

STRATEGIC ENVIRONMENTAL ASSESSMENT STATEMENT

FOR THE WATERFORD METROPOLITAN AREA TRANSPORT STRATEGY 2040

for: National Transport Authority

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Section 1 Introduction

1.1 Introduction and Legislative Context

This is the Strategic Environmental Assessment (SEA) Statement for the Waterford Metropolitan Area Transport Strategy 2040 (referred to hereafter as the Strategy).

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

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).

1.2 Content of the SEA Statement

Where SEA is undertaken, the Regulations require that a Statement is made available to the public and the competent environmental authorities after the making of the Plan.

This Statement is referred to as an SEA Statement.

The SEA Statement is required to include information summarising:

- a) how environmental considerations have been integrated into the Plan;
- b) how the following have been taken into account during the preparation of the Plan:
 - the environmental report,
 - submissions and observations made to the planning authority on the Draft Plan and Environmental Report, and
 - any transboundary consultations.
- c) the reasons for choosing the Plan in the light of the other reasonable alternatives dealt with; and
- d) the measures decided upon to monitor the significant environmental effects of implementing the Plan.

1.3 Implications of SEA for the Plan

The SEA Directive [Article 3 (2)] and associated transposing Regulations, as amended, outline what type of plans and programmes SEA is mandatory for. Subject to certain exceptions, SEA must be carried out for all plans and programmes:

- (a) which are prepared for agriculture, forestry, fisheries, energy, industry, transport, waste management, water management, telecommunications, tourism, town and country planning or land use and which set the framework for future development consent of projects that are subject to the EIA Directive, as amended, or
- (b) which, in view of the likely effect on sites, have been determined to

require an assessment¹ pursuant to Article 6 or 7 of Habitats Directive 92/43/EEC.

Furthermore, the Directive and the transposing Regulations, as amended, outline situations whereby SEA Screening must be undertaken. Screening is the process for deciding whether a particular plan/programme, other than those for which SEA is mandatory, would be likely to have significant environmental effects, and would thus warrant SEA.

Although there is an existing framework for future development consent of transport projects that may be progressed within the Waterford Metropolitan Area, the Strategy will further contribute towards this framework and will be taken into account alongside other policies, plans and programmes as relevant. Various case law has been made that relates to SEA, including ECJ judgement on a Belgian Government Order regarding wind farm development [*ECLI:EU:C:2016:816, Judgement of the Court (Second Chamber), 27 October 2016, Patrice D'Oultremont and Others v Région wallonne*]. This Judgement indicates that "plans and programmes" referred to by the SEA Directive relate to any measures which establish, by defining rules and procedures for scrutiny applicable to the sector concerned, a significant body of criteria and detailed rules for the grant of administrative consent of projects likely to have significant effects on the environment.

The Waterford Metropolitan Area Transportation Strategy is considered a transport plan/programme that will make significant contributions towards the framework for future development consent of transport projects that are subject to the EIA Directive, as amended. Therefore, taking into account the above requirements, SEA is mandatory for the Strategy.

SEA identifies the likely significant environmental effects of implementing the Strategy, how environmental considerations were integrated into the Strategy and how alternatives for the Strategy were considered. The findings of the SEA are expressed in an Environmental Report, the first published version of which accompanied the Draft Strategy on public display. The Environmental Report was updated in order to take account of:

recommendations contained in submissions; and minor modifications made to the Draft Strategy that were made on foot of submissions.

The NTA have taken into account the findings of all relevant SEA output during their consideration of the Draft Strategy and before the Strategy was adopted

¹ Also referred to as an Appropriate Assessment

Section 2 Integration of Environmental Considerations into the Strategy

2.1 Overview

Environmental considerations were integrated into the Strategy through:

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

2.2 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), Southern Regional Spatial and Economic Strategy and the Statutory land use plans of planning authorities across the Strategy area.

The Strategy's Aim² and Objectives³, to which sustainable development and environmental

protection and management are central, provide the basis for its detailed provisions.

2.3 Consideration of alternatives

A number of reasonable alternatives were identified for the Strategy that were assessed by the SEA process. The findings of this assessment informed the selection of preferred alternatives, facilitating an informed choice with respect to the type of Strategy that was prepared, placed on public display and adopted. The assessment of these scenarios is summarised in Section 4 of this report.

² To set the framework for an accessible, high-quality and integrated transport network that enables the sustainable growth of the Waterford Metropolitan Area as a key regional driver of growth in the South-East Region, and an international competitive European city region as envisaged by the National Planning Framework 2040.

³ The Strategic Objectives of the Strategy are as follows:

- To meet the demand generated by future growth of the WMA through the provision of an efficient transport network.
- To prioritise sustainable transport and active travel to reduce car dependency.

-
- The provision of a high level, citywide public transport system connecting to key destinations within high demand corridors.
 - To increase transport capacity where needed to achieve the strategy outcomes.
 - To deliver a fully accessible and inclusive transport system.
 - To enhance the public realm of the WMA through demand management measures and transport interventions.
 - To minimise the impact of motorised traffic in urban centres.
 - To identify and protect key strategic routes for the movement of freight traffic.

2.4 Communication of environmental sensitivities

Environmental considerations were integrated into the Draft Strategy before it was placed on public display. Individual sensitivities which were mapped by the SEA and considered by the Team preparing the Transport Strategy included the following:

- Noise Mapping L_{den} (day, evening, night)
- Population Density
- Ecological designations, including European Sites⁴
- County Geological Sites
- Landslide Susceptibility
- WFD Surface Water Status
- WFD Groundwater Status
- WFD Register of Protected Areas
- Groundwater Vulnerability
- Groundwater Productivity
- Potential Water Sensitivity
- Potential Land Cover Sensitivity Mapping
- Archaeological Heritage
- Architectural Heritage

Some of these are indicated on Figure 2.2.

In addition to considering environmental components individually, some of the environmental information was been weighted and mapped to show overall potential environmental sensitivity (see Figure 2.3) and overall environmental potential opportunities (see Figure 2.3). This mapping indicates at a regional level where the main concentrations of sensitivities might occur.

Lower levels of sensitivity occur across most of the Strategy area. Heightened areas of sensitivity within the Strategy area include rivers, valleys, estuaries and transitional waters, chiefly those of the Rivers Suir and Barrow and their tributaries, on account of ecological designations, landscape sensitivities, areas of extreme groundwater vulnerability and flood risk. Heightened levels of sensitivity are also indicated within the central parts of

the Waterford City, Maritanna Gate and Ferrybank on account of cultural heritage designations.

Heightened areas of opportunities within the Strategy area include those associated with the existing built-up footprint of the City and its suburbs. Lower levels of robustness occur elsewhere.

2.5 Integration of individual measures into the Strategy

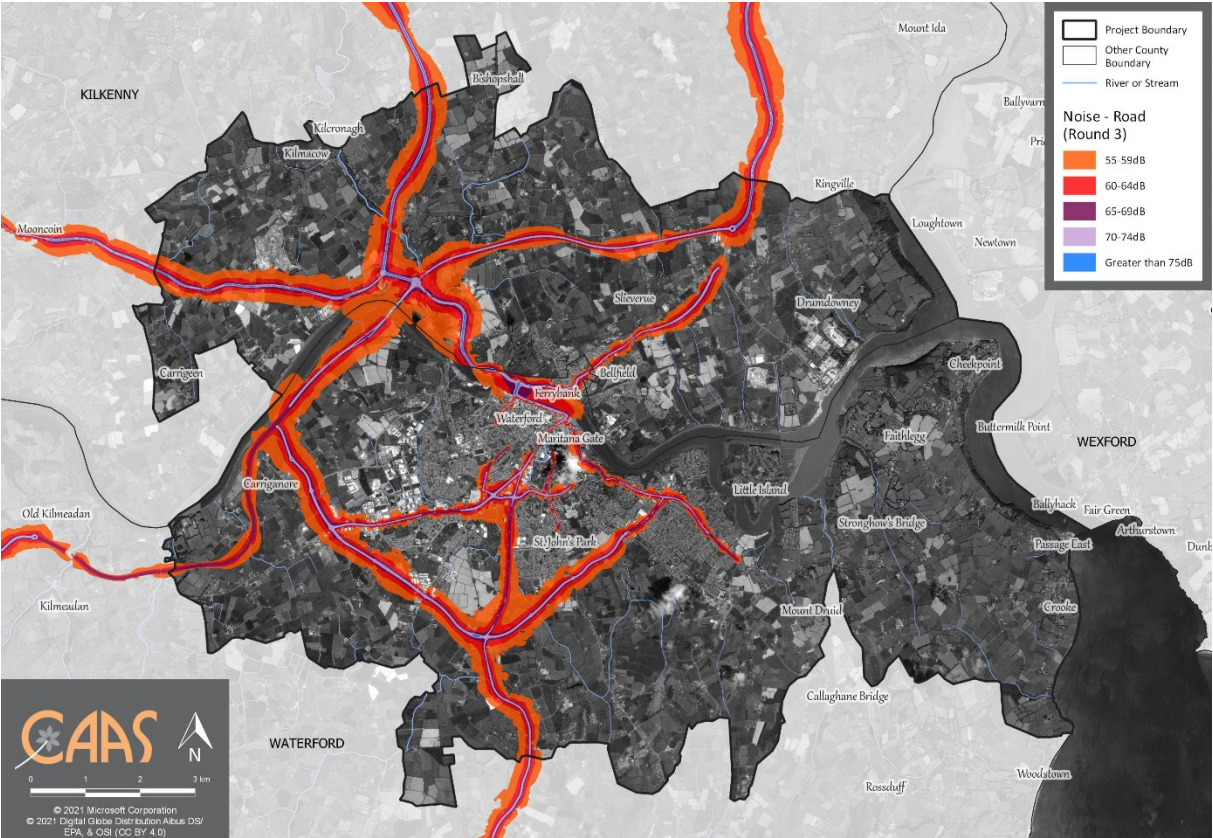
The SEA and AA processes that have been undertaken alongside the preparation of the Strategy have brought about changes to the emerging Strategy thereby enabling the mitigation of any potentially adverse environmental effects. Recommendations made by the SEA and AA processes have been integrated into the Strategy. All recommendations made by the SEA and AA processes are identified on Tables 2.1 and 2.2 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.

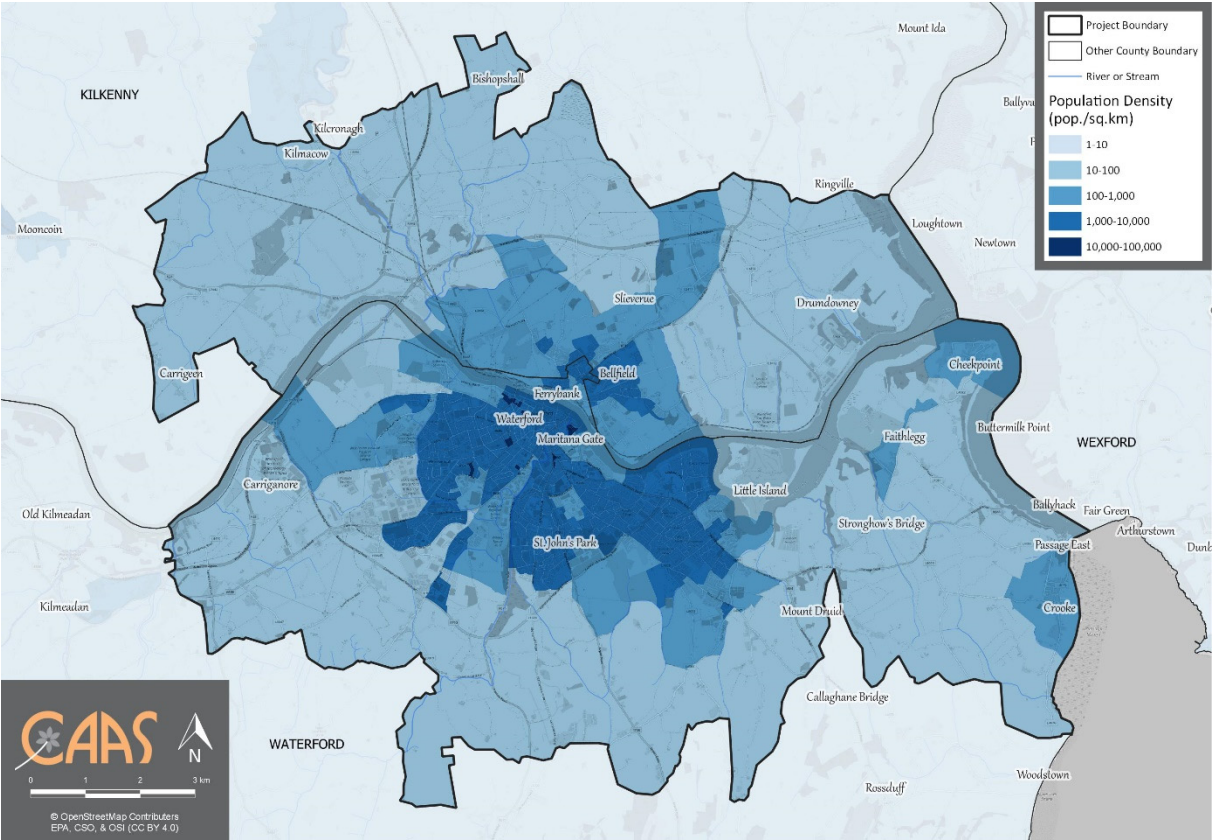
⁴ A Stage 2 Appropriate Assessment (AA) has been undertaken alongside the preparation of the Strategy.

The requirement for AA is provided under the EU Habitats Directive (Directive 1992/43/EEC). The conclusion of the AA is that the Strategy will not affect the integrity of the Natura 2000 network of European sites (except as provided for in Article 6(4) of the Habitats Directive).

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 have been integrated into the Strategy.



Noise Mapping L_{den} (day-evening-night composite noise indicator)



Population Density

Figure 2.1 Selection of Individual Environmental Sensitivities from SEA Environmental Report (1 of 2)

Water Sensitivity

40
5

Project Boundary
Other County Boundary
River
River or Stream

KILKENNY

WEXFORD

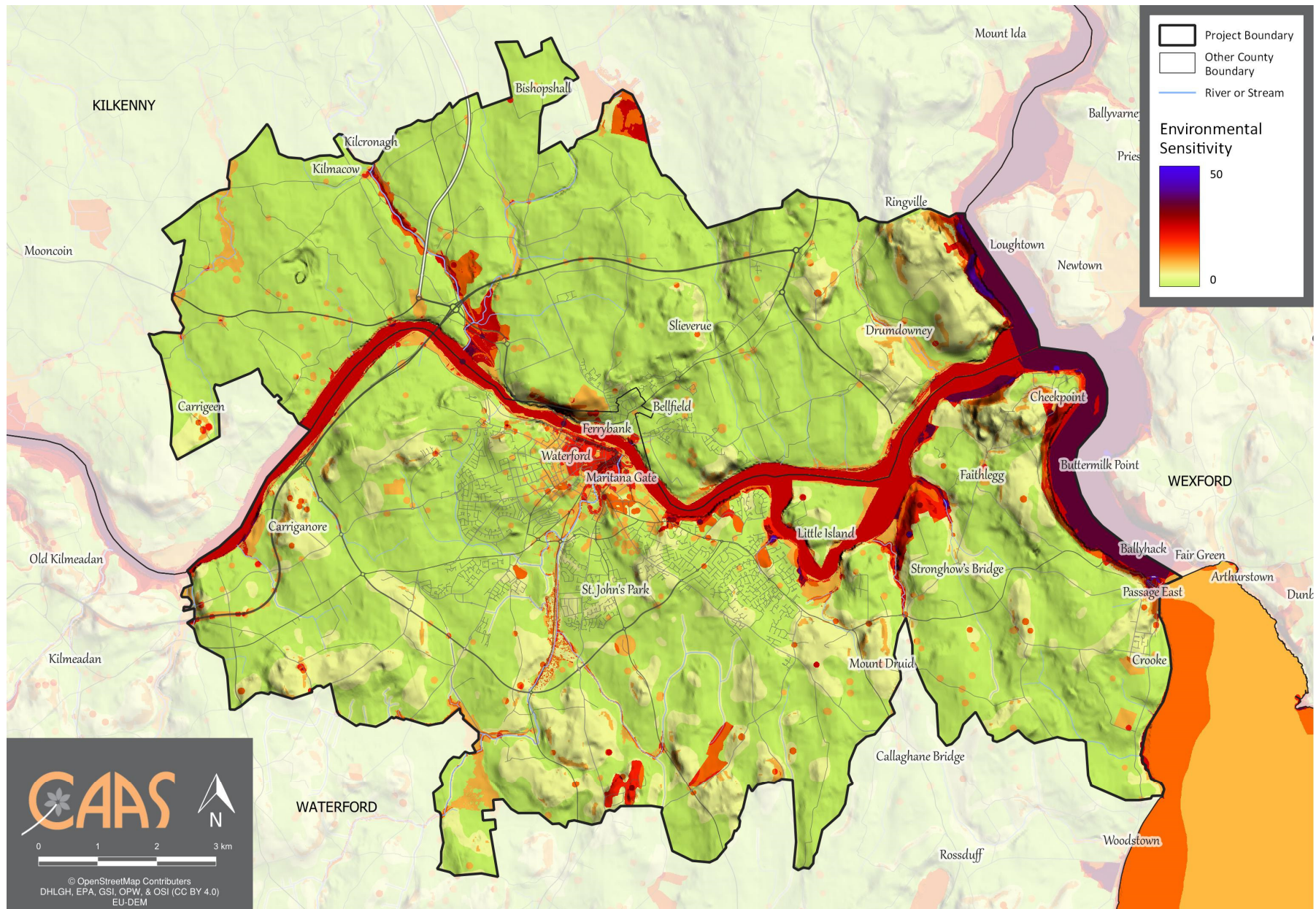
WATERFORD

0 1 2 3 km

CAAS

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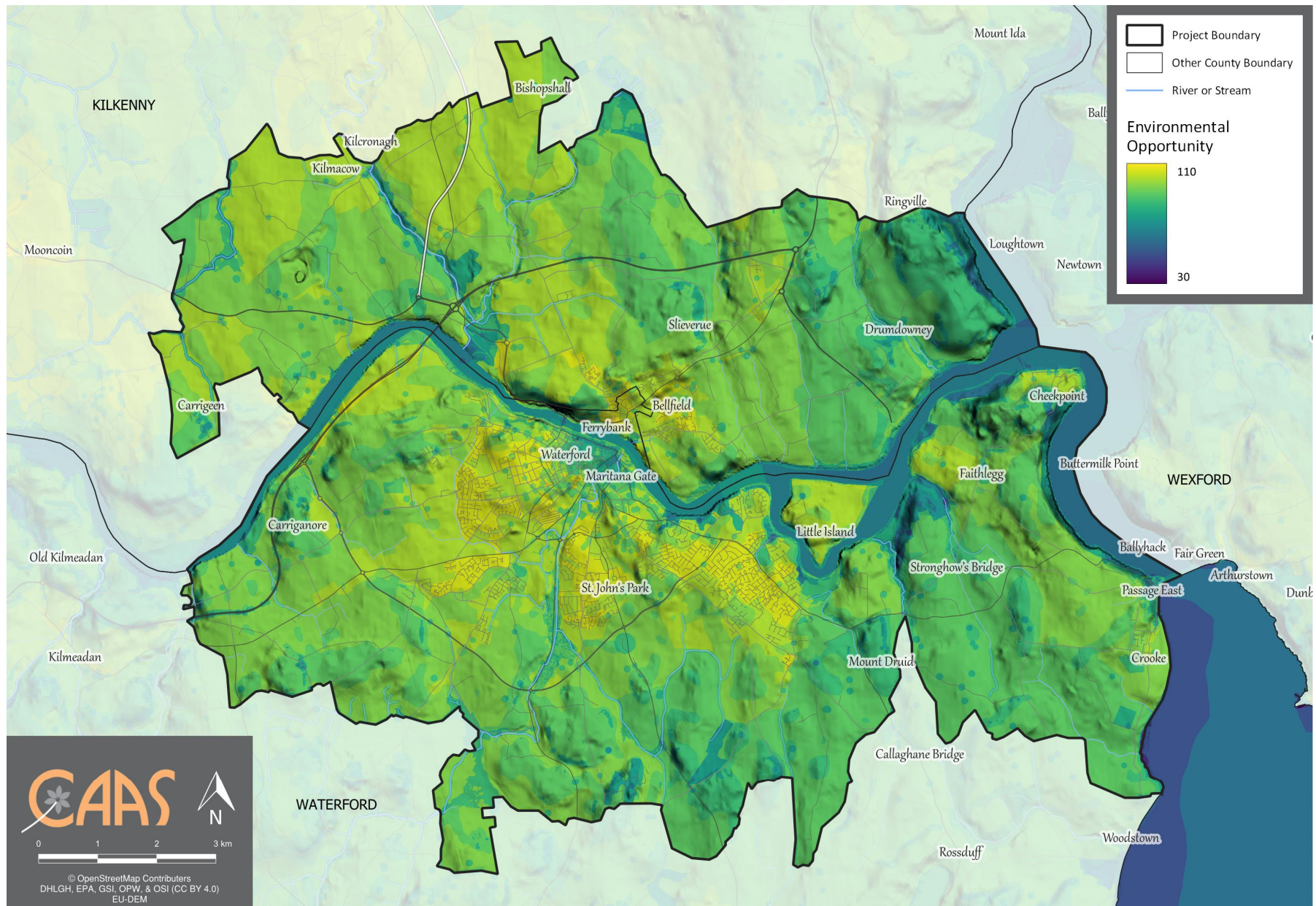


Figure 2.4 Overall Potential Environmental Opportunities/Robustness

Table 2.1 SEA/AA recommendations included within the Strategy

Strategy No.	Section	SEA/AA Recommended Text
17.	Environmental Protection and Management	<p>Introduction</p> <p>Strategic Environmental Assessment (SEA) and Appropriate Assessment (AA) have both been undertaken alongside the preparation of the Strategy. All recommendations arising from the SEA and AA processes have been integrated into the Strategy. Many of these recommendations have been set out in the SEA Environmental Report; however, some of the more strategic recommendations are detailed below. Compliance with these measures will facilitate environmental protection and management.</p>
17.	Environmental Protection and Management	<p>Regulatory Framework for Environmental Protection and Management</p> <p>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 and will ensure that plans, programmes and projects comply with EU Directives, including the Habitats Directive (92/43/EEC), 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</p> <p>Lower levels of decision making and environmental assessment should consider the environmental 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 and areas of semi-natural habitat, such as linear woodlands); • Salmonid Waters; • Shellfish Waters; • Freshwater Pearl Mussel catchments; • Nature Reserves; • Natural Heritage Areas and proposed Natural Heritage Areas; • Areas likely to contain a habitat listed in Annex 1 of the Habitats Directive; • Entries to the Record of Monuments and Places and Zones of Archaeological Potential; • Entries to the Record of Protected Structures; • Un-designated sites of importance to wintering or breeding bird species of conservation concern; • The National Biodiversity Action Plan; • Architectural Conservation Areas; and • Relevant landscape designations. <p>Where developments, arising from this strategy, do not require Environmental Impact Assessment, the implementing agency/agencies will consider the preparation of a non-statutory Ecological Impact Assessment (EcIA) in order to assess the potential impacts to biodiversity.</p>
17.	Environmental Protection and Management	<p>Corridor and Route Selection Process</p> <p>The following Corridor and Route Selection Process will be undertaken for relevant 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 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 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 the route lines is likely to be informed by other considerations.
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> <ul style="list-style-type: none"> • The Plan or project will not give rise to adverse direct, indirect or secondary effects on the integrity of any European site (either individually or in combination with other plans or projects); or • 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 • The Plan or project will have a significant adverse effect on the integrity of any European site (that hosts a natural habitat type and/or a priority species) but there are no alternative solutions and the plan or project must nevertheless be carried out for imperative reasons for overriding public interest, restricted to reasons of human health or public safety, to beneficial consequences of primary importance for the environment or, further to an opinion from the Commission, to other imperative reasons of overriding public interest. In this case, it will be a requirement to follow procedures set out in legislation and agree and undertake all compensatory measures necessary to ensure the protection of the overall coherence of Natura 2000.

SEA Statement for the Waterford Metropolitan Area Transport Strategy 2040

Strategy No.	Section	SEA/AA Recommended Text
17.	Environmental Protection and Management	<p>Protection of Natura 2000 Sites</p> <p>No plans or projects giving rise to adverse effects on the integrity of European sites (cumulatively, directly or indirectly) 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 projects)⁵.</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 of 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 following documents (and any superseding revisions of same): National Energy and Climate Plan (2021); the Waterford Climate Change Adaptation Strategy (2019); the Climate Action Plan (2021); the National Climate Change Adaptation Framework (2018); and the Department of Transport's Climate Change Sectoral Adaptation Plan for Transport Infrastructure (2019), which builds on the 2017 "Adaptation Planning – Developing Resilience to Climate Change in the Irish Transport Sector".</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/AA Recommendations</p> <p>In implementing the Strategy, the Authority will ensure that the measures included in Table 9.2 of the SEA Environmental Report and Table 5.1 of the AA Natura Impact Statement are complied with. These measures encompass:</p> <ul style="list-style-type: none"> • Contributing towards compliance with relevant National Legislation (including the Wildlife Acts 1976 and 2010, as amended). • A variety of measures relating to the protection, conservation and enhancement of biodiversity. • Annex IV species under the Habitats Directive. • Ensuring the undertaking of appropriately detailed surveying and assessment at project/EIA level.

⁵ 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 project to proceed; and c) Adequate compensatory measures in place.

Table 2.2 Provisions to be referred to in the Strategy under “Other SEA/AA 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 relevant 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 and ecological functioning.
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, which focusses significant levels of investment in sustainable transport modes and addresses Climate Action Management at Chapter 14. The Strategy will support the ‘Avoid-Shift-Improve’ hierarchy approach, including contributing towards efforts to: Avoid and reduce the need for travel; Shift to sustainable modes; and Improve efficiency</p> <p>Air and Energy Contribute towards: compliance and consistency with air quality legislation and the National Clean Air Strategy, the National Air Pollution Control Programme, the National Climate Action Plan, the National Policy Framework for Alternative Fuels Infrastructure for Transport and the Department of Transport’s Smarter Travel – A Sustainable Transport Future; greenhouse gas emission targets; management of noise levels, including taking into account available noise maps and Noise Action Plans (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/estuarine flooding; and • Extreme temperatures and associated implications including those relating to the operation of transport and ancillary infrastructure and services. <p>Noise 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 (including provisions relating to the preservation of Quiet Areas) and the National Planning Framework National Policy Objective 65 to ‘Promote the pro-active management of noise where it is likely to have significant adverse impacts on health and quality of life and support the aims of the Environmental Noise Regulations through national planning guidance and Noise Action Plans’; and reductions in energy usage.</p>
Population and human health	Potential interactions if effects upon environmental vectors such as air are not mitigated	<p>Human Health Assess proposals for development in terms of, inter alia, potential impact on existing adjacent developments, existing land uses and/or the surrounding landscape. Where proposed developments would be likely to have a significant adverse effect on the amenities of the area through pollution by noise, fumes, odours, dust, grit or vibration, or cause pollution of air, water and/or soil, mitigation measures shall be introduced in order to eliminate adverse environmental impacts or reduce them to an acceptable operating level.</p> <p>Green/Blueways and Existing Green Infrastructure Proposals for greenway/blueway development should contribute towards the protection or enhancement of existing green infrastructure and have regard to the EPA and HSE research and associated toolkits into the benefits of blue and green spaces.</p>

Environmental component benefitting	Potential adverse effect mitigated	Requirement
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 are progressed.</p> <p>- Potential effects on vegetation from transport emissions.</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); Salmonid Waters; Shellfish Waters; Freshwater Pearl Mussel catchments; Flora Protection Order sites and species; Wildlife sites (including Nature Reserves); 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)⁶, the Birds Directive (2009/147/EC)⁷, the Environmental Liability Directive (2004/35/EC)⁸, 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 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 2008 (as amended)⁹ 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 2021 and 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 its measures relating to ecological corridors and any superseding version of same) and the All Ireland Pollinator Plan. • Freshwater Pearl Mussel Regulations (S.I. 296 of 2009) (including any associated designated areas or management plans). • Ireland's Environment 2020 - An Assessment (EPA, 2020, 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/estuarine habitats; and facilitate an Integrated Coastal Zone Management approach to ensure the conservation, management and protection of man-made and natural resources of the coastal/estuarine zone.</p>
		<p>Biodiversity and Ecological Networks</p> <p>Contribute towards the protection, conservation and enhancement of biodiversity and ecological connectivity, including field boundaries, 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. Where field boundaries must be removed Mitigation measures, aimed at ensuring that habitat fragmentation does not occur, should be considered and incorporated where relevant. Where practicable and relevant, opportunities will be explored as to how to address any inadequate existing mitigation measures or impeded passage when existing roads are being improved or upgraded.</p>
		<p>Protection of Riparian Zone and Waterbodies and Watercourses</p> <p>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/estuarine areas, as appropriate.</p>

⁶ Including Annex I habitats, Annex II species and their habitats and Annex IV species and their breeding sites and resting places (wherever they occur).

⁷ Including Annex I species and other regularly occurring migratory species, and their habitats (wherever they occur).

⁸ Including protected species and natural habitats.

⁹ Including protected species and natural habitats.

Environmental component benefitting	Potential adverse effect mitigated	Requirement
		<p>Biodiversity including non-designated biodiversity Ensure the undertaking of appropriately detailed surveying and assessment at project/EIA level (including fulfilling requirements under the Wildlife Acts) and minimisation of loss of biodiversity, including hedgerows, old trees, tree lines, areas of vegetation or species such as Barn Owl (the Transport Infrastructure Ireland Publication 'Survey and Mitigation Standards for Barn Owls to inform the Planning, Construction and Operation of National Road Projects' should be considered in this regard), 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. Where possible, to strive to achieve no net loss of these features as a result of new development granted permission under the Plan.</p> <p>Contribute towards the protection and management of fisheries¹⁰ as appropriate and take into account Inland Fisheries Ireland's "Planning for Watercourses in the Urban Environments" (2020) for developments along watercourses.</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 and their selection consider EUROBATS and Dark Sky lighting recommendations, 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, both the National Parks and Wildlife Service's and Local Authority'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 - Increase in the risk of flooding 	<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> <p>River Basin Management Plan Support the implementation of the relevant recommendations and measures as outlined in the most up to date River Basin Management Plan, and associated Programme of Measures. 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>

¹⁰ Including with regard to water quality, surface water hydrology, fish spawning and nursery areas, passage of migratory fish, ecosystem structure and functioning and sport and commercial fishing and angling resources.

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Environmental component benefitting	Potential adverse effect mitigated	Requirement
		<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/Estuarine Areas and Seascapes Contribute towards the protection of landscape character and the visual potential of the coast/estuarine areas 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). Projects that are progressed under the Strategy will be subject to Environmental Impact Assessment, as appropriate, including detailed archaeological impact assessment as relevant. 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 in relation to proposed developments adjoining archaeological sites.</p> <p>Underwater Archaeological Sites Contribute, as appropriate, towards the protection and preservation of underwater archaeological sites in riverine, intertidal and sub-tidal locations.</p> <p>Architectural Heritage Contribute towards the protection of architectural heritage by complying, as appropriate, with the legislative provisions of the Planning and Development Act 2000 (as amended) in relation to architectural heritage and the policy guidance contained in the Architectural Heritage Protection Guidelines 2011 (and any updated/superseding document). Any alterations to architectural heritage or its context, including that which may arise as a result of the development of new or widened infrastructure, shall be in compliance with relevant legislation.</p>
Soil	<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. 	<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 and GSI Datasets Contribute towards the appropriate protection and maintenance of the character, integrity and conservation value of features or areas of geological interest. Take GSI datasets into account as appropriate, including those relating to geoheritage, groundwater, geohazards, natural resources and coastal vulnerability.</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 3 Environmental Report and Submissions/ Observations

3.1 Introduction

This section details how both the Environmental Report and submissions and observations made to the NTA on the Environmental Report and SEA process have been taken into account during the preparation of the Strategy and SEA.

3.2 Overview of Consultation on the Draft Strategy

The draft Waterford Metropolitan Area Transport Strategy was published on the 1st June 2022. Over 69 stakeholders participated in the Waterford Metropolitan Area Transport Strategies non-statutory public consultation by attending events and making submissions. The consultation period ran for a total of six weeks from 1st June to the 16th July 2022.

The NTA engaged extensively with key stakeholders at every stage of the development of the draft Strategy. The purpose of this advance consultation and engagement was to clearly communicate the intention to prepare a draft Transport Strategy, its intended scope and to seek views and opinions on issues that should be considered in its preparation. Stakeholders who contributed to this phase of consultation included:

- Members of Waterford City & County Council;
- Members of Kilkenny County Council;
- Southern Regional Assembly;
- Transport Infrastructure Ireland; and
- National Transport Authority.

Early engagement with stakeholders is an important aspect of strategic planning. Stakeholder engagement during this phase of the Strategy's development consisted of a series of steering meetings, technical workshops and presentations.

The draft Strategy and its accompanying documents were published and made available to download on the NTA's website following

the official launch at the Granville Hotel on 1st June 2022.

The publication of the draft Strategy received extensive media coverage from a range of national and local media outlets including:

- RTÉ News;
- Virgin Media;
- The Times;
- The Independent;
- Munster Express;
- Waterford Live;
- KCLR 96fm; and
- BreakingNews.ie.

To further ensure that WMATS and its accompanying documents were easily accessible, hard copies were made available to view at Waterford City and County Council and Kilkenny Library, Ferrybank for the duration of the consultation period.

The draft Strategy was accompanied by a significant number of public consultation documents which the public were encouraged to take away. This document contained a summarised version of the draft Strategy as well as full details on how to make a submission. Hard copies of both reports were also available on request through the dedicated email.

During the consultation period, two public information events were held at the following locations:

- Tower Hotel, Waterford – 15th June; and
- Tower Hotel, Waterford – 16th June

Senior staff from the NTA and the Project Team were available to provide answers to specific questions and queries from the public to discuss the contents of the draft Strategy. Hard copies of the draft Strategy and Executive Summary were available for attendees to view.

All written feedback received by the Project Team was acknowledge and recorded. Submissions and observations were sent to the NTA by post, email or submitted at the Public Information Events up until 5pm on Friday 15th July 2022.

A total of 69 stakeholders made a submission during the six-week consultation period, with some stakeholders making several submissions. These stakeholders ranged from individual residents to lobby groups to government departments.

Throughout the public consultation process, the NTA presented stakeholder feedback on the project, whether it was positive, negative or neutral. All feedback is reflected within the supporting Public Consultation Report.

The Public Consultation Report presents the feedback on a theme-by-theme basis. 15 key themes and almost 70 sub-themes emerged from the analysis of the 69 submissions.

All of the submissions were carefully considered and taken into account in the development of the Transport Strategy, including in the development and finalisation environmental considerations that were integrated into the Strategy, including those identified on Tables 2.1 and 2.2 of this report.

3.3 SEA Scoping Submissions

Relevant environmental authorities¹¹ 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.

Submissions made by the Department of Agriculture, Food and the Marine, the Environmental Protection Agency, the Department of Environment, Climate and Communications (from Geological Survey of Ireland Division), the Department of Environment, Climate and Communications (from Waste Policy and Resource Efficiency Division) and the Department of Tourism,

Culture, Arts, Gaeltacht, Sport and Media have been taken into account in undertaking the assessments and preparing the Strategy.

The issues raised in the submissions, as follow, informed the integration of environmental considerations into the Strategy, including through the development of Strategy provisions identified on Tables 2.1 and 2.2 of this report:

- Marine environment or fisheries
- 'Avoid-Shift-Improve' hierarchy approach
- National Planning Framework and the Regional Spatial and Economic Strategy
- Transition to a low carbon climate resilient economy and society
- Air Pollution and Transport
- Noise Pollution
- Biodiversity
- Scope of the SEA
- Key Plans and Programmes
- Integration of the SEA and the Strategy
- Monitoring, Review & Reporting
- Environmental Authorities
- Some specific comments on the Scoping Report
- Geoheritage
- Culture and Tourism
- Geological Mapping
- Groundwater
- Geohazards
- Natural Resources (Minerals/Aggregates)
- Marine and Coastal Unit
- Coastal Vulnerability Index
- Geotechnical Database Resources
- Regional Waste Management Planning Office
- Archaeology
- Government policy on nature conservation
- Nature conservation within the Plan
- Threats and Pressures on Nature Conservation
- Lighting
- Invasive Alien Species (IAS)
- Green Infrastructure (GI) and Greenways
- Hedgerows
- Water and Wetlands
- Roads
- Road development and barn owl
- Monitoring

Submissions were made on the Draft Strategy, SEA Environmental Report and AA Natura Impact Statement while these documents were on public display and these resulted in updates being made to the documents. Updates made to the SEA Environmental Report on foot of these submissions include:

- To add the following text to Section 10 "Monitoring Measures" of the SEA Environmental Report and the corresponding section (Section 5) in this SEA Statement: "The Strategy implementation, monitoring and reporting will be aligned with the environmental monitoring required under SEA legislation."
- To add the following text to the baseline description for landscape included in the SEA

¹¹ At the time of scoping, Government Departments had been recently renamed and certain functions were under consideration. The following Departments were notified in order to ensure compliance with the Regulations: Environmental Protection Agency; Department of Environment, Climate and Communications; Department of Agriculture, Food and the Marine; Department of Tourism, Culture, Arts, Gaeltacht, Sport and Media; and Department of Housing, Local Government and Heritage.

Environmental Report: "The Marine Institute's (2020) "Regional Seascape Character Assessment Final Report" includes Waterford Harbour and surrounding areas as part of Seascape Character Area No. 12 "Celtic Sea Bays and Beaches."

The NTA have taken into account the findings of all relevant SEA output during their consideration of the Draft Strategy and before the Strategy was adopted.

- To add the following text to Section 7.3 "Cumulative Effects" in the SEA Environmental Report: "In considering cumulative effects, the EPA's (2020) "Good Practice Guidance Note on Cumulative Effects Assessment in Strategic Environmental Assessment" has been taken into account."
- To add the following text to Section 4.12.4 "Overall Environmental Sensitivities and Opportunities/ Robustness" in the SEA Environmental Report: "The EPA-funded Environmental Sensitivity Mapping Web Tool could assist in lower tier consideration of plans and projects."

3.4 SEA documents including SEA Environmental Report

The Draft Strategy and accompanying documents (including SEA Environmental Report and AA and SFRA documents) were placed on public display, having integrated various recommendations arising from the SEA and AA.

The findings of the SEA are expressed in an Environmental Report, the first published version of which accompanied the Draft Strategy on public display.

Responses to submissions made on the Draft Strategy and associated Environmental Report during the period of public display were integrated into a report on submissions and considered by the National Transport Authority.

The Environmental Report was updated in order to take account of: recommendations contained in submissions; and minor modifications made to the Draft Strategy that were made on foot of submissions.

Minor modifications were subject to Screening for SEA and AA and it was determined that, considering the measures that have been already integrated into the Draft Strategy, modifications would not be likely to result in either significant environmental effects or potential effects on any European site.

Section 4 Reasons for choosing the selected alternative in light of other alternatives considered

As per the requirements of the SEA Directive, the SEA considered reasonable alternatives, which are capable of being implemented for the Strategy.

4.1 Need for the Strategy

The Metropolitan Area Strategic Plan (MASP) for Waterford provides for the preparation of the preparation of the Waterford Metropolitan Area Transport Strategy 2040 (WMATS) through Policy Objective "Integration of Land Use and Transport" 6 (a):

"Prepare WMATS during the lifetime of this MASP and ensure investment and implementation of WMATS".

4.2 Existing provisions already in place

The Strategy aligns with legislation and documents setting out public policy for land use, transport and climate action 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 National Investment Framework for Transport in Ireland, the Regional Economic and Spatial Strategy for the Southern Region (as adopted by the Southern Regional Assembly) and associated MASP, the City and County Development Plans, Local Area Plans and Planning Schemes. Certain transport related proposals already provided for by these documents (and considered by their environmental assessments) are amongst those included within the Strategy. This Transport Strategy is based on national policies on sustainability as set out in the Climate Action Plan and recent climate action legislation.

4.3 Alternatives Considered

The provision of an enhanced public transport network within the WMA is a key priority for the Strategy.

Six guiding principles for successful public transport networks were set out to help in the early development and assessment of options. The adoption of these principles will result in an attractive public transport service that provides a realistic alternative to the private car.

Key strategic public transport corridors (A, B, C, D and E&F) and supporting public transport services for the wider WMA were identified, underpinned by these principles. Once a high-level indicative public transport network was identified, more detailed analysis and specific considerations for the public transport network were addressed at a corridor level.

Within each specific corridor of the WMA, the public transport proposals were developed based on the identified public transport demand from the 'idealised' network analysis. Further details on the methodology employed can be found in the supporting Demand Analysis Report and Transport Options and Network Development Report.

The identification of the appropriate infrastructure to service the demand levels for each corridor was based on a typical range of public transport capacities that can be achieved by Bus, Bus Rapid Transit (BRT), Light Rail Transit (LRT) and Heavy Rail.

With respect to the walking, cycle and road networks:

- The Walking Network in the Strategy focuses on the existing and proposed Development Plans and Local Area Plans from both Local Authorities. These plans were reviewed to enhance integration and connectivity with the measures for the cycle, public transport and road network.
- The Cycle Network in the Strategy is fundamentally based on the proposals contained within the Draft Cycle Network Plan for Waterford City and Environs 2014. This Cycle Plan was reviewed to ensure integration with the proposals for public transport, walking and roads within the Strategy.
- A review of committed and proposed road schemes was undertaken as part of the Strategy development and aligned to policy within the WMA. The road network was also reviewed with the aim of supporting new public transport, walking and cycling provision.

The following Public Transport Network Options were considered for each of the Public Transport Corridors (A, B, C, D and E&F):

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

4.4 Summary of Evaluation of Alternatives

A summary of the evaluation of alternatives for all each of the Public Transport Corridors (A, B, C, D and E&F) is provided on Table 4.1.

Table 4.1 Summary of Evaluation of Alternatives for all Corridors

Alternative	Likely to improve status of the environment to a greater degree	Less Potential Conflict with status of the environment - likely to be mitigated	Moderate Potential Conflict with status of the environment - likely to be mitigated	More Potential Conflict with status of the environment - less likely to be fully mitigated	Most Conflict with status of the environment - less likely to be fully mitigated
Option 1: Bus Services	This option would improve the capacity of public transport and help to reduce congestion. Emissions (and associated interactions with human health) would be significantly lower per journey with this mode than would be the case with journeys by car. Energy security would be contributed towards. This option would also help to facilitate integration of land-use development with sustainable transport provision including appropriate levels of consolidated and intensified development around public transport networks. By facilitating consolidated and intensified development, this option would help to indirectly protect environmental components that might otherwise be impacted upon as a result of development that would potentially be spread out over greater areas and at a lower density.	As the bus-based network on this corridor under Option 1 Bus Services would be able to utilise existing road space, potential adverse direct environmental effects would be least under this option.	All options would facilitate new consolidated and intensified development, potentially indirectly affecting all environmental components.		
Option 2: Bus Rapid Transport	This option would improve the capacity of public transport and help to reduce congestion. Emissions (and associated interactions with human health) would be significantly lower per journey with this mode than would be the case with journeys by car. Energy security would be contributed towards. This option would also help to facilitate integration of land-use development with sustainable transport provision including appropriate levels of consolidated and intensified development around public transport networks. By facilitating consolidated and intensified development, this option would help to indirectly protect environmental components that might otherwise be impacted upon as a result of development that would potentially be spread out over greater areas and at a lower density.		All options would facilitate new consolidated and intensified development, potentially indirectly affecting all environmental components. Option 2 BRT would have a present a greater extent of potential adverse direct environmental effects in comparison to the bus services under Option 1, as Option 2 BRT would need more works and land to accommodate bus priority measures, junction widening and improved permeability.		
Option 3: Light Rail Transit	This option would improve the capacity of public transport and help to reduce congestion. Emissions (and associated interactions with human health) would be significantly lower per journey with this mode than would be the case with journeys by car. Energy security would be contributed towards. This option would also help to facilitate integration of land-use development with sustainable transport provision including appropriate levels of consolidated and intensified development around public transport networks. By facilitating consolidated and intensified development, this option would help to indirectly protect environmental components that might otherwise be impacted upon as a result of development that would potentially be spread out over greater areas and at a lower density.		All options would facilitate new consolidated and intensified development, potentially indirectly affecting all environmental components.	Potential adverse direct environmental effects would be elevated under Option 3 Light Rail Transit due to the construction impacts arising, particularly on lands that are already developed and in a context where there is currently an absence of this type of infrastructure.	
Option 4: Suburban Rail	This option would improve the capacity of public transport and help to reduce congestion. Emissions (and associated interactions with human health) would be significantly lower per journey with this mode than would be the case with journeys by car. Energy security would be contributed towards. This option would also help to facilitate integration of land-use development with sustainable transport provision including appropriate levels of consolidated and intensified development around public transport networks. By facilitating consolidated and intensified development, this option would help to indirectly protect environmental components that might otherwise be impacted upon as a result of development that would potentially be spread out over greater areas and at a lower density.		All options would facilitate new consolidated and intensified development, potentially indirectly affecting all environmental components.		Potential adverse direct environmental effects would be most under Option 4 Suburban Rail due to the construction impacts arising, particularly on lands that are already developed and in a context where there is currently an absence of this type of infrastructure.

4.5 Reasons for Choosing the Selected Alternatives in light of Other Reasonable Alternatives Considered

The options selected for the Strategy and the reasons for their selection are detailed on Table 4.2.

Table 4.2 Selected Options for the Strategy for each Corridor

Corridor	Options Considered (Selected Option(s) for the Strategy in bold)	Reasons for Choosing the Selected Alternatives in light of Other Reasonable Alternatives Considered
A	Option 1: Bus Services Option 2: Bus Rapid Transit Option 3: Light Rail Transit Option 4: Suburban Rail	Alternatives have been selected taking into account the selected criteria (economy, environment, safety, integration and accessibility and social inclusion). "Option 1: Bus Services" is the preferred option for Corridor A based on the multi-criteria assessment, providing the most benefits in terms of Economy (return on investment), Environmental Impact and Integration. Bus Rapid Transit is not preferred given that the capacity of the bus-based option can cater for the travel demand on the corridor and provide more flexibility. However, it is acknowledged the bus network could be upgraded to a BRT type service in the future should demand exceed capacity. Travel demand, population and employment densities are below that required for any other alternative public transport measures along the corridor such as Light Rail and Heavy Rail.
B	Option 1: Bus Services Option 2: Bus Rapid Transit Option 3: Light Rail Transit Option 4: Suburban Rail	Alternatives have been selected taking into account the selected criteria (economy, environment, safety, integration and accessibility and social inclusion). "Option 1: Bus Services" is considered to be the preferred option for Corridor B based on the multi-criteria assessment, providing the most benefits overall while maximising the economic benefits and cost efficiency. Travel demand, population and employment densities are below that required for any other alternative public transport measures along the corridor such as Bus Rapid Transit, Light Rail and Heavy Rail.
C	Option 1: Bus Services Option 2: Bus Rapid Transit Option 3: Light Rail Transit Option 4: Suburban Rail	Alternatives have been selected taking into account the selected criteria (economy, environment, safety, integration and accessibility and social inclusion). "Option 1: Bus Services" is considered to be the preferential option for Corridor C based on the multi-criteria assessment, providing the most benefits overall while maximising value for money. Travel demand, population and employment densities are below that required for any other alternative public transport measures along the corridor such as Bus Rapid Transit, Light Rail and Heavy Rail.
D	Option 1: Bus Services Option 2: Bus Rapid Transit Option 3: Light Rail Transit Option 4: Suburban Rail	Alternatives have been selected taking into account the selected criteria (economy, environment, safety, integration and accessibility and social inclusion). "Option 1: Bus Services" is considered to be the preferred options for Corridor D based on the multi-criteria assessment, providing the most benefits overall while maximising value for money. Bus Rapid Transit is not preferred given the capacity of a bus-based options can cater for the travel demand and provide more flexibility. However, the bus network could be upgraded to a BRT type service in the future should demand exceed capacity. Travel demand, population and employment densities are below that required for any other alternative public transport measures along the corridor such as Light Rail and Heavy Rail.
E&F	Option 1: Bus Services Option 2: Bus Rapid Transit Option 3: Light Rail Transit Option 4: Suburban Rail	Alternatives have been selected taking into account the selected criteria (economy, environment, safety, integration and accessibility and social inclusion). "Option 1: Bus Services" is considered to be the preferred option based on the multi-criteria assessment, providing the most benefits overall while maximising the economic benefits. The corridor does not have the population or employment density to support a BRT or LRT line, while the creation of additional stations along the existing rail corridor would require substantial investment but would still not improve accessibility as the bus services provides greater coverage and flexibility in accessing the predominantly low-density residential areas in the corridor.

Section 5 Monitoring Measures

5.1 Introduction

The SEA Directive requires that the significant environmental effects of the implementation of plans and programmes are monitored. This section details the measures which will be used in order to monitor the likely significant effects of implementing the Strategy. It has been guided by the EPA guidance on this issue, "Guidance on SEA Statements and Monitoring" (2020).

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

The occurrence of significant adverse environmental effects not predicted and mitigated by this assessment, which are directly attributable to the implementation of the Strategy, would necessitate consideration of these effects in the context of the Strategy and potential remediation action(s) and/or review of part(s) of the Strategy.

The Strategy implementation, monitoring and reporting will be aligned with the environmental monitoring required under SEA legislation.

5.2 Indicators and Targets

Monitoring is based around indicators which allow quantitative measures of trends and progress over time relating to the Strategic Environmental Objectives used in the assessment (see also the SEA Environmental Report). Each indicator to be monitored is accompanied by the target(s) which were identified with regard to the relevant strategic actions. Monitoring measures chosen for the SEA of the Strategy align with those used in the SEA of the Southern RSES and in the SEAs of other land use plans across the Region. This consistency across the hierarchy of land use/transport planning will improve the efficiency and effectiveness of future monitoring.

Table 5.1 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.

5.3 Sources

The Strategy forms part of the wider land use planning framework comprising a hierarchy of policies, plans, programmes, etc. This wider framework, including the National Planning Framework and the Southern RSES, is subject to its own SEA (and associated monitoring) requirements. At lower tiers of the hierarchy, individual projects will be subject to their own monitoring requirements, as relevant. In implementing the Monitoring Programme, the Authority will take into account this hierarchy of planning and environmental monitoring.

The monitoring programme encompasses existing monitoring programmes and internal review of Strategy implementation. Appropriate levels of surveying will be undertaken commensurate with the level in the decision-making hierarchy of the plan or project.

Sources for indicators may include existing monitoring databases (including those maintained by planning authorities and national/regional government departments and agencies) and the output of lower-tier environmental assessment and decision making (including a review of project approvals granted and associated documents and the output of any EIA monitoring programmes).

5.4 Reporting

A stand-alone Monitoring Report on the significant environmental effects of implementing the Strategy will be prepared in advance of the beginning of the review of the Strategy. This report will address the indicators set out on Table 5.1. The 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 remedial action.

5.5 Thresholds

Thresholds at which corrective action will be considered include:

- Impacts on the integrity of European sites as a result of Strategy projects that have not been granted permission following an assessment of imperative reasons of overriding public interest (IROPI);
- 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 Housing, Local Government and Heritage 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 5.1 Indicators, Targets, Sources and Remedial Action

Environmental Component	SEO Code	Indicators	Targets	Sources	Remedial Action
Air	A	<ul style="list-style-type: none"> Proportion of journeys made by private fossil fuel-based car compared to previous National Travel Survey levels NO_x, SO_x, PM10 and PM2.5 as part of Ambient Air Quality Monitoring 	<ul style="list-style-type: none"> Decrease in proportion of journeys made by private fossil fuel-based car compared to previous National Travel Survey levels Improvement in Air Quality trends, particularly in relation to transport related emissions of NO_x and particulate matter 	<ul style="list-style-type: none"> CSO data Data from the National Travel Survey EPA Air Quality Monitoring Internal review of Strategy implementation 	<ul style="list-style-type: none"> Where proportion of population shows increase in private car use above previous CSO figures, the Authority will coordinate with the Regional Assembly, the DHLGH, DECC and other planning authorities to develop a tailored response.
Climatic Factors	C	<ul style="list-style-type: none"> Implementation of the Strategy, which will contribute towards and facilitate climate action A competitive, low-carbon, climate-resilient and environmentally sustainable economy Share of renewable energy in transport Carbon dioxide (CO₂) emissions across the transport sector Energy consumption, the uptake of renewable options and solid fuels for residential heating Proportion of journeys made by private fossil fuel-based car compared to previous levels Proportion of people reporting regular cycling / walking to school and work above previous CSO figures 	<ul style="list-style-type: none"> To implement the Strategy, which will contribute towards and facilitate climate action Contribute towards transition to a competitive, low-carbon, climate-resilient and environmentally sustainable economy by 2050 Contribute towards the target of the Renewable Energy Directive (2009/28/EC), for all Member States to reach a 10% share of renewable energy in transport by facilitating the development of electricity charging and transmission infrastructure, in compliance with the provisions of the Strategy Contribute towards the target of aggregate reduction in carbon dioxide (CO₂) emissions of at least 80% (compared to 1990 levels) by 2050 across the transport sector To promote reduced energy consumption and support the uptake of renewable options and a move away from solid fuels for residential heating Decrease in the proportion of journeys made by residents of the WMA using private fossil fuel-based car compared to previous levels Increase in the proportion of people reporting regular cycling / walking to school and work above previous CSO figures 	<ul style="list-style-type: none"> Internal review of Strategy implementation EPA Annual National Greenhouse Gas Emissions Inventory reporting Climate Action Regional Office Consultations with Department of Environment, Climate and Communications CSO data 	<ul style="list-style-type: none"> Review internal systems Where targets are not achieved, the Authority will liaise with the Regional Assembly and the Dublin Climate Action Regional Office to establish reasons and develop solutions. Where trends toward carbon reduction are not recorded, the Authority will liaise with the Regional Assembly and the Dublin Climate Action Regional Office to establish reasons and develop solutions.

Environmental Component	SEO Code	Indicators	Targets	Sources	Remedial Action
Population and Human Health	PHH	<ul style="list-style-type: none"> Implementation of the Strategy, which will contribute towards and facilitate economic growth 	<ul style="list-style-type: none"> To implement the Strategy, which will contribute towards and facilitate economic growth 	<ul style="list-style-type: none"> Internal review of Strategy implementation Consultations with the Health Service Executive and EPA CSO data Internal review of Strategy implementation 	<ul style="list-style-type: none"> Review internal systems Consultations with the Health Service Executive and EPA Where proportion of population shows increase in private car use above previous CSO 2016 figures, coordinate with the Regional Assembly, the DHLGH, DECC and other planning authorities to develop a tailored response Review internal systems
		<ul style="list-style-type: none"> Number of spatial concentrations of health problems arising from environmental factors resulting from development permitted under the Strategy 	<ul style="list-style-type: none"> No spatial concentrations of health problems arising from environmental factors as a result of implementing the Strategy 		
		<ul style="list-style-type: none"> Proportion of people reporting regular cycling / walking to school and work above previous CSO figures Access to sustainable modes of transport 	<ul style="list-style-type: none"> Increase in the proportion of people reporting regular cycling / walking to school and work above previous CSO figures To improve access to sustainable modes of transport 		
Biodiversity, Flora and Fauna¹²	BFF	<ul style="list-style-type: none"> Condition of European sites 	<ul style="list-style-type: none"> Relevant projects to integrate considerations relating to European sites, other nature conservation sites, ecological networks, protected species and ecosystem services 	<ul style="list-style-type: none"> Department of Housing, Local Government and Heritage 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 Housing, Local Government and Heritage's National Birds Directive Monitoring Report for the under Article 12 (every 3 years) Consultations with the NPWS Internal review of new projects 	<ul style="list-style-type: none"> Where condition of biodiversity and flora and fauna is found to be deteriorating this will be investigated with the DHLGH to establish if the pressures are related to Strategy actions / activities. A tailored response will be developed in consultation with these stakeholders in such a circumstance. Review internal systems
		<ul style="list-style-type: none"> Number of projects that have integrated ecosystem services considerations 	<ul style="list-style-type: none"> Relevant projects to have regard to the heritage and biodiversity plans of planning authorities 		
		<ul style="list-style-type: none"> EIAs and AAs as relevant for new projects 	<ul style="list-style-type: none"> Screen for and undertake EIA and AA as relevant for new projects 		
		<ul style="list-style-type: none"> Compliance of planning permissions with Strategy measures providing for the protection of biodiversity and flora and fauna – see Chapter 17 of the Strategy 	<ul style="list-style-type: none"> For new projects only to be progressed where they demonstrate that they comply with all Strategy measures providing for the protection of biodiversity and flora and fauna – see Chapter 17 of the Strategy 		

¹² Monitoring to include biodiversity loss and enhancement as relevant.

Environmental Component	SEO Code	Indicators	Targets	Sources	Remedial Action
Water	W	<ul style="list-style-type: none"> • Status of water bodies as reported by the EPA Water Monitoring Programme for the WFD • Number of incompatible developments permitted within flood risk areas • Integration of sustainable water management solutions (such as SuDS, porous surfacing, etc.) into new projects 	<ul style="list-style-type: none"> • Not to cause deterioration in the status of any surface water or affect the ability of any surface water to achieve 'good status' • Implementation of the objectives of the River Basin Management Plan • Minimise developments granted permission on lands which pose - or are likely to pose in the future - a significant flood risk • Integrate sustainable water management solutions (such as SuDS, porous surfacing, etc.) into new projects as relevant 	<ul style="list-style-type: none"> • EPA Monitoring Programme for WFD compliance • Internal review of Strategy implementation 	<ul style="list-style-type: none"> • Where water bodies are failing to meet at least good status as a result of development under the Strategy, this will be investigated with the DHLGH Water Section, the EPA Catchment Unit, the Regional Assembly and, as relevant, Irish Water. A tailored response will be developed in consultation with these stakeholders in such a circumstance • Where marine water bodies are failing to meet good ecological status as a result of development under the Strategy, this will be interrogated with the Marine Institute and the DHLGH. A tailored response will be developed in consultation with the Marine Institute and DHLGH in such a circumstance • Where new projects are on flood zones, these should be implemented in compliance with the Flood Risk Management Guidelines and include appropriate flood risk mitigation and management measures
Landscape	L	<ul style="list-style-type: none"> • Number of developments permitted that result in avoidable adverse visual impacts on the landscape, especially with regard to landscape and amenity designations included in Land Use Plans, resulting from development which is granted permission under the Strategy 	<ul style="list-style-type: none"> • No developments permitted which result in avoidable adverse visual impacts on the landscape, especially with regard to landscape and amenity designations included in Land Use Plans, resulting from development which is granted permission under the Strategy 	<ul style="list-style-type: none"> • Internal review of Strategy implementation 	<ul style="list-style-type: none"> • Where monitoring reveals developments permitted which result in avoidable adverse visual impacts on the landscape, the Authority will re-examine Strategy provisions and the effectiveness of their implementation
Cultural Heritage	CH	<ul style="list-style-type: none"> • Percentage of entries to the Record of Monuments and Places, and the context these entries within the surrounding landscape where relevant, protected from adverse effects resulting from development which is granted permission under the Strategy 	<ul style="list-style-type: none"> • Protect entries to the Record of Monuments and Places, and the context of these entries within the surrounding landscape where relevant, from adverse effects resulting from development which is granted permission under the Strategy 	<ul style="list-style-type: none"> • Internal review of Strategy implementation • Consultation with Department of Housing, Local Government and Heritage 	<ul style="list-style-type: none"> • Review internal systems • Find solutions in consultation with Department of Housing, Local Government and Heritage and planning authorities as relevant