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National Roads 2040

Short Summary

April 2023



Tionscaldal Éireann
Project Ireland
2040



AECOM

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Errata: Please note Figures 5.2, 5.3 and 5.4 have been updated (March 2024) correcting typographical errors across three counties as a result of an image rendering issue.

1 INTRODUCTION

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

Role of National Roads

Connecting people and places and to develop communities

Permitting efficient movement of goods and services, and enabling economic activity

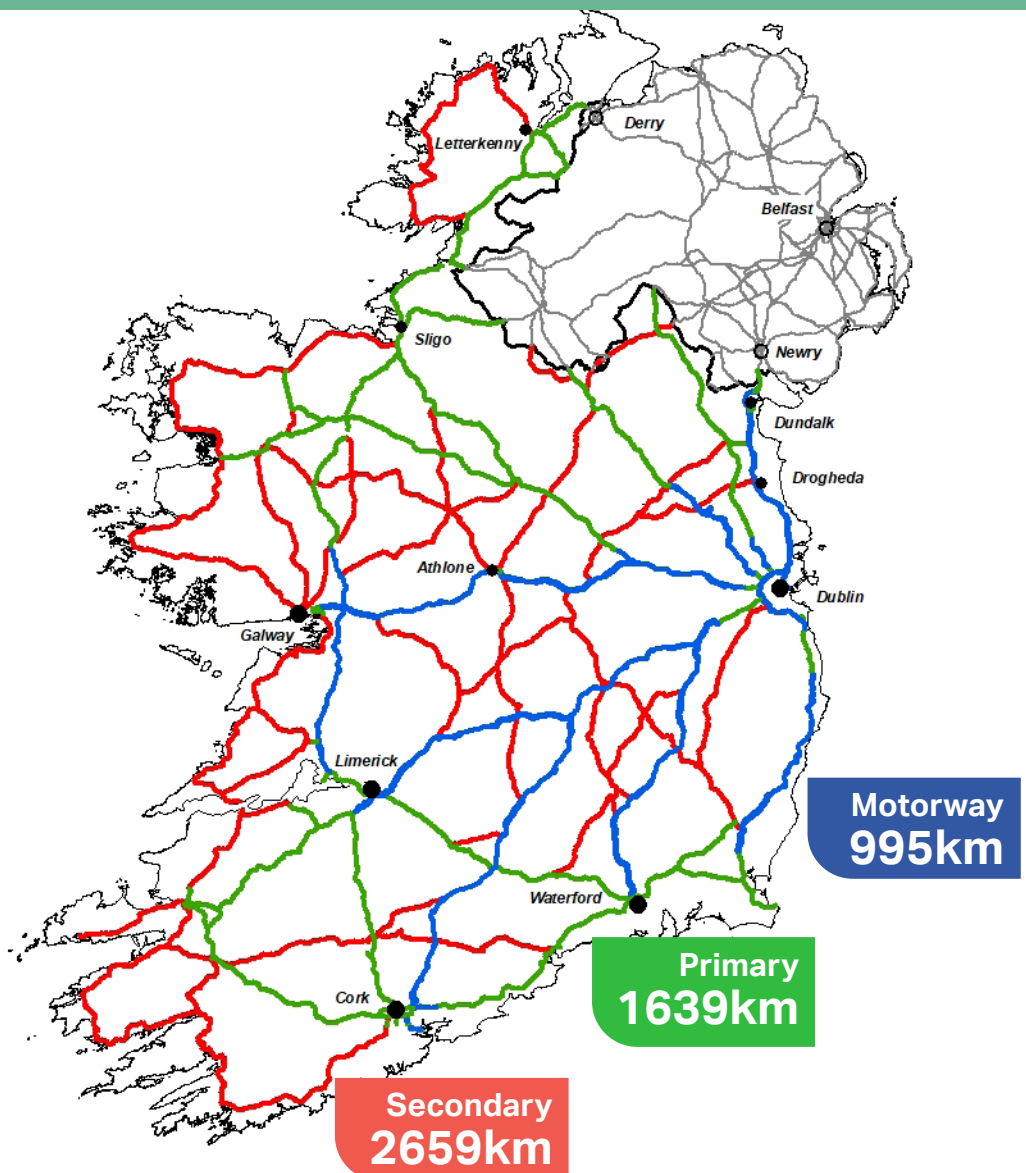
Providing opportunities to access jobs, education, leisure, and services, on foot, by bicycle, by car and public transport

3.5 million

daily vehicular trips

82,000

daily HGV trips



The National Roads network consists of almost 5,300 km of roads: National Primary roads (including motorways) and National Secondary roads. The network forms vital transport infrastructure for all sectors of society. The network facilitates movement of people and goods and a wide range of trip purposes including health, education, employment, tourism and access to key services.

This NR2040 report is a short summary of the full report and is structured as follows:

- » **Chapter 2 Policy context** reviews the 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** 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** summarizes the guidance to sponsoring agencies in developing projects/ interventions that align with NR2040
- » **Chapter 7 Monitoring Framework** outlines the aspects through which TII will monitor the implementation of NR2040

2 POLICY CONTEXT

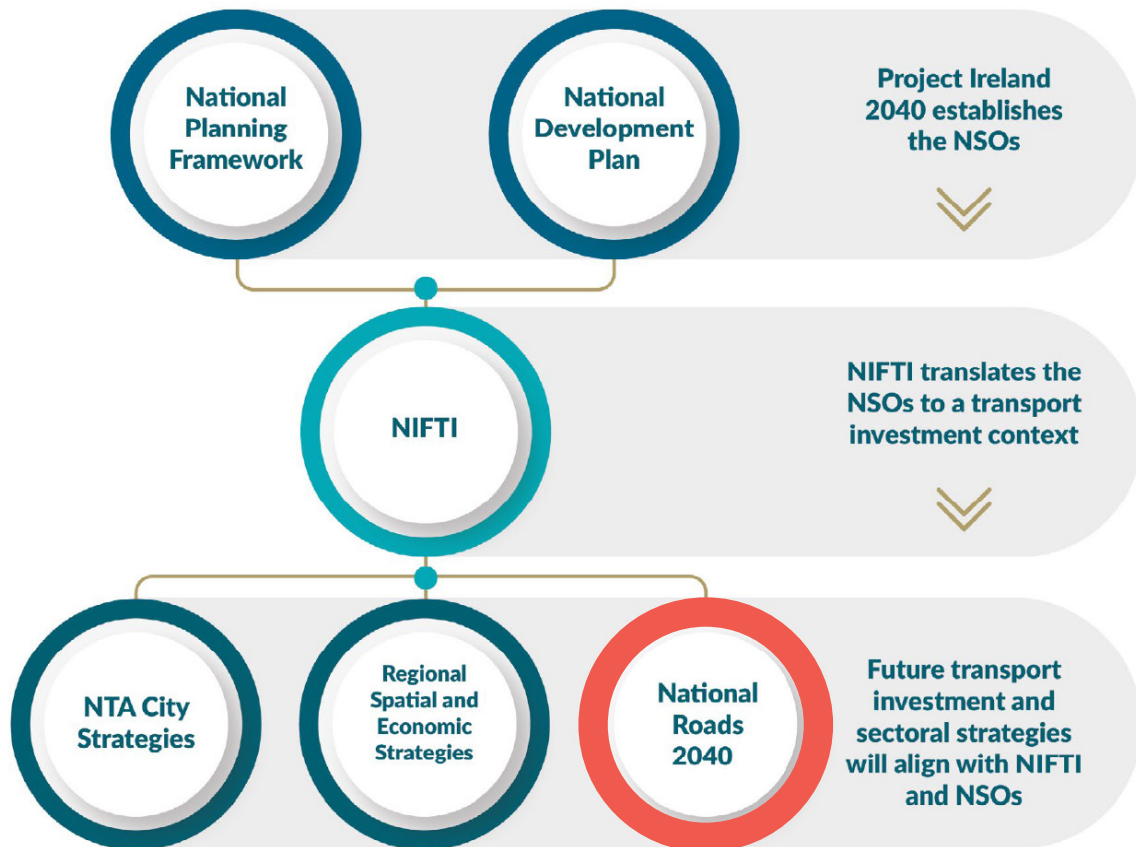
NR2040 is TII's response to ensure the strategic alignment of the National Roads network to recently published Governmental policies, plans and planning/investment frameworks.



NR2040 was prepared in succession to NIFTI to ensure alignment between the departmental investment framework and the operational and functional needs of National Roads. Collaboration has taken place between DoT and TII, ensuring a common understanding of the network function, current and future users' and infrastructure requirements on the network, to enable Project Ireland 2040.

Figure 2.1. presents where NR2040 sits in the strategy and plan hierarchy of Project Ireland 2040.

Figure 2.1 Project Ireland 2040 Hierarchy of Strategies and Plans, as shown in NIFTI



2.1 Project Ireland 2040

2.1.1 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 within 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; these are as described in the NR2040 Strategy.

Figure 2.2 National Planning Framework NSOs



2.1.2 National Development Plan 2021-2030

In October 2021 the 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; the NDP 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 NSOs.

A mid-term review of NDP (2021-2030) will be undertaken in 2025, to allow the 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 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 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.

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 National Investment Framework for Transport in Ireland

The National Investment Framework for Transport in Ireland (NIFTI), published in December 2021, is the DoT’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.

2.3.1 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 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 accordance with these priorities will support the delivery of the NPF over the coming decades to 2040.

2.3.2 NIFTI Modal and Intervention Hierarchies

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

NIFTI Intervention Hierarchy	NIFTI Modal Hierarchy
Maintain	Active Travel
Optimise	Public Transport
Improve	Private Vehicles
New	

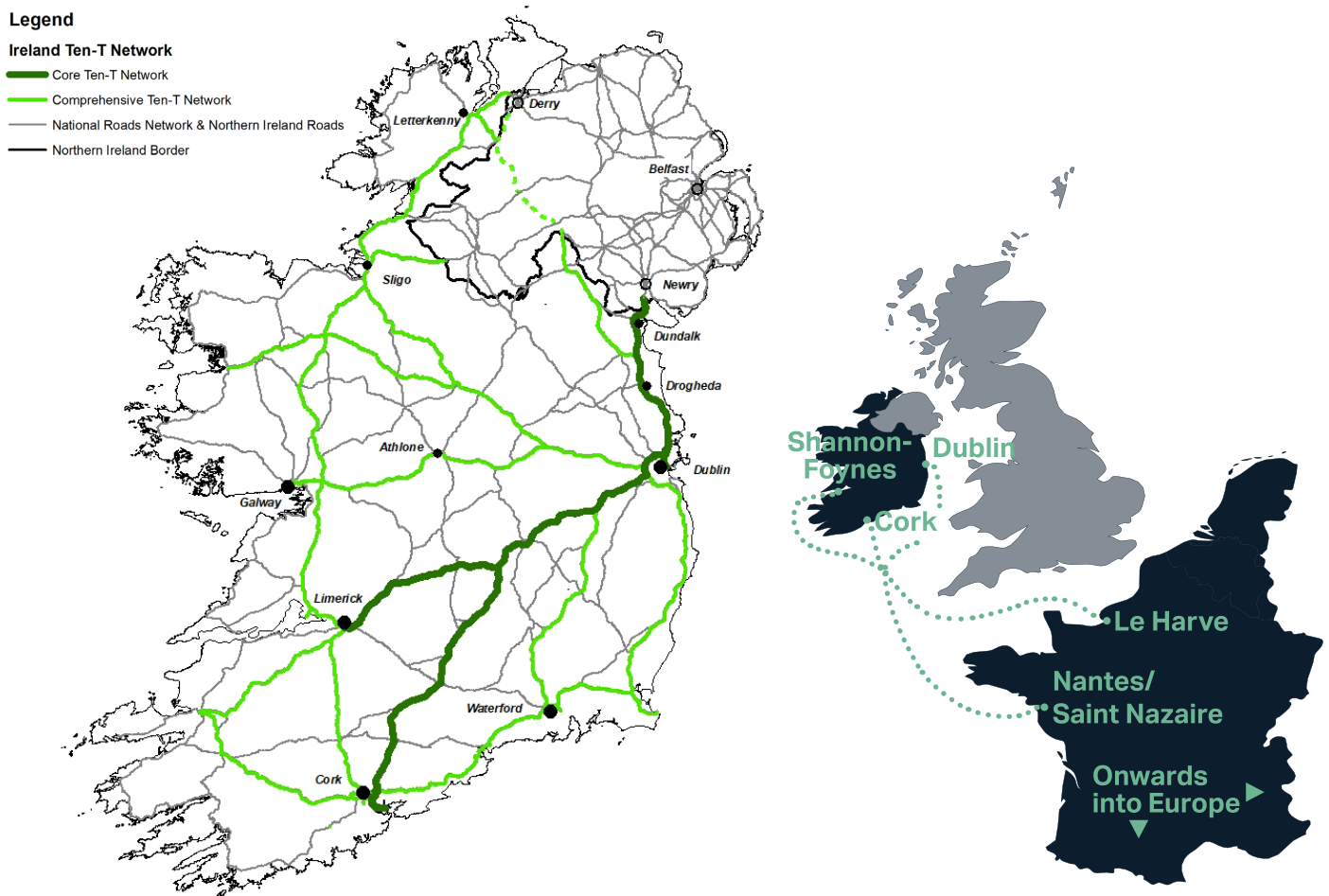
The Modal and Intervention Hierarchies are also incorporated within NR2040. Future investment on National Roads will be developed in accordance with the Hierarchies.

2.4 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 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 CAP 2021. For TII, actions relating to National Roads are set out in the NR2040 Strategy.

2.5 Trans-European Transport Network (TEN-T)

Figure 2.3 Ireland's TEN-T network and TEN-T Atlantic corridor between Ireland and mainland Europe



The TEN-T policy, based on Regulation (EU) No 1315/2013, supports provision of quality transport infrastructure across the European Union. The objectives are to improve the use of infrastructure, reduce the environmental impact of transport, enhance energy efficiency, and increase safety, whilst implementing and developing a Europe-wide transport network. TEN-T policy comprises two 'layers': the **Comprehensive Network** covers all European regions and is to be completed by 2050; and the **Core Network**, a subset of the comprehensive network, to be completed by 2030. Part of Ireland's National Roads network comprises the Ten-T network.

2.6 TII Climate Adaptation Strategy

TII's Climate Adaptation Strategy, published in December 2022, outlines TII's approach to adapting to climate change and extreme weather events, including flooding, increased risk of landslides, pavement degradation and possible storm damage that will affect the National Roads network and light rail networks.

The Strategy builds upon the previous climate adaptation strategy published by TII in 2017. The strategy also responds to the Climate Action Plan 2021 (CAP21) Action 297, "Improve climate resilience and adapt to climate change on the Light rail and National Roads Network".

NR2040 provides a framework for transport investment on the National Roads network which will include climate change adaptation measures to be developed, prioritised, and implemented.

2.7 Redesigning Ireland's Transport for Net Zero: Towards Systems that Work for People and the Planet

Redesigning Ireland's Transport for Net Zero: Towards Systems that Work for People and the Planet was published by the Organisation for Economic Co-operation and Development (OECD) in October 2022.

The NR2040 strategy has been developed in accordance with the OECD recommendations and recognises the issues of increasing car use and emissions. TII widely supports the mitigation measures that should be put in place to reduce emissions and improve the well-being of Irish citizens, which have been broadly responded to and recognised by the NR2040 investment priorities and commitments.

2.8 National Ports Policy

The National Ports Policy, published in 2013 by the Department of Transport, Tourism and Sport, establishes a broad set of principles to serve as the foundation for a policy framework that enables the port sector to grow in a sustainable way.

Integration between planning and policy for ports with the transport system should be of high priority.

TII recognises the potential for greater alignment between planning and policy for Ports with that of the National Roads network and will collaborate with the DoT and Irish Maritime Development Office in the development of the next National Ports Policy.

3 LONG TERM STRATEGIC ISSUES FOR NATIONAL ROADS

To ensure that the future needs of the National Roads network and its customers are met, the context of how the network is used may change over the coming decades must be understood. The following issues have been considered by TII in developing a strategy for National Roads. The mitigation measures that address these issues are elaborated through TII’s investment priorities in Chapter 5 and commitments in Chapter 6.

Table 3.1 NR2040 12 Long Term Strategic Issues

 <p>Future Demographic Growth Trends</p>	 <p>Road Transport Decarbonisation</p>	 <p>Climate Adaptation and Resilience</p>
 <p>Sustainability</p>	 <p>Road Safety</p>	 <p>Movement of people</p>
 <p>Movement of goods and services</p>	 <p>Urban congestion</p>	 <p>Technological change</p>
 <p>Network management</p>	 <p>Integrated mobility</p>	 <p>Customer Experience</p>

- » **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** 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.

Each of the issues is reviewed at length in the NR2040 Strategy.

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 focuses on strategic issues for National Roads identified by TII.

Our vision is for the National Roads network to be:



NR2040 sets out a strong commitment to provide a National Roads network that is:

A network facilitating the safe and efficient movement of people, goods and services

» TII sees road safety as an integral part of every aspect of maintenance, development, and management of the National Roads network, in line with Ireland's long-term goal of achieving Vision Zero by 2050. As the main conduit for economic productivity and social connectivity, the National Roads network must be maintained and managed to cater for the efficient transport of people, goods and services.

Environmentally, socially, and economically sustainable

- » **Environmental** Environmental sustainability is the bedrock for social and economic sustainability in Ireland; avoiding and where unavoidable mitigating environmental impacts including climate change, air quality and noise as well as biodiversity impacts of National Roads.
- » **Social** Integrated land use and transport network to connect communities, ensuring that our infrastructure supports safety and inclusivity, and enables sustainable mobility and healthier transport choices. TII strives to enhance both urban and rural accessibility, supporting transport options for all sectors of society, particularly in hard-to-reach areas.
- » **Economic** TII will continue to support the economy through the provision and management of infrastructure along the National Roads network that enables the efficient and sustainable movement of people, goods and services.

Tailored for different customers in different places

National Roads must cater for all road users. Planning for the network must consider the unique needs of different customers and provide a network that allows more people to travel conveniently using public transport and active travel modes, for some or all of their trips, while also recognising that some of these options will not be suitable or available for everyone everywhere. The network must also be maintained for personal travel, especially in rural areas where communities are highly dependent on them for basic accessibility to jobs and services.

Managed and improved as a key public asset

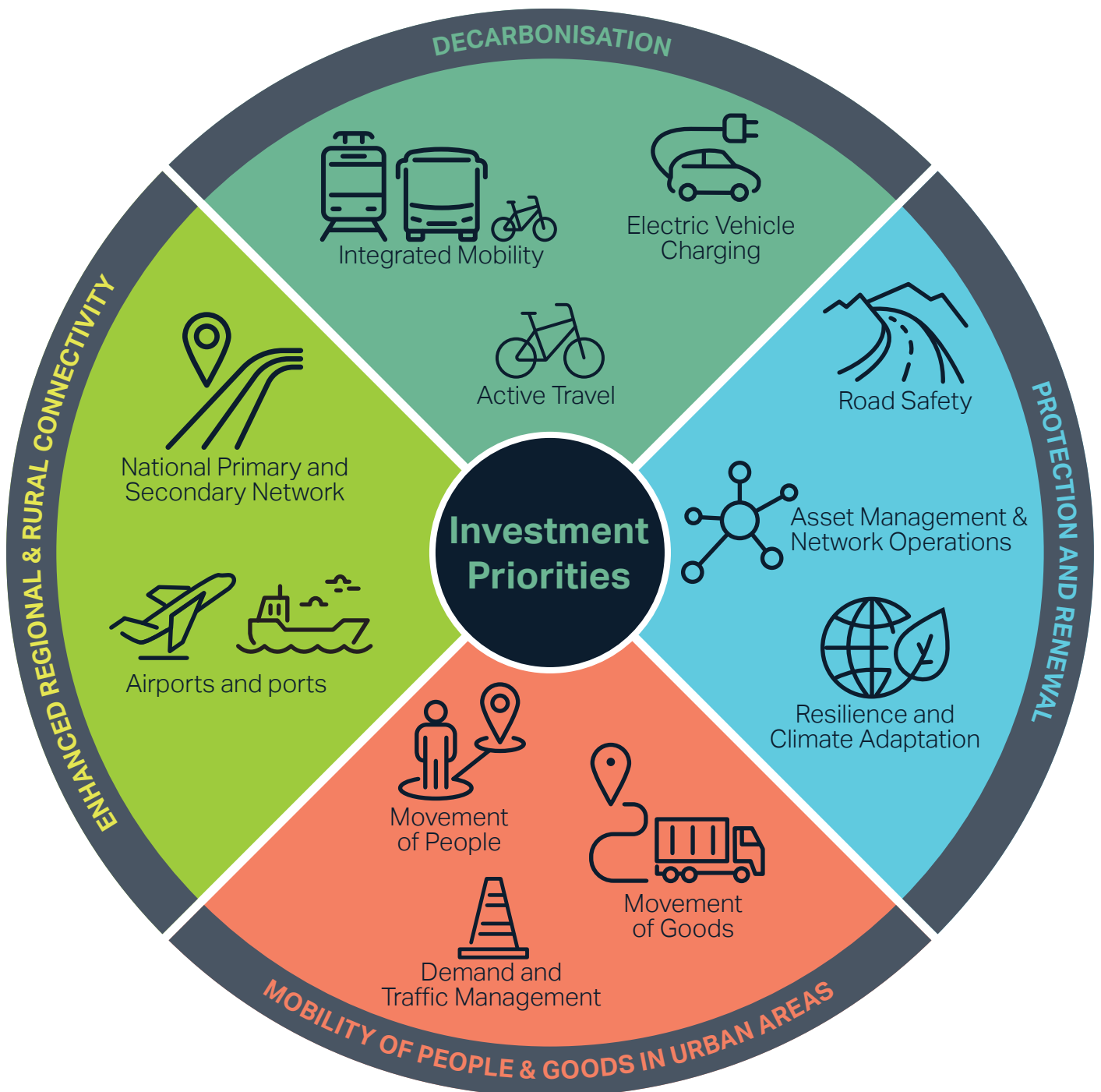
The National Roads network is a key national asset that has received significant investment over the years, primarily related to the maintenance, improvement and expansion of the network. In light of national targets associated with supporting decarbonisation and climate action; TII stewardship will evolve to manage, improve and enhance the National Roads network in line with these ambitions and as a key public asset.

5 NATIONAL ROADS INVESTMENT PRIORITIES AND PORTFOLIOS

TII has assessed the need for the National Roads network to align with relevant National Strategic Outcomes and has also identified several strategic issues for the network. These considerations have influenced the NR2040 Investment Priorities.

The NR2040 Investment Priorities align with the four NIFTI Investment Priorities and are presented in Figure 5.1 below.

Figure 5.1 NR2040 Investment Priorities and Portfolios



5.1 Decarbonisation

Decarbonisation Investment Priority is the National Roads network's greatest challenge. It encompasses three investment portfolio themes: Integrated Mobility; Electric Vehicle Charging; and Active Travel.

5.1.1 Integrated Mobility

An integrated multi-modal trip could encompass one from a rural area of low population density to a busy urban centre. It could ideally be composed of multiple parts whereby a trip-maker switches mode from car to public transport at the earliest opportunity and completes the final portion of the trip through walking or cycling. Car dependency is reduced but an acceptable level of personal mobility is retained.

Establishing linkages between National Roads and transport hubs is vital e.g., heavy and light rail stations, bus stations and stops, greenways and National and County Cycle Networks.

TII will contribute to integrated mobility by investing in measures such as Park and Ride / Share and bus prioritisation, where appropriate along National Roads. Improving connections to major public transport hubs, e.g., active travel infrastructure within close 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 for any future investments in the road network will align with decarbonisation objectives.

5.1.2 Electric Vehicle Charging

The National Development Plan (2021-2030) Strategic Investment Priority for Transport includes the target of nearly one million electric vehicles on the road by 2030, with additional charging infrastructure to cater for growth. The CAP requires a significant increase in the proportion of Electric Vehicles (EVs) in the car fleet to transition away from internal combustion engines. It is also likely that the sale of new vehicles with internal combustion engines will be banned during the 2030s, with the European Parliament having voted to mandate that all new car and van sales should be zero emissions from 2035. To achieve the required uptake, barriers must be addressed, particularly in the areas of range anxiety and the widespread availability of charging infrastructure.

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.

5.1.3 Active Travel

TII is committed to delivering improved active travel provision in all its projects, as well as improving the safety of the National Roads network for active travel users and reducing the severance caused by some National Roads in urban areas. TII will collaborate with 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. Provision of safe, high quality and active travel infrastructure will encourage modal shift and may result in reductions in carbon emissions.

5.2 Protection and Renewal

The protection and renewal of the National Roads network is where TII incurs its greatest proportion of expenditure. Protection and Renewal encompasses three investment portfolio themes: Road Safety; Asset Management & Network Operations; Resilience & Climate Adaptation.

5.2.1 Road Safety

Road safety is and will continue to be an integral part of every aspect of TII's work, particularly along the National Roads network. 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 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.

5.2.2 Asset Management and Network Operations

A key priority for TII is to maintain the existing National Roads network to a robust and safe standard. Essential maintenance at the optimal time will reduce safety risks and the overall cost. A significant percentage of National Roads annual expenditure will relate to the maintenance, protection, and renewal of existing National Roads.

Strategies to prioritise protection and renewal were successfully implemented for the existing motorway network, while parts of the network such as the National Secondary roads require further investment. TII will use asset management principles to manage National Roads assets safely, sustainably, efficiently, and effectively over their useful life.

5.2.3 Resilience & Climate Adaptation

There is a need to ensure the road network is resilient to the effects of climate change, identified as a strategic issue for the National Roads network and therefore a new portfolio theme in TII's scope of work.

TII is updating its 'Strategy for Adapting to Climate Change on Ireland's Light Rail and National Roads Network'. The strategy is examining the impacts of climatic events on surface conditions, groundwater resources and environmental measures as an integral part of the climate adaptation strategy.

TII is continually maintaining and renewing road pavements and road assets such as signage, crash barriers and noise barriers. Adaptation to climate change is included in drainage designs by strengthening bridges and raising of roads, allowing for future increases in rainfall intensities and volumes, preventing roads becoming impassable after heavy rainfall.

5.3 Mobility of People & Goods in Urban Areas

The National Roads network must facilitate both the movement of people and the movement of goods.

Project Ireland 2040's NSO4 relates to Sustainable Mobility, and the role of National Roads in a sustainable transport system is a key consideration. An essential function towards delivering this NSO is to connect people and places across the country, by various modes, on National Roads.

The National Roads network should also be fit for the transport of heavy vehicles, noting the high levels of wear and degradation of the carriageway under heavy loading; emissions originating from freight movement; and unique travel patterns.

5.3.1 Movement of People



The National Roads network should cater for the needs of all road users, including cyclists and pedestrians. 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.

An increase in the strategic provision of park and ride/park and share facilities at transport interchanges can be an effective means of expanding the catchment area of certain public transport services. Interventions of this nature present opportunities for more efficient use of road space and reduced environmental costs.

The delivery of prioritised bus lanes on busy national radial routes approaching urban centres may enhance the people carrying capacity of these roads and provide journey time reliability and service quality for passengers.

5.3.2 Movement of Goods



The National Roads network plays a very important role in the carriage of goods and services in urban areas, in particular to and from airports and ports. The Department of Transport is currently developing its ten-year strategy for the haulage sector; TII will implement actions arising for National Roads.

As outlined in NIFTI, a key issue for freight is congestion on the land transport network adjacent to strategic links such as the M50 and Dublin tunnel. 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.

Iarnród Éireann has identified potential routes suitable to rail, within an intermodal freight and logistics future, that will be developed over the life of Rail Freight 2040. TII is supportive of freight movement via other modes.

5.3.3 Demand and Traffic Management



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.

5.4 Enhanced Regional and Rural Connectivity

The enhanced regional and rural connectivity investment priority encapsulates the social and economic importance of the National Roads network, in supporting and balancing the regional cities, key settlements, and rural areas' prosperity and growth, towards achieving Project Ireland 2040 goals.

5.4.1 National Primary Network



The NPF, under NSO-2, highlights the need to improve accessibility to the South, North-West and North-East; and identifies sections of the National Roads network that are prioritised for improvement.

5.4.1.1 Inter Urban Connectivity

The NPF, under NSO-2, aims to reduce journey times between the five cities (Dublin, Cork, Galway, Limerick, and Waterford) and five centres of scale, Sligo, Letterkenny, Dundalk, Drogheda and Athlone. The NPF set a target for an average inter-urban speed of 90kph. Most of the inter-urban road travel on the existing motorway and dual carriageway network currently achieves or exceeds this target. On the existing motorway and dual carriageway network, the focus of investment will be on protection and renewal along with the provision of enhanced facilities for public transport on the approaches to cities.

TII analysis, using its National Transport Model, 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. These corridors are mainly National Primary roads as shown in Figure 5.2.

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.

5.4.1.2 Regional Connectivity

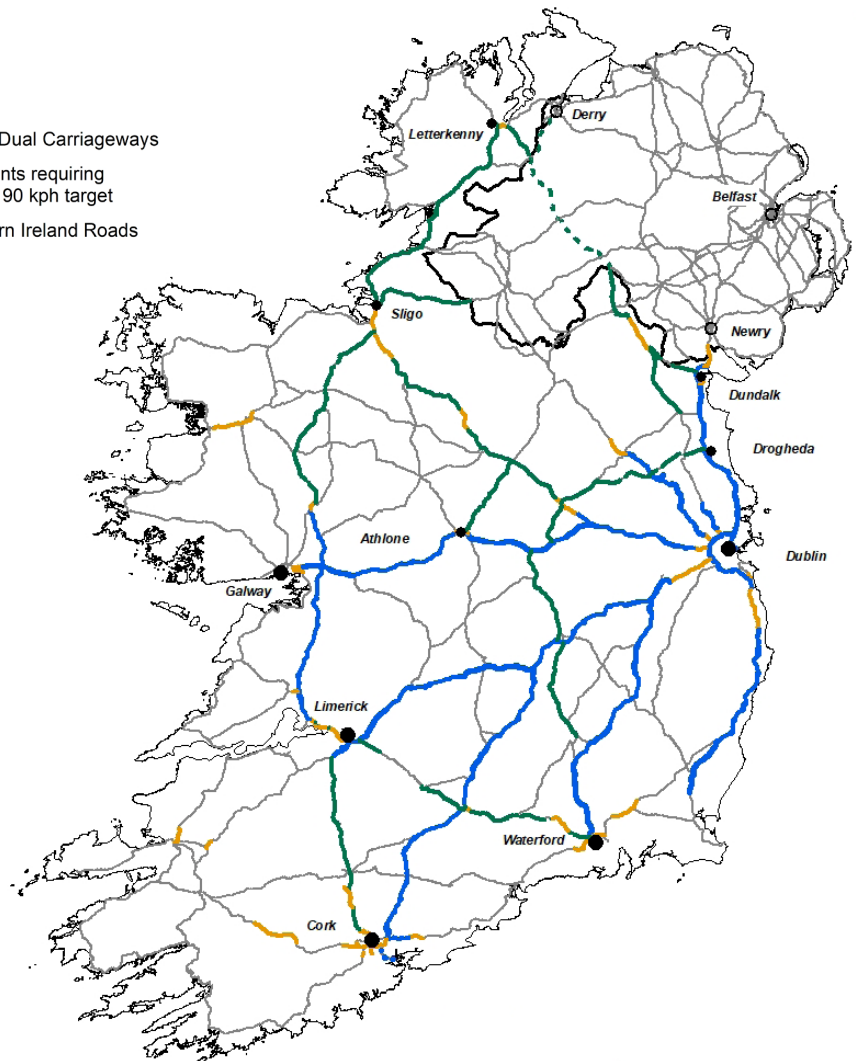
Both the NPF and NIFTI indicate the importance of maintaining and improving accessibility to the more peripheral areas of the state, for instance, the South and Northwest. The provision of a safe, efficient and reliable network under this classification is a priority; ensuring that the South, Northwest and Northeast regions, as defined by the NPF, have a high degree of accessibility to Dublin and other urban centres.

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 on these corridors, shown in Figure 5.2 would remove traffic from towns and support the Government's '*Town Centre First*' policy.

Figure 5.2 Interurban Connectivity

Legend

- Existing Motorways
- Existing National Roads Network Dual Carriageways
- Corridors connecting key settlements requiring intervention to support NPF/NIFTI 90 kph target
- National Roads Network & Northern Ireland Roads



Improved Road sections where significant infrastructure upgrades have taken place in recent times are shown in blue, while those in green are corridors where interventions would support the 90kph NPF target.

5.4.1.3 International Connectivity

The NPF under NSO 6 recognises that National Roads are an important element in ensuring high quality international connectivity to ports and airports. High quality international connectivity is particularly important for business and freight travel. Strengthening access routes to Ireland’s ports through investment to upgrade and enhance the road and rail transport network to improve journey times remains a government priority in the NDP.

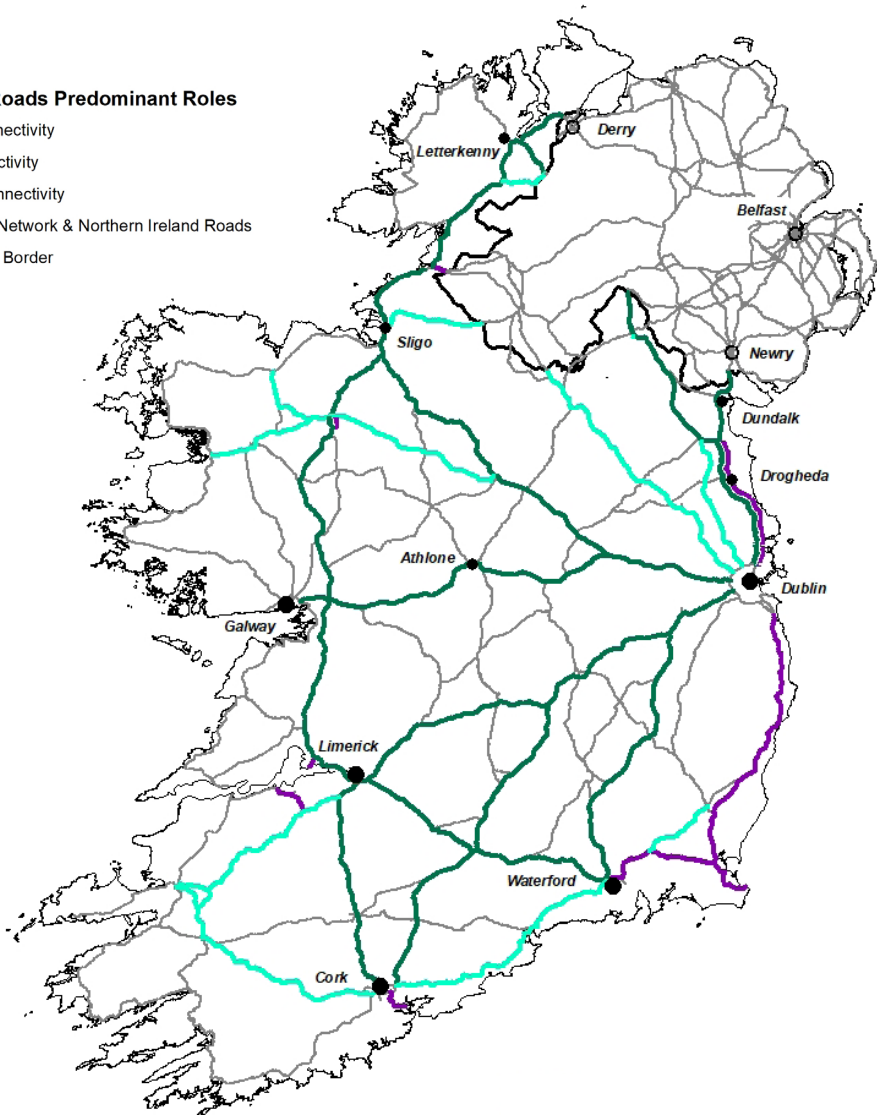
Two National Roads schemes, currently in planning, will improve access to the Tier 1 ports of Ringaskiddy and Shannon-Foynes. The construction of these links will complete the core Trans European Transport Network (TEN- T) road network in Ireland and are to be completed by 2030 in line with EU TEN-T regulations.

Aside from these projects, priority on the corridors shown in Figure 5.3 will be 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. It should be noted that all roads serve multiple functions.

Figure 5.3 Dominant function of National Primary Roads

Legend

- National Primary Roads Predominant Roles**
- Inter-urban Connectivity
 - Regional Connectivity
 - International Connectivity
 - National Roads Network & Northern Ireland Roads
 - Northern Ireland Border



5.4.2 National Secondary Network 

The National Secondary network must respond to a wide variety of needs, as it performs different functions in different locations. Certain National Secondary Roads provide inter-urban connectivity to the five cities and five regional centres, as shown in Figure 5.4. Other Secondary Roads form key transport links for surrounding areas and have an important function for the community.

Based on detailed analysis, conducted by TII, the National Secondary Road network has been categorised into three functions: Lifeline, Arterial and Collector, to guide investment:

5.4.2.1 Lifeline Roads

Lifeline National Secondary roads carry limited traffic flows but form key transport links for the surrounding communities. They are primarily located in rural settings and in areas of complex topography, and with very few alternative routes. This type of road serves a lifeline function for its individual transport users. Availability and climate resilience are priorities for lifeline roads.

5.4.2.2 Arterial Roads

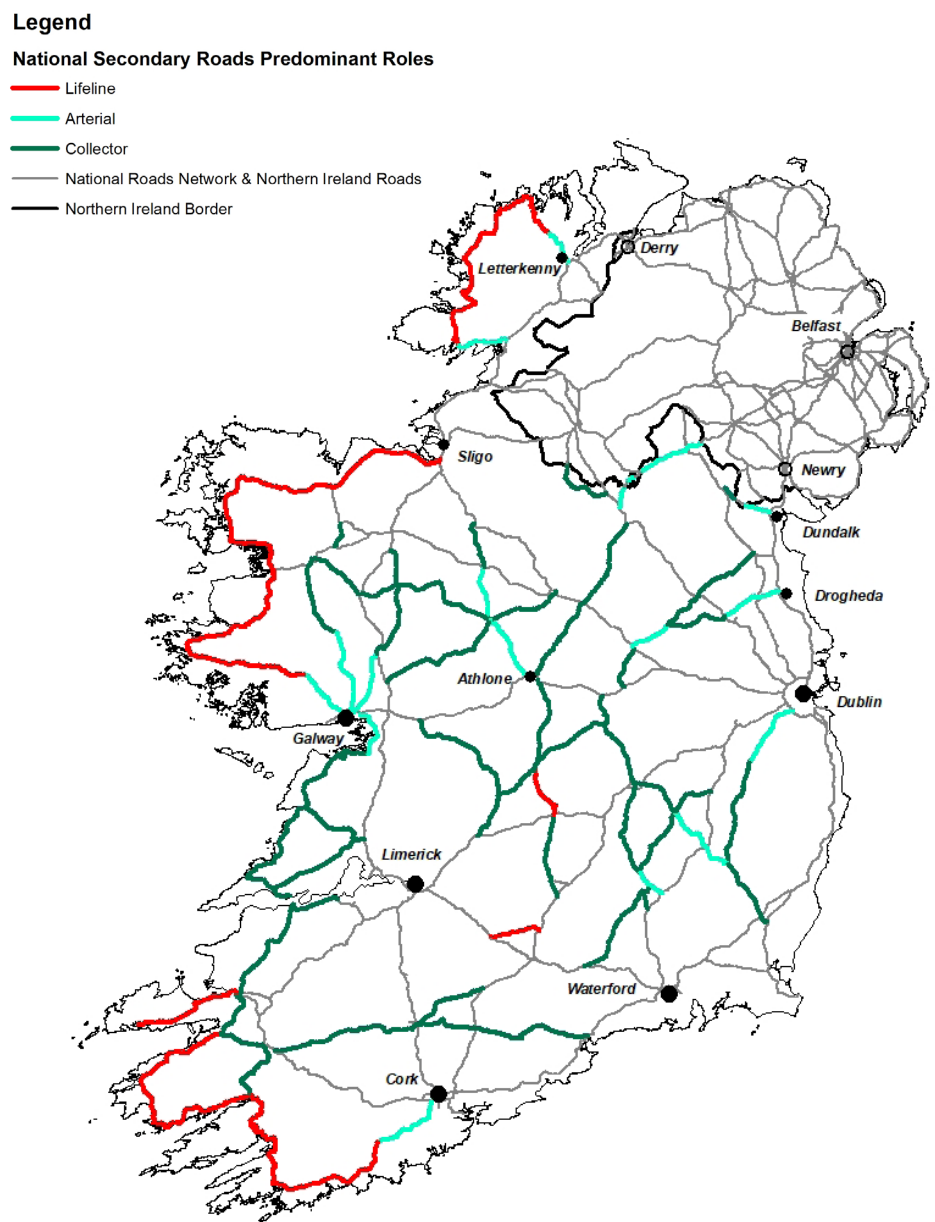
Arterial National Secondary Roads cater for high travel demand and are in close proximity to large urban centres. Arterial National Secondary Roads corridors have a similar role to certain National Primary corridors in terms of moving people and freight. Arterial roads subject to increased demand for movement of people and goods will likely require interventions.

5.4.2.3 Collector Roads

Collector National Secondary Roads cater for travel needs across much of the state. Collectors have some level of redundancy, meaning closures are only an inconvenience because alternative routes are available. Safety and route consistency is a priority for these roads.

Any interventions for National Secondary Roads will be selected through application of the NIFTI Modal and Intervention Hierarchies.

Figure 5.4 Dominant function of National Secondary Roads



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, for the purpose of:

- » Enabling Project Ireland 2040 (National Planning Framework and NDPs)
- » Supporting the realisation of several National Strategic Objectives (NSOs)
- » Aligning with NIFTI and other Government policy

This 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 commitment to collaboration, recognised throughout the strategy as a necessary means for the successful implementation of identified interventions and achievement of national targets.



6.1 NR2040 Commitments


The NR2040 Investment Priorities are reinforced by a series of TII commitments, further addressing the strategic issues facing the National Roads network in the coming years. Policy obligations, including NPF, NIFTI, the Road Safety Strategy, and internal TII analysis and plans inform these commitments.

The commitments outlined in Table 6.1 will influence the scope of projects on the National Roads network developed by local authorities or other Agencies.

Table 6.1 NR2040 Commitments

Addressing Issues	NR2040 Commitments
 <p data-bbox="135 1803 343 1915">Future Demographic Growth Trends</p>	<p data-bbox="387 1447 1380 1518">TII will continue to analyse possible growth in travel demand, reflecting Project Ireland 2040 population targets.</p> <p data-bbox="387 1547 1492 1619">TII will continue to develop and plan for multiple future demand scenarios that factor in possible behavioural and technological change.</p> <p data-bbox="387 1648 1452 1720">TII will ensure that the potential for induced travel demand will be estimated for all major projects.</p> <p data-bbox="387 1749 1428 2004">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.</p> <p data-bbox="387 2033 1404 2101">TII will explore the potential of road-user charging measures through the Better Road User Charging Evaluation (BRUCE) study.</p>

Addressing Issues	NR2040 Commitments
 <p>Decarbonisation</p>	<p>To reduce emissions, TII will prioritise traffic management investment in freight corridors and where congestion results in high levels of GHG emissions.</p> <p>National Roads projects will be appraised in the context of compliance with Ireland’s climate change targets, in line with each of the governments Climate Action Plans, 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.</p> <p>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> <p>TII will reduce its emissions and environmental impacts from maintenance and operations of existing National Roads infrastructure.</p> <p>TII will reduce carbon emissions associated with the development, construction, and operation of new infrastructure.</p> <p>TII will support the Department of Transport and its Zero Emissions Vehicles (ZEV) office to increase the provision of electric vehicle charging infrastructure nationwide.</p> <p>TII will continue to participate in wider efforts to decarbonise road transport through the provision of appropriate infrastructure, technology, and support of policy aimed at changing behaviours.</p>
 <p>Climate Adaptation & Resilience</p>	<p>TII will enhance the resilience of National Roads, in particular sections of the rural National Secondary road network, that provide lifeline links to individuals and communities.</p> <p>TII will implement its Climate Adaptation Strategy (2022).</p>

Addressing Issues	NR2040 Commitments
 <p data-bbox="142 741 331 779">Sustainability</p>	<p data-bbox="389 237 1469 387">TII will work with government agencies and stakeholders to support each Climate Action Plan and government’s national climate objective to “transition to a climate resilient, biodiversity rich, environmentally sustainable and climate neutral economy by 2050.”</p> <p data-bbox="389 412 1374 483">TII will incorporate economic, social and environmental sustainability objectives and goals in all decisions, policies, projects and processes.</p> <p data-bbox="389 508 1469 616">TII will promote inter-modal solutions that maximise overall transport efficiency in terms of infrastructure and resource use. For example, facilitating safe active travel along National Roads corridors that connect with rail and bus stations.</p> <p data-bbox="389 640 1358 748">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.</p> <p data-bbox="389 772 1437 844">In line with NIFTI, TII will prioritise online improvements and avoid delivering high levels of excess capacity.</p> <p data-bbox="389 869 1422 940">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.</p> <p data-bbox="389 965 1461 1072">TII will continue to support TII’s Sustainability Implementation Plan (and subsequent revisions) to integrate all aspects of sustainability in to TII’s core activities.</p>
 <p data-bbox="151 1395 325 1433">Road safety</p>	<p data-bbox="389 1084 1469 1191">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.</p> <p data-bbox="389 1216 1382 1323">TII will prioritise delivery of high quality, suitable infrastructure to create forgiving roadsides, self-explaining roads and a safe environment for vulnerable road users.</p> <p data-bbox="389 1348 1445 1420">In line with NIFTI, TII will meet asset protection and renewal requirements to help ensure the safety of the network.</p> <p data-bbox="389 1444 1461 1552">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>

Addressing Issues	NR2040 Commitments
 <p data-bbox="140 607 338 680">Movement of People</p>	<p data-bbox="387 239 1420 349">TII will support Connecting Ireland and prioritisation measures such as dedicated bus lanes where such prioritisation results in greater transport efficiency.</p> <p data-bbox="387 376 1484 486">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 high-quality active travel alternatives for car users.</p> <p data-bbox="387 512 1433 622">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.</p> <p data-bbox="387 649 1484 759">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.</p> <p data-bbox="387 786 1447 860">Where bypasses are built, urban realm improvements will be required in the bypassed town to enable more sustainable mobility.</p>
 <p data-bbox="108 1357 370 1431">Movement of Goods & Services</p>	<p data-bbox="387 875 1473 1095">In line with the NPF and NIFTI, TII will work to achieve average inter-urban speeds of 90km/h on National Roads 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.</p> <p data-bbox="387 1122 1460 1196">TII will work towards improving regional and rural accessibility in line with the NPF and NIFTI.</p> <p data-bbox="387 1223 1433 1296">In partnership with other agencies, TII will work to protect access to ports and airports and improve access where required.</p> <p data-bbox="387 1323 1422 1397">TII will provide/consider prioritisation measures such as dedicated freight lanes where such prioritisation results in greater transport efficiency.</p> <p data-bbox="387 1424 1331 1498">TII supports the development of rail freight and multi-modal freight distribution centres on or near National Roads.</p> <p data-bbox="387 1525 1477 1711">TII recognises the need to provide quality services and secure parking areas for HGV drivers as required by both the TEN-T Regulation and ITS Directive. An update to TII’s Service Area Policy, which outlines the current requirement for motorway service areas on the motorway and dual carriageway network, will be published in 2023.</p>
 <p data-bbox="103 1883 370 1928">Urban Congestion</p>	<p data-bbox="387 1722 1434 1796">TII will promote traffic management interventions that help optimise traffic movement on urban National Roads.</p> <p data-bbox="387 1823 1461 1852">TII will support the use of public transport on or adjacent to urban National Roads.</p> <p data-bbox="387 1879 1299 1953">TII will support the provision of segregated or offline active travel infrastructure adjacent to National Roads.</p>

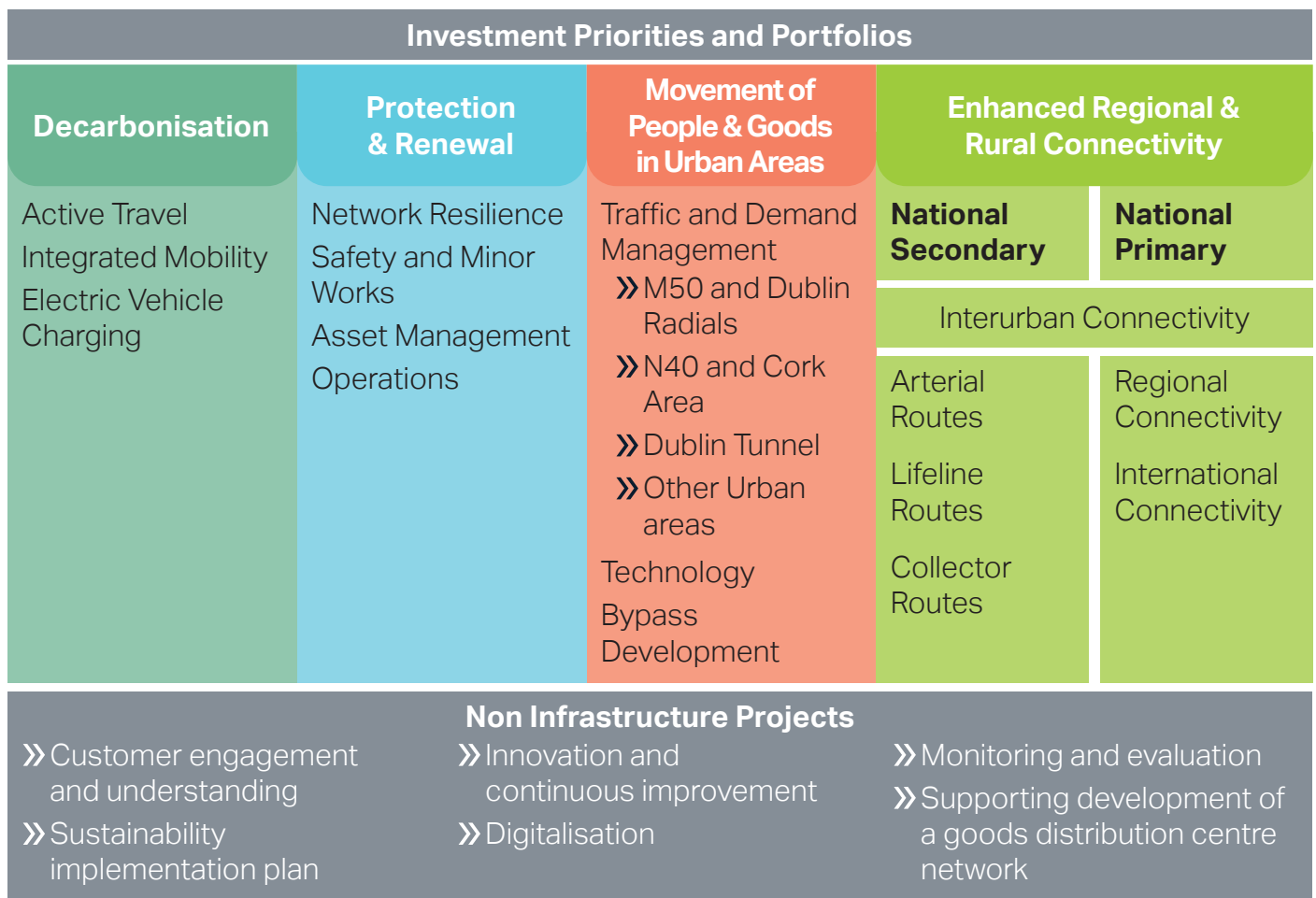
6.2 NR2040 Implementation Structure

The NR2040 implementation structure consists of several portfolios under the four NIFTI Investment Priorities, plus a portfolio of non-infrastructure programmes. This assists in categorising TII expenditure against Government priorities.

The **Decarbonisation** Investment Priority is the National Roads network’s greatest challenge. The Investment Priority incorporates an Integrated Mobility programme; an Active Travel programme; and Electric Vehicle Charging infrastructure development. The **Protection and Renewal** Investment Priority represents the largest area of expenditure on National Roads. It will continue to deliver Safety and Minor Works portfolios; Network Resilience and Asset Management of infrastructure; and Network Operations. **Movement of People and Goods in Urban Areas** will include programmes and projects encompassing traffic and demand management measures, technology solutions and infrastructure interventions in and around cities and towns. The **Enhanced Regional and Rural Connectivity** Investment Priority focuses on enhancing Interurban Connectivity, Regional Connectivity and International Connectivity. Within this portfolio, there are sub-portfolios for National Primary and National Secondary Roads.

In addition, TII recognises necessary supporting activities for investment that will address the changes to processes, technologies, and organisational needs. It will respond to NIFTI’s request for long term planning and evolution of practices in the care and development of road infrastructure.

Figure 6.1 NR2040 Implementation Structure



6.3 Project Development Process

TII, through NR2040, will align with the NIFTI Intervention Hierarchy and seek to address transport challenges through the use of road space before considering provision of new infrastructure.

NR2040 is a policy led strategy, not a “predict and provide” (demand-led) strategy

When developing a project on National Roads, the relevant Local Authority, third party and / or TII department will need to show that the proposed investment aligns with NIFTI, as set out in the DoT Common Appraisal Framework (CAF) and/or associated appraisal guidance documents as published by the DoT, and address how to work towards achieving the NIFTI Investment Priorities.

NR2040 provides interpretation and further detail to streamline the project development process, by indicating:

- » How the project objectives align with NIFTI investment priorities (reviewed in chapter 2)
- » Specific strategic issue(s) facing National Roads that the project resolves (reviewed in chapter 3)
- » How the project objectives align with NR2040 Vision and Objectives (reviewed in chapter 4)
- » How the project aligns with NR2040 Investment Priorities and the spatial context through guidance on the types of intervention for different regions and types of National Roads (reviewed in chapter 5)
- » How the project aligns to one or more of TII’s commitments (reviewed in section 6.1 and Annex B)
- » Identification of the NR2040 portfolio and programme that would accommodate the project (reviewed in section 6.2)

This process is consistent with existing TII Project Appraisal Guidelines (PAG), DoT CAF and DoT NIFTI investment priorities and hierarchies. It also aligns with the DEPR’s Public Spending Code (PSC) requirements to demonstrate the strategic rationale for significant, publicly funded investments.

6.4 Environmental Assessments

As part of the preparation of NR2040, a number of environmental assessments have been undertaken in tandem with the development of the Strategy. Assessments include a Strategic Environmental Assessment (SEA), an Appropriate Assessment (AA) and a Strategic Flood Risk Assessment (SFRA). The assessments identify, at a strategic level, potential effects on the environment as a result of the strategy commitments/actions. These assessments have helped inform the high-level of protection of the environment with a view to promoting sustainable development.

NR2040 sits within the overall hierarchy of policy documents. Any future projects requiring planning consent arising from NR2040 are subject to the relevant project level assessment and the requirements of environmental directives including but not limited to: SEA Directive (2001/42/EC), EIA Directive (2011/92/EU as amended by 2014/52/EU) and Habitats Directive 92/43/EEC, Water Framework Directive (2000/60/EC) and Floods Directive (2007/60/EC) and associated national legislation, as appropriate.

This strategy should be read in conjunction with the following environmental assessment reports: SEA Statement, Natura Impact Statement and SFRA and the mitigation included within them.

A summary of how the SEA process, including consultation from environmental authorities, has

influenced the strategy is included in the SEA Statement published in conjunction to the Strategy.

6.5 Collaboration

National Roads have a multi-modal integrated future that must be delivered by TII in collaboration with other government agencies and transport stakeholders. Early collaboration with third parties is vital to deliver on current and future policy.

Some of TII's key collaborators are: Local Authorities; Department of Transport; Road Safety Authority; National Transport Authority; Department of the Environment, Climate and Communications and other government departments (e.g. Department of Housing, Local Government and Heritage).

Considering the new types of projects envisioned, TII recognises the need for a wide variety of skills and multi-disciplinary teams to ensure successful development and achievement of goals and objectives. A strong supply chain of transport and land use planners, engineers, contractors, technical advisors, public communication and engagement specialists, suppliers and operators is of vital importance, with an increasing emphasis on technology suppliers.

In addition, it is important that future transport investment is coordinated and integrated with other sectors, including land-use planning and policy to support compact sustainable development of our cities and towns, and supports regional and rural development. Cooperation with state agencies will continue to allow National Roads to be used for services of national importance, such as access to international ports.

The success of both 'Movement of People and Goods in Urban Areas' and 'Decarbonisation' portfolios is particularly dependent on a strong collaboration with a range of stakeholders.

7. MONITORING FRAMEWORK

Monitoring of NR2040 will be led by TII and undertaken through three different aspects:

- » Project-level assessments and appraisals – through existing methods of monitoring carried out by TII where the development, and appraisal process aligns with the TII PAG, DoT CAF, and DoT NIFTI investment priorities and hierarchies. Project-level assessments should highlight existing issues and those that may arise in the future, as well as their underlying causes. This may include existing or potential future problems regarding safety, travel time, travel time reliability, accessibility and social inclusion, severance, connectivity, employment, and socio-economic factors. This will ensure that programmes and projects entering the implementation portfolios are aligned with NR2040. TII in its role of approving authority must ensure compliance with the PSC's requirements on monitoring during delivery and evaluation post-delivery.
- » Annual National Roads Indicators reports – Yearly key performance indicators and updates on the use of the National Roads network will be compiled and reported. Indicators include information on the road network, economy, road condition, safety, accessibility, and the environment.
- » Environmental monitoring of the Strategy – The SEA directive requires the monitoring of the likely significant environmental effects of the implementation of plans or programmes. The SEA Monitoring programme developed for NR2040 is presented in the SEA Statement. The monitoring programme identifies targets and indicators, the source of information (including the lead agency or any stakeholders involved in data collection). The frequency of monitoring is also identified.



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