

STRATEGIC ENVIRONMENTAL ASSESSMENT ENVIRONMENTAL REPORT

FOR THE CORK METROPOLITAN AREA TRANSPORT STRATEGY 2040

for: National Transport Authority

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List of Abbreviations

AA	Appropriate Assessment
ACA	Architectural Conservation Area
CMA	Cork Metropolitan Area
CMATS	Cork Metropolitan Area Transport Strategy
CSO	Central Statistics Office
EIA	Environmental Impact Assessment
EPA	Environmental Protection Agency
EU	European Union
GSI	Geological Survey of Ireland
pNHA	Proposed Natural Heritage Area
NHA	Natural Heritage Area
NTA	National Transport Authority
OPW	Office of Public Works
RBD	River Basin District
RMP	Record of Monuments and Places
RPA	Register of Protected Areas
RBMP	River Basin Management Plan
RSES	Regional Spatial and Economic Strategy
SAC	Special Area of Conservation
SEA	Strategic Environmental Assessment
SEO	Strategic Environmental Objective
SI No.	Statutory Instrument Number
SPA	Special Protection Area
WFD	Water Framework Directive

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, programme, Strategy, etc. 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, programme, Strategy, etc.. 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 Strategy 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 Transport Strategy for the Cork Metropolitan Area 2019-2040 (referred to hereafter as the Strategy). 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 Strategy. 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 Strategy.

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 ensure 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 Strategy

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 Strategy, as it comprises a 'plan or programme' as defined by the SEA Directive which is likely to have significant environmental effects, if unmitigated.

The findings of the SEA are expressed in this Environmental Report, an earlier version of which accompanied the Draft Strategy 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 Strategy 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 Strategy, an SEA Statement is prepared which summarises, inter alia, how environmental considerations have been integrated into the Strategy.

Section 2 The Strategy

2.1 Introduction

The Cork Metropolitan Area Transport Strategy 2019-2040 (the "Strategy") has been developed by the National Transport Authority (NTA) in collaboration with Cork City Council and Cork County Council. It sets out a framework for the planning and delivery of transport infrastructure and services to support the development of the Cork Metropolitan Area¹ (CMA), as shown on Figure 2.1, in the period up to 2040.

The Strategy takes its lead at national level from the National Planning Framework 2040 and the National Development Plan 2018-2027 and builds upon previous transport studies including Cork City Centre Movement Strategy, Cork Area Strategic Plan (CASP) and the Cork Metropolitan Cycle Network Plan.

The Strategy will provide a coherent transport planning policy framework and implementation plan around which other agencies involved in land use planning, environmental protection, and delivery of other infrastructure such as housing and water can align their investment priorities.

2.2 Vision and Principles

The Strategy will deliver an integrated transport network that addresses the needs of all modes of transport, offering better transport choices, resulting in better overall network performance and providing capacity to meet travel demand and support economic growth.

To achieve this vision, the guiding principles upon which the Strategy is based are as follows:

1. To support the future growth of the CMA through the provision of an efficient and safe transport network.
2. To prioritise sustainable and active travel and reduce car dependency within the CMA.

¹ The study area for the Strategy includes Cork City, its suburbs and the towns and rural areas in the immediate hinterland of the City.

3. To provide a high level of public transport connectivity to key destinations within high demand corridors.
4. To identify and protect key strategic routes for the movement of freight and services including the provision of a high level of freight access to the Port of Cork.
5. To enhance the public realm through traffic management and transport interventions.
6. To increase public transport capacity and frequencies where needed to achieve the strategy outcomes.

2.3 Structure and Content

The Strategy consists of the following chapter headings under which investment priorities are provided:

1. Introduction
2. Policy Context
3. Existing Transport Context
4. CMATS² 2040 Land Use
5. Strategy Development and Outcomes
6. Walking
7. Cycling
8. BusConnects
9. Suburban Rail
10. Light Rail
11. Parking
12. Public Transport Interchange and Integration
13. Roads
14. Freight, Delivery and Servicing
15. Supporting Measures
16. Implementation
17. Environmental Protection and Management
18. Strategy Outcomes
19. Public Consultation

Many proposals included within the Strategy have already been included in documents outlining public policy that have been subject to their own SEA including the National Planning Framework (and associated National Development Plan), Regional Spatial and Economic Strategy for the Southern Region and Cork City and County Development Plans.

² Cork Metropolitan Area Transport Strategy

2.4 Relationship with other relevant Plans and Programmes

The Strategy sits within a hierarchy of strategic actions such as plans and programmes, including those detailed in Appendix I ³ (see also Section 3.2 "Hierarchy of Planning and Environmental Assessment", Section 4 "Relevant aspects of the current state of the Environment", Section 5 "Strategic Environmental Objectives" and Section 9 "Mitigation Measures").

The Strategy aligns with documents setting out public policy for land use, transport and climate mitigation and will be incorporated into the review and preparation of these documents. These include the National Planning Framework (and associated National Development Plan), the Strategic Investment Framework for Land Transport, the Regional Economic and Spatial Strategy for the Southern Region and associated Metropolitan Area Strategic Plan, the City and County Development Plans and Local Area Plans. Certain transport related proposals already provided for by these documents (and considered by their environmental assessments) are amongst those included within the Strategy.

The Strategy 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.

³ 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.

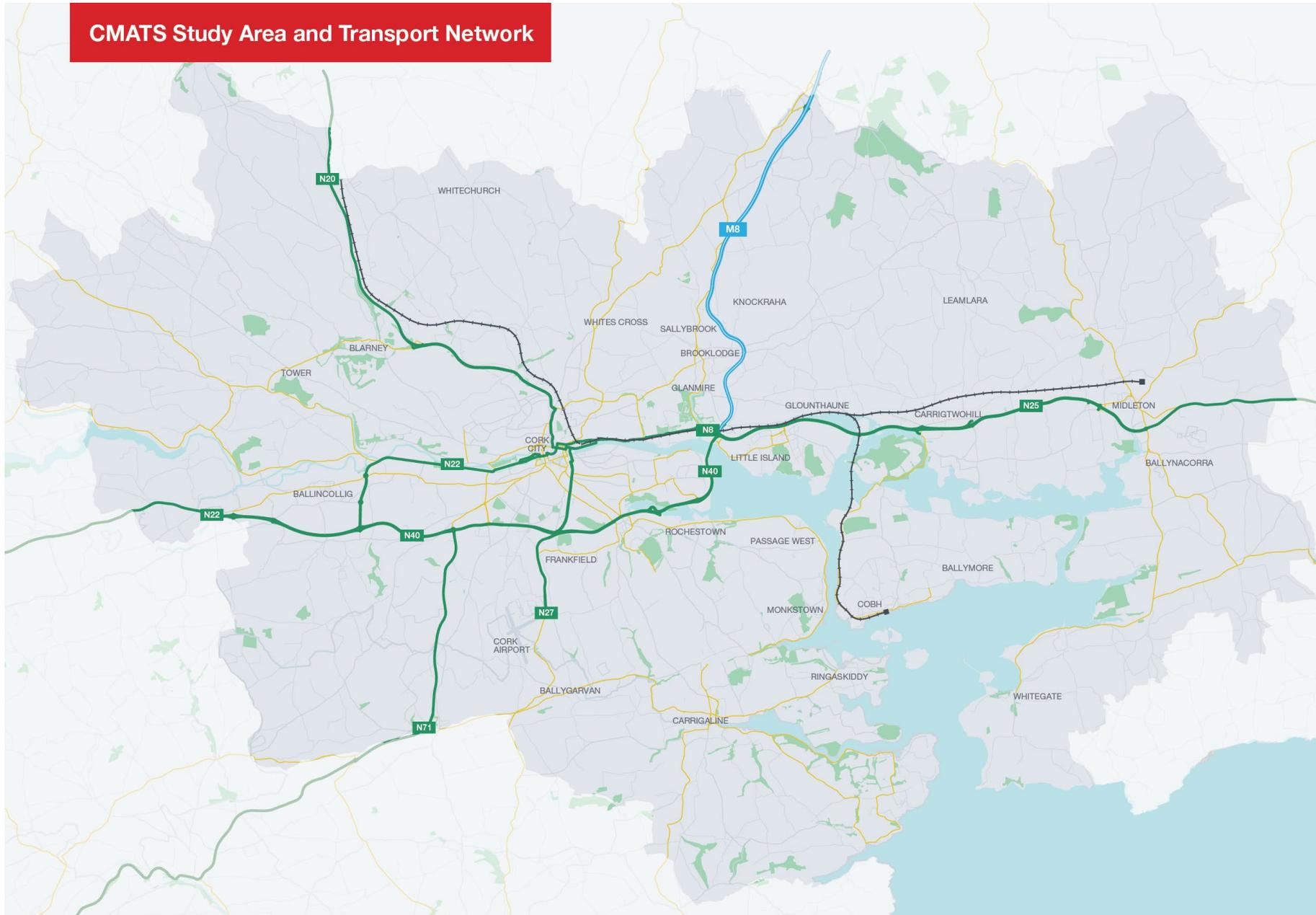


Figure 2.1 Strategy Map showing the Cork Metropolitan Area Transport Strategy Study Area and the Road and Rail Network

Section 3 SEA Methodology

3.1 Introduction to the Iterative Approach

Figure 3.1 provides an overview of the integrated Strategy preparation, SEA and AA processes. The preparation of the Strategy, SEA and AA has taken place concurrently and the findings of the SEA and AA have informed the Strategy.

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 Strategy 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 Strategy. The Strategy 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 Strategy were responded to and the Strategy has been updated as appropriate. On finalisation of the Plan an SEA Statement, which includes information on how environmental considerations were integrated into the Strategy, is prepared. The Strategy will be implemented and environmental monitoring – as well as lower tiers of environmental assessment – will be undertaken.

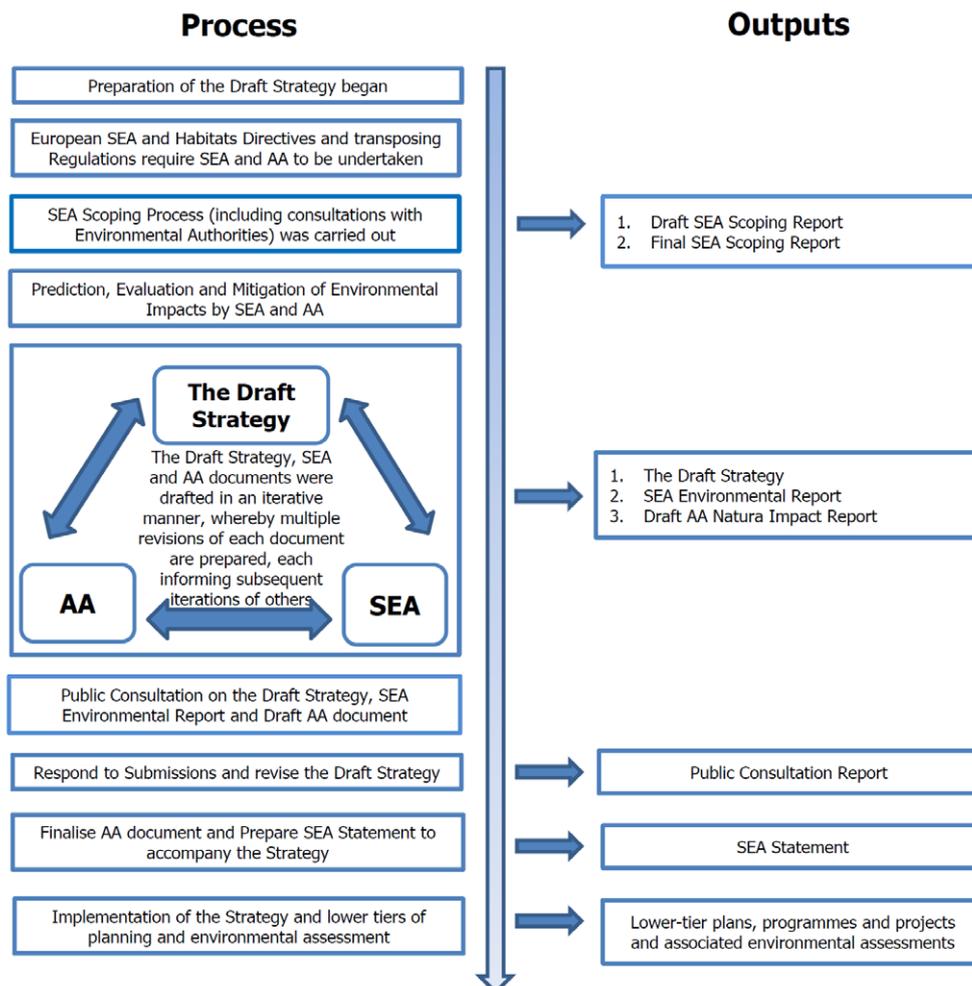


Figure 3.1 Overview of the Strategy, SEA and AA Process

3.2 Hierarchy of Planning and Environmental Assessment

The Strategy is situated in a hierarchy of documents setting out public policy for land use, transport and climate mitigation. These other existing policies, plans etc. have been subject to their own environmental assessment processes, as relevant, and already provide for various measures that have been compiled into the Strategy. The Strategy aligns with these documents, a number of which are described below, and will be incorporated into the review and preparation of these documents.

Individual transport projects must be consistent and comply with these higher level documents setting out policy relating to land use and transport and are subject to their own project level EIA and AA requirements as relevant.

The **National Planning Framework (NPF)** sets out Ireland's planning policy direction for the next 22 years. Cork is projected to grow significantly with at least an additional 125,000 people by 2040 to support a minimum population of 315,000 within the City and Suburbs alone. Key transport growth enablers relevant to the development of the Strategy include:

- Delivery of large-scale regeneration projects for the provision of new employment, housing and supporting infrastructure in Cork Docklands (City Docks and Tivoli);
- Progressing sustainable development of new greenfield areas for housing on public transport corridors;
- Intensifying development in inner-city and inner suburban areas;
- Development of a new science and innovation park to the west of the city accessible by public transport;
- Development of enhanced city-wide public transport system to incorporate proposals for an east-west corridor from Mahon, through the City Centre to Ballincollig and a north-south corridor with a link to the Airport;
- M8/N25/N40 Dunkettle Junction upgrade and improved Ringaskiddy Port access;
- Enhanced regional connectivity through improved average journey times by road;
- Improved traffic flow around the City, which, subject to assessment, could include upgrades of the N40, and/or alternatives which may include enhanced public transport; and

- Improved rail journey times to Dublin and consideration of improved onward direct network connections.
- The Strategy has been developed in line with the core principles set out in the NPF.

The **National Development Plan (NDP)** sets out a ten year investment plan to underpin the NPF's ten National Strategic Outcomes (NSOs). The key NSOs that have informed the development of CMATS are summarised as follows:

NSO 1 - Compact Growth

- Urban Regeneration and Development Fund - the Cork Docklands is included as an example project with potential to receive support; and
- Establishment of a National Regeneration and Development Agency.

NSO 2 – Enhanced Regional Accessibility Road Network

- Establish the Atlantic Corridor road network linking Cork, Limerick, Galway and Sligo;
- Improving average journey times targeting an average inter-urban speed of 90kph;
- M20 Cork to Limerick motorway including consideration of a complementary scheme – the Cork North Ring Road - linking the N20 to Dunkettle;
- M28 Cork to Ringaskiddy Road; and
- A feasibility study of high speed rail between Dublin Belfast, Dublin Limerick Junction/Cork by 2019.

NSO 4 – Sustainable Mobility

- A commitment to implement BusConnects for Cork;
- Delivery of comprehensive walking and cycling network;
- Smarter Travel projects; and
- Complete construction of the National Train Control Centre.

NSO 5 – A Strong Economy, supported by Enterprise, Innovation and Skills

- Upgrading of the Tyndall National Institute in Cork;
- University College Cork; New business school, student accommodation, Innovation Park and new dental hospital; and
- Major Infrastructure project at CIT delivered through PPP.

NSO 6 – High-Quality International Connectivity

- Continued investment in Cork Airport; and
- The consolidation of Port of Cork facilities at Ringaskiddy and redevelopment of existing port facilities at Ringaskiddy to accommodate larger sea-going vessels and increase capacity.

NSO 7 – Enhanced Amenity and Heritage;

- Education, health and cultural infrastructure;
- Capital investment at UCC including new Business school, Innovation Park, new dental hospital, expansion of the Tyndall National Institute and student accommodation;
- Investment in the Crawford Art Gallery; and
- Cork Event Centre.

NSO 8 – Transition to a Low-Carbon and Climate-Resilient Society

- Expansion of electric vehicle charging points;
- Transition to low emission, including electric buses, for the urban public bus fleet with no diesel only buses purchased from 1 July 2019;
- BusConnects for Cork; and

- Sustainable travel measures, including comprehensive Cycling and Walking Network for metropolitan areas of Ireland's cities, and expanded Greenways.

NSO 10 – Access to Quality Childcare, Education and Health Services

- A new acute hospital in Cork; and
- A new dedicated ambulatory elective only hospital in Cork to tackle waiting lists and provide access to diagnostic services.

The **National Mitigation Plan** represents an initial step to set Ireland on a pathway to achieve the level of decarbonisation required to reduce greenhouse gas emissions in line with our international commitments under the Paris Agreement as well as to meet our more immediate EU obligations. Decarbonising Transport is a key tenet of the Plan. The Plan sets out the various measures already helping to contain the level of emissions associated with the transport sector and identifies a range of potential additional measures that can help to intensify mitigation efforts within the sector. Some key measures related to CMATS include:

- T1 Public Transport Investment;
- T2 Smarter Travel Initiative;
- T8 Review of Public Transport;
- T9 Review of Active Travel Policy;
- T10 National Intelligent Transport Systems (ITS) Strategy;
- T16 Further Public Transport Investment;
- T17 Supports and Incentives to Modal Shift;
- T23 National Policy on Parking.

The Strategic Investment Framework for Land Transport establishes high level priorities for future investment in land transport and key principles, reflective of those priorities, to which transport investment proposals will be required to adhere. An overarching priority is to restore transport capital funding to an average level of 1.1-1.15% of GDP per annum at a minimum.

At regional level, the **Regional Spatial and Economic Strategy for the Southern Region** and associated **Metropolitan Area Strategic Plan** are subject to SEA and AA requirements as relevant. The RSES for the Southern Region sets out the following Cork Metropolitan Area Transport Investment Priorities:

(A) The development of an enhanced metropolitan area wide public transport system, including:

1. A high capacity public transport corridor (potential for a light rail corridor subject to appraisal, planning and design stages) which provides for the longer-term growth of the Metropolitan Area on an east-west axis.

- Immediate priority must be given to advance route selection and preliminary design;
2. Infrastructure for Cork Docklands and Tivoli;
 3. The delivery of several high-quality bus corridors through the Bus Connects investment programme, connecting the city centre with the city suburbs/ environs and surrounding metropolitan area towns (refer to the CMATS for specific details);
 4. Investment in the existing rail network for inter-city and commuter rail movement, with consideration being given to additional stations, higher service frequencies and greater opportunities for interchange with other modes, including bus and car;
 5. The targeted improvement of arterial routes within the City and its environs, to enable the delivery of higher bus service frequencies and improved journey time reliability;
 6. The development of park and ride facilities, to enable interchange between car and bus/ rail transport services.

(B) The Improvement of accessibility to the City Centre through the implementation of a range of traffic management and infrastructure improvements within the City Centre area, with an emphasis on improving:

1. The operation of public transport services into and through the City Centre;
2. Infrastructure servicing the Cork Docklands and Tivoli;
3. Local traffic management and the location/ management of destination car parking;
4. The improvement of walking and cycling accessibility into and within the City Centre.

(C) Maintain and enhance the strategic road network, including national roads, catering for transport demand within the Metropolitan Area, for improved inter-urban / inter-regional connectivity/ reduced journey times, and for improved access to international gateways, including the Port of Cork at Ringaskiddy and Cork International Airport, through the following interventions supported by the RSES for improved connectivity within the Metropolitan Area through the following projects subject to required appraisal, planning and environmental assessment processes:

1. Delivery of current Government programmed and proposed national road network improvement schemes relating to the Cork Metropolitan Area and associated inter-urban connecting roads;
2. Advancing orbital traffic management solutions, through the implementation of appropriate demand management measures, on the N40 and provision of alternative local roads, as deemed necessary. Specific measures should not be introduced in isolation, but only after due consideration of the impacts on access and movement across the city and suburbs and progressed in parallel with the introduction of the necessary appropriate alternatives to service affected traffic movements;
3. Enhanced regional connectivity through improved average journey times by road to Limerick and Waterford via proposed M20 Limerick to Cork and the targeted enhancement of the N25 between Cork and Waterford;
4. Cork Northern Ring Road connecting the N22 to the M8 (identified in the NDP as a complementary scheme to the M20);

5. Improved connectivity Cork City to Cork International Airport including N27 (dedicated public transport corridor);
6. Dunkettle Interchange;
7. Improved connectivity to Ringaskiddy via N28/M28 Scheme;
8. Cork Northern Distributor Road;
9. Cork City Docks and Tivoli bridge and street infrastructure, including Eastern Gateway Bridge. Cork Docklands infrastructure is a key enabler for Cork under the NPF;
10. N27 Cork-Cork International Airport (dedicated public transport corridor);
11. Improved N22, N25, N27, N71 Inter Regional and Intra Regional corridors;
12. Upgrade of the R624 Regional Road Linking N25 to Marino Point and Cobh;
13. Upgrade of the R630 Regional Road linking Midleton to Whitegate Road (Energy Hub);
14. Cork Science and Innovation Park Access (a key enabler for Cork under the NPF);
15. Transport packages including road upgrades, relief roads, enhanced public realm, walking and cycling infrastructure for metropolitan towns and urban expansion areas;
16. North-East Orbital Road (access for residential lands and public transport infrastructure Ballyvolane);
17. Advancing transport study measures for Little Island. All measures shall have due consideration of the impacts on access and movements across the City and suburbs and in parallel.

(D) The optimal use of the inter-city and commuter rail network, connecting Cork at a metropolitan, regional and national level, in catering for the movement of people and goods through interventions including:

1. The development of new commuter rail stations in Metropolitan Cork (refer to the CMATS for detailed commuter rail network and station proposals) including upgrading existing and new stations on a network serving Blarney/Stoneview (park and ride station), Monard, Blackpool/Kilbarry, Kent Station, Tivoli Docks, Dunkettle (park and ride station), Little Island, Glounthaune, Carrigtwohill West, Carrigtwohill, Water Rock, Midleton, Fota, Carrogaloe, Ballynoe, Rushbrooke and Cobh;
2. Kent Station as a key node with through running of suburban services, interchange with the Light Rail Transit network, improve signalling and bridge access to the South Docks). Improved rail journey times to Dublin and consideration of onward direct network connections;
3. As identified in the National Development Plan, the Dublin – Limerick Junction/Cork rail lines are subject to an examination to move to higher speeds leading to improved connectivity to regional cities through improved rail journey times. An evaluation of the economic benefits of high-speed rail between Dublin-Belfast, Dublin-Limerick Junction and Dublin-Cork against improvements to existing line speeds will be carried out against relevant appraisal processes and value-for-money tests required by the Public Spending Code by 2020;
4. Through the National Development Plan, the ongoing development of the Cork Metropolitan Area Transport Strategy and enhancements to the commuter rail service in Cork including additional stations and rail fleet.

(E) The development of a metropolitan wide cycle network, focused on the City/environs, metropolitan area towns and connectivity between the city and the metropolitan area towns – catering for a range of journey purposes

At city, county and local levels, rolling City and County Development Plans and associated Local Area Plans are also subject to SEA and AA requirements as relevant.

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 Strategy.

The requirement for AA is provided under the EU Habitats Directive (Directive 1992/43/EEC). The AA concluded that the Strategy will not affect the integrity of the Natura 2000 network⁴.

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

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 Strategy. 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.

⁴ 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.

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.

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 Strategy, 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 Strategy, SEA and AA has taken place concurrently and the findings of the AA have informed both the Strategy 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 Strategy 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 Directive⁵.

⁵ 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.

As the Strategy is not likely to have significant effects on the environment in another Member State transboundary consultations as provided for by Article 7 of the SEA Directive were not undertaken.

3.4.2 Scoping Notices

Relevant environmental authorities⁶ 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.

3.4.3 Scoping Submissions

Submissions were made by two environmental authorities, the environmental Protection Agency (EPA) and the Department of Culture, Heritage and the Gaeltacht.

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

- *Ireland's Environment - An Assessment 2016* (EPA, 2016);
- Road Transport;
- Air Pollution and Transport;
- Climate Change Mitigation;
- Alternative Fuels, BioFuels Obligation Scheme /Smarter Travel);
- Climate Change Adaptation;
- Southern Regional Assembly's Regional Spatial and Economic Strategy;
- Noise Pollution;
- Lighting associated with transport corridors;
- Biodiversity;
- Key Plans and Programmes;
- Scoping Process Guidance;
- SEA WebGIS Search and Reporting Tool;

⁶ Environmental authorities for this SEA process comprise: Environmental Protection Agency, Department of Communications, Climate Action and Environment, Department of Agriculture, Food and the Marine, Department of Housing, Planning and Local Government and the Department of Culture, Heritage and the Gaeltacht.

- Scenario/Alternative Development and Assessment; and
- Environmental Authorities.

The submission from the Department of Culture, Heritage and the Gaeltacht provided information and suggestions on the topics of archaeology and archaeological assessments, which informed the preparation of the Strategy and SEA.

3.5 Environmental Report

In this SEA Environmental Report, an earlier of which is placed on public display alongside the Draft Strategy, the likely environmental effects of the Strategy 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 implementing the Strategy.

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

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 Strategy that was initially 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 (see Table 3.1).

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

3.6 SEA Statement

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

- How environmental considerations have been integrated into the Strategy, highlighting the changes to

the Strategy 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 Strategy in the light of other alternatives considered, identifying these alternatives, commenting on their potential effects and explaining why the final Strategy was selected; and
- The measures decided upon to monitor the significant environmental effects of implementing of the Strategy.

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 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 Strategy facilitates an advancement of these transport related actions.

4.3 Likely Evolution of the Environment in the Absence of the Strategy

The implementation of the Strategy 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 Strategy, 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 Strategy, 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 Strategy.
- 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 the Strategy, none of the adverse effects detailed above would result

due to the implementation of the Strategy. 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:

- 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/or 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.
- Potential for increase in coastal /river bank erosion.

In the absence of the Strategy, it is uncertain as to whether the investment proposed (including that relating to public transport, walking and cycling developments) would be made and it is uncertain as to which projects would be progressed or prioritised. Lower-tier plans and projects would be less coordinated. It is uncertain as to whether the following positive effects (that would be facilitated by implementation of the Strategy) would be achieved:

- 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).
- 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.
- Facilitates lower overall effects on ecology (including designated sites, ecological connectivity and 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.
- 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.
- 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.
- Contributions towards the protection of landscape designations as a result of facilitating compliance with relevant plans.

- 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.
- 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.

4.4 Air and Climatic Factors

4.4.1 Overview

The Strategy 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 or air quality and protection of human health.

4.4.2 Greenhouse Gas Emissions

The key issue involving the assessment of the effects of implementing the Strategy 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.

4.4.3 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 Strategy 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.

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 2020⁷.

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

4.4.4 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.

4.4.5 Journeys by car and mode share⁸

There is in the region of 820,000 trips originating within the Cork Metropolitan Area (CMA) on average each weekday (over 24 hours) with the morning peak and late afternoon being the busiest periods. The late afternoon trip intensity is due to the prominence of education trips as well as retail and leisure trip purposes.

⁷ 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

⁸ CMATS, *Chapter 3: Existing Transport Context*

Trips to places of education make up the highest percentage of trips in the morning peak - representing 36% of the total. Whilst the volume of commute trips is also significant at 29%, 'other trip' purposes make up a greater proportion of 35%. These trips comprise of shopping, leisure, business and visiting friends or family representing 50% of all trips over the course of the whole day.

There is a dispersed pattern for journeys to work generally within the Metropolitan area. The private car tends to be used for radial trips into/out of the City as well as for trips on orbital routes between employment centres, such as along the N40.

The current limitations of the public transport provision in the CMA are reflected in the low mode share for public transport of 5% across the whole day and all trip purposes.

Only 7% of journeys to work in Cork City are undertaken by public transport, whereas across the whole Metropolitan area, the equivalent figure is 3%.

By comparison, walking has a 20% mode share, while the dominant mode is car which is used for 74% of trips throughout the region. Cycling makes up the remainder of trips over the course of the day, with 1% of all trips made by bike.

Approximately 86% of trips to work in the Metropolitan area outside of the urban area are by car, with the car mode share reducing to 65% within the City boundary. This reflects the very high rate of car dependency in the non-urban areas of the CMA.

4.4.6 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 Strategy 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.

4.4.7 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 indicators⁹ 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

⁹ L_{den} (day-evening-night equivalent level) and L_{night} (night equivalent level)

have been prepared for each local authority area within the country. Cork City and County Councils have prepared a Noise Action Plan 2018 for the Cork Agglomeration, which includes Cork City and a surrounding area of County Cork.

The Noise Action Plan will act as a means of managing environmental noise, and to meet the aim of the Regulations of preventing, and reducing where necessary, environmental noise. One of the key inputs into the Noise Action Plan was the development of strategic noise maps. Noise maps identify and prioritise cluster areas which will require further assessment and may require mitigation measures to be put in place. Roads are the dominant noise source within the Cork Agglomeration. Analysis of the roads statistics for the agglomeration indicate that 1% of the population in the Cork Agglomeration area are being exposed to noise levels above the proposed onset level for assessment of noise mitigation measures of 70dB L_{den} , where L_{den} is the day-evening-night composite noise indicator adopted by the EU for the purposes of assessing overall annoyance.

Noise mapping, in the form of noise contours for the L_{den} , from the EPA's third round of strategic noise mapping is provided on Figure 4.3 for the following sources within the Cork agglomeration (as specified by the Environmental Noise Regulations 2018):

- Roads exceeding the flow threshold of 3 million passages per year for the Cork agglomeration;
- Rail exceeding the flow threshold of 30,000 vehicle passages per year; and
- Cork airport.

Noise mapping is also provided outside of the Cork agglomeration (as specified by the Environmental Noise Regulations 2018) for major roads.

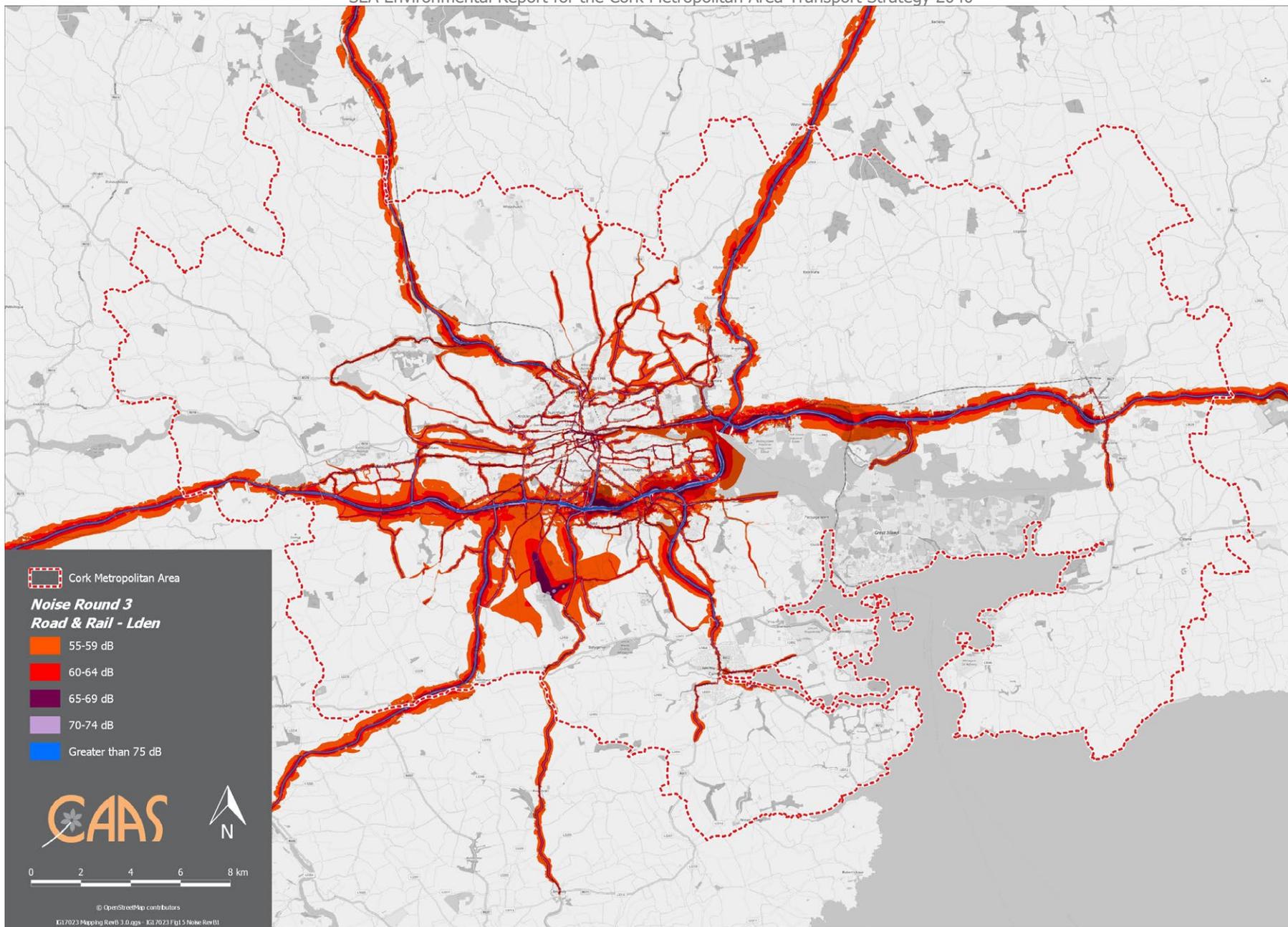


Figure 4.1 Noise Mapping Lden (day-evening-night composite noise indicator)

4.5 Population and Human Health

4.5.1 Population

The CMA covers 820 km², and has a population of just over 305,000, (as per Census 2016). This is made up of approximately 126,000 residents within the Cork City boundary, with the remaining located within the surrounding metropolitan area.

The CMA is envisaged to become the fastest growing city region in the State with an additional target population of between 105,000 and 125,000 directed to the Central Statistics Office (CSO) defined boundary of 'Cork City and Suburbs' (National Planning Framework, Department of Housing, Planning and Local Government, 2018).

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

Figure 4.2 shows population density per Electoral Division. 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 urban areas comprising of Cork City, its environs, and the surrounding settlements.

There is a higher residential population within the south of Cork City compared to the north. The distribution of the population within the south of the City extends further east-west than north-south (roughly 10km east-west from Mahon to Bishopstown and 5km north-south from the City Centre to the City boundary). The most populated area outside the City boundary is within the south environs including Douglas.

There are significant employment centres within the current City Council administrative area particularly in Mahon, the City Centre, Model Farm Road and southwest of the City at Cork University Hospital and Wilton. Outside the City, there are notable employment clusters at Cork Airport, along the N25 corridor and within Ringaskiddy, Ballincollig and Little Island.

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.

4.5.2 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.

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.

4.5.3 Seveso (COMAH) Sites

These are defined as industrial sites that, because of the presence of dangerous substances in sufficient quantities. Major industrial accidents involving dangerous substances pose a significant threat to humans and the environment; such accidents can give rise to serious injury to people or serious damage to the environment, both on and off the site of the accident.

The European Communities (Control of Major Accident Hazards Involving Dangerous Substances) Regulations 2006 and the European Union (Control of Major Accident Hazards Involving Dangerous Substances) (Amendment) Regulations 2013, which implemented the Seveso II Directive (96/82/EC), have been revoked by the

European Union (Control of Major Accident Hazards Involving Dangerous Substances) (Revocation) Regulations 2015 (S.I. No. 208 of 2015) and replaced by the Chemicals Act (Control of Major Accident Hazards Involving Dangerous Substances) Regulations 2015 (S.I. No. 209 of 2015).

The purpose of the COMAH Regulations is to lay down rules for the prevention of major accidents involving dangerous substances, and to seek to limit as far as possible the consequences for human health and the environment of such accidents, with the overall objective of providing a high level of protection in a consistent and effective manner. The intention is to achieve this through tiered controls on the operators of the establishments subject to the regulations - the larger the quantities of dangerous substances present at an establishment, the more onerous the duties on the operator (defined and listed as lower and upper tier sites).

There are currently¹⁰ 11 Lower Tier Seveso Establishments and 11 Upper Tier Seveso Establishments located within CMA.

Upper Tier Seveso Establishments:

- BASF Ireland Ltd. (Little Island, Co. Cork)
- Calor Teoranta (Tivoli, Co. Cork)
- Calor Teoranta (Whitegate, Co. Cork)
- Flogas Ireland Ltd. (Tivoli Industrial Estate, Cork)
- Grassland Agro (Carrigrohane Road, Cork)
- Irish Distillers Ltd. (Midleton Distilleries, Park North, Midleton, Co. Cork)
- Irving Oil Whitegate Refinery Ltd. (Whitegate, Co. Cork)
- Marinochem Irl Ltd. (Marino Point, Cobh, Co. Cork)
- Novartis Ringaskiddy Ltd. (Ringaskiddy, Co. Cork)
- Pfizer Ireland Pharmaceuticals (Ringaskiddy API Plant, Ringaskiddy, Co. Cork)
- SmithKline Beecham (Cork) Ltd. t/a GlaxoSmithKline (Currabinny, Carrigaline, Co. Cork)

Lower Tier Seveso Establishments:

- BOC Gases Ireland Ltd. (Little Island Co. Cork)
- Carbon Chemicals Group Ltd. (Raheens, Ringaskiddy, Co. Cork)
- Chemical Bulk Storage Ltd (Unit 19, Tivoli Industrial Estate, Cork)
- Electricity Supply Board (Aghada Power Station, Whitegate, Co. Cork)
- Goulding Chemicals Ltd. (Centre Park Road, Cork)
- Hovione Limited (Loughbeg, Ringaskiddy, Co. Cork)
- Irish Oxygen Co. Ltd. (Waterfall Road, Cork)
- Janssen Pharmaceutical Services UC (Little Island, Cork)
- Merck Millipore Ltd. (Tullagreen, Carrigwohill, Co. Cork)
- Pfizer Little Island Little Island Active (Pharmaceutical Plant, Little Island Co. Cork)
- Tervas Ltd. (Knockburden, Ovens, Co. Cork)

4.5.4 Soil

In the absence of mitigation, contaminated materials have the potential to adversely impact upon human health, water quality and habitats and species.

As is the case with other historically developed areas across the country, there is potential for contamination at local sites within the CMA, especially where land uses occurred in the past in the absence of the high standards of today's environmental protection legislation. Contaminating substances could include those arising from unmanaged fuelling or de-icing activities.

Soil in some areas of the City, such as the Docklands has been polluted and contaminated.¹¹ As other sites within the wider Cork City area have in the past been host to land uses similar to the heavy industry and fuel generation/ storage depots uses of the South Docklands, additional contaminated sites may exist. The contaminants in such soils may pose risks to human health arising from contact with the soils or contact with water into which the contaminants have been released.

¹⁰ HSA; Notified Seveso Establishments (February 2019) (http://www.hsa.ie/eng/Your_Industry/Chemicals/Legislation/Enforcement/COMAH/List_of_Establishments/)

¹¹ South Docklands Contamination Study, 2007

4.5.5 Existing Problems

There is historic and predictive evidence of flooding within the area (see Section 4.9.3).

Cork City is very vulnerable to adverse effects from small changes in sea level combined with changes in the occurrence of severe rainfall events and associated flooding of the River Lee and a number of smaller urban streams such as the River Bride. Flooding in certain circumstances could pose a risk to human health.

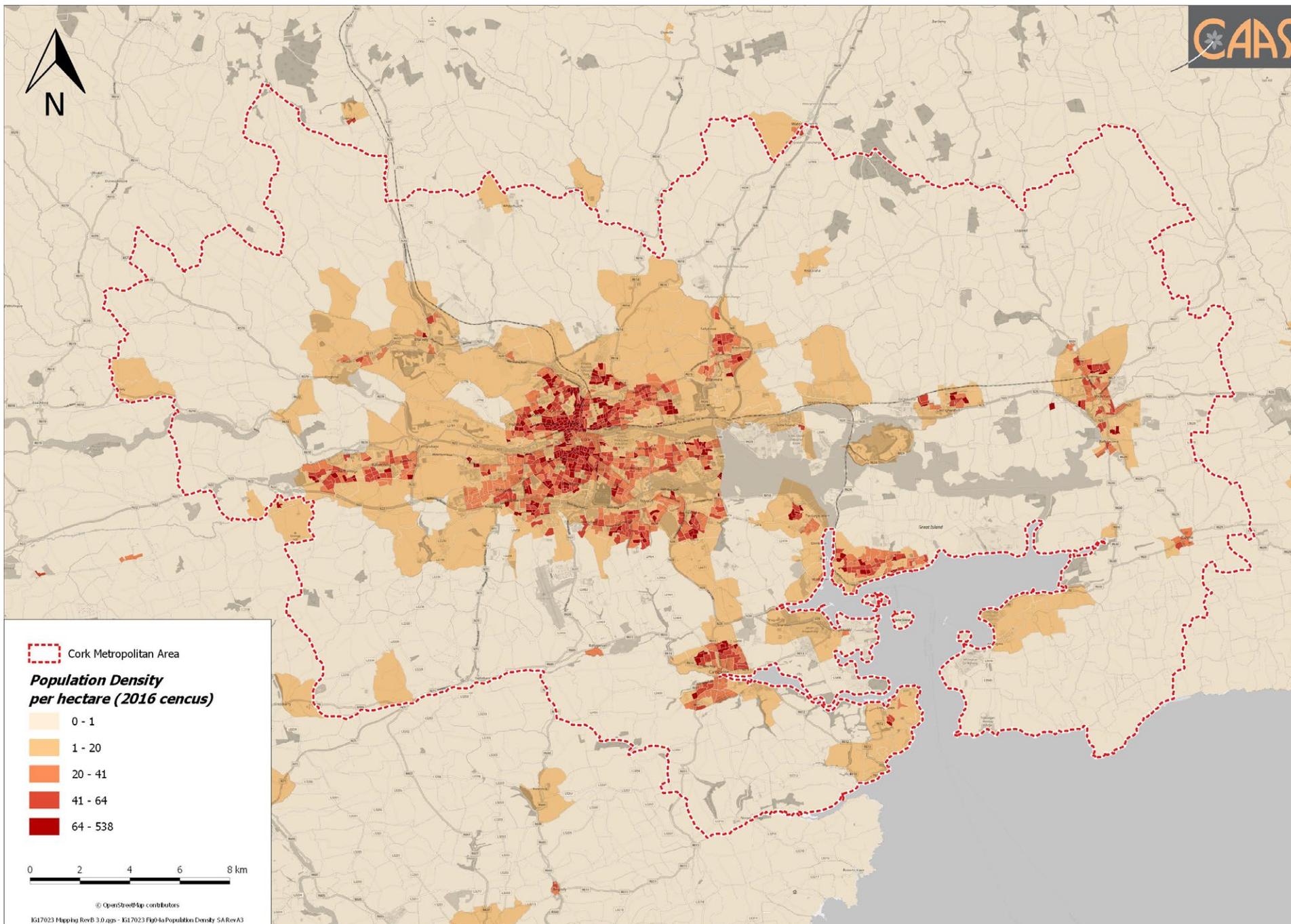


Figure 4.2 Population Density

4.6 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.

There are a number of designated sites located within or adjacent to the CMA. Areas containing the greatest extent of sensitive ecological features include coastal habitats (comprising salt marshes, intertidal mudflats, reedbeds, islands and sand dunes), located within the wider Cork Harbour Area. In addition to coastal waters there are a number of rivers and lakes draining the area which provide habitats for sensitive species (such as bird populations).

Ecological designations include:

- Special Areas of Conservation¹² (SACs) and Special Protection Areas¹³ (SPAs);
- Ramsar Sites¹⁴;

¹² 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.

¹³ 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 - by the DECLG due to their conservation value for birds of importance in the European Union.

¹⁴ 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

- Salmonid Waters¹⁵;
- Shellfish Waters¹⁶;
- Freshwater Pearl Mussel catchments¹⁷;
- Flora Protection Order¹⁸ sites;
- Wildlife Sites (including Nature Reserves¹⁹);
- Certain entries to the Water Framework Directive Register of Protected Areas²⁰;
- Natural Heritage Areas (NHAs) and proposed Natural Heritage Areas (pNHAs)²¹;

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 and 2000 or the Birds or Habitats Directives.

¹⁵ 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*).

¹⁶ 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.

¹⁷ 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.

¹⁸ The current list of plant species protected by Section 21 of the Wildlife Act, 1976 is set out in the Flora (Protection) Order, 1999.

¹⁹ 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.

²⁰ 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.

²¹ 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.

- Wildfowl Sanctuaries (see S.I. 192 of 1979)²²; and
- Tree Preservation Orders (TPOs)²³.

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, 1976-2000, 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)²⁴;
- Watercourses, wetlands and peatlands;

²² 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.

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

²⁴ 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.

- Other relevant County Development Plan designations;
- The EPA's Framework National Ecological Network for Ireland²⁵; and
- Other sites of high biodiversity value or ecological importance as identified by, for example, the Department of Agriculture, Food and the Marine (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.

Man-made habitats within the CMA area can also include important biodiversity features. Gardens provide habitats for a range of wildlife including various bird species, invertebrates such as bees and butterflies and mammals such as hedgehogs, mice, rats and foxes. These species move around between gardens using hedgerows and vegetated areas. These urban green spaces are of importance as they form part of a network of green spaces across the CMA area including gardens, parks, graveyards, amenity walks, old railway lines and patches of woodland and scrub within which animals and plants continue to thrive.

²⁵ 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.

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

4.6.1 Further Detail

4.6.1.1 European Sites

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

Figure 4.3 maps European Sites within 15km of the Cork Metropolitan Area (CMA) (also listed on Table 4.1 below). The greatest extent of area designated within the CMA comprises the Cork Harbour. Lands at the coastal margins and coastal waters are also designated. Other European Sites designations include river systems (such as River Lee and River Douglas and Blackwater) and lakes (such as Lough Mahon and Lough Beg).

Great Island Channel SAC and Cork Harbour SPA are adjacent to the CMA boundary.

The Great Island Channel SAC is located to the east of Cork City. The site stretches from Little Island to Midleton, with its southern boundary being formed by Great Island. The Owenacurra and Dungourney Rivers, which flow through Midleton, provide the main source of freshwater to the Channel. The water from the channel flows into Cork Harbour to meet with the water flowing from the River Lee and Douglas River.

The Cork Harbour SPA designation covers sites at several river estuaries, principally those of the Rivers Lee, Douglas and Owenacurra. The SPA site comprises most of the main intertidal areas of the Harbour, including all of the North Channel, the Douglas Estuary, the inner Lough Mahon, Lough Beg, Whitegate Bay and the Rostellan Inlet. The designation covers a small amount of land within the Cork City area to the east of Blackrock and is adjacent to much of the City's south eastern boundary where it covers Lough Mahon and the Douglas River estuary outside of the Cork City area.

Table 4.1 European Sites

Site Code	Site Name	Distance
Special Area of Conservation (SAC)		
000077	Ballymacoda (Clonpriest and Pillmore) SAC	9.8 km
000108	The Gearagh SAC	14.7 km
001058	Great Island Channel SAC	0 km
001230	Courtmacsherry Estuary SAC	14.6 km
002170	Blackwater River (Cork/Waterford) SAC	2.5 km
Special Protection Area (SPA)		
004022	Ballycotton Bay SPA	3.74 km
004023	Ballymacoda Bay SPA	11 km
004028	Blackwater Estuary SPA	14.4 km
004030	Cork Harbour SPA	0 km
004094	Blackwater Callows SPA	14.3 km
004124	Sovereign Islands SPA	9.3 km

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

Natural Heritage Areas (NHAs) and Proposed Natural Heritage Areas (pNHA) 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.

Areas likely to contain Annex I Habitats comprise selected 2012 CORINE landcover 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.

Figure 4.4 shows NHAs, pNHAs and areas likely to contain habitats listed on Annex I of the Habitats Directive located within or adjacent to CMA boundary. There are no NHAs adjacent to CMA, however 2 NHAs are located within 15 km buffer, namely: Sovereign Islands NHA and Boggeragh Mountains NHA.

There are 52 pNHAs in total located in the CMA, including 27 sites that are adjacent to the CMA boundary. Natural Heritage Areas and Proposed Natural Heritage areas are also listed on Table 4.2 below.

Table 4.2 NHAs and pNHAs

Code	Site Name	Distance
Natural Heritage Area		
000105	Sovereign Islands NHA	9.3 km
002447	Boggeragh Mountains NHA	8.7 km
Proposed Natural Heritage Area		
000072	Blackwater River And Estuary	14.3 km
000073	Blackwater River Callows	14.3 km
000076	Ballycotton, Ballynamona and Shanagarry	2.3 km
000077	Ballymacoda (Clonpriest and Pillmore)	9.8 km
000078	Ballyvergan Marsh	12 km
000079	Bride/Bunaglanna Valley	3.9 km
000083	Capel Island And Knockadoon Head	13.2 km
000094	Lee Valley	0 km
000099	Ballynaclashy House, North of Midleton	0 km
000103	Shournagh Valley	0 km
000107	Templebreedy National School, Crosshaven	0 km
000108	The Gearagh	14.7 km
000371	Fountainstown Swamp	0 km
000446	Loughs Aderry and Ballybutler	0 km
000670	Tallow (Disused Church)	13.4 km
001034	Bandon Valley West Of Bandon	10.9 km
001039	Blarney Castle Woods	0 km
001042	Carrigshane Hill	0 km
001046	Douglas River Estuary	0 km
001054	Glanmire Wood	0 km
001055	Glashgarriff River	5.5 km
001058	Great Island Channel	0 km
001060	James Fort	9.7 km
001064	Leamlara Wood	0 km
001066	Lough Beg (Cork)	0 km
001067	Lough Gal	7.4 km
001074	Rockfarm Quarry, Little Island	0 km
001076	Rostellan Lough, Aghada Shore and Poul nabibe Inlet	0 km
001081	Cork Lough	0 km
001082	Dunkettle Shore	0 km
001084	Whitegate Bay	0 km
001183	Clasharinka Pond	3.4 km
001230	Courtmacsherry Estuary	14.6 km
001235	Ballyquirk Pond	12.3 km
001249	Ballincollig Cave	0 km
001408	Carrigacrump Caves	0 km
001515	Bandon Valley Below Inishannon	5.2 km
001740	Bandon Valley Above Inishannon	4.5 km
001794	Blackwater Valley (Kilcummer)	14.7 km
001795	Blackwater Valley (Killathy Wood)	14 km
001796	Blackwater Valley (Cregg)	13.9 km
001797	Blackwater Valley (The Beech Wood)	13.8 km
001798	Blarney Lake	0 km
001799	Ardamadane Wood	0 km
001857	Blarney Bog	0 km
001966	Minane Bridge Marsh	0 km
001978	Ballycotton Islands	6.2 km
001979	Monkstown Creek	0 km
001987	Cuskinny Marsh	0 km
001990	Owenboy River	0 km
002050	Cregg Castle	14.3 km
002097	Convamore, Ballyhooly (near Fermoy)	14.6 km

4.6.1.3 Other designations, including Ramsar Sites

Ramsar sites are designated and protected under the Convention of Wetlands of International Importance, especially as Water Fowl Habitat, ratified by Ireland in 1984. Ireland has 45 sites designated as Wetlands of International Importance, with surface areas of 66,994 hectares. Cork Harbour (Site No. 837) provides 1,436 hectares of Wetlands of International Importance. The harbour consists of several limestone basins separated from the sea and from each other by sandstone ridges. Vegetation is dominated by rushes and includes algae, wet woodland, and wet grassland. The site supports various breeding waterbirds, internationally important numbers of wintering and spring staging waterbirds, and provides important feeding areas for waders. Human activities include industrial and urban development, recreation and shooting. Cork Harbour is of major ornithological significance and an internationally important wetland site, regularly supporting in excess of 20,000 wintering waterfowl. Of particular note is that the site supports an internationally important population of Redshank as well as a nationally important breeding colony of Common Tern. A further fifteen species have populations of national importance, as follows: Great Crested Grebe, Cormorant, Shelduck, Wigeon, Gadwall, Teal, Pintail, Shoveler, Red-breasted Merganser, Oystercatcher, Lapwing, Dunlin, Black-tailed Godwit, Curlew and Greenshank. Several of the species which occur regularly are listed on Annex I of the EU Birds Directive, including Whooper Swan, Golden Plover, Bar-tailed Godwit, Ruff and Common Tern. The site provides both feeding and roosting sites for the various bird species that use it. The sheltered and muddy conditions of the intertidal flats support a range of macroinvertebrates and plants, providing feeding grounds for the wildfowl, and the salt marshes are used by the birds as high tide roosting sites.

4.6.2 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 Strategy includes robust measures to contribute towards the protection of biodiversity and flora and fauna.

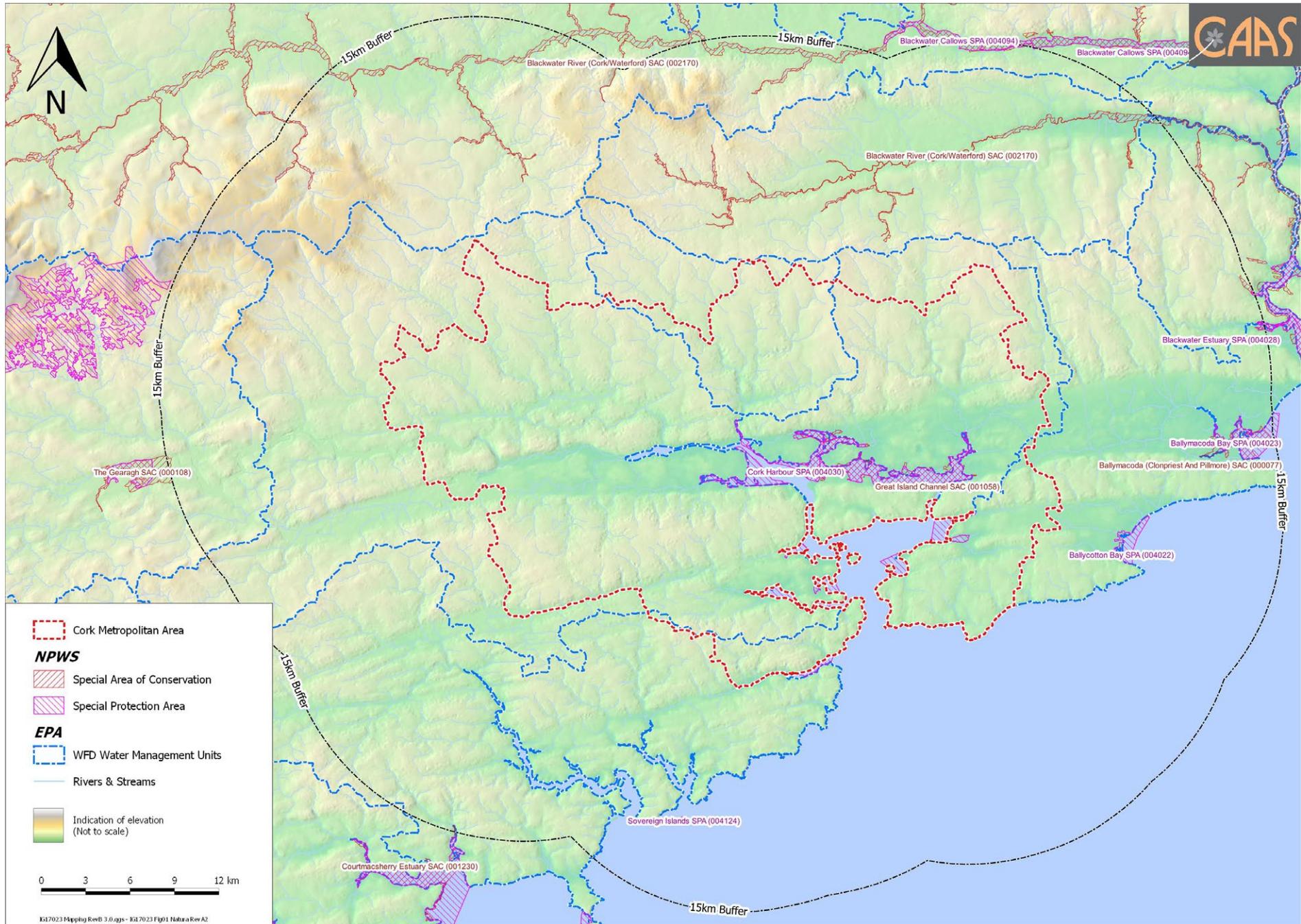


Figure 4.3 European Sites

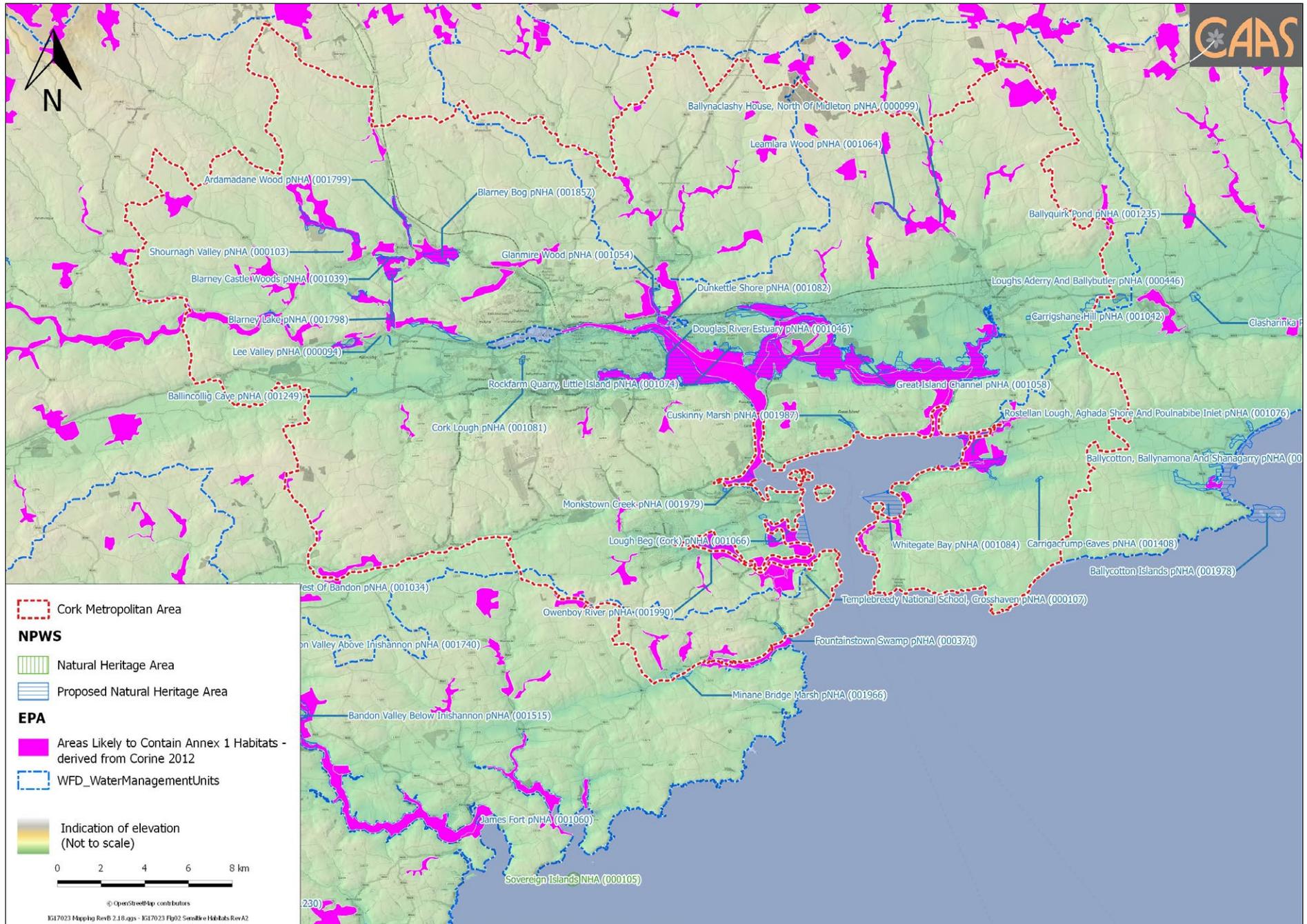


Figure 4.4 Potential Habitat Sensitivity

4.7 Material Assets

4.7.1 Introduction

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

- Public 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 4.4 and 4.9).

4.7.2 Public Assets and Infrastructure

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

4.7.3 Land

The development of transport infrastructure and services has the potential to assist with 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.

4.7.4 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.

4.7.5 Existing Problems

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

4.8 Soil

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.

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).

4.8.1 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.

4.8.2 Existing Problems

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

4.9 Water

Human activities, if not properly managed, can cause deterioration in water quality. Pressures exerted by human activities include the following:

- Sewage and other effluents discharged to waters from point sources, e.g. pipes from treatment plants;
- Discharges arising from diffuse or dispersed activities on land;
- Abstractions from waters; and
- Structural alterations to water bodies.

A point source pressure has a recognisable and specific location at which pollution may originate. Examples of significant point source pressures include direct discharges from waste water treatment plants, licensed discharges from industrial activities, landfills, contaminated lands (e.g. disused gas works) and mines.

A diffuse source pressure unlike a point source is not restricted to an individual point or location. The source of a diffuse pressure can be quite extensive. Significant examples of diffuse pressures include runoff from forestry and agricultural lands.

Excessive abstractions from surface waters and groundwater for drinking and industrial purposes can create pressures on the ability of a water body to maintain both chemical and ecological status.

Structural alterations such as river straightening; construction of embankments, weirs, dams, port facilities and dredging can create conditions such that a water body is no longer able to support the natural ecology which would have existed prior to such modifications. These pressures are also referred to as morphological pressures.

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 has been 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 Surface and ground waters

WFD Monitoring Programmes are undertaken in Ireland by the Environmental Protection 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 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 2013-2015²⁶.

Waterbodies, including rivers, lakes, coastal and transitional waters, within the CMA as shown on Figure 4.5 and Table 4.3 are generally of *high*, *good* and *moderate* status, with some areas of *poor* status.

Transitional waters are bodies of surface water in the vicinity of river mouths which are partly saline in character as a result of their proximity to coastal waters but which are substantially influenced by freshwater flows.

The River Lee flows through Cork City from west to east and into Cork Harbour and enters the Atlantic Sea south of Roches Point, and is transitional up to Sunday's Well in the west of the City. A number of small urban streams also flow into the River Lee. River Lee (Cork), which is used as a source of drinking water for the Cork City and northern suburbs, is of *moderate* status. Inniscarra (Reservoir), which serves as a water supply for the eastern, western, and southern suburbs is of *moderate* status.

Table 4.3 Waterbody WFD Status

Waterbody WFD Status 2010-2015	
River	
Lee (Cork)	Moderate
Bride (Lee)	High (_050_030) ²⁷ Moderate (_020) Poor (_040)
Owenboy	Good (_010) Unassigned (_030) Poor (_020_040)
Shournagh	High (_020_030_040) Good (_010)
Martin	Moderate (_040) Good (_020) Poor (_010)
Blarney	Good (_010)
Glashaboy (Lough Mahon)	High (_030) Good (_020)
Butlerstown	Good (_030) High (_020) Moderate (_010)
Owennacurra	High (_020) Good (_030) Moderate (_040)
Brinny	Good (_010) High (_020)
Dungourney	Poor
Dripsey	High (_020) Poor (_010)
Curragheen	Unassigned ²⁸
Glennamought Trib Bride	Unassigned
Moneygurney	Unassigned
Tramore	Unassigned
Douglas	Unassigned
Glasheen	Unassigned
Lake	
Inniscarra	Moderate
Coastal	
Cork Harbour	Good
Outer Cork Harbour	Good
Transitional	
Lough Mahon	Moderate
Lee (Cork) Estuary Lower	Moderate
North Channel Great Island	Good
Owennacurra Estuary	Moderate

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 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

²⁶ 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).

²⁷ The number at the end of each river water body name indicates where the water body is located along the main river channel (for example: the water body at the source is marked as _010; the next water body downstream is marked _020; transitional, coastal and lake water bodies do not have a number at the end of the water body name).

²⁸ There is a data gap relating to WFD surface water status data. Ecological status is not assigned and the term "*unassigned status*" applies in respect of these waterbodies.

quantitative status. Nationally, for groundwater, 91% of water bodies are at *good* status.

Groundwater status, as shown on Figure 4.6, within the CMA is generally identified as being of *good* status however there are two areas which are identified as being of poor status:

- Area underlying Waste Facility (W0012-03), near Tramore Valley Park; and
- Area underlying Industrial Facility (P00028 – 01), near Cobh Golf Club.

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 holes²⁹.

Groundwater vulnerability varies across the CMA (Figure 4.7). The Cork City and surrounding suburban areas are generally underlain by "High" and "Extreme" groundwater vulnerability with southern part of the City and areas along the River Lee having "Moderate" groundwater vulnerability. Other areas within the CMA are generally identified as having either "High", "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.

The aquifer underlying the River Lee is classified as "regionally important aquifer (karstified bedrock)" with "regionally" and "locally important gravel aquifer" overlying in places. "Locally important aquifer (karstified bedrock)" can also be found to the south-east and north-west of the CMA. The groundwater productivity is shown on Figure 4.8.

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 two Source Protection Areas located within the CMA (as mapped on Figure 4.8). 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 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 within the CMA include:

- Groundwater for drinking water underlying the whole CMA;

²⁹ Source: Geological Survey of Ireland (2014) Metadata

- River Lee as Salmonid River Regulations (SI 293 only), Groundwater and Surface Waters in Salmonid Regulations;
- Transitional waters of River Lee (Cork) Estuary Lower and Lough Mahon are designated for Nutrient Sensitive Areas – Lakes and Estuaries;
- Lakes and Rivers for Drinking Water (Inniscarra Reservoir and River Lee);
- Cork Harbour coastal waters are designated for Surface Waters in Bathing Locations;
- The water bodies within and surrounding the CMA are supporting Special Areas of Conservation (SACs) and Special Protection Areas (SPAs); and
- North Channel Great Island (transitional waters) and Cork Harbour are designated for Shellfish Areas, Surface Water in Shellfish Areas and Groundwater in Shellfish Areas.

The River Lee is designated as a Salmonid River Regs (S.I 293 only) from its source to Cork City Waterworks. This imposes an obligation to maintain specific water quality standards and to control pollution. Species of fish found along its length include Brook, Sea Lamprey and Salmon.

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 most recent available data from the EPA shows that bathing waters within the CMA (bathing location at Fountainstown) are of “excellent water quality”.

4.9.2.6 Potential Water Sensitivity Map

A potential water sensitivity map (see Figure 4.10) 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 CMA.

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 Strategy - will need to be adhered to at lower tiers of decision making in order to ensure that the implementation of the Strategy 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 4.10) 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 4.4.

Table 4.4 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
WFD RPA Entries for Drinking Water (surface and ground), Bathing Waters, Shellfish Waters, Salmonid Rivers and Nutrient Sensitive Areas	10

On Figure 4.10, 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.

Rivers throughout the region show up as being sensitive. Sensitivity is also attached to coastal and upland areas.

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. These mapping sources identify flood risk from various sources, including fluvial, pluvial, coastal and groundwater.

The Flood Risk and Hazard mapping has informed the preparation of Flood Risk Management Plans.

4.9.4 Existing Problems

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

There is historic and predictive evidence of flooding in locations within the CMA.

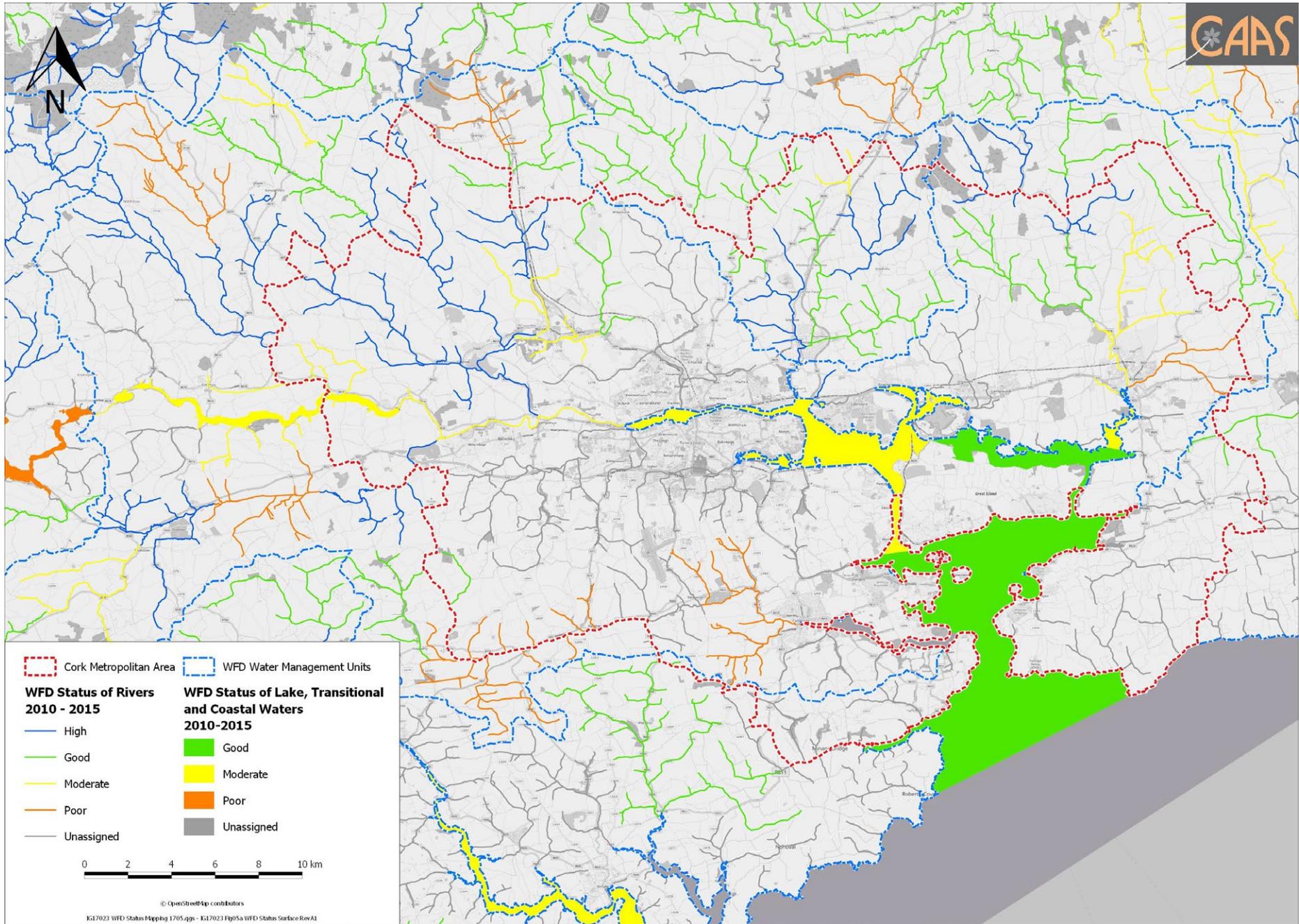


Figure 4.5 WFD Surface Water Status

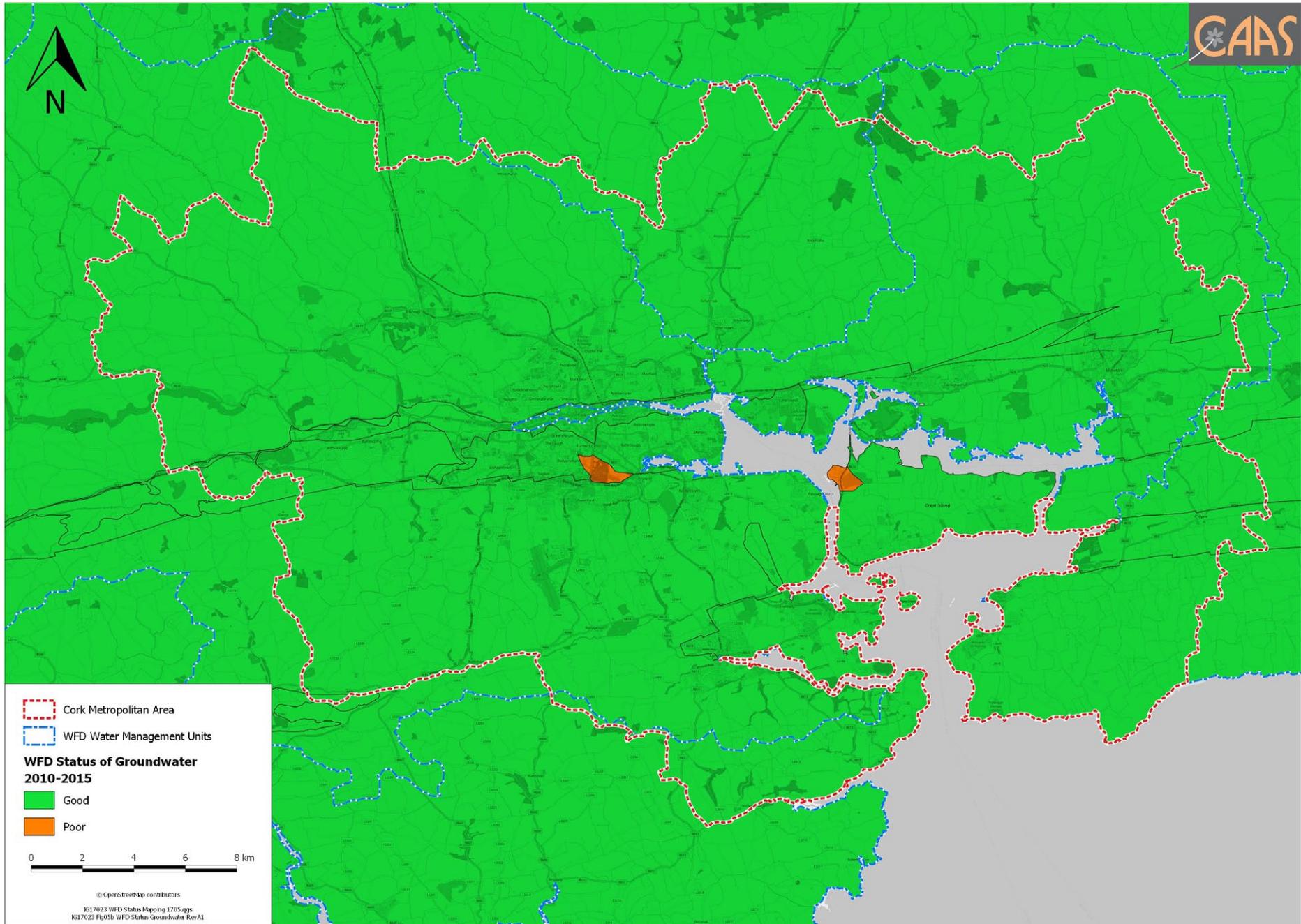


Figure 4.6 WFD Groundwater Status

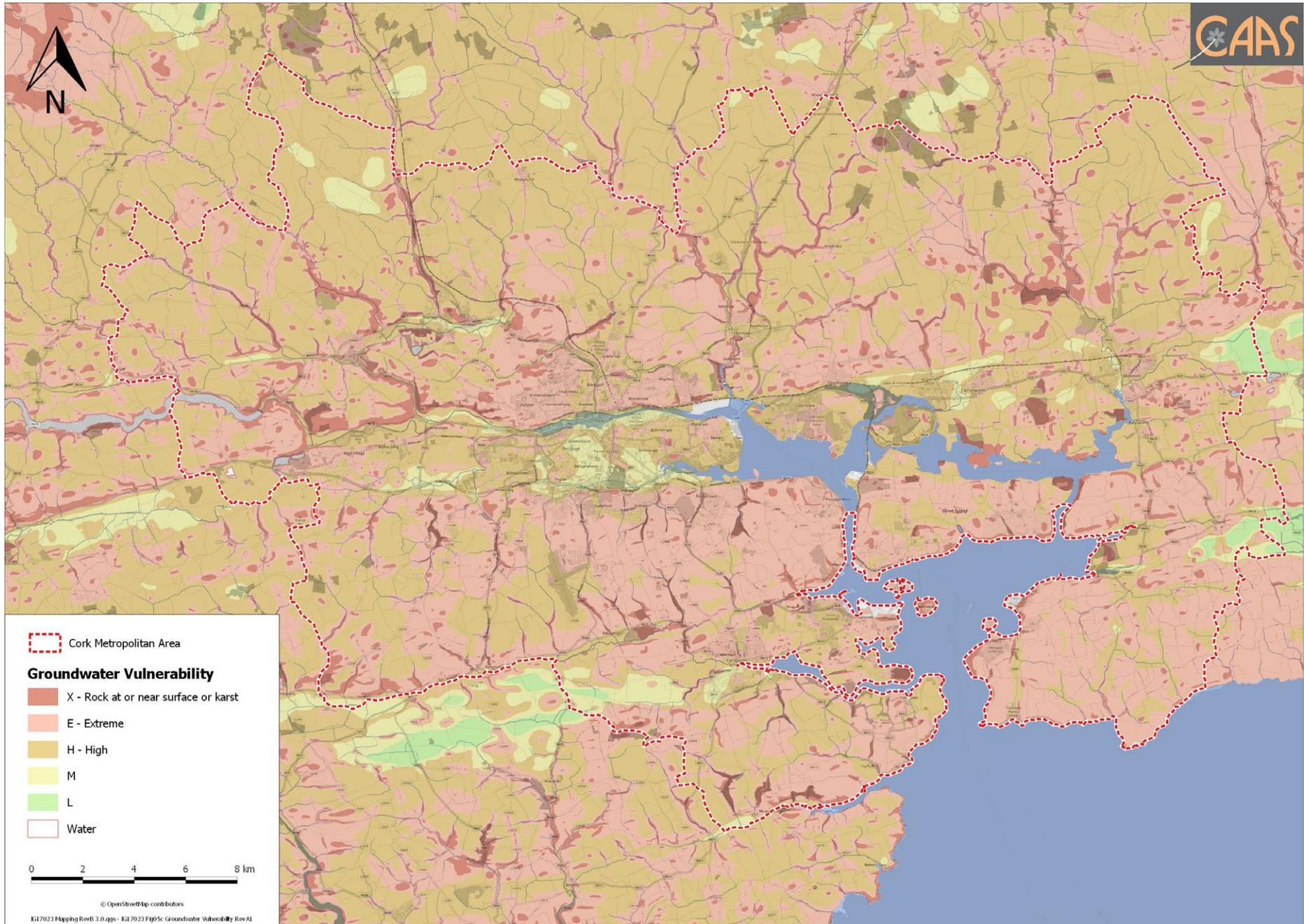


Figure 4.7 Groundwater Vulnerability

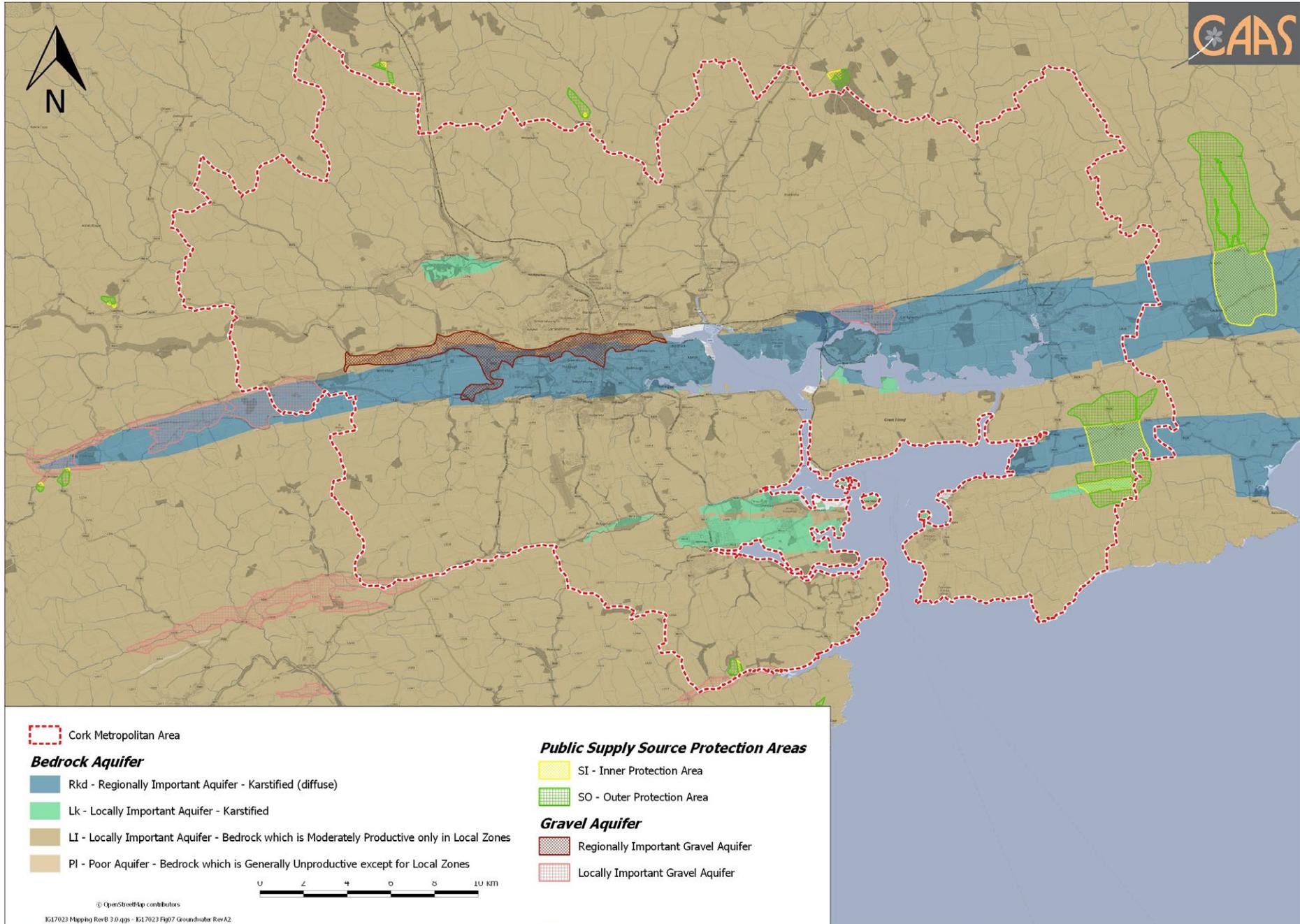


Figure 4.8 Groundwater Productivity

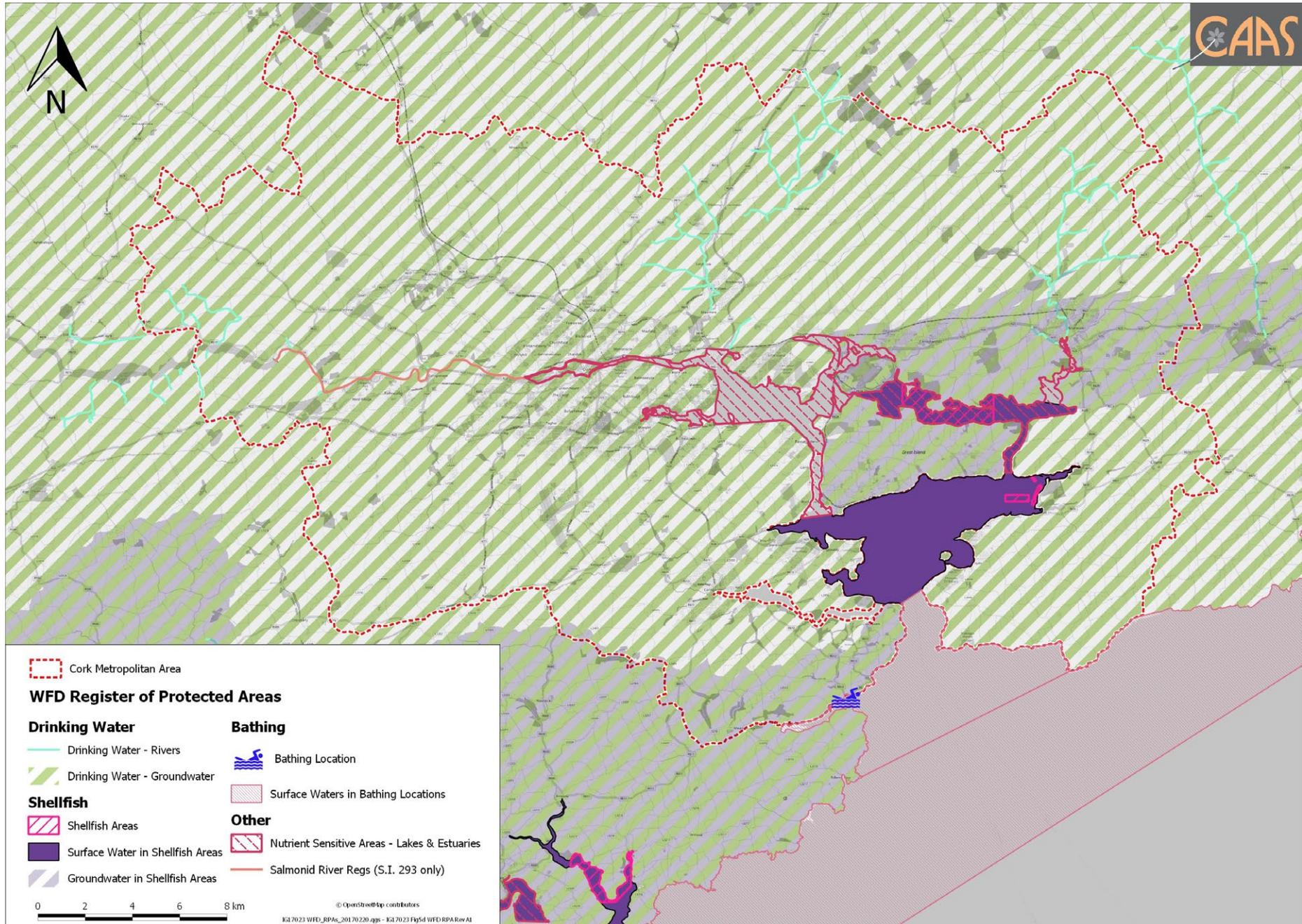


Figure 4.9 WFD Register of Protected Areas

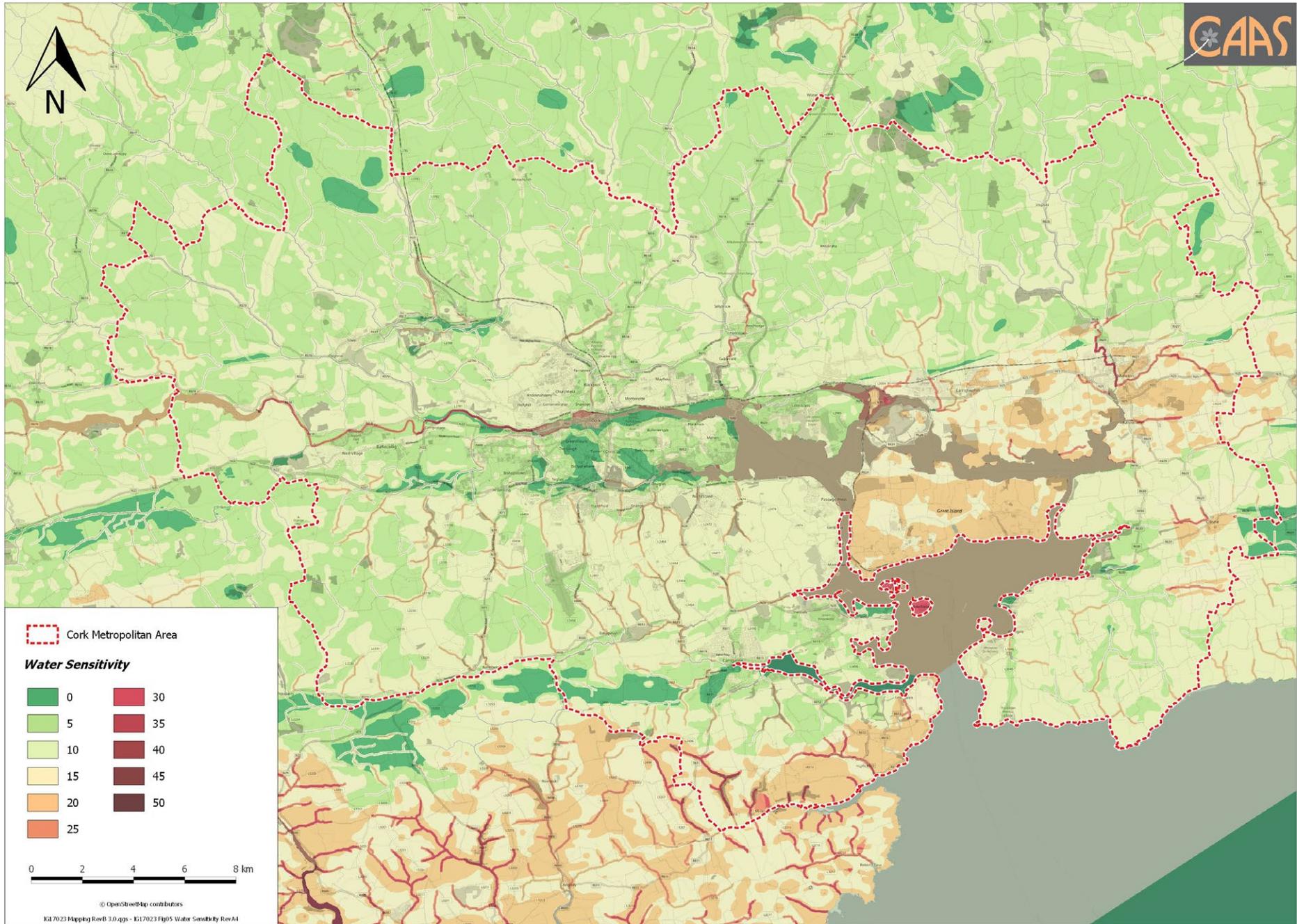


Figure 4.10 Overlay of Potential Water Sensitivity

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; landcover, which includes vegetation, water, human settlements, and; human values which are a result of historical, cultural, religious and other understandings and interactions with landform and landcover.

The area subject to the Strategy encompasses Cork Harbour and the Port of Cork. The River Lee runs directly from the harbour through the centre of the Metropolitan Area, splitting into two channels which form the centre island of Cork City. The area is characterised by hilly, steep terrain to the north and south of the City.

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.

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.

4.10.3 Landcover

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. The CORINE Land Cover map is based on interpretation of satellite images.

Three categories of potential landcover sensitivity have been identified on Figure 4.11 by combining the following landcover layers:

Category 1 Robust Landcover

- 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 Landcover

- 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 Landcover

- 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

Potential landcover sensitivity mapping is shown on Figure 4.11. Normal landcover is the predominant landcover type and is generally found throughout much of the CMA. Robust landcover is found within and surrounding the Cork City and suburban areas. Sensitive landcover are most common along the River Lee (Cork), Inniscarra Reservoir, North Channel Great Island (transitional waters), Cork Harbour and in smaller pockets around waterbodies and parklands throughout the CMA.

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.

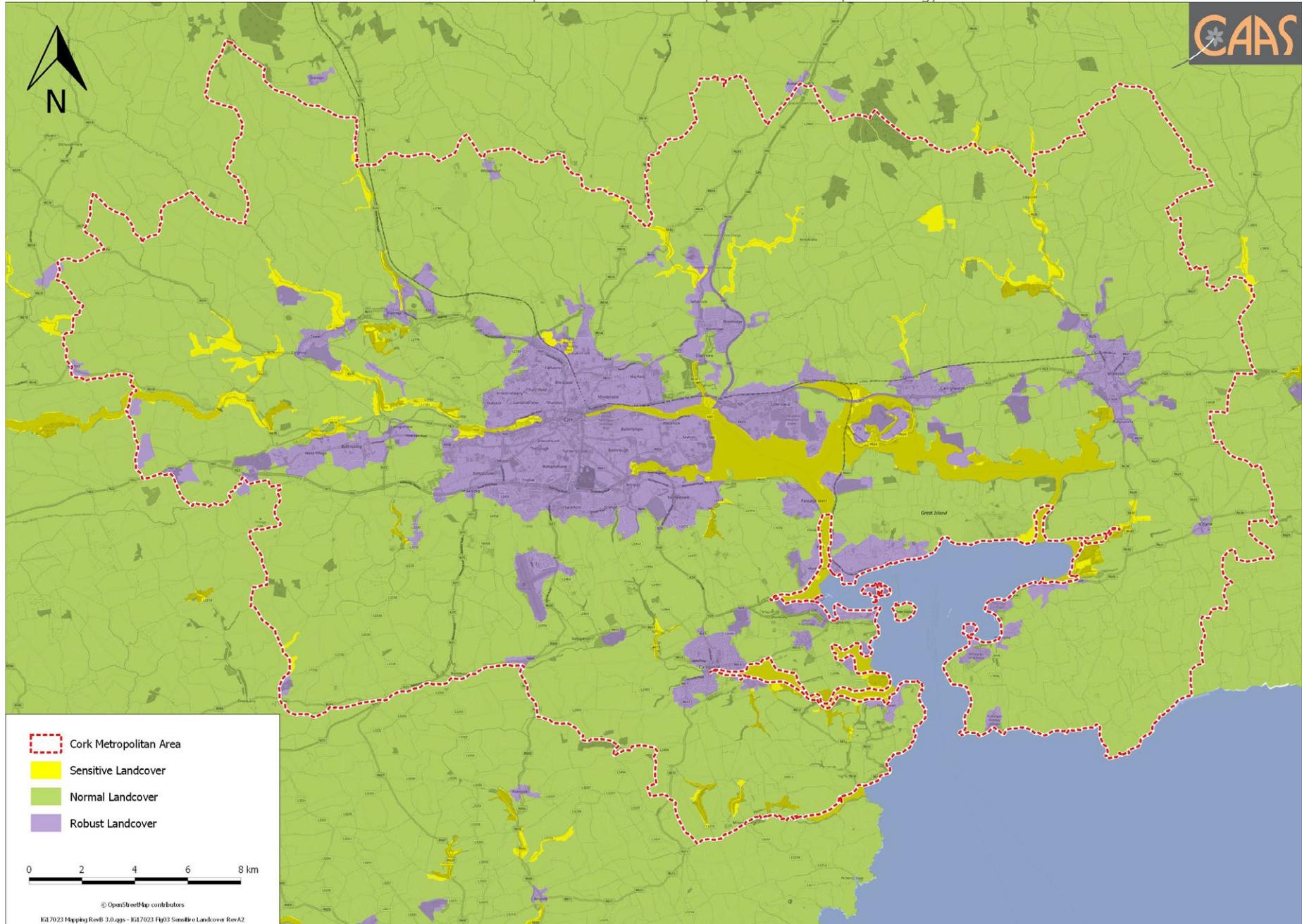


Figure 4.11 Potential Landcover Sensitivity Mapping

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.

Entries to the Record of Monuments and Places are shown on Figure 4.12. Monuments are concentrated within urban/suburban areas and are less common in areas which are not settled.

Cork was built on estuarine islands in the marshy valley of the River Lee at a point where it formed a number of waterways. It is possible that archaeological riverine-related features may survive in these areas and they may take the form of walk-ways, fish-traps, timber jetties or simple mooring posts. Under the National Monuments (Amendment) Act 1930-2004 all shipwrecks over one hundred years, underwater archaeological structures, features and objects are protected.

4.11.2 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.

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 curtilage³⁰ 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).

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 identified in the relevant planning authority Development Plan and at myplan.ie.

Entries from the Records of Protected Structures are shown on Figure 4.12. 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.

³⁰ 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.

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.

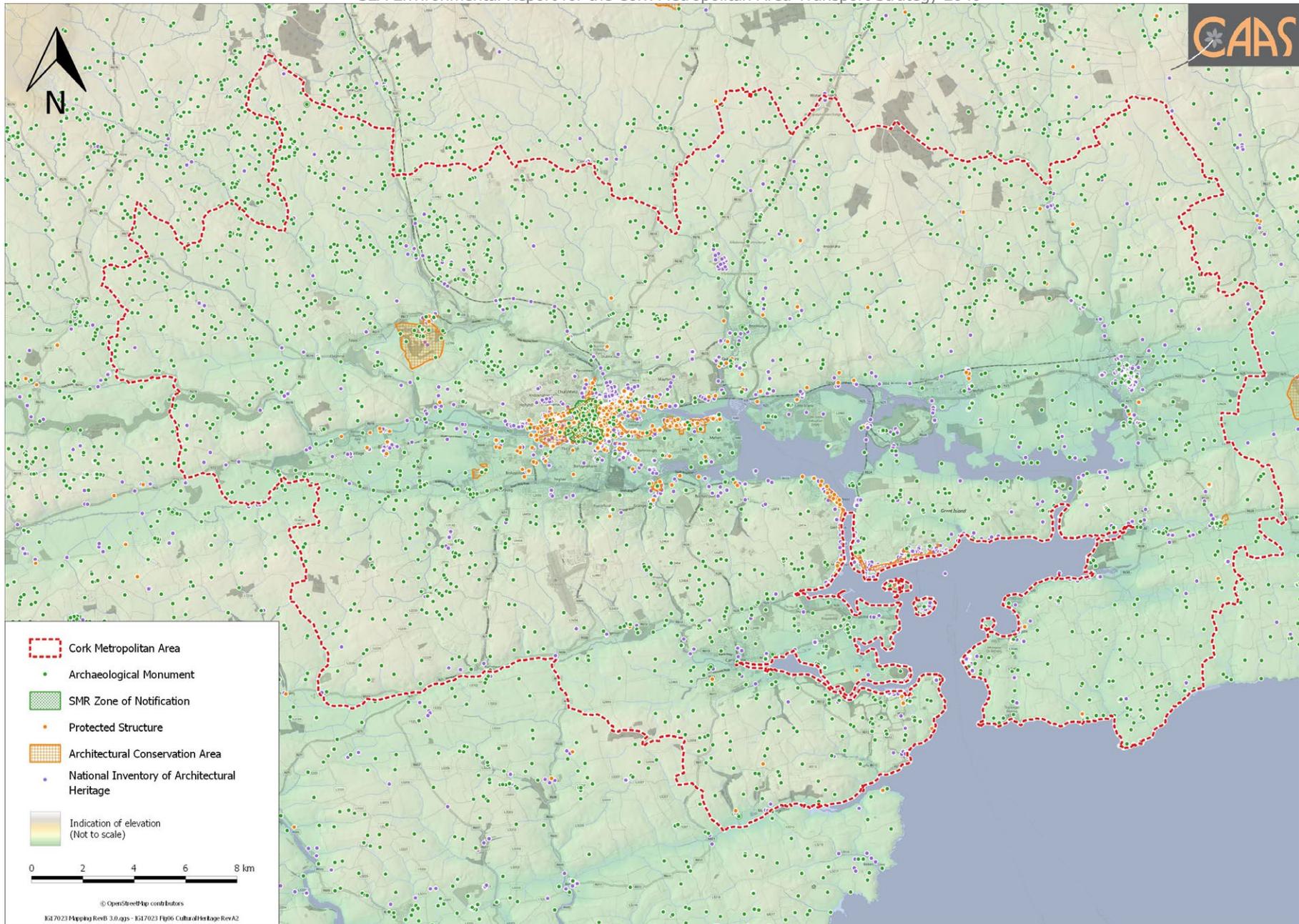


Figure 4.12 Potential Cultural Heritage Sensitivity

4.12 Overall Environmental Sensitivities and Opportunities/Robustness

4.12.1 Overview

Some of the environmental information detailed under previous subsections has been weighted and mapped to show overall (potential) environmental sensitivity (see Figure 4.13) and overall environmental robustness (potential opportunities) (see Figure 4.14) with regard to the development of transport projects. The purpose of the map 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 Strategy - will need to be adhered to at lower tiers of decision making in order to ensure that the implementation of the Strategy contributes towards environmental protection.

Where the robustness mapping shows a concentration of environmental robustness 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 robustness.

The maps have been prepared by weighting layers relating to environmental sensitivity and

robustness and overlaying them using GIS software. The layers and associated weightings are detailed on Table 4.5 and Table 4.6 below.

4.12.2 Environmental Sensitivities

For the environmental sensitivity mapping shown on Figure 4.13 weightings were applied as per Table 4.5. On Figure 4.13, 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 river valleys (e.g. the River Lee within the CMA) and at lakes (e.g. Inniscarra Reservoir to the west of the CMA). Lands at the coastal margins and coastal waters are also sensitive, especially within and to the north of Cork Harbour. Lower levels of sensitivity occur elsewhere.

Table 4.5 Environmental Sensitivity Layers and Weighting

Layer	Weight
Any areas covered by SACs or SPAs (see Figure 4.3)	10
Any areas covered by NHAs (see Figure 4.4)	10
Any areas covered by pNHAs or potential Annex I landcovers (see Figure 4.4)	5
Sensitive Landcovers (see Figure 4.11)	10
Recorded Monuments and Protected Structures and associated 250m buffers (see Figure 4.12)	10
Highest Water Sensitivity (highest scores on Figure 4.10 from 35 to 50 inclusive)	15
Moderate Water Sensitivity (middle scores on Figure 4.10 from 20 to 30 inclusive)	10
Lowest Water Sensitivity lowest scores on Figure 4.10 from 5 to 15 inclusive)	5

4.12.3 Environmental Opportunities/Robustness

For the environmental robustness mapping shown on Figure 4.14, weightings were applied as per Table 4.6. On Figure 4.14,

areas with higher environmental robustness are indicated by darker green colours, areas with moderate environmental robustness are indicated by yellow colours and areas with lower environmental robustness are indicated with red/pink colours.

Heightened areas of robustness include those within and surrounding the River Lee, Cork City and surrounding suburban areas. Lower levels of robustness occur within and around Cork Harbour, transitional waters of River Lee and coastal areas, where there is a greater concentration of environmental designations.

Table 4.6 Environmental Opportunities/Robustness Layers and Weighting

Layer	Weight
Any areas not covered by SACs or SPAs (see Figure 4.3)	10
Any areas not covered by NHAs, pNHAs or potential Annex I landcovers (see Figure 4.4)	10
Robust Landcovers (see Figure 4.11)	10
Normal Landcovers (see Figure 4.11)	5
Areas not covered by Recorded Monuments and Protected Structures and associated 250m buffers (see Figure 4.12)	10
Water Sensitivity High (lowest scores on Figure 4.10 from 5 to 15 inclusive)	15
Water Sensitivity Moderate (middle scores on Figure 4.10 from 20 to 30 inclusive)	10
Water Sensitivity Low (highest scores on Figure 4.10 from 35 to 50 inclusive)	5
Population Density High (highest 4 intervals on Figure 4.2)	15
Population Density Moderate (middle 3 intervals on Figure 4.2)	10
Population Density Low (middle 3 intervals on Figure 4.2)	5

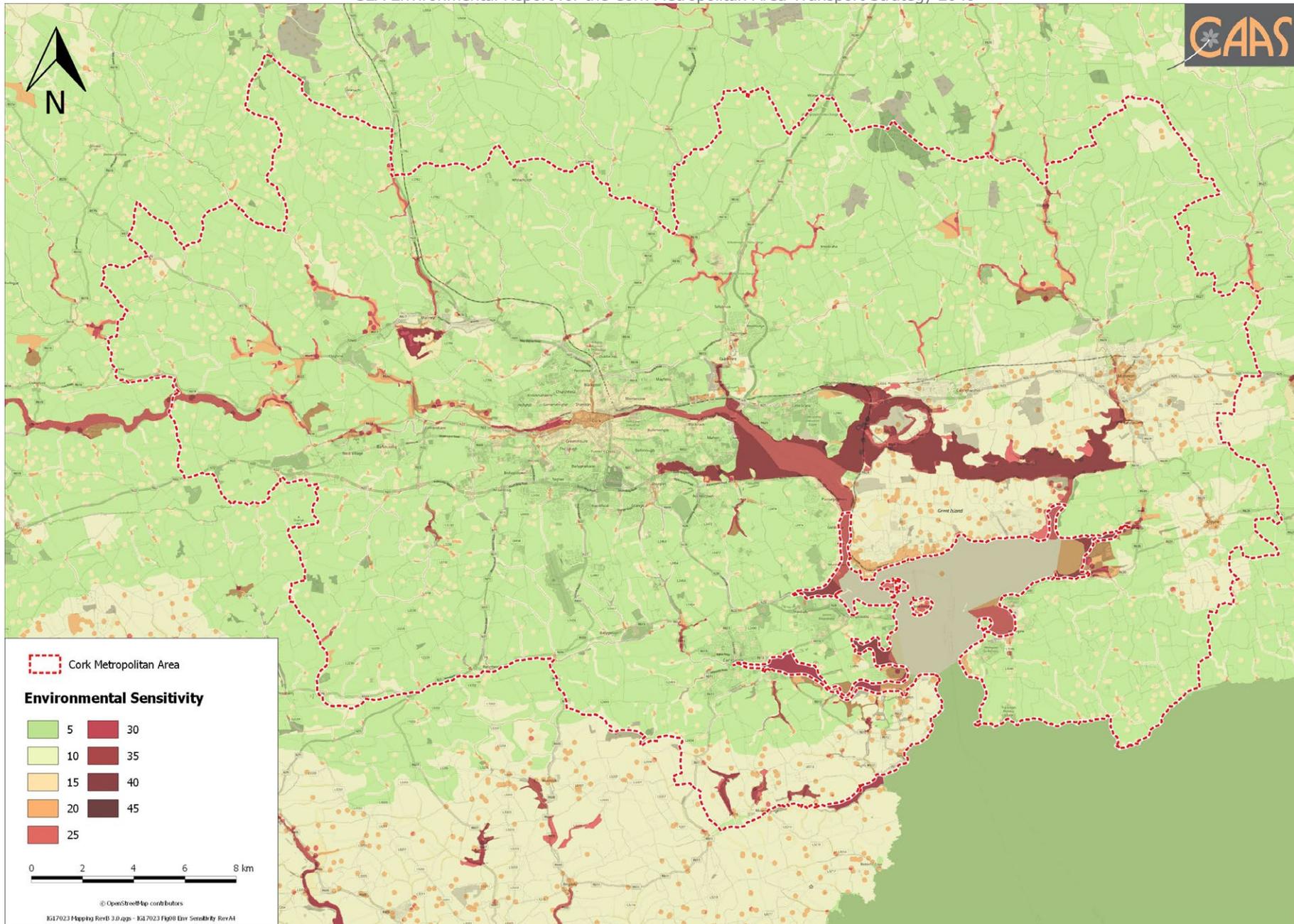


Figure 4.13 Overall Potential Environmental Sensitivity

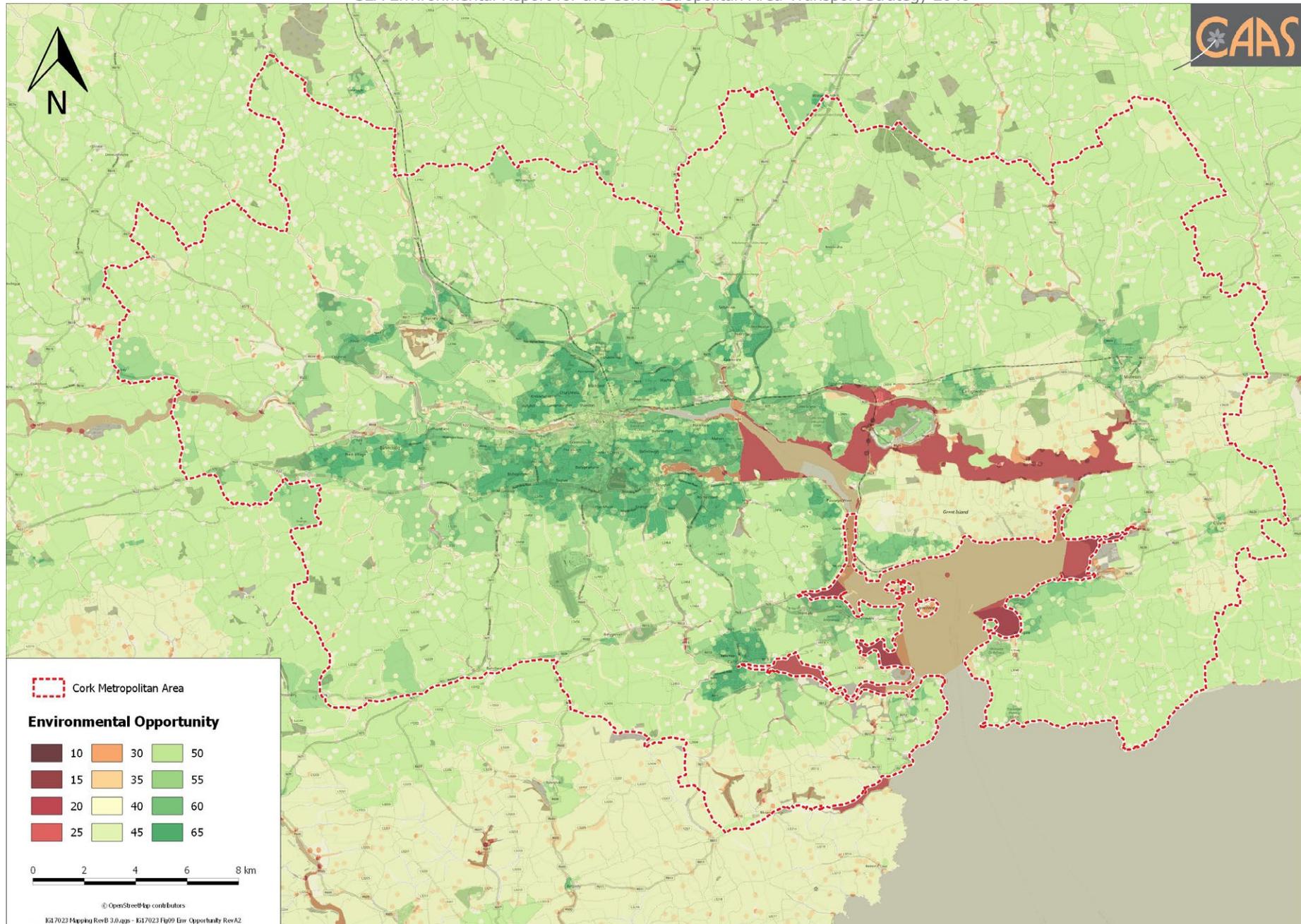


Figure 4.14 Overall Potential Environmental Opportunities

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 Strategy 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 Strategy as well identifying targets which the Strategy 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 Strategy 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 Strategy, 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 Strategy

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 ³¹	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 Strategy ³²
	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 Strategy	B2: No significant ecological networks or parts thereof which provide functional connectivity to be lost without remediation resulting from development provided for by the Strategy
	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 Strategy B3ii: Number of significant impacts on the protection of listed species resulting from development provided for by the Strategy	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 Strategy 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 Strategy	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

³¹ '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.

³² 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 Strategy 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 ³³ 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 development adhering to the Strategy	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 Strategy	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 Strategy	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 Strategy	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%."

³³ 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 Strategy

The growth of the Cork Metropolitan Area that is provided for by the National Planning Framework (NPF) and associated National Development Plan (NDP), the Regional Spatial and Economic Strategy for the Southern Region (RSES), Cork City and County Development Plans and Local Area Plans presents a need for a supporting framework for the planning and delivery of transport infrastructure and services.

Furthermore, 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.

6.2 Existing provisions already in place

The Cork Metropolitan Area Transport Strategy aligns with documents setting out public policy for land use, transport and climate mitigation and will be incorporated into the review and preparation of these documents. These include the NPF and associated NDP, the Strategic Investment Framework for Land Transport, the RSES, the City and County Development Plans and Local Area Plans. Certain transport related proposals already provided for by these documents (and considered by their

environmental assessments) are amongst those included within the Strategy.

6.3 Overview of Alternatives Considered

The various elements of the Strategy are at different stages in the planning/environmental process. Furthermore, different elements of the Strategy will be developed by different agencies, at different times, according to different funding allocations.

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 Strategy was developed and assessed in the context of three notional **Investment Scenarios** as follows:

1. Business as Usual Scenario that incorporates committed investment in the road network only;
2. Improvements to Public Transport and Sustainable Travel – scenario this substantially increases public transport investment; and
3. Better Integration of Land Use with Public Transport and Sustainable Travel – this scenario has elements of Scenario 2 and involves better integration of land-use with public transport and sustainable transport.

In addition to the consideration of the above scenarios, **Corridor Specific Public Transport Network Options** were considered in the preparation of the Strategy for the following corridors:

- Strategic Rail Corridor
- Strategic East-West Corridor
- Public Transport Corridors Mode Capacities and Route Alignment

The **proposed cycle network** for the Transport Strategy is based on the Cork Cycle Network Plan 2017, which details a comprehensive cycle network for Metropolitan Cork and is provided for the RSES (Regional

Policy Objective 166). Additional cycle links are proposed to ensure integration and alignment with the Strategy's proposed transport networks – as per the provisions of the Strategy these will be subject to further corridor and route selection processes as relevant. Taking into account the above, consideration of alternatives for the cycle network at this Strategy level is not relevant.

The areas for improvement with regard to **walking** identified by the Transport Strategy are based on those included in the Cork City Walking Strategy 2013 to 2018, which is provided for by the RSES (Cork Metropolitan Area Strategic Plan Policy Objective 8). SEA consideration of alternatives for the walking network at this Strategy level is not relevant.

Improvements for the **national road network** that are proposed as part of the Strategy³⁴ are already provided for by the NPF and associated NDP and/or the RSES and they are at different stages of the planning process. As such, SEA consideration of alternatives at this Strategy level is not relevant. SEA Alternatives relating to Road Network Options focus on the **road network to the north of the Cork City**.

6.4 Investment Scenarios

6.4.1 Scenario 1: Business as Usual

Choice 1 is the 'Business As Usual' scenario. This scenario is based on the historic trend that investment in transport infrastructure in the Cork Metropolitan Area would continue to be predominantly focussed on adding road capacity to accommodate the growth in travel demand. Committed improvements such as the upgrade to the Dunkettle Interchange and M28 would be realised. However, investment in public transport, walking and cycling networks would remain static. Land use policy and implementation within the Cork Metropolitan Area would remain relatively unrestricted and dispersed.

³⁴ Including:

- Dunkettle Interchange Upgrade;
- N40 South Ring Road;
- M28 Cork – Ringaskiddy;
- N27 Cork – Cork Airport; and
- M20 Cork – Limerick.

6.4.2 Scenario 2: Improvements to Public Transport and Sustainable Travel

Choice 2 is to prioritise investment in providing a comprehensive public transport network in line with the Strategy proposals.

New railway stations would be opened on the existing suburban rail corridor and frequencies on existing routes would be increased. Bus services throughout the Cork Metropolitan Area would be enhanced.

Bus priority measures would be adopted, significantly improving bus journey time and reliability. Improvements to the pedestrian environment would improve accessibility to local services and the wider public transport network. The cycling network proposed in the Cork Metropolitan Cycle Network Plan would be delivered in full.

6.4.3 Scenario 3: Better Integration of Land Use with Public Transport and Sustainable Travel

Choice 3 involves better integration of land-use with public and sustainable transport. This scenario builds upon Choice 2 and represents the optimal case of full integration of land-use development with sustainable transport provision.

Within the city and metropolitan towns, the majority of residential, employment and educational uses would be directed to locations that are highly accessible by walking and cycling networks and high frequency public transport corridors. Land use policies and implementation would largely restrict one-off housing and under-planned greenfield development. Growth would be consolidated and intensified around suburban rail, light rail and high frequency bus corridors.

6.5 Public Transport Network Options

In developing options for the future transport network in the Cork Metropolitan Area, it was important to understand the potential "upper-limit" demand for travel by public transport

within each corridor. For this reason, as part of the preparation of the Strategy, an “idealised” public transport network model was developed based on six core principles³⁵. The “idealised” network scenario facilitated an unconstrained analysis of the potential public transport demand within key transport corridors in the Cork Metropolitan Area.

Within each specific corridor, public transport network proposals were developed based on the identified public transport demand from the “idealised” network.

Corridor specific public transport network options³⁶ considered:

- Strategic Rail Corridor
- Strategic East-West Corridor
- Public Transport Corridors Mode Capacities and Route Alignment

Alternative corridor options have been considered to ensure that the preferred public transport meets the requirements of the ‘Common Appraisal Framework for Transport Projects and Programmes’ (DTTAS, 2016). More detailed appraisals of the public transport schemes identified within the preferred options will be required at a later stage in the planning process, including route option assessment and business case. Such appraisal will have to comply with the mitigation measures specified by this SEA and be subject to its own environmental assessment processes.

³⁵ These principles were:

- Provision of sufficient capacity to cater for demand;
- Suitable frequency to attract and service demand;
- High average speeds to offer a quality service and reliability of journey times;
- Direct services to minimise journey times and increase network legibility;
- High level of network coverage, to ensure the wider Cork Metropolitan Area population has access to high quality public transport services; and
- Providing seamless Interchange between modes to enhance accessibility and integration. The adoption of the principles outlined above will result in an attractive, public transport service that produces a competitive and in many cases, a more attractive journey time and experience to that of the private car.

³⁶ More detail on the methodology employed can be found in the “Demand Analysis Report” and the “Transport Options and Network Development Report”, both of which accompany the Strategy.

The consideration of the options identified below and the selected alternatives for each (see Section 7 of this report) has been applied to the development of Strategy provisions relating to Strategy Corridors A to G, orbital and cross city public transport services and park and ride.

6.5.1 Strategic Rail Corridor

Options for the Strategic Rail Corridor, which includes the Midleton, Cobh and Mallow lines, comprise:

- Option 1: Improvements to existing rail line and increase in services;
- Option 2: Convert rail line to pedestrian and cycle path;
- Option 3: Cater for demand growth by car and increased road provision;
- Option 4: Cater for demand growth by increased bus service provision; and
- Option 5: Convert rail line and services to Light Rail Transit.

6.5.2 Strategic East-West Corridor Options

The Strategic East-West Corridor is a public transport corridor from Mahon to Ballincollig via the City Centre. Options for this corridor comprise:

- Option 1: Bus services;
- Option 2: Bus Rapid Transit;
- Option 3: Light Rail Transit;
- Option 4: Suburban Rail; and
- Option 5: Metro.

6.5.3 Public Transport Corridors Mode Capacities and Route Alignment Options

Public Transport Corridors Mode Capacities and Route Alignment Options consider the remaining radial and orbital corridors not services by the East-West Rapid Transit corridor and the Strategic Rail corridor. Options include:

- Option 1: Bus services;
- Option 2: Bus Rapid Transit; and
- Option 3: Light Rail Transit.

6.6 Road Network Options

The Cork Northern Ring Road connecting the N22 to the M8 and the Cork Northern Distributor Road are already provided for by the RSES³⁷.

Alternatives for the route alignment for the North Ring Road and Cork Northern Distributor Road are provided in the *Cork North Ring Road Assessment Report* that forms an Appendix to the Strategy. These are as follows:

- Option 1A: Strategic Direct Linkage from N20 to M8;
- Option 1B: Strategic and Local Linkage from N20 to M8;
- Option 2A: Strategic Linkage from N20 to N40;
- Option 2B: Strategic and Local Linkage from N20 to N22 and N40;
- Option 3: Local Linkage from N20 to N8; and
- Option 4: Local Linkage from N20 to Lee Road.

³⁷ Cork Metropolitan Area Transport Investment Priorities identified by the RSES include "4. Cork Northern Ring Road connecting the N22 to the M8 (identified in the NDP as a complementary scheme to the M20)" and "7. Cork Northern Distributor Road". The roads are also included under Cork MASP Policy Objective 9 "Strategic Road Network Improvements".

Section 7 Evaluation of Alternatives

7.1 Introduction

This section provides a comparative evaluation of the environmental effects of implementing the alternatives that are detailed under 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'³⁸.

The interactions identified are reflective of likely significant environmental effects³⁹.

The degree to which effects can be determined is limited as the Strategy 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.

³⁸ '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.

³⁹ These effects include secondary, cumulative, synergistic, short, medium and long-term permanent and temporary, positive and negative effects.

In addition, for the Public Transport Network Options (see Section 6.5), the options identified have been assessed⁴⁰ relative to each other under the following five criteria using the Multi-Criteria Assessment Rating Key provided at Table 7.3:

- Economy
- Environment
- Safety
- Integration
- Accessibility and Social Inclusion

⁴⁰ More detail on the findings of the Multi-Criteria Assessment Rating can be found in Appendix 3 "Transport Options and Network Development Report" to the Strategy.

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 ⁴¹
	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 contribute towards 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 contribute towards compliance 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 all 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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Table 7.3 Multi-Criteria Assessment Rating Key for Public Transport Network Options

Colour	Relative Performance
	Very Good
	Good
	Neutral
	Poor
	Very Poor

⁴¹ '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 Strategy 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 that have been considered by the assessment of environmental effects include those which are detailed under Section 2.4 "Relationship with other relevant Plans and Programmes", Section 3.2 "Hierarchy of Planning and Environmental Assessment", Section 4 "Relevant aspects of the current state of the Environment", Section 5 "Strategic Environmental Objectives", Section 9 "Mitigation Measures" and Appendix I "Relationship with Legislation and Other Plans and Programmes".

Policies, plans and programmes from various sectors will interact with the Strategy, including those relating to transport and land use planning. These other actions are subject to their own environmental assessment requirements (SEA, EIA, AA and FRA), as relevant, and already provide for various measures that have been compiled into the Strategy. Examples include:

- Transport and/or Land Use (e.g. National Planning Framework and associated National Development Plan, the Regional Spatial and Economic Strategy for the Southern Region, Cork City and County Development Plans, Local Area Plans, Integrated Implementation Plan);
- 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 Strategy, 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 7.4.

The SEA undertaken for the Strategy has taken account of the need for the implementation of the Strategy 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 Alternatives⁴²

7.4.1 Effects common to all alternatives

The environmental effects detailed on Table 7.4 would be present to varying degrees as a result of the construction and operation of development under the different alternatives.

Table 7.4 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 and 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/or coastal squeeze. • Effects in riparian zones where new crossings of waters, if any, are progressed. • Potential effects on vegetation from transport emissions.

⁴² 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 7.5.

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/river bank erosion.

7.5 Investment Scenarios

Please refer to the environmental effects detailed on Table 7.4 that would be present to varying degrees as a result of the construction and operation of development under the different scenarios.

7.5.1 Scenario 1: Business as Usual

The likely outcome of Investment Scenario 1 'Business As Usual' would be that the Cork Metropolitan Area region would continue to grow as a highly car dependent region. The additional capacity initially 'freed-up' by the investment in roads would attract more car trips in response. Long-distance commuting would increase as house-holders would be attracted to cheaper land and housing stock in more dispersed settlements.

Traffic congestion would increase on the strategic and local network as longer distance commuters continue to access employment set in dispersed locations throughout the Cork Metropolitan Area. Congestion on the network would increase costs to business and undermine the region's appeal for inward investment. Pollution and emissions would continue to rise, undermining the region's quality of life and liveability and the competitive advantage of Cork City and Metropolitan town centres.

The case for public transport investment would become increasingly marginalised as the increasingly low density and sprawled distribution of land-use within the region would undermine the business case to provide it. Existing services would be subject to increased delays due to congestion further undermining its viability. Walking and cycling levels may increase in urban areas as a means of avoiding congestion; however, the environment would become less pleasant.

Orderly development would be facilitated 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 locally. However, this scenario gives rise to the most potential adverse environmental effects:

- Low density and sprawled distribution of land uses would result in unsustainable patterns of mobility;
- Congestion arising from low density development and sprawl would mean that there would 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 and a failure to contribute towards managing traffic flows. There would also be a reduced efficiency of energy resource utilisation;
- Low density and sprawled distribution of land uses would reduce the economic viability of services, such as water services, and result in heightened potential for adverse effects on the protection of waters - and associated interactions with ecology and human health; and
- Low density development and sprawl would result in increased conflicts with all environmental components including biodiversity, air and water.

7.5.2 Scenario 2: Improvements to Public Transport and Sustainable Travel

Under Investment Scenario 2 'Improvements to Public Transport and Sustainable Travel' new railway stations would be opened on the existing suburban rail corridor and frequencies on existing routes would be increased. Bus services throughout the Cork Metropolitan Area would be enhanced.

Bus priority measures would be adopted, significantly improving bus journey time and reliability. Improvements to the pedestrian environment would improve accessibility to local services and the wider public transport network. The cycling network proposed in the Cork Metropolitan Cycle Network Plan would be delivered in full.

The likely outcome is that public transport would become more attractive relative to car travel for a significant number of journeys. The modal shift away from car would result in reduced congestion, 'freeing-up' some capacity on the strategic road network enabling more efficient movement of freight.

Reduced emissions and the accompanying health benefits associated with the creation of a safe, accessible, active travel network would reduce health costs to businesses in the region and State, as a result of reductions in absenteeism.

Scenario 2 would give rise to a reduced extent of potential adverse environmental effects (in comparison with Scenario 1⁴³) as it would improve the integration of land-use development with sustainable transport provision and facilitate the concentration of development around planned nodes. This land use development would be accompanied by appropriate levels of services and infrastructure because a critical mass of development would occur on lands that have been zoned and subject to SEA, AA and SFRA. Development of this kind would give rise to the least adverse effects on populations, biodiversity and environmental components, including air and water. Development of this kind would also facilitate the orderly and timely provision of services – especially water services – that would help to anticipate and avoid effects on water and associated interactions with ecology and human health.

By improving the integration of land-use development with sustainable transport provision, Scenario 2 would (to a lesser degree than would be the case with Scenario 3, which would provide full integration):

- 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 the most populated areas, this alternative would also be likely to result in a higher efficiency of energy resource utilisation.
- Provide for the development of transport infrastructure and services in locations which will facilitate use by those living and working in urban/suburban areas.
- Facilitate lower overall effects on ecology (including designated sites, ecological connectivity and habitats) – due to increased utilisation of lands within existing development boundaries and use of existing utilities and brownfield sites.
- 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.
- 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).
- 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 light rail.

⁴³ Scenario 2 focuses on increasing road capacity to accommodate growth in a context where land use policy would remain relatively unrestricted and dispersed.

7.5.3 Scenario 3: Better Integration of Land Use with Public Transport and Sustainable Travel

Under Investment Scenario 3 'Better Integration of Land Use with Public Transport and Sustainable Travel', within the city and metropolitan towns, the majority of residential, employment and educational uses would be directed to locations that are highly accessible by walking and cycling networks and high frequency public transport corridors. Land use policies and implementation would largely restrict one-off housing and under-planned greenfield development. Growth would be consolidated and intensified around suburban rail, light rail and high frequency bus corridors.

The likely outcomes of this scenario would be that the demand for car travel would reduce as people live closer to their workplaces and places of study. Longer distance trips across the Cork Metropolitan Area would be undertaken, in greater numbers, by public transport and would be supported by linked cycling and walking infrastructure. The business case for continued investment in public transport infrastructure would be enhanced as patronage continues to grow.

Scenario 3 would give rise to the least potential adverse environmental effects as it would fully integrate land-use development with sustainable transport provision and facilitate the concentration of development around planned nodes. This land use development would be accompanied by appropriate levels of services and infrastructure because a critical mass of development would occur on lands that have been zoned and subject to SEA, AA and SFRA. Development of this kind would give rise to the least adverse effects on populations, biodiversity and environmental components, including air and water. Development of this kind would also facilitate the orderly and timely provision of services – especially water services – that would help to anticipate and avoid effects on water and associated interactions with ecology and human health.

By facilitating a full integration of land-use development with sustainable transport provision, Scenario 3 would:

- 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 the most populated areas, this alternative would also be likely to result in a higher efficiency of energy resource utilisation.
- Provide for the development of transport infrastructure and services in locations which will facilitate use by those living and working in urban/suburban areas.
- Facilitate lower overall effects on ecology (including designated sites, ecological connectivity and habitats) – due to increased utilisation of lands within existing development boundaries and use of existing utilities and brownfield sites.
- 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.
- 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).
- 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 light rail.

7.5.4 Comparative Evaluation of Investment Scenarios against SEOs

Table 7.5 provides a comparative evaluation of alternatives against SEOs.

Table 7.5 Comparative Evaluation of Investment Scenarios against SEOs

Alternative	Likely to Improve status of SEOs to a greater degree	Likely to Improve status of SEOs	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	Probable Conflict with status of SEOs - less likely to be mitigated
Scenario 1: Business as Usual			AC1 AC2 AC3 PHH1 PHH2 B1 B2 B3 MA1 MA2 MA3 W1 W2 W3 L1 CH1 CH2 S1 ⁴⁴			AC1 AC2 AC3 PHH1 PHH2 B1 B2 B3 MA1 MA2 MA3 W1 W2 W3 L1 CH1 CH2 S1 ⁴⁵
Scenario 2: Improvements to Public Transport and Sustainable Travel		AC1 AC2 AC3 PHH1 PHH2 B1 B2 B3 MA1 MA2 MA3 W1 W2 W3 L1 CH1 CH2 S1 ⁴⁶			AC1 AC2 AC3 PHH1 PHH2 B1 B2 B3 MA1 MA2 MA3 W1 W2 W3 L1 CH1 CH2 S1 ⁴⁷	
Scenario 3: Better Integration of Land Use with Public Transport and Sustainable Travel	AC1 AC2 AC3 PHH1 PHH2 B1 B2 B3 MA1 MA2 MA3 W1 W2 W3 L1 CH1 CH2 S1 ⁴⁸			AC1 AC2 AC3 PHH1 PHH2 B1 B2 B3 MA1 MA2 MA3 W1 W2 W3 L1 CH1 CH2 S1 ⁴⁹		

⁴⁴ Orderly development would be facilitated in some (dispersed) locations, including lands that have been zoned and subject to SEA, AA and SFRA. Also, an extent of potential increases in walking and cycling levels in urban areas as a means of avoiding congestion.

⁴⁵ As a result of construction and operation of development provided for by the Strategy and other plans and programmes including those relating to land use.

⁴⁶ As a result of contributing towards the integration of land use development with sustainable transport provision and contributing towards sustainable mobility.

⁴⁷ As a result of construction and operation of development provided for by the Strategy and other plans and programmes including those relating to land use.

⁴⁸ As a result of fully integrating land use development with sustainable transport provision and contributing towards sustainable mobility.

⁴⁹ As a result of construction and operation of development provided for by the Strategy and other plans and programmes including those relating to land use.

7.5.5 Selected Investment Scenario for the Strategy

The most preferable outcome from the environmental assessment of alternative investment scenarios is Scenario 3 "Better Integration of Land Use with Public Transport and Sustainable Travel". This is the investment scenario from which the sustainable transport measures proposed in the Strategy have been developed.

This alternative scenario represents the optimal case of full integration of land-use development with sustainable transport provision and would largely restrict one-off housing and under-planned greenfield development. Growth would be consolidated and intensified around suburban rail, light rail and high frequency bus corridors. This scenario would facilitate the greatest improvement in sustainable mobility of all alternatives, 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 would be mitigated by the various provisions that have been integrated into the Strategy (see Section 9 of this report).

7.6 Public Transport Network Options Assessment

7.6.1 Strategic Rail Corridor

Options for the Strategic Rail Corridor, which includes the Midleton, Cobh and Mallow lines, comprise:

- Option 1: Improvements to existing rail line and increase in services;
- Option 2: Convert rail line to pedestrian and cycle path;
- Option 3: Cater for demand growth by car and increased road provision;
- Option 4: Cater for demand growth by increased bus service provision; and
- Option 5: Convert rail line and services to Light Rail Transit.

The Multi-Criteria Assessment undertaken for Strategic Rail Corridor Options is provided on Table 7.6.

Table 7.6 Multi-Criteria Assessment for Strategic Rail Corridor (Public Transport Network) Options

Option	Economy	Environment	Safety	Integration	Accessibility and Social Inclusion
Option 1: Improvements to existing rail line and increase in services	Maximises investment to date. Makes best use of existing infrastructure. Incremental cost increases likely to provide greater returns on investment in terms of benefit to cost ratio.	Currently suburban trains are diesel based which results in GHG emissions. There is scope for future electrification of the suburban rail line.	Rail services have very low accident and incident rates.	Builds on current integration policy. Can cater for increased development intensification around rail stations.	Enhances accessibility for rail users on existing rail lines as well as providing an attractive alternative to the private car.
Option 2: Convert rail line in East Cork to pedestrian and cycle path	Loss of investment to date. Significant cost of railway decommissioning. Not likely that walking and cycling will cater adequately for anticipated demand.	No emissions from pedestrians and cyclists on route	Segregated cycle path would provide safe route.	Does not align with current policy on integration of public transport modes.	Reduces accessibility for those who do not wish to or cannot travel on foot or on bicycle.
Option 3: Cater for demand growth by car and increased road provision	Undermines investment to date in rail network. Would require increased widening of dual carriageways. Will increase congestion on approach to and within urban areas.	Increased road traffic would increase the level of GHG emissions on the road network.	Increased traffic volumes on high speed national roads would increase number of accidents on route.	Does not integrate with current transport policy.	Increased road traffic would reduce accessibility and social inclusion for those who use other modes due to congestion.
Option 4: Cater for demand growth by car and increased bus service provision	Undermines investment to date in rail network. Bus services would be duplicating the rail services along the same corridors.	Provision for bus traffic would lead to marginal increase in GHG compared to a growth in car usage.	Bus travel would reduce the amount of cars in use and would reduce the potential accident rate.	Better integrated bus network can connect with rail stations but journey times can be hindered by an increase in private car traffic.	An integrated bus network can improve the accessibility and social inclusion to users.
Option 5: Convert rail line and services to Light Rail Transit	Undermines investment to date in rail network.	Low emissions rate from LRT as energy source would be electric. Noise pollution would be low.	Segregated light rail services have very low accident and incident rates.	Can cater for increased development intensification around LRT stations.	Would enhance accessibility for users as well as providing an attractive alternative to private car transport.

A comparative evaluation against SEOs for Strategic Rail Corridor Options is provided on Table 7.7.

Option 1 “Improvements to existing rail line and increase in services” would improve the capacity of public transport along this corridor. Although suburban trains emit levels of greenhouse gas emissions, emissions are significantly lower per journey than would be the case with journeys by car. Furthermore, lower emission vehicles are emerging on an ongoing basis and there is scope for future electrification of the suburban rail line. Option 1 would help to facilitate integration of land-use development with sustainable transport provision as is provided for by Investment Scenario 3 “Better Integration of Land Use with Public Transport and Sustainable Travel” (see Section 7.5), including consolidated and intensified development around public transport networks.

Option 2 “Convert rail line to pedestrian and cycle path” would facilitate higher levels of walking and cycling along this corridor while removing rail capacity. Although higher levels of walking and cycling would occur, there would be an increase in journeys by car – with associated increases in emissions – by those who could not travel by rail. The removal of rail capacity would compromise the integration of land-use development with sustainable transport provision as is provided for by Investment Scenario 3 “Better Integration of Land Use with Public Transport and Sustainable Travel” and would align somewhat with Investment Scenario 1 “Business as Usual” (see Section 7.5).

Option 3 “Cater for demand growth by car and increased road provision” would increase car dependency, attract more car trips, result ultimately in more congestion and emissions. Increased roads provision would result in low density development and sprawl and associated increased conflicts with all environmental components including biodiversity, air and water. This would align with Investment Scenario 1 “Business as Usual” (see Section 7.5).

Part of Option 4 caters for demand growth by car. Increasing car dependency and attracting more car trips would result ultimately in more congestion and emissions. Increased roads provision would also result in low density development and sprawl and associated increased conflicts with all environmental components including biodiversity, air and water. The other part of Option 4 caters for demand growth by bus. Although buses emit levels of greenhouse gas emissions, emissions are significantly lower per journey than would be the case with journeys by car. Furthermore, lower emission vehicles are emerging on an ongoing basis. This option would provide for a better integrated bus network that can connect with rail stations however journey times could be hindered by an increase in private car traffic.

Option 5 “Convert rail line and services to Light Rail Transit” would improve the capacity of public transport along this corridor. Compliance with greenhouse gas emission targets would be contributed towards most with this option. Option 5 would help to facilitate integration of land-use development with sustainable transport provision as is provided for by Investment Scenario 3 “Better Integration of Land Use with Public Transport and Sustainable Travel” (see Section 7.5), including consolidated and intensified development around public transport networks.

Table 7.7 Comparative Evaluation of Strategic Rail Corridor (Public Transport Network) Options against SEOs

Alternative	Likely to Improve status of SEOs to a greater degree	Likely to Improve status of SEOs	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	Probable Conflict with status of SEOs - less likely to be mitigated
Option 1: Improvements to existing rail line and increase in services	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	AC1 AC2 AC3 PHH1 PHH2	
Option 2: Convert rail line to pedestrian and cycle path		B1 B2 B3 MA1 MA2 MA3 W1 W2 W3 L1 CH1 CH2 S1	AC1 AC2 AC3 PHH1 PHH2		AC1 AC2 AC3 PHH1 PHH2	B1 B2 B3 MA1 MA2 MA3 W1 W2 W3 L1 CH1 CH2 S1
Option 3: Cater for demand growth by car and increased road provision			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
Option 4: Cater for demand growth by car and increased bus service provision		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	
Option 5: Convert rail line and services to Light Rail Transit	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		

Selected Option for the Strategy

Taking into account the multi-criteria assessment for Strategic Rail Corridor Options provided on Table 7.6 and the comparative evaluation against SEOs provided on Table 7.7, Option 1 "Improvements to existing rail line and increase in services" was considered to be the preferred option for the Strategy, providing the most benefits overall while maximising the economic benefits.

7.6.2 Strategic East-West Corridor Options Assessment

The Strategic East-West Corridor is a public transport corridor from Mahon to Ballincollig via the City Centre. Options for this corridor comprise:

- Option 1: Bus services;
- Option 2: Bus Rapid Transit;
- Option 3: Light Rail Transit;
- Option 4: Suburban Rail; and
- Option 5: Metro.

The Multi-Criteria Assessment undertaken for Strategic East-West Corridor Options is provided on Table 7.8.

Table 7.8 Multi-Criteria Assessment for Strategic East-West Corridor (Public Transport Network) Options

Option	Economy	Environment	Safety	Integration	Accessibility and Social Inclusion
Option 1: Bus services	Bus services not likely to accommodate forecast demand.	Produce less GHG than private transport. Options available for different fuel sources.	Bus travel would reduce the amount of cars in use and would reduce the potential accident rate.	Better integrated bus network can connect with rail stations but journey times can be hindered by private car traffic, if not prioritised appropriately.	An integrated bus network can improve the accessibility and social inclusion to users.
Option 2: Bus Rapid Transit	BRT can accommodate the level of demand associated with the M2F2 (most likely migration, fertility and population) forecast levels to 2040. However, it is not likely to have adequate capacity available to cater for growth beyond M2F2 levels.	Produce less GHG than private transport. Options available for different fuel sources.	Higher safety rate than car mode due to dedicated infrastructure segregating from other road users.	Can cater for increased development intensification along East-West Corridor.	Enhances accessibility for bus users on existing routes as well as providing an attractive alternative to the private car.
Option 3: Light Rail Transit	LRT is more expensive than BRT. Has better travel times, reliability and can cater for larger demand beyond M2F2 levels.	Low emissions rate from LRT as energy source would be electric. Noise pollution would be low.	Higher safety rate than car mode due to dedicated infrastructure segregating from other road users.	Can cater for increased development intensification along East-West Corridor	Light rail typically has a wider catchment than bus or BRT type services therefore increasing accessibility.
Option 4: Suburban Rail	Not feasible due to travel demand likely to reach a level where a new suburban rail line through the City Centre would provide value for money. Significant costs associated with construction and operation.	Not feasible due to significant environmental impacts in terms of wholesale impact on city centre, including knocking of buildings.			
Option 5: Metro	Not feasible due to Travel demand not likely to reach a level where a metro would provide value for money. Significant costs associated with construction and operation.				

A comparative evaluation against SEOs for Strategic East-West Corridor Options is provided on Table 7.9. For interactions with SEOs shown on Table 7.9, please refer to the environmental effects detailed on Table 7.4 that would be present to varying degrees as a result of the construction and operation of development under the various options in combination with the provisions of other plans and programmes, including those relating to land use.

Option 1 "Bus Services" would improve the capacity of public transport along this corridor. Although buses emit levels of greenhouse gas emissions, emissions are significantly lower per journey than would be the case with journeys by car. Furthermore, lower emission vehicles are emerging on an ongoing basis. However, this option would not be likely to accommodate forecast demand. As a result, increases in car dependency (and associated congestion and emissions) and low density development and sprawl (and associated increased conflicts with all environmental components) would occur. This would align somewhat with Investment Scenario 1 "Business as Usual" (see Section 7.5).

Option 2 "Bus Rapid Transport" would improve the capacity of public transport along this corridor. Although buses emit levels of greenhouse gas emissions, emissions are significantly lower per journey than would be the case with journeys by car. Furthermore, lower emission vehicles are emerging on an ongoing basis. Option 2 would help to facilitate integration of land-use development with sustainable transport provision as is provided for by Investment Scenario 3 "Better Integration of Land Use with

Public Transport and Sustainable Travel” (see Section 7.5), including consolidated and intensified development around public transport networks. However, bus rapid transport is not likely to have adequate capacity available to cater for growth beyond M2F2⁵⁰ levels.

Option 3 “Light Rail Transit” would improve the capacity of public transport along this corridor and contribute towards the meeting of greenhouse gas emission targets. Option 3 would help to facilitate integration of land-use development with sustainable transport provision as is provided for by Investment Scenario 3 “Better Integration of Land Use with Public Transport and Sustainable Travel” (see Section 7.5), including consolidated and intensified development around public transport networks.

Option 4 “Suburban Rail” would improve the capacity of public transport along this corridor. Although suburban trains emit levels of greenhouse gas emissions, emissions are significantly lower per journey than would be the case with journeys by car. Furthermore, lower emission vehicles are emerging on an ongoing basis and there is scope for future electrification of the suburban rail line. Option 1 would help to facilitate integration of land-use development with sustainable transport provision as is provided for by Investment Scenario 3 “Better Integration of Land Use with Public Transport and Sustainable Travel” (see Section 7.5), including consolidated and intensified development around public transport networks. Notwithstanding this, “Suburban Rail” would result in significant levels of demolition within the existing built envelope of the city centre – with associated potential adverse effects, including those related to the City’s cultural heritage.

Option 5 “Metro” would improve the capacity of public transport along this corridor and contribute towards the meeting of greenhouse gas emission targets. Option 5 would help to facilitate integration of land-use development with sustainable transport provision as is provided for by Investment Scenario 3 “Better Integration of Land Use with Public Transport and Sustainable Travel” (see Section 7.5), including consolidated and intensified development around public transport networks. Notwithstanding this, “Suburban Rail” would result in significant levels of tunnelling within the existing built envelope of the city centre – with associated potential adverse effects.

Table 7.9 Comparative Evaluation of Strategic East-West Corridor (Public Transport Network) Options against SEOs

Alternative	Likely to Improve status of SEOs to a greater degree	Likely to Improve status of SEOs	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	Probable Conflict with status of SEOs - less likely to be mitigated
Option 1: Bus services			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
Option 2: Bus Rapid Transit		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	
Option 3: Light Rail Transit	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		
Option 4: Suburban 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	
Option 5: Metro	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	

⁵⁰ M2F2 is a CSO scenario referred to traditional variant, a projection which is based on steadily falling fertility and an assumption of a return to traditional patterns of internal migration experienced in 1996. CAAS for the National Transport Authority

Selected Option for the Strategy

Taking into account the multi-criteria assessment for Strategic East-West Corridor Options provided on Table 7.8 and the comparative evaluation against SEOs provided on Table 7.9, both "Option 2 Bus Rapid Transit" and "Option 3 Light Rail Transit" rank well, with "Option 3 Light Rail Transit" coming out highest across all criteria. On this basis the "Option 3 Light Rail Transit" is considered the preferred option, however, this would ultimately require further demand and patronage analysis, and cost benefit analysis to confirm this.

7.6.3 Public Transport Corridors Mode Capacities and Route Alignment Options Assessment

Public Transport Corridors Mode Capacities and Route Alignment Options consider the remaining radial and orbital corridors not services by the East-West Rapid Transit corridor and the Strategic Rail corridor. Options include:

- Option 1: Bus services;
- Option 2: Bus Rapid Transit; and
- Option 3: Light Rail Transit.

The Multi-Criteria Assessment undertaken for these Options is provided on Table 7.10.

Table 7.10 Multi-Criteria Assessment for Public Transport Corridors Mode Capacities and Route Alignment Options

Option	Economy	Environment	Safety	Integration	Accessibility and Social Inclusion
Option 1: Bus services	Makes best use of investment in current network and could provide greater returns on investment in terms of benefit to cost ratio.	Produces less GHG than private Car alternative. Options available for different fuel sources.	Bus travel would reduce the amount of cars in use and would reduce the potential accident rate.	Better integrated bus network can connect with rail stations but journey times can be hindered by private car traffic, if not prioritised appropriately.	An integrated bus network can improve the accessibility and social inclusion to users.
Option 2: Bus Rapid Transit	Demand levels do not indicate that a BRT would provide value for money, based on significant cost associated with introduction of BRT.	Produce less GHG than private transport. Options available for different fuel sources.	Higher safety rate than car mode due to dedicated infrastructure segregating from other road users.	Better integrated bus network can connect with rail stations but journey times can be hindered by private car traffic, if not prioritised appropriately.	Enhances accessibility for bus users on existing routes as well as providing an attractive alternative to the private car.
Option 3: Light Rail Transit	Not feasible due to travel demand not likely to reach a level where Light Rail would provide value for money. Significant costs associated with construction and operation.				

A comparative evaluation against SEOs for Public Transport Corridors Mode Capacities and Route Alignment Options is provided on Table 7.9. For interactions with SEOs shown on Table 7.9, please refer to the environmental effects detailed on Table 7.4 that would be present to varying degrees as a result of the construction and operation of development under the various options in combination with the provisions of other plans and programmes, including those relating to land use.

Option 1 “Bus Services” would improve the capacity of public transport. Although buses emit levels of greenhouse gas emissions, emissions are significantly lower per journey than would be the case with journeys by car. Furthermore, lower emission vehicles are emerging on an ongoing basis. Where forecast demand can be accommodated, this option would help to facilitate integration of land-use development with sustainable transport provision as is provided for by Investment Scenario 3 “Better Integration of Land Use with Public Transport and Sustainable Travel” (see Section 7.5), including consolidated and intensified development around public transport networks.

Option 2 “Bus Rapid Transport” would also improve the capacity of public transport. Although buses emit levels of greenhouse gas emissions, emissions are significantly lower per journey than would be the case with journeys by car. Furthermore, lower emission vehicles are emerging on an ongoing basis. This option would help to facilitate integration of land-use development with sustainable transport provision as is provided for by Investment Scenario 3 “Better Integration of Land Use with Public Transport and Sustainable Travel” (see Section 7.5), including consolidated and intensified development around public transport networks.

Option 3 “Light Rail Transit” would improve the capacity of public transport and contribute towards the meeting of greenhouse gas emission targets. Option 3 would help to facilitate integration of land-use development with sustainable transport provision as is provided for by Investment Scenario 3 “Better Integration of Land Use with Public Transport and Sustainable Travel” (see Section 7.5), including consolidated and intensified development around public transport networks.

Table 7.11 Comparative Evaluation of Public Transport Corridors Mode Capacities and Route Alignment Options against SEOs

Alternative	Likely to Improve status of SEOs to a greater degree	Likely to Improve status of SEOs	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	Probable Conflict with status of SEOs - less likely to be mitigated
Option 1: Bus services			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	
Option 2: Bus Rapid Transit		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	
Option 3: Light Rail Transit	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		

Selected Option for the Strategy

Taking into account the multi-criteria assessment for Public Transport Corridors Mode Capacities and Route Alignment Options provided on Table 7.10 and the comparative evaluation against SEOs provided on Table 7.11, “Option 1 Bus Services” and Option 2 “Bus Rapid Transit” are considered to be the preferential options, providing the most benefits overall while maximising the economic benefits. Both provide consistent benefits in general. The difference between the two however, can only really be determined through further demand and patronage analysis and cost benefit analysis.

7.7 Road Network Options Assessment

The Cork Northern Ring Road (CNRR) connecting the N22 to the M8 and the Cork Northern Distributor Road (CNDR) are already provided for by the RSES. Alternatives for the route alignment for the CNRR and CNDR are provided in the *Cork North Ring Road Assessment Report* that forms an Appendix to the Strategy. The Multi-Criteria Assessment undertaken for these alternatives is provided on Table 7.12.

Table 7.12 Multi-Criteria Assessment for Road Network Options

Option	Economy	Environment	Safety	Integration	Accessibility and Social Inclusion
Option 1A: Linkage from N20 to M8	Anticipated low traffic volumes. May be difficult to achieve positive Benefit / Cost Ratio (BCR)	Could increase travel distances by private car, increases emissions.	Removes orbital and HGV traffic from City Centre.	Aligns with policy to cater for strategic traffic on national roads.	Does not cater for public transport, walking & cycling.
Option 1B: Combined Strategic and Local Linkage	Caters for both strategic and local traffic. Potentially a better BCR, due to increased traffic volumes. May require demand management to maintain strategic function	Could lead to sprawl and congestion, if increased greenfield developed aligned with the local access junctions. Could increase travel distances by private car, increases emissions.	Removes orbital and HGV traffic from City Centre.	Strategic function of NRR weakened due to inclusion of local traffic.	Does not cater for public transport, walking & cycling.
Option 2A: Direct linkage from N20 and N40	Anticipated low traffic volumes. May be difficult to achieve positive Benefit / Cost Ratio (BCR)	Could increase travel distances by private car, thereby increasing emissions.	Removes orbital and HGV traffic from City Centre.	Aligns with policy to cater for strategic traffic on national roads.	Does not cater for public transport, walking & cycling.
Option 2B: Combined Strategic and Local Linkage from N20 to N40	Caters for both strategic and local traffic. Potentially a better BCR, due to increased traffic volumes. May require demand management to maintain strategic function	Could lead to sprawl and congestion, if increased greenfield developed aligned with the local access junctions. Could increase travel distances by private car, thereby increasing emissions.	Removes orbital and HGV traffic from City Centre.	Strategic function of NRR weakened due to inclusion of local traffic.	Does not cater for public transport, walking & cycling.
Option 3: Local Linkage from N20 to N8	Lower Cost than North Ring Road. Can be delivered in phased basis, supplemented by developer contributions. Caters for both strategic and local traffic, public transport and active modes. The route also enables the development of housing in approved Urban Expansion Areas.	The provision of an orbital route local route would enable new public transport and walking and cycling links to serve new housing areas, reducing reliance on private car.	Removes orbital and HGV traffic from City Centre.	Provides for full multi-modal transport in an urban environment. This objective is in line with national policy i.e. Design Manual for Urban Roads & Streets and Smarter Travel.	Would enhance public transport, walking and cycling for users as well as providing an attractive alternative to private car transport. Provides direct multi-modal access to RAPID areas of: Blackpool /The Glen/Mayfield
Option 4 Linkage from N20 to Lee Road	Lower Cost than CNRR. However, there are some steep gradients to overcome between Hollyhill the Lee Road. Can be delivered in phased basis, supplemented by developer contributions. Caters for both strategic and local traffic, public transport and active modes. The route also enables the development of housing in approved Urban Expansion Areas.	The provision of an orbital route local route would enable new public transport and walking and cycling links to serve new housing areas, reducing reliance on private car.	Removes orbital and HGV traffic from City Centre.	Provides for full multi-modal transport in an urban environment. This objective is in line with national policy i.e. Design Manual for Urban Roads & Streets and Smarter Travel.	Would enhance public transport, walking and cycling for users as well as providing an attractive alternative to private car transport. Provides direct multi-modal access to RAPID areas of: Knocknaheeny/ Hollyhill/ Churchfield; and Fairhill/ Gurrabraher/ Farranree.

A comparative evaluation against SEOs for Road Network Options is provided on Table 7.13. For interactions with SEOs shown on Table 7.13, please refer to the environmental effects detailed on Table 7.4 that would be present to varying degrees as a result of the construction and operation of development under the various options in combination with the provisions of other plans and programmes, including those relating to land use. Differentials relate to environmental effects arising from emissions (including relating to air and human health) and sprawl (affecting all environmental components), with Options 3 and 4 performing best in the assessment.

Table 7.13 Comparative Evaluation of Road Network Options against SEOs

Alternative	Likely to Improve status of SEOs to a greater degree	Likely to Improve status of SEOs	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	Probable Conflict with status of SEOs - less likely to be mitigated
Option 1A: Linkage from N20 to M8		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	
Option 1B: Combined Strategic and Local Linkage			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	
Option 2A: Direct linkage from N20 and N40		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	
Option 2B: Combined Strategic and Local Linkage from N20 to N40			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	
Option 3: Local Linkage from N20 to N8	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		
Option 4 Linkage from N20 to Lee Road	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		

Selected Options for the Strategy

Reviewing the multi-criteria assessment for these options, it was recommended the local distributor type CNDR catering for the northeast and northwest quadrants of Cork City, a combination of Options 3 and 4. This CNDR would provide for local transport needs, multi-modal requirements, and enable the accommodation of strategic traffic away from Cork City Centre.

However, it is understood that the NDP has identified the M20 Cork – Limerick Motorway and the CNRR linkage from the M20 to Dunkettle Interchange. Taking the requirements of the NDP into consideration would require a Strategic Direct link from the M20 to the M8, similar in form and function to Option 1 identified above. In this context both the Strategic CNRR and Local CNDR networks would be provided, one to cater for the local requirements and the other to cater for the strategic requirements. Both routes would provide complementary functions, in keeping with 'Spatial Planning and National Roads' guidance.

As detailed in the Strategy, as part of the N/M20 Cork to Limerick Road Improvement Scheme, Transport Infrastructure Ireland will examine the inclusion of the CNRR linking the N20 to Dunkettle Interchange. The National Development Plan indicates that the CNRR is a complementary but independent scheme to the N/M20 corridor scheme. However, its requirements, scale (based on demand levels) and justification will be considered and assessed as part of the appraisal process for the overall M20 scheme. Whilst it is envisaged that the CNRR would not be delivered in advance of the substantive public transport elements of the Strategy, the appraisal process for the N/M20 Scheme will consider implementation and delivery in great detail. In line with the NDP, the requirement for the CNRR will be determined in accordance with DTTAS Guidance for scheme appraisal and Transport Infrastructure Ireland Project Appraisal Guidelines for National Roads (PAG) including a Route Options Assessment and Business Case. This Assessment should include the examination of a potential link from the N22 to the M8 and if required, designed in such a fashion that prioritises and safeguards the strategic traffic function of the route. Subject to the appraisal outcomes of the N/M20 Cork to Limerick Road Improvement Scheme, it is expected that the CNRR project will be planned for implementation during the latter period of the Strategy. The finalisation of a route corridor and its protection from development intrusion is an objective of the Strategy to allow for changing circumstances including potentially an earlier project delivery requirement.

Section 8 Evaluation of Strategy 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 assessment of the Strategy.

The provisions are evaluated using compatibility criteria (see Table 8.2) in order to determine how they would be likely to affect the status of the SEOs. The SEOs and the Strategy 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 species⁵¹'.

The interactions identified are reflective of likely significant environmental effects⁵²:

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 Strategy (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 Strategy will be implemented through the lower tier environmental assessments and decision making of planning authorities.

⁵¹ '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.

⁵² 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 ⁵³
	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 contribute towards 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 contribute towards compliance 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 Strategy 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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⁵³ '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 National Transport Authority has undertaken detailed assessment for proposed transport measures across all modes (public transport, walking, cycling, car and freight) under the headings of safety, physical activity, environment, integration, accessibility and social inclusion and economy. The findings of this modelling are included in the "*Transport Modelling Assessment Report*" that accompanies the Strategy. For the purpose of a baseline against which the impacts of the Strategy ('Do-Something' option) can be compared, a 'Do-Minimum'⁵⁴ scenario is used.

The modelling assessment identifies that:

- A substantial proportion of projected growth in travel demand in the CMA will be accommodated by sustainable transport modes;
- The Strategy is forecast to provide an increase in mode share for sustainable transport modes and a reduction in the demand to travel by private car;
- The public transport network is forecast to have very high usage with a significant increase in total passenger boardings;
- The Strategy is forecast to result in significant reductions in the levels of casualties on the road network and savings in collision costs;
- The Strategy is forecast to result in positive effects on physical activity through an increase in cycling (due to the increase in cycling mode share) while the Strategy is forecast to result in negative effects on physical activity through a decrease in walking (due to the large mode shift from walking to public transport and cycling modes due to the improved infrastructure for these modes provided by the Strategy);
- Travel times on the road network are forecast to reduce as a result of the Strategy – compared to the Do-Minimum;
- The Strategy is forecast to reduce transport related emissions;
- The Strategy is forecast to improve accessibility by reducing severance and increasing the accessibility to public transport, particularly from socially deprived areas across the CMA;
- A more integrated public transport network provided by the Strategy results in an increased level of public transport interchange; and
- The Strategy represents a worthwhile investment with transport user benefits forecast to exceed the outline estimate cost of delivering the Strategy.

Expanding on the reduction forecast for transport emissions, the implementation of the Strategy are forecasted to reduce the following environmental emissions in the range of 2 to 5%: nitrogen oxide and dioxide (reduction of 3.1%); particulate emissions (reduction of 2.4%); hydrocarbon (reduction of 3.0%); carbon monoxide and dioxide (reduction of 2.1%); benzene (reduction of 3.6%); methane (reduction of 5.0%); and butadiene (reduction of 3.4%). The 2.4% reduction in particulate emissions is particularly beneficial as this is considered to be particularly harmful to the health of people in close proximity to the emitted particulate.

As detailed in Chapter 5 ("*Strategy Development and Outcomes*") of the Strategy, the Strategy:

- Provides a scalable transport network framework to better manage the increased demand for travel resulting from significant population growth;
- Prioritises public transport, walking and cycling in urban areas across the Cork Metropolitan Area;
- Supports social inclusion objectives through the provision of a more equitable transport system and wider public transport accessibility to more areas of deprivation;
- Provides a safer transport network where investment is priority focussed and data led;

⁵⁴ The 'Do-Minimum' network includes forecast transport demand (for the design year of 2040) and additional transport schemes (public transport, cycling and road) that are already built, under construction or are committed in terms of planning approval and allocation of funds. The list of schemes included in the Do-Minimum scenario is as follows:

- M28 Cork to Ringaskiddy: As part of the 2030 cork TEN-T network this scheme is assumed to be in place by 2040;
- Dunkettle Interchange Upgrade: As included in the Government's 'Building on Recovery: Infrastructure and Capital Investment 2016-2021'; and
- Cork City Centre Movement Strategy: The first phases of this strategy have been implemented and are included in the Do-Minimum scenario.

- The overall reduction in car use promotes better physical and mental health and wellbeing by incorporating more active travel and incidental exercise in the transport network, either as walking and cycling trips in their own right or as part of linked trips with public transport, and improving local air quality;
- Enhances the region's liveability and attractiveness from a tourism, cultural and economic perspective;
- Supports the actions of the Climate Action Plan 2019 in reducing transport-related emissions through a provision of a cleaner, greener public transport fleet, a reduction in private car use and promotion of sustainable and active travel; and
- Provides a robust economic case for transport investment in the Cork Metropolitan Area producing a significant benefit cost ratio of approximately 2.5:1.

The overall findings of the SEA are that:

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

The National Transport Authority are integrating all recommendations arising from the SEA and AA processes into the Strategy (see Section 9 of this report), facilitating compliance of the Strategy with various European and National legislation and Guidelines relating to the protection of the environment and the achievement of sustainable development.

Implementation of the Strategy will contribute towards efforts to achieve a number of the 17 Sustainable Development Goals⁵⁵ 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 Strategy 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 or 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 Strategy facilitates more consolidated urban areas, reuse and regeneration of brownfield lands and reductions in sprawl. In this way the Strategy 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.

⁵⁵ 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 industrialisation 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.

Among other positive environmental effects, the Strategy 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 including light rail/metro, cycling and walking.

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

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

Table 8.3 details the various types of environmental effects likely to arise with respect to the Strategy (as developed from the selected alternatives – see Section 7) as a direct result of development and activities under the Strategy 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 Strategy - potentially significant adverse environmental effects which could arise as a result of implementing the Strategy would be likely to be avoided, reduced or offset.

8.3 Transboundary Effects (Northern Ireland)

Taking into account the geographical scope of Strategy provisions (that apply to the Cork Metropolitan Area) and the detailed Strategy provisions relating to environmental protection and management (please refer to Table 8.3 and Section 9 of this SEA Environmental Report), it is determined that significant environmental effects will not occur in Northern Ireland.

8.4 Appropriate Assessment

Stage 2 Appropriate Assessment (AA) has been undertaken alongside the preparation of the Strategy. The requirement for AA is provided under the EU Habitats Directive (Directive 1992/43/EEC). The AA concluded that the Strategy will not affect the integrity of the Natura 2000 network⁵⁶. Various content has been integrated into the Strategy through the SEA and AA processes (see Section 9). The preparation of the Strategy, SEA and AA has taken place concurrently and the findings of the AA have informed both the Strategy and the SEA.

8.5 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 that are interrelated; implementation of the Strategy will not affect the interrelationships between these components. The presence of significant interrelationships between environmental components is identified on Table 8.4.

⁵⁶ 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 8.3 Overall Effects Arising from the Strategy

Environmental Component	Likely Environmental Effects, as a direct result of development and activities under the Strategy 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 ⁵⁷	
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 Strategy, 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 Strategy, including those relating to sustainable mobility. 	PHH1 PHH2

⁵⁷ 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 Strategy 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 ⁵⁷	
Biodiversity and flora and fauna	<ul style="list-style-type: none"> Facilitates lower overall effects on ecology (including designated sites, ecological connectivity and 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/or 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 Strategy 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 ⁵⁷	
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 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. 	<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 Strategy. 	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 /river bank 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

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								

8.6 Detailed Evaluation of Strategy Provisions

The following applies to each of the sub-sections 8.6.1 to 8.6.11 below:

The Strategy is situated in a hierarchy of documents setting out public policy for land use, transport and climate mitigation, such as the National Planning Framework, the National Development Plan, the National Mitigation Plan and the Regional Spatial and Economic Strategy for the Southern Region and associated Metropolitan Area Strategic Plan (for additional detail please refer to Section 3.2 "Hierarchy of Planning and Environmental Assessment" in this report).

These other existing policies, plans etc. have been subject to their own environmental assessment processes, as relevant, and already provide for various measures that have been compiled into the Strategy. The Strategy aligns with these documents and will be incorporated into the review and preparation of these documents.

Individual transport projects must be consistent and comply with the provisions of these other policies, plans etc. and will be subject to their own project level EIA and AA requirements as relevant. An assessment of cumulative effects is provided at Section 7.3 of this report.

8.6.1 Vision, Guiding Principles and Outcomes (Chapter 1 and 17)

	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>Summary of Key Provisions/Outcomes from the Strategy:</p> <p>Vision CMATS will deliver an integrated transport network that addresses the needs of all modes of transport, offering better transport choices, resulting in better overall network performance and providing capacity to meet travel demand and support economic growth.</p> <p>Guiding Principles and Outcomes The Cork Metropolitan Area Transport Strategy (CMATS) was formulated to be consistent with six identified guiding principles. The principles and their consistency with the Strategy Outcomes are summarised in the following paragraphs.</p> <p>Principle 1 To support the future growth of the CMA through the provision of an efficient transport network. Implementation of CMATS will result in improvements to the road, suburban rail, light rail, pedestrian and cycle network. These improvements are targeted in parts of the Metropolitan Area that are planned for future housing, employment and educational growth. The efficiency of the existing and future strategic road network will be protected through the minimisation of local traffic and restriction of local access routes to the National Road Network.</p> <p>Principle 2 To prioritise active and sustainable transport and reduce car dependency within the CMA. Implementation of CMATS will result in a step-change in public transport provision and builds upon existing walking and cycling strategies adopted in the Metropolitan Area. The need for private car ownership (and dependency) will be reduced through the adoption of demand management and supporting measures including car clubs and Mobility as a Service (MaaS). This prioritisation of active and sustainable modes and the decarbonisation of the public transport fleet is in line with the growing recognition of the negative impacts of motorised vehicles and carbon emissions on the environment and people's health and wellbeing. Principle 2 is aligned with Measures 1 and 2 of the Climate Action Plan 2019 for Transport to deliver targets.</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>		

<p>Principle 3 To provide a high level of public transport connectivity to key destinations within high demand corridors. The implementation of the east-west light rail system will cover approximately a third of the projected CMA population and around 60% of its future jobs. It will also encompass the catchment area of high trip attractors and generators of all key research and third level institutions between Ballincollig and Mahon including the proposed Science and Technology Park at Curraheen, UCC, CIT/Nimbus, College of Commerce and St. John's College. The enhancement of the Cork Suburban Rail corridor will serve existing and future growth areas identified in the core strategies of both Cork City Council and Cork County Council. BusConnects will provide radial and orbital connectivity between the city centre, its suburban areas and key destinations including CUH and centres of education.</p> <p>Principle 4 To identify and protect key strategic routes for the movement of freight and services including the provision of a high level of freight access to the Port of Cork. Committed National Development Plan 2018-2027 projects such as the M28 Cork to Ringaskiddy and Dunkettle Interchange will be realised over the first period of the Strategy. CMATS also proposes the inclusion of a new Cork North Distributor Road (CNDR) and an upgraded N40 to support strategic and freight traffic. The Strategy proposes to protect the alignment of a future Cork North Ring Road and the strategic function of roads such as the Middleton to Whitegate and the R624 to support potential increase in freight traffic to Marino Point.</p> <p>Principle 5 To enhance the public realm through traffic management and transport interventions. CMATS endorses and builds upon the Cork City Centre Movement Strategy that seeks to manage and restrict through traffic in the City Centre. Further public realm improvements to the city centre, its suburban areas, Metropolitan town centres, Urban Expansion Areas and connections to public transport stops will be realised through the adoption of the Design Manual for Urban Roads and Streets principles. Accessibility will also be a key consideration during public realm and public transport improvements.</p> <p>Principle 6 To increase public transport capacity and frequencies where needed to achieve the strategy outcomes. Implementation of CMATS will result in a significantly upgraded transport network and capacity to realise future housing, population and educational growth projections. The Strategy directs sustainable transport infrastructure to where it is most needed, to complement land use projections outlined in the National Planning Framework and future growth scenarios outlined by the relevant Core Strategies of both Local Authorities.</p>				
<p>SEA Commentary:</p> <p><i>The Vision, Guiding Principles and Outcomes will contribute towards the achievement of the selected alternatives for the Strategy and associated environmental 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 Strategy as a direct result of development and activities under the Strategy and in combination with the wider planning framework (including that related to land use planning), are detailed under subsections 8.2 to 8.5 above, including at Table 8.3.</i></p> <p><i>The SEA and AA processes that have been undertaken alongside the preparation of the Strategy have brought about various changes to the emerging Strategy (these are reproduced at Section 9 of this SEA Environmental Report). By integrating all SEA and AA recommendations into the Strategy, the Authority is helping to ensure that: the potential significant adverse effects of implementing the Strategy are avoided, reduced or offset; and the beneficial environmental effects of implementing the Strategy are maximised.</i></p>				

8.6.2 Walking and Cycling⁵⁸

	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>Summary of Key Provisions/Outcomes from the Strategy:</p> <p>The walking network within the Strategy is based on the Cork City Walking Strategy 2013 – 2018. That Walking Strategy was reviewed to ensure integration and alignment with the proposals for the public transport, walking and cycling in the Strategy.</p> <p>Focuses for improvements include the following:</p> <ul style="list-style-type: none"> • Strategic commuter walking routes, including upgrading proposals; • Footway widening on radial routes; • Improving city centre accessibility, including pedestrian priority interventions in Metropolitan town centres and urban expansion areas; • Areas targeted for pedestrian priority improvements include district and neighbourhood walking networks; • Adaptation to consider the needs of older people, those with mobility, visual or hearing impairments and those with buggies; • Provision of public seating areas publicly-accessible toilets, addressing site-specific concerns and enforcement of illegal parking on footpaths; • Re-allocation of road space in favour of pedestrians in the city and town centres; • Provision of quayside walking areas; • Matching crossing facilities with pedestrian desire lines; • Re-timing of signals to reduce pedestrian wait times; • Enhancing access between the city centre, Kent Station and the Parnell Place Bus Station through the provision of traffic-free bridges and pedestrian friendly upgrades to the existing walking network; • Improvement in Walking Routes to Schools; • Integrated map-based system for wayfinding; and • Enhancements to the primary pedestrian network by increasing the permeability to existing and proposed amenity routes by better integrating them into strategic walking routes. <p>Outcomes identified include:</p> <ul style="list-style-type: none"> • An increase in walking levels for work, education and leisure across the CMA, particularly for short journeys (less than 2-3km); • Addressing the safety issues and barriers that prevent citizens and visitors from walking more in Cork; • Supporting a high quality and fully accessible environment for all abilities and ages by continuing to develop a safe, legible and attractive public realm; • Facilitate walking's role as part of linked trips, particularly with rail and bus journeys; and • Promote a far higher standard of urban design and permeability in new and existing developments, and in highway design, in a fashion that consistently prioritises pedestrian movement and safety over that of the private car. <p>The cycle network development for the Strategy is based on the Cork Cycle Network Plan 2017, which was reviewed to ensure integration and alignment with other transport proposals within the Strategy. The cycle network includes approximately 200 km of Primary, 150 km of Secondary, 60 km of Inter-Urban and 140 km of Greenway network. Primary</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>		

⁵⁸ Any mapping of new infrastructure included within the Strategy is indicative only and subject to change through the statutory scheme appraisal process. New projects will be required to be subject to lower-tier environmental assessment and detailed corridor and route selection processes as relevant (including those arising from SEA recommendation "Corridor and Route Selection Process for relevant new infrastructure" – see Section 9).

<p>routes experience the highest level of demand, are typically direct and provide medium long radial connections to key destinations. Secondary routes provide connections from residential and employment areas to the primary network. Greenway networks comprise of traffic free or low-trafficked routes and typically comprise of re-purposed derelict railway lines, routes through parks or alongside rivers. Feeder routes connect with primary and secondary routes and greenways and are typically cycle-friendly advisory routes where traffic calming and management measures allow cyclists and motorists to mix safely. Inter-Urban routes proposed consist of links between the Metropolitan towns and the City network and will comprise of low trafficked routes on selected minor or de-trunked roads and in some cases, off-road facilities along a road verge.</p> <p>The Cycle Network includes future high quality, segregated routes developed and integrated into the design and development of the Northern Distributor Road and Southern Distributor Road and a new link from Dunkettle to Little Island.</p> <p>Supporting Measures identified in the Strategy: Cork City Cycle Hire Scheme and other Bicycle Sharing Schemes, Cycle Parking, Bike Lockers and Hangars, Wheel Ramps, Showers and Changing Facilities, Permeability and Wayfinding and Promotional Events.</p> <p>Key priorities for development of the Cycle Network Plan are as follows:</p> <ul style="list-style-type: none"> • Designating a coherent network of east-west and north-south cycle routes across the area which will provide access to all major trip generators; • The first priority in terms of access will be employment areas and third level education followed by schools. These priorities have been established to support proposed modal shift targets. Cycle links to new development areas have also been prioritised; • Providing the highest possible Level of Service on identified corridors of high demand; • Identifying and maximising opportunities for high quality greenways; • Responding to feedback from key stakeholders and the public. <p>It is noted in the Strategy that both local authorities (City and County Councils) are pursuing funding to complete a bridge over the N40 that would support connections and will need to be supported by measures including appropriate local traffic calming.</p> <p>The components of both the walking and cycling networks are detailed within the Strategy.</p>				
<p>SEA Commentary:</p> <p><i>Areas for improvement with regard to walking focus upon those included in the Cork City Walking Strategy 2013 to 2018, which is provided for by the RSES (Cork Metropolitan Area Strategic Plan Policy Objective 8). The proposed cycle network for the Transport Strategy is based on the Cork Cycle Network Plan 2017, which details a comprehensive cycle network for Metropolitan Cork and is provided for the RSES (Regional Policy Objective 166). Additional cycle links are proposed to ensure integration and alignment with the Strategy's proposed transport networks – as per the provisions of the Strategy these will be subject to further corridor and route selection processes as relevant.</i></p> <p><i>The walking and cycling networks provided for will contribute towards the achievement of the selected investment scenario "Better Integration of Land Use with Public Transport and Sustainable Travel" and associated environmental 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 construction and operation of the walking and cycling networks, including in combination with other Strategy provisions and the wider planning framework (including that related to land use planning), are detailed under subsections 8.2 to 8.5 above, including at Table 8.3.</i></p> <p><i>The SEA and AA processes that have been undertaken alongside the preparation of the Strategy have brought about various changes to the emerging Strategy (these are reproduced at Section 9 of this SEA Environmental Report). By integrating all SEA and AA recommendations into the Strategy, the Authority is helping to ensure that: the potential significant adverse effects of implementing the Strategy are avoided, reduced or offset; and the beneficial environmental effects of implementing the Strategy are maximised.</i></p> <p><i>Strategy provisions relating to walking and cycling would help to facilitate a shift towards more sustainable modes of transport and 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> 				

- Reductions in/limits in increases of all emissions to air and associated achievement of air quality objectives, thereby contributing towards improvement or 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 Strategy and other plans and programmes, including those from the land use sector, the provisions of the Strategy relating to the walking and cycling network 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 provisions 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 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 development of walkways and cycleways – including primary and secondary routes 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 – particularly greenways – are sometimes constructed in ecologically and visually sensitive areas adjacent to the banks of rivers and streams. There is potential for adverse impacts upon ecology including the designated Great Island Channel SAC and Cork Harbour SPA, arising from walking and cycling related developments. Implementation of the Strategy must be in compliance with environmental requirements, as relevant, including those relating to the EU Habitats and SEA Directives (SEO B1). Potential adverse effects would be mitigated both by measures which have been integrated into the Strategy that provide for and contribute towards environmental protection, environmental management and sustainable development and by measures arising from lower tier assessments (including those for the preparation of lower tier strategies, plans, programmes or projects).

8.6.3 BusConnects⁵⁹

	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>Summary of Key Provisions/Outcomes from the Strategy:</p> <p>The Strategy proposes a comprehensive network of high frequency bus services providing radial services between corridors either side of the city core and orbital services across the network. The Core Radial Bus Network connects the external corridors to the City Centre and has been refined to pair Cross-City travel demand to maximise the utilisation of the bus services on these corridors. A significant improvement in the frequency of bus services on these radial routes is also proposed. The Core Radial Bus Network is set out below, including indicative frequencies in the peak travel periods:</p> <ol style="list-style-type: none"> 1. Dublin-Hill – Togher - 15 minutes; 2. Ballyvolane- Donnybrook - 10 minutes; 3. Mayfield - Bishopstown - 10 minutes; 4. Glanmire - Ballincollig - 10 minutes; 5. Mahon - Apple - 10 minutes; 6. Mahon - Blarney / Tower - 10 minutes; 7. Rochestown - Apple - 10 minutes; 8. Grange - Ballincollig (via City Centre): 15 minutes; and 9. Frankfield - Fairhill - 20 minutes. <p>Three high frequency orbital routes are proposed to serve key destinations including Little Island and Cork Institute of Technology. The upgraded orbital network will cover approximately 50km of services and enable interchange with 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>		

⁵⁹ Any mapping of new infrastructure included within the Strategy is indicative only and subject to change through the statutory scheme appraisal process. New projects will be required to be subject to lower-tier environmental assessment and detailed corridor and route selection processes as relevant (including those arising from SEA recommendation "Corridor and Route Selection Process for relevant new infrastructure" – see Section 9).

<p>proposed radial bus services. The three orbital routes, with indicative service frequency, are as follows:</p> <ol style="list-style-type: none"> 1. Northern Orbital: 10-minute frequency; 2. Southern Orbital Inner: 10-minute frequency; and 3. Southern Orbital Outer: 15-minute frequency. <p>A Cross City Network to effectively and efficiently route the cross-city services through the City is provided as are Key Interchange locations that can accommodate larger numbers of public transport services.</p> <p>In order to ensure comprehensive network coverage, additional supporting radial bus services (typically with lower frequencies and catering for a wide catchment) will be developed.</p> <p>The new core bus network in Cork will be significantly upgraded to BusConnects standards including more Real Time Passenger Information (RTPI), systems to prioritise public transport movements at signalised junctions, provision of new footpaths, bus shelter provision, smart ticketing, connections to other modes and transition to a low emission fleet.</p> <p>It is proposed to continually improve the existing network of regional bus services (that provide an important element of the Strategy throughout the metropolitan area), with a view to expanding on service frequency to meet growing demand as required.</p> <p>The provision of local bus services within the metropolitan towns will be reviewed during the period of this Strategy.</p> <p>With respect to coach operations, to ensure that the Cork metropolitan Area can facilitate a growing number of visitors, measures are required including way finding and an integrated coach management scheme at key destinations.</p> <p>Bus priority lanes, bus gates, protected laybys and bus priority at signalised junctions will be further considered as a means of prioritising bus services above general traffic.</p> <p>The Strategy sets out proposals for a light rail scheme (see Section 8.6.5 below). In advance of the development of this light rail corridor, and to allow the development consolidation to support its delivery, it is intended to serve the light rail route with a high frequency bus service and to develop bus priority measures along the route to enable a high level of performance in advance of its transition to light rail. However, during the early period of the Strategy, it is intended to identify and protect an alignment for the light rail scheme, allowing development consolidation along the corridor.</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 the Regional Spatial and Economic Strategy for the Southern Region.</i></p> <p><i>The various provisions relating to BusConnects will contribute towards the integration of land-use development with sustainable transport provision, as is provided for by Investment Scenario 3 "Better Integration of Land Use with Public Transport and Sustainable Travel" (see evaluation at Section 7 of this report), including consolidated and intensified development around public transport networks. The provisions will also help to contribute towards the achievement of the preferred options for Public Transport Corridors Mode Capacities and Route Alignment (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 ongoing operation and expansion of the bus network, including in combination with other Strategy provisions and the wider planning framework (including that related to land use planning), are detailed under subsections 8.2 to 8.5 above, including at Table 8.3.</i></p> <p><i>The SEA and AA processes that have been undertaken alongside the preparation of the Strategy have brought about various changes to the emerging Strategy (these are reproduced at Section 9 of this SEA Environmental Report). By integrating all SEA and AA recommendations into the Strategy, the Authority is helping to ensure that: the potential significant adverse effects of implementing the Strategy are avoided, reduced or offset; and the beneficial environmental effects of implementing the Strategy are maximised.</i></p> <p><i>The provisions relating to bus services and bus rapid transport (including BusConnects Core Radial Bus Network and Orbital Routes, supporting bus services, regional bus services, bus services within the metropolitan towns, coach operations and bus priority measures) would help to avoid delays, improve performance, increase bus speeds and allow for reliable journey times. These provisions would also</i></p>				

contribute towards an overall improvement in sustainable mobility, including a shift from car to more sustainable transport modes, and improve traffic flows. The bus system proposed would 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 these provisions 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 Strategy and other plans and programmes, including those from the land use sector, these provisions 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, a higher efficiency of land utilisation, increases in sustainable mobility and a reduction in the need to develop greenfield lands could be achieved. 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 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 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.

Upgrading to BusConnects standards including more Real Time Passenger Information (RTPI), systems to prioritise public transport movements at signalised junctions, provision of new footpaths, bus shelter provision, smart ticketing, connections to other modes and transition to a low emission fleet will 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. A lower emission fleet would be likely to be more energy efficient and will emit fewer emissions, further contributing towards protection of the environment including with respect to air quality and greenhouse gas emissions targets (SEOs AC1 AC3 PHH2).

Serving the indicative light rail route (see Section 8.6.5 below) with a high frequency bus service and developing bus priority measures along the route would contribute towards sustainable mobility and consolidation of development.

The types of environmental effects, including the range of adverse effects, likely to or with the potential to, if unmitigated, arise from the provisions in this Chapter are consistent with those as detailed on Table 8.3. At this Strategy level, there is an unavoidable lack of specificity of associated with proposals. This specificity and associated environmental assessment will be provided at project level. Notwithstanding this, it is possible to identify potentially significant adverse effects, 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).

There is potential for adverse impacts upon ecology including the designated Great Island Channel SAC and Cork Harbour SPA, arising from these provisions. Implementation of the Strategy must be in compliance with environmental requirements, as relevant, including those relating to the EU Habitats and SEA Directives (SEO B1).

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

8.6.4 Suburban Rail Provisions⁶⁰

	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>Summary of Key Provisions/Outcomes from the Strategy:</p> <p>To support sustainable growth along an enhanced railway corridor, the Strategy provides a number of new railway stations:</p> <ul style="list-style-type: none"> On the <i>Midleton / Cobh-Cork Line</i> at Tivoli Docks, Dunkettle, Waterrock, Ballynoe and Carrigtwohill West; and On the <i>Mallow-Cork Line</i> at Blackpool / Kilbarry, Monard and Blarney / Stoneview. <p>Improvements at Kent Station allow for through running of services on the network between Mallow, Midleton and Cobh without impacting on Inter-City services⁶¹.</p> <p>Consolidation of development and the provision of high quality walking, cycling, local bus services and (where appropriate) the enhancement of Park and Rail facilities to support commuters from a much wider catchment area is of paramount importance.</p> <p>In order to meet the target demand on the strategic rail corridor it is proposed to increase the service frequency between Kent Station and Midleton and between Kent Station and Cobh from one train every 30 min to one train every 10min. It is also proposed to increase the service frequency between Kent Station and Mallow from one train every 30 min to one train every 10min. It is also proposed to provide through running services between Mallow and both Midleton and Cobh to cater for the identified cross city demand. The following lists the proposed Cork Suburban Rail Service Frequencies:</p> <ul style="list-style-type: none"> Midleton - Cork: 20 min; Midleton - Mallow: 20 min; Cobh - Cork: 20 min; Cobh - Mallow: 20 min; The combined cross city services equate to: <ul style="list-style-type: none"> Glounthaune - Cork: 5 min; Cork - Mallow: 10 min; and Cross City Demand: 10 min. <p>The enhanced Cork Suburban Rail services will require supporting infrastructure including: station enhancements and Improvements; new stations as required by land use development; improvements at Kent, Cobh and Mallow stations; passing loops at a number of locations; double track to Midleton; signalling improvements; and the completion of the National Train Control Centre.</p> <p>The Strategy supports the electrification of rail services that would result in higher performance, lower maintenance costs, lower energy costs and reduced emissions. The lower air and noise emissions are critical to support residential amenity of new development consolidated around the railway corridor.</p> <p>The National Development Plan commits to the electrification of suburban rail lines in Dublin under the DART Expansion Programme by 2027. A similar commitment for the Cork Suburban rail network would be likely to take place over 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>		

⁶⁰ Any mapping of new infrastructure included within the Strategy is indicative only and subject to change through the statutory scheme appraisal process. New projects will be required to be subject to lower-tier environmental assessment and detailed corridor and route selection processes as relevant (including those arising from SEA recommendation "Corridor and Route Selection Process for relevant new infrastructure" – see Section 9).

⁶¹ The National Development Plan and 2016 Rail Review Report propose number of relevant improvements to the **Cork to Dublin Inter-City** line, however, in terms of the Strategy, the over-riding priority is to ensure that the provision of additional suburban rail stations and services do not preclude the ability of Irish Rail to increase the speed or frequency on the existing InterCity line.

latter half of the Strategy. An alternative to the full electrification of the suburban rail network could be to **examine the feasibility of a fleet upgrade to hydrogen and/or battery power trains**. While providing similar benefits to a standard electrification network this type of electric train does not require the significant network wide retrofitting of electrification infrastructure such as power supply, bridge alterations, etc. This has the potential to save significant costs on the electrification of the suburban rail network. Hydrogen powered trains are about to be passenger tested in the Netherlands, Germany and the UK.

SEA Commentary:

The National Planning Framework and associated National Development Plan (Project 2040) and the Regional Spatial and Economic Strategy for the Southern Region already provide for investment in the existing rail network for inter-city and commuter rail movement, including with respect to the development of new commuter rail stations in Metropolitan Cork.

The Strategy proposals, including new rail stations, supporting infrastructure and increasing frequencies on existing routes, will contribute towards the integration of land-use development with sustainable transport provision, as is provided for by Investment Scenario 3 "Better Integration of Land Use with Public Transport and Sustainable Travel" (see evaluation at Section 7 of this report), including consolidated and intensified development around public transport networks. The proposals will also help to contribute towards the achievement of the preferred option for the Strategic Rail Corridor (see evaluation at Section 7 of this report).

The various types of environmental effects likely to arise with respect to the ongoing operation and expansion of the rail network, including in combination with other Strategy provisions and the wider planning framework (including that related to land use planning), are detailed under subsections 8.2 to 8.5 above, including at Table 8.3.

The SEA and AA processes that have been undertaken alongside the preparation of the Strategy have brought about various changes to the emerging Strategy (these are reproduced at Section 9 of this SEA Environmental Report). By integrating all SEA and AA recommendations into the Strategy, the Authority is helping to ensure that: the potential significant adverse effects of implementing the Strategy are avoided, reduced or offset; and the beneficial environmental effects of implementing the Strategy are maximised.

The further development of the network, including the construction of additional train stations, the upgrading of existing stations, electrification and upgrading the fleet, would shorten journeys and improve quality for the customer. It would also help to facilitate a shift from car to heavy rail, thereby contributing towards sustainable mobility and associated positive effects (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 or 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.*

Provisions relating to suburban rail that are provided for in this Chapter would present in various potentially 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). Although provisions would contribute towards reductions in emissions to air including noise, an increase noise levels could be experienced at specific locations (SEOs AC1 PHH2). Upgrading and enhancing certain stations could potentially conflict with the protection of environmental components including architectural heritage (SEO CH2). There is also potential for adverse impacts upon ecology including the designated Great Island Channel SAC and Cork Harbour SPA, arising from these provisions including electrification of the line and double tracking to Middleton. Implementation of the Strategy must be in compliance with environmental requirements, as relevant, including those relating to the EU Habitats and SEA Directives (SEO B1).

In combination with other parts of the Strategy and other plans and programmes, including those from the land use sector, these provisions 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, a higher efficiency of land utilisation, increases in sustainable mobility and a reduction in the need to develop greenfield lands could be achieved. 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 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.

8.6.5 Light Rail Provisions⁶²

	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>Summary of Key Provisions/Outcomes from the Strategy:</p> <p>The Strategy proposes a strategic east-west light rail public transport corridor from Mahon to Ballincollig via the City Centre. Stations along this route would serve a catchment area of all existing and proposed key adjoining development areas including the following, as well as providing interchange with InterCity and suburban rail services at Kent station plus proposed Bus Connects services:</p> <ul style="list-style-type: none"> • Ballincollig; • The proposed Cork Science and Innovation Park; • Cork Institute of Technology; • Cork University Hospital; • University College Cork; • Cork City Centre; • Kent Station / Cork North Docklands; • Cork South Docklands; and • Mahon. <p>The commitment to examining the feasibility of such a route is confirmed by the publication of both the National Planning Framework 2040 and the National Development Plan 2018-2027 and a recent upsurge in planning developments and interest in key sites along the corridor has provided further momentum to determining the feasibility of such a route. In the absence of an alternative route, an alignment immediately adjacent to the existing Old Passage West Line greenway is proposed by the Strategy to overcome the steep topographical constraint created by the escarpment. This will not preclude the development of alternative alignment options through a required feasibility study.</p> <p>The LRT is required to:</p> <ul style="list-style-type: none"> • Unlock strategic development areas in its catchment area including the Cork City Docks, Curraheen, Ballincollig and Mahon; • Maximise the development potential of windfall sites; • Provide greater certainty for future planning and development, to pursue higher densities required to meet NPF population and employment targets for Cork City; • Underpin the planned expansion of University College Cork (UCC), Cork Institute of Technology (CIT) and Cork University Hospital (CUH); • Enable car-free and low car development within its catchment in line with recent changes to government policy outlined in the NPF and Sustainable Apartment guidelines; and • Reduce reliance on the N40 in particular, for short trips within the Metropolitan Area. <p>The LRT route will serve a wide range of existing and future destinations including employment, institutional and retail uses, facilitate modal shift away from the private car for short trips and free up capacity on arterial roads for bus services.</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>		

⁶² Any mapping of new infrastructure included within the Strategy is indicative only and subject to change through the statutory scheme appraisal process. New projects will be required to be subject to lower-tier environmental assessment and detailed corridor and route selection processes as relevant (including those arising from SEA recommendation "Corridor and Route Selection Process for relevant new infrastructure" – see Section 9).

SEA Commentary:

The provisions of the Strategy with respect to Light Rail Transit are consistent with those of the National Planning Framework and associated National Development Plan (Project 2040) and the Regional Spatial and Economic Strategy for the Southern Region and are subject to further analysis, including demand and patronage analysis and cost benefit analysis, and environmental assessment.

The Strategy proposals would contribute towards the integration of land-use development with sustainable transport provision, as is provided for by Investment Scenario 3 "Better Integration of Land Use with Public Transport and Sustainable Travel" (see evaluation at Section 7 of this report), including consolidated and intensified development around public transport networks. The proposals would also help to contribute towards the achievement of the preferred option for the Strategic East-West Corridor (see evaluation at Section 7 of this report).

The various types of environmental effects likely to arise with respect to the development of the light rail network, including in combination with other Strategy provisions and the wider planning framework (including that related to land use planning), are detailed under subsections 8.2 to 8.5 above, including at Table 8.3.

The SEA and AA processes that have been undertaken alongside the preparation of the Strategy have brought about various changes to the emerging Strategy (these are reproduced at Section 9 of this SEA Environmental Report). By integrating all SEA and AA recommendations into the Strategy, the Authority is helping to ensure that: the potential significant adverse effects of implementing the Strategy are avoided, reduced or offset; and the beneficial environmental effects of implementing the Strategy are maximised.

Light rail would provide additional, high capacity, public transport services for the City within the Strategic East-West Corridor. The reliability, speed and frequency of light rail (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):

- 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 or 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.

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.

In combination with other parts of the Strategy 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 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.

Potentially adverse environmental effects of constructing and operating light rail 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;
- 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); and
- 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 would be required for this project.

8.6.6 Parking Provisions⁶³

	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>Summary of Key Provisions/Outcomes from the Strategy:</p> <p><i>Park and Ride</i> Quality local walking and cycling networks will be required to support safe and reliable interchange services and adjoining employment and residential uses. Indicative locations for high capacity, strategic park and ride facilities are proposed at (the represent indicative locations only and are subject to further investigation):</p> <ul style="list-style-type: none"> • Dunkettle – catchment for M8 and N25. Will be supported by suburban rail and BusConnects; • Carrs Hill / M28 – BusConnects service to serve the Carrigaline catchment area and potentially the pharma sector at Ringaskiddy; • Cork Airport – to serve Kinsale catchment and local employment sites; • Bandon Road Roundabout (N40) (BusConnects); • Blarney/Stoneview (rail based) – supports southbound M20 traffic and UAE catchment; and • Ballincollig/Woodberry (light rail) – supports Maglin UAE, Ballincollig town centre, local employers and eastbound commuters from the N22. <p>In the majority of cases, strategic Park and Rides will be related to the delivery of the BusConnects network and require bus priority measures to be implemented in advance of the opening of the facility.</p> <p>The strategic park and rides will be complemented by a number of smaller, local facilities sometimes known as ‘mobility hubs’ in a European city context.</p> <p>The phased implementation of strategic Park and Ride sites and mobility hub facilities will be accompanied by a phased reduction in the availability of on-street spaces within Cork City Centre and Metropolitan town centres.</p> <p><i>Parking Management</i> The availability and price of parking are major determinants of the relative attractiveness of the private car versus sustainable transport options and an extremely effective demand management tool. Parking management measures can include the control of price and supply. Parking enforcement is also vital to ensure that footpaths and cycle lanes are not blocked by parked cars as this can be a barrier to movement for pedestrians and cyclists, especially those with disabilities.</p> <p>The following outlines the proposed approach to parking for new development:</p> <ul style="list-style-type: none"> • Direct high-density residential land use and high-trip generating uses including employment and retail to areas that are currently, or will be, served by high frequency transport services; • The temporary oversupply of car parking during the early phases of development will be restricted. Local mobility hubs could be utilised to provide for the phased implementation of new development parking in some circumstances; and • Set maximum parking standards across the CMA taking into account accessibility to public transport and/ or access to local services including education and employment; and • Set out car-free or low car standards in development areas within an 800 m walking catchment area of Cork city centre and/or of quality public transport. <p>The Strategy also sets approaches to on and off-street parking.</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>		

⁶³ Any mapping of new infrastructure included within the Strategy is indicative only and subject to change through the statutory scheme appraisal process. New projects will be required to be subject to lower-tier environmental assessment and detailed corridor and route selection processes as relevant (including those arising from SEA recommendation “Corridor and Route Selection Process for relevant new infrastructure” – see Section 9).

SEA Commentary:

The provisions of the Strategy with respect to parking are consistent with those of the Regional Spatial and Economic Strategy for the Southern Region and the National Mitigation Plan.

These provisions will help to facilitate the achievement of the selected alternatives for the Strategy, including the selected investment scenario "Better Integration of Land Use with Public Transport and Sustainable Travel" and associated environmental effects and interactions (see evaluation at Section 7 of this report). These alternatives will contribute towards the integration of land-use development with sustainable transport provision, including consolidated and intensified development around public transport networks.

The various types of environmental effects likely to arise with respect to the construction and operation of the parking facilities, including in combination with other Strategy provisions and the wider planning framework (including that related to land use planning), are detailed under subsections 8.2 to 8.5 above, including at Table 8.3.

The SEA and AA processes that have been undertaken alongside the preparation of the Strategy have brought about various changes to the emerging Strategy (these are reproduced at Section 9 of this SEA Environmental Report). By integrating all SEA and AA recommendations into the Strategy, the Authority is helping to ensure that: the potential significant adverse effects of implementing the Strategy are avoided, reduced or offset; and the beneficial environmental effects of implementing the Strategy are maximised.

The development of both strategic park and ride and 'mobility hubs' together with parking management would help to facilitate increased use of more sustainable modes of transport and 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 or 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 Strategy and other plans and programmes, including those from the land use sector, these provisions 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 provisions 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 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.

Arising both directly from the construction and operation and indirectly from facilitating non-transport related development, parking/park and ride would have the potential to give rise to a range of adverse impacts including contributing towards motorised transport and associated emissions and energy usage and interactions with human health (SEOs C1 C2 C3 HH1). Potential conflicts would be mitigated by the measures which have been integrated into the Strategy and are identified in Section 9 of this report.

8.6.7 Public Transport Interchange and Integration Provisions

	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
Summary of Key Provisions/Outcomes from the Strategy: The proposed public transport network provides significant improvements for interchange between modes and services through the following: <ul style="list-style-type: none"> • Orbital services interchanging with radial services; • Bus services interchanging with heavy and light rail services; • Active modes interchanging with public transport services; and • Car interchanging with public transport services as park and ride. 	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		

<p>The Strategy includes provisions relating to bus stops and shelters including relating to design, style and real time service information. Also provided are requirements relating to customer experience at interchange locations, including those relating to appearance and signage.</p> <p>The Strategy also provides for integrated ticketing and smartcard technology as well as providing for principles for transit fares (they should be easy to use and understand, regionally integrated, designed to provide price incentives for more frequent use and affordably priced to make transit an attractive alternative to the private car).</p> <p>Good practice in efficient kerbside management for example - dual use of delivery bays and taxi through time restrictions -to support both the day and night time economy as appropriate will be promoted. Other priorities for small public service vehicles include incentivising conversion of taxis to low emission vehicles and improving the integration of small public service vehicles into the overall public transport network.</p>				
<p>SEA Commentary:</p> <p><i>By making public transport more attractive, improving the quality of the public transport experience and improving access, these provisions would contribute towards the achievement of the selected alternatives for the Strategy, including the selected investment scenario "Better Integration of Land Use with Public Transport and Sustainable Travel" and associated environmental effects and interactions (see evaluation at Section 7 of this report). These alternatives will contribute towards the integration of land-use development with sustainable transport provision, including consolidated and intensified development around public transport networks.</i></p> <p><i>The various types of environmental effects likely to arise from implementation of these provisions, including in combination with other Strategy provisions and the wider planning framework (including that related to land use planning), are detailed under subsections 8.2 to 8.5 above, including at Table 8.3.</i></p> <p><i>The SEA and AA processes that have been undertaken alongside the preparation of the Strategy have brought about various changes to the emerging Strategy (these are reproduced at Section 9 of this SEA Environmental Report). By integrating all SEA and AA recommendations into the Strategy, the Authority is helping to ensure that: the potential significant adverse effects of implementing the Strategy are avoided, reduced or offset; and the beneficial environmental effects of implementing the Strategy are maximised.</i></p> <p><i>These Public Transport Interchange and Integration Provisions would help to facilitate increased use of more sustainable modes of transport and 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 or 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>In combination with other parts of the Strategy and other plans and programmes, including those from the land use sector, these provisions 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 provisions would help to facilitate a higher efficiency of land utilisation, increases in sustainable mobility and a reduction in the 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>				

8.6.8 Roads Provisions⁶⁴

	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>Summary of Key Provisions/Outcomes from the Strategy:</p> <p>The Strategy proposes the following principles for the provision of new roads within the Cork Metropolitan Area;</p> <ul style="list-style-type: none"> New road schemes will be developed in accordance with the principles of Smart, Compact, Growth as set out in NSO1 (Compact Growth) of the NPF; New road schemes will support CMATS objectives of enhancing sustainable transport capacity and connectivity; New non-national roads should ensure that strategic capacity and safety of National Roads for strategic traffic is maintained in accordance with NSO2 (Enhanced Regional Accessibility) of NPF by diverting local traffic to appropriate routes; Apart from motorway or express road proposals; all new road schemes will be designed to provide safe and appropriate arrangements to facilitate walking, cycling and public transport provision; an New road schemes must demonstrate that alternative solutions, such as public transport provision, traffic management or demand management measures, cannot effectively and satisfactorily address the circumstances prompting the road proposal or are not applicable or appropriate <p>Provisions are included relating to:</p> <p>National Roads</p> <ul style="list-style-type: none"> N40 South Ring Road; The upgrade of the N40 South Ring Road to motorway status is one of the key recommendations of the TII Demand Management Study, primarily to limit its use to motorised vehicles and to remove the small number of cyclists, pedestrians and slow moving vehicles in the interests of road safety. Transport Infrastructure Ireland (TII) will undertake traffic management and improvement studies focussed on the N40 to assess current capacity constraints and to identify potential future improvements to the operational safety of this key strategic route. Dunkettle Interchange; Upgrade to a free-flow, grade separated interchange received planning permission in May 2013. It will alleviate the existing bottle neck and congestion at the intersection of the M8/N8, N40 and N25. M28 Cork – Ringaskiddy The importance of improving strategic road access to the Ringaskiddy Port is of national economic priority and was reiterated in the recently published NDP. The proposed upgrade of the N28, to become the M28, is a long-term strategic objective for both Cork City and County Councils and a mainstay of regional planning frameworks; N22, N25, N27 and N71 improvements; N/M20 Cork – Limerick (An opportunity exists to provide better connectivity between the two cities by improving the quality of the transport network which will also address road safety issues associated with the existing N20 route and provide for safer, efficient and shorter journeys. The provision of the M20 is also in line with the NPF's National Strategic Outcome 2, to provide for Enhanced Regional Accessibility. The solution for the N20 corridor will be identified through the N/M20 Cork to Limerick Road Improvement Scheme appraisal process and the development of a business case for the scheme) Cork North Ring Road As detailed in the Strategy, as part of the N/M20 Cork to Limerick Road Improvement Scheme, Transport Infrastructure Ireland will examine the inclusion of the CNRR linking the N20 to Dunkettle Interchange. The National Development Plan indicates that the CNRR is a complementary but independent scheme to the N/M20 corridor scheme. However, its requirements, scale (based on demand levels) and justification will be considered and assessed as part of the appraisal process for the overall M20 scheme. Whilst it is envisaged that the CNRR would not be delivered in advance of the substantive public transport elements of 	<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>		

⁶⁴ Any mapping of new infrastructure included within the Strategy is indicative only and subject to change through the statutory scheme appraisal process. New projects will be required to be subject to lower-tier environmental assessment and detailed corridor and route selection processes as relevant (including those arising from SEA recommendation "Corridor and Route Selection Process for relevant new infrastructure" – see Section 9).

<p>the Strategy, the appraisal process for the N/M20 Scheme will consider implementation and delivery in great detail. Subject to the appraisal outcomes of the N/M20 Cork to Limerick Road Improvement Scheme, it is expected that the CNRR project will be planned for implementation during the latter period of the Strategy. The finalisation of a route corridor and its protection from development intrusion is an objective of the Strategy to allow for changing circumstances including potentially an earlier project delivery requirement.</p> <p>In line with the NDP, the requirement for the CNRR will be determined in accordance with DTTAS Guidance for scheme appraisal and Transport Infrastructure Ireland Project Appraisal Guidelines for National Roads (PAG) including a Route Options Assessment and Business Case. This Assessment should include the examination of a potential link from the N22 to the M8 and if required, designed in such a fashion that prioritises and safeguards the strategic traffic function of the route. Subject to the appraisal outcomes of the N/M20 Cork to Limerick Road Improvement Scheme, it is expected that the CNRR project will be planned for implementation during the latter period of the Strategy. The finalisation of a route corridor and its protection from development intrusion is an objective of the Strategy to allow for changing circumstances including potentially an earlier project delivery requirement.</p> <p>Regional and Local Roads</p> <ul style="list-style-type: none"> • Cork Northern Distributor Road; CMATS requires additional road network infrastructure on the north side of Cork City to cater for access to planned development lands, provide walking and cycling linkages, access to radial public transport routes, orbital public transport provision, and the removal of some strategic traffic from Cork City Centre. This new road will be in the form of a distributor road referred to as the Cork Northern Distributor Road. It will: create opportunities for sustainable development of existing land banks in the Northern Cork Metropolitan area including Monard SDZ and the Ballyvollane Urban Expansion Area; facilitate the rollout of sustainable transport measures including public transport services for the North Cork Metropolitan City area; facilitate the introduction of a HGV ban within the City Centre; serve the requirements of local traffic demand in the northern CMA; and allows for the downgrading of national routes entering Cork City, which can therefore allow for the prioritisation of sustainable modes on these routes. • Southern Distributor Road; To address the significant shortfall in local connectivity in the Southern Environs area, CMATS has identified the requirement for a more comprehensive, multi-modal Southern Distributor Road (SDR). The SDR will necessitate the upgrade of the existing route and the creation of a new road link between Rochestown and Sarsfield Road, via the Carrigaline Road, Grange Road and Airport Road, and a proposed new link between the N27 and Sarsfield Road with the potential to also link to the N71 via Lehanaghmore and Spur Hill. The SDR could also provide enhanced connectivity to Cork Airport with a potential secondary access point. The road will ultimately provide the basis for the Southern Outer Orbital bus route connecting Rochestown with CIT whilst also enabling interchange with radial bus routes. • Safeguarding network at Whitegate and Marino Point • Local Road improvements to support the Cork County Urban Expansion Areas; • City Centre Movement Strategy; • Cork Docklands and Tivoli Docks Bridge and Road Infrastructure; • Docklands Bridge Infrastructure; • South Docklands Road Infrastructure; • North Docklands Road Infrastructure; and • Tivoli Access. 				
<p>SEA Commentary:</p> <p><i>The provisions of the Strategy with respect to Roads are consistent with those of the National Planning Framework and associated National Development Plan (Project 2040) and the Regional Spatial and Economic Strategy for the Southern Region. Any routes shown in the mapping of the Strategy are indicative only. Further consideration will need to be given to all proposals including the Cork North Ring Road.</i></p> <p><i>Roads proposals would contribute towards the integration of land-use development with sustainable transport provision, as is provided for by Investment Scenario 3 "Better Integration of Land Use with Public Transport and Sustainable Travel" (see evaluation at Section 7 of this report), including consolidated and intensified development around public transport networks. The proposals would also help to contribute towards the achievement of the preferred options for the Cork Northern Ring Road and the Cork Northern Distributor Road (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 development of the light rail network, including in combination with other Strategy provisions and the wider planning framework (including that related to land use planning), are detailed under subsections 8.2 to 8.5 above, including at Table 8.3.</i></p> <p><i>The SEA and AA processes that have been undertaken alongside the preparation of the Strategy have brought about various changes to the emerging Strategy (these are reproduced at Section 9 of this SEA Environmental Report). By integrating all SEA and AA recommendations into the Strategy, the Authority is helping to ensure that: the potential significant adverse effects of implementing the Strategy are</i></p>				

avoided, reduced or offset; and the beneficial environmental effects of implementing the Strategy are maximised. Environmental mitigation would also be provided through any environmental assessment process that is required.

The principles for the provision of new roads within the Cork Metropolitan Area outlined by the Strategy will support the achievement of recent changes in national transport policy that seek to significantly increase in the use of public transport, cycling and walking and a reduction in the growth in private car travel.

New roads would have the potential to facilitate more sustainable modes of transport (including bus, walking, cycling and electric scooter) and associated positive environmental effects including those relating to emissions, air quality and human health. New roads, including the Cork Northern Distributor Road and the Cork North Ring Road, would help to remove orbital and HGV traffic from Cork City Centre thereby reducing traffic, emissions and conflicts with human health. New roads would also have the potential to reduce congestion and make private transport by car more attractive. Improvements in technologies mean that emissions from newer cars (once operational) are reducing. Overall the Strategy is forecast to result in a reduction in emissions – see subsection 8.2.

In combination with other parts of the Strategy and other plans and programmes, including those from the land use sector, investment in roads 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 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.

Potentially adverse environmental effects of constructing and operating roads, including road widening and improved road infrastructure, 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;
- 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); and
- Traffic, noise, dust and vibration during construction and operation (SEO PHH2).

There is also potential for adverse impacts upon ecology including the designated Great Island Channel SAC and Cork Harbour SPA, arising from road works. Implementation of the Strategy must be in compliance with environmental requirements, as relevant, including those relating to the EU Habitats and SEA Directives (SEO B1).

Realisation of the Cork Northern Distributor Road would need to address several topographical and environmental considerations including the River Lee and its associated floodplain, the requirement for a new bridge and a desire to avoid severing the Lee Fields parklands (SEO W3).

8.6.9 Freight, Delivery and Servicing Provisions

	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>Summary of Key Provisions/ Outcomes from the Strategy:</p> <p>Over-arching objectives for the management of freight movement include:</p> <ul style="list-style-type: none"> • Re-directing the through movement of freight from densely populated areas and unsuitable local roads to the strategic road network; • Examining the feasibility of consolidation centres and break-bulk facilities outside of the national road network in the medium term, to facilitate smaller vehicles delivering to the city centre; • Requiring area-based construction, and delivery and servicing plans as part of new development with a view to consolidating deliveries where practical; 	<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>		

- Re-timing freight trips to out-of-hours wherever practicable; and
- Ensuring that delivery, servicing and waste management trips are made as green and quiet as possible through the use of zero or low emission vehicles where appropriate.

The Strategy provides proposals for **management of HGV movement** throughout the City.

The Strategy identifies that the **relocation of the Port of Cork's industries and container terminal** from the City and Tivoli Docks area to Ringaskiddy is a long-standing objective for the region.

The Strategy notes the development of shared **construction and logistics centres** (CLCs) is a recent trend in European cities projected to receive significant increases in population and construction activity in future years. The River Lee has long facilitated the movement and storage of freight and construction materials and offers an obvious opportunity to reduce the need and length for motorised trips on the road network. Rail based freight movement is also a possibility in the future but would likely necessitate a new link between the relocated Port of Cork in Marino Point and the Cork Suburban Rail network.

SEA Commentary:

These provisions for the management of freight would contribute towards the achievement of the selected alternatives for the Strategy, including the selected investment scenario "Better Integration of Land Use with Public Transport and Sustainable Travel" and associated environmental effects and interactions (see evaluation at Section 7 of this report). These alternatives will contribute towards the integration of land-use development with sustainable transport provision, including consolidated and intensified development around public transport networks.

The various types of environmental effects likely to arise from implementation of these provisions, including in combination with other Strategy provisions and the wider planning framework (including that related to land use planning), are detailed under subsections 8.2 to 8.5 above, including at Table 8.3.

The SEA and AA processes that have been undertaken alongside the preparation of the Strategy have brought about various changes to the emerging Strategy (these are reproduced at Section 9 of this SEA Environmental Report). By integrating all SEA and AA recommendations into the Strategy, the Authority is helping to ensure that: the potential significant adverse effects of implementing the Strategy are avoided, reduced or offset; and the beneficial environmental effects of implementing the Strategy are maximised.

The movement of freight contributes towards motorised transport and associated emissions and energy usage and interactions (SEOs AC1 AC2 AC3 PHH2). The appropriate management of freight movement, including HGVs, as provided for by these measures would contribute towards the operation of transport across the Cork Metropolitan Area and improve the status of SEOs relating to sustainable mobility and associated interactions (SEOs AC1 AC2 AC3 PHH1 PHH2). The management provided, including the restriction of HGVs from Cork City Centre, would improve the environment for active modes and would improve safety. The regulation of delivery times could help to off-set local traffic congestion.

In combination with other parts of the Strategy and other plans and programmes, including those from the land use sector, these provisions 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 provisions 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 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 Strategy identifies that the relocation of the Port of Cork's industries and container terminal from the City and Tivoli Docks area to Ringaskiddy is a long-standing objective for the region. Detail in relation to this objective is already provided in the National Planning Framework and associated National Development Plan (Project 2040) and the Regional Spatial and Economic Strategy for the Southern Region. As identified in the Strategy, the relocation of port-related activity from the city quays will be the first step in freeing up significant tracts of strategic brownfield development land to facilitate the sustainable growth of Cork City along suburban rail and light rail corridors. The relocation of the Port of Cork, coupled with the upgrade to the N28 to motorway standard (M28) will reduce some localised HGV impacts within the city and reinforce the transfer of strategic freight to the National Road Network. Port developments and the development of Construction and Logistics Centres and would potentially conflict with various environmental components - these would be mitigated by the measures, including those that have been integrated into the Strategy (see Section 9) and those that will arise from any lower tier assessments.

8.6.10 Supporting Measures

	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>Summary of Key Provisions/Outcomes from the Strategy:</p> <p>Supporting measures identified by the Strategy include:</p> <ul style="list-style-type: none"> Local Transport Plans Built Environment Measures (including Urban Design and Place-making and Pedestrian and Cycle Wayfinding); Behavioural Change Programmes (including Workplace Travel Plans, Smarter Travel Campus, Walking and Cycling Officer, School Travel Strategy and Green Schools Programme Travel Module) Real Time Passenger Information Systems (including Marketing / Information Campaigns) Embracing Technology for Sustainable Transport (including Mobility as a Service, Smarter Mobility, Car Clubs, Dynamic Parking Systems or Virtual Loading Bay Systems and Autonomous Vehicles) 	<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>		
<p>SEA Commentary:</p> <p><i>These provisions would contribute towards the achievement of the selected alternatives for the Strategy, including the selected investment scenario "Better Integration of Land Use with Public Transport and Sustainable Travel" and associated environmental effects and interactions (see evaluation at Section 7 of this report). These alternatives will contribute towards the integration of land-use development with sustainable transport provision, including consolidated and intensified development around public transport networks.</i></p> <p><i>The various types of environmental effects likely to arise from implementation of these provisions, including in combination with other Strategy provisions and the wider planning framework (including that related to land use planning), are detailed under subsections 8.2 to 8.5 above, including at Table 8.3.</i></p> <p><i>The SEA and AA processes that have been undertaken alongside the preparation of the Strategy have brought about various changes to the emerging Strategy (these are reproduced at Section 9 of this SEA Environmental Report). By integrating all SEA and AA recommendations into the Strategy, the Authority is helping to ensure that: the potential significant adverse effects of implementing the Strategy are avoided, reduced or offset; and the beneficial environmental effects of implementing the Strategy are maximised.</i></p> <p><i>The supporting measures (including Local Transport Plans, measures encouraging a shift to more sustainable modes of transport, measures improving the attractiveness of public transport and environmental protection measures) would help to facilitate increased use of more sustainable modes of transport and 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 or 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>Lower-tier plans and projects would have to be subject to their own SEA and AA processes as relevant and appropriate.</i></p> <p><i>In combination with other parts of the Strategy and other plans and programmes, including those from the land use sector, these provisions 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 provisions 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 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>				

8.6.11 Implementation Provisions

	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>Summary of Key Provisions/Outcomes from the Strategy:</p> <p>The overall cost of the Strategy is approximately €3.55 billion (2018 prices), and its delivery will be subject to the availability of funding. It is acknowledged that each of the major elements of CMATS will require to be appraised individually on its own merits, in terms of feasibility, design, planning, approval and funding. Business cases will be required for each of the major infrastructure proposals included in the Strategy, in line with the requirements of the Public Spending Code and the Common Appraisal Framework.</p> <p>A phased implementation plan has been developed that incrementally builds the transport infrastructure, services and investment over time to align with the continued growth of the CMA. The implementation plan is provided in full in Chapter 16 of the Strategy and has disaggregated the strategy implementation timeframe into:</p> <ul style="list-style-type: none"> • Short Term: 1-5 years; • Medium Term: 5-10 years; and • Long Term: 10-20 years. 	<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>		
<p>SEA Commentary:</p> <p><i>The phased implementation plan provides for the timing of Strategy provisions outlined and assessed under the subsections above, in line with the growth of the Cork Metropolitan Area that is already provided for by the National Planning Framework and associated National Development Plan (Project 2040) and the Regional Spatial and Economic Strategy for the Southern Region. The timing of the construction and operation effects identified for the various Strategy provisions are determined by the phased implementation plan.</i></p> <p><i>The phased implementation plan provides for the achievement of the selected alternatives for the Strategy, including the selected investment scenario "Better Integration of Land Use with Public Transport and Sustainable Travel" and associated environmental effects and interactions (see evaluation at Section 7 of this report). These alternatives will contribute towards the integration of land-use development with sustainable transport provision, including consolidated and intensified development around public transport networks. The various types of environmental effects likely to arise from implementation of these provisions, including in combination with other Strategy provisions and the wider planning framework (including that related to land use planning), are detailed under the subsections above, including at Table 8.3.</i></p> <p><i>The SEA and AA processes that have been undertaken alongside the preparation of the Strategy have brought about various changes to the emerging Strategy (these are reproduced at Section 9 of this SEA Environmental Report). By integrating all SEA and AA recommendations into the Strategy, the Authority is helping to ensure that: the potential significant adverse effects of implementing the Strategy are avoided, reduced or offset; and the beneficial environmental effects of implementing the Strategy are maximised.</i></p>				

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 Strategy. 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 Strategy, the Authority is helping to ensure that:

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

Mitigation was achieved through the following:

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

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

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

Many proposals included within the Strategy have been already included within the National Planning Framework (and associated National Development Plan), Regional Spatial and Economic Strategy for the Southern Region and Cork City and County Development Plans.

The Strategy was formulated to be consistent with six identified guiding principles. These principles are arrayed against their consistency with are identified on Table 9.1 below.

Table 9.1 Guiding Principles and Consistency with Strategy Outcomes

Guiding Principle	Consistency with Strategy Outcomes
Principle 1 – To support the future growth of the CMA through the provision of an efficient transport network.	Implementation of CMATS will result in improvements to the road, suburban rail, light rail, pedestrian and cycle network. These improvements are targeted in parts of the Metropolitan Area that are planned for future housing, employment and educational growth. The efficiency of the existing and future strategic road network will be protected through the minimisation of local traffic and restriction of local access routes to the National Road Network.
Principle 2 – To prioritise active and sustainable transport and reduce car dependency within the CMA.	Implementation of CMATS will result in a step-change in public transport provision and builds upon existing walking and cycling strategies adopted in the Metropolitan Area. The need for private car ownership (and dependency) will be reduced through the adoption of demand management and supporting measures including car clubs and Mobility as a Service (MaaS). This prioritisation of active and sustainable modes and the decarbonisation of the public transport fleet is in line with the growing recognition of the negative impacts of motorised vehicles and carbon emissions on the environment and people's health and wellbeing. Principle 2 is aligned with Measures 1 and 2 of the Climate Action Plan 2019 for Transport to deliver targets.
Principle 3 – To provide a high level of public transport connectivity to key destinations within high demand corridors.	<p>The implementation of the east-west light rail system will cover approximately a third of the projected CMA population and around 60% of its future jobs. It will also encompass the catchment area of high trip attractors and generators of all key research and third level institutions between Ballincollig and Mahon including the proposed Science and Technology Park at Curraheen, UCC, CIT/Nimbus, College of Commerce and St. John's College.</p> <p>The enhancement of the Cork Suburban Rail corridor will serve existing and future growth areas identified in the core strategies of both Cork City Council and Cork County Council. BusConnects will provide radial and orbital connectivity between the city centre, its suburban areas and key destinations including CUH and centres of education.</p>
Principle 4 – To identify and protect key strategic routes for the movement of freight and services including the provision of a high level of freight access to the Port of Cork.	<p>Committed National Development Plan 2018-2027 projects such as the M28 Cork to Ringaskiddy and Dunkettle Interchange will be realised over the first period of the Strategy. CMATS also proposes the inclusion of a new Cork North Distributor Road (CNDR) and an upgraded N40 to support strategic and freight traffic.</p> <p>The Strategy proposes to protect the alignment of a future Cork North Ring Road and the strategic function of roads such as the Middleton to Whitegate and the R624 to support potential increase in freight traffic to Marino Point.</p>
Principle 5 – To enhance the public realm through traffic management and transport interventions.	To enhance the public realm through traffic management and transport interventions. CMATS endorses and builds upon the Cork City Centre Movement Strategy that seeks to manage and restrict through traffic in the City Centre. Further public realm improvements to the city centre, its suburban areas, Metropolitan town centres, Urban Expansion Areas and connections to public transport stops will be realised through the adoption of the Design Manual for Urban Roads and Streets principles. Accessibility will also be a key consideration during public realm and public transport improvements.
Principle 6 – To increase public transport capacity and frequencies where needed to achieve the strategy outcomes.	Implementation of CMATS will result in a significantly upgraded transport network and capacity to realise future housing, population and educational growth projections. The Strategy directs sustainable transport infrastructure to where it is most needed, to complement land use projections outlined in the National Planning Framework and future growth scenarios outlined by the relevant Core Strategies of both Local Authorities.

9.3 Consideration of alternatives

Accommodating the scale of the growth provided for the Cork Metropolitan Area in other policies and plans would mean increasing pressure on the existing transport network.

The Strategy was developed and assessed in the context of three notional scenarios as follows:

1. Business as Usual Scenario that incorporates committed investment in the road network only;
2. Improvements to Public Transport and Sustainable Travel – scenario this substantially increases public transport investment; and
3. Better Integration of Land Use with Public Transport and Sustainable Travel – this scenario has elements of Scenario 2 and involves better integration of land-use with public transport and sustainable transport.

These three scenarios are considered at Sections 6 and 7 of this SEA Environmental report. The scenario selected for the Strategy is Scenario 3, which represents the optimal case of full integration of land-use development with sustainable transport provision. This scenario would 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). This scenario would also facilitate various benefits with respect to environmental protection and management.

In addition to the consideration of the above scenarios, Corridor Specific Public Transport Network Options were considered in the preparation of the Strategy – these are also considered at Sections 6 and 7 of this report.

9.4 Integration of individual measures into the Strategy

The SEA and AA processes that have been undertaken alongside the preparation of the Strategy have brought about changes to the emerging Strategy thereby enabling the mitigation of any potentially adverse environmental effects. All recommendations made by the SEA and AA processes are identified on Table 9.2 and Table 9.3 below and have been integrated into the Strategy.

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 9.2 SEA/AA recommendations included within the Strategy

Strategy Section No.	SEA/AA Recommended Text
1. Introduction Strategic Environmental Assessment and Appropriate Assessment	<p>SEA SEA is required to be undertaken on the transport plan as it contributes towards the framework for future development consent of projects listed in Annexes I and II to Directive 2011/92/EU, as amended by 2014/52/EC.</p> <p>The provisions of the Strategy have been evaluated for potential significant effects, and measures have been integrated into the Strategy on foot of SEA recommendations in order to ensure that potential adverse effects are mitigated. The environmental topics (including interrelationships) which are considered by the SEA are as follows:</p> <ul style="list-style-type: none"> • Air and Climatic Factors; • Population and Human Health; • Biodiversity, Flora and Fauna; • Material Assets; • Soil; • Water; • Cultural Heritage; and • Landscape. <p>The SEA Environmental Report, which should be read and considered in parallel with the Strategy sets out the findings of the assessment under headings including the following:</p> <ul style="list-style-type: none"> • Relevant aspects of the current state of the Environment; • Evaluation of Alternatives; • Evaluation of Strategy provisions; • Mitigation Measures; and • Monitoring Programme. <p>The overall findings of the SEA are that:</p> <ul style="list-style-type: none"> • All of the recommendations arising from the SEA process have been incorporated into the Strategy; • The Strategy facilitates a mode shift away from the private car to public transport, walking and cycling and associated positive effects, including those relating to: <ul style="list-style-type: none"> ○ Contributions towards reductions in greenhouse gas emissions and associated achievement of legally binding targets; ○ Contributions towards reductions in emissions to air and associated achievement of air quality objectives, thereby contributing towards improvement or air quality and protection of human health ○ Contributions towards reductions in consumption of non-renewable energy sources and achievement of legally binding renewable energy targets; ○ Energy security; and ○ Enhancing the public realm. • Certain Strategy provisions would be likely to result in significant positive effects upon environmental management and protection; and • Certain Strategy provisions would have the potential to result in significant negative environmental effects upon the environment. The integration of detailed mitigation into the Strategy has ensured that these effects are mitigated. <p>The SEA identifies that implementation of the Strategy 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.</p>

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

Strategy Section No.	SEA/AA Recommended Text
	<p>AA The AA concludes that it is considered that the Strategy will not have a significant adverse effect on the integrity of the Natura 2000 network of sites⁶⁶. The details of the approach to the AA and the findings are set out in the AA Natura Impact Report that accompanies the Strategy. In a similar manner to the Environmental Report of the SEA, this separate document should be read and considered in parallel with the Strategy.</p>
7. Cycling	Insertion of footnote: "Subject to compliance with the EU Habitats and/or Birds Directives."
9. Suburban Rail	Insertion of footnote: "Subject to compliance with the EU Habitats and/or Birds Directives."
13. Roads	Insertion of footnote: "Subject to compliance with the EU Habitats and/or Birds Directives."
17. Environmental Protection and Management	<p>Recommend insertion of new Section entitled "Environmental Protection and Management" which integrates the measures detailed below into the Transportation Strategy.</p> <p>Regulatory framework for environmental protection and management In implementing this Strategy, 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, including 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>
17. Environmental Protection and Management	<p>Lower-level Decision Making 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 and Special Protection Areas; • 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.
17. Environmental Protection and Management	<p>Corridor and Route Selection Process for relevant new infrastructure 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.

⁶⁶ 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

Strategy Section No.	SEA/AA Recommended Text
17. Environmental Protection and Management	<p>Appropriate Assessment</p> <p>All projects and plans arising from this Strategy 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 3. 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 of overriding public interest, restricted to reasons of human health or public safety, to beneficial consequences of primary importance for the environment or, further to an opinion from the Commission, to other imperative reasons of overriding public interest. In this case, it will be a requirement to follow procedures set out in legislation and agree and undertake all compensatory measures necessary to ensure the protection of the overall coherence of Natura 2000.
17. Environmental Protection and Management	<p>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 Strategy (either individually or in combination with other plans or projects⁶⁷).</p>
17. Environmental Protection and Management	<p>Climate Change, Emissions and Energy</p> <p>As identified in the SEA Environmental Report that accompanies this Strategy, the Strategy facilitates sustainable mobility and associated positive effects, including those relating to:</p> <ul style="list-style-type: none"> • Reductions in greenhouse gas emissions and associated achievement of legally binding targets; • Reductions in emissions to air and associated achievement of air quality objectives, thereby contributing towards improvement or air quality and protection of human health; • Reductions in consumption of non-renewable energy sources and achievement of legally binding renewable energy targets; and • Energy security. <p>In implementing the Strategy, the Authority will support relevant provisions contained in the Draft National Energy and Climate Plan (when adopted), the Cork County and City Council Climate Adaptation Strategies, the Climate Action Plan (2019), 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".</p> <p>The implementation of the Strategy 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> <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 Strategy objectives, as appropriate.</p>
17. Environmental Protection and Management	<p>Other SEA Recommendations</p> <p>In implementing the Strategy, the Authority will ensure that the mitigation measures included in Table 9.3 of the SEA Environmental Report are complied with.</p>

⁶⁷ 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.

The SEA and AA recommendations detailed in Table 9.3 below will be integrated into the Strategy through the commitment described in Table 9.2 above entitled “Other SEA Recommendations”. 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 Strategy.

Table 9.3 Provisions to be referred to in the Strategy under “Other SEA Recommendations”

Environmental component benefitting	Potential adverse effect mitigated	Requirement
Various	Various – see below	<p>Construction and Environmental Management Plans 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 Strategy and any lower tier Environmental Impact Statement 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.
Various	Various – see below	<p>Maintenance Plan Lower tier assessments should examine the need for Maintenance Plans informed by environmental considerations to be prepared and implemented.</p>
Air and Climatic Factors	Emissions to air and associated issues	<p>Please refer to the overall approach and detail provided for by the Strategy focusses significant levels of investment in sustainable transport modes and other climate related provisions integrated into the Strategy.</p> <p>Air and Energy Contribute towards: compliance with air quality legislation; greenhouse gas emission targets; management of noise levels, including taking into account available noise maps and Noise Action Plans for the Cork Agglomeration and Major Roads in the Cork County Area (including provisions relating to the preservation of Quiet Areas); and reductions in energy usage.</p> <p>Climate Adaptation and Resilience Improve resilience and adaptation to climate change by taking into account issues including the following in the siting and design of projects:</p> <ul style="list-style-type: none"> Extreme precipitation and risk of high river flows and associated implications including those relating to pluvial and fluvial flooding, bridge scour, soil erosion and landslides; Sea level rise and storm surge and associated implications including those relating to coastal erosion and coastal flooding; and Extreme temperatures and associated implications including those relating to the operation of transport and ancillary infrastructure and services.

Environmental component benefitting	Potential adverse effect mitigated	Requirement
Population and human health	Potential interactions if effects upon environmental vectors such as air are not mitigated	<p>Human Health</p> <p>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.</p>
Biodiversity and flora and fauna	<p>- 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.</p> <p>- Habitat loss, fragmentation and deterioration, including patch size and edge effects.</p> <p>- Disturbance (e.g. due to noise and lighting along transport corridors) and displacement of protected species and/or coastal squeeze.</p> <p>- Effects in riparian zones where new crossings of waters, if any, are progressed.</p> <p>- Potential effects on</p>	<p>Protection of Biodiversity including Natura 2000 Network</p> <p>Contribute, as appropriate, towards the protection of designated ecological sites including Special Areas of Conservation (SACs) 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):</p> <ul style="list-style-type: none"> • EU Directives, including the Habitats Directive (92/43/EEC, as amended)⁶⁸, the Birds Directive (2009/147/EC)⁶⁹, the Environmental Liability Directive (2004/35/EC)⁷⁰, 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 2008⁷¹ 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. <p>NPWS & Integrated Management Plans</p> <p>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.</p> <p>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 Strategy 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.</p> <p>Coastal Zone Management</p> <p>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.</p>

⁶⁸ Including Annex I habitats, Annex II species and their habitats and Annex IV species and their breeding sites and resting places (wherever they occur).

⁶⁹ Including Annex I species and other regularly occurring migratory species, and their habitats (wherever they occur).

⁷⁰ Including protected species and natural habitats.

⁷¹ Including protected species and natural habitats.

Environmental component benefitting	Potential adverse effect mitigated	Requirement
	vegetation from transport emissions.	<p>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.</p> <p>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.</p> <p>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.</p> <p>Help to ensure the appropriate protection of non-designated habitat features, landscapes and biological diversity.</p> <p>Proposals for development under the Strategy will seek to avoid impacts on the Atlantic Pond (off The Marina) and immediate surrounding area.</p> <p>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.</p> <p>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.</p> <p>National Peatlands Strategy Support, as appropriate, any relevant recommendations contained in the National Peatlands Strategy 2015.</p>
Material Assets	<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 	<p>Also see Construction and Environmental Management Plans provision above</p> <p>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.</p> <p>Waste Creation Support the minimisation of waste creation and promote a practice of reduce, reuse and recycle where possible.</p> <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	<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 	<p>Also see Construction and Environmental Management Plans provision above and 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). To 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>

Environmental component benefitting	Potential adverse effect mitigated	Requirement
	- Increase in the risk of flooding	<p>River Basin Management Plan Support the implementation of the relevant recommendations and measures as outlined in the River Basin Management Plan 2018-2021, and associated Programme of Measures, or any such plans that may supersede same during the lifetime of the Strategy. 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.</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>
Cultural Heritage	Potential effects on protected and unknown archaeology and protected architecture arising from construction and operation activities, including as a result of increasing traffic flows.	<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>

Environmental component benefitting	Potential adverse effect mitigated	Requirement
		<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>
<p>Soil</p>	<p>- Adverse impacts on the hydrogeological and ecological function of the soil resource as a result of construction of transport and associated transport facilities/ infrastructure.</p> <p>- Adverse impacts on features or areas of geological / geomorphological interest as a result of construction of transport and associated transport facilities/ infrastructure.</p> <p>- Potential for increase in coastal /river bank erosion.</p>	<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 and transposing Regulations require that the significant environmental effects of the implementation of plans and programmes are monitored in order, *inter alia*, to identify at an early stage unforeseen adverse effects and to be able to undertake appropriate remedial action. Monitoring can also demonstrate positive effects facilitated by the Strategy, including those relating to sustainable mobility.

This section details the measures which will be used in order to monitor the likely and potential significant effects of implementing the Strategy.

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 Strategy, 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 Strategy will be prepared during the implementation of the Strategy, in advance of the review of the Strategy. 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 Strategy is situated is noted. This includes the 2040 National Planning Framework (and associated National Development Plan), the Regional Spatial and Economic Strategy for the Southern Region and the Cork City and County Development Plans.

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

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 Strategy 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	
Population and Human Health	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 • 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)
	PHH2: Occurrence (any) of a spatially concentrated deterioration in human health arising from environmental factors resulting from development provided for by the Strategy, 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 Strategy	

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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 Strategy ⁷²	<ul style="list-style-type: none"> • Lower tier environmental assessment and decision making – including review of project approvals granted and associated documents • Department of Culture, 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 Culture, 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 Strategy	B2: No significant ecological networks or parts thereof which provide functional connectivity to be lost without remediation resulting from development provided for by the Strategy	<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 Strategy	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 Strategy	<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 Strategy	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 Strategy	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

⁷² 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.

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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 Strategy	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 ⁷³	<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 development adhering to the Strategy	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 Strategy	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 Strategy	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 Culture, 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 Strategy	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 Culture, 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

⁷³ 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.

Appendix I Relationship with Legislation and Other 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 for full details of each.

Legislation, Plan, etc.	Summary of high level aim/ purpose/ objective	Summary of lower level objectives, actions etc.	Relevance to the Strategy
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 Strategy 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 Strategy 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.
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, 	<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 to a favourable conservation status in their natural range. 	Implementation of the Strategy 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 Strategy
	<p>natural habitats and species of wild fauna and flora of community interest.</p> <ul style="list-style-type: none"> Promote the maintenance of biodiversity, taking account of economic, social, cultural and regional requirements. 	<ul style="list-style-type: none"> 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. 	<p>environmental protection and management.</p>
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. 	<p>Implementation of the Strategy 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>
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 	<p>Implementation of the Strategy 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>
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 	<p>Implementation of the Strategy 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>
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 	<p>Implementation of the Strategy 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 Strategy
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 Strategy 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 Strategy 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 Strategy 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.
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 Strategy 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 Strategy
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 Strategy 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 Strategy 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 content of that plan or those plans. 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 	Implementation of the Strategy 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 Strategy
		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.	
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 Strategy 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 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 Strategy 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 Strategy 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 Strategy 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 Strategy
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 Strategy 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 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 Strategy 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 Strategy 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 	Implementation of the Strategy 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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		maintain environmental noise quality where it is good; and <ul style="list-style-type: none"> Inform and consult the public about noise exposure, its effects, and the measures considered to address noise. 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.	environmental protection and management.
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 Strategy 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 Strategy 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 Strategy 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.
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 	<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 	Implementation of the Strategy needs to comply with all environmental legislation and align with and

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	contamination of water intended for human consumption by ensuring that it is wholesome and clean.	<p>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).</p> <ul style="list-style-type: none"> 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. 	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 Strategy 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 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 	Implementation of the Strategy 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>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. 	
<p>Marine Strategy Framework Directive (2008/56/EC), as amended</p>	<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>	<p>Implementation of the Strategy 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>
<p>European Convention on the Protection of the Archaeological Heritage (Valletta 1992)</p>	<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. 	<p>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.</p>	<p>Implementation of the Strategy 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>
<p>Convention of the Protection of the Architectural Heritage of Europe (Granada 1995)</p>	<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- 	<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- 	<p>Implementation of the Strategy needs to comply with all environmental legislation and align with and cumulatively contribute towards – in combination with other users and</p>

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	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.	operation between states and regions.	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 Strategy 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 Strategy 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 Strategy 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.
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 	Implementation of the Strategy 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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		Eastern Europe and the Caucasus. <ul style="list-style-type: none"> • 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. 	regulatory framework for environmental protection and management.
Bali Road Map (2007)	The overall goals of the project are twofold: <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. 	The Bali Action Plan is centred on four main building Blocks: <ul style="list-style-type: none"> • mitigation • adaptation • technology • financing 	Implementation of the Strategy 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.
Cancun Agreements (2010)	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: <ul style="list-style-type: none"> • Mitigation • Transparency of actions • Technology • Finance • Adaptation • Forests • Capacity building 	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.	Implementation of the Strategy 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.
Doha Climate Gateway (2012)	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.	Actions committed to by governments at this conference: <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 emissions; and • Provide the financial and technology support and new institutions to allow clean energy investment and sustainable growth in developing countries. 	Implementation of the Strategy 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 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; 	Implementation of the Strategy needs to comply with all environmental legislation and align with and cumulatively contribute towards – in combination with other users and

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		<ul style="list-style-type: none"> Looking after the countryside across the EU and keeping the rural economy alive. 	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 Strategy 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 Strategy 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.
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 Strategy 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 	Implementation of the Strategy 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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		<p>Programme</p> <p>These six strategies fit together to underpin the ecosystem approach. For each strategy a programme of work is designed and implemented annually.</p>	<p>regulatory framework for environmental protection and management.</p>
<p>European 2020 Strategy for Growth</p>	<p>Europe 2020 sets out a vision of Europe's social market economy for the 21st century and puts forward three mutually reinforcing priorities:</p> <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. 	<p>In order to reach these priorities, the Commission proposes five quantitative targets to fulfil by 2020:</p> <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. 	<p>Implementation of the Strategy 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 Level			
<p>Ireland 2040 - Our Plan, the National Planning Framework, (replacing the National Spatial Strategy 2002-2020) and the National Development Plan (2018-2027)</p>	<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. 	<p>The National Planning Framework published alongside the National Development Plan yields ten National Strategic Outcomes as follows:</p> <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 	<p>Implementation of the Strategy 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>
<p>Planning, Land Use and Transport Outlook 2040 [in preparation]</p>	<p>The PLUTO will take account of forecasted future economic and demographic scenarios, affordability considerations and relevant Government policies and will:</p> <ol style="list-style-type: none"> 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. 	<p>In preparation</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>
<p>Planning and Development Act 2000 (as amended)</p>	<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. 	<p>Implementation of the Strategy 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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		<ul style="list-style-type: none"> • 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. 	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 Strategy 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 Strategy 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.
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 Strategy 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 	Implementation of the Strategy 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 Strategy
European Communities Environmental Objectives (Groundwater) Regulations 2010 (S.I. No. 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>sub-basin management plans and programmes of measure</p> <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 	<p>Implementation of the Strategy 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 (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. 	<p>Implementation of the Strategy 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>
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 	<p>Implementation of the Strategy 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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		annual report in relation to bathing water quality. <ul style="list-style-type: none"> 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. 	
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 Strategy 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. 	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: <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 entered into by the European Union in response or otherwise in relation to that objective, 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. 	Implementation of the Strategy 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 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. 	The Plan identifies four strategic priorities to guide implementation: <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 Strategy 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 	<ul style="list-style-type: none"> This Capital Plan reflects the Government's commitment to supporting strong and sustainable economic growth and 	Implementation of the Strategy needs to comply with all environmental

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	<p>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.</p>	<p>raising welfare and living standards for all.</p> <ul style="list-style-type: none"> 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. 	<p>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>
<p>Ireland's National Renewable Energy Action Plan 2010 (Irish Government submission to the European Commission)</p>	<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. 	<p>Implementation of the Strategy 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>
<p>Strategy for Renewable Energy (2012-2020)</p>	<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 activity as part of the Government's action plan for jobs. 	<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. 	<p>Implementation of the Strategy 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>
<p>National Climate Mitigation Plan 2017</p>	<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 	<p>Implementation of the Strategy 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>
<p>National Policy Position on Climate Action and Low Carbon Development (2014)</p>	<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. 	<p>Implementation of the Strategy 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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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 Strategy 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 Strategy 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 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. 	<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, domestic visitors and locals thereby contributing to a healthier society through increased physical activity; 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. 	Implementation of the Strategy 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 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 	Implementation of the Strategy 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 Strategy
		shortfalls in water supplies <ul style="list-style-type: none"> Assess the water resources available at a national level including lakes, rivers and groundwater 	
National Strategic Plan for Aquaculture Development (2014-2020)	Vision: <i>"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>	General development and growth objectives of marine and freshwater aquaculture (2014 – 2020): <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 Strategy 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. 	This Strategy therefore addresses issues including: <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; 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. 	Implementation of the Strategy 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.
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 Strategy 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</i> 	The objectives of the National Landscape Strategy are to: <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; 	Implementation of the Strategy 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 Strategy
	<p><i>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>	<ul style="list-style-type: none"> • 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. 	management.
<p>National Hazardous Waste Management Plan (EPA) 2014-2020</p>	<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 view to reducing the environmental and health impacts of any unregulated waste; • 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. 	<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 Strategy 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 Ports Policy 2013</p>	<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 Strategy 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 Aviation Policy 2015</p>	<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 	<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; 	Implementation of the Strategy 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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	<p>recognised global leader in aviation; and</p> <ul style="list-style-type: none"> To maximise the contribution of the aviation sector to Ireland's economic growth and development. 	<ul style="list-style-type: none"> 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 	<p>regulatory framework for environmental protection and management.</p>
<p>Ministerial Guidelines such as Sustainable Rural Housing Guidelines and Flood Risk Management Guidelines</p>	<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. 	<p>Implementation of the Strategy 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>
<p>HSE Healthy Ireland Framework for Improved Health and Wellbeing 2013-2025</p>	<ul style="list-style-type: none"> The vision is: <i>"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."</i> 	<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 	<p>Implementation of the Strategy 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>
<p>Marine Spatial Plan for Ireland (in/pending preparation)</p>	<p>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>	<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. 	<p>Implementation of the Strategy 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>
<p>Tourism Action Plan 2016-2018</p>	<p>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.</p>	<p>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</p>	<p>Implementation of the Strategy needs to comply with all environmental legislation and align with and cumulatively contribute towards – in combination with other users and</p>

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		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.	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 Strategy 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.
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 Strategy 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' remit, support for the operation of the existing rail network within the GDA. 	Implementation of the Strategy 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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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 Strategy 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 positive effects that may occur 	<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 targeted training) through to policy and finance based actions. 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 	Implementation of the Strategy 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.
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 Strategy 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.	<p>2030 will represent a significant milestone, meaning:</p> <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 Strategy 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 Strategy 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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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. 	<p>regulatory framework for environmental protection and management.</p> <p>Implementation of the Strategy 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>
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 	<p>Implementation of the Strategy 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>
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. 	<p>Implementation of the Strategy 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 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. 	<p>Implementation of the Strategy 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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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. <p>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>	Implementation of the Strategy 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 (Water Policy) Regulations of 2003 (SI 722 of 2003) European Communities (Water Policy) Regulations of 2003 (SI 350 of 2014) European Communities Environmental Objectives (Surface waters) Regulations of 2009 (SI 272 of 2009)	<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 Strategy 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 of 2010 (SI 9 of 2010)	<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 Strategy 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 Pollution Acts 1977 to 1990	<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 	Implementation of the Strategy needs to comply with all environmental legislation and align with and cumulatively contribute towards – in

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		<p>waters.</p> <ul style="list-style-type: none"> • 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. 	<p>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>
<p>Water Services Act 2007</p> <p>Water Services (Amendment) Act 2012</p> <p>Water Services Act (No. 2) 2013</p>	<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. 	<p>Implementation of the Strategy 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.</p>
<p>Irish Water's Water Services Strategic Plan 2015 and associated Proposed Capital Investment Plan (2014-2016)</p>	<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. 	<p>Implementation of the Strategy 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>
<p>Raised Bog SAC Management Plan and Review of Raised Bog Natural Heritage Areas</p>	<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. 	<p>Implementation of the Strategy needs to comply with all environmental legislation and align with and cumulatively contribute towards – in</p>

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		<ul style="list-style-type: none"> 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. 	<p>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 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 agricultural output after the removal of milk quotas. 	<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. 	<p>Implementation of the Strategy 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>
Agri-vision 2015 Action Plan	<p>Outlines the vision for agricultural industry to improve competitiveness and response to market demand while respecting and enhancing the environment</p>	<p>not applicable</p>	<p>Implementation of the Strategy 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>
<p>Rural Environmental Protection Scheme (REPS)</p> <p>Agri-Environmental Options Scheme (AEOS)</p> <p>Green, Low-Carbon, Agri-environment Scheme (GLAS)</p>	<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. 	<p>Implementation of the Strategy 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 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 	<p>Implementation of the Strategy 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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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 Producer Groups Innovative Forest Technology Forest Genetic Reproductive Material Forest Management Plans 	<p>Implementation of the Strategy 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>
River Basin Management Plan	<ul style="list-style-type: none"> The River Basin Management Plan sets out the status of waters in the River Basin District. 	<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. 	<p>Implementation of the Strategy 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 Peatlands Strategy (2015-2025)	<p>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>	<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>	<p>Implementation of the Strategy 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>
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 	<p>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</p>	<p>Implementation of the Strategy needs to comply with all environmental legislation and align with and cumulatively contribute towards – in combination with other users and</p>

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	Policy, adopted in 2004, and on the requirements of the EU Floods Directive.	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.	bodies and their plans etc. – the achievement of the objectives of the regulatory framework for environmental protection and management.
Draft National Bioenergy Plan	The Draft Bioenergy Plan sets out a vision as follows: <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. 	Three high level goals, of equal importance, based on the concept of sustainable development are identified: <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. 	Implementation of the Strategy 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 Renewable Electricity Policy and Development Framework (DCCAE)	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.	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.	Implementation of the Strategy 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 Alternative Fuels Infrastructure for the Transport Sector (DTTAS) 2017- 2030	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.	Targets for alternative fuel infrastructure include the following: <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 	Implementation of the Strategy 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 Wise 2025 (DAFM)	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.	Food Wise 2025 identifies ambitious and challenging growth projections for the industry over the next ten years including: <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. 	Implementation of the Strategy 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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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 109 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 	Implementation of the Strategy 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 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 	Implementation of the Strategy 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 Strategy 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	The Regional Spatial and Economic Strategies provide a long-term regional level strategic planning and economic framework in support of the implementation of the National Planning Framework.	<ul style="list-style-type: none"> • RSEs give regional effect to the National Planning Framework. 	Implementation of the Strategy 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.
Integrated Implementation Plan 2019-2024	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	<p>The Implementation Plan identifies investment proposals for a number of areas including:</p> <ul style="list-style-type: none"> • Bus; • Light Rail; • Heavy Rail; • Integration Measures and Sustainable Transport Investment; • Integrated Service Plan; and 	Implementation of the Strategy 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 Strategy
	across the Greater Dublin Area.	<ul style="list-style-type: none"> Integration and Accessibility. 	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. 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 	<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. 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. 	Implementation of the Strategy 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 Strategy 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 international tourism destination for a broad range of associated 	<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 Strategy 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 Strategy
Water Quality Management Plans	<p>recreational activities and pursuits.</p> <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. 	<p>Implementation of the Strategy 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>
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 actions to achieve the objectives 	<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. 	<p>Implementation of the Strategy 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>
Groundwater Protection Schemes	<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. 	<p>Implementation of the Strategy 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>
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. 	<p>Implementation of the Strategy 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>
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 	<p>Implementation of the Strategy 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</p>

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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. 	environmental, heritage. not applicable	environmental protection and management. Implementation of the Strategy 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 Strategy 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.
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 Strategy 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 Strategy 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 Strategy 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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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	<p>environmental protection and management.</p> <p>Implementation of the Strategy 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>
Shellfish Pollution Reduction Programmes	<p>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.</p>	<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. 	<p>Implementation of the Strategy 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>
Regional Waste Management Plans	<p>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.</p>	<p>To manage wastes in a safe and compliant manner, a clear strategy, policies and actions are required.</p>	<p>Implementation of the Strategy 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>
Noise Action Plans	<p>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.</p>	<p>The main purpose of the Noise Action Plan is to:</p> <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 	<p>Implementation of the Strategy 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.</p>