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National Roads 2040

Natura Impact Statement
of the National Roads 2040

February 2023



Tionscadal Éireann
Project Ireland
2040



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National Roads 2040 Natura Impact Statement

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1.0 INTRODUCTION

1.1 Introduction

Transport Infrastructure Ireland has prepared National Roads 2040 which will provide a long-term strategy for planning, operating, and maintaining the National Roads network. It has been developed to support the delivery of Project Ireland 2040. This Natura Impact Statement (“NIS”), with respect to National Roads 2040 (hereafter referred to “NR2040” or “the Strategy”) has been prepared independently by Roughan & O'Donovan (“ROD”) as a sub-consultant to AECOM, on behalf of Transport Infrastructure Ireland (“TII”). Due to the strategic nature of NR2040 it will inform National Road investment decisions. It does not, in and of its own right, confer planning permission for any specific development but rather guides the subsequent tiers of planning in their more detailed decision making.

The requirements arising out of Article 6(3) of Council Directive 92/43/EEC of 21 May 1992 on the conservation of natural habitats and of wild fauna and flora (“the Habitats Directive”) in relation to Appropriate Assessment are transposed into Irish law by Part 5 of the European Communities (Birds and Natural Habitats) Regulations, 2011 (as amended) (“the Habitats Regulations”). In accordance with Article 6(3) of the Habitats Directive and Part 5 of the Habitats Regulations, an Appropriate Assessment (AA) Screening Report was prepared to assess whether or not the draft Strategy, either individually or in combination with other plans or projects, was likely to have a significant effect on one or more European Sites (s).

In accordance with Article 6(3) of the Habitats Directive and Part 5 of the Habitats Regulations, it is the Competent Authority – in this case TII – which carries out the appropriate assessment (AA) which includes inter alia (i) an examination (ii) an analysis (iii) an evaluation (iv) the making of findings (v) the making of conclusions and (vi) the making of a final determination¹. In accordance with Regulation 42(9) of the Habitat Regulations, where a public authority conducts an Appropriate Assessment, they are required to submit the Natura Impact Statement to the Minister no later than six weeks before the plan or project is adopted. Regulation 42(10) of the same Regulations states that the public authority shall take account of any submission made by the Minister before concluding Appropriate Assessment. In addition to the Regulation 42(10) Ministerial consultation on Appropriate Assessment, a public consultation pursuant to Regulation 42(13) may also be held. This provides for the public authority to invite the option of the general public for the purposes of conducting their Appropriate Assessment.

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1.2 Legislative Context

Council Directive 92/43/EEC of the 21st May 1992 on the conservation of natural habitats of wild fauna and flora (“the Habitats Directive”) and Directive 2009/147/EC of the European Parliament and of the Council of the 30th November 2009 on the conservation of wild birds (“the Birds Directive”) list habitats and species which are important for conservation and in need of protection. This protection is afforded in part

¹ *Waddenzee* (Case C-127/02) [2004] ECR I-7405; *Commission v Spain* (Case C-404/09) [2011] E.C.R. I-11853; *Sweetman* (Case C-258/11).

through the designation of sites which support significant examples of habitats or populations of species (“European Sites”). Sites designated for birds are termed “Special Protection Areas” (SPAs) and sites designated for natural habitat types or other species are termed “Special Areas of Conservation” (SACs). The complete network of European Sites is referred to as “Natura 2000”.

In order to ensure the protection of European Sites in the context of land use planning and development, Article 6(3) of the Habitats Directive provides for the assessment of the implications of plans and projects for European Sites, as follows:

“Any plan or project not directly connected with or necessary to the management of the site [or sites] but likely to have a significant effect thereon, either individually or in combination with other plans or projects, shall be subject to appropriate assessment of its implications for the site in view of the site's conservation objectives. In the light of the conclusions of the assessment of the implications for the site [...], the competent national authorities shall agree to the plan or project only after having ascertained that it will not adversely affect the integrity of the site concerned [...].”

The requirements arising out of Article 6(3) are transposed into Irish law by Part XAB, Appropriate Assessment Part 5 of the Habitats Regulations.

The determination of whether or not a plan or project meets the two tests for requiring AA is referred to as “Stage 1” or “AA Screening”. The first test is whether or not the plan or project is not directly connected with or necessary to the management of one or more European Sites. In its ruling in *Waddenzee*², the Court of Justice of the European Union (CJEU) interpreted the second test as being where “*it cannot be excluded, on the basis of objective information, that [the plan or project] will have a significant effect on that site*”.

Thus, in applying the Precautionary Principle, the CJEU interpreted the word “likely” to mean that, as long as it cannot be demonstrated that an effect will not occur, that effect is considered “likely”. A likely effect is considered to be “significant” only if it interrupts or causes a delay in achieving the Conservation Objectives of the site concerned.³

Prior to approval of a plan or project which is the subject of AA (also referred to as “Stage 2”), it is necessary to “ascertain” that the plan or project will not “adversely affect the integrity of the site”. In its guidance document (EC, 2018), the European Commission stated that “*the integrity of a site involves its constitutive characteristics and ecological functions*” and that “*the decision as to whether it is adversely affected should focus on and be limited to the habitats and species for which the site has been designated and the site's conservation objectives*”. Regarding the word “ascertain”, the CJEU, also in *Waddenzee*, interpreted this as meaning “*where no reasonable scientific doubt remains as to the absence of such effects*”.

The CJEU has made a relevant judgment on what information should be contained within documents supporting AA⁴ :

² Landelijke Vereniging tot Behoud van de Waddenzee, Nederlandse vereniging tot Bescherming van Vogels v. Staatssecretaris van Landbouw, Natuurbeheer en Visserij (*Waddenzee*) [2004] C-127/02 ECR I-7405.

³ Conservation Objectives are referred to, but not defined, in the Habitats Directive. In Ireland, Conservation Objectives are set for Qualifying Interests (the birds, habitats or other species for which a given European site is selected) and represent the overall target that must be met for that Qualifying Interest to reach or maintain favourable conservation condition in that site and contribute to its favourable conservation status nationally.

⁴ *Sweetman v. An Bord Pleanála* [2013] Case C-258/11.

“[The AA] cannot have lacunae and must contain complete, precise and definitive findings and conclusions capable of removing all reasonable scientific doubt as to the effects of the works proposed on the protected site concerned.”

The High Court⁵ and Supreme Court⁶ have also provided clarity on how Competent Authorities should undertake AA and has stated that the following four matters require to be addressed:

- First, an appropriate assessment must identify, in the light of the best scientific knowledge in the field, all aspects of the plan or project (in this case NR2040) which can, by itself or in combination with other plans or projects, affect (a) European site(s) in the light of its conservation objectives.
- Second, there must be complete, precise, and definitive findings and conclusions regarding the previously identified potential effects on any relevant European site(s) this and may not have lacunae or gaps. The requirement for precise and definitive findings and conclusions requires analysis, evaluation, and decisions. Further, the reference to findings and conclusions in a scientific context requires both findings following analysis and conclusions following an evaluation each in the light of the best scientific knowledge in the field.
- Third, on the basis of those findings and conclusions, the Competent Authority (here Transport Infrastructure Ireland) must be able to determine that no scientific doubt remains as to the absence of the identified potential effects.
- Fourth, where the aforesaid three requirements are satisfied, Transport Infrastructure Ireland may determine that the plan or project (in this case NR2040) will not adversely affect the integrity of any relevant European site. Accordingly, an appropriate assessment may only include a determination that the plan or project (in this case NR2040) will not adversely affect the integrity of any relevant European site where upon the basis of complete, precise, and definitive findings and conclusions made, Transport Infrastructure Ireland decides that no reasonable scientific doubt remains as to the absence of the identified potential effects.

1.3 Overview of the Appropriate Assessment Process

Appropriate Assessment guidance (EC, 2002) promotes a four-stage process to completing AA. The four steps are summarised as follows:

Stage 1 Screening for Appropriate Assessment: Screening for Appropriate Assessment is the process of determining if a plan, project or in this case, the draft Strategy, is necessary for the management of the Natura 2000 network, or if it, alone or in-combination with other plans and projects, is likely to have a significant effect on one or more European sites. At this stage, mitigation measures to avoid or reduce the potential for significant effects cannot be considered.

Stage 2 Appropriate Assessment: Where the possibility of significant effects on one or more European site cannot be excluded, the process proceeds to Stage 2 Appropriate Assessment. This stage considers whether the plan, project or in this case the draft Strategy, in-combination with other plans and projects, will adversely affect the integrity of one or more European site, and includes any mitigation measures to

⁵ *Kelly v. An Bord Pleanála* [2014] IEHC 422.

⁶ See *Kelly (Eoin) v An Bord Pleanála* [2014] I.E.H.C. 400 where the High Court (Finlay Geoghegan J.) held that section 177V(1) of the Planning and Development Act 2000 (as amended) must be construed so as to give effect to Article 6(3) of the Habitats Directive, and hence, an appropriate assessment carried out under section 177V(1) of the 2000 Act must meet the requirements of Article 6(3) of the Habitats Directive as interpreted by jurisprudence of the CJEU case law; *Connelly v An Bord Pleanála* [2018] 2 I.L.R.M 453; [2018] I.E.S.C. 31.

avoid or reduce negative impacts. At Stage 2, the proponent is required to submit a Natura Impact Statement (NIS). This report must contain complete, precise and definitive findings to enable the Competent Authority (TII in this case) to carry out Appropriate Assessment.

Stage 3 Assessment of Alternative Solutions: Where adverse effects cannot be excluded, the plan, project or in this case the draft Strategy, must proceed to Stage 3, the Assessment of Alternative Solutions. This stage examines alternative options or solutions which avoid adverse effects. Once an alternative solution is selected, the process returns to Stage 2 Appropriate Assessment. If after examines all alternatives and establishing that adverse effects remain, the process proceeds to Stage 4.

Stage 4 Imperative Reasons of Overriding Public Interest (IROPI): IROPI is a derogation process which allows a plan, project or in this case the draft Strategy, to proceed despite the fact that it will have an adverse effect on one or more European site(s). Where priority habitats or species are concerned, as defined in the Habitats Directive, the Competent Authority can only approve proposals relating to human health, public safety or beneficial consequences of primary importance to the environment. Where other IROPI are evoked, an opinion from the European Commission is required. In addition to the mitigation measures implemented at Stage 2 of the process, at Stage 4, compensatory measures are also necessary to maintain and enhance the coherence of the Natura 2000 network.

1.4 Relationship between the AA the SEA Processes

The SEA and AA of the Strategy were carried out concurrently. There were several areas of overlap and, in accordance with good practice, data on Natura 2000 sites and potential ecological issues were shared with the SEA team. Iterative reviews of the Strategy were also sent to the SEA team for integration into their assessment.

The findings of both processes are documented separately, taking into account their statutory implications. Information on the ecological impact of the Strategy gathered in the AA is carried forward to contribute to a comprehensive environmental baseline to inform the SEA. Information on the Qualifying Interests, conservation condition and Conservation Objectives of Natura 2000 sites is, therefore, also used to inform environmental assessment in the SEA.

1.5 Consultation

As part of the SEA process, a public Consultation on the draft strategy documents which included the draft NR2040 Strategy and the associated NIS, SEA Environmental Report and Strategic Flood Risk Assessment (SFRA) were issued for the statutory environmental authorities for SEA namely:

- Environmental Protection Agency (EPA);
- Minister for Housing, Local Government and Heritage (DHLGH);
- Department of Environment, Climate and Communications; and
- Department of Agriculture, Food and the Marine;

Non-statutory consultation was also undertaken with the Department of Agriculture, Environment and Rural Affairs (DAERA).

The public were also invited to make submissions on the draft Strategy from the 5th August and the 14th October 2022. During this period, the draft Strategy and environmental reports were put on public display at TII's offices and online.

Observations received relevant to Appropriate Assessment are summarised in Table 1-1 below.

It should be noted that the public consultation undertaken as part of the SEA process is separate and unrelated to the Ministerial and public consultations on Appropriate Assessment, which are carried out under Regulation 42(10) and 42(13) of the Habitats Regulations, respectively.

Table 1-1 Summary of Public Consultations Submissions and Responses

Consultee	Summary of Submission	Summary of Response
<p>Department of Agriculture, Environment and Rural Affairs (DAERA) Marine Conservation Advice (MCA)</p>	<p>The MCA recommends considering Northern Ireland's Priority Species.</p>	<p>Northern Ireland Priority Species are species requiring conservation action and were identified in the first Northern Ireland Biodiversity Strategy published in 2002, and subsequently updated in 2004 and 2007. The priority species on this list are not priority species within the meaning of the Habitats Directive (Annex II priority species) and are not directly connected to Appropriate Assessment, which is limited to the Qualifying Interests of European sites, and their supporting habitats and species. All projects arising from the Strategy will consider Northern Ireland's Priority Species, where applicable, as part of the required project development and assessment processes.</p>
	<p>On Page 24, under 'Categories of threats and pressures relating to climate impacts', the MCA recommends also considering changes to coastal processes and coastal squeeze.</p>	<p>The following threats and pressures have been added to Section 3.5 of the NIS. J02.01 – Landfill, Land Reclamation and drying out, general J02.12 – Dykes, embankments, artificial beaches, general</p>
	<p>In Table 3-6, 'European Sites in the Zone of Influence', the MCA recommends the inclusion of Skerries and Causeway SAC, Carlingford Marine pSPA and East Coast Marine pSPA Marine Protected Areas (MPAs).</p> <p>The MCA also recommends considering Areas of Special Scientific Interest (ASSIs), Ramsar Sites and Marine Conservation Zones (MCZs).</p>	<p>These European sites have been added to Table 3-6.</p> <p>Sites designated as Special Scientific Interest (ASSIs), Ramsar Sites and Marine Conservation Zones (MCZs) are outside the remit of the NIS/ Article 6(3) assessment. These sites are referenced in the SEA ER.</p> <p>Habitats outside of European sites that are designated under legislation or international agreements other than the Habitats Directive and the relevant</p>

Consultee	Summary of Submission	Summary of Response
	<p>Regarding Habitat Regulations Assessment, MPAs which have marine mammals as a site selection feature should use the following ranges for screening</p> <ul style="list-style-type: none"> - All SACs within 100km of the project should be screened for Grey seals (<i>Halichoerus grypus</i>) - All SACs within 50km should be screened for Harbour seals (<i>Phoca vitulina</i>) - All SACs within 100km should be screened for Harbour porpoise (<i>Phocoena phocoena</i>) <p>Therefore, the Maidens SAC should be considered for Grey seals and the North Channel SAC should be considered for Harbour Porpoise.</p>	<p>national laws which transpose it, may be considered in Appropriate Assessment under habitats and species which support the integrity of European sites. However, the designations themselves are not relevant to Appropriate Assessment.</p> <p>The Zone of Influence in the NIS has considered the potential sources, pathways and receptors of impacts associated with the Strategy. Highly mobile Annex II species (Qualifying Interest species) can range over vast areas. These include:</p> <ul style="list-style-type: none"> • seals (>50km), • cetaceans (>1000km), • breeding seabirds (>1000km) • migratory fish (>1000km). <p>European sites outside the Zone of Influence will not be subjected to the direct effects of NR2040 or any plan/project stemming from it, however, the potential for ex-situ effects will be considered on a project-by-project basis.</p>
<p>Department of Agriculture, Environment and Rural Affairs (DAERA) Marine Plan Team (MPT)</p>	<p>The MPT concur with the findings of the NIS.</p>	<p>Noted.</p>
<p>Department of Transport, Tourism and Sport's (DTTAS) Strategic Research and Analysis Division (SRAD)</p>	<p>The NIS could include how the intervention hierarches (maintain, improve, optimise and new) would be approached under each heading, such as optimising existing national roads by including bus lanes by reallocating land space, or where new infrastructure is required, how it will ensure these align with the other investment priorities such as by ensuring greater decarbonisation. In the NIS, TII could also identify the impact of this hierarchy to the environment (e.g. does maintaining have less impact than new infrastructure).</p>	<p>The Strategy is high-level, and the NIS cannot make assumptions about how the intervention hierarchy will be approached under each heading, such as optimising existing national roads by including bus lanes by reallocating land space, or where new infrastructure is required, how it will ensure these align with the other investment priorities such as by ensuring greater decarbonisation.</p> <p>The purpose of the NIS is to identify potential adverse effects, and to prescribe mitigation measures to avoid or reduce those adverse effects. The question of whether maintenance or building new infrastructure will have a</p>

Consultee	Summary of Submission	Summary of Response
		greater impact cannot be answered at the strategic level.

1.6 Methodology

An AA Screening Report was prepared by ROD in 2018 on behalf of TII. At this time, the NR2040 was in the early stages of development and likely significant effects (LSEs) on one or more Designated sites could not be excluded, therefore Stage 2 AA was determined to be required.

1.6.1 Public Consultation as part of the SEA process

This involved the preparation of a Natura Impact Statement (NIS) on the draft Strategy, which was published in August 2022. To ensure that the AA was properly integrated into both the preparation of the draft NR2040 and the requirements of Article 3.2(b) the Strategic Environmental Assessment (SEA) Directive 2001/42/EC as transposed into Irish law which requires integration with the AA process. As such, an NIS was prepared in relation to the draft NR2040 which informed both the Strategy and the SEA process. The NIS proposed mitigation measures and a conclusion based on the draft Strategy.

Following the public consultation on the draft Strategy, a review of submissions and observations received was undertaken on all material and considered as part of the finalisation of the Strategy and environmental assessment. Where appropriate, TII amended the draft Strategy. The amendments were then assessed by the AA team to determine their potential for adverse effects on the environment in view of the requirements of the Habitats Directive to ascertain if they would give rise to adverse effects on the integrity of one or more European site. A similar exercise was undertaken relating to the SEA Directive. Where necessary, additional information and assessment material was prepared.

Subsequently, the NIS on the draft Strategy was updated, reflecting the amendments contained in the NR2040 strategy. It includes an assessment of the amendments and associated mitigation and monitoring measures which have contributed to the overall conclusion of this NIS.

The NIS on the updated Strategy will be subject to Ministerial and public consultation in accordance with Regulation 42(10) and 42(13) of the Habitat Regulations, respectively.

This NIS contains an examination, analysis and evaluation of the likely impacts from NR2040, both individually and in combination with other plans and projects, in view of best scientific knowledge and the Conservation Objectives of the European Sites concerned. It also prescribes appropriate mitigation to ensure that NR2040 will not adversely affect the integrity of those sites. Finally, it provides complete, precise, and definitive findings which are capable of removing all reasonable scientific doubt as to the absence of adverse effects on the integrity of the European Sites concerned and sets out detailed reasons which explain the basis for such findings.

Given the strategic nature of NR2040, its national geographical scope but lack of any location specific plans or projects it is not practical or necessary to describe and assess the potential for adverse effects, on every European site in detail in this document. Rather the assessment methodology is appropriate to the high level nature of the strategy which includes high level vision, objectives, commitments and interventions which could include for example the construction of new National Roads (location not

specified), improvements to the existing National Road network, development of supporting infrastructure such as technology, and non-infrastructure programmes including influencing behaviour change. Therefore, it is considered more appropriate to identify potential adverse effects on the integrity of European sites by reviewing the published lists of pressures and threats of European sites within the Zone of Influence that are associated with the implementation of N42040. The Vision, objectives, commitments, interventions, and programmes contained in the Strategy have a wide geographic scope. The only element of strategy where the location is broadly specified is the areas where interventions are required to achieve an average speed of 90kph.

With regard to carrying out AA of Plans, EC (2018) states that “*a distinction needs to be made with ‘plans’ which are in the nature of policy statements, i.e. policy documents which show the general political will or intention of a ministry or lower authority*”. SNH (2015) Expands on this: “*Plans or parts of plans which are merely general policy statements, or which only show the general political will or intention of a public body, will not be likely to have a significant effect on a European site. However, it is a case-by-case decision as to whether a plan should be subject to appraisal, a critical test being whether it, or any part of it, would be likely to have a significant effect on a European site*”. The Strategy contains policy statements as well as investment priorities, interventions, and programmes.

The following guidance documents informed the assessment methodology:

- EC (2021) *Assessment of plans and projects in relation to Natura 2000 sites: Methodological guidance on the provisions of Article 6(3) and (4) of the Habitats Directive 92/43/EEC*. Environment Directorate-General of the European Commission.
- EC (2018) *Managing Natura 2000 sites: The provisions of Article 6 of the ‘Habitats’ Directive 92/43/EEC*. European Commission, Brussels.
- DEHLG (2010) *Appropriate Assessment of Plans and Projects in Ireland – Guidance for Planning Authorities*. Department of the Environment, Heritage and Local Government, Dublin.
- NPWS (2010) *Appropriate Assessment under Article 6 of the Habitats Directive: Guidance for Planning Authorities*. Circular Letter NPWS 1/10 & PSSP 2/10. National Parks & Wildlife Service, Department of the Environment, Heritage and Local Government, Dublin.
- Scottish Natural Heritage (2015) *Habitat Regulation Appraisals of Plans. Guidance for Plan-making Bodies in Scotland. Version 3.0. January 2015*.

2.0 DESCRIPTION OF NR2040

2.1 Overview

National Roads 2040 (NR2040) is Transport Infrastructure Ireland's long-term strategy for planning, operating, and maintaining the National Roads network. It has been developed to support the delivery of Project Ireland 2040 and to align with the Department of Transport's (DoT) National Investment Framework for Transport in Ireland (NIFTI, December 2021). It also aligns with commitments in wider policy including the Climate Action Plan and the DoT's National Sustainable Mobility policy.

NR2040 is structured as follows:

- Chapter 1 Introduction – introduces TII's long-term strategy for planning, operating, and maintaining the National Roads network.
- Chapter 2 Policy context – reviews the key government policies and plans that influence NR2040.
- Chapter 3 Long Term Strategic Issues for National Roads – presents key strategic issues facing the National Roads network.
- Chapter 4 NR2040 Vision and Key Objectives – this is TII's statement in the development of this strategy, considering national policy context and strategic issues.
- Chapter 5 National Roads Investment Priorities and Portfolios – presents TII's priority investment themes.
- Chapter 6 Implementation – summarises the guidance to sponsoring agencies in developing projects/ interventions that align with NR2040.

2.2 Policy Context

NR2040 is TII's response to ensure that strategic alignment of the National Roads network to recently published Government policies, plans and planning/investment frameworks, all of which were subject to the relevant assessments:

- Project Ireland 2040 – National Planning Framework and National Development Plan 2021-2030.
- National Investment Framework for Transport in Ireland.
- National Sustainable Mobility Policy.
- Climate Action Plan 2023.

2.2.1 National Planning Framework

Project Ireland 2040: National Planning Framework (NPF) is the government's long term spatial strategy for accommodating population growth as well as responding to the need to rapidly decarbonise various sectors across Ireland. The NPF vision is encapsulated with the National Strategic Outcomes (NSOs) representing a shared set of goals, which include compact growth, enhanced regional accessibility, access to services and opportunities, strong rural communities, sustainable mobility, and the transition to a low carbon and climate resilient society, among others. Within the NPF, there are various actions directly related to National Roads set out under several of the NSOs.



Figure 2-1 NPF National Strategic Outcomes

2.2.2 National Development Plan 2021-2030

In October 2021 Government launched the revised National Development Plan (NDP) 2021-2030. The NDP identified several National Roads schemes ‘currently under construction’ and several to ‘start construction’ in the near future; it also includes 31 National Roads schemes that are ‘*subject to further approvals*’. The NDP gives an overview of transport strategy and subsequent strategic investment priorities across each of the ten National Strategic Outcomes (NSOs).

A mid-term review of NDP (2021-2030) will be undertaken in 2025, to allow Government to: take stock of progress in terms of delivery of the planned projects and programmes. The review will also consider and potentially reaffirm the investment priorities of the Government.

2.2.3 National Investment Framework for Transport

The National Investment Framework for Transport in Ireland (NIFTI) is the Department of Transport’s framework for prioritising future investment in the land transport network to support the delivery of the NPF NSOs. NIFTI also ensures alignment with the Climate Action Plan 2021 by incorporating measures set out within the action plan for land transport.

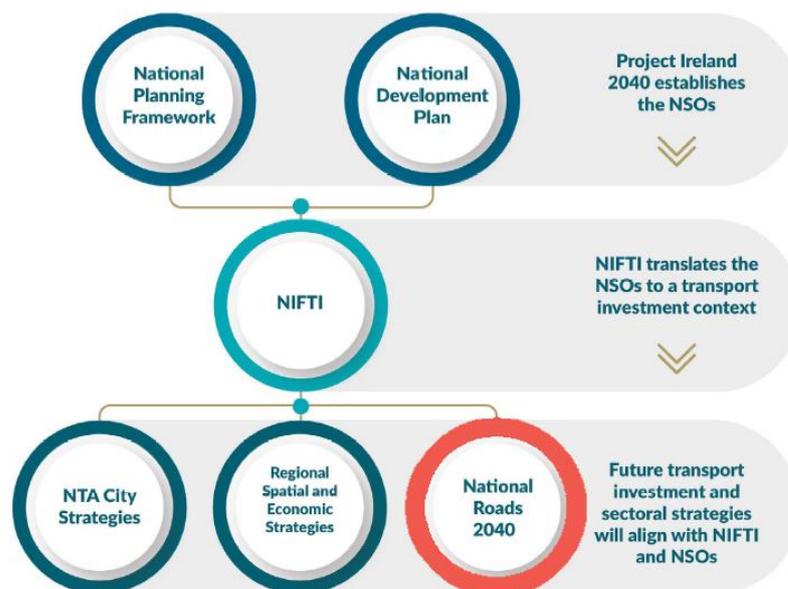


Figure 2-2 Overview of NR2040 Existing Policy Context Plans (Source: NIFTI, 2021)

2.2.4 NIFTI Investment Priorities

NIFTI translates the ten NPF NSOs to a land transport specific context, developing four Investment Priorities that will ensure that the transport sector plays its part in delivering the NPF. NIFTI also considers and incorporates the requirements of the Climate Action Plan 2021 with respect to transport.

Future transport projects must align with one or more of NIFTI’s four Investment Priorities: Decarbonisation; Protection and Renewal; Mobility of People and Goods in Urban Areas; Enhanced Regional and Rural Connectivity; and set out how potential negative impacts against them will be mitigated, to be considered for funding.

As the NSOs are embedded in NIFTI, future National Roads investment in the National Roads network must be in accordance with these priorities will support the delivery of the NPF over the coming decades to 2040.

2.2.5 NIFTI Modal and Intervention Hierarchies

A well-managed National Roads (now and into the future) will support the achievement of various Project Ireland 2040 NSOs, for example, enhancing regional accessibility by reducing congestion on the National Roads, allowing people and goods to move freely between the five cities and five regional centres in Ireland (as defined in the NPF)⁷. NIFTI also establishes Modal and Intervention Hierarchies to further guide transport investment; and ensure appropriate transport solutions are developed.

NIFTI Modal Hierarchy:	NIFTI Intervention Hierarchy:
1) Active Travel	1) Maintain
2) Public Transport	2) Optimise
3) Private Vehicles	3) Improve
	4) New

Figure 2-3 NIFTI Modal and Intervention Hierarchies

The Modal and Intervention Hierarchies are also incorporated within NR2040; and any future investment on National Roads will have to be developed in accordance with the Hierarchies.

⁷ Cities – Dublin, Cork, Limerick, Galway and Waterford. Regional Centres – Athlone, Drogheda, Dundalk, Letterkenny and Sligo.

2.2.6 National Sustainable Mobility policy

The DOT's National Sustainable Mobility policy, published in April 2022, sets out a strategic framework to 2030 for active travel and public transport. The policy aims to support Ireland's overall requirement to achieve a 51 percent reduction in carbon emissions by the end of this decade. The policy targets the delivery of at least 500,000 additional daily active travel and public transport journeys and a 10 percent reduction in kilometres driven by fossil fuelled cars by 2030, in line with targets for transport set out in the Climate Action Plan 2021. For TII, actions relating to National Roads focus on improving road safety and provision of infrastructure to support sustainable mobility.

2.2.7 Climate Action Plan 2023

The Climate Action Plan 2023 (CAP), published in December 2022, is the second annual update to Ireland's Climate Action Plan. It sets out a roadmap of actions in various sectors, including transport to reduce greenhouse gas emissions by 51 percent by 2030 (relative to 2018 levels) and reach net zero emissions no later than 2050. The accompanying Annex of actions will be published later in 2023. The 2023 plan is the first to be prepared under the Climate Action and Low Carbon Development (Amendment) Act 2021, following the introduction of economy-wide carbon budgets and sectoral emissions ceilings approved by Government in 2022.

The Government recognises that there are transformational and unprecedented systems and behavioural change required to deliver transport sector emissions reductions. Transport is identified in the CAP as a sector required to reduce emissions by 50 percent by 2030. The CAP supports policies to transform how society travels and to reduce transport emissions by adopting the Avoid-Shift-Improve approach. This approach involves reducing or avoiding the need to travel (e.g., through land-use planning) and where travel is still required, shifting to sustainable modes of travel, and improving the energy efficiency of vehicles (e.g., by using clean fuels). CAP 2023 specifies numerous measures and actions required to support the Avoid Shift Improve approach. These range from developing updated standards, support for active travel projects, delivering greenway schemes, working collaboratively with stakeholders and engaging the public on climate action and sustainable mobility.

Some of the actions relevant to road transport include:

- Change the way road space is used (i.e., reallocation of road space to sustainable modes)
- Reduce demand/the total distance driven across all car journeys by 20 percent
- Increase walking, cycling and public transport to account for 50 percent of all journeys
- Support for nearly 1 in 3 private vehicles to be electric vehicles by 2030
- Increase the walking and cycling network
- Increase rural transport bus services
- NR2040 has been developed in alignment with CAP.

2.3 Long-term strategic issues

NR2040 presents the key strategic issues facing the National Roads network, which are identified as follows:

- **Future Demographic Growth Trends** - Demographic growth poses a challenge to maintaining and improving levels of service in road transport.

- **Road Transport Decarbonisation** - Adherence to Ireland's decarbonisation goals poses a significant challenge for the road transport sector, including the National Roads network.
- **Climate Adaptation and Resilience** - The road network, and the people who rely on it, are vulnerable to a range of possible climate change effects.
- **Sustainability** - Striking the appropriate balance between investment in transport and sustainability impacts requires a continued effort.
- **Road Safety** - Road Safety is at the heart of every aspect of management of the National Roads network, on the way towards achieving Vision Zero.
- **Movement of People** - The operation, maintenance, renewal, and development of National Roads must focus on the movement of people, rather than vehicles.
- **Movement of Goods and Services** - On National Roads a balance must be found between the movement of people and the movement of goods.
- **Urban Congestion** - We cannot build our way out of urban congestion challenges- the management of National Roads must balance increasing mobility demands and finite road space.
- **Technological Change** - The management and operation of National Roads must evolve to support and manage the uptake in developing technologies to the benefit of customers.
- **Asset Management and Operations** - The National Roads network is a valued state asset that requires extensive investment for ongoing management and operations.
- **Integrated Mobility** - is key to an inclusive, well connected, and sustainable transport system and must be facilitated through the National Roads network.
- **Customer Experience** - TII recognises the need for a customer-centric approach when planning for the National Roads network.

2.4 NR2040 Vision and Key Objectives

NR2040 sets out TII's long-term strategy for the maintenance, development, and management of Ireland's National Roads network. NR2040 is fully aligned with NIFTI and Project Ireland 2040 and focused on strategic issues for National Roads identified by TII.

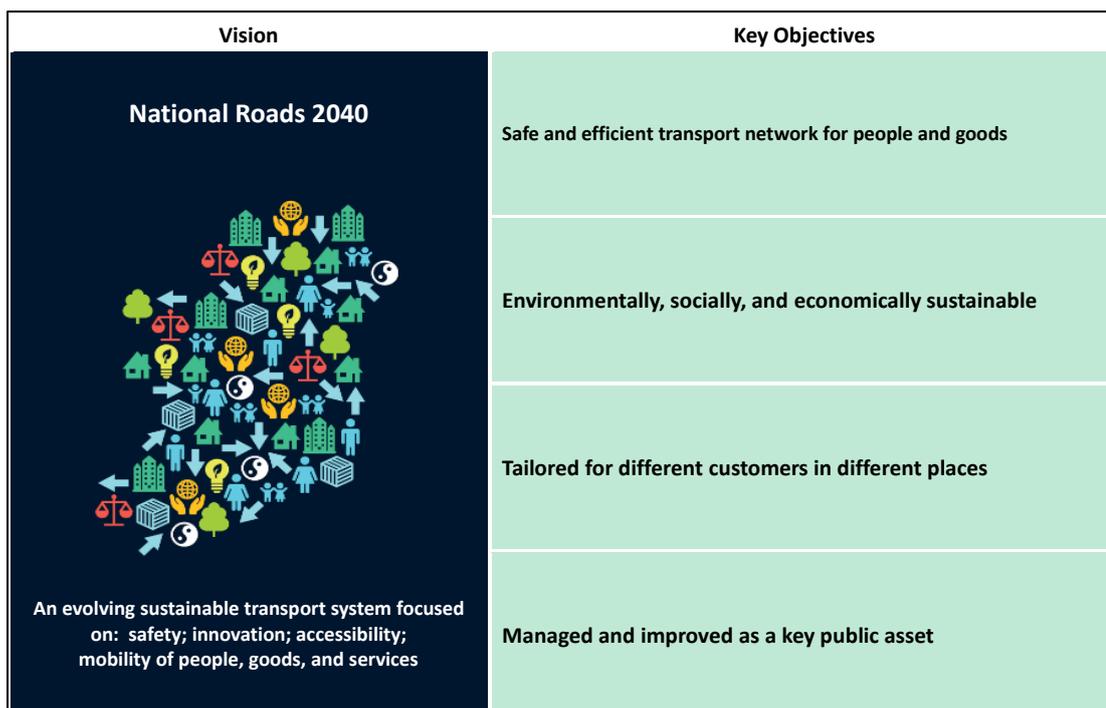


Figure 2-4 NR2040 Vision and Key Objectives (Source: NR2040)

2.5 National Roads Investment Priorities and Portfolios

NR2040's four investment priorities are consistent with the four NIFTI Investment priorities and aligned with the NPF.

- Decarbonisation
- Protection and renewal
- Mobility of people and goods in urban areas
- Enhanced regional and rural connectivity

The measures under each are described and assessed in further detail in Section 4.0 of this NIS.

2.6 Implementation

NR2040 is TII's strategy for the National Roads network, identifying the function and investment priorities for different parts of the National Roads network, providing for TII's aspiration to:

- Enable Project Ireland 2040 (National Planning Framework and NDPs)
- Support the realisation of several National Strategic Objectives (NSOs)
- Align with NIFTI and other Government policy

The implementation chapter provides NR2040's summary guidance to Sponsoring Agencies and Local Authorities. It:

- Outlines TII commitments to addressing strategic issues.
- Provides a means of filtering future interventions.
- Defines TII investment portfolios.

- Concludes with TII’s emphasis on collaboration, recognised throughout the strategy as a necessary means for the successful implementation of identified interventions and achievement of national targets.

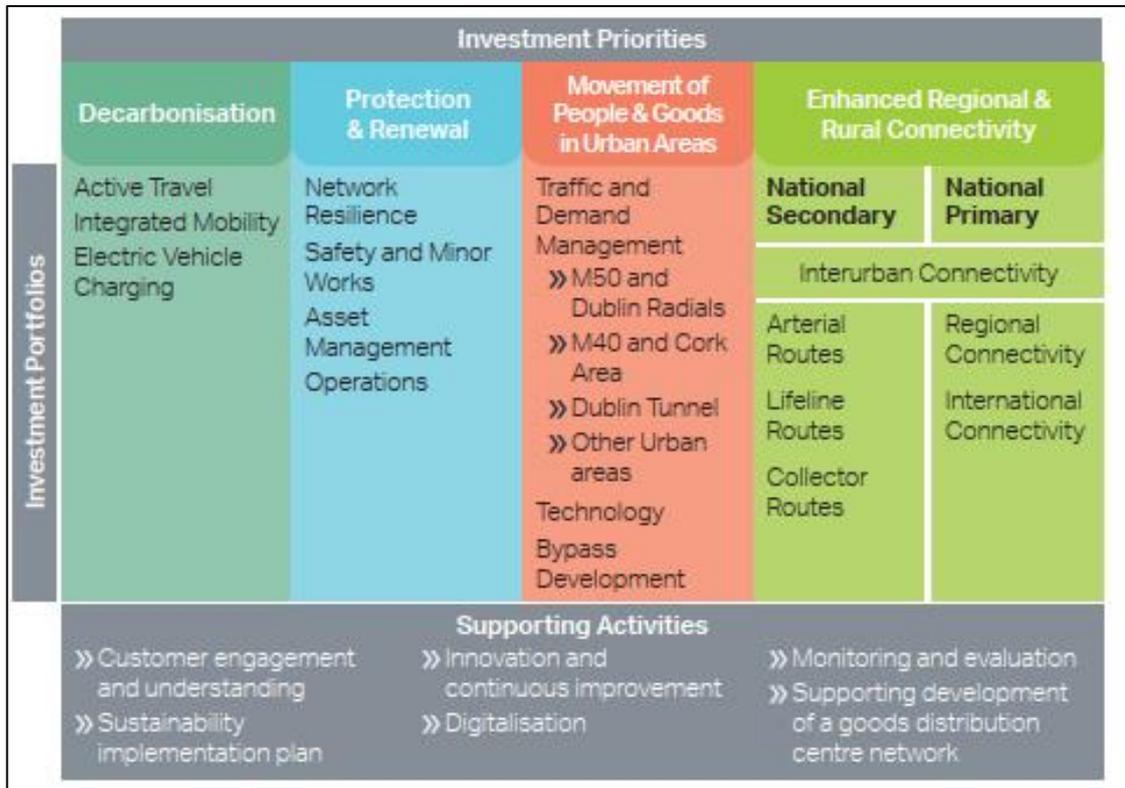


Figure 2-5 NR2040 Implementation Structure (Source: NR2040)

2.6.1 Commitments

The NR2040 Investment Priorities are reinforced by a series of TII commitments, further addressing the strategic issues facing the National Roads network in coming years. Policy obligations, including NPF, NIFTI, the Road Safety Strategy, and internal TII analysis and plans inform these commitments. These commitments can will influence the scope of projects on the National Roads network developed by Local Authorities or other Agencies.

The commitments are outlined in Section 6.1 in the Strategy and are replicated and assessed in Section 4 of this NIS.

2.7 Potential effects on the Natural Environment

The subsections below describe the potential effects that the Strategy could have on the natural environment in general, as a pretext to the identification and assessment of adverse effects on European sites (Section 3 and 4 of this NIS). A number of elements of NR2040 have the potential to lead to environmental and ecological impacts. Potential risks to the natural environment arising from NR2040 are as follows:

2.7.1 Habitat loss, fragmentation and deterioration

The development of National Roads and transport infrastructure could lead to the loss of habitat, including habitats that are Qualifying Interests of European Sites, and also habitats that are not Qualifying Interests but support Qualifying Interest habitats and species. This can include habitats and species outside the Natura 2000 network, such as areas used for feeding by wintering birds which lie outside the boundary of an SPA.

The development of linear infrastructure can lead to habitat fragmentation, leading to isolated populations and changes in ecosystem functioning. Isolated populations are more vulnerable to disease, habitat loss and deterioration, and the effects of climate change.

Development can lead to habitat degradation which are discussed in the sections below.

2.7.2 Disturbance (noise, vibration, movement, lighting)

Disturbance can occur during construction and operation of National Roads and the National Road network as a result of noise, lighting and vibration and can affect species both within and outside the footprint of the development.

2.7.3 Changes in air quality

An increase in vehicle using internal combustion engines can affect air quality locally. The deposition of nitrogen can affect the pH of nearby watercourses and wetland habitats and lead to eutrophication. The construction of infrastructure projects can lead to the mobilisation of dust resulting in dust deposition in watercourses including Designated sites.

2.7.4 Changes in water quality, hydromorphology and hydrogeology

Water quality impacts arising from both the construction and the operation of National Roads and the National Roads network have the potential to directly and indirectly affect a wide range of habitats and species. Accidental pollution events can result in sediment and pollutants entering sensitive waterbodies resulting in a deterioration in water quality.

2.7.5 Direct species mortality

Direct species mortality is possible as a result of site clearance, tree felling and vegetation removal. The operation of roads could lead to an increase in collisions with wildlife such as Otter.

2.7.6 Climate

Currently, 17.7 percent of Ireland's greenhouse gas emissions are from the transport sector (EPA, 2022). NR2040 has a role to play to increase efficiencies in the National Road network to reduce carbon emissions. The effect of increased carbon emissions on climate includes droughts, flooding, and ocean acidification. Extreme weather events and changes to environment arising from climate change can affect European Sites.

2.7.7 Introduction and spread of invasive species

Invasive species pose a threat to biodiversity and ecosystem functioning and could inadvertently be introduced or spread through the construction and operation of roads. Invasive plant species can be introduced and spread by construction plant, vehicles and people. The import of materials associated with road building and the maintenance of roads as well as materials transported along roads, such as contaminated soil, may also result in the introduction or spread of invasive species. Furthermore, the introduction and spread of invasive species could be exacerbated by climate change i.e. changes in growing cycles, milder winters, warmer summers.

3.0 IDENTIFICATION OF ADVERSE EFFECTS

Section 3.1 presents the methodology for identifying potential adverse effects on European Sites, beginning with establishing the Zone of Influence. Table 3-1 presents the total number of European sites within the Zone of Influence. Sections 3.2, 3.3 and 3.4 explain the terms 'Qualifying Interests', 'Conservation Objective' and 'Site Integrity'. Tables 3-2 – 3-4 list the habitats and species for which the European Sites have been designated. Section 3.3 explains the term 'Threats and Pressures' and lists the threats and pressures associated with NR2040. Table 3.5 lists the European Sites which list threats or pressures of high and medium importance relating to direct, indirect or cumulative or in-combination negative effects from transportation.

3.1 Establishing the Zone of Influence

Section 3.2.3 of DEHLG (2010) guidance outlines the procedure for selecting the European sites to be considered in AA. It states that European sites potentially affected should be identified and listed, bearing in mind the potential for direct, indirect, and in-combination effects. It also states that the specific approach in each case is likely to differ depending on the scale and likely effects of the plan or project. However, it advises that the following sites should generally be included:

- All European Sites within or immediately adjacent to the plan or project area.
- All European Sites within the Zone of Influence of the plan or project.
- In accordance with the Precautionary Principle, all European Sites for which there is doubt as to whether or not they might be significantly affected.

The "Zone of Influence" of a plan or project is the geographic extent over which significant ecological effects are likely to occur. In the case of projects, the guidance recognises that the Zone of Influence must be established on a case-by-case basis using the Source-Pathway-Receptor model (OPR, 2021). A plan or project may only lead to adverse effects on the integrity of the European site where all three elements of Source-Pathway-Receptor are linked. In the absence of one element of this model, adverse effects cannot occur. The assessment should make reference to the following key variables:

- The nature, size and location of the plan or project.
- The nature of the impacts which may arise from the project.
- The sensitivities of the ecological receptors.
- The potential for in-combination effects.

For example, in the case of a project that could affect a watercourse, it may be necessary to include the entire upstream and/or downstream catchment in order to capture all European Sites with water-dependent Qualifying Interests. Using the key variables as the basis to describe the Zone of Influence is limited to projects, and in the case of plans, the guidance recommends that this zone extend to a distance of 15km in all directions from the boundary of the plan area (DEHLG, 2010).

NR2040 is a national level strategy which is relevant to the Republic of Ireland including the existing National Roads network, as well as other areas which may become part of this network in the future. For example, new National Roads, improvements to the existing National Road network, development of supporting infrastructure including technology and other non-infrastructure programmes. The Vision, objectives, commitments, interventions and programmes contained in the Strategy have a broad scope but do not specify any geographic locations. The

intervention specified in the Strategy relating to routes required to achieve an average speed of 90kph are included as part of the assessment (Appendix B).

However, the Strategy does not specify how the average 90kph interurban speeds will be delivered. Once the interventions are defined these will be subject to their own project level assessments including AA, as appropriate.

Taking the above factors into account, the Zone of Influence for NR2040 was defined as the island of Ireland and a 15km buffer which reflects of the connectivity of the National Road network and the potential pathways for effects of the Strategy on European Sites, including European sites in Northern Ireland.

A geographical representation of the Zone of Influence is produced in ArcGIS 10.5.1 using publicly available Ordnance Survey Ireland maps. This is used in combination with NPWS and DEARA SAC and SPA shapefiles, downloaded between April and July 2022, to identify the boundaries of European Sites in relation to the Zone of Influence (Appendix A). It was determined that 678 no. European Sites within the Zone of Influence are summarised in Table 3-1.

Table 3-1 European Sites within the Zone of Influence.

European Sites	No. sites (Ireland)	No. sites (Northern Ireland)	Total
Special Areas of Conservation	433 (+ 6 offshore)	58	497
Special Protection Areas	165	16	181
Total	604	74	678

3.2 Qualifying Interests

The Habitats Directive lists habitats (Annex I) and species (Annex II) for which Special Areas of Conservation (SACs) must be established. Similarly, the Birds Directive contains lists the criteria for which Special Protection Areas (SPAs) must be established, such as the presence of 1% of a biogeographical population of a regularly occurring migratory species (non- Annex I), or an areas used by more than 20,000 waterfowl. Collectively, the habitats and species for which European Sites are designated are referred to as 'Qualifying Interests'.

Annex I Habitats

Table 3-2 lists the Annex I habitats for which one or more European site in the Zone of Influence has been selected. An asterisk (*) in the name of an Annex I habitat denotes a “priority habitat”, i.e. a habitat in danger of disappearing from within EU territory.

Four Annex I habitats which are Qualifying Interests of European Sites in Northern Ireland but are not designated in Ireland are denoted by two asterisks (**) in the Table below.

Regarding ‘*Spartina* swards (*Spartinion maritimae*)’ (1320), this habitat is present in a number of coastal SACs in Ireland but is not listed as a Qualifying Interest in any of those, because its main component, Common Cordgrass (*Spartina anglica*), is not only an invasive alien species but also a negative indicator species for a number of other Annex I habitats for which those sites are designated.

Table 3-2 Habitat types listed on Annex I to the Habitats Directive listed as qualifying interests of SACs in the Zone of Influence

Code	Habitat name
<i>Coastal and halophytic habitats</i>	
1110	Sandbanks which are slightly covered by sea water all the time
1130	Estuaries
1140	Mudflats and sandflats not covered by seawater at low tide
1150	*Coastal lagoons
1160	Large shallow inlets and bays
1170	Reefs
1180	Submarine structures made by leaking gases
1210	Annual vegetation of drift lines
1220	Perennial vegetation of stony banks
1230	Vegetated sea cliffs of the Atlantic and Baltic coasts
<i>Atlantic and continental salt marshes and salt meadows</i>	
1310	<i>Salicornia</i> and other annuals colonising mud and sand
1320	<i>Spartina</i> swards (<i>Spartinion maritimae</i>)**
1330	Atlantic salt meadows (<i>Glauco-Puccinellietalia maritimae</i>)
1410	Mediterranean salt meadows (<i>Juncetalia maritimi</i>)
1420	Mediterranean and thermo-Atlantic halophilous scrubs (<i>Sarcocornetea fruticosi</i>)
<i>Coastal sand dunes and inland dunes</i>	
2110	Embryonic shifting dunes
2120	Shifting dunes along the shoreline with <i>Ammophila arenaria</i> (white dunes)
2130	*Fixed coastal dunes with herbaceous vegetation (grey dunes)
2140	*Decalcified fixed dunes with <i>Empetrum nigrum</i>
2150	*Atlantic decalcified fixed dunes (<i>Calluno-Ulicetea</i>)
2160	Dunes with <i>Hippophae rhamnoides</i> **
2170	Dunes with <i>Salix repens</i> ssp. <i>argentea</i> (<i>Salicion arenariae</i>)
2190	Humid dune slacks
21A0	Machairs (* in Ireland)
<i>Freshwater habitats</i>	
3110	Oligotrophic waters containing very few minerals of sandy plains (<i>Littorelletalia uniflorae</i>)
3130	Oligotrophic to mesotrophic standing waters with vegetation of the <i>Littorelletea uniflorae</i> and/or <i>Isoeto-Nanojuncetea</i>
3140	Hard oligo-mesotrophic waters with benthic vegetation of <i>Chara</i> spp.
3150	Natural eutrophic lakes with <i>Magnopotamion</i> or <i>Hydrocharition</i> -type vegetation
3160	Natural dystrophic lakes and ponds

Code	Habitat name
3180	*Turloughs
3260	Water courses of plain to montane levels with the <i>Ranunculion fluitantis</i> and <i>Callitricho-Batrachion</i> vegetation
3270	Rivers with muddy banks with <i>Chenopodion rubri</i> p.p. and <i>Bidention</i> p.p. vegetation
<i>Temperate heath and scrub</i>	
4010	Northern Atlantic wet heaths with <i>Erica tetralix</i>
4030	European dry heaths
4060	Alpine and Boreal heaths
<i>Sclerophyllous scrub (matorral)</i>	
5130	<i>Juniperus communis</i> formations on heaths or calcareous grasslands
<i>Natural and semi-natural grassland formations</i>	
6130	Calaminarian grasslands of the <i>Violetalia calaminariae</i>
6150	Siliceous alpine and boreal grasslands**
6210	Semi-natural dry grasslands and scrubland facies on calcareous substrates (<i>Festuco-Brometalia</i>) (* important orchid sites)
6230	*Species-rich <i>Nardus</i> grasslands, on siliceous substrates in mountain areas (and submountain areas, in Continental Europe)
6410	<i>Molinia</i> meadows on calcareous, peaty or clayey-silt-laden soils (<i>Molinion caeruleae</i>)
6430	Hydrophilous tall herb fringe communities of plains and of the montane to alpine levels
6510	Lowland hay meadows (<i>Alopecurus pratensis</i> , <i>Sanguisorba officinalis</i>)
<i>Raised bogs and mires and fens</i>	
7110	*Active raised bogs
7120	Degraded raised bogs still capable of natural regeneration
7130	Blanket bogs (* if active bog)
7140	Transition mires and quaking bogs
7150	Depressions on peat substrates of the Rhynchosporion
7210	*Calcareous fens with <i>Cladium mariscus</i> and species of the <i>Caricion davallianae</i>
7220	*Petrifying springs with tufa formation (<i>Cratoneurion</i>)
7230	Alkaline fens
<i>Rocky habitats and caves</i>	
8110	Siliceous scree of the montane to snow levels (<i>Androsacetalia alpinae</i> and <i>Galeopsetalia ladanii</i>)
8120	Calcareous and calcshist screes of the montane to alpine levels (<i>Thlaspietea rotundifolii</i>)
8210	Calcareous rocky slopes with chasmophytic vegetation
8220	Siliceous rocky slopes with chasmophytic vegetation

Code	Habitat name
8240	*Limestone pavements
8310	Caves not open to the public
8330	Submerged or partially submerged sea caves
<i>Forests of temperate Europe</i>	
9180	<i>Tilio-Acerion</i> forests of slopes, screes and ravines
91A0	Old sessile oak woods with <i>Ilex</i> and <i>Blechnum</i> in the British Isles
91D0	*Bog woodland
91E0	*Alluvial forests with <i>Alnus glutinosa</i> and <i>Fraxinus excelsior</i> (<i>Alno-Padion</i> , <i>Alnion incanae</i> , <i>Salicion albae</i>)
91J0	* <i>Taxus baccata</i> woods of the British Isles

3.2.1 Annex II Species

Table 3-3 below lists the Annex II species for which one or more European sites in the Zone of Influence has been selected.

Table 3-3 Species listed on Annex II to the Habitats Directive listed as qualifying interests of SACs in the Zone of Influence.

Code	Scientific name	Common name
<i>Plants</i>		
1395	<i>Petalophyllum ralfsii</i>	Petalwort
1421	<i>Trichomanes speciosum</i>	Killarney Fern
1528	<i>Saxifraga hirculus</i>	Marsh Saxifrage
1833	<i>Najas flexilis</i>	Slender Naiad
6216	<i>Hamatocaulis vernicosus</i>	Slender Green Feather-moss
<i>Mammals</i>		
1303	<i>Rhinolophus hipposideros</i>	Lesser Horseshoe Bat
1349	<i>Tursiops truncatus</i>	Common Bottlenose Dolphin
1351	<i>Phocoena phocoena</i>	Harbour Porpoise
1355	<i>Lutra</i>	Otter
1364	<i>Halichoerus grypus</i>	Grey Seal
1365	<i>Phoca vitulina</i>	Harbour Seal
<i>Freshwater fish</i>		
1095	<i>Petromyzon marinus</i>	Sea Lamprey
1096	<i>Lampetra planeri</i>	Brook Lamprey
1099	<i>Lampetra fluviatilis</i>	River Lamprey
1103	<i>Alosa fallax</i>	Twaite Shad
5046	<i>Alosa fallax killarnensis</i>	Killarney Shad
1106	<i>Salmo salar</i>	Atlantic Salmon
<i>Invertebrates (including insects)</i>		

Code	Scientific name	Common name
1013	<i>Vertigo geyeri</i>	Geyer's Whorl Snail
1014	<i>Vertigo angustior</i>	Narrow-mouthed Whorl Snail
1016	<i>Vertigo moulinsiana</i>	Desmoulin's Whorl Snail
1024	<i>Geomalacus maculosus</i>	Kerry Slug
1029	<i>Margaritifera margaritifera</i>	Freshwater Pearl Mussel
1990	<i>Margaritifera durrovensis</i>	Nore Pearl Mussel
1065	<i>Euphydryas aurinia</i>	Marsh Fritillary
1092	<i>Austropotamobius pallipes</i>	White-clawed Crayfish

3.2.2 Wild Bird Species

Table 3-4 below lists the bird species for which one or more European site in the Zone of Influence has been selected.

Table 3-4 Resident and regularly occurring migratory bird species listed as Qualifying Interests of SPAs in the Zone of Influence.

Code	Scientific name	Common name
A001	<i>Gavia stellata</i>	Red-throated Diver
A002	<i>Gavia arctica</i>	Black-throated Diver
A003	<i>Gavia immer</i>	Great Northern Diver
A004	<i>Tachybaptus ruficollis</i>	Little Grebe
A005	<i>Podiceps cristatus</i>	Great Crested Grebe
A007	<i>Podiceps auritus</i>	Slavonian Grebe
A009	<i>Fulmarus glacialis</i>	Fulmar
A013	<i>Puffinus puffinus</i>	Manx Shearwater
A014	<i>Hydrobates pelagicus</i>	Storm Petrel
A015	<i>Oceanodroma leucorhoa</i>	Leach's Storm Petrel
A016	<i>Morus bassanus</i>	Gannet
A017	<i>Phalacrocorax carbo</i>	Cormorant
A018	<i>Phalacrocorax aristotelis</i>	Shag
A028	<i>Ardea cinerea</i>	Grey Heron
A037	<i>Cygnus columbianus bewickii</i>	Bewick's Swan
A038	<i>Cygnus cygnus</i>	Whooper Swan
A043	<i>Anser anser</i>	Greylag Goose
A045	<i>Branta leucopsis</i>	Barnacle Goose
A048	<i>Tadorna tadorna</i>	Shelduck
A050	<i>Anas penelope</i>	Wigeon
A051	<i>Anas strepera</i>	Gadwall
A052	<i>Anas crecca</i>	Teal
A053	<i>Anas platyrhynchos</i>	Mallard

Code	Scientific name	Common name
A054	<i>Anas acuta</i>	Pintail
A056	<i>Anas clypeata</i>	Shoveler
A059	<i>Aythya ferina</i>	Pochard
A061	<i>Aythya fuligula</i>	Tufted Duck
A062	<i>Aythya marila</i>	Scaup
A063	<i>Somateria mollissima</i>	Eider
A065	<i>Melanitta nigra</i>	Common Scoter
A067	<i>Bucephala clangula</i>	Goldeneye
A069	<i>Mergus serrator</i>	Red-breasted Merganser
A082	<i>Circus cyaneus</i>	Hen Harrier
A098	<i>Falco columbarius</i>	Merlin
A103	<i>Falco peregrinus</i>	Peregrine
A122	<i>Crex crex</i>	Corncrake
A125	<i>Fulica atra</i>	Coot
A130	<i>Haematopus ostralegus</i>	Oystercatcher
A137	<i>Charadrius hiaticula</i>	Ringed Plover
A140	<i>Pluvialis apricaria</i>	Golden Plover
A141	<i>Pluvialis squatarola</i>	Grey Plover
A142	<i>Vanellus vanellus</i>	Lapwing
A143	<i>Calidris canutus</i>	Knot
A144	<i>Calidris alba</i>	Sanderling
A148	<i>Calidris maritima</i>	Purple Sandpiper
A149	<i>Calidris alpina</i>	Dunlin
A156	<i>Limosa limosa</i>	Black-tailed Godwit
A157	<i>Limosa lapponica</i>	Bar-tailed Godwit
A160	<i>Numenius arquata</i>	Curlew
A162	<i>Tringa totanus</i>	Redshank
A164	<i>Tringa nebularia</i>	Greenshank
A169	<i>Arenaria interpres</i>	Turnstone
A179	<i>Chroicocephalus ridibundus</i>	Black-headed Gull
A182	<i>Larus canus</i>	Common Gull
A183	<i>Larus fuscus</i>	Lesser Black-backed Gull
A184	<i>Larus argentatus</i>	Herring Gull
A188	<i>Rissa tridactyla</i>	Kittiwake
A191	<i>Sterna sandvicensis</i>	Sandwich Tern
A192	<i>Sterna dougallii</i>	Roseate Tern
A193	<i>Sterna hirundo</i>	Common Tern

Code	Scientific name	Common name
A194	<i>Sterna paradisaea</i>	Arctic Tern
A195	<i>Sterna albifrons</i>	Little Tern
A199	<i>Uria aalge</i>	Guillemot
A200	<i>Alca torda</i>	Razorbill
A204	<i>Fratercula arctica</i>	Puffin
A229	<i>Alcedo atthis</i>	Kingfisher
A346	<i>Pyrhacorax pyrrhacorax</i>	Chough
A395	<i>Anser albifrons flavirostris</i>	Greenland White-fronted Goose
A674	<i>Branta bernicla hrota</i>	Light-bellied Brent Goose
A999	n/a	Wetland and Waterbirds

3.3 Conservation Objectives

Conservation Objectives specify targets in respect of the integrity, i.e. the ecological structure and functions, and resilience thereof, of a given European site that are necessary for the restoration or maintenance of the favourable conservation status of each Qualifying Interest (EC, 2012).

Site-specific conservation objectives are available for many European Sites. For the remaining sites, first order conservation objectives are used. Whereas site-specific Conservation Objectives are either to 'maintain' or 'restore' the favourable conservation status of each Qualifying Interest, the first order Conservation Objective is "to maintain or restore the favourable conservations status...".

3.4 Conservation Status and Site Integrity

Article 1(e) of the Habitats Directive defines the conservation status of a natural habitat as "the sum of the influences acting on a natural habitat and its typical species that may affect its long-term natural distribution, structure and functions as well as the long-term survival of its typical species [...]".

The conservative status of a natural habitat will be taken as "favourable" when:

- its natural range and areas it covers within that range are stable or increasing, and
- the specific structure and functions which are necessary for its long-term maintenance exist and are likely to continue to exist for the foreseeable future, and
- the conservation status of its typical species is favourable as defined in (i);".

Article 1(i) defines the conservation status of a species as "the sum of the influences acting on the species concerned that may affect the long-term distribution and abundance of its populations [...]";

The conservation status will be taken as "favourable" when:

- population dynamics data on the species concerned indicate that it is maintaining itself on a long-term basis as a viable component of its natural habitats, and
- the natural range of the species is neither being reduced nor is likely to be reduced for the foreseeable future, and

- *there is, and will probably continue to be, a sufficiently large habitat to maintain its populations on a long-term basis;*”.

EC (2018), the European Commission stated that “the integrity of a site involves its constitutive characteristics and ecological functions”. The site’s integrity is therefore based on the Qualifying Interests for which the site is designated, along with their ecological requirements. When undertaking Appropriate Assessment, the integrity of a site is not affected as long as the conservation objectives for the site are not undermined.

3.5 Threats and Pressures

The European Commission’s reference list of threats and pressures for Natura 2000 provides a multi-level list of 413 categories of threats and pressures, identified by codes and descriptions, which are relevant to Natura 2000 sites and their qualifying interests. The list is available on the *Reference Portal for Natura 2000* (Eionet, 2022).

The Natura 2000 Standard Data Form for each Natura 2000 site across the entire network lists the “*Threats, pressures and activities with impact on the site*”. The relative importance of a threat, pressure or activity must be ranked as ‘High’ (H), ‘Medium’ (M) or ‘Low’ (L), and whether it occurs/acts inside or outside the site or both, and whether the impact is positive or negative, must be indicated. Pollution impacts may be further qualified by the type of pollution.

Firstly, records were filtered by site code, selecting only those records with site codes beginning with “IE” or “UK” i.e. all sites attributed to the Zone of Influence. Then, records for which the relative importance of the threat or pressure was listed as ‘Low’ and records relating positive impacts were removed. Records were not filtered by whether the threat or pressure occurs inside or outside the site, or both.

Records were finally filtered by the category of threat or pressure. This was done in the groups: the first group included those considered to relate to direct effects from National Roads and associated infrastructure, while the second group related to indirect or secondary impacts, and the third group related to cumulative or in-combination impacts, i.e. climate impacts, as follows:

- **Categories of threats and pressures relating to direct impacts**
 - *D01 - Roads, paths and railroads*
 - *D01.02 - roads, motorways*
 - *D01.05 - bridge, viaduct*
 - *D01.06 - tunnel*
 - *E01 - Urbanised areas, human habitation*
 - *E02 - Industrial or commercial areas*
 - *H01.06 - diffuse pollution to surface waters due to transport and infrastructure without connection to canalization/sweepers*
- **Categories of threats and pressures relating to indirect impacts**
 - *D03.01 - port areas*
 - *D03.01.02 - piers / tourist harbours or recreational piers*
 - *D03.01.04 - industrial ports*
 - *D04.01 - airport*
 - *D05 - Improved access to site*

- *G01 - Outdoor sports and leisure activities, recreational activities*
- *G01.03 - motorised vehicles*
- *G02.08 - camping and caravans*
- *G02.09 - wildlife watching*
- *G05.06 - tree surgery, felling for public safety, removal of roadside trees*
- *G05.11 - death or injury by collision*
- *H04 - Air pollution, air-borne pollutants*
- *H04.02 - Nitrogen-input*
- *H04.03 - other air pollution*
- *H06.01 - Noise nuisance, noise pollution*
- *H06.01.02 - diffuse or permanent noise pollution*
- *H06.02 - Light pollution*
- *I01 - invasive non-native species*
- *I02 - problematic native species*
- *I03 - introduced genetic material, GMO*
- *I03.02 - genetic pollution (plants)*
- *J02.05.02 - modifying structures of inland water courses*
- *J03.02 - anthropogenic reduction of habitat connectivity*
- *J03.02.01 - reduction in migration/ migration barriers*
- *J03.02.02 - reduction in dispersal*
- *J03.02.03 - reduction in genetic exchange*
- **Categories of threats and pressures relating to climate impacts**
 - *J02.01 – Landfill, Land Reclamation and drying out, general*
 - *J02.12 – Dykes, embankments, artificial beaches, general*
 - *M01 - Changes in abiotic conditions*
 - *M01.01 - temperature changes (e.g. rise of temperature & extremes)*
 - *M01.02 - droughts and less precipitations*
 - *M01.03 - flooding and rising precipitations*
 - *M01.04 - pH-changes*
 - *M01.05 - water flow changes (limnic, tidal and oceanic)*
 - *M01.06 - wave exposure changes*
 - *M01.07 - sea-level changes*
 - *M02 - Changes in biotic conditions*
 - *M02.01 - habitat shifting and alteration*
 - *M02.02 - desynchronisation of processes*
 - *M02.03 - decline or extinction of species*
 - *M02.04 - migration of species (natural newcomers)*

Results

Table 3-5 below lists the European Sites which list threats or pressures of high or medium importance relating to direct negative effects, as described above.

Table 3-6 lists the European Sites which list threats or pressures of high or medium importance relating to indirect and/or in-combination effects, as described above.

Table 3-5 European Sites in the Zone of Influence which list threats or pressures of high or medium importance relating to direct negative effects potentially arising from NR2040.

Site code	Site name
IE0000032	Dromore Woods and Loughs SAC
IE0000051	Lough Gash Turlough SAC
IE0000064	Poulnagordon Cave (Quin) SAC
IE0000111	Aran Island (Donegal) Cliffs SAC
IE0000142	Gannivegil Bog SAC
IE0000168	Magheradrumman Bog SAC
IE0000199	Baldoyle Bay SAC
IE0000202	Howth Head SAC
IE0000205	Malahide Estuary SAC
IE0000206	North Dublin Bay SAC
IE0000208	Rogerstown Estuary SAC
IE0000210	South Dublin Bay SAC
IE0000252	Coole-Garryland Complex SAC
IE0000286	Kiltartan Cave (Coole) SAC
IE0000297	Lough Corrib SAC
IE0000343	Castlemaine Harbour SAC
IE0000365	Killarney National Park, Macgillycuddy's Reeks and Caragh River Catchment SAC
IE0000382	Sheheree (Ardagh) Bog SAC
IE0000455	Dundalk Bay SAC
IE0000458	Killala Bay/Moy Estuary SAC
IE0000495	Duvillaun Islands SAC
IE0000671	Tramore Dunes and Backstrand SAC
IE0000713	Ballyman Glen SAC
IE0000714	Bray Head SAC
IE0000719	Glen of the Downs SAC
IE0000781	Slaney River Valley SAC
IE0000919	Ridge Road, SW of Rapemills SAC
IE0000925	The Long Derries, Edenderry SAC
IE0001058	Great Island Channel SAC
IE0001090	Ballyness Bay SAC
IE0001209	Glenasmole Valley SAC
IE0001285	Kiltiernan Turlough SAC

Site code	Site name
IE0001513	Keel Machair/Menaun Cliffs SAC
IE0001776	Pilgrim's Road Esker SAC
IE0001880	Meenaguse Scragh SAC
IE0001890	Mullaghanish Bog SAC
IE0001957	Boyne Coast and Estuary SAC
IE0002032	Boleybrack Mountain SAC
IE0002122	Wicklow Mountains SAC
IE0002137	Lower River Suir SAC
IE0002158	Kenmare River SAC
IE0002165	Lower River Shannon SAC
IE0002170	Blackwater River (Cork/Waterford) SAC
IE0002173	Blackwater River (Kerry) SAC
IE0002293	Carrowbaun, Newhall and Ballylee Turloughs SAC
IE0002299	River Boyne and River Blackwater SAC
IE0002320	Kildun Souterrain SAC
IE0002324	Glendine Wood SAC
UK0030319	Ballykilbeg SAC
UK0030116	Cladagh (Swanlinbar) River SAC
UK0016603	Cuilcagh Mountain SAC
UK0030068	Fardrum and Roosky Turloughs SAC
UK0030169	Hollymount SAC
UK0030180	Lecale Fens SAC
UK0030047	Lough Melvin SAC
UK0016621	Magheraveely Marl Loughs SAC
UK0030214	Montiaghs Moss SAC
UK0016612	Murlough SAC
UK0030233	Owenkillew River SAC
UK0030055	Rathlin Island SAC
UK0030244	Rea's Wood and Farr's Bay SAC
UK0030361	River Faughan and Tributaries SAC
UK0030320	River Foyle and Tributaries SAC
UK0030360	River Roe and Tributaries SAC
UK0016618	Strangford Lough SAC
UK0030291	Turmennan SAC
UK0030296	Upper Ballinderry River SAC
UK0016614	Upper Lough Erne SAC
UK0030300	West Fermanagh Scarplands SAC

Site code	Site name
IE0004006	North Bull Island SPA
IE0004016	Baldoyle Bay SPA
IE0004022	Ballycotton Bay SPA
IE0004024	Sandymount Strand/Tolka Estuary SPA
IE0004025	Broadmeadow/Swords Estuary SPA
IE0004026	Dundalk Bay SPA
IE0004027	Tramore Back Strand SPA
IE0004028	Blackwater Estuary SPA
IE0004030	Cork Harbour SPA
IE0004031	Inner Galway Bay SPA
IE0004032	Dungarvan Harbour SPA
IE0004035	Cummeen Strand SPA
IE0004036	Killala Bay/Moy Estuary SPA
IE0004037	Blacksod Bay/Broad Haven SPA
IE0004038	Killarney National Park SPA
IE0004041	Ballyallia Lough SPA
IE0004042	Lough Corrib SPA
IE0004044	Lough Ennell SPA
IE0004063	Poulaphouca Reservoir SPA
IE0004075	Lough Swilly SPA
IE0004077	River Shannon and River Fergus Estuaries SPA
IE0004080	Boyne Estuary SPA
IE0004081	Clonakilty Bay SPA
IE0004087	Lough Foyle SPA
IE0004091	Stabannan-Braganstown SPA
IE0004094	Blackwater Callows SPA
IE0004096	Middle Shannon Callows SPA
IE0004134	Lough Rea SPA
IE0004151	Donegal Bay SPA
IE0004172	Dalkey Islands SPA
IE0004188	Tralee Bay Complex SPA
IE0004232	River Boyne and River Blackwater SPA
UK9020290	Belfast Lough Open Water SPA
UK9020101	Belfast Lough SPA
UK9020160	Carlingford Lough SPA
UK9020221	Killough Bay SPA
UK9020042	Larne Lough SPA

Site code	Site name
UK9020031	Lough Foyle SPA
UK9020091	Lough Neagh and Lough Beg SPA
UK9020111	Strangford Lough SPA
UK9020071	Upper Lough Erne SPA

Table 3-6 European Sites in the Zone of Influence which list threats or pressures of high or medium importance relating to indirect negative impacts potentially arising from NR2040.

Site code	Site name
IE0000007	Lough Oughter and Associated Loughs SAC
IE0000019	Ballyogan Lough SAC
IE0000020	Black Head-Poulsallagh Complex SAC
IE0000030	Danes Hole, Poulnalecka SAC
IE0000036	Inagh River Estuary SAC
IE0000057	Moyree River System SAC
IE0000077	Ballymacoda (Clonpriest and Pillmore) SAC
IE0000090	Glengarriff Harbour and Woodland SAC
IE0000133	Donegal Bay (Murvagh) SAC
IE0000140	Fawnboy Bog/Lough Nacung SAC
IE0000154	Inishtrahull SAC
IE0000163	Lough Eske and Ardnamona Wood SAC
IE0000185	Sessiagh Lough SAC
IE0000199	Baldoyle Bay SAC
IE0000202	Howth Head SAC
IE0000205	Malahide Estuary SAC
IE0000206	North Dublin Bay SAC
IE0000208	Rogerstown Estuary SAC
IE0000212	Inishmaan Island SAC
IE0000213	Inishmore Island SAC
IE0000216	River Shannon Callows SAC
IE0000248	Cloonmoylan Bog SAC
IE0000252	Coole-Garryland Complex SAC
IE0000261	Derrycrag Wood Nature Reserve SAC
IE0000268	Galway Bay Complex SAC
IE0000278	Inishbofin and Inishshark SAC
IE0000297	Lough Corrib SAC
IE0000332	Akeragh, Banna and Barrow Harbour SAC
IE0000343	Castlemaine Harbour SAC

Site code	Site name
IE0000365	Killarney National Park, Macgillycuddy's Reeks and Caragh River Catchment SAC
IE0000391	Ballynafagh Bog SAC
IE0000412	Slieve Bloom Mountains SAC
IE0000428	Lough Melvin SAC
IE0000440	Lough Ree SAC
IE0000453	Carlingford Mountain SAC
IE0000455	Dundalk Bay SAC
IE0000458	Killala Bay/Moy Estuary SAC
IE0000471	Brackloon Woods SAC
IE0000474	Ballymaglancy Cave, Cong SAC
IE0000485	Corraun Plateau SAC
IE0000497	Flughany Bog SAC
IE0000507	Inishkea Islands SAC
IE0000516	Lackan Saltmarsh and Kilcummin Head SAC
IE0000532	Oldhead Wood SAC
IE0000571	Charleville Wood SAC
IE0000584	Cuilcagh - Anierin Uplands SAC
IE0000585	Sharavogue Bog SAC
IE0000592	Bellanagare Bog SAC
IE0000597	Carrowbehy/Caher Bog SAC
IE0000600	Cloonchambers Bog SAC
IE0000604	Derrinea Bog SAC
IE0000623	Ben Bulbin, Gleniff and Glenade Complex SAC
IE0000627	Cummeen Strand/Drumcliff Bay (Sligo Bay) SAC
IE0000636	Templehouse and Cloonacleigha Loughs SAC
IE0000638	Union Wood SAC
IE0000668	Nier Valley Woodlands SAC
IE0000671	Tramore Dunes and Backstrand SAC
IE0000679	Garriskil Bog SAC
IE0000688	Lough Owel SAC
IE0000696	Ballyteige Burrow SAC
IE0000697	Bannow Bay SAC
IE0000704	Lady's Island Lake SAC
IE0000708	Screen Hills SAC
IE0000709	Tacumshin Lake SAC
IE0000710	Raven Point Nature Reserve SAC

Site code	Site name
IE0000714	Bray Head SAC
IE0000717	Deputy's Pass Nature Reserve SAC
IE0000719	Glen of the Downs SAC
IE0000725	Knocksink Wood SAC
IE0000729	Buckroneys-Brittis Dunes and Fen SAC
IE0000733	Vale of Clara (Rathdrum Wood) SAC
IE0000781	Slaney River Valley SAC
IE0000930	Clare Glen SAC
IE0000979	Corratirrim SAC
IE0001058	Great Island Channel SAC
IE0001061	Kilkeran Lake and Castlefreke Dunes SAC
IE0001070	Myross Wood SAC
IE0001125	Dunragh Loughs/Pettigo Plateau SAC
IE0001141	Gweedore Bay and Islands SAC
IE0001151	Kindrum Lough SAC
IE0001190	Sheephaven SAC
IE0001209	Glenasmole Valley SAC
IE0001271	Gortnandarragh Limestone Pavement SAC
IE0001275	Inisheer Island SAC
IE0001311	Rusheenduff Lough SAC
IE0001312	Ross Lake and Woods SAC
IE0001371	Mucksna Wood SAC
IE0001398	Rye Water Valley/Carton SAC
IE0001432	Glenstal Wood SAC
IE0001459	Clogher Head SAC
IE0001482	Clew Bay Complex SAC
IE0001497	Doogort Machair/Lough Doo SAC
IE0001513	Keel Machair/Menaun Cliffs SAC
IE0001741	Kilmuckridge-Tinnaberna Sandhills SAC
IE0001742	Kilpatrick Sandhills SAC
IE0001786	Kilroosky Lough Cluster SAC
IE0001898	Unshin River SAC
IE0001919	Glenade Lough SAC
IE0001926	East Burren Complex SAC
IE0001952	Comeragh Mountains SAC
IE0001955	Croaghaun/Slievemore SAC
IE0001957	Boyne Coast and Estuary SAC

Site code	Site name
IE0001976	Lough Gill SAC
IE0002005	Bellacragher Saltmarsh SAC
IE0002006	Ox Mountains Bogs SAC
IE0002012	North Inishowen Coast SAC
IE0002031	The Twelve Bens/Garraun Complex SAC
IE0002032	Boleybrack Mountain SAC
IE0002036	Ballyhoura Mountains SAC
IE0002047	Cloghernagore Bog and Glenveagh National Park SAC
IE0002074	Slyne Head Peninsula SAC
IE0002112	Ballyseedy Wood SAC
IE0002119	Lough Nageeron SAC
IE0002121	Lough Lene SAC
IE0002122	Wicklow Mountains SAC
IE0002130	Tully Lough SAC
IE0002144	Newport River SAC
IE0002162	River Barrow and River Nore SAC
IE0002165	Lower River Shannon SAC
IE0002170	Blackwater River (Cork/Waterford) SAC
IE0002180	Gortacarnaun Wood SAC
IE0002181	Drummin Wood SAC
IE0002193	Ireland's Eye SAC
IE0002197	Derrinlough (Cloonkeenleananode) Bog SAC
IE0002199	Ballygar (Aghrane) Bog SAC
IE0002200	Aughrim (Aghrane) Bog SAC
IE0002202	Mount Jessop Bog SAC
IE0002203	Girley (Drewstown) Bog SAC
IE0002205	Wooddown Bog SA
IE0002206	Scohaboy (Sopwell) Bog SAC
IE0002207	Arragh More (Derrybreen) Bog SAC
IE0002213	Glenloughaun Esker SAC
IE0002241	Lough Derg, North-East Shore SAC
IE0002247	Toonagh Estate SAC
IE0002268	Achill Head SAC
IE0002269	Carnsore Point SAC
IE0002287	Lough Swilly SAC
IE0002298	River Moy SAC
IE0002299	River Boyne and River Blackwater SAC

Site code	Site name
IE0002306	Carlingford Shore SAC
IE0002313	Ballymore Fen SAC
IE0002320	Kildun Souterrain SAC
IE0002331	Mouds Bog SAC
IE0002332	Coolrain Bog SAC
IE0002336	Carn Park Bog SAC
IE0002337	Crosswood Bog SAC
IE0002338	Drumalough Bog SAC
IE0002340	Moneybeg and Clareisland Bogs SAC
IE0002342	Mount Hevey Bog SAC
IE0003000	Rockabill to Dalkey Island SAC
UK0030318	Aughnadarragh Lough SAC
UK0016599	Ballynahone Bog SAC
UK0030083	Banagher Glen SAC
UK0030084	Bann Estuary SAC
UK0030089	Binevenagh SAC
UK0016609	Black Bog SAC
UK0030097	Breen Wood SAC
UK0030110	Carn-Glenshane Pass SAC
UK0030321	Cranny Bogs SAC
UK0030322	Curran Bog SAC
UK0030323	Dead Island Bog SAC
UK0030324	Deroran Bog SAC
UK0016620	Derryleckagh SAC
UK0016615	Eastern Mourne SAC
UK0016611	Fairy Water Bogs SAC
UK0016606	Garron Plateau SAC
UK0016610	Garry Bog SAC
UK0030045	Largalinny SAC
UK0016613	Magilligan SAC
UK0030199	Main Valley Bogs SAC
UK0016619	Monawilkin SAC
UK0030211	Moneygal Bog SAC
UK0030212	Moninea Bog SAC
UK0030224	North Antrim Coast SAC
UK0030236	Peatlands Park SAC
UK0016607	Pettigoe Plateau SAC

Site code	Site name
UK0030268	Rostrevor Wood SAC
UK0016622	Slieve Beagh SAC
UK0030277	Slieve Gullion SAC
UK0016608	Teal Lough SAC
UK0030325	Tonnagh Beg Bog SAC
UK0030326	Tully Bog SAC
UK0030303	Wolf Island Bog SAC
UK0030383	Skerries and Causeway SAC
IE0004005	Cliffs of Moher SPA
IE0004015	Rogerstown Estuary SPA
IE0004016	Baldoyle Bay SPA
IE0004021	Old Head of Kinsale SPA
IE0004023	Ballymacoda Bay SPA
IE0004025	Broadmeadow/Swords Estuary SPA
IE0004026	Dundalk Bay SPA
IE0004027	Tramore Back Strand SPA
IE0004029	Castlemaine Harbour SPA
IE0004030	Cork Harbour SPA
IE0004039	Derryveagh and Glendowan Mountains SPA
IE0004057	Lough Derg (Donegal) SPA
IE0004064	Lough Ree SPA
IE0004080	Boyne Estuary SPA
IE0004081	Clonakilty Bay SPA
IE0004090	Sheskinmore Lough SPA
IE0004102	Garriskil Bog SPA
IE0004187	Sligo/Leitrim Uplands SPA
IE0004194	Horn Head to Fanad Head SPA
IE0004233	River Nore SPA
UK9020301	Antrim Hills SPA
UK9020291	Copeland Islands SPA
UK9020271	Outer Ards SPA
UK9020051	Pettigoe Plateau SPA
UK9020011	Rathlin Island SPA
UK9020021	Sheep Island SPA
UK9020302	Slieve Beagh-Mullaghfad-Lisnaskea SPA
UK9020161	Carlingford Lough SPA
UK9020290	East Coast Marine pSPA

4.0 ASSESSMENT OF ADVERSE EFFECTS

Table 4-1 below assesses NR2040 and identifies the specific aspects of NR2040 that have the potential to adversely affect the European sites listed in Tables 3-5 and 3-6.

Table 4-1 Evaluation of Adverse Effects in the absence of mitigation from NR2040.

Source of Adverse Effects	Description	Does NR2040 have the potential to adversely affect the integrity of a European site?
TII's vision is for the National Roads network to be "An evolving sustainable transport system focused on: safety; innovation; accessibility; mobility of people, goods, and services"		This is a general statement which contains TII's vision for the National Roads network. It can therefore be concluded that this vision will not lead to adverse effects on any European site.
Key Objectives:		
Safe and efficient transport network for people and goods		This is a high-level and general Objective. It can therefore be concluded that this key objective will not lead to adverse effects on any European site.
Environmentally, socially, and economically sustainable		This is a high-level and general Objective. It can therefore be concluded that this key objective will not lead to adverse effects on any European site.
Tailored for different customers in different places		This is a high-level and general Objective. It can therefore be concluded that this key objective will not lead to adverse effects on any European site.
Managed and improved as a key public asset		This is a high-level and general Objective. It can therefore be concluded that this key objective will not lead to adverse effects on any European site.
NR2040 Investment Priorities:		
Decarbonisation	<p>Decarbonisation encompasses three investment portfolio themes:</p> <ul style="list-style-type: none"> • Integrated Mobility TII will contribute to integrated mobility by investing in measures such as Park and Ride, Park and Share and bus prioritisation, where appropriate along National Roads. Improving connections to major public transport hubs, e.g., active travel infrastructure within proximity of rail stations, could also form part of this portfolio of investment. • TII will ensure that the potential for induced travel demand will be estimated for all major projects such that the need 	Plans and projects which will be developed to provide for integrated mobility, electric vehicle charging, and active travel have the potential to adversely affect European sites. For example, cycle routes and greenways located in or near European sites have the potential to adversely affect European sites through impacts such as habitat loss and disturbance. Therefore, adverse effects on the integrity of European sites cannot be excluded and mitigation is required.

Source of Adverse Effects	Description	Does NR2040 have the potential to adversely affect the integrity of a European site?
	<p>for any future investments in the road network will align with decarbonisation objectives.</p> <ul style="list-style-type: none"> • Electric Vehicle Charging TII will work with the Department of Transport's Zero Emissions Vehicles office to support the delivery of the national EV charging infrastructure in line with its EV Charging Infrastructure strategy, currently under development. • Active Travel TII is committed to delivering more for active travel provision in all its projects, such as improving the safety of National Roads for active travel users and reducing the severance caused by some National Roads in urban areas. TII will collaborate with other stakeholders to progress the National Cycle Network plan to cater for more active trips and expand the Greenway network nationwide, on behalf of the Department of Transport 	
<p>Protection and Renewal</p>	<p>Protection and Renewal encompasses three investment portfolio themes:</p> <ul style="list-style-type: none"> • Road Safety TII will deliver on its actions in the Road Safety Strategy (2021-2030) and collaborate with partners to deliver on supporting actions. In line with the European Union Road Infrastructure Safety Management (RISM) directive, TII will target investment on sections of the National Roads network with the highest risk of fatal or serious injury. In line with NIFTI, TII will meet asset protection and renewal requirements to help to ensure the safety of users on the network. TII's road safety programme will focus on achieving safe roadsides and a safe environment for vulnerable road users in line with the safe systems approach. • Asset Management & Network Operations 	<p>Plans and projects which will be developed to provide for road safety, asset management & network operations, resilience & climate adaption have the potential to adversely affect European sites. For example, the development of National Road schemes for the improvement of safety along the National Road network could result in adverse effects to European sites though habitat loss, fragmentation, disturbance, spread of invasive species, etc.</p> <p>Likewise, maintenance of roads which includes activities such as vegetation removal and de-icing could adversely affect European sites through impacts such as direct mortality, disturbance and changes in water quality.</p> <p>Therefore, adverse effects on the integrity of European sites cannot be excluded and mitigation is required.</p>

Source of Adverse Effects	Description	Does NR2040 have the potential to adversely affect the integrity of a European site?
	<p>A key priority for TII is to maintain the existing National Roads network to a robust and safe standard. TII will use asset management principles to manage National Roads assets safely, sustainably, efficiently, and effectively over their useful life.</p> <ul style="list-style-type: none"> Resilience & Climate Adaptation <p>TII is updating its '<i>Strategy for Adapting to Climate Change on Ireland's Light Rail and National Road Network</i>'.</p>	
<p>Mobility of People and Goods in Urban Areas</p>	<p>Mobility of People and Goods in Urban Areas encompasses three investment portfolios:</p> <ul style="list-style-type: none"> Movement of People Where sections of the network present a hostile or dangerous environment for cyclists and pedestrians, TII will work to provide segregated active travel facilities adjacent to National Roads. TII will identify and address severance associated with busy urban National Roads through provision of safe crossing infrastructure for cyclists and pedestrians. Movement of Goods The Department of Transport is currently developing its ten-year strategy for the haulage sector; TII will implement actions arising for the National Roads network. TII will work with the Department of Transport and partner agencies to explore traffic and demand management measures to improve the journey time reliability required for the efficient movement of imports and exports. TII will support the development of rail freight and multi-modal distribution centres on or near National Roads. Demand and Traffic Management 	<p>Plans and projects which will be developed to provide for movement of people and goods as well as demand and traffic management may have the potential to adversely affect European sites</p> <p>The development of segregated cycling and pedestrian facilities to accommodate the movement of people may result in adverse effects on European sites, particularly during the construction phase but also during operation if routes are located within or near such sites through impacts such as habitat loss and disturbance.</p> <p>Plans and projects required for the movement of goods could result in the introduction and spread of invasive species which have the potential to adversely affect the integrity of European sites.</p> <p>Therefore, adverse effects on the integrity of European sites cannot be excluded and mitigation is required.</p>

Source of Adverse Effects	Description	Does NR2040 have the potential to adversely affect the integrity of a European site?
	<p>TII will support travel demand management measures for National Roads in the five cities (Dublin, Cork, Galway, Limerick, and Waterford) and implement other government policy on demand management on National Roads. It will explore the potential of demand management measures, including road-user charging. TII will expand traffic management measures in congested sections of National Roads to ensure optimal vehicle flow to minimise carbon emissions, particularly from freight.</p>	
<p>Enhanced Regional and Rural Connectivity</p>	<p>Enhanced regional and rural connectivity encompasses:</p> <ul style="list-style-type: none"> <p>National Primary Network</p> <p>The National Primary Network relates to Interurban connectivity, Regional connectivity and International connectivity.</p> <p>Inter-urban connectivity</p> <p>TII analysis, using its National Transport Model⁸, has identified National Roads corridors where this target is not currently achieved and where additional interventions would support the achievement of an average inter-urban speed of approximately 90 kph, between the five cities and five centres of scale. The locations for these interventions are presented in Appendix B of this NIS.</p> <p>Targeted interventions along sections of these corridors may include road upgrades, enhancements and/or town bypasses. Any interventions proposed must be developed in accordance with NIFTI's Investment Priorities and its Modal and Intervention Hierarchies.</p> <p>Regional Connectivity</p> <p>Both the NPF and NIFTI indicate the importance of maintaining and improving accessibility to and between</p> 	<p>Plans and projects which will be developed to provide for the enhancement of regional and rural connectivity have the potential to adversely affect European sites, for example the development of road upgrades and bypasses may result in adverse effects on European sites, particularly during the construction phase but also during operation if routes are located within or near such sites through impacts such as habitat loss fragmentation and disturbance.</p> <p>Therefore, adverse effects on the integrity of European sites cannot be excluded and mitigation is required.</p>

⁸ <https://www.tii.ie/tii-library/strategic-planning/>

Source of Adverse Effects	Description	Does NR2040 have the potential to adversely affect the integrity of a European site?
	<p>the more peripheral areas of the state, for instance, the South and Northwest. The provision of a safe, efficient and reliable network under this classification is a priority; ensuring that the South, Northwest and Northeast regions, as defined by the NPF, have a high degree of accessibility to Dublin and other urban centres.</p> <p>Any interventions brought forward will be developed in accordance with the NIFTI Investment Priorities and the Modal and Intervention Hierarchies. For example, provision of town bypasses may remove traffic from towns and thus support the Government's 'Town Centre First' policy.</p> <p>International Connectivity National Roads are an important element in ensuring High Quality International Connectivity to ports and airports. Two National Roads schemes are in planning to Tier 1 ports apart from these schemes it will be a priority to maintain route quality, efficient operation and to manage congestion in the vicinity of Tier 1 and Tier 2 ports and airports, including the Dublin tunnel.</p> <ul style="list-style-type: none"> National Secondary Network The National Secondary Road Network identifies the function of the different parts of the Road Network. No specific interventions are proposed. Any interventions will be decided in line with NIFTI and the required project specific environmental assessments. 	
Identified Long term Strategic Issues for NR2040	NR2040 Commitments	
Future Demographic Growth Trends	<ul style="list-style-type: none"> TII will continue to analyse possible growth in travel demand, reflecting Project Ireland 2040 population targets. 	These commitments have the potential to lead to adverse effects on European sites through the development of additional infrastructure.

Source of Adverse Effects	Description	Does NR2040 have the potential to adversely affect the integrity of a European site?
	<ul style="list-style-type: none"> • TII will continue to develop and plan for multiple future demand scenarios that factor in possible behavioural and technological change. • TII will ensure that the potential for induced travel demand will be estimated for all major projects. • TII will implement government policy on demand management. NIFTI sets out the importance of the provision of alternative transport options, such as cycle infrastructure and public transport services before demand-side measures are implemented. TII will ensure that any future implementation of demand management proposals on the National Roads network aligns with the National Sustainability Mobility Policy as well as NIFTI Modal and Intervention Hierarchies. • TII will explore the potential of road-user charging measures through the Better Road User Charging Evaluation (BRUCE) study. 	<p>Therefore, adverse effects on the integrity of European sites cannot be excluded and mitigation is required.</p>
<p>Decarbonisation</p>	<ul style="list-style-type: none"> • To reduce emissions, TII will prioritise traffic management investment in freight corridors and where congestion results in high levels of GHG emissions. • National Road projects will be appraised in the context of compliance with Ireland's climate change targets, in line with the Governments Climate Action Plan, NIFTI and in accordance with the Department of Transport's Common Appraisal Framework. Predicted changes and/or targets associated with the levels of usage of each mode (e.g., bicycle, car, public transport, truck, van) will inform this. • TII will continue to develop and enhance its Road Emissions Model to explore the emissions impact of changes in transport demand, supply of transport networks/services and changes in vehicle fleet technology. 	<p>These commitments have the potential to lead to adverse effects on European sites through the development of additional infrastructure to facilitate the reduction in emissions.</p> <p>Therefore, adverse effects on the integrity of European sites cannot be excluded and mitigation is required.</p>

Source of Adverse Effects	Description	Does NR2040 have the potential to adversely affect the integrity of a European site?
	<ul style="list-style-type: none"> • TII will reduce its emissions and environmental impacts from maintenance and operations of existing National Road infrastructure. • TII will reduce carbon emissions associated with the development, construction, and operation of new infrastructure. • TII will support Department of Transport to increase the provision of electric vehicle charging infrastructure nationwide. • TII will continue to participate in wider efforts to decarbonise road transport through the provision of appropriate infrastructure <u>and</u> technology, and support of policy instruments and behaviour change measures. 	
Climate Adaption & Resilience	<ul style="list-style-type: none"> • TII will enhance the resilience of National Roads, in particular sections of the rural National Secondary Roads network, that provide lifeline links to individuals and communities. • TII will implement its Climate Adaptation Strategy (2022). 	<p>These commitments have the potential to lead to adverse effects on European sites through the development of climate resilience infrastructure, such as flood defences, which can lead to changes in hydrological and hydrogeological conditions.</p> <p>Therefore, adverse effects on the integrity of European sites cannot be excluded and mitigation is required.</p>
Sustainability	<ul style="list-style-type: none"> • TII will work with government agencies and stakeholders to support the Climate Action Plan and government's national climate objective to "<i>transition to a climate resilient, biodiversity rich, environmentally sustainable and climate neutral economy by 2050.</i>" • TII will incorporate economic, social and environmental sustainability objectives and goals in all decisions, policies, projects and processes. • TII will promote inter-modal solutions that maximise overall transport efficiency in terms of infrastructure and resource use. For example, facilitating safe active travel 	<p>These commitments have the potential to lead to adverse effects on European sites through the development of additional infrastructure to facilitate the transition to more sustainable modes of transport.</p> <p>Therefore, adverse effects on the integrity of European sites cannot be excluded and mitigation is required.</p>

Source of Adverse Effects	Description	Does NR2040 have the potential to adversely affect the integrity of a European site?
	<p>along National Road corridors that connect with rail and bus stations.</p> <ul style="list-style-type: none"> • In line with its legislative remit, TII will minimise the impact of road infrastructure on the environment and support the development and maintenance of ecological corridors along National Roads. • In line with its legislative remit, TII will work with relevant bodies to support measures to reduce air quality and noise impacts from road transport. • In line with NIFTI, TII will prioritise online improvements and avoid delivering high levels of excess capacity. In line with its legislative remit, TII will work with relevant bodies to support measures to reduce air quality and noise impacts from road transport. • Continue to support TII's Sustainability Implementation Plan (and subsequent revisions) to integrate all aspects of sustainability in to TII's core activities. 	
<p>Road Safety</p>	<ul style="list-style-type: none"> • TII will deliver on its actions in the Government's Road Safety Strategy 2021-2030 'Our Journey towards Vision Zero' and collaborate with partners to deliver on supporting actions. • TII will prioritise delivery of high quality, suitable infrastructure to create forgiving roadsides, self-explaining roads and a safe environment for vulnerable road users. • In line with NIFTI, TII will meet asset protection and renewal requirements to help to ensure the safety of the network. • In line with the European Union's Road Infrastructure Safety Management (RISM) Directive, TII will target investment on sections of National Roads with the highest risk of fatal or serious injury. 	<p>These commitments have the potential to lead to adverse effects on European sites through the development of additional infrastructure to improve safety on the road network. This includes the provision of new bridges, road realignments and junction improvements.</p> <p>Therefore, adverse effects on the integrity of European sites cannot be excluded and mitigation is required.</p>

Source of Adverse Effects	Description	Does NR2040 have the potential to adversely affect the integrity of a European site?
<p>Movement of People</p>	<ul style="list-style-type: none"> TII will support Connecting Ireland and prioritisation measures such as dedicated bus lanes where such prioritisation results in greater transport efficiency. TII will consider the needs of all road users for all projects. On urban dual carriageways and motorways approaching cities, TII will work with partner agencies to enable public transport and safe, high-quality active travel alternatives for car users. TII will continue to support reductions in car dependency and levels of car usage nationally while recognising the important role that private mobility plays for many road users. TII recognises that busy urban motorways, ring roads and town bypasses can be hostile environments for pedestrians and cyclists wishing to cross. TII will identify and remedy severance impacts from National Roads. Where bypasses are built, urban realm improvements will be required in the bypassed town to enable more sustainable mobility. 	<p>These commitments have the potential to lead to adverse effects on European sites through the development of additional infrastructure to facilitate the movement of people such as the provision of cycling and pedestrian facilities, park and ride facilities and public transport related infrastructure.</p> <p>Therefore, adverse effects on the integrity of European sites cannot be excluded and mitigation is required.</p>
<p>Movement of Goods & Services</p>	<ul style="list-style-type: none"> In line with the NPF and NIFTI, TII will work to achieve average inter-urban speeds of 90km/h on National Road corridors between Ireland's five cities (Dublin, Cork, Galway, Limerick, and Waterford) and five regional centres (Letterkenny, Drogheda, Dundalk, Sligo and Athlone). In some instances, this will mean the development of new infrastructure or upgrading of existing infrastructure to deliver on this NPF and NIFTI inter-urban accessibility objective. TII will work towards improving regional and rural accessibility in line with the NPF and NIFTI objectives. In partnership with other agencies, TII will protect access to ports and airports and improve access where required. 	<p>These commitments have the potential to lead to adverse effects on European sites through the development of additional infrastructure to facilitate the movement of goods and services such as provision of freight facilities.</p> <p>Therefore, adverse effects on the integrity of European sites cannot be excluded and mitigation is required.</p>

Source of Adverse Effects	Description	Does NR2040 have the potential to adversely affect the integrity of a European site?
	<ul style="list-style-type: none"> TII will provide/ consider prioritisation measures such as dedicated freight lanes where such prioritisation results in greater transport efficiency. TII supports the development of rail freight and multi-modal freight distribution centres on or near National Roads. TII recognises the issue of safe and secure parking areas for HGV drivers and is currently undertaking a review of the Service Area Policy, published in 2014, to improve service areas on motorway and dual carriageway sections of the NRN as well as providing safe stop and rest areas. 	
Urban Congestion	<ul style="list-style-type: none"> TII will promote traffic management interventions that help optimise traffic movement on urban National Roads. TII will support the use of public transport on or adjacent to urban National Roads. TII will support the provision of segregated or offline active travel infrastructure adjacent to National Roads. 	<p>These commitments have the potential to lead to adverse effects on European sites through the development of additional active travel and public transport infrastructure adjacent to National Roads.</p> <p>Therefore, adverse effects on the integrity of European sites cannot be excluded and mitigation is required.</p>
NR2040 Implementation Programme: Supporting Activities		
TII recognises necessary supporting activities for investment that will address the changes to processes, technologies, and organisational needs. It will respond to NIFTI's requested long term planning and evolution of practices in the care and development of road infrastructure.		
Customer engagement and understanding – developing and delivering practices and processes to improve TII's engagement with, and understanding of, all road customers.	This non-infrastructure programme sets out to improve TII's customer engagement and understanding. It is effectively a high-level policy or statement of intent and therefore, it can be concluded that this non-infrastructure programme will not lead to adverse effects on any European site.	
Sustainability implementation plan – Integrating sustainable practices and processes into every aspect of National Roads development and management, and ensuring sustainability is the bedrock of all decision making, as articulated in TII's <i>Sustainability Implementation Plan</i> . The implementation plan requires new ways of thinking; reviewing	These non-infrastructure programmes are effectively high-level policy statements of intent and therefore, it can be concluded	

Source of Adverse Effects	Description	Does NR2040 have the potential to adversely affect the integrity of a European site?
all corporate policies, standards, and specifications; engaging with the wider supply chain and construction industry; and extensive collaboration.		that this non-infrastructure programme will not lead to adverse effects on any European site.
Innovation and continuous improvement – TII’s track record is one of continuous improvement, for example effective implementation of the motorways programme and innovation; Early adopters of free flow tolling – M50 and interoperable tolling. TII’s continuous improvement must be maintained in the new policy context of decarbonisation, multi-modality, and technological change.		
Digitalisation – Including embedding a ‘digital-by-design’ philosophy, creating a digital twin of National Roads assets, C-ITS integration, and delivery of digital platforms. Digitalisation will improve NR2040’s communication and interaction with stakeholders. It will involve changes to skills, resources, organisation, and activities.		
Monitoring and Evaluation – of investment programmes and projects is a key requirement of the Public Spending Code for capital and operating expenditure. NR2040 and its supporting environmental assessments provides the framework for monitoring and evaluation activity.		
Supporting development of a goods distribution centre network – on or near National Roads (developed by third parties) to play a significant part in the creation of a more efficient, lower emission, haulage industry.		This non-infrastructure programme has the potential to lead to adverse effects on European sites through the development of infrastructure on or near the National Road network. Therefore, adverse effects on the integrity of European sites cannot be excluded and mitigation is required.
NR2040 Intervention Examples	Description	
<p>Priority of public transport, walking, cycling and goods</p> <p>Example:</p> <ul style="list-style-type: none"> National Cycling Network active mode collaboration and interchange. 	Enable a sustainable transport system through coordination with partner organisations. Reduce the reliance on private vehicles by coordinating access and priority on National Roads for public transport, goods vehicles, walking and cycling.	This intervention has the potential to lead to adverse effects on European sites through the development of additional active travel and public transport infrastructure adjacent to National roads. Therefore, adverse effects on the integrity of European sites cannot be excluded and mitigation is required.

Source of Adverse Effects	Description	Does NR2040 have the potential to adversely affect the integrity of a European site?
<ul style="list-style-type: none"> Building pedestrian and cycle bridges to reduce severance. 		
<p>New transport and road technologies</p> <p>Example:</p> <ul style="list-style-type: none"> Smart motorways C-ITS Modern asset management systems 	<p>Integrate new road technologies and provide for vehicle innovation. Incentivise and promote quicker, easier and lower-carbon travel alternatives to fossil-fuelled vehicles.</p>	<p>This intervention has the potential to lead to adverse effects on European sites through the development of additional infrastructure related to new transport and road technologies. Therefore, adverse effects on the integrity of European sites cannot be excluded and mitigation is required.</p>
<p>Demand management</p> <p>Example:</p> <ul style="list-style-type: none"> HOV, bus and cycle lanes Ramp metering Tolling 	<p>Prioritise and incentivise use of the network. Restrict use of the network by time, location, trip purpose, vehicle type or other criteria necessary to balance the needs of the community, environment and economy.</p>	<p>These commitments have the potential to lead to adverse effects on European sites through the development of additional infrastructure. Therefore, adverse effects on the integrity of European sites cannot be excluded and mitigation is required.</p>
<p>Resilience and capacity via local reconstruction</p> <p>Example:</p> <ul style="list-style-type: none"> Junction improvements Short road segment improvements 	<p>Improve resilience or capacity through localised reconstruction, notably on National Secondary Roads.</p>	<p>This intervention has the potential to lead to adverse effects on European sites because of habitat loss and associated impacts which could occur as a result of land take for new road realignments and junction improvements. Therefore, adverse effects on the integrity of European sites cannot be excluded and mitigation is required.</p>
<p>Road construction</p> <p>Example:</p> <ul style="list-style-type: none"> Town bypasses Build new to reduce net carbon 	<p>Where no feasible alternative exists to serve the required function, deliver new road infrastructure with sustainable procurement and circular economy practices.</p>	<p>This intervention has the potential to lead to adverse effects on European sites because of habitat loss and associated impacts which could occur as a result of land take for new roads. Therefore, adverse effects on the integrity of European sites cannot be excluded and mitigation is required.</p>

Source of Adverse Effects	Description	Does NR2040 have the potential to adversely affect the integrity of a European site?
<ul style="list-style-type: none">Build better (new multi-modal links)		

5.0 AVOIDANCE AND MITIGATION

5.1 Principles and Approach

Section 4.0 of this NIS identified adverse effects likely to arise from the Strategy. This section prescribes measures aimed at mitigating these adverse effects, thereby protecting the integrity of European sites.

The mitigation measures prescribed in this NIS have been designed according to the principle of a mitigation hierarchy, as outlined in the European Commission's guidance document *Assessment of plans and projects in relation to Natura 2000 Sites: Methodological guidance on the provisions of Article 6(3) and (4) of the Habitats Directive 92/43/EEC* (EC, 2021). According to this hierarchy, the following mitigation approaches were adopted, in order of decreasing preference:

1. Avoidance (preventing impacts from happening in the first place)
2. Reduction (reducing the magnitude and/or likelihood of an impact)

Any future plans or projects that stem from NR2040 will be subject to Appropriate Assessment in accordance with Article 6(3) of the Habitats Directive and Part 5 of the Habitats Regulations or Part XAB of the Planning and Development Act. The mitigation measures below apply to all plans and projects arising out of NR2040, as appropriate. When details of the nature and location of proposals are known the relevant assessment will be undertaken. Where potential adverse effects cannot be avoided, the avoidance and mitigation measures presented in Table 5-1 below will apply and any other measures specified as part of the project level assessments, including AA, as appropriate.

Table 5-1 Avoidance and Mitigation Measures

Source	Potential Effect	Mitigation Measure(s)	Adverse Effect post-Mitigation?
<p>Construction of new infrastructure</p>	<p>Habitat Loss/ Degradation/ Fragmentation</p>	<p>Infrastructure will be constructed in accordance with relevant legislation, TII standards and publications and relevant best practice.</p> <p>All projects will be undertaken in accordance with TII's Publications and Standards, including TII's <i>Project Management Guidelines</i> (TII, 2022) Project Manager's Manual for Greenway Projects (TII, 2022) and the relevant guidelines for ecological assessment, such as <i>Guidelines for Assessment of Ecological Impacts of National Road Schemes</i> (NRA, 2009) and <i>Guidelines for Ecological Impact Assessment in the UK and Ireland: Terrestrial, Freshwater, Coastal and Marine</i> version 1.1. Chartered Institute of Ecology and Environmental Management, Winchester. CIEEM (2019). This will ensure that every effort is made to avoid European sites and connected habitats in the first instance.</p> <p>Site specific Ecological surveys will be carried out in accordance with the following best practice guidance and any subsequent updates:</p> <ul style="list-style-type: none"> • (TII, 2009) <i>Ecological Survey Techniques for Protected Flora and Fauna during the Planning of National Road Schemes</i>. • (Smith et al., 2011) <i>Best Practice Guidance for Habitat Survey and Mapping</i>. <p>Site specific surveys will be undertaken in accordance with these guidelines in order to identify Qualifying Interests, including non-Qualifying Interest species and habitats on which they rely, that may be affected by a plan or project. This will include surveys for mobile species which may be found outside the boundary of a European site.</p>	<p>Provided the mitigation prescribed in this NIS is implemented, the Strategy, either individually or in combination with other plans or projects, will not adversely affect the integrity of the any European site.</p>
<p>Construction and operation of new infrastructure</p>	<p>Introduction and Spread of Invasive Species</p>	<p>Plans and projects will be designed, constructed and operated in accordance with relevant legislation and where applicable, with the following guidelines:</p> <ul style="list-style-type: none"> • TII (2020a) <i>The Management of Invasive Alien Plant Species on National Roads – Standard</i>. 	<p>Provided the mitigation prescribed in this NIS is implemented, the Strategy, either individually or in combination with other plans or projects, will not adversely</p>

Source	Potential Effect	Mitigation Measure(s)	Adverse Effect post-Mitigation?
		<ul style="list-style-type: none"> • TII (2020b) <i>The Management of Invasive Alien Plant Species on National Roads – Technical Guidance</i>. <p>TII will continue to implement the Invasive Alien Species Management Programme, which provides funding to local authorities to manage invasive alien plant species on the national road network.</p>	<p>affect the integrity of the any European site.</p>
<p>Construction and operation of new infrastructure</p>	<p>Air Quality</p>	<p>Plans and projects will be designed, constructed and operated in accordance with relevant legislation and where applicable, with the following guidelines and any subsequent updates:</p> <ul style="list-style-type: none"> • TII (2022a) <i>Air Quality Assessment of Proposed National Roads-Standard</i>. • TII (2022b) <i>Air Quality Assessment of Specific Infrastructure Projects- Overarching Technical Document</i>. • CIEEM (2021) <i>Advisory Note: Ecological Assessment of Air Quality Impacts</i>. Chartered Institute of Ecology and Environmental Management, Winchester. • IAQM (2020) <i>A Guide to the Assessment of Air Quality Impacts on Designated Nature Conservation Sites. Version 1.1</i> Institute of Air Quality Management, London. 	<p>Provided the mitigation prescribed in this NIS is implemented, the Strategy, either individually or in combination with other plans or projects, will not adversely affect the integrity of the any European site.</p>
<p>Construction and operation of new infrastructure</p>	<p>Water Quality, Hydrology and Hydrogeology</p>	<p>Plans and projects will be designed, constructed and operated in accordance with relevant legislation and where applicable, with the following guidelines and any subsequent updates:</p> <ul style="list-style-type: none"> • (TII, 2008b) <i>Guidelines for the crossing of Watercourses During Construction of National Road Schemes</i>. • (IFI, 2016) <i>Guidelines on Protection of Fisheries during Construction Works in and adjacent to Waters</i>. • TII (2015) <i>Road Drainage and the Water Environment</i>. • CIRIA C753 <i>The SUDS Manual</i> • CIRIA C532: <i>Control of Water Pollution from Construction Sites, Guidance for Consultants and Contractors</i> • CIRIA C692: <i>Environmental Good Practice on Site</i> 	<p>Provided the mitigation prescribed in this NIS is implemented, the Strategy, either individually or in combination with other plans or projects, will not adversely affect the integrity of the any European site.</p>

Source	Potential Effect	Mitigation Measure(s)	Adverse Effect post-Mitigation?
		<ul style="list-style-type: none"> • CIRIA C648: Control of Water Pollution from Linear Construction Projects: Technical Guidance • CIRIA C648: Control of water pollution from linear construction projects: Site guide. 	
Construction and operation of new infrastructure	Direct Mortality	<p>Pre-construction surveys will be carried out for Qualifying Interests, where required. The life span of ecological surveys and the requirement for pre-construction surveys will be dealt with on a case-by-case basis, determined by a suitably qualified and experienced ecologist and informed by <i>Advice Note on the Lifespan of Ecological Reports and Surveys</i> (CIEEM, 2019). The following guidance and any subsequent updates will also be adhered to, where appropriate:</p> <ul style="list-style-type: none"> • TII (2006) <i>Guidelines for the Treatment of Bats during the Construction of National Road Schemes.</i> • TII (2008a) <i>Guidelines for the Treatment of Otters Prior to the Construction of National Road Schemes</i> • (IFI, 2016) <i>Guidelines on Protection of Fisheries During Construction Works in and Adjacent to Waters.</i> <p>Site specific mitigation measures will be incorporated into any future project(s) to reduce the risk to QI species and habitats, such as fencing, green bridges and hop-over planting.</p>	<p>Provided the mitigation prescribed in this NIS is implemented, the Strategy, either individually or in combination with other plans or projects, will not adversely affect the integrity of the any European site.</p>
Construction and operation of new infrastructure	Disturbance	<p>Relevant legislation and guidance relating to noise, vibration and lighting, including any subsequent updates, will be adhered to during the planning of projects, including, but not limited to:</p> <ul style="list-style-type: none"> • TII (2004) <i>Guidelines for the Treatment of Noise and Vibration in National Road Schemes.</i> • TII (2014) <i>Good Practice Guide for the Treatment of Noise during the Planning of National Road Schemes.</i> • TII (2022c) <i>Design of Road Lighting for the National Roads.</i> • Institution of Lighting Professionals (2020) <i>Guidance notes for the reduction of obtrusive light.</i> Guidance Note 01/20. Institution of 	<p>Provided the mitigation prescribed in this NIS is implemented, the Strategy, either individually or in combination with other plans or projects, will not adversely affect the integrity of the any European site.</p>

Source	Potential Effect	Mitigation Measure(s)	Adverse Effect post-Mitigation?
		<p>lighting professionals, Regent House, Regent Place, Rugby, Warwickshire, UK.</p> <ul style="list-style-type: none"> • (BCT, 2018) <i>Bats and Artificial Lighting in the UK</i>. <p>Site specific mitigation measures relating to noise, vibration and lighting will also be applied on a project-by-project basis.</p>	

6.0 IN-COMBINATION EFFECTS

6.1 Introduction

Article 6(3) of the Habitats Directive requires that AA be carried out in respect of plans and projects that are likely to have significant effects on European sites, “*either individually or in combination with other plans or projects*”. Therefore, regardless of whether or not the likely effects of a plan or project are significant when considered on their own, the significance of the combined effects of the plan or project under assessment and other plans and projects must also be evaluated.

6.2 Methodology

Given the strategic nature of NR2040 and the fact the projects the NR2040 are at the time of writing are unknown, it is not possible to assess NR2040 against projects. Therefore, the in-combination assessment has assessed the potential for in-combination effects with other similar strategic Plans.

Error! Reference source not found. below presents the in-combination assessment.

Table 6-1 In-combination effects assessment

Plans, Policies, and Programmes	Summary	Potential for In-combination Effects
<p>EU Biodiversity Strategy for 2030</p>	<p>This biodiversity strategy aims to restore Europe’s biodiversity and put it on the path to recovery by 2030. The strategy aims to create Protected Areas for 30% of its land and sea territory by 2030 and ensure no deterioration in conservation trends and the status of protected species and habitats.</p> <p>Relevance to NR2040: NR2040 supports the EU Biodiversity Strategy for 2030 through targeting areas of decarbonisation, sustainability, climate resilience, etc.</p>	<p>The primary aim of half biodiversity loss, therefore it is unlikely that the EU Biodiversity Strategy would support plans or projects that could lead to adverse effects. All plans and projects stemming from the EU Biodiversity Strategy will be subject to their own AA. There is no potential for in-combination adverse effects as a result of the EU Biodiversity Strategy and NR2040.</p>
<p>Project Ireland 2040:</p> <ul style="list-style-type: none"> • The National Planning Framework (NPF) (2018) • The National Development Plan 2021-2030 (2021) 	<p>Project Ireland 2040 is the government’s long-term overarching strategy to make Ireland a better country for all and to build a more resilient and sustainable future. Project Ireland 2040 incorporates both the National Planning Framework (NPF) and the National Development Plan (NDP). The NPF succeeds the National Spatial Strategy and unlike its predecessor will have a statutory basis. This Government’s long-term strategic planning framework will guide national, regional, and local planning and investment decisions to 2040.</p> <p>The major public investment approved by Government and detailed in the NDP will play a significant role in addressing the opportunities and challenges faced by Ireland over the coming years from issues such as Covid-19, Brexit, housing, health, climate action and the population projected to grow by one million people between 2016 and 2040.</p> <p>Relevance to NR2040: A number of actions have been identified in the NPF and the NDP for National Roads which have been included under the following NSOs:</p> <ul style="list-style-type: none"> • NSO 1 Compact Growth. • NSO 2 Enhanced Regional Accessibility. • NSO 3 Strengthened Rural Economies and Communities. • NSO 4 Sustainable Mobility. • NSO 6 High Quality International Connectivity. 	<p>An NIS was prepared in respect of the NPF. Potential effects on the Plan were identified as habitat loss/degradation, species mortality, disturbance, changes in air and water quality, and spread of invasive species. These are similar to the predicted effects of NR2040. All plans and projects stemming from Project Ireland 2040 will be subject to their own AA. There is no potential for in-combination adverse effects as a result of Project Ireland 2040 and NR2040.</p>

Plans, Policies, and Programmes	Summary	Potential for In-combination Effects
	<ul style="list-style-type: none"> NSO 8 Transition to a Climate-Neutral and Climate-Resilient Society. 	
National Investment Framework for Transport in Ireland (NIFTI)	<p>NIFTI is a high-level, strategic framework for future investment in the land transport network, prepared by the Department of Transport (DoT). The framework will enable the National Planning Framework (NPF) and support the Climate Action Plan, whilst promoting positive social, environmental and economic outcomes throughout Ireland.</p> <p>Relevance to NR2040: NR2040 has been developed to align with the Department of Transport's National Investment Framework for Transport in Ireland (NIFTI).</p>	<p>An NIS was prepared in respect of NIFTI. Potential impacts are identified as habitat loss/degradation, species mortality, disturbance, and changes in air and water quality. Projects which are put forward as a result of NIFTI will be subject to their own AA.</p> <p>Therefore, there is no potential for in-combination effects at this stage.</p>
The Climate Action Plan 2023	<p>The Climate Action Plan 2023 (CAP23) is the second annual update to Ireland's Climate Action Plan 2019. The plan implements the carbon budgets and sectoral emissions ceilings and sets out a roadmap for taking decisive action to halve our emissions by 2030 and reach net zero no later than 2050.</p> <p>Relevance to NR2040: NR2040 supports the CAP2023 through targeting areas of decarbonisation, sustainability climate resilience, etc.</p>	<p>This is a high-level plan, and it does not contain project specific details. NR2040 supports the reduction in carbon emissions across the National Roads network. There is no potential for in-combination effects at this stage.</p>
Regional, Spatial and Economic Strategies	<p>A Regional Spatial and Economic Strategy (RSES) is a strategic plan and investment framework to shape future growth and to better manage regional planning and economic development throughout Ireland's Regional Authorities (the Northern and Western, Eastern and Midlands, and the Southern Regions). Each RSES will identify the region's key strategic assets, opportunities and challenges and set out policy responses to ensure that people's needs – such as access to housing, jobs, ease of travel and overall well-being – are met, up to 2030 and beyond.</p> <p>Relevance to NR2040: NR2040 supports each Regional Assembly's RSES through targeting areas of climate action, sustainable transport and strategic green infrastructure.</p>	<p>These are high-level strategic plans, and they do not contain project specific details.</p> <p>A Natura Impact Report (NIR) was prepared for the Southern, Eastern and Midlands, and Northern and Western Region RSES's. Potential impacts are identified as habitat loss/ degradation/ fragmentation, species mortality, disturbance, changes to ecosystems, changes in air and water quality, and spread of invasive species. Projects which are put forward as a result of the RSES's will be subject to AA.</p>

Plans, Policies, and Programmes	Summary	Potential for In-combination Effects
<p>National Policy Framework on Alternative Fuels Infrastructure for Transport in Ireland 2017-2030</p>	<p>This policy framework represents the first step towards Ireland's vision of decarbonising transport by 2050. It sets a target that by 2030 all new cars and vans sold in Ireland will be zero-emissions capable, and predicts that the use of fossil fuelled vehicles will rapidly decrease with the development of these new technologies. The framework will ensure the provision of refuelling infrastructure for alternative fuels, and will provide a supportive, enabling environment for suppliers and consumers.</p> <p>Relevance to NR2040: NR2040 supports the National Policy Framework on Alternative Fuels Infrastructure for Transport in Ireland 2017-2030 through targeting areas of decarbonisation, sustainability climate resilience, etc.</p>	<p>Therefore, there is no potential for in-combination effects.</p> <p>This is a high-level policy framework, and it does not contain project specific details.</p> <p>A Strategic Environmental Assessment Screening Report was prepared in respect of the National Policy Framework on Alternative Fuels Infrastructure for Transport in Ireland. It concluded that the policy is not likely to have a significant on a Natura 2000 site. It also states that the actions and measures gathered from other plans and strategies which may have an effect on Natura 2000 sites should be assessed on their own merit.</p> <p>There is no potential for in-combination effects with this policy.</p>
<p>National Air Pollution Control Programme (NAPCP), 2021</p>	<p>The National Air Pollution Control Programme (NAPCP) outlines the pathway Ireland will follow in order to comply with the National Emission Ceilings Directive (NEC Directive). The NEC Directive establishes emission ceilings for 2020 and 2030 for five specified pollutants: NO_x, VOCs, SO_x, PM_{2.5} and NH₃.</p> <p>Relevance to NR2040: NR2040 supports the NAPCP through targeting areas of decarbonisation, sustainability, climate resilience, etc.</p>	<p>This is a high-level programme, and it does not contain project specific details.</p> <p>A Strategic Environmental Assessment Screening Report was prepared for the NAPCP. This report states the following: <i>"The Programme draws on other national plans and programmes. The environmental impacts of any additional measures incorporated into that consideration will be evaluated in those other plans, which may be subject to SEA and/or AA as appropriate and should be positive."</i></p>

Plans, Policies, and Programmes	Summary	Potential for In-combination Effects
		Therefore, there is no potential for in-combination effects.
River Basin Management Plans	The 3 rd cycle of River Basin Management Plan (RBMP) for the period of 2022-2027 is currently being prepared by Department of Housing, Local Government and Heritage (DHLGH) in line with the EU Water Framework Directive (WFD) (2000/60/EC). The RBMP must include a programme of measures to protect and restore bodies of water to at least 'good status' by 2027.	An NIS was prepared for the RBMP 2 nd cycle and a new NIS will be published alongside the 3 rd cycle. The objective of the RBMPs is to improve water quality, therefore negative effects on water quality are unlikely, however any projects or plans stemming from the RBMP 2 nd of 3 rd cycle will be subject to their own AA. There is no potential for in-combination effects at this stage.
National Mitigation Plan 2017	<p>This is a whole-of-government plan that aims to enable Ireland's transition to a low carbon, climate-resilient and environmentally sustainable economy by 2050. It involves the decarbonising of the following key sectors: Electricity Generation, the Built Environment, Transport and Agriculture.</p> <p>Relevance to NR2040: NR2040 supports the National Mitigation Plan through targeting areas of decarbonisation, sustainability, climate resilience, etc.</p>	<p>This is a high-level plan, and it does not contain project specific details.</p> <p>An NIS was prepared in respect of the National Mitigation Plan. Potential impacts are identified as habitat loss/degradation, disturbance to habitats/ species, species mortality, changes in air and water quality, and introduction of invasive species.</p> <p>As this is a high-level plan with no project specific details projects which are put forward under this plan must be assessed on their own merit.</p> <p>There is no potential for in-combination effects at this stage.</p>

Plans, Policies, and Programmes	Summary	Potential for In-combination Effects
Strategy for the Future Development of National and Regional Greenways	<p>This strategy was launched in 2018, with the objective of assisting in the development and delivery of Greenways that are of strategic significance on a regional or national level. It also aims to increase the number and spread of greenways around the country over a ten-year period.</p> <p>Relevance to NR2040: NR2040 supports the Strategy for the Future Development of National and Regional Greenways through targeting areas of sustainable transport.</p>	<p>This is a high-level strategy, and it does not contain project specific details. However, the future development of any greenways which may arise from this strategy may lead to in-combination effects and will require assessment on their own merit prior to development.</p> <p>There is no potential for in-combination effects at this stage.</p>
National Cycle Network	<p>The National Cycle Network (NCN) aims to link towns, cities and destinations across Ireland with a safe, connected and inviting cycle network. The first implementation phase will run from 2023-2025. Subsequent phases will run every five years – starting in 2026-2030. The NCN routes will be composed of various infrastructure types (e.g., greenways, segregated cycle tracks, shared road) depending on the location and use case.</p> <p>Relevance to NR2040: NR2040 supports the NCN through targeting areas of sustainable transport.</p>	<p>The NCN will guide the development of cycling infrastructure in Ireland over the coming number of years. The targets of the NCN are complementary with NR2040. However, the provision of the cycling infrastructure may lead to in-combination effects, and individual projects will require assessment on their own merit prior to development.</p> <p>There is no potential for in-combination effects at this stage.</p>
National Biodiversity Action Plan 2023-2027.	<p>Ireland's 4th National Biodiversity Action Plan (NBAP) will build on the previous three plans and will aim to improve the governance of biodiversity in Ireland so that we can better respond to the biodiversity crisis.</p> <p>Relevance to NR2040: NR2040 supports the NBAP through targeting areas of decarbonisation, sustainability, climate resilience, etc.</p>	<p>This is a high-level plan, and it does not contain project specific details. Therefore, there is no potential for in-combination effects.</p>
All-Ireland Pollinator Plan 2021-2025	<p>The All-Ireland Pollinator Plan for 2021-2025 (AIPP) is a road map that aims to help bees, other pollinating insects and our wider biodiversity. It will build on the</p>	<p>This is a high-level plan, and it does not contain project specific details. Therefore,</p>

Plans, Policies, and Programmes	Summary	Potential for In-combination Effects
	<p>successful delivery of the 81 actions in the first All-Ireland Pollinator Plan (2015-2020) and identifies a total of 186 actions.</p> <p>Relevance to NR2040: NR2040 supports the AIPP through targeting areas of decarbonisation, sustainability, climate resilience, etc.</p>	<p>there is no potential for in-combination effects.</p>

7.0 CONCLUSION

This NIS has been prepared in accordance with the relevant provisions of the Habitats Directive and the Habitats Regulations as well as the relevant case law and current guidance. It has demonstrated that, in the absence of appropriate mitigation, the Strategy could adversely affect the integrity of European sites, in view of their Conservation Objectives. In light of this finding, this NIS has prescribed appropriate mitigation to eliminate or minimise such effects. This assessment has been undertaken on the basis of the best scientific knowledge in the field and the Precautionary Principle. No reasonable scientific doubt remains as to the absence of such effects.

It is the considered opinion of ROD, as the author of this NIS, that given the full and proper implementation of the mitigation prescribed in this NIS, the Strategy, either individually or in combination with other plans or projects, will not adversely affect the integrity of any European site.

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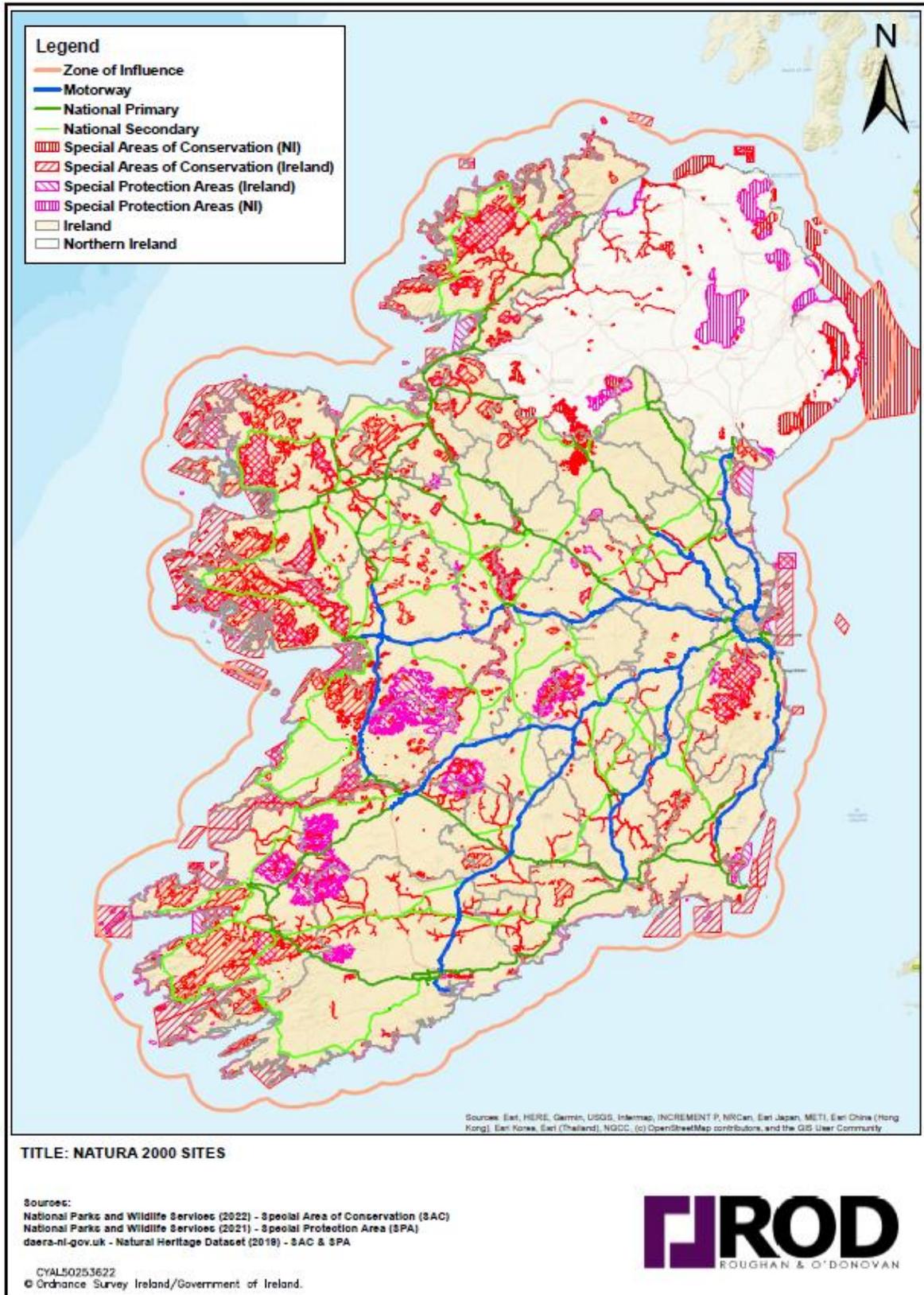
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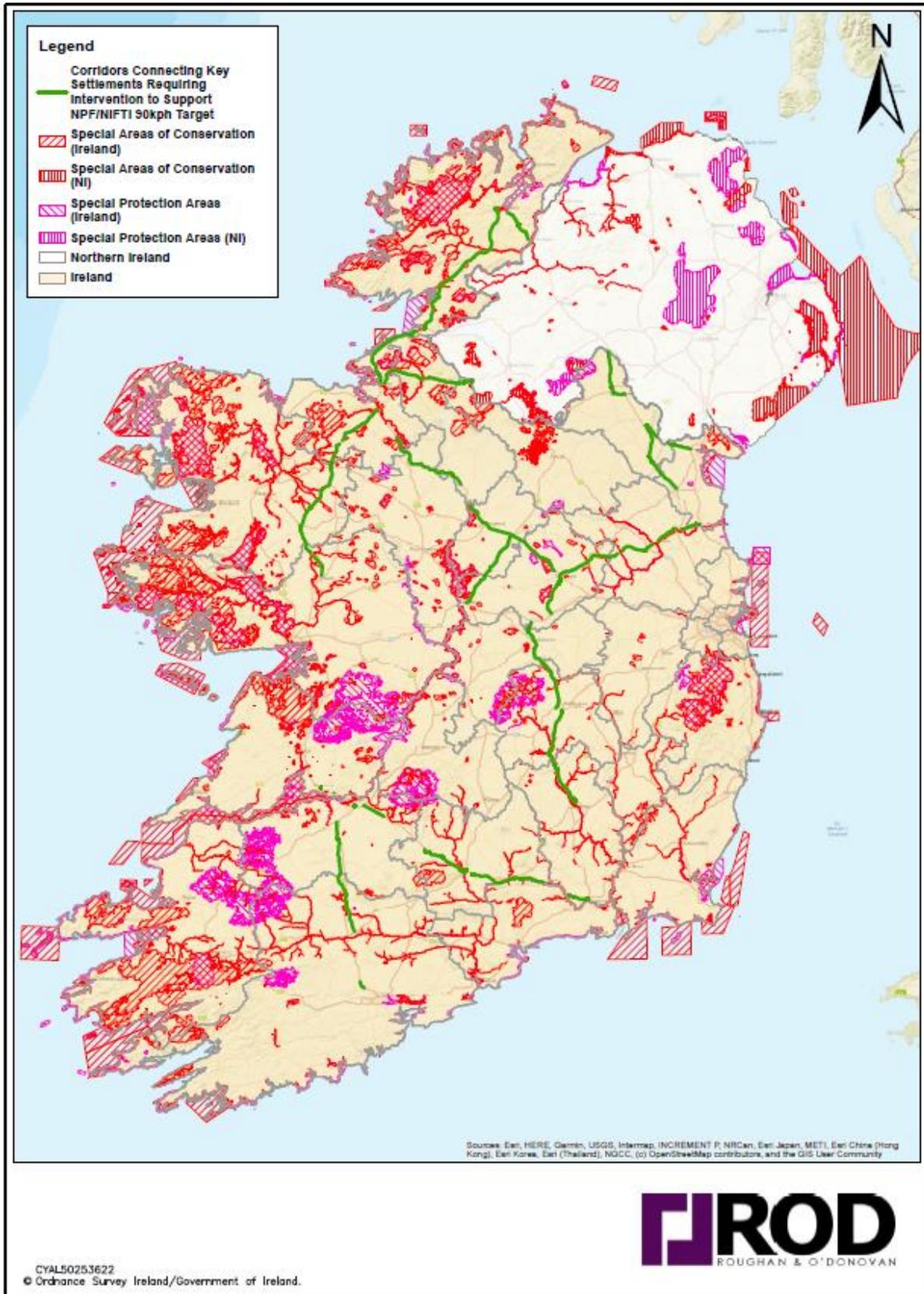
APPENDIX A

European Sites and the Zone of Influence



APPENDIX B

Corridors Connecting Key Settlements Requiring Intervention to Support NPF/ NIFTI 90kph Target



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