towards the protection of designated ecological sites including candidate Special Areas of Conservation (cSACs) and Special Protection Areas (SPAs); UNESCO World Heritage and UNESCO Biosphere sites; Ramsar Sites; Salmonid Waters; Shellfish Waters; Freshwater Pearl Mussel catchments; Flora Protection Order sites; Wildlife Sites (including Nature Reserves); Certain entries to the Water Framework Directive Register of Protected Areas; Natural Heritage Areas (NHAs) and proposed Natural Heritage Areas (pNHAs); Wildfowl Sanctuaries (see S.I. 192 of 1979) ; and Tree Preservation Orders (TPOs). Contribute towards compliance with relevant EU Environmental Directives and applicable National Legislation, Policies, Plans and Guidelines, including the following and any updated/superseding documents): <ul style="list-style-type: none"> • EU Directives, including the Habitats Directive (92/43/EEC, as amended)⁷⁹, the Birds Directive (2009/147/EC)⁸⁰, the Environmental Liability Directive (2004/35/EC)⁸¹, the Environmental Impact Assessment Directive (2011/92/EU, as amended by 2014/52/EC), the Water Framework Directive (2000/60/EC) and the Strategic Environmental Assessment Directive (2001/42/EC). • National legislation, including the Wildlife Acts 1976 and 2010 (as amended), the Planning and Development Act 2000 (as amended) and associated Regulations, Environmental Impact Assessment Regulations, the Wildlife (Amendment) Act 2000, the European Union (Water Policy) Regulations 2003 (as amended), the European Communities (Birds and Natural Habitats) Regulations 2011 (as amended), the European Communities (Environmental Liability) Regulations 2008⁸² and the Flora Protection Order 2015. • National policy guidelines (including any clarifying Circulars or superseding versions of same), including the "Landscape and Landscape Assessment" Draft Guidelines 2000, the Environmental Impact Assessment Sub-Threshold Development Guidelines 2003, Strategic Environmental Assessment Guidelines 2004 and the Appropriate Assessment Guidance 2010. • Catchment and water resource management Plans, including the relevant River Basin Management Plan and Flood Risk Management Plan (including any superseding versions of same). • Biodiversity Plans and guidelines, including the 3rd National Biodiversity Plan 2017-2023 (including any superseding version of same). • Freshwater Pearl Mussel Regulations (S.I. 296 of 2009) (including any associated designated areas or management plans). • Ireland's Environment 2016 - An Assessment (EPA, 2016, including any superseding versions of same), and to make provision where appropriate to address the report's goals and challenges.

⁷⁹ Including Annex I habitats, Annex II species and their habitats and Annex IV species and their breeding sites and resting places (wherever they occur).

⁸⁰ Including Annex I species and other regularly occurring migratory species, and their habitats (wherever they occur).

⁸¹ Including protected species and natural habitats.

⁸² Including protected species and natural habitats.

Environmental component benefitting	Potential adverse effect mitigated	Requirement
	transport corridors) and displacement of protected species and coastal squeeze - Effects in riparian zones where new crossings of waters, if any, are progressed - Potential effects from transport emissions	NPWS and Integrated Management Plans Article 6(1) of the Habitats Directive requires that Member States establish the necessary conservation measures for European sites involving, if need be, appropriate management plans specifically designed for the sites or integrated into other development plans. The NPWS's current priority is to identify site specific conservation objectives; management plans may be considered after this is done.
		Where Integrated Management Plans are being prepared for European sites (or parts thereof), the National Parks and Wildlife Service shall be engaged with in order to ensure that plans are fully integrated with the Plan and other plans and programmes, with the intention that such plans are practical, achievable and sustainable and have regard to all relevant ecological, cultural, social and economic considerations, including those of local communities.
		Coastal Zone Management Support measures to protect the coast, the coastal edge and coastal habitats; and facilitate an Integrated Coastal Zone Management approach to ensure the conservation, management and projection of man-made and natural resources of the coastal zone.
		Biodiversity and Ecological Networks Contribute towards the protection and enhancement of biodiversity and ecological connectivity, including woodlands, trees, hedgerows, semi-natural grasslands, rivers, streams, natural springs, wetlands, geological and geo-morphological systems, other landscape features, natural lighting conditions, and associated wildlife where these form part of the ecological network and/or may be considered as ecological corridors or stepping stones in the context of Article 10 of the Habitats Directive.
		Protection of Riparian Zone and Waterbodies and Watercourses Help to ensure that waterbodies and watercourses are protected from inappropriate development, including rivers, streams, associated undeveloped riparian strips, wetlands and natural floodplains. This will include the preservation habitat features/structure, such as treeline density, and protection buffers in riverine, wetland and coastal areas, as appropriate.
		Biodiversity including non-designated biodiversity Ensure the undertaking of appropriately detailed surveying and assessment at project/EIA level and minimisation of loss of biodiversity, including old trees or tree lines or areas of vegetation, as a result of the development of new or widened infrastructure.
		Help to ensure the appropriate protection of non-designated habitat features, landscapes and biological diversity.
		Lighting Sensitive Species Lighting fixtures should provide only the amount of light necessary for personal safety and should be designed so as to avoid creating glare or emitting light above a horizontal plane. Lighting fixtures should have minimum environmental impact, thereby contributing towards the protection of amenity and the protection of light sensitive species such as bats.
		Non-native invasive species Support, as appropriate, the National Parks and Wildlife Service's efforts to seek to control and manage the spread of non-native invasive species on land and water. Where the presence of non-native invasive species is identified at the site of any proposed development or where the proposed activity has an elevated risk of resulting in the presence of these species, details of how these species will be managed and controlled will be required.
		National Peatlands Strategy Support, as appropriate, any relevant recommendations contained in the National Peatlands Strategy 2015.
Material Assets	- Generation of construction waste - Loss or damage to public assets and infrastructure	Also see Construction and Environmental Management Plans provision above
		Construction Waste Demonstrate that all waste arising during construction phase will be managed and disposed of in a way that ensures the provisions of the Waste Management Acts and regulations and any of the relevant Local Authorities Waste Management Plans. Construction Waste Management Plans will be implemented to minimise waste and ensure correct handling and disposal of construction waste streams in accordance with the Best Practice Guidelines on the Preparation of Waste Management Plans for Construction and Demolition Projects, Department of the Environment, July 2006.
		Waste Creation Support the minimisation of waste creation and promote a practice of reduce, reuse and recycle where possible.

Environmental component benefitting	Potential adverse effect mitigated	Requirement
		<p>Waste Disposal Safeguard the environment by seeking to ensure that residual waste is disposed of appropriately.</p> <p>Public Assets and Infrastructure Contribute towards the protection of public assets and infrastructure including resources such as: public open spaces, parks and recreational areas; public buildings and services; and utility infrastructure (electricity, gas, telecommunications, water supply, wastewater infrastructure etc.)</p>
Water	<p>- Adverse impacts upon the status of water bodies and entries to the WFD Register of Protected Areas, arising from changes in quality, flow and/or morphology</p> <p>- Increase in the risk of flooding</p>	<p>Also see measures under soil above and material assets below.</p> <p>Water Framework Directive and associated legislation Contribute towards, as appropriate, the protection of existing and potential water resources, and their use by humans and wildlife, including rivers, streams, wetlands, groundwater, coastal waters and associated habitats and species in accordance with the requirements and guidance in the EU Water Framework Directive 2000 (2000/60/EC), the European Union (Water Policy) Regulations 2003 (as amended), the European Communities Environmental Objectives (Surface Waters) Regulations 2009 (SI No. 272 of 2009), the Groundwater Directive 2006/118/EC and the European Communities Environmental Objectives (groundwater) Regulations, 2010 (S.I. No. 9 of 2010) and other relevant EU Directives, including associated national legislation and policy guidance (including any superseding versions of same). Support the application and implementation of a catchment planning and management approach to development and conservation, including the implementation of Sustainable Drainage System techniques for new development.</p> <p>River Basin Management Plan Support the implementation of the relevant recommendations and measures as outlined in the relevant River Basin Management Plan, and associated Programmes of Measures, or any such plans that may supersede same during the lifetime of the Plan. Proposed plans, programmes and projects shall not have an unacceptable impact on the water environment, including surface waters, groundwater quality and quantity, river corridors and associated woodlands. Also to have cognisance of, where relevant, the EU's Common Implementation Strategy Guidance Document No. 20 and 36 which provide guidance on exemptions to the environmental objectives of the Water Framework Directive.</p> <p>Bathing Water Contribute towards the achievement of the requirements of the EU Bathing Water Directive and transposing Bathing Water Quality Regulations (SI No. 79 of 2008) and EU Mandatory Values, as a minimum, and EU Guide Values, where possible.</p> <p>Flood Risk Management Guidelines Comply with The Planning System and Flood Risk Management Guidelines (2009, DEHLG/OPW) (including any clarifying Circulars or superseding versions of same) and relevant outputs of the Catchment and Flood Risk Assessment and Management Studies (CFRAMS).</p> <p>Surface Water Drainage and Sustainable Drainage Systems (SuDs) Ensure that new development is adequately serviced with surface water drainage infrastructure and promote the use of Sustainable Drainage Systems, as appropriate.</p>
Landscape	Occurrence of adverse visual impacts and conflicts with the appropriate protection of statutory designations relating to the landscape	<p>Landscape Designations Contribute, as appropriate, towards the protection of county and local level landscape designations from incompatible developments. Proposals for development that have the potential to significantly adversely impact upon these designations shall be accompanied by an assessment of the potential landscape and visual impacts of the proposed development - demonstrating that landscape impacts have been anticipated and avoided to a level consistent with the sensitivity of the landscape and the nature of the designation.</p> <p>Amenity Contribute towards the protection of areas of amenity value and minimise losses, as a result of the development of new or widened infrastructure.</p> <p>Coastal Areas and Seascapes Contribute towards the protection of landscape character and the visual potential of the coast and conserve the character and quality of seascapes.</p> <p>National Landscape Strategy Support, as appropriate, any relevant recommendations contained in the National Landscape Strategy for Ireland 2015-2025.</p>

Environmental component benefitting	Potential adverse effect mitigated	Requirement
Cultural Heritage	Potential effects on protected and unknown archaeology and protected architecture arising from construction and operation activities	<p>Archaeological Heritage Contribute, as appropriate, towards the protection and sympathetic enhancement of archaeological heritage, in particular by implementing the relevant provisions of the Planning and Development Act 2000 (as amended) and the National Monuments Act, 1930 (as amended).</p> <p>Any alterations to archaeological heritage or its context, including that which may arise as a result of the development of new or widened infrastructure, shall be in compliance with relevant legislation.</p> <p>Protection of Archaeological Sites Contribute, as appropriate, towards the protection of archaeological sites and monuments and their settings, archaeological objects and underwater archaeological sites that are listed in the Record of Monuments and Places, in the ownership/guardianship of the State, or that are the subject of Preservation Orders or have been registered in the Register of Historic Monuments. Contribute, as appropriate, towards the protection and preservation of archaeological sites, which have been identified subsequent to the publication of the Record of Monuments and Places.</p> <p>Consultation Consult with the National Monuments Service of the Department of Arts Heritage and the Gaeltacht in relation to proposed developments adjoining archaeological sites.</p> <p>Underwater Archaeological Sites Contribute, as appropriate, towards the protection and preservation of underwater archaeological sites in riverine, intertidal and sub-tidal locations.</p> <p>Architectural Heritage Contribute towards the protection of architectural heritage by complying, as appropriate, with the legislative provisions of the Planning and Development Act 2000 (as amended) in relation to architectural heritage and the policy guidance contained in the Architectural Heritage Protection Guidelines 2011 (and any updated/superseding document).</p> <p>Any alterations to architectural heritage or its context, including that which may arise as a result of the development of new or widened infrastructure, shall be in compliance with relevant legislation.</p>
Soil	Adverse impacts on the hydrogeological and ecological function of the soil resource as a result of construction of associated facilities/ infrastructure	<p>Also see requirements under other heading of water above.</p> <p>Soil Protection and Contamination Ensure that adequate soil protection measures are undertaken where appropriate. Adequate and appropriate investigations shall be carried out into the nature and extent of any soil and groundwater contamination and the risks associated with site development work, where brownfield development is proposed.</p> <p>Areas of geological interest Contribute towards the appropriate protection and maintenance of the character, integrity and conservation value of features or areas of geological interest.</p> <p>Land Take Contribute towards the target of the National Planning Framework's (2018) SEA to "Maintain built surface cover nationally to below the EU average of 4%."</p>

Section 10 Monitoring Programme

10.1 Introduction

The SEA Directive requires that the significant environmental effects of the implementation of plans and programmes are monitored. This section details the measures which will be used in order to monitor the likely and potential significant effects of implementing the Plan.

Monitoring can both demonstrate the positive effects facilitated by the Plan including those relating to sustainable mobility and can enable, at an early stage, the identification of unforeseen adverse effects and the undertaking of appropriate remedial action.

10.2 Indicators and Targets

Monitoring is based around indicators which allow quantitative measures of trends and progress over time relating to the Strategic Environmental Objectives identified in Section 5 and used in the evaluation. Each indicator to be monitored is accompanied by the target(s) which were identified with regard to the relevant strategic actions.

Table 10.1 overleaf shows the indicators and targets which have been selected for monitoring the likely significant environmental effects of implementing the Plan, if unmitigated.

Monitoring is an ongoing process and the programme allows for flexibility and the further refinement of indicators and targets. The Monitoring Programme may also be updated to deal with specific environmental issues - including unforeseen effects - as they arise.

10.3 Sources

Measurements for indicators generally come from existing monitoring sources. Existing monitoring sources include those maintained by the relevant authorities including the National Transport Authority, the Environmental Protection Agency, the National Parks and Wildlife Service and the Central Statistics Office.

The output of lower-tier environmental assessment and decision making – including a review of project approvals granted and associated documents – will also be utilised as part of the Monitoring Programme.

Where significant effects - including positive, negative, cumulative and indirect - have the potential to occur as a result of the undertaking of individual projects or multiple individual projects such instances should be identified and recorded and should feed into the monitoring evaluation.

10.4 Reporting

A stand-alone Monitoring Report on the significant environmental effects of implementing the Plan will be prepared in advance of the review of the Plan. This report will address the indicators set out below. The National Transport Authority is responsible for the ongoing review of indicators and targets, collating existing relevant monitored data, the preparation of monitoring evaluation report(s), the publication of these reports and, if necessary, the carrying out of corrective action, in combination with the relevant authorities.

The hierarchy of planning and environmental assessment - including associated environmental monitoring requirements - in which the Transport Plan is situated is noted. This hierarchy is detailed on Figure 3.2.

10.5 Thresholds

Thresholds at which corrective action will be considered include:

- Complaints received from statutory consultees regarding avoidable impacts on any environmental components resulting from development which is granted permission under the Plan;
- Court cases taken by the Department of Culture, Heritage and the Gaeltacht regarding impacts upon archaeological heritage from development which is provided for by the Plan;

- Fish kills directly attributable to development which is provided for by the Plan; and
- The occurrence of flood events which are directly attributable to development which is provided for by the Plan.

Table 10.1 Selected Indicators, Targets and Monitoring Sources

Environmental Component	Indicators	Targets	Source and Frequency
Air and Climatic Factors	AC1i: Compliance with Ambient Air Quality and Cleaner Air for Europe (CAFE) Directive and associated legislation	AC1i: To contribute towards compliance with legislative air quality limits and target values	<ul style="list-style-type: none"> • EPA Monitoring and publications on Air Quality and Greenhouse gas emissions • Internal NTA consultations and review of documentation
	AC1ii: Greenhouse gas emissions from transport	AC1ii: To facilitate a reduction in greenhouse gas emissions from transport	
		AC1iii: The incorporation of Integrated Implementation Plan objectives into the preparation and review of the National Mitigation Plan, National Adaptation Framework and relevant Sectoral Adaptation Plan(s) and the incorporation of the necessary targets/ actions/ provisions arising from these developing policies once they are in place	
	AC2: Percentage of population travelling to work, school or college by public transport or non-mechanical means	AC2: An increase in the percentage of the population travelling to work, school or college by public transport or non-mechanical means See also Target AC1iii	<ul style="list-style-type: none"> • Central Statistics Office data • Modelled output
Population and Human Health	AC3i: Energy use by the transport sector as a percentage of Total Final Energy Consumption	AC3i: To facilitate a reduction in energy use by the transport sector as a percentage of Total Final Energy Consumption	<ul style="list-style-type: none"> • Sustainable Energy Ireland <i>Energy in Ireland</i> reports • Modelled output
	AC3ii: Proportion of energy from renewable sources	AC3ii: To facilitate an increase in the proportion of energy from renewable sources by the transport sector	
		See also Target AC1iii	
	PHH1: Extent of urban/suburban areas within the catchment of transport infrastructure and services	PHH1: To maximise the extent of urban/suburban areas within the catchment of transport infrastructure and services	<ul style="list-style-type: none"> • Modelled output • Central Statistics Office data
	PHH2: Occurrence (any) of a spatially concentrated deterioration in human health arising from environmental factors resulting from development provided for by the Plan, as identified by the Health Service Executive and Environmental Protection Agency	PHH2: No spatial concentrations of health problems arising from environmental factors as a result of implementing the Plan	<ul style="list-style-type: none"> • Lower tier environmental assessment and decision making – including review of project approvals granted and associated documents • Consultations with EPA and Health Service Executive (at monitoring review)

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Environmental Component	Indicators	Targets	Source and Frequency
Biodiversity, Flora and Fauna	B1: Conservation status of habitats and species as assessed under Article 17 of the Habitats Directive	B1: Maintenance of favourable conservation status for all habitats and species protected under National and International legislation to be unaffected by implementation of the Plan ⁸³	<ul style="list-style-type: none"> • Lower tier environmental assessment and decision making – including review of project approvals granted and associated documents • Department of Arts, Heritage and the Gaeltacht report of the implementation of the measures contained in the Habitats Directive - as required by Article 17 of the Directive (every 6 years) • Department of Arts, Heritage and the Gaeltacht's National Monitoring Report for the Birds Directive under Article 12 (every 3 years) • Consultations with the NPWS (at monitoring review)
	B2: Percentage loss of functional connectivity without remediation resulting from development provided for by the Plan	B2: No significant ecological networks or parts thereof which provide functional connectivity to be lost without remediation resulting from development provided for by the Plan	<ul style="list-style-type: none"> • Lower tier environmental assessment and decision making – including review of project approvals granted and associated documents • CORINE mapping resurvey (every c. 5 years) • Review of EPA Ecological Network Mapping (if available)
	B3i: Number of significant impacts on relevant habitats, species, environmental features or other sustaining resources in designated sites including Wildlife Sites resulting from development provided for by the Plan	B3i: Avoid significant impacts on relevant habitats, species, environmental features or other sustaining resources in designated sites including Wildlife Sites resulting from development provided for by the Plan	<ul style="list-style-type: none"> • Lower tier environmental assessment and decision making – including review of project approvals granted and associated documents • Consultations with the NPWS (at monitoring review)
	B3ii: Number of significant impacts on the protection of listed species resulting from development provided for by the Plan	B3ii: No significant impacts on the protection of listed species	
Material Assets	MA1: Protection of built/amenity assets and infrastructure	MA1: Minimisation of impacts upon the use of and access to built/amenity assets and infrastructure	<ul style="list-style-type: none"> • Lower tier environmental assessment and decision making – including review of project approvals granted and associated documents
	MA2: Extent of brownfield land reused and regenerated which has been facilitated by the Plan	MA2: To maximise the sustainable reuse and regeneration of brownfield sites	<ul style="list-style-type: none"> • Lower tier environmental assessment and decision making – including review of project approvals granted and associated documents
	MA3: Preparation and implementation of construction and environmental management plans	MA3: For construction and environmental management plans to be prepared and implemented for relevant projects	<ul style="list-style-type: none"> • Internal examination of compliance with SEA and lower tier assessment mitigation measures

⁸³ Except as provided for in Article 6(4) of the Habitats Directive, viz. There must be: (a) No alternative solution available; (b) Imperative reasons of overriding public interest for the plan/programme/project to proceed; and (c) Adequate compensatory measures in place.

Environmental Component	Indicators	Targets	Source and Frequency
Water	W1i: Interactions with classification of Overall Status (comprised of ecological and chemical status) under the European Communities Environmental Objectives (Surface Waters) Regulations 2009 (SI No. 272 of 2009) resulting from development provided for by the Plan	W1i: Not to cause deterioration in the status of any surface water or affect the ability of any surface water to achieve 'good status', subject to exemptions provided for by Article 4 of the WFD ⁸⁴	<ul style="list-style-type: none"> • Lower tier environmental assessment and decision making – including review of project approvals granted and associated documents • Data issued under the Water Framework Directive Monitoring Programme for Ireland (multi-annual) • EPA <i>The Quality of Bathing Water in Ireland</i> reports
	W1ii: Mandatory and Guide values as set by the EU Bathing Water Directive and transposing Bathing Water Quality Regulations (SI No. 79 of 2008)	W1ii: To contribute towards the achievement of - as a minimum - Mandatory values and, where possible, to achieve Guide values as set by the EU Bathing Water Directive and transposing Bathing Water Quality Regulations (SI No. 79 of 2008)	
	W2: Interactions with Groundwater Quality Standards and Threshold Values under Directive 2006/118/EC resulting from wind energy development (including associated development) permitted by planning authorities adhering to the Guidelines	W2: Not to affect the ability of groundwaters to comply with Groundwater Quality Standards and Threshold Values under Directive 2006/118/EC, subject to exemptions provided for by Article 4 of the WFD	<ul style="list-style-type: none"> • Lower tier environmental assessment and decision making – including review of project approvals granted and associated documents • Data issued under the Water Framework Directive Monitoring Programme for Ireland (multi-annual)
	W3: Compliance of relevant lower tier assessments and decision making with the Flood Risk Management Guidelines	W3: For lower tier assessments and decision making to comply with the Flood Risk Management Guidelines	<ul style="list-style-type: none"> • Lower tier environmental assessment and decision making – including review of project approvals granted
Landscape	L1: Number of unmitigated conflicts with the appropriate protection of statutory designations relating to the landscape, including those included in the land use plans of planning authorities, resulting from development provided for by the Plan	L1: No unmitigated conflicts with the appropriate protection of statutory designations relating to the landscape	<ul style="list-style-type: none"> • Lower tier environmental assessment and decision making – including review of project approvals granted and associated documents
Cultural Heritage	CH1: Percentage of entries to the Record of Monuments and Places - including Zones of Archaeological Potential (and the context of the above within the surrounding landscape where relevant) - protected from significant adverse effects resulting from development provided for by the Plan	CH1: Contribution towards the protection of archaeological heritage (including entries to the Record of Monuments and Places) and its context	<ul style="list-style-type: none"> • Lower tier environmental assessment and decision making – including review of project approvals granted and associated documents • Consultation with Department of Arts, Heritage and the Gaeltacht (at monitoring review)
	CH2: Percentage of entries to the Record of Protected Structures and Architectural Conservation Areas and their context protected from significant adverse effects resulting from development provided for by the Plan	CH2: Contribution towards the protection of architectural heritage (including entries to the Record of Protected Structures, entries to the National Inventory of Architectural Heritage and Architectural Conservation Areas) and its context	<ul style="list-style-type: none"> • Lower tier environmental assessment and decision making – including review of project approvals granted and associated documents • Consultation with Department of Arts, Heritage and the Gaeltacht (at monitoring review)
Soil	S1: Artificial surfaces land cover extent	S1: Contribute towards the target of the National Planning Framework's SEA (2018) to "Maintain built surface cover nationally to below the EU average of 4%."	<ul style="list-style-type: none"> • Lower tier environmental assessment and decision making – including review of project approvals granted and associated documents

⁸⁴ Article 4 of the WFD sets out various exemptions for deterioration in status caused as a result of certain physical modifications to water bodies. This is provided: all practicable mitigation measures are taken; there are reasons of overriding public interest or the benefits to human health, safety or sustainable development outweigh the benefits in achieving the WFD objective; there are no better alternatives; and the reasons for the physical modification are explained in the relevant River Basin Management Plan.

Appendix I: Relationship with Legislation, Plans and Programmes

This appendix is not intended to be a full and comprehensive review of EU Directives, the transposing regulations or the regulatory framework for environmental protection and management. The information is not exhaustive and it is recommended to consult the Directive, Regulation, Plan or Programme to become familiar with the full details of each.

Legislation, Plan, etc.	Summary of high level aim/ purpose/ objective	Summary of lower level objectives, actions etc.	Relevance to the Plan
European Level			
SEA Directive (2001/42/EC)	<ul style="list-style-type: none"> Contribute to the integration of environmental considerations into the preparation and adoption of plans and programmes with a view to promoting sustainable development. Provide for a high level of protection of the environment by carrying out an environmental assessment of plans and programmes which are likely to have significant effects on the environment. 	<ul style="list-style-type: none"> Carry out an environmental assessment for plans or programmes referred to in Articles 2 to 4 of the Directive. Prepare an environmental report which identifies, describes and evaluates the likely significant effects on the environment of implementing the plan or programme and reasonable alternatives that consider the objectives and the geographical scope of the plan or programme. Consult with relevant authorities, stakeholders and public allowing sufficient time to make a submission. Consult other Member States where the implementation of a plan or programme is likely to have transboundary environmental effects. Inform relevant authorities and stakeholders on the decision to implement the plan or programme. Issue a statement to include requirements detailed in Article 9 of the Directive. Monitor and mitigate significant environmental effects identified by the assessment. 	Implementation of the Plan needs to comply with all environmental legislation and align with and cumulatively contribute towards – in combination with other users and bodies and their plans etc. – the achievement of the objectives of the regulatory framework for environmental protection and management.
EIA Directive (2011/92/EU as amended by 2014/52/EU)	<ul style="list-style-type: none"> Requires the assessment of the environmental effects of public and private projects which are likely to have significant effects on the environment. Aims to assess and implement avoidance or mitigation measures to eliminate environmental effects, before consent is given of projects likely to have significant effects on the environment by virtue, inter alia, of their nature, size or location are made subject to a requirement for development consent and an assessment with regard to their effects. Those projects are defined in Article 4. 	<ul style="list-style-type: none"> All projects listed in Annex I are considered as having significant effects on the environment and require an EIA. For projects listed in Annex II, a "screening procedure" is required to determine the effects of projects on the basis of thresholds/criteria or a case by case examination. This should take into account Annex III. The environmental impact assessment shall identify, describe and assess in an appropriate manner, in the light of each individual case and in accordance with Articles 4 to 12, the direct and indirect effects of a project on the following factors: human beings, fauna and flora, soil, water, air, climate and the landscape, material assets and the cultural heritage, the interaction between each factor. Consult with relevant authorities, stakeholders and public allowing sufficient time to make a submission before a decision is made. 	Implementation of the Plan needs to comply with all environmental legislation and align with and cumulatively contribute towards – in combination with other users and bodies and their plans etc. – the achievement of the objectives of the regulatory framework for environmental protection and management.

Legislation, Plan, etc.	Summary of high level aim/ purpose/ objective	Summary of lower level objectives, actions etc.	Relevance to the Plan
Habitats Directive (92/43/EEC)	<ul style="list-style-type: none"> Promote the preservation, protection and improvement of the quality of the environment, including the conservation of natural habitats and of wild fauna and flora. Contribute towards ensuring biodiversity through the conservation of natural habitats and of wild fauna and flora. Maintain or restore to favourable conservation status, natural habitats and species of wild fauna and flora of community interest. Promote the maintenance of biodiversity, taking account of economic, social, cultural and regional requirements. 	<ul style="list-style-type: none"> Propose and protect sites of importance to habitats, plant and animal species. Establish a network of European sites hosting the natural habitat types listed in Annex I and habitats of the species listed in Annex II, to enable the natural habitat types and the species' habitats concerned to be maintained or, where appropriate, restored at a favourable conservation status in their natural range. Carry out comprehensive assessment of habitat types and species present. Establish a system of strict protection for the animal species and plant species listed in Annex IV. 	Implementation of the Plan needs to comply with all environmental legislation and align with and cumulatively contribute towards – in combination with other users and bodies and their plans etc. – the achievement of the objectives of the regulatory framework for environmental protection and management.
Birds Directive (2009/147/EC)	<ul style="list-style-type: none"> Conserve all species of naturally occurring birds in the wild state including their eggs, nests and habitats. Protect, manage and control these species and comply with regulations relating to their exploitation. The species included in Annex I shall be the subject of special conservation measures concerning their habitat in order to ensure their survival and reproduction in their area of distribution. 	<ul style="list-style-type: none"> Preserve, maintain or re-establish a sufficient diversity and area of habitats for all the species of birds referred to in Annex 1. Preserve, maintain and establish biotopes and habitats to include the creation of protected areas (Special Protection Areas). Ensure the upkeep and management in accordance with the ecological needs of habitats inside and outside the protected zones, re-establish destroyed biotopes and creation of biotopes. Measures for regularly occurring migratory species not listed in Annex I is required as regards their breeding, moulting and wintering areas and staging posts along their migration routes. The protection of wetlands and particularly wetlands of international importance. 	Implementation of the Plan needs to comply with all environmental legislation and align with and cumulatively contribute towards – in combination with other users and bodies and their plans etc. – the achievement of the objectives of the regulatory framework for environmental protection and management.
EU Bathing Water Directive (revised) 2006 [2006/7/EC]	<ul style="list-style-type: none"> The purpose of this Directive is to preserve, protect and improve the quality of the environment and to protect human health by complementing Directive 2000/60/EC 	<p>This Directive lays down provisions for:</p> <ul style="list-style-type: none"> the monitoring and classification of bathing water quality; the management of bathing water quality; and the provision of information to the public on bathing water quality 	Implementation of the Plan needs to comply with all environmental legislation and align with and cumulatively contribute towards – in combination with other users and bodies and their plans etc. – the achievement of the objectives of the regulatory framework for environmental protection and management.
EU Nitrates Directive (91/676/EC)	<ul style="list-style-type: none"> Reducing water pollution caused or induced by nitrates from agricultural sources and - preventing further such pollution. 	<p>Ireland's Nitrates Action Programme is designed to prevent pollution of surface waters and ground water from agricultural sources and to protect and improve water quality. Ireland's third NAP came into operation in 2014. Each Member State's NAP must include:</p> <ul style="list-style-type: none"> a limit on the amount of livestock manure applied to the land each year set periods when land spreading is prohibited due to risk set capacity levels for the storage of livestock manure 	Implementation of the Plan needs to comply with all environmental legislation and align with and cumulatively contribute towards – in combination with other users and bodies and their plans etc. – the achievement of the objectives of the regulatory framework for environmental protection and management.

Legislation, Plan, etc.	Summary of high level aim/ purpose/ objective	Summary of lower level objectives, actions etc.	Relevance to the Plan
EU Integrated Pollution Prevention Control Directive (2008/1/EC)	<ul style="list-style-type: none"> The purpose of this Directive is to achieve integrated prevention and control of pollution arising from the activities listed in Annex I. It lays down measures designed to prevent or, where that is not practicable, to reduce emissions in the air, water and land from the abovementioned activities, including measures concerning waste, in order to achieve a high level of protection of the environment taken as a whole, without prejudice to Directive 85/337/EEC and other relevant Community provisions. 	<p>The IPPC Directive is based on several principles:</p> <ul style="list-style-type: none"> an integrated approach best available techniques, flexibility; and public participation 	Implementation of the Plan needs to comply with all environmental legislation and align with and cumulatively contribute towards – in combination with other users and bodies and their plans etc. – the achievement of the objectives of the regulatory framework for environmental protection and management.
EU Plant Protection (products) Directive 2009/127/EC	<ul style="list-style-type: none"> The Directive aims at reducing the risks and impacts of pesticide use on human health and the environment by introducing different targets, tools and measures such as Integrated Pest Management (IPM) or National Action Plans (NAPs). 	<ul style="list-style-type: none"> The Framework Directive applies to pesticides which are plant protection products. Regarding pesticide application equipment already in professional use, the Framework Directive introduces requirements for the inspection and maintenance to be carried out on such equipment. 	Implementation of the Plan needs to comply with all environmental legislation and align with and cumulatively contribute towards – in combination with other users and bodies and their plans etc. – the achievement of the objectives of the regulatory framework for environmental protection and management.
EU Renewables Directive (2009/28/EC)	<ul style="list-style-type: none"> The Renewable Energy Directive establishes an overall policy for the production and promotion of energy from renewable sources in the EU. It requires the EU to fulfil at least 20% of its total energy needs with renewables by 2020 – to be achieved through the attainment of individual national targets. All EU countries must also ensure that at least 10% of their transport fuels come from renewable sources by 2020. 	<ul style="list-style-type: none"> The Directive promotes cooperation amongst EU countries (and with countries outside the EU) to help them meet their renewable energy targets. The Directive specifies national renewable energy targets for each country, taking into account its starting point and overall potential for renewables. EU countries set out how they plan to meet these targets and the general course of their renewable energy policy in national renewable energy action plans. Progress towards national targets is measured every two years when EU countries publish national renewable energy progress reports. 	Implementation of the Plan needs to comply with all environmental legislation and align with and cumulatively contribute towards – in combination with other users and bodies and their plans etc. – the achievement of the objectives of the regulatory framework for environmental protection and management.
Indirect Land Use Change Directive (2012/0288(COD))	<ul style="list-style-type: none"> Article 3(4) of Directive 2009/28/EC of the European Parliament and of the Council (3) requires Member States to ensure that the share of energy from renewable energy sources in all forms of transport in 2020 is at least 10 % of their final energy consumption. The blending of biofuels is one of the methods available for Member States to meet this target, and is expected to be the main contributor. Other methods available to meet the target are the reduction of energy consumption, which is imperative because a mandatory percentage target for energy from renewable sources is likely to become increasingly difficult to achieve sustainably if overall demand for energy for transport continues to rise, and the use of electricity from renewable energy sources. 	<ul style="list-style-type: none"> Limit the contribution that conventional biofuels (with a risk of ILUC emissions) make towards attainment of the targets in the Renewable Energy Directive; Improve the greenhouse gas performance of biofuel production processes (reducing associated emissions) by raising the greenhouse gas saving threshold for new installations subject to protecting installations already in operation on 1st July 2014; Encourage a greater market penetration of advanced (low-ILUC) biofuels by allowing such fuels to contribute more to the targets in the Renewable Energy Directive than conventional biofuels; Improve the reporting of greenhouse gas emissions by obliging Member States and fuel suppliers to report the estimated indirect land-use change emissions of biofuels. 	Implementation of the Plan needs to comply with all environmental legislation and align with and cumulatively contribute towards – in combination with other users and bodies and their plans etc. – the achievement of the objectives of the regulatory framework for environmental protection and management.

Legislation, Plan, etc.	Summary of high level aim/ purpose/ objective	Summary of lower level objectives, actions etc.	Relevance to the Plan
Alternative Fuels Infrastructure Directive (2014/94/EU)	<ul style="list-style-type: none"> This Directive establishes a common framework of measures for the deployment of alternative fuels infrastructure in the Union in order to minimise dependence on oil and to mitigate the environmental impact of transport. 	<ul style="list-style-type: none"> This Directive sets out minimum requirements for the building-up of alternative fuels infrastructure, including recharging points for electric vehicles and refuelling points for natural gas (LNG and CNG) and hydrogen, to be implemented by means of Member States' national policy frameworks, as well as common technical specifications for such recharging and refuelling points, and user information requirements. 	Implementation of the Plan needs to comply with all environmental legislation and align with and cumulatively contribute towards – in combination with other users and bodies and their plans etc. – the achievement of the objectives of the regulatory framework for environmental protection and management.
EU Energy Efficiency Directive (2012/27/EU)	<ul style="list-style-type: none"> Establishes a set of binding measures to help the EU reach its 20% energy efficiency target by 2020. Under the Directive, all EU countries are required to use energy more efficiently at all stages of the energy chain, from production to final consumption. 	<ul style="list-style-type: none"> Energy distributors or retail energy sales companies have to achieve 1.5% energy savings per year through the implementation of energy efficiency measures EU countries can opt to achieve the same level of savings through other means, such as improving the efficiency of heating systems, installing double glazed windows or insulating roofs The public sector in EU countries should purchase energy efficient buildings, products and services Every year, governments in EU countries must carry out energy efficient renovations on at least 3% (by floor area) of the buildings they own and occupy Energy consumers should be empowered to better manage consumption. This includes easy and free access to data on consumption through individual metering National incentives for SMEs to undergo energy audits Large companies will make audits of their energy consumption to help them identify ways to reduce it Monitoring efficiency levels in new energy generation capacities. 	Implementation of the Plan needs to comply with all environmental legislation and align with and cumulatively contribute towards – in combination with other users and bodies and their plans etc. – the achievement of the objectives of the regulatory framework for environmental protection and management.
EU Seveso Directive (2012/18/EU)	<ul style="list-style-type: none"> This Directive lays down rules for the prevention of major accidents which involve dangerous substances, and the limitation of their consequences for human health and the environment, with a view to ensuring a high level of protection throughout the Union in a consistent and effective manner. 	<p>The Seveso Directive is well integrated with other EU policies, thus avoiding double regulation or other administrative burden. This includes the following related policy areas:</p> <ul style="list-style-type: none"> Classification, labelling and packaging of chemicals; The Union's Civil Protection Mechanism; The Security Union Agenda including CBRN-E and Protection of critical infrastructure; Policy on environmental liability and on the protection of the environment through criminal law; Safety of offshore oil and gas operations. 	Implementation of the Plan needs to comply with all environmental legislation and align with and cumulatively contribute towards – in combination with other users and bodies and their plans etc. – the achievement of the objectives of the regulatory framework for environmental protection and management.
EU Maritime Spatial Planning Directive (2014/89/EU)	<ul style="list-style-type: none"> This Directive establishes a framework for maritime spatial planning aimed at promoting the sustainable growth of maritime economies, the sustainable development of marine areas and the sustainable use of marine resources. 	<ul style="list-style-type: none"> Each Member State shall establish and implement maritime spatial planning. In doing so, Member States shall take into account land-sea interactions. The resulting plan or plans shall be developed and produced in accordance with the institutional and governance levels determined by Member States. This Directive shall not interfere with Member States' competence to design and determine the format and 	Implementation of the Plan needs to comply with all environmental legislation and align with and cumulatively contribute towards – in combination with other users and bodies and their plans etc. – the achievement of the objectives of the regulatory framework for environmental protection and

Legislation, Plan, etc.	Summary of high level aim/ purpose/ objective	Summary of lower level objectives, actions etc.	Relevance to the Plan
		<p>content of that plan or those plans.</p> <ul style="list-style-type: none"> Maritime spatial planning shall aim to contribute to the objectives listed in Article 5 and fulfil the requirements laid down in Articles 6 and 8. When establishing maritime spatial planning, Member States shall have due regard to the particularities of the marine regions, relevant existing and future activities and uses and their impacts on the environment, as well as to natural resources, and shall also take into account land-sea interactions. Member States may include or build on existing national policies, regulations or mechanisms that have been or are being established before the entry into force of this Directive, provided they are in conformity with the requirements of this Directive. 	management.
UK Marine Policy Statement	<ul style="list-style-type: none"> Achieving a sustainable marine economy Ensuring a strong, healthy and just society Living within environmental limits Promoting good governance Using sound science responsibly 	<p>The MPS will facilitate and support the formulation of Marine Plans, ensuring that marine resources are used in a sustainable way in line with the high level marine objectives and thereby:</p> <ul style="list-style-type: none"> Promote sustainable economic development; Enable the UK's move towards a low-carbon economy, in order to mitigate the causes of climate change and ocean acidification and adapt to their effects; Ensure a sustainable marine environment which promotes healthy, functioning marine ecosystems and protects marine habitats, species and heritage assets; and Contribute to the societal benefits of the marine area, including the sustainable use of marine resources to address local social and economic issues 	Implementation of the Plan needs to comply with all environmental legislation and align with and cumulatively contribute towards – in combination with other users and bodies and their plans etc. – the achievement of the objectives of the regulatory framework for environmental protection and management.
Marine and Coastal Access Act 2009	<ul style="list-style-type: none"> Aims to provide the legal mechanism to help ensure clean, healthy, safe, productive and biologically diverse oceans and seas by putting in place a new system for improved management and protection of the marine and coastal environment. 	<p>The Marine Act comprises eight key elements:</p> <ul style="list-style-type: none"> Marine Management Organisation (MMO) Strategic Marine Planning System Streamlined Marine Licensing System Marine Nature Conservation Fisheries Management and Marine Enforcement Migratory and Freshwater Fisheries Coastal Access Coastal and Estuarine Management 	Implementation of the Plan needs to comply with all environmental legislation and align with and cumulatively contribute towards – in combination with other users and bodies and their plans etc. – the achievement of the objectives of the regulatory framework for environmental protection and management.
Marine (Northern Ireland) Act 2013	<ul style="list-style-type: none"> Aims to provide for marine plans in relation to the Northern Ireland inshore region; to provide for marine conservation zones in that region; to make further provision in relation to marine licensing for certain electricity works in that region; and for connected purposes. 	<p>The Marine Act sets out a new framework for Northern Ireland's seas based on: a system of marine planning that will balance conservation, energy and resource needs; improved management for marine nature conservation and the streamlining of marine licensing for some electricity projects. The main provisions of the Act are outlined below:</p> <ul style="list-style-type: none"> Marine Planning Nature Conservation Marine Licensing 	Implementation of the Plan needs to comply with all environmental legislation and align with and cumulatively contribute towards – in combination with other users and bodies and their plans etc. – the achievement of the objectives of the regulatory framework for environmental protection and management.

Legislation, Plan, etc.	Summary of high level aim/ purpose/ objective	Summary of lower level objectives, actions etc.	Relevance to the Plan
European Union Biodiversity Strategy to 2020	<ul style="list-style-type: none"> Aims to halt or reverse biodiversity loss and speed up the EU's transition towards a resource efficient and green economy. Halting the loss of biodiversity and the degradation of ecosystem services in the EU by 2020, and restoring them in so far as feasible. 	<ul style="list-style-type: none"> Outlines six targets and twenty actions to aid European Union in halting the loss to biodiversity and eco-system services. The six targets cover: <ul style="list-style-type: none"> Full implementation of EU nature legislation to protect biodiversity Maintaining, enhancing and protecting for ecosystems, and green infrastructure Ensuring sustainable agriculture, and forestry Sustainable management of fish stocks Reducing invasive alien species Addressing the global need to contribute towards averting global biodiversity loss 	Implementation of the Plan needs to comply with all environmental legislation and align with and cumulatively contribute towards – in combination with other users and bodies and their plans etc. – the achievement of the objectives of the regulatory framework for environmental protection and management.
EU Green Infrastructure Strategy	Aims to create a robust enabling framework in order to promote and facilitate Green Infrastructure (GI) projects.	<ul style="list-style-type: none"> Promoting GI in the main EU policy areas. Supporting EU-level GI projects. Improving access to finance for GI projects. Improving information and promoting innovation. 	Implementation of the Plan needs to comply with all environmental legislation and align with and cumulatively contribute towards – in combination with other users and bodies and their plans etc. – the achievement of the objectives of the regulatory framework for environmental protection and management.
UN Kyoto Protocol (2nd Kyoto Period), the Second European Climate Change Programme (ECCP II), Paris climate conference (COP21) 2015 (Paris Agreement)	<p>The UN Kyoto Protocol set of policy measures to reduce greenhouse gas emissions.</p> <p>The Second European Climate Change Programme (ECCP II) aims to identify and develop all the necessary elements of an EU strategy to implement the Kyoto Protocol.</p> <p>At the Paris climate conference (COP21) in December 2015, 195 countries adopted the first-ever universal, legally binding global climate deal. The agreement sets out a global action plan to put the world on track to avoid dangerous climate change by limiting global warming to well below 2°C.</p>	<ul style="list-style-type: none"> The Kyoto Protocol is implemented through the European Climate Change Programme (ECCP II). EU member states implement measures to improve on or complement the specified measures and policies arising from the ECCP. Under COP21, governments agreed to come together every 5 years to set more ambitious targets as required by science; report to each other and the public on how well they are doing to implement their targets; track progress towards the long-term goal through a robust transparency and accountability system. 	Implementation of the Plan needs to comply with all environmental legislation and align with and cumulatively contribute towards – in combination with other users and bodies and their plans etc. – the achievement of the objectives of the regulatory framework for environmental protection and management.
EU 2020 Climate and Energy Package	<ul style="list-style-type: none"> Binding legislation which aims to ensure the European Union meets its climate and energy targets for 2020. Aims to achieve a 20% reduction in EU greenhouse gas emissions from 1990 levels. Aims to raise the share of EU energy consumption produced from renewable resources to 20%. Achieve a 20% improvement in the EU's energy efficiency. 	<p>Four pieces of complimentary legislation:</p> <ul style="list-style-type: none"> Reform of the EU Emissions Trading System (EU ETS) to include a cap on emission allowances in addition to existing system of national caps. Member States have agreed national targets for non-EU ETS emissions from countries outside the EU. Meet the national renewable energy targets of 16% for Ireland by 2020. Preparing a legal framework for technologies in carbon capture and storage. 	Implementation of the Plan needs to comply with all environmental legislation and align with and cumulatively contribute towards – in combination with other users and bodies and their plans etc. – the achievement of the objectives of the regulatory framework for environmental protection and management.

Legislation, Plan, etc.	Summary of high level aim/ purpose/ objective	Summary of lower level objectives, actions etc.	Relevance to the Plan
EU 2030 Framework for Climate and Energy	<ul style="list-style-type: none"> A 2030 Framework for climate and energy, including EU-wide targets and policy objectives for the period between 2020 and 2030 that has been agreed by European countries. Targets include a 40% cut in greenhouse gas emissions compared to 1990 levels, at least a 27% share of renewable energy consumption and at least 27% energy savings compared with the business-as-usual scenario. 	<p>To meet the targets, the European Commission has proposed the following policies for 2030:</p> <ul style="list-style-type: none"> A reformed EU emissions trading scheme (ETS). New indicators for the competitiveness and security of the energy system, such as price differences with major trading partners, diversification of supply, and interconnection capacity between EU countries. First ideas for a new governance system based on national plans for competitive, secure, and sustainable energy. These plans will follow a common EU approach. They will ensure stronger investor certainty, greater transparency, enhanced policy coherence and improved coordination across the EU. 	Implementation of the Plan needs to comply with all environmental legislation and align with and cumulatively contribute towards – in combination with other users and bodies and their plans etc. – the achievement of the objectives of the regulatory framework for environmental protection and management.
The Clean Air for Europe Directive (2008/50/EC) (EU Air Framework Directive) Fourth Daughter Directive (2004/107/EC)	<ul style="list-style-type: none"> The CAFE Directive merges existing legislation into a single directive (except for the fourth daughter directive). Sets new air quality objectives for PM_{2.5} (fine particles) including the limit value and exposure related objectives. Accounts for the possibility to discount natural sources of pollution when assessing compliance against limit values. Allows the possibility for time extensions of three years (PM₁₀) or up to five years (NO₂, benzene) for complying with limit values, based on conditions and the assessment by the European Commission. The Fourth Daughter Directive lists pollutants, target values and monitoring requirements for the following: arsenic, cadmium, mercury, nickel and polycyclic aromatic hydrocarbons in ambient air. 	<ul style="list-style-type: none"> Sets objectives for ambient air quality designed to avoid, prevent or reduce harmful effects on human health and the environment as a whole. Aims to assess the ambient air quality in Member States on the basis of common methods and criteria. Obtains information on ambient air quality in order to help combat air pollution and nuisance and to monitor long-term trends and improvements resulting from national and community measures. Ensures that such information on ambient air quality is made available to the public. Aims to maintain air quality where it is good and improving it in other cases. Aims to promote increased cooperation between the Member States in reducing air pollution. 	Implementation of the Plan needs to comply with all environmental legislation and align with and cumulatively contribute towards – in combination with other users and bodies and their plans etc. – the achievement of the objectives of the regulatory framework for environmental protection and management.
Noise Directive (2002/49/EC)	The Noise Directive - Directive 2002/49/EC relating to the assessment and management of environmental noise - is part of an EU strategy setting out to reduce the number of people affected by noise in the longer term and to provide a framework for developing existing Community policy on noise reduction from source.	<p>The Directive requires competent authorities in Member States to:</p> <ul style="list-style-type: none"> Draw up strategic noise maps for major roads, railways, airports and agglomerations, using harmonised noise indicators and use these maps to assess the number of people which may be impacted upon as a result of excessive noise levels; Draw up action plans to reduce noise where necessary and maintain environmental noise quality where it is good; and Inform and consult the public about noise exposure, its effects, and the measures considered to address noise. <p>The Directive does not set any limit value, nor does it prescribe the measures to be used in the action plans, which remain at the discretion of the competent authorities.</p>	Implementation of the Plan needs to comply with all environmental legislation and align with and cumulatively contribute towards – in combination with other users and bodies and their plans etc. – the achievement of the objectives of the regulatory framework for environmental protection and management.

Legislation, Plan, etc.	Summary of high level aim/ purpose/ objective	Summary of lower level objectives, actions etc.	Relevance to the Plan
Floods Directive (2007/60/EC)	<ul style="list-style-type: none"> Establishes a framework for the assessment and management of flood risks Reduce adverse consequences for human health, the environment, cultural heritage and economic activity associated with floods in the Community 	<ul style="list-style-type: none"> Assess all water courses and coast lines at risk from flooding through Flood Risk Assessment Prepare flood hazard maps and flood risk maps outlining the extent or potential of flooding and assets and humans at risk in these areas at River Basin District level (Article 3(2) (b)) and areas covered by Article 5(1) and Article 13(1) (b) in accordance with paragraphs 2 and 3. Implement flood risk management plans and take adequate and coordinated measures to reduce flood risk for the areas covered by the Articles listed above. Inform the public and allow the public to participate in planning process. 	Implementation of the Plan needs to comply with all environmental legislation and align with and cumulatively contribute towards – in combination with other users and bodies and their plans etc. – the achievement of the objectives of the regulatory framework for environmental protection and management.
Water Framework Directive (2000/60/EC)	<ul style="list-style-type: none"> Establish a framework for the protection of water bodies to include inland surface waters, transitional waters, coastal waters and groundwater and their dependent wildlife and habitats. Preserve and prevent the deterioration of water status and where necessary improve and maintain "good status" of water bodies. Promote sustainable water usage. The Water Framework Directive repealed the following Directives: <ul style="list-style-type: none"> The Drinking Water Abstraction Directive Sampling Drinking Water Directive Exchange of Information on Quality of Surface Freshwater Directive Shellfish Directive Freshwater Fish Directive Groundwater (Dangerous Substances) Directive Dangerous Substances Directive 	<ul style="list-style-type: none"> Protect, enhance and restore all water bodies and meet the environmental objectives outlined in Article 4 of the Directive. Achieve "good status" for all waters. Manage water bodies based on identifying and establishing river basins districts. Involve the public and streamline legislation. Prepare and implement a River Basin Management Plan for each river basin districts identified and a Register of Protected Areas. Establish a programme of monitoring for surface water status, groundwater status and protected areas. Recover costs for water services. 	Implementation of the Plan needs to comply with all environmental legislation and align with and cumulatively contribute towards – in combination with other users and bodies and their plans etc. – the achievement of the objectives of the regulatory framework for environmental protection and management.
Groundwater Directive (2006/118/EC)	<ul style="list-style-type: none"> Protect, control and conserve groundwater. Prevent the deterioration of the status of all bodies of groundwater. Implements measures to prevent and control groundwater pollution, including criteria for assessing good groundwater chemical status and criteria for the identification of significant and sustained upward trends and for the definition of starting points for trend reversals. 	<ul style="list-style-type: none"> Meet minimum groundwater standards listed in Annex 1 of Directive. Meet threshold values adopted by national legislation for the pollutants, groups of pollutants and indicators of pollution which have been identified as contributing to the characterisation of bodies or groups of bodies of groundwater as being at risk, also taking into account Part B of Annex II. 	Implementation of the Plan needs to comply with all environmental legislation and align with and cumulatively contribute towards – in combination with other users and bodies and their plans etc. – the achievement of the objectives of the regulatory framework for environmental protection and management.

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Drinking Water Directive (98/83/EC)	<ul style="list-style-type: none"> Improve and maintain the quality of water intended for human consumption. Protect human health from the adverse effects of any contamination of water intended for human consumption by ensuring that it is wholesome and clean. 	<ul style="list-style-type: none"> Set values applicable to water intended for human consumption for the parameters set out in Annex I. Set values for additional parameters not included in Annex I, where the protection of human health within national territory or part of it so requires. The values set should, as a minimum, satisfy the requirements of Article 4(1) (a). Implement all measures necessary to ensure that regular monitoring of the quality of water intended for human consumption is carried out, in order to check that the water available to consumers meets the requirements of this Directive and in particular the parametric values set in accordance with Article 5. Ensure that any failure to meet the parametric values set in accordance with Article 5 is immediately investigated in order to identify the cause. Ensure that the necessary remedial action is taken as soon as possible to restore its quality and shall give priority to their enforcement action. Undertake remedial action to restore the quality of the water where necessary to protect human health. Notify consumers when remedial action is being undertaken except where the competent authorities consider the non-compliance with the parametric value to be trivial. 	Implementation of the Plan needs to comply with all environmental legislation and align with and cumulatively contribute towards – in combination with other users and bodies and their plans etc. – the achievement of the objectives of the regulatory framework for environmental protection and management.
Urban Waste Water Treatment Directive (91/271/EEC)	<ul style="list-style-type: none"> This Directive concerns the collection, treatment and discharge of urban waste water and the treatment and discharge of waste water from certain industrial sectors. The objective of the Directive is to protect the environment from the adverse effects of waste water discharges. 	<ul style="list-style-type: none"> Urban waste water entering collecting systems shall before discharge, be subject to secondary treatment. Annex II requires the designation of areas sensitive to eutrophication which receive water discharges. Establishes minimum requirements for urban waste water collection and treatment systems in specified agglomerations to include special requirements for sensitive areas and certain industrial sectors. 	Implementation of the Plan needs to comply with all environmental legislation and align with and cumulatively contribute towards – in combination with other users and bodies and their plans etc. – the achievement of the objectives of the regulatory framework for environmental protection and management.
Environmental Liability Directive (2004/35/EC) as amended by Directive 2006/21/EC, Directive 2009/31/EC and Directive 2013/30/EU	<ul style="list-style-type: none"> Establish a framework of environmental liability based on the 'polluter-pays' principle, to prevent and remedy environmental damage. 	<ul style="list-style-type: none"> Relates to environmental damage caused by any of the occupational activities listed in Annex III, and to any imminent threat of such damage occurring by reason of any of those activities; damage to protected species and natural habitats caused by any occupational activities other than those listed in Annex III, and to any imminent threat of such damage occurring by reason of any of those activities, whenever the operator has been at fault or negligent. Where environmental damage has not yet occurred but there is an imminent threat of such damage occurring, the operator shall, without delay, take the necessary preventive measures. Where environmental damage has occurred the operator shall, without delay, inform the competent authority of all relevant aspects of the situation and take all practicable steps to immediately control, contain, remove or otherwise 	Implementation of the Plan needs to comply with all environmental legislation and align with and cumulatively contribute towards – in combination with other users and bodies and their plans etc. – the achievement of the objectives of the regulatory framework for environmental protection and management.

Legislation, Plan, etc.	Summary of high level aim/ purpose/ objective	Summary of lower level objectives, actions etc.	Relevance to the Plan
		<p>manage the relevant contaminants and/or any other damage factors in order to limit or to prevent further environmental damage and adverse effects on human health or further impairment of services and the necessary remedial measures, in accordance with Article 7.</p> <ul style="list-style-type: none"> • The operator shall bear the costs for the preventive and remedial actions taken pursuant to this Directive. • The competent authority shall be entitled to initiate cost recovery proceedings against the operator. • The operator may be required to provide financial security guarantees to ensure their responsibilities under the directive are met. • The Environmental Liability Directive has been amended through a number of Directives that are not of significant relevance to the SEA for the Guidelines. Implementation of the Environmental Liability Directive is contributed towards by a Multi-Annual Work Programme (MAWP) 'Making the Environmental Liability Directive more fit for purpose' that is updated annually to changing developments, growing knowledge and new needs. 	
Marine Strategy Framework Directive (2008/56/EC), as amended	<ul style="list-style-type: none"> • The aim of the European Union's ambitious Marine Strategy Framework Directive is to protect more effectively the marine environment across Europe. 	<p>The Directive provides various requirements, including:</p> <ul style="list-style-type: none"> • Completion of an <u>initial assessment</u> of Irish marine waters; • Establishment of establish environmental targets and indicators; • Establishment of a monitoring programme; • Establishment of a programme of measures; and • Implementation of the programme of measures and monitoring programme. <p>Implementation of the Directive is contributed towards by a set of detailed criteria and methodological standards that were revised in 2017 leading to a Commission Decision on "laying down criteria and methodological standards on good environmental status of marine waters and specifications and standardised methods for monitoring and assessment, and repealing Decision 2010/477/EU". Annex III "Indicative lists of characteristics, pressures and impacts" of the Directive was amended in 2017.</p>	Implementation of the Plan needs to comply with all environmental legislation and align with and cumulatively contribute towards – in combination with other users and bodies and their plans etc. – the achievement of the objectives of the regulatory framework for environmental protection and management.
European Convention on the Protection of the Archaeological Heritage (Valletta 1992)	<ul style="list-style-type: none"> • The aim of this (revised) Convention is to protect the archaeological heritage as a source of the European collective memory and as an instrument for historical and scientific study. 	The Valletta Convention makes the conservation and enhancement of the archaeological heritage one of the goals of urban and regional planning policies. The Convention sets guidelines for the funding of excavation and research work and publication of research findings. It also deals with public access, in particular to archaeological sites, and educational actions to be undertaken to develop public awareness of the value of the archaeological heritage. It also constitutes an institutional framework for pan-European co-operation on the archaeological heritage, entailing a systematic exchange of experience and experts among the various States.	Implementation of the Plan needs to comply with all environmental legislation and align with and cumulatively contribute towards – in combination with other users and bodies and their plans etc. – the achievement of the objectives of the regulatory framework for environmental protection and management.

Legislation, Plan, etc.	Summary of high level aim/ purpose/ objective	Summary of lower level objectives, actions etc.	Relevance to the Plan
Convention of the Protection of the Architectural Heritage of Europe (Granada 1995)	<ul style="list-style-type: none"> The main purpose of the Convention is to reinforce and promote policies for the conservation and enhancement of Europe's heritage. It also affirms the need for European solidarity with regard to heritage conservation and is designed to foster practical co-operation among the Parties. It establishes the principles of "European co-ordination of conservation policies" including consultations regarding the thrust of the policies to be implemented. 	<ul style="list-style-type: none"> The reinforcement and promotion of policies for protecting and enhancing the heritage within the territories of the parties. The affirmation of European solidarity with regard to the protection of the heritage and the fostering of practical co-operation between states and regions. 	Implementation of the Plan needs to comply with all environmental legislation and align with and cumulatively contribute towards – in combination with other users and bodies and their plans etc. – the achievement of the objectives of the regulatory framework for environmental protection and management.
Council of Europe Framework Convention on the Value of Cultural Heritage for Society (Faro 2005)	<ul style="list-style-type: none"> Cultural heritage is a group of resources inherited from the past which people identify, independently of ownership, as a reflection and expression of their constantly evolving values, beliefs, knowledge and traditions. It includes all aspects of the environment resulting from the interaction between people and places through time. A heritage community consists of people who value specific aspects of cultural heritage which they wish, within the framework of public action, to sustain and transmit to future generations. 	<ul style="list-style-type: none"> Recognise that rights relating to cultural heritage are inherent in the right to participate in cultural life, as defined in the Universal Declaration of Human Rights. Recognise individual and collective responsibility towards cultural heritage. Emphasise that the conservation of cultural heritage and its sustainable use have human development and quality of life as their goal. Take the necessary steps to apply the provisions of this Convention concerning the role of cultural heritage in the construction of a peaceful and democratic society. Greater synergy of competencies among all the public, institutional and private actors concerned. 	Implementation of the Plan needs to comply with all environmental legislation and align with and cumulatively contribute towards – in combination with other users and bodies and their plans etc. – the achievement of the objectives of the regulatory framework for environmental protection and management.
European Landscape Convention 2000	<ul style="list-style-type: none"> The developments in agriculture, forestry, industrial and mineral production techniques, together with the practices followed in town and country planning, transport, networks, tourism and recreation, and at a more general level, changes in the world economy, have in many cases accelerated the transformation of landscapes. The Convention expresses a concern to achieve sustainable development based on a balanced and harmonious relationship between social needs, economic activity and the environment. It aims to respond to the public's wish to enjoy high quality landscapes. 	<ul style="list-style-type: none"> Promote protection, management and planning of landscapes. Organise European co-operation on landscape issues. 	Implementation of the Plan needs to comply with all environmental legislation and align with and cumulatively contribute towards – in combination with other users and bodies and their plans etc. – the achievement of the objectives of the regulatory framework for environmental protection and management.
The Seventh Environmental Action Programme (EAP) of the European Community (2013-2020)	<p>It identifies three key objectives:</p> <ul style="list-style-type: none"> to protect, conserve and enhance the Union's natural capital to turn the Union into a resource-efficient, green, and competitive low-carbon economy to safeguard the Union's citizens from environment-related pressures and risks to health and wellbeing 	<p>Four so called "enablers" will help Europe deliver on these objectives (goals):</p> <ul style="list-style-type: none"> Better implementation of legislation. Better information by improving the knowledge base. More and wiser investment for environment and climate policy. Full integration of environmental requirements and considerations into other policies. <p>Two additional horizontal priority objectives complete the programme:</p> <ul style="list-style-type: none"> To make the Union's cities more sustainable. To help the Union address international environmental and climate challenges more effectively. 	Implementation of the Plan needs to comply with all environmental legislation and align with and cumulatively contribute towards – in combination with other users and bodies and their plans etc. – the achievement of the objectives of the regulatory framework for environmental protection and management.

Legislation, Plan, etc.	Summary of high level aim/ purpose/ objective	Summary of lower level objectives, actions etc.	Relevance to the Plan
Bern Convention (Convention on the Conservation of European Wildlife and Natural Habitats)	<p>The convention has three main aims:</p> <ul style="list-style-type: none"> to conserve wild flora and fauna and their natural habitats to promote cooperation between states to give particular attention to endangered and vulnerable species including endangered and vulnerable migratory species 	<p>The Parties under the convention recognise the intrinsic value of nature, which needs to be preserved and passed to future generations, they also:</p> <ul style="list-style-type: none"> Seek to ensure the conservation of nature in their countries, paying particular attention to planning and development policies and pollution control. Look at implementing the Bern Convention in central Eastern Europe and the Caucasus. Take account of the potential impact on natural heritage by other policies. Promote education and information of the public, ensuring the need to conserve species is understood and acted upon. Develop an extensive number of species action plans, codes of conducts, and guidelines, at their own initiative or in co-operation with other organisations. Created the Emerald Network, an ecological network made up of Areas of Special Conservation Interest. 	<p>Implementation of the Plan needs to comply with all environmental legislation and align with and cumulatively contribute towards – in combination with other users and bodies and their plans etc. – the achievement of the objectives of the regulatory framework for environmental protection and management.</p>
Bali Road Map (2007)	<p>The overall goals of the project are twofold:</p> <ul style="list-style-type: none"> To increase national capacity to co-ordinate ministerial views, participate in the UNFCCC process, and negotiate positions within the timeframe of the Bali Action Plan; and To assess investment and financial flows to address climate change for up to three key sectors and/or economic activities. 	<p>The Bali Action Plan is centred on four main building Blocks:</p> <ul style="list-style-type: none"> mitigation adaptation technology financing 	<p>Implementation of the Plan needs to comply with all environmental legislation and align with and cumulatively contribute towards – in combination with other users and bodies and their plans etc. – the achievement of the objectives of the regulatory framework for environmental protection and management.</p>
Cancun Agreements (2010)	<p>Set of decisions taken at the COP 16 Conference in Cancun in 2010 which addresses a series of key issues in the fight against climate change. Cancun Agreements' main objectives cover:</p> <ul style="list-style-type: none"> Mitigation Transparency of actions Technology Finance Adaptation Forests Capacity building 	<p>Among the most prominent agreements is the establishment of a Green Climate Fund to transfer money from the developed to developing world to tackle the impacts of climate change.</p>	<p>Implementation of the Plan needs to comply with all environmental legislation and align with and cumulatively contribute towards – in combination with other users and bodies and their plans etc. – the achievement of the objectives of the regulatory framework for environmental protection and management.</p>
Doha Climate Gateway (2012)	<p>Set of decisions taken at the COP 18 meeting in Doha in 2012 which pave the way for a new agreement in Paris in 2015.</p>	<p>The following actions were committed to by governments at this conference:</p> <ul style="list-style-type: none"> Set out a timetable to adopt a universal climate agreement by 2015 (to come into effect in 2020); Complete the work under Bali Action Plan and to focus on new completing new targets; Strengthen the aim to cut greenhouse gases and help vulnerable countries to adapt; Amend Kyoto Protocol to include a new commitment period for cutting down the greenhouse gases 	<p>Implementation of the Plan needs to comply with all environmental legislation and align with and cumulatively contribute towards – in combination with other users and bodies and their plans etc. – the achievement of the objectives of the regulatory framework for environmental protection and management.</p>

Legislation, Plan, etc.	Summary of high level aim/ purpose/ objective	Summary of lower level objectives, actions etc.	Relevance to the Plan
		emissions; and <ul style="list-style-type: none"> • Provide the financial and technology support and new institutions to allow clean energy investment and sustainable growth in developing countries. 	
EU Common Agricultural Policy	<ul style="list-style-type: none"> • To improve agricultural productivity, so that consumers have a stable supply of affordable food; and • To ensure that EU farmers can make a reasonable living. 	<ul style="list-style-type: none"> • ensuring viable food production that will contribute to feeding the world's population, which is expected to rise considerably in the future; • Climate change and sustainable management of natural resources; • Looking after the countryside across the EU and keeping the rural economy alive. 	Implementation of the Plan needs to comply with all environmental legislation and align with and cumulatively contribute towards – in combination with other users and bodies and their plans etc. – the achievement of the objectives of the regulatory framework for environmental protection and management.
EU REACH Regulation (EC 1907/2006)	<ul style="list-style-type: none"> • Aims to improve the protection of human health and the environment through the better and earlier identification of the intrinsic properties of chemical substances. 	The aims are achieved by applying REACH, namely: <ul style="list-style-type: none"> • Registration, • Evaluation, • Authorisation; and • Restriction of chemicals. REACH also aims to enhance innovation and competitiveness of the EU chemicals industry.	Implementation of the Plan needs to comply with all environmental legislation and align with and cumulatively contribute towards – in combination with other users and bodies and their plans etc. – the achievement of the objectives of the regulatory framework for environmental protection and management.
Stockholm Convention	<ul style="list-style-type: none"> • The objective of the Stockholm Convention is to protect human health and the environment from persistent organic pollutants. 	<ul style="list-style-type: none"> • Prohibit and/or eliminate the production and use, as well as the import and export, of the intentionally produced POPs that are listed in Annex A to the Convention • Restrict the production and use, as well as the import and export, of the intentionally produced POPs that are listed in Annex B to the Convention • Reduce or eliminate releases from unintentionally produced POPs that are listed in Annex C to the Convention • Ensure that stockpiles and wastes consisting of, containing or contaminated with POPs are managed safely and in an environmentally sound manner • To target additional POPs • Other provisions of the Convention relate to the development of implementation plans, information exchange, public information, awareness and education, research, development and monitoring, technical assistance, financial resources and mechanisms, reporting, effectiveness evaluation and non-compliance 	Implementation of the Plan needs to comply with all environmental legislation and align with and cumulatively contribute towards – in combination with other users and bodies and their plans etc. – the achievement of the objectives of the regulatory framework for environmental protection and management.

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Ramsar Convention	The Convention's mission is "the conservation and wise use of all wetlands through local and national actions and international cooperation, as a contribution towards achieving sustainable development throughout the world".	Under the "three pillars" of the Convention, the Contracting Parties commit to: <ul style="list-style-type: none"> • Work towards the wise use of all their wetlands; • Designate suitable wetlands for the list of Wetlands of International Importance (the "Ramsar List") and ensure their effective management; • Cooperate internationally on transboundary wetlands, shared wetland systems and shared species. 	Implementation of the Plan needs to comply with all environmental legislation and align with and cumulatively contribute towards – in combination with other users and bodies and their plans etc. – the achievement of the objectives of the regulatory framework for environmental protection and management.
OSPAR Convention	The mission of OSPAR is to conserve marine ecosystems and safeguard human health in the North-East Atlantic by preventing and eliminating pollution; by protecting the marine environment from the adverse effects of human activities; and by contributing to the sustainable use of the seas.	OSPAR's work is organised under six strategies: <ul style="list-style-type: none"> • Biodiversity and Ecosystem Strategy • Eutrophication Strategy • Hazardous Substances Strategy • Offshore Industry Strategy • Radioactive Substances Strategy • Strategy for the Joint Assessment and Monitoring Programme These six strategies fit together to underpin the ecosystem approach. For each strategy a programme of work is designed and implemented annually.	Implementation of the Plan needs to comply with all environmental legislation and align with and cumulatively contribute towards – in combination with other users and bodies and their plans etc. – the achievement of the objectives of the regulatory framework for environmental protection and management.
European 2020 Strategy for Growth	Europe 2020 sets out a vision of Europe's social market economy for the 21st century and puts forward three mutually reinforcing priorities: <ul style="list-style-type: none"> • Smart growth: developing an economy based on knowledge and innovation; • Sustainable growth: promoting a more resource efficient, greener and more competitive economy; • Inclusive growth: fostering a high-employment economy delivering social and territorial cohesion. 	In order to reach these priorities, the Commission proposes five quantitative targets to fulfil by 2020: <ol style="list-style-type: none"> 1. 75 % of the population aged 20-64 should be employed; 2. 3% of the EU's GDP should be invested in R&D; 3. the "20/20/20" climate/energy targets should be met (including an increase to 30% of emissions reduction if the conditions are right); 4. the share of early school leavers should be under 10% and at least 40% of the younger generation should have a tertiary degree; 5. 20 million less people should be at risk of poverty. 	Implementation of the Plan needs to comply with all environmental legislation and align with and cumulatively contribute towards – in combination with other users and bodies and their plans etc. – the achievement of the objectives of the regulatory framework for environmental protection and management.
National Level			
Ireland 2040 - Our Plan, the National Planning Framework, (replacing the National Spatial Strategy 2002-2020) and the National Development Plan (2018-2027)	<ul style="list-style-type: none"> • The National Planning Framework is the Government's high-level strategic plan for shaping the future growth and development of to the year 2040. It is a framework to guide public and private investment, to create and promote opportunities for people, and to protect and enhance the environment - from villages to cities, and everything around and in between. • The National Development Plan sets out the investment priorities that will underpin the successful implementation of the new National Planning Framework. This will guide national, regional and local planning and investment decisions in Ireland over the next two decades, to cater for an expected population increase of over 1 million people. 	The National Planning Framework published alongside the National Development Plan yields ten National Strategic Outcomes as follows: <ol style="list-style-type: none"> 1. Compact Growth 2. Enhanced Regional Accessibility 3. Strengthened Rural Economies and Communities 4. Sustainable Mobility 5. A Strong Economy, supported by Enterprise, Innovation and Skills 6. High-Quality International Connectivity 7. Enhanced Amenity and Heritage 8. Transition to a Low-Carbon and Climate-Resilient Society 9. Sustainable Management of Water and other Environmental Resources 10. Access to Quality Childcare, Education and Health Services 	Implementation of the Plan needs to comply with all environmental legislation and align with and cumulatively contribute towards – in combination with other users and bodies and their plans etc. – the achievement of the objectives of the regulatory framework for environmental protection and management.

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Planning, Land Use and Transport Outlook 2040 [in preparation]	The PLUTO will take account of forecasted future economic and demographic scenarios, affordability considerations and relevant Government policies and will: 1. Quantify in broad terms the appropriate scale of financial investment in land transport over the long term; 2. Consider how fiscal, environmental and technological developments might impact on this investment; and, 3. Identify strategic priorities for future investment to ensure land transport infrastructure provision facilitates the objectives of Project Ireland 2040.	In preparation	Implementation of the Plan needs to comply with all environmental legislation and align with and cumulatively contribute towards – in combination with other users and bodies and their plans etc. – the achievement of the objectives of the regulatory framework for environmental protection and management.
Planning and Development Act 2000 (as amended)	<ul style="list-style-type: none"> The core principal objectives of this Act are to amend the Planning Acts of 2000 – 2009 with specific regard given to supporting economic renewal and sustainable development. 	<ul style="list-style-type: none"> Development, with certain exceptions, is subject to development control under the Planning Acts and the local authorities grant or refuse planning permission for development, including ones within protected areas. There are, however, a range of exemptions from the planning system. Use of land for agriculture, peat extraction and afforestation, subject to certain thresholds, is generally exempt from the requirement to obtain planning permission. Additionally, Environmental Impact Assessment (EIA) is required for a range of classes and large scale projects. Under planning legislation, Development Plans must include mandatory objectives for the conservation of the natural heritage and for the conservation of European sites and any other sites which may be prescribed. There are also discretionary powers to set objectives for the conservation of a variety of other elements of the natural heritage. 	Implementation of the Plan needs to comply with all environmental legislation and align with and cumulatively contribute towards – in combination with other users and bodies and their plans etc. – the achievement of the objectives of the regulatory framework for environmental protection and management.
European Communities (Environmental Assessment of Certain Plans and Programmes) Regulations 2004 (S.I. 435 of 2004), as amended by S.I. 200 of 2011	<ul style="list-style-type: none"> The purpose of these Regulations is to transpose into Irish law Directive 2001/42/EC of 27 June 2001 (O.J. No. L 197, 21 July 2001) on the assessment of the effects of certain plans and programmes on the environment — commonly known as the Strategic Environmental Assessment (SEA) Directive. 	<ul style="list-style-type: none"> The Regulations cover plans and programmes in all of the sectors listed in article 3(2) of the Directive except land-use planning. These Regulations also amend certain provisions of the Planning and Development Act 2000 to provide the statutory basis for the transposition of the Directive in respect of land-use planning. Transposition in respect of the land-use planning sector is contained in the Planning and Development (Strategic Environmental Assessment) Regulations 2004 (S.I. No. 436 of 2004). 	Implementation of the Plan needs to comply with all environmental legislation and align with and cumulatively contribute towards – in combination with other users and bodies and their plans etc. – the achievement of the objectives of the regulatory framework for environmental protection and management.
European Communities (Birds and Natural Habitats) Regulations 2011 (S.I. 477 of 2011, as amended)	<ul style="list-style-type: none"> These Regulations provide a new for the implementation in Ireland of Council Directive 92/43/EEC on habitats and protection of wild fauna and flora (as amended) and for the implementation of Directive 2009/147/EC of the European Parliament and of the Council on the protection of wild birds. 	<ul style="list-style-type: none"> They provide, among other things, for: the appointment and functions of authorized officers; identification, classification and other procedures relative to the designation of Community sites. The Regulations have been prepared to address several judgments of the CJEU against Ireland, notably cases C-418/04 and C-183/05, in respect of failure to transpose elements of the Birds Directive and the Habitats Directive into Irish law. 	Implementation of the Plan needs to comply with all environmental legislation and align with and cumulatively contribute towards – in combination with other users and bodies and their plans etc. – the achievement of the objectives of the regulatory framework for environmental protection and management.

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Waste Management Act 1996, as amended	<ul style="list-style-type: none"> To make provision in relation to the prevention, management and control of waste; to give effect to provisions of certain acts adopted by institutions of the European communities in respect of those matters; to amend the Environmental Protection Agency Act, 1992, and to repeal certain enactments and to provide for related matters. 	<ul style="list-style-type: none"> The Waste Management Act contains a number of key legal obligations, including requirements for waste management planning, waste collection and movement, the authorisation of waste facilities, measures to reduce the production of waste and/or promote its recovery. 	Implementation of the Plan needs to comply with all environmental legislation and align with and cumulatively contribute towards – in combination with other users and bodies and their plans etc. – the achievement of the objectives of the regulatory framework for environmental protection and management.
European Communities Environmental Objectives (FPM) Regulations 2009 (S.I. 296 of 2009)	<ul style="list-style-type: none"> The purpose of these Regulations is to support the achievement of favourable conservation status for freshwater pearl mussels 	<p>Actions:</p> <ul style="list-style-type: none"> Set environmental quality objectives for the habitats of the freshwater pearl mussel populations named in the First Schedule to these Regulations that are within the boundaries of a site notified in a candidate list of European sites, or designated as a Special Area of Conservation, under the European Communities (Natural Habitats) Regulations, 1997 (S.I. No. 94/1997). Require the production of sub-basin management plans with programmes of measures to achieve these objectives. Set out the duties of public authorities in respect of the sub-basin management plans and programmes of measure 	Implementation of the Plan needs to comply with all environmental legislation and align with and cumulatively contribute towards – in combination with other users and bodies and their plans etc. – the achievement of the objectives of the regulatory framework for environmental protection and management.
European Communities Environmental Objectives (Groundwater) Regulations 2010 (S.I. 9 of 2010), as amended (S.I. No. 366 of 2016)	<ul style="list-style-type: none"> To amend the European Communities Environmental Objectives (Groundwater) Regulations 2010 (S.I. No. 9 of 2010) to make further provision to implement Commission Directive 2014/80/EU of 20 June 2014 amending Annex II to Directive 2006/118/EC of the European Parliament and of the Council on the protection of groundwater against pollution and deterioration. 	<p>The substances and threshold values set out in Schedule 5 to S.I. No. 9 of 2010 have been reviewed and amended where necessary, based on existing monitoring information and international guidelines on appropriate threshold values.</p> <ul style="list-style-type: none"> Part A of Schedule 6 has been amended to include changes to the rules governing the determination of background levels for the purposes of establishing threshold values for groundwater pollutants and indicators of pollution. Part B of Schedule 6 has been amended to include nitrites and phosphorus (total) / phosphates among the minimum list of pollutants and their indicators which the Environmental Protection Agency (EPA) must consider when establishing threshold values Part C of Schedule 6 amends the information to be provided to the Minister by the EPA with regard to the pollutants and their indicators for which threshold values have been established 	Implementation of the Plan needs to comply with all environmental legislation and align with and cumulatively contribute towards – in combination with other users and bodies and their plans etc. – the achievement of the objectives of the regulatory framework for environmental protection and management.
European Communities (Good Agricultural Practice for Protection of Waters) Regulations 2014 (S.I. No. 31 of 2014)	<ul style="list-style-type: none"> These Regulations, which give effect to Ireland's 3rd Nitrates Action Programme, provide statutory support for good agricultural practice to protect waters against pollution from agricultural sources 	<p>The Regulations include measures such as:</p> <ul style="list-style-type: none"> Periods when land application of fertilisers is prohibited Limits on the land application of fertilisers Storage requirements for livestock manure; and Monitoring of the effectiveness of the measures in terms of agricultural practice and impact on water quality. 	Implementation of the Plan needs to comply with all environmental legislation and align with and cumulatively contribute towards – in combination with other users and bodies and their plans etc. – the achievement of the objectives of the regulatory framework for environmental protection and management.

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Bathing Water Quality Regulations 2008 (S.I. 79 of 2008)	<ul style="list-style-type: none"> These Regulations provide for transposition of the EU Bathing Water Directive 2006 (Directive 2006/7/EC of 15 February 2006) which aims: <ul style="list-style-type: none"> To improve health protection for bathers To establish a more pro-active approach to management of bathing waters, and To promote increased public involvement and dissemination of information to the public. 	<ul style="list-style-type: none"> The Regulations establish a new classification system for bathing water quality based on four classifications "poor", "sufficient", "good" and "excellent" and generally require that a classification of at least "sufficient" be achieved by 2015 for all bathing waters. Local authorities must take appropriate measures with a view to improving waters which are classified as "poor" and increasing the number of bathing waters classified as "good" or "excellent". A permanent advice against bathing must be issued in a case where a bathing water is classified as "poor" for five consecutive years. Local authorities are required annually to identify bathing waters, establish a monitoring calendar, carry out the specified monitoring, report the results to the EPA, carry out appropriate management measures where necessary and provide information to the public. There must be public participation in the identification of waters and the general implementation of the Regulations. The EPA is required by the Regulations to classify bathing waters, generally on the basis of the monitoring results for the four preceding bathing seasons, and to publish an annual report in relation to bathing water quality. Monitoring by local authorities is to commence not later than 2011 with a view to ensuring that a classification is assigned to bathing waters not later than 2015. Private controllers of access lands may be required to contribute towards the costs incurred by a local authority or the EPA. 	Implementation of the Plan needs to comply with all environmental legislation and align with and cumulatively contribute towards – in combination with other users and bodies and their plans etc. – the achievement of the objectives of the regulatory framework for environmental protection and management.
Bathing Water Quality (Amendment) Regulations 2011 (S.I 351 of 2011)	<ul style="list-style-type: none"> This Regulation defines further the minimum number of bathing water samples required to carry out a bathing water quality assessment. 	<ul style="list-style-type: none"> Further defines the minimum number of bathing water samples required to carry out a bathing water quality assessment. 	Implementation of the Plan needs to comply with all environmental legislation and align with and cumulatively contribute towards – in combination with other users and bodies and their plans etc. – the achievement of the objectives of the regulatory framework for environmental protection and management.
Climate Action and Low Carbon Development Act 2015	<ul style="list-style-type: none"> An Act to provide for the approval of plans by the Government in relation to climate change for the purpose of pursuing the transition to a low carbon, climate resilient and environmentally sustainable economy. 	<p>When considering a plan or framework, for approval, the Government shall endeavour to achieve the national transition objective within the period to which the objective relates and shall, in endeavouring to achieve that objective, ensure that such objective is achieved by the implementation of measures that are cost effective and shall, for that purpose, have regard to:</p> <ul style="list-style-type: none"> The ultimate objective specified in Article 2 of the United Nations Framework Convention on Climate Change done at New York on 9 May 1992 and any mitigation commitment 	Implementation of the Plan needs to comply with all environmental legislation and align with and cumulatively contribute towards – in combination with other users and bodies and their plans etc. – the achievement of the objectives of the regulatory framework for environmental protection and management.

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		<p>entered into by the European Union in response or otherwise in relation to that objective,</p> <ul style="list-style-type: none"> The policy of the Government on climate change, Climate justice, Any existing obligation of the State under the law of the European Union or any international agreement referred to in section 2; and The most recent national greenhouse gas emissions inventory and projection of future greenhouse gas emissions, prepared by the Agency. 	
The Sustainable Development Goals National Implementation Plan (2018 – 2020)	<ul style="list-style-type: none"> National Implementation Plan 2018 - 2020 is in direct response to the 2030 Agenda for Sustainable Development and provides a whole-of-government approach to implement the 17 Sustainable Development Goals (SDGs). The Plan provides a 'SDG Matrix' which identifies the responsible Government Departments for each of the 169 targets. It also includes a 'SDG Policy Map' indicating the relevant national policies for each of the targets. 	<p>The Plan identifies four strategic priorities to guide implementation:</p> <ul style="list-style-type: none"> Awareness: raise public awareness of the SDGs; Participation: provide stakeholders opportunities to engage and contribute to follow-up and review processes, and further develop national implementation of the Goals; Support: encourage and support efforts of communities and organisations to contribute towards meeting the SDGs, and foster public participation; and Policy alignment: develop alignment of national policy with the SDGs and identify opportunities for policy coherence. 	Implementation of the Plan needs to comply with all environmental legislation and align with and cumulatively contribute towards – in combination with other users and bodies and their plans etc. – the achievement of the objectives of the regulatory framework for environmental protection and management.
Infrastructure and Capital Investment Plan (2016-2021)	<ul style="list-style-type: none"> €27 billion multi-annual Exchequer Capital Investment Plan, which is supported by a programme of capital investment in the wider State sector, and which over the period 2016 to 2021 will help to lay the foundations for continued growth in Ireland. 	<ul style="list-style-type: none"> This Capital Plan reflects the Government's commitment to supporting strong and sustainable economic growth and raising welfare and living standards for all. It includes allocations for new projects across a number of key areas and funding to ensure that the present stock of national infrastructure is refreshed and maintained. 	Implementation of the Plan needs to comply with all environmental legislation and align with and cumulatively contribute towards – in combination with other users and bodies and their plans etc. – the achievement of the objectives of the regulatory framework for environmental protection and management.
Ireland's National Renewable Energy Action Plan 2010 (Irish Government submission to the European Commission)	<ul style="list-style-type: none"> The National Renewable Energy Action Plan (NREAP) sets out the Government's strategic approach and concrete measures to deliver on Ireland's 16% target under Directive 2009/28/EC. 	<ul style="list-style-type: none"> The NREAP sets out the Member State's national targets for the share of energy from renewable sources to be consumed in transport, electricity and heating and cooling in 2020, and demonstrates how the Member State will meet its overall national target established under the Directive. 	Implementation of the Plan needs to comply with all environmental legislation and align with and cumulatively contribute towards – in combination with other users and bodies and their plans etc. – the achievement of the objectives of the regulatory framework for environmental protection and management.
Strategy for Renewable Energy (2012-2020)	<ul style="list-style-type: none"> The Government's overarching strategic objective is to make renewable energy an increasingly significant component of Ireland's energy supply by 2020, so that at a minimum it will achieve its legally binding 2020 target in the most cost efficient manner for consumers. Of critical importance is the role which the renewable energy sector plays in job creation and economic 	<p>This document sets out five strategic goals, reflecting the key dimensions of the renewable energy challenge to 2020:</p> <ul style="list-style-type: none"> Increasing on and offshore wind, Building a sustainable bioenergy sector, Fostering R&D in renewables such as wave & tidal, Growing sustainable transport; and Building out robust and efficient networks. 	Implementation of the Plan needs to comply with all environmental legislation and align with and cumulatively contribute towards – in combination with other users and bodies and their plans etc. – the achievement of the objectives of the regulatory framework for

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Legislation, Plan, etc.	Summary of high level aim/ purpose/ objective	Summary of lower level objectives, actions etc.	Relevance to the Plan
	activity as part of the Government's action plan for jobs.		environmental protection and management.
National Climate Mitigation Plan 2017	<ul style="list-style-type: none"> The Plan represents an initial step to set Ireland on a pathway to achieve the deep decarbonisation required in Ireland by mid-century in line with the Government's policy objectives. 	<p>The National Mitigation Plan focuses on the following issues:</p> <ul style="list-style-type: none"> Climate Action Policy Framework Decarbonising Electricity Generation Decarbonising the Built Environment Decarbonising Transport An Approach to Carbon Neutrality for Agriculture, Forest and Land Use Sectors 	Implementation of the Plan needs to comply with all environmental legislation and align with and cumulatively contribute towards – in combination with other users and bodies and their plans etc. – the achievement of the objectives of the regulatory framework for environmental protection and management.
National Policy Position on Climate Action and Low Carbon Development (2014)	<ul style="list-style-type: none"> The National Policy Position provides a high-level policy direction for the adoption and implementation by Government of plans to enable the State to move to a low carbon economy by 2050. Statutory authority for the plans is set out in the Climate Action and Low Carbon Development Act 2015. 	<p>National climate policy in Ireland:</p> <ul style="list-style-type: none"> Recognises the threat of climate change for humanity; Anticipates and supports mobilisation of a comprehensive international response to climate change, and global transition to a low-carbon future; Recognises the challenges and opportunities of the broad transition agenda for society; and Aims, as a fundamental national objective, to achieve transition to a competitive, low carbon, climate-resilient and environmentally sustainable economy by 2050. 	Implementation of the Plan needs to comply with all environmental legislation and align with and cumulatively contribute towards – in combination with other users and bodies and their plans etc. – the achievement of the objectives of the regulatory framework for environmental protection and management.
National Clean Air Strategy [in preparation]	<ul style="list-style-type: none"> The Clean Air Strategy will provide the strategic policy framework necessary to identify and promote integrated measures across government policy that are required to reduce air pollution and promote cleaner air while delivering on wider national objectives. 	<ul style="list-style-type: none"> Having a National Strategy will provide a policy framework by which Ireland can develop the necessary policies and measures to comply with new and emerging EU legislation. The Strategy should also help tackle climate change. The Strategy will consider a wider range of national policies that are relevant to clean air policy such as transport, energy, home heating and agriculture. In any discussion relating to clean air policy, the issue of people's health is paramount and this will be a strong theme of the Strategy. 	Implementation of the Guidelines need to comply with all environmental legislation and align with and cumulatively contribute towards – in combination with other users and bodies and their plans etc. – the achievement of the objectives of the regulatory framework for environmental protection and management.
Eirgrid's Grid25 Strategy and associated Grid25 Implementation Programme 2011 -2016	<ul style="list-style-type: none"> Eirgrid's mission is to develop, maintain and operate a safe, secure, reliable, economical and efficient transmission system for Ireland. <i>"Our vision is of a grid developed to match future needs, so it can safely and reliably carry power all over the country to the major towns and cities and onwards to every home, farm and business where the electricity is consumed and so it can meet the needs of consumers and generators in a sustainable way."</i> 	<ul style="list-style-type: none"> Grid25, EirGrid's roadmap to uprate the electricity transmission grid by 2025, continues to be implemented so as to increase the capacity of the grid, to satisfy future demand, and to help Ireland meet its target of 40 per cent of electricity from renewable energy by 2020. 	Implementation of the Plan needs to comply with all environmental legislation and align with and cumulatively contribute towards – in combination with other users and bodies and their plans etc. – the achievement of the objectives of the regulatory framework for environmental protection and management.
Strategy for the Future Development of National and Regional Greenways (2018)	<ul style="list-style-type: none"> The objective of this Strategy is to assist in the strategic development of nationally and regionally significant Greenways in appropriate locations constructed to an appropriate standard in order to deliver a quality experience for all Greenways users. It also aims to increase the number and geographical spread of Greenways of scale and quality around the 	<ul style="list-style-type: none"> A Strategic Greenway network of national and regional routes, with a number of high capacity flagship routes that can be extended and/or link with local Greenways and other cycling and walking infrastructure; Greenways of scale and appropriate standard that have significant potential to deliver an increase in activity tourism to Ireland and are regularly used by overseas visitors, 	Implementation of the Plan needs to comply with all environmental legislation and align with and cumulatively contribute towards – in combination with other users and bodies and their plans etc. – the achievement of the objectives of the

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	country over the next 10 years with a consequent significant increase in the number of people using Greenways as a visitor experience and as a recreational amenity.	<p>domestic visitors and locals thereby contributing to a healthier society through increased physical activity;</p> <ul style="list-style-type: none"> Greenways that provide a substantially segregated offroad experience linking places of interest, recreation and leisure in areas with beautiful scenery of different types with plenty to see and do; and Greenways that provide opportunities for the development of local businesses and economies, and Greenways that are developed with all relevant stakeholders in line with an agreed code of practice. 	regulatory framework for environmental protection and management.
National Water Resources Plan [in preparation]	<ul style="list-style-type: none"> The NWRP is a plan on how to provide a safe, secure and reliable water supply to customers for the next 25 years, without causing adverse impact on the environment. The objective of the NWRP is to set out how we intend to maintain the supply and demand for drinking water over the short, medium and long term whilst minimising the impact on the environment. 	<p>The key objectives of the plan are to:</p> <ul style="list-style-type: none"> Identify areas where there are current and future potential water supply shortfalls, taking into account normal and extreme weather conditions Assess the current and future water demand from homes, businesses, farms, and industry Consider the impacts of climate change on Ireland's water resources Develop a drought plan advising measures to be taken before and during drought events Develop a plan detailing how we deal with the material that is produced as a result of treating drinking water Identify, develop and assess options to help meet potential shortfalls in water supplies Assess the water resources available at a national level including lakes, rivers and groundwater 	Implementation of the Plan needs to comply with all environmental legislation and align with and cumulatively contribute towards – in combination with other users and bodies and their plans etc. – the achievement of the objectives of the regulatory framework for environmental protection and management.
National Strategic Plan for Aquaculture Development (2014-2020)	<i>Vision: "Aquaculture in RC is economically, socially and ecologically sustainable, with a developed infrastructure, strong human potentials and an organized market. The consumption of aquaculture products is equal or above EU average, while the technological development of the sector is among the best in the EU."</i>	<p>General development and growth objectives of marine and freshwater aquaculture (2014 – 2020):</p> <ul style="list-style-type: none"> Strengthen the social, business and administrative environment for aquaculture development Increase in the total production to 24,050 tonnes while adhering to the principles of economic, social and ecological sustainability Improvement of the perception and increase in the national consumption of aquaculture products 	Implementation of the Plan needs to comply with all environmental legislation and align with and cumulatively contribute towards – in combination with other users and bodies and their plans etc. – the achievement of the objectives of the regulatory framework for environmental protection and management.
Construction 2020, A Strategy for a Renewed Construction Sector	<ul style="list-style-type: none"> Construction 2020 sets out a package of measures agreed by the Government and is aimed at stimulating activity in the building industry. The Strategy aims both to increase the capacity of the sector to create and maintain jobs, and to deliver a sustainable sector, operating at an appropriate level. It seeks to learn the lessons of the past and to ensure that the right structures and mechanisms are in place so that they are not repeated. 	<p>This Strategy therefore addresses issues including:</p> <ul style="list-style-type: none"> A strategic approach to the provision of housing, based on real and measured needs, with mechanisms in place to detect and act when things are going wrong; Continuing improvement of the planning process, striking the right balance between current and future requirements; The availability of financing for viable and worthwhile projects; Access to mortgage finance on reasonable and sustainable terms; Ensuring we have the tools we need to monitor and regulate the sector in a way that underpins public confidence and worker safety; 	Implementation of the Plan needs to comply with all environmental legislation and align with and cumulatively contribute towards – in combination with other users and bodies and their plans etc. – the achievement of the objectives of the regulatory framework for environmental protection and management.

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		<ul style="list-style-type: none"> Ensuring a fit for purpose sector supported by a highly skilled workforce achieving high quality and standards; and Ensuring opportunities are provided to unemployed former construction workers to contribute to the recovery of the sector. 	
Sustainable Development: A Strategy for Ireland (1997)	<ul style="list-style-type: none"> The overall aim of this Strategy is to ensure that economy and society in Ireland can develop to their full potential within a well-protected environment, without compromising the quality of that environment, and with responsibility towards present and future generations and the wider international community. 	<ul style="list-style-type: none"> The Strategy addresses all areas of Government policy, and of economic and societal activity, which impact on the environment. It seeks to re-orientate policies as necessary to ensure that the strong growth Ireland enjoys and seeks to maintain will be environmentally sustainable. 	Implementation of the Plan needs to comply with all environmental legislation and align with and cumulatively contribute towards – in combination with other users and bodies and their plans etc. – the achievement of the objectives of the regulatory framework for environmental protection and management.
National Landscape Strategy for Ireland 2015-2025 and National Landscape Character Assessment (pending preparation)	<ul style="list-style-type: none"> The National Landscape Strategy will be used to ensure compliance with the European Landscape Convention and to establish principles for protecting and enhancing the landscape while positively managing its change. It will provide a high level policy framework to achieve balance between the protection, management and planning of the landscape by way of supporting actions. Landscape Strategy Vision: <i>"Our landscape reflects and embodies our cultural values and our shared natural heritage and contributes to the well-being of our society, environment and economy. We have an obligation to ourselves and to future generations to promote its sustainable protection, management and planning."</i> 	<p>The objectives of the National Landscape Strategy are to:</p> <ul style="list-style-type: none"> Implement the European Landscape Convention by integrating landscape into the approach to sustainable development; Establish and embed a public process of gathering, sharing and interpreting scientific, technical and cultural information in order to carry out evidence-based identification and description of the character, resources and processes of the landscape; Provide a policy framework, which will put in place measures at national, sectoral - including agriculture, tourism, energy, transport and marine - and local level, together with civil society, to protect, manage and properly plan through high quality design for the sustainable stewardship of the landscape; Ensure that we take advantage of opportunities to implement policies relating to landscape use that are complementary and mutually reinforcing and that conflicting policy objectives are avoided in as far as possible. 	Implementation of the Plan needs to comply with all environmental legislation and align with and cumulatively contribute towards – in combination with other users and bodies and their plans etc. – the achievement of the objectives of the regulatory framework for environmental protection and management.
National Hazardous Waste Management Plan (EPA) 2014-2020	<ul style="list-style-type: none"> This Plan sets out the priorities to be pursued over the next six years and beyond to improve the management of hazardous waste, taking into account the progress made since the previous plan and the waste policy and legislative changes that have occurred since the previous plan was published. <p>Section 26 of the Waste Management Act 1996 as amended, sets out the overarching objectives for the National Hazardous Waste Management Plan. In this context, the following objectives are included as priorities for the revised Plan period:</p> <ul style="list-style-type: none"> To prevent and reduce the generation of hazardous waste by industry and society generally; To maximise the collection of hazardous waste with a 	<p>The revised Plan makes 27 recommendations under the following topics:</p> <ul style="list-style-type: none"> Prevention Collection Self-sufficiency Regulation Legacy issues North-south cooperation Guidance and awareness Implementation 	Implementation of the Plan needs to comply with all environmental legislation and align with and cumulatively contribute towards – in combination with other users and bodies and their plans etc. – the achievement of the objectives of the regulatory framework for environmental protection and management.

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	<p>view to reducing the environmental and health impacts of any unregulated waste;</p> <ul style="list-style-type: none"> To strive for increased self-sufficiency in the management of hazardous waste and to minimise hazardous waste export; To minimise the environmental, health, social and economic impacts of hazardous waste generation and management. 		
National Ports Policy 2013	<ul style="list-style-type: none"> The core objective of National Ports Policy is to facilitate a competitive and effective market for maritime transport services. 	National Ports Policy introduces clear categorisation of the ports sector into Ports of National Significance (Tier 1), Ports of National Significance (Tier 2) and Ports of Regional Significance.	Implementation of the Plan needs to comply with all environmental legislation and align with and cumulatively contribute towards – in combination with other users and bodies and their plans etc. – the achievement of the objectives of the regulatory framework for environmental protection and management.
National Aviation Policy 2015	<p>Specifically, the principal goals of this National Aviation Policy are:</p> <ul style="list-style-type: none"> To enhance Ireland's connectivity by ensuring safe, secure and competitive access responsive to the needs of business, tourism and consumers; To foster the growth of aviation enterprise in Ireland to support job creation and position Ireland as a recognised global leader in aviation; and To maximise the contribution of the aviation sector to Ireland's economic growth and development. 	<p>The National Aviation Policy commits to:</p> <ul style="list-style-type: none"> Maintaining safety as the number one priority in Irish aviation and ensuring that safety regulation is robust, effective and efficient; Creating conditions to encourage the development of new routes and services, particularly to new and emerging markets; Ensuring a high level of competition among airlines operating in the Irish market; Optimising the operation of the Irish airport network to ensure maximum connectivity to the rest of the world; Ensuring that the regulatory framework for aviation reflects best international practice and that economic regulation facilitates continued investment in aviation infrastructure at Irish airports to support traffic growth; Supporting the aircraft leasing and aviation finance sectors to maintain Ireland's leading global position in these spheres; and Maintaining a safe and innovative general aviation sector to support Ireland's broader aviation industry 	Implementation of the Plan needs to comply with all environmental legislation and align with and cumulatively contribute towards – in combination with other users and bodies and their plans etc. – the achievement of the objectives of the regulatory framework for environmental protection and management.
Ministerial Guidelines such as Sustainable Rural Housing Guidelines and Flood Risk Management Guidelines	<ul style="list-style-type: none"> The Department produces a range of guidelines designed to help planning authorities, An Bord Pleanála, developers and the general public and cover a wide range of issues amongst others, architectural heritage, child care facilities, landscape, quarries and residential density. 	<ul style="list-style-type: none"> The Minister issues statutory guidelines under Section 28 of the Act which planning authorities and An Bord Pleanála are obliged to have regard to in the performance of their planning functions. 	Implementation of the Plan needs to comply with all environmental legislation and align with and cumulatively contribute towards – in combination with other users and bodies and their plans etc. – the achievement of the objectives of the regulatory framework for environmental protection and management.

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HSE Healthy Ireland Framework for Improved Health and Wellbeing 2013-2025	<ul style="list-style-type: none"> The vision is: "A Healthy Ireland, where everyone can enjoy physical and mental health and wellbeing to their full potential, where wellbeing is valued and supported at every level of society and is everyone's responsibility." 	<p>These four goals are interlinked, interdependent and mutually supportive:</p> <ul style="list-style-type: none"> Goal 1: Increase the proportion of people who are healthy at all stages of life Goal 2: Reduce health inequalities Goal 3: Protect the public from threats to health and wellbeing Goal 4: Create an environment where every individual and sector of society can play their part in achieving a healthy Ireland 	Implementation of the Plan needs to comply with all environmental legislation and align with and cumulatively contribute towards – in combination with other users and bodies and their plans etc. – the achievement of the objectives of the regulatory framework for environmental protection and management.
Marine Spatial Plan for Ireland (in/pending preparation)	It is intended that the Marine Spatial Plan will be finalised in 2020, and forwarded to the European Commission at that time, ahead of the due date for submission by Member States of their plans in March 2021.	<p>The Marine Spatial Plan will be a succinct strategic document that will deal with, inter alia, the following environmental, social and economic issues:</p> <ul style="list-style-type: none"> Key marine activities such as fisheries, tourism, transport, offshore renewable energy generation, oil and gas exploration and production, aquaculture, and how they interact; Climate change and related impacts; Communities and health; Cultural heritage; Marine environment and biodiversity; Transboundary interactions with other jurisdictions. 	Implementation of the Plan needs to comply with all environmental legislation and align with and cumulatively contribute towards – in combination with other users and bodies and their plans etc. – the achievement of the objectives of the regulatory framework for environmental protection and management.
Tourism Action Plan 2016-2018	Includes a total of 23 actions to be addressed in the period between now and 2018 aimed at securing continued growth in overseas tourism revenue and employment.	23 actions address a range of key issues, including the marketing of Ireland as a visitor destination overseas, visitor access to and within Ireland, the effective presentation of Irish culture, sport, and events to visitors, the role of Local Authorities in supporting tourism, visitor accommodation capacity, and skills development in the tourism sector. The actions are directed at specific tourism stakeholders in the public and private sectors, all of whom are expected to proactively work towards completion of each action within the specified timeframe.	Implementation of the Plan needs to comply with all environmental legislation and align with and cumulatively contribute towards – in combination with other users and bodies and their plans etc. – the achievement of the objectives of the regulatory framework for environmental protection and management.
Tourism 2020: Tourism Strategy for Northern Ireland to 2020	<ul style="list-style-type: none"> Northern Ireland's Tourism Strategy until 2020 Vision is to "Create the new Northern Ireland experience and get it on everyone's destination wish list" Details an Action Plan to achieving targets for People, Products and Places, Promotion and Partnership 	<ul style="list-style-type: none"> Sets targets for: <ul style="list-style-type: none"> Increasing visitor numbers Increasing tourism earnings Accelerating visitor spend Targeting specific markets and segments Supporting indigenous high quality businesses Being visitor inspired Plan provides for development of at least 22 key sites on Causeway Coastal Route 	Implementation of the Plan needs to comply with all environmental legislation and align with and cumulatively contribute towards – in combination with other users and bodies and their plans etc. – the achievement of the objectives of the regulatory framework for environmental protection and management.
Our Sustainable Future: A framework for Sustainable Development for Ireland 2012	A medium to long term framework for advancing sustainable development and the green economy in Ireland. It identifies spatial planning as a key challenge for sustainable development and sets a series of measures to address these challenges.	<ul style="list-style-type: none"> Sets out the challenges facing us and how we might address them in making sure that quality of life and general wellbeing can be improved and sustained in the decades to come. 	Implementation of the Plan needs to comply with all environmental legislation and align with and cumulatively contribute towards – in combination with other users and bodies and their plans etc. – the achievement of the objectives of the

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			regulatory framework for environmental protection and management.
Smarter Travel – A Sustainable Transport Future – A New Transport Policy for Ireland 2009 – 2020 (2009)	<ul style="list-style-type: none"> • Outlines a policy for how a sustainable travel and transport system can be achieved. • Sets out five key goals: <ul style="list-style-type: none"> ◦ To reduce overall travel demand. ◦ To maximise the efficiency of the transport network. ◦ To reduce reliance on fossil fuels. ◦ To reduce transport emissions. ◦ To improve accessibility to transport. 	<ul style="list-style-type: none"> • Others lower level aims include: <ul style="list-style-type: none"> ◦ reduce distance travelled by private car and encourage smarter travel, including focusing population growth in areas of employment and to encourage people to live in close proximity to places of employment ◦ ensuring that alternatives to the car are more widely available, mainly through a radically improved public transport service and through investment in cycling and walking ◦ improving the fuel efficiency of motorised transport through improved fleet structure, energy efficient driving and alternative technologies ◦ strengthening institutional arrangements to deliver the targets 	Implementation of the Plan needs to comply with all environmental legislation and align with and cumulatively contribute towards – in combination with other users and bodies and their plans etc. – the achievement of the objectives of the regulatory framework for environmental protection and management.
Investing in our Future: A Strategic Framework for Investment in Land Transport (SFILT) – Department of Transport, Tourism And Sport	<ul style="list-style-type: none"> • SFILT sets out a set of priorities to guide the allocation of the State's investment to best develop and manage Ireland's land transport network over the coming decades. 	<p>The three priorities stated in SFILT are:</p> <ul style="list-style-type: none"> • Priority 1: Achieve steady state maintenance (meaning that the maintenance and renewal of the existing transport system is at a sufficient level to maintain the system in an adequate condition); • Priority 2: Address urban congestion; and • Priority 3: Maximise the value of the road network. <p>In delivering on the steady state maintenance objective set out in SFILT, the Plan includes for:</p> <ul style="list-style-type: none"> • Planned replacement programme for the bus fleet operated under Public Service Obligation ("PSO") contracts; • Tram refurbishment and asset renewal in the case of light rail; and • To the extent within the Authority's remit, support for the operation of the existing rail network within the GDA. 	Implementation of the Plan needs to comply with all environmental legislation and align with and cumulatively contribute towards – in combination with other users and bodies and their plans etc. – the achievement of the objectives of the regulatory framework for environmental protection and management.
Delivering a Sustainable Energy Future for Ireland – The Energy Policy Framework 2007 – 2020 (2007)	<ul style="list-style-type: none"> • White paper setting out a framework for delivering a sustainable energy future in Ireland. • Outlines strategic Goals for: <ul style="list-style-type: none"> ◦ Security of Supply ◦ Sustainability of Energy ◦ Competitiveness of Energy Supply 	<p>The underpinning Strategic Goals are:</p> <ul style="list-style-type: none"> • Ensuring that electricity supply consistently meets demand • Ensuring the physical security and reliability of gas supplies to Ireland • Enhancing the diversity of fuels used for power generation • Delivering electricity and gas to homes and businesses over efficient, reliable and secure networks • Creating a stable attractive environment for hydrocarbon exploration and production • Being prepared for energy supply disruptions 	Implementation of the Plan needs to comply with all environmental legislation and align with and cumulatively contribute towards – in combination with other users and bodies and their plans etc. – the achievement of the objectives of the regulatory framework for environmental protection and management.
National Adaptation Framework (NAF) 2018 and forthcoming regional, local and sectoral adaptation plans (including transport)	<ul style="list-style-type: none"> • NAF specifies the national strategy for the application of adaptation measures in different sectors and by local authorities in their administrative areas in order to reduce the vulnerability of the State to the negative effects of climate change and to avail of any 	<ul style="list-style-type: none"> • Adaptation under this Framework should seek to minimise costs and maximise the opportunities arising from climate change. • Adaptation actions range from building adaptive capacity (e.g. increasing awareness, sharing information and 	Implementation of the Plan needs to comply with all environmental legislation and align with and cumulatively contribute towards – in combination with other users and

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	positive effects that may occur	targeted training) through to policy and finance based actions. <ul style="list-style-type: none"> Adaptation actions must be risk based, informed by existing vulnerabilities of our society and systems and an understanding of projected climate change. Adaptation actions taken to increase climate resilience must also consider impacts on other sectors and levels of governance 	bodies and their plans etc. – the achievement of the objectives of the regulatory framework for environmental protection and management.
Developing Resilience to Climate Change in the Irish Transport Sector (Climate Adaptation Plan for the Transport Sector 2017)	<ul style="list-style-type: none"> The Minister for Transport, Tourism and Sport has prepared a Transport Sectoral Adaptation Plan under the non-statutory National Climate Change Adaptation Framework, 2012. This first Adaptation Plan has examined the impacts of climate change and weather related events, both those impacts that have been observed and those projected for the future, on key transport services and infrastructure within the Irish Transport Sector. 	<ul style="list-style-type: none"> This Strategy supports action by promoting greater co-ordination and information sharing between Member States with the aim of ensuring that adaptation considerations are addressed in all relevant EU policies. It sets out a framework and mechanisms for developing preparedness in respect of current and future climate impacts across the EU. 	Implementation of the Plan needs to comply with all environmental legislation and align with and cumulatively contribute towards – in combination with other users and bodies and their plans etc. – the achievement of the objectives of the regulatory framework for environmental protection and management.
Governments White Paper 'Ireland's Transition to a Low Carbon Energy Future' (2015 – 2030)	The White Paper sets out a vision and a framework to guide Irish energy policy between now and 2030. A complete energy policy update informed by the vision to transform Ireland into a low carbon society and economy by 2050.	2030 will represent a significant milestone, meaning: <ul style="list-style-type: none"> Reduced GHG emissions from the energy sector by between 80% and 95% Ensuring that secure supplies of competitive and affordable energy remain available to citizens and businesses. 	Implementation of the Plan needs to comply with all environmental legislation and align with and cumulatively contribute towards – in combination with other users and bodies and their plans etc. – the achievement of the objectives of the regulatory framework for environmental protection and management.
National Renewable Energy Action Plan (2010)	<ul style="list-style-type: none"> Sets out the Member State's national targets for the share of energy from renewable sources to be consumed in transport, electricity and heating and cooling in 2020, and demonstrates how the Member State will meet its overall national target established under the Directive. 	Including Ireland's 16% target of gross final consumption to come from renewables by 2020.	Implementation of the Plan needs to comply with all environmental legislation and align with and cumulatively contribute towards – in combination with other users and bodies and their plans etc. – the achievement of the objectives of the regulatory framework for environmental protection and management.
National Energy Efficiency Action Plan for Ireland (2009 – 2020)	<ul style="list-style-type: none"> This is the second National Energy Efficiency Action Plan for Ireland. 	<ul style="list-style-type: none"> The Plan reviews the original 90 actions outlined in the first Plan and updates/renews/removes them as appropriate. 	Implementation of the Plan needs to comply with all environmental legislation and align with and cumulatively contribute towards – in combination with other users and bodies and their plans etc. – the achievement of the objectives of the regulatory framework for environmental protection and management.

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Wildlife Act of 1976 Wildlife (Amendment) Act, 2000	<ul style="list-style-type: none"> The act provides protection and conservation of wild flora and fauna. 	<ul style="list-style-type: none"> Provides protection for certain species, their habitats and important ecosystems Give statutory protection to NHAs Enhances wildlife species and their habitats Includes more species for protection 	Implementation of the Plan needs to comply with all environmental legislation and align with and cumulatively contribute towards – in combination with other users and bodies and their plans etc. – the achievement of the objectives of the regulatory framework for environmental protection and management.
Actions for Biodiversity (2017-2021) Ireland's National Biodiversity Plan	<ul style="list-style-type: none"> Sets out strategic objectives, targets and actions to conserve and restore Ireland's biodiversity and to prevent and reduce the loss of biodiversity in Ireland and globally. 	<ul style="list-style-type: none"> To mainstream biodiversity in the decision-making process across all sectors. To substantially strengthen the knowledge base for conservation, management and sustainable use of biodiversity. To increase awareness and appreciation of biodiversity and ecosystems services. To conserve and restore biodiversity and ecosystem services in the wider countryside. To conserve and restore biodiversity and ecosystem services in the marine environment. To expand and improve on the management of protected areas and legally protected species. To substantially strengthen the effectiveness of international governance for biodiversity and ecosystem services. 	Implementation of the Plan needs to comply with all environmental legislation and align with and cumulatively contribute towards – in combination with other users and bodies and their plans etc. – the achievement of the objectives of the regulatory framework for environmental protection and management.
National Broadband Plan (2012)	<ul style="list-style-type: none"> Sets out the strategy to deliver high speed broadband throughout Ireland. 	<p>The Plan sets out:</p> <ul style="list-style-type: none"> A clear statement of Government policy on the delivery of High Speed Broadband. Specific targets for the delivery and rollout of high speed broadband and the speeds to be delivered. The strategy and interventions that will underpin the successful implementation of these targets. A series of specific complementary measures to promote implementation of Government policy in this area. 	Implementation of the Plan needs to comply with all environmental legislation and align with and cumulatively contribute towards – in combination with other users and bodies and their plans etc. – the achievement of the objectives of the regulatory framework for environmental protection and management.
The Planning System and Flood Risk Management – Guidelines for Planning Authorities (2009)	<ul style="list-style-type: none"> Sets out comprehensive mechanisms for the incorporation of flood risk identification, assessment and management into the planning process. Ensures flood risk is a key consideration in preparing land use plans and in the assessment of planning applications. Implementation of the Guidelines is through actions at national, regional, local authority and site-specific levels. Planning authorities and An Bord Pleanála are required to have regard to the Guidelines in carrying out their functions under the Planning Acts. 	<ul style="list-style-type: none"> Avoid inappropriate development in areas at risk of flooding. Avoid new developments increasing flood risk elsewhere, including that which may arise from surface water run-off. Ensure effective management of residual risks for development permitted in floodplains. Avoid unnecessary restriction of national, regional or local economic and social growth. Improve the understanding of flood risk among relevant stakeholders. Ensure that the requirements of EU and national law in relation to the natural environment and nature conservation are complied with at all stages of flood risk management. 	Implementation of the Plan needs to comply with all environmental legislation and align with and cumulatively contribute towards – in combination with other users and bodies and their plans etc. – the achievement of the objectives of the regulatory framework for environmental protection and management.

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		The 2009 Flood Risk Management Guidelines were amended by Circular PL 2/2014 (Department of the Environment, Community and Local Government) that provides advice on the use of OPW flood mapping in assessing planning applications and clarifies some advice from the 2009 Guidelines.	
<p>European Communities (Water Policy) Regulations of 2003 (SI 722 of 2003)</p> <p>European Communities (Water Policy) Regulations of 2003 (SI 350 of 2014)</p> <p>European Communities Environmental Objectives (Surface waters) Regulations of 2009 (SI 272 of 2009)</p>	<ul style="list-style-type: none"> • Transpose the Water Framework Directive into legislation. • Outlines the general duty of public authorities in relation to water. • Identifies the competent authorities in charge of water policy (amended to Irish Water in 2013) and gives EPA and the CER the authority to regulate and supervise their actions. 	<ul style="list-style-type: none"> • Implements River basin districts and characterisation of RBDs and River Basin Management Plans. • Requires the public to be informed and consulted on the Plan and for progress reports to be published on RBDs. • Implements a Register of protected areas, Classification systems and Monitoring programmes for water bodies. • Allows the competent authority to recover the cost of damage/destruction of status of water body. • Outlines environmental objectives and programme of measures and environmental quality standards for priority substances. • Outlines criteria for assessment of groundwater. • Outlines environmental objectives to be achieved for surface water bodies. • Outlines surface water quality standards. • Establishes threshold values for the classification and protection of surface waters against pollution and deterioration in quality. 	Implementation of the Plan needs to comply with all environmental legislation and align with and cumulatively contribute towards – in combination with other users and bodies and their plans etc. – the achievement of the objectives of the regulatory framework for environmental protection and management.
<p>European Communities Environmental Objectives (Groundwater) Regulations of 2010 (SI 9 of 2010)</p>	<ul style="list-style-type: none"> • Transpose the requirements of the Groundwater Directive 2006/118/EC into Irish Legislation. 	<ul style="list-style-type: none"> • Outlines environmental objectives to be achieved for groundwater bodies of groundwater against pollution and deterioration in quality. • Sets groundwater quality standards. • Outlines threshold values for the classification and protection of groundwater. 	Implementation of the Plan needs to comply with all environmental legislation and align with and cumulatively contribute towards – in combination with other users and bodies and their plans etc. – the achievement of the objectives of the regulatory framework for environmental protection and management.
<p>Water Pollution Acts 1977 to 1990</p>	<ul style="list-style-type: none"> • The Water Pollution Acts allow Local Authorities the authority regulate and supervise actions relating to water in their division. 	<p>The Water Pollution Acts enable local authorities to:</p> <ul style="list-style-type: none"> • Prosecute for water pollution offences. • Attach appropriate pollution control conditions in the licensing of effluent discharges from industry, etc., made to waters. • Issue notices ("section 12 notices") to farmers, etc., specifying measures to be taken within a prescribed period to prevent water pollution. • issue notices requiring a person to cease the pollution of waters and requiring the mitigation or remedying of any effects of the pollution in the manner and within the period specified in such notices; • Seek court orders, including High Court injunctions, to prevent, terminate, mitigate or remedy pollution/its effects. • Prepare water quality management plans for any waters in or adjoining their functional areas. 	Implementation of the Plan needs to comply with all environmental legislation and align with and cumulatively contribute towards – in combination with other users and bodies and their plans etc. – the achievement of the objectives of the regulatory framework for environmental protection and management.

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Water Services Act 2007 Water Services (Amendment) Act 2012 Water Services Act (No. 2) 2013	<ul style="list-style-type: none"> Provides the water services infrastructure. Outlines the responsibilities involved in delivering and managing water services. Identifies the authority in charge of provision of water and waste water supply. Irish Water was given the responsibility of the provision of water and wastewater services in the amendment act during 2013, therefore these services are no longer the responsibility of the 34 Local Authorities in Ireland. 	<p>Key strategic objectives include:</p> <ul style="list-style-type: none"> Ensuring Irish Water delivers infrastructural projects that meet key public health, environmental and economic objectives in the water services sector. Ensuring the provision of adequate water and sewerage services in the gateways and hubs listed in the National Spatial Strategy, and in other locations where services need to be enhanced. Ensuring good quality drinking water is available to all consumers of public and group water supplies, in compliance with national and EU drinking water standards Ensuring the provision of the remaining infrastructure needed to provide secondary wastewater treatment, for compliance with the requirements of the EU Urban Wastewater Treatment Directive. Promoting water conservation through Irish Water's Capital Investment Plan, the Rural Water Programme and other measures. Monitoring the on-going implementation of septic tanks inspection regime and the National Inspection Plan for Domestic Waste Water Treatment Systems. Ensuring a fair funding model to deliver water services. Overseeing the establishment of an economic regulation function under the CER. 	Implementation of the Guidelines need to comply with all environmental legislation and align with and cumulatively contribute towards – in combination with other users and bodies and their plans etc. – the achievement of the objectives of the regulatory framework for environmental protection and management.
Irish Water's Water Services Strategic Plan 2015 and associated Proposed Capital Investment Plan (2014-2016)	<ul style="list-style-type: none"> This Water Services Strategic Plan sets out strategic objectives for the delivery of water services over the next 25 years up to 2040. It details current and future challenges which affect the provision of water services and identifies the priorities to be tackled in the short and medium term. 	<p>Six strategic objectives as follows:</p> <ul style="list-style-type: none"> Meet Customer Expectations. Ensure a Safe and Reliable Water Supply. Provide Effective Management of Wastewater. Protect and Enhance the Environment. Support Social and Economic Growth. Invest in the Future. 	Implementation of the Plan needs to comply with all environmental legislation and align with and cumulatively contribute towards – in combination with other users and bodies and their plans etc. – the achievement of the objectives of the regulatory framework for environmental protection and management.
Raised Bog SAC Management Plan and Review of Raised Bog Natural Heritage Areas	<ul style="list-style-type: none"> Aims to meet nature conservation obligations while having regard to national and local economic, social and cultural needs 	<ul style="list-style-type: none"> Ensure that the implications of management choices for water levels, quantity and quality are fully explored, understood and factored into policy making and land use planning. Review the current raised bog NHA network in terms of its contribution to the national conservation objective for raised bog habitats and determine the most suitable sites to replace the losses of active raised bog habitat and high bog areas within the SAC network and to enhance the national network of NHAs. 	Implementation of the Plan needs to comply with all environmental legislation and align with and cumulatively contribute towards – in combination with other users and bodies and their plans etc. – the achievement of the objectives of the regulatory framework for environmental protection and management.
Food Harvest 2020	<ul style="list-style-type: none"> Food Harvest 2020 is a roadmap for the Irish food industry, as it seeks to innovate and expand in response to increased global demand for quality foods. It sets out a vision for the potential growth in 	<ul style="list-style-type: none"> Seeks for the improvement of all agricultural sectors at all levels in terms of sustainability, environmental consideration and marketing development. 	Implementation of the Plan needs to comply with all environmental legislation and align with and cumulatively contribute towards – in

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	agricultural output after the removal of milk quotas.		combination with other users and bodies and their plans etc. – the achievement of the objectives of the regulatory framework for environmental protection and management.
Agri-vision 2015 Action Plan	Outlines the vision for agricultural industry to improve competitiveness and response to market demand while respecting and enhancing the environment	not applicable	Implementation of the Plan needs to comply with all environmental legislation and align with and cumulatively contribute towards – in combination with other users and bodies and their plans etc. – the achievement of the objectives of the regulatory framework for environmental protection and management.
Rural Environmental Protection Scheme (REPS) Agri-Environmental Options Scheme (AEOS) Green, Low-Carbon, Agri-environment Scheme (GLAS)	<ul style="list-style-type: none"> Agri-environmental funding schemes aimed at rural development for the environmental enhancement and protection. GLAS is the new replacement for REPS and AEOS which are both expiring. 	<ul style="list-style-type: none"> Establish best practice farming methods and production methods in order to protect landscapes and maximise conservation. Protect biodiversity, endangered species of flora and fauna and wildlife habitats. Ensure food is produced with the highest regard to the environment. Implement nutrient management plans and grassland management plans. Protect and maintain water bodies, wetlands and cultural heritage. 	Implementation of the Plan needs to comply with all environmental legislation and align with and cumulatively contribute towards – in combination with other users and bodies and their plans etc. – the achievement of the objectives of the regulatory framework for environmental protection and management.
National Rural Development Programme	<ul style="list-style-type: none"> The National Rural Development Programme, prepared by the Department of Agriculture, Fisheries and Food, sets out a national programme based on the EU framework for rural development and prioritises improving the competitiveness of agriculture, improving the environment and improving the quality of life in rural areas 	<p>At a more detailed level, the programme also:</p> <ul style="list-style-type: none"> Supports structural change at farm level including training young farmers and encouraging early retirement, support for restructuring, development and innovation; Aims to improve the environment, biodiversity and the amenity value of the countryside by support for land management through funds such as Natura 2000 payments etc.; and Aims to improve quality of life in rural areas and encouraging diversification of economic activity through the implementation of local development strategies such as non-agricultural activities 	Implementation of the Plan needs to comply with all environmental legislation and align with and cumulatively contribute towards – in combination with other users and bodies and their plans etc. – the achievement of the objectives of the regulatory framework for environmental protection and management.
National Forestry Programme (2014-2020)	<ul style="list-style-type: none"> Represents Ireland's proposals for 100% State aid funding for a new Forestry Programme for the period 2014 – 2020. 	<p>Measures include the following:</p> <ul style="list-style-type: none"> Afforestation and Creation of Woodland NeighbourWood Scheme Forest Roads Reconstitution Scheme Woodland Improvement Scheme Native Woodland Conservation Scheme Knowledge Transfer and Information Actions 	Implementation of the Plan needs to comply with all environmental legislation and align with and cumulatively contribute towards – in combination with other users and bodies and their plans etc. – the achievement of the objectives of the regulatory framework for environmental protection and management.

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		<ul style="list-style-type: none"> • Producer Groups • Innovative Forest Technology • Forest Genetic Reproductive Material • Forest Management Plans 	management.
River Basin Management Plan	<ul style="list-style-type: none"> • River Basin Management Plans set out the measures planned to maintain and improve the status of waters. 	<ul style="list-style-type: none"> • Aim to protect and enhance all water bodies in the RBD and meet the environmental objectives outlined in Article 4 of the Water Framework Directive. • Identify and manages water bodies in the RBD. • Establish a programme of measures for monitoring and improving water quality in the RBD. • Involve the public through consultations. 	Implementation of the Plan needs to comply with all environmental legislation and align with and cumulatively contribute towards – in combination with other users and bodies and their plans etc. – the achievement of the objectives of the regulatory framework for environmental protection and management.
National Strategy (2015-2025) Peatlands	This Strategy aims to provide a long-term framework within which all of the peatlands within the State can be managed responsibly in order to optimise their social, environmental and economic contribution to the well-being of this and future generations.	<p>Objectives of the Strategy:</p> <ul style="list-style-type: none"> • To give direction to Ireland's approach to peatland management. • To apply to all peatlands, including peat soils. • To ensure that the relevant State authorities and state owned companies that influence such decisions contribute to meeting cross-cutting objectives and obligations in their policies and actions. • To ensure that Ireland's peatlands are sustainably managed so that their benefits can be enjoyed responsibly. • To inform appropriate regulatory systems to facilitate good decision making in support of responsible use. • To inform the provision of appropriate incentives, financial supports and disincentives where required. • To provide a framework for determining and ensuring the most appropriate future use of cutover and cutaway bogs. <p>To ensure that specific actions necessary for the achievement of its objectives are clearly identified and delivered by those involved in or responsible for peatlands management or for decisions affecting their management.</p>	Implementation of the Plan needs to comply with all environmental legislation and align with and cumulatively contribute towards – in combination with other users and bodies and their plans etc. – the achievement of the objectives of the regulatory framework for environmental protection and management.
Flood Risk Management Plans arising from National Catchment Flood Risk Assessment and Management Programme	<ul style="list-style-type: none"> • The national Catchment Flood Risk Assessment and Management (CFRAM) programme commenced in Ireland in 2011 and is being overseen by the Office of Public Works. The CFRAM Programme is intended to deliver on core components of the National Flood Policy, adopted in 2004, and on the requirements of the EU Floods Directive. 	CFRAM Studies have been undertaken for all River Basin Districts. The studies are focusing on areas known to have experienced flooding in the past and areas that may be subject to flooding in the future either due to development pressures or climate change. Flood Risk and Hazard mapping, including Flood Extent Mapping, was finalised in 2017. The final outputs from the studies are the CFRAM Plans, finalised in 2018. The Plans define the current and future flood risk in the River Basin Districts and set out how this risk can be managed.	Implementation of the Plan needs to comply with all environmental legislation and align with and cumulatively contribute towards – in combination with other users and bodies and their plans etc. – the achievement of the objectives of the regulatory framework for environmental protection and management.

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Draft National Bioenergy Plan	<p>The Draft Bioenergy Plan sets out a vision as follows:</p> <ul style="list-style-type: none"> Bioenergy resources contributing to economic development and sustainable growth, generating jobs for citizens, supported by coherent policy, planning and regulation, and managed in an integrated manner. 	<p>Three high level goals, of equal importance, based on the concept of sustainable development are identified:</p> <ul style="list-style-type: none"> To harness the market opportunities presented by bioenergy in order to achieve economic development, growth and jobs. To increase awareness of the value, opportunities and societal benefits of developing bioenergy. To ensure that bioenergy developments do not adversely impact the environment and its living and non-living resources. 	<p>Implementation of the Plan needs to comply with all environmental legislation and align with and cumulatively contribute towards – in combination with other users and bodies and their plans etc. – the achievement of the objectives of the regulatory framework for environmental protection and management.</p>
Draft Renewable Electricity Policy and Development Framework (DCCAE)	<p>Goal: To optimise the opportunities in Ireland for renewable electricity development on land at significant scale, to serve both the All Island Single Electricity Market and any future regional market within the European Union, in accordance with European and Irish law, including Directive 2009/28/EC: On the promotion of the use of energy from renewable resources.</p>	<p>Objective: To develop a Policy and Development Framework for renewable electricity generation on land to serve both the All Island Single Electricity Market and any future regional market within the European Union, with particular focus on large scale projects for indigenous renewable electricity generation. This will, inter alia, provide guidance for planning authorities and An Bord Pleanála.</p>	<p>Implementation of the Plan needs to comply with all environmental legislation and align with and cumulatively contribute towards – in combination with other users and bodies and their plans etc. – the achievement of the objectives of the regulatory framework for environmental protection and management.</p>
National Alternative Fuels Infrastructure for the Transport Sector (DTTAS) 2017- 2030	<p>This Framework sets targets to achieve an appropriate level of alternative fuels infrastructure for transport, which is relative to national policy and Irish market needs. Non-infrastructure-based incentives to support the use of the infrastructure and the uptake of alternative fuels are also included within the scope of the Framework.</p>	<p>Targets for alternative fuel infrastructure include the following:</p> <ul style="list-style-type: none"> AFV forecasts Electricity targets Natural gas (CNG, LNG) targets Hydrogen targets Biofuels targets LPG targets Synthetic and paraffinic fuels targets 	<p>Implementation of the Plan needs to comply with all environmental legislation and align with and cumulatively contribute towards – in combination with other users and bodies and their plans etc. – the achievement of the objectives of the regulatory framework for environmental protection and management.</p>
Food Wise 2025 (DAFM)	<p>Food Wise 2025 sets out a ten year plan for the agri-food sector. It underlines the sector's unique and special position within the Irish economy, and it illustrates the potential which exists for this sector to grow even further.</p>	<p>Food Wise 2025 identifies ambitious and challenging growth projections for the industry over the next ten years including:</p> <ul style="list-style-type: none"> 85% increase in exports to €19 billion. 70% increase in value added to €13 billion. 60% increase in primary production to €10 billion. The creation of 23,000 additional jobs all along the supply chain from producer level to high end value added product development. 	<p>Implementation of the Plan needs to comply with all environmental legislation and align with and cumulatively contribute towards – in combination with other users and bodies and their plans etc. – the achievement of the objectives of the regulatory framework for environmental protection and management.</p>
National Cycle Network Scoping Study 2010	<ul style="list-style-type: none"> Outlines objectives and actions aimed at developing a strong cycle network in Ireland Sets out 19 specific objectives, and details the 109 actions, aimed at ensuring that a cycling culture is developed 	<ul style="list-style-type: none"> Sets a target where 10% of all journeys will be made by bike by 2020 Proposes the planning, infrastructure, communication, education and stakeholder participations measures required to implement the initiative 	<p>Implementation of the Plan needs to comply with all environmental legislation and align with and cumulatively contribute towards – in combination with other users and bodies and their plans etc. – the achievement of the objectives of the regulatory framework for environmental protection and management.</p>

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Strategic Planning Policy Statement (SPPS) NI	The SPPS consolidates some twenty separate policy publications into one document and sets out strategic subject planning policy for a wide range of planning matters. It also provides the core planning principles to underpin delivery of the two-tier planning system with the aim of furthering sustainable development.	<ul style="list-style-type: none"> The overall objective of the planning system is to further sustainable development and improve well-being for the people of the North. 	management. Implementation of the Plan needs to comply with all environmental legislation and align with and cumulatively contribute towards – in combination with other users and bodies and their plans etc. – the achievement of the objectives of the regulatory framework for environmental protection and management.
National Policy Framework for Alternative Fuels Infrastructure for Transport in Ireland 2017 to 2030	<ul style="list-style-type: none"> This National Policy Framework on Alternative Fuels Infrastructure for Transport represents the first step in communicating our longer term national vision for decarbonising transport by 2050, the cornerstone of which is our ambition that by 2030 all new cars and vans sold in Ireland will be zero-emissions capable. By 2030 it is envisaged that the movement in Ireland to electrically-fuelled cars and commuter rail will be well underway, with natural gas and biofuels developing as major alternatives in the freight and bus sectors. 	<p>This policy set out to achieve five key goals in transport:</p> <ul style="list-style-type: none"> Reduce overall travel demand Maximise the efficiency of the transport network Reduce reliance on fossil fuels Reduce transport emissions Improve accessibility to transport <p>These goals remain the cornerstone of transport policy and are fully aligned to the objectives of this National Policy Framework.</p>	Implementation of the Plan needs to comply with all environmental legislation and align with and cumulatively contribute towards – in combination with other users and bodies and their plans etc. – the achievement of the objectives of the regulatory framework for environmental protection and management.
Regional/ County/Local Level			
Regional Economic and Spatial Strategies, replacing Regional Planning Guidelines [in preparation]	<p>Regional Planning Guidelines (RPGs) provide long-term strategic planning frameworks and will be replaced by Regional Spatial and Economic Strategies (RSEs).</p> <p>The Regional Spatial and Economic Strategies will provide a long-term regional level strategic planning and economic framework in support of the implementation of the National Planning Framework.</p>	<ul style="list-style-type: none"> RPGs gave regional effect to the National Spatial Strategy. RSEs give regional effect to the National Planning Framework. Account is being taken in the drafting of RSEs of the proposed spatial plans (i.e. Development Plans) and economic plans (i.e. Local, Economic, Community Plans) of local authorities to ensure that the RSEs are informed by identified local and regional needs. 	Implementation of the Plan needs to comply with all environmental legislation and align with and cumulatively contribute towards – in combination with other users and bodies and their plans etc. – the achievement of the objectives of the regulatory framework for environmental protection and management.
Regional Development Strategy 2035 (Northern Ireland)	<ul style="list-style-type: none"> Spatial strategy for the future development of Northern Ireland. Strategic planning framework to facilitate and guide public and private sectors. 	<ul style="list-style-type: none"> Aims to provide long-term policy direction with a strategic spatial perspective. 	Implementation of the Guidelines need to comply with all environmental legislation and align with and cumulatively contribute towards – in combination with other users and bodies and their plans etc. – the achievement of the objectives of the regulatory framework for environmental protection and management.
Greater Dublin Area (GDA) Transport Strategy (2016-2035)	<ul style="list-style-type: none"> It sets out how transport will be developed across the region, covering Dublin, Meath, Wicklow and Kildare, over the period of the strategy and has been approved by the Minister for Transport, Tourism and Sport in accordance with the relevant legislation. 	<p>They set out a number of core principles deriving from the strategic vision, which are:</p> <ul style="list-style-type: none"> Dublin as the capital city of Ireland and a major European centre shall grow and progress, competing with other cities in the EU, and serving a wide range of international, national, regional and local needs. 	Implementation of the Plan needs to comply with all environmental legislation and align with and cumulatively contribute towards – in combination with other users and bodies and their plans etc. – the

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	<ul style="list-style-type: none"> The Vision Statement: <i>"The GDA by 2022 is an economically vibrant, active and sustainable international Gateway Region, with strong connectivity across the GDA Region, nationally and worldwide; a region which fosters communities living in attractive, accessible places well supported by community infrastructure and enjoying high quality leisure facilities; and promotes and protects across the GDA green corridors, active agricultural lands and protected natural areas."</i> Full SEA and Stage 2 AA have been undertaken on this Strategy 	<ul style="list-style-type: none"> The Dublin and Mid-East Regions will be attractive, vibrant locations for industry, commerce, recreation and tourism and will be a major focus for economic growth within the Country. The GDA, through its ports and airport connections will continue to be the most important entry/exit point for the country as a whole, and as a Gateway between the European Union and the rest of the World. Access to and through the GDA will continue to be a matter of national importance. Development in the GDA shall be directly related to investment in integrated high quality public transport services and focused on compact urban form. Development within the existing urban footprint of the Metropolitan Area will be consolidated to achieve a more compact urban form Development in the Hinterland Area will be focused on the high quality integrated growth and consolidation of development in key identified towns, separated from each other by extensive areas of strategic green belt land devoted to agriculture and similar uses. 	achievement of the objectives of the regulatory framework for environmental protection and management.
Transport Strategy for the Cork Metropolitan Area 2040 [in preparation]	<ul style="list-style-type: none"> The Strategy will address all transport modes and its objective will be to provide a long-term strategic planning framework for the integrated development of transport infrastructure and services in the Cork Metropolitan Area, over the next two decades This Strategy is being a subject to full SEA and Stage 2 AA (currently being undertaken) 	<ul style="list-style-type: none"> It will be used to inform transport investment levels and investment prioritisation over both the longer and shorter terms and will be able to inform sustainable integrated land use and transport policy formulation at the strategic (Metropolitan Area) level and at the local level. 	Implementation of the Plan needs to comply with all environmental legislation and align with and cumulatively contribute towards – in combination with other users and bodies and their plans etc. – the achievement of the objectives of the regulatory framework for environmental protection and management.
Greater Dublin Area Cycle Network Plan	<ul style="list-style-type: none"> Sets out a ten year cycling strategy for Counties Dublin, Kildare, Meath and Wicklow Plan to increase regions cycle network dramatically The Plan refers to the EuroVelo International Cycle Route Network of the European Cyclists Federation is a network of 15 long distance cycle routes connecting and uniting the whole European continent. Two of these routes are in Ireland including EV2 from Galway through Dublin to London, Berlin, Warsaw and Moscow. 	<p>Aims to identify and determine:</p> <ul style="list-style-type: none"> The Urban Cycle Network at the Primary, Secondary and Feeder level The Inter-Urban Cycle Network linking the relevant sections of the Urban Network including the elements of the National Cycle Network within the Greater Dublin Area including linkages to key transport locations outside of urban areas such as airports and ports The Green Route Network being cycle routes for development of tourist, recreational and leisure purposes. 	Implementation of the Plan needs to comply with all environmental legislation and align with and cumulatively contribute towards – in combination with other users and bodies and their plans etc. – the achievement of the objectives of the regulatory framework for environmental protection and management.
Dublin to Galway Greenway Plan	<ul style="list-style-type: none"> Develop a segregated cycling and walking trail to international standards, extending from Dublin City to Galway which is of a scale that will allow Ireland to harness the potential of an identified growing tourism market for cycling. This route forms part of an interconnected National Cycle Network of high quality, traffic free, inter urban routes, which will establish Ireland as a quality 	<ul style="list-style-type: none"> To provide a segregated, substantially off road cycle route from Dublin City to Clifden via Galway City, maximising the use of – where feasible – existing and approved routes and disused railway line corridors and to also use existing plans and/or permitted projects where these have been subject to a consent process that has previously included the carrying out or screening for SEA, EIA and AA. 	Implementation of the Plan needs to comply with all environmental legislation and align with and cumulatively contribute towards – in combination with other users and bodies and their plans etc. – the achievement of the objectives of the regulatory framework for

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	international tourism destination for a broad range of associated recreational activities and pursuits.		environmental protection and management.
Regional Development Strategy 2035 (Northern Ireland)	<ul style="list-style-type: none"> Spatial strategy for the future development of Northern Ireland. Strategic planning framework to facilitate and guide public and private sectors. 	<ul style="list-style-type: none"> Aims to provide long-term policy direction with a strategic spatial perspective. 	Implementation of the Plan needs to comply with all environmental legislation and align with and cumulatively contribute towards – in combination with other users and bodies and their plans etc. – the achievement of the objectives of the regulatory framework for environmental protection and management.
Water Quality Management Plans	<ul style="list-style-type: none"> Ensure that the quality of waters covered by the plan is maintained. Maintain and improve the quantity and quality of water included in the Plan scope. 	<ul style="list-style-type: none"> Monitoring of water bodies against quality standards. Outlines management programmes for water catchments. Purpose is to maintain and improve the quantity and quality of groundwater. 	Implementation of the Plan needs to comply with all environmental legislation and align with and cumulatively contribute towards – in combination with other users and bodies and their plans etc. – the achievement of the objectives of the regulatory framework for environmental protection and management.
Port Masterplans (such as Dublin Port Masterplan 2012-2040 and 2017 Review)	<ul style="list-style-type: none"> The Masterplan sets out a vision for the operations of the port and land utilisation. The Masterplan is a non-statutory plan which has nonetheless been framed within the context of EU, national, regional and local development plan policies. 	Not applicable	Implementation of the Plan needs to comply with all environmental legislation and align with and cumulatively contribute towards – in combination with other users and bodies and their plans etc. – the achievement of the objectives of the regulatory framework for environmental protection and management.
NPWS Conservation Plans and/or Conservation Objectives for SACs and SPAs	<p>Management planning for nature conservation sites has a number of aims. These include:</p> <ul style="list-style-type: none"> To identify and evaluate the features of interest for a site To set clear objectives for the conservation of the features of interest To describe the site and its management To identify issues (both positive and negative) that might influence the site To set out appropriate strategies/management 	<ul style="list-style-type: none"> Conservation objectives for SACs and SPAs (i.e. sites within the Natura 2000 network) have to be set for the habitats and species for which the sites are selected. These objectives are used when carrying out appropriate assessments for plans and projects that might impact on these sites. 	Implementation of the Plan needs to comply with all environmental legislation and align with and cumulatively contribute towards – in combination with other users and bodies and their plans etc. – the achievement of the objectives of the regulatory framework for environmental protection and management.

Legislation, Plan, etc.	Summary of high level aim/ purpose/ objective	Summary of lower level objectives, actions etc.	Relevance to the Plan
Groundwater Protection Schemes	<p>actions to achieve the objectives</p> <ul style="list-style-type: none"> A Groundwater Protection Scheme provides guidelines for the planning and licensing authorities in carrying out their functions, and a framework to assist in decision-making on the location, nature and control of developments and activities in order to protect groundwater. 	<ul style="list-style-type: none"> A Groundwater Protection Scheme aims to maintain the quantity and quality of groundwater, and in some cases improve it, by applying a risk assessment-based approach to groundwater protection and sustainable development. 	Implementation of the Plan needs to comply with all environmental legislation and align with and cumulatively contribute towards – in combination with other users and bodies and their plans etc. – the achievement of the objectives of the regulatory framework for environmental protection and management.
Local Economic and Community Plans (LECP)	<ul style="list-style-type: none"> The overarching vision for each LECP is: “to promote the well-being and quality of life of citizens and communities” 	<ul style="list-style-type: none"> The purpose of the LECP, as provided for in the Local Government Reform Act 2014, is to set out, for a six-year period, the objectives and actions needed to promote and support the economic development and the local and community development of the relevant local authority area, both by itself directly and in partnership with other economic and community development stakeholders. 	Implementation of the Plan needs to comply with all environmental legislation and align with and cumulatively contribute towards – in combination with other users and bodies and their plans etc. – the achievement of the objectives of the regulatory framework for environmental protection and management.
Development Plans, Local Area Plans, Planning Schemes	<ul style="list-style-type: none"> Outlines planning objectives for land use development (including transport objectives). Strategic framework for planning and sustainable development including those set out in National Planning Framework and Regional Economic and Spatial Strategies. Sets out the policies and proposals to guide development in the specific Local Authority area. 	<ul style="list-style-type: none"> Identifies future infrastructure, development and zoning required. Protects and enhances amenities and environment. Guides planning authority in assessing proposals. Aims to guide development in the area and the amount of nature of the planned development. Aims to promote sustainable development. Provide for economic development and protect natural environmental, heritage. 	Implementation of the Plan needs to comply with all environmental legislation and align with and cumulatively contribute towards – in combination with other users and bodies and their plans etc. – the achievement of the objectives of the regulatory framework for environmental protection and management.
Green Infrastructure Plans/Strategies	<ul style="list-style-type: none"> Promotes the maintenance and improvement of green infrastructure in an area. Aims to protect and enhance biodiversity and habitats. 	not applicable	Implementation of the Plan needs to comply with all environmental legislation and align with and cumulatively contribute towards – in combination with other users and bodies and their plans etc. – the achievement of the objectives of the regulatory framework for environmental protection and management.
Biodiversity Action Plans	<ul style="list-style-type: none"> Aims to protect, conserve, enhance and restore biodiversity and ecosystem services across all spectrums. 	<ul style="list-style-type: none"> Outlines the status of biodiversity and identifies species of importance. Outlines objectives and targets to be met to maintain and improve biodiversity. Aims to increase awareness. 	Implementation of the Plan needs to comply with all environmental legislation and align with and cumulatively contribute towards – in combination with other users and bodies and their plans etc. – the achievement of the objectives of the regulatory framework for

Legislation, Plan, etc.	Summary of high level aim/ purpose/ objective	Summary of lower level objectives, actions etc.	Relevance to the Plan
			environmental protection and management.
Heritage Plans	<ul style="list-style-type: none"> Aims to highlight the importance of heritage at a strategic level. 	<ul style="list-style-type: none"> Manage and promote heritage as well as increase awareness. Aim to conserve and protect heritage. 	Implementation of the Plan needs to comply with all environmental legislation and align with and cumulatively contribute towards – in combination with other users and bodies and their plans etc. – the achievement of the objectives of the regulatory framework for environmental protection and management.
County Landscape Character Assessments	<ul style="list-style-type: none"> Characterises the geographical dimension of the landscape. 	<ul style="list-style-type: none"> Identifies the quality, value, sensitivity and capacity of the landscape area. Guides strategies and guidelines for the future development of the landscape. 	Implementation of the Plan needs to comply with all environmental legislation and align with and cumulatively contribute towards – in combination with other users and bodies and their plans etc. – the achievement of the objectives of the regulatory framework for environmental protection and management.
Freshwater Pearl Mussel Sub-Basin Management Plans	<ul style="list-style-type: none"> Identifies the current status of the species and the reason for loss or decline. Identifies measure required to improve or restore current status. 	<ul style="list-style-type: none"> Identifies pressures on Freshwater Pearl Mussels for each of the designated populations in Ireland. Outlines restoration measures required to ensure favourable conservation status. 	Implementation of the Plan needs to comply with all environmental legislation and align with and cumulatively contribute towards – in combination with other users and bodies and their plans etc. – the achievement of the objectives of the regulatory framework for environmental protection and management.
Local Catchment Flood Risk Management Plans	<ul style="list-style-type: none"> Produced by Local Authorities. Outlines areas local flood risk. Sets out measures to manage and prevent flood risk at a local level. 	not applicable	Implementation of the Plan needs to comply with all environmental legislation and align with and cumulatively contribute towards – in combination with other users and bodies and their plans etc. – the achievement of the objectives of the regulatory framework for environmental protection and management.
Shellfish Pollution Reduction Programmes	Aims to improve water quality and ensure the protection or improvement of designated shellfish waters in order to support shellfish life and growth and contribute to the high quality of shellfish products directly edible by man.	<ul style="list-style-type: none"> Identifies key and secondary pressures on water quality in designated shellfish areas. Outlines specific measures to address identified key and secondary pressures on water quality. Addresses the specific pressures acting on water quality in each area. 	Implementation of the Plan needs to comply with all environmental legislation and align with and cumulatively contribute towards – in combination with other users and bodies and their plans etc. – the achievement of the objectives of the

Legislation, Plan, etc.	Summary of high level aim/ purpose/ objective	Summary of lower level objectives, actions etc.	Relevance to the Plan
			regulatory framework for environmental protection and management.
Regional Waste Management Plans	These plans (for the Connacht-Ulster, Southern, and Eastern-Midlands regions) give effect to national and EU waste policy, and address waste prevention and management (including generation, collection and treatment) over the period 2015-2021.	To manage wastes in a safe and compliant manner, a clear strategy, policies and actions are required.	Implementation of the Plan needs to comply with all environmental legislation and align with and cumulatively contribute towards – in combination with other users and bodies and their plans etc. – the achievement of the objectives of the regulatory framework for environmental protection and management.
Draft Climate Change Action Plans 2019 - 2024	Dublin's four local authorities have joined together to develop Climate Change Action Plans as a collaborative response to the impact that climate change is having, and will continue to have, on the Dublin Region and its citizens. While each plan is unique to its functional area, they are unified in their approach to climate change adaptation and mitigation, and their commitment to lead by example in tackling this global issue.	The Climate Change Action Plan features a range of actions across five key areas - Energy and Buildings, Transport, Flood Resilience, Nature-Based Solutions and Resource Management - that collectively address the four targets of this plan: <ul style="list-style-type: none"> • A 33% improvement in the Council's energy efficiency by 2020 • A 40% reduction in the Council's greenhouse gas emissions by 2030 • To make Dublin a climate resilient region, by reducing the impacts of future climate change - related events • To actively engage and inform citizens on climate change 	Implementation of the Plan needs to comply with all environmental legislation and align with and cumulatively contribute towards – in combination with other users and bodies and their plans etc. – the achievement of the objectives of the regulatory framework for environmental protection.
Noise Action Plans	The Noise Action Plans are prepared in accordance with the requirements of the Environmental Noise Regulations 2006, Statutory Instrument 140 of 2006. These Regulations give effect to the EU Directive 2002/49/EC relating to the assessment and management of environmental noise. This Directive sets out a process for managing environmental noise in a consistent manner across the EU and the Noise Regulations set out the approach to meeting the requirements of the Directive in Ireland.	The main purpose of the Noise Action Plan is to: <ul style="list-style-type: none"> • Inform and consult the public about noise exposure, its effects and the measures which may be considered to address noise problems • Address strategic noise issues by requiring competent authorities to draw up action plans to manage noise issues and their effects • Reduce noise, where possible, and maintain the environmental acoustic quality where it is good 	Implementation of the Plan needs to comply with all environmental legislation and align with and cumulatively contribute towards – in combination with other users and bodies and their plans etc. – the achievement of the objectives of the regulatory framework for environmental protection.