Chapter 2 Need for the Proposed Road Development

2.1 Introduction

This chapter of the EIAR details the need for the proposed N5 Ballaghaderreen to Scramoge Road Development based on planning policy, the deficiencies in the existing road network and identified future needs of the N5 corridor. This introductory section provides an overview of the key issues, which are then set out in detail in the following sections. Objectives are then set out for the project and the anticipated outcomes for the proposed development are considered against these objectives.

2.1.1 Policy Background

The need for the N5 to be upgraded to be a high quality road is clearly set out in European, National, Regional and Local Policy. Under Regulation (EU) 1315/2013 the N5 forms part of the EU TEN-T Comprehensive Network, connecting County Mayo and the Western Region to the European Core Network and onward to Dublin and the rest of Europe, and must meet the defined criteria for a High Quality Road.

2.1.2 Existing Road Network

The N5 national primary route is 134km in length, connecting Westport in County Mayo to Longford Town, where it joins the N4 which continues to Dublin. The N5 serves a large geographical area and provides a strategic function in terms of connecting the Western Region of Ireland to the Midlands and the East of the country, and providing access to Ireland West Airport Knock. Previous and ongoing investment has enabled 72% of the length of the N5 to be brought up to modern standards appropriate for a high quality road, with the outstanding section between the eastern end of the Ballaghaderreen Bypass and Scramoge remaining unimproved. This outstanding section is the focus of the proposed road development, which when delivered will maximise the value of all of the previous investment in the N4-N5 corridor, providing a high quality road from Westport to Dublin.

2.1.3 Character of the Existing N5 Ballaghaderreen to Scramoge

The 35km section of the N5 between Ballaghaderreen and Scramoge can be characterised by the following:

- The existing cross section is significantly sub-standard. Approximately 47% of the road has a paved width less than 7.3m and only 14% meets the Type 1 Single carriageway width requirement of a 12.3m paved width. In addition, the required verge widths are rarely achieved;
- Horizontal and vertical alignment are also substandard and do not complement each other (e.g. long straights with sharp crests in the vertical alignment);
- A combined total of only 10% of this section of the N5 meets the requirements for safe overtaking opportunities, which is significantly below the 30% requirement for National Primary Routes;
- The national primary road passes through the centres of Frenchpark, Bellanagare, Tulsk and Strokestown, causing delay to through traffic and safety concerns within the town/village centres;
- Outside of the speed restricted areas of the above settlements there are a total of 546 junctions including 74 public road junctions, 262 field accesses and 210 dwelling/commercial/community accesses, all leading to reduced traffic safety and decreased traffic capacity along the length of this section of the national road network; and

- The absence of hard shoulders over much of the length makes the road dangerous and most unattractive for pedestrians and cyclists. The road is used extensively by local agricultural traffic, which in the absence of hard shoulders is unable to pull over to enable faster traffic to overtake, delaying through traffic due to the limited overtaking opportunities. The narrow verges combined with the sub-standard horizontal and vertical alignment reduce the visibility such that approximately 40% of the existing road has sub-standard forward visibility.

2.1.4 Traffic Conditions, Journey Times, Level of Service and Economic Impacts

Traffic volumes vary at different sections between 4,600-6,800 AADT. Journey times are poor and unpredictable with average speeds of just 66km/hr, well below the TII minimum target of 80km/hr for inter-urban journeys on national routes. There are almost no passing opportunities leading to platoon flow behind slow moving vehicles, such that all traffic experiences delay equating to Level of Service F, well below the TII minimum target for national roads of Level of Service D. This poor level of service results in a direct economic cost to those using the road, but also has a wider negative economic impact on the western region due to the increased perception of remoteness that discourages business investment and makes it difficult to attract key staff to support expansion of existing businesses.

2.1.5 Safety Issues

The section of the N5 between Ballaghaderreen and Scramoge has a collision rate 50% above the national average. These accidents are not specific to particular blackspots, but are spread, with approximately half the length experiencing a collision rate twice above the national average, and two thirds above the national average. There is a high proportion of single vehicle collisions with roadside hazards, symptomatic of the narrow cross section, poor alignment and lack of hazard free roadside verges. In accordance with NRA HD 15/12 the sections with a collision rate twice above the national average are priority areas that require rectification.

2.1.6 Environmental Issues

The existing N5 brings inter-urban heavy goods traffic through a sensitive environment, impacting on extensive archaeological and cultural heritage features, the hydrology and ecology of numerous European and nationally protected sites, and severing the settlements of Frenchpark, Bellanagare, Tulsk and Strokestown. Over 45 Recorded monuments are located within 100m of the existing N5 roadway, which passes through the heart of the Rathcroghan archaeological complex, part of the Royal Sites of Ireland that has been submitted by the Irish Government for consideration as a UNESCO World Heritage Site. Drainage from the N5 currently enters the environment untreated and unattenuated in close proximity to Bellanagare Bog SAC, SPA & pNHA, Cloonshanville Bog SAC & pNHA, Ardakillin Lough pNHA, Ardagh Bog pNHA and Corbally Turlough pNHA.

2.2 Policy Background

2.2.1 General

The need for the N5 Ballaghaderreen to Scramoge Road Project has been identified and is consistent with the following European, National, Regional and Local planning policy documents:

European Policy Context

- The Trans-European Transport Network (TEN-T)

National Policy Context

- The National Spatial Strategy 2002 – 2020;
- National Development Plan 2007 – 2013;
- Smarter Travel: A Sustainable Transport Future 2009 – 2020;
- Investing In Our Transport Future: Strategic Investment Framework for Land Transport;
- Building on Recovery - Infrastructure and Capital Investment 2016 – 2021;
- Road Safety Authority Road Safety Strategy 2013 – 2020; and
- A Programme for a Partnership Government – May 2016.

Regional Policy Context

- Regional Planning Guidelines for the West Region, Northern & Western Regional Assembly (formally West Regional Authority) 2010 – 2022;
- Western Development Commission Policies.

Local Policy Context

- Roscommon County Development Plan 2014 – 2020.

Transport Infrastructure Ireland's Studies

- National Roads Needs Study.

2.2.2 European Policy Context

2.2.2.1 Trans European Transport Network

On the 11th of December 2013 Regulation (EU) No. 1315/2013 came into effect. This defines and provides legal guidance for the provision of the Trans-European Transport Network (TEN-T). The TEN-T policy is the infrastructure policy in Europe in relation to transport.

The TEN-T consists of two planning layers, namely the Core and Comprehensive transport networks. The Core network will form the backbone for transportation in Europe's Single Market. Its implementation will be progressed by the setting up of 9 major transport corridors that will bring together Member States and stakeholders. By 2030 it will remove bottlenecks, upgrade infrastructure and streamline cross border transport operations for passengers and businesses throughout the EU.

The new TEN-T Core network will be supported by a Comprehensive network of routes, feeding into the Core network at regional and national level. The target for completion of the Comprehensive network is 2050. The aim is to ensure that progressively, throughout the entire EU, the TEN-T will contribute to enhancing internal markets, strengthening territorial, economic and social cohesion and reducing greenhouse gas emissions.

The N5 national primary route forms part of the TEN-T comprehensive road network. Plate 2.1 overleaf shows the extent of both the Core and Comprehensive transport networks in relation to roads, ports and airports within Ireland.

Plate 2.1 TEN-T Core and Comprehensive Networks Ireland[1]

2.2.2.2 TEN-T Policy in Relation to High Quality Roads

Regulation (EU) No. 1315/2013 sets out the requirements for high quality roads that shall form part of the TEN-T road network, both Core and Comprehensive, and states the following under Article 17(1):

Road transport infrastructure shall comprise, in particular:

(a) High quality roads, including:

(i) Bridges;

(ii) Tunnels;

[1] Map produced by ROD-AECOM based on data extracted from EU Regulations 1315/2013 and 1316/2103.

(iii) Junctions;

(iv) Crossings;

(v) Interchanges;

(vi) Hardshoulders;

Article 17(2) states:

"The high-quality roads referred to in point (a) of paragraph 1 are those which play an important role in long distance freight and passenger traffic, integrate the main urban and economic centres, interconnect with other transport modes and link mountainous, remote, landlocked and peripheral NUTS 2 regions to central regions of the Union. Those roads shall be adequately maintained to allow safe and secure traffic."

Article 17(3) states:

"High-quality roads shall be specially designed and built for motor traffic, and shall be motorways, express roads or conventional strategic roads.

a) A motorway is a road specially designed and built for motor traffic, which does not serve properties bordering on it and which:

(i) is provided, except at special points or temporarily, with separate carriageways for the two directions of traffic, separated from each other by a dividing strip not intended for traffic or, exceptionally, by other means;

(ii) does not cross at grade with any road, railway or tramway track, bicycle path or footpath; and

(iii) is specially sign-posted as a motorway.

b) An express road is a road designed for motor traffic, which is accessible primarily from interchanges or controlled junctions and which:

(i) prohibits stopping and parking on the running carriageway; and

(ii) does not cross at grade with any railway or tramway track.

c) A conventional strategic road is a road which is not a motorway or express road but which is still a high-quality road."

The provision of a Type 1 Single Carriageway therefore complies with the provision of a conventional strategic road, incorporating hardshoulders, crossings, junctions, tunnels and bridges. However to meet the TEN-T requirements it must be "*Specially designed and built for motor traffic*" and cannot follow a legacy alignment that is unsuitable for "*long distance freight and passenger traffic*". The proposed development aims to bring the section of the N5 under consideration up to a "*High Quality*" road standard and therefore to be in compliance with the TEN-T requirements for a strategic road forming part of the Comprehensive Road Network.

2.2.3 National Policy Context

2.2.3.1 National Spatial Strategy 2002 – 2020

This National Spatial Strategy for Ireland (NSS) is a twenty year planning framework designed to achieve a better balance of social, economic, physical development and population growth between regions. Its focus is on people, on places and on building communities. Through closer matching of where people live with where they work, different parts of Ireland will for the future be able to sustain:

- A better quality of life for people;

- A strong, competitive economic position; and
- An environment of the highest quality.

County Roscommon is located in the West Region of the NSS which also covers the counties of Galway and Mayo as illustrated in Plate 2.2. The N5 National Primary Road, which is identified as a strategic radial corridor in the NSS, provides links between the western and north-western gateways and hubs and those located in the midlands and east of the country. The proposed road development aims to significantly improve the quality, safety and reliability of this strategic radial corridor in compliance with the objectives of the NSS.

The towns of Castlebar and Ballina form a linked Hub within the Western Region. These towns contain complementary functions and capabilities that point towards a capacity to energise wider areas through integrated and co-ordinated development. Plate 2.3 shows the Gateways and Hubs identified in the NSS.

The NSS states that Castlebar and Ballina, as a Linked Hub, will:

*"...*perform *important roles within the national structures at the regional and county level. Critical factors will include improvements in regional accessibility through advanced communications infrastructure, by road and public transport and through the regional airport in Knock."*

It also states that:

"Linking the Midlands Gateway with Castlebar-Ballina through up-graded road, public transport and communications links also has the potential to benefit a number of other towns, including Roscommon, Castlerea, Ballyhaunis and Claremorris."

Plate 2.4 shows the strategic radial and linking corridors contained in the NSS and highlights the need to improve the connection between the Linked-Hub of Castlebar-Ballina and the Midlands and Dublin Gateways.

While the government has commenced the process of reviewing and replacing the NSS with a National Planning Framework this work is ongoing and in the meantime the current National Spatial Strategy 2002-2020 remains applicable. The proposed road development is supported by the NSS in terms of improving connectivity between key economic centres.

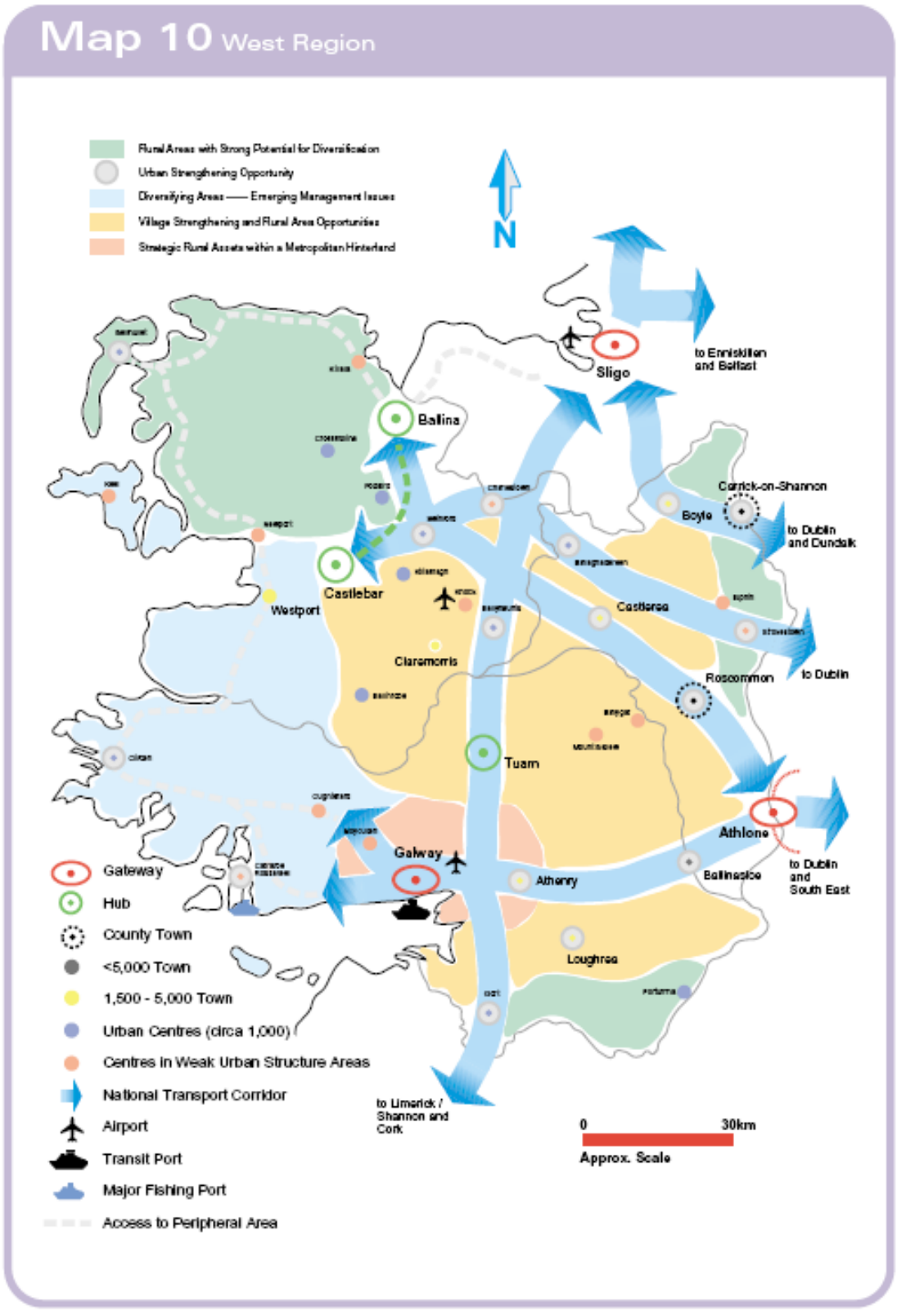

Plate 2.2 National Spatial Strategy West Region

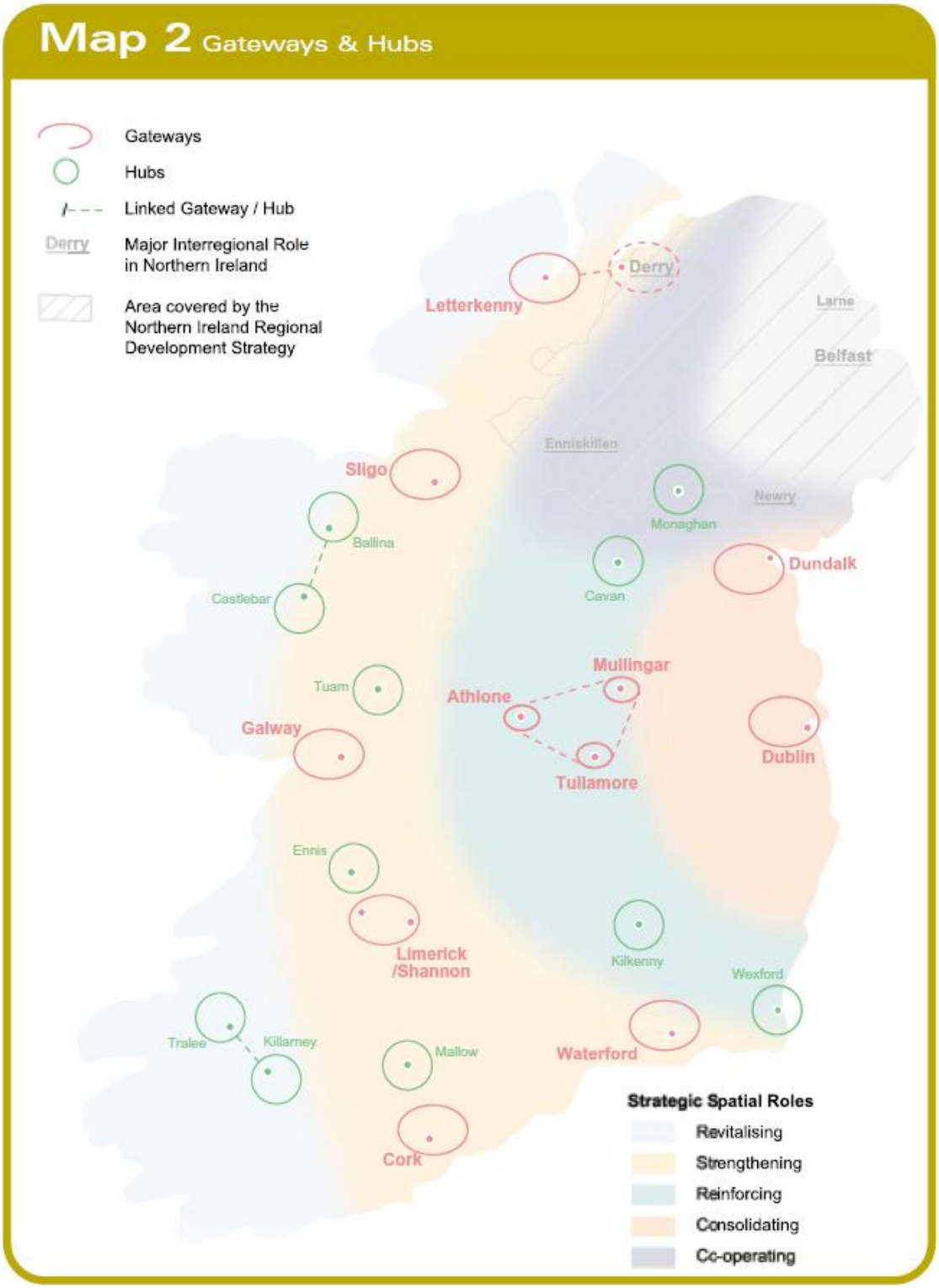

Plate 2.3 National Spatial Strategy Gateways & Hubs

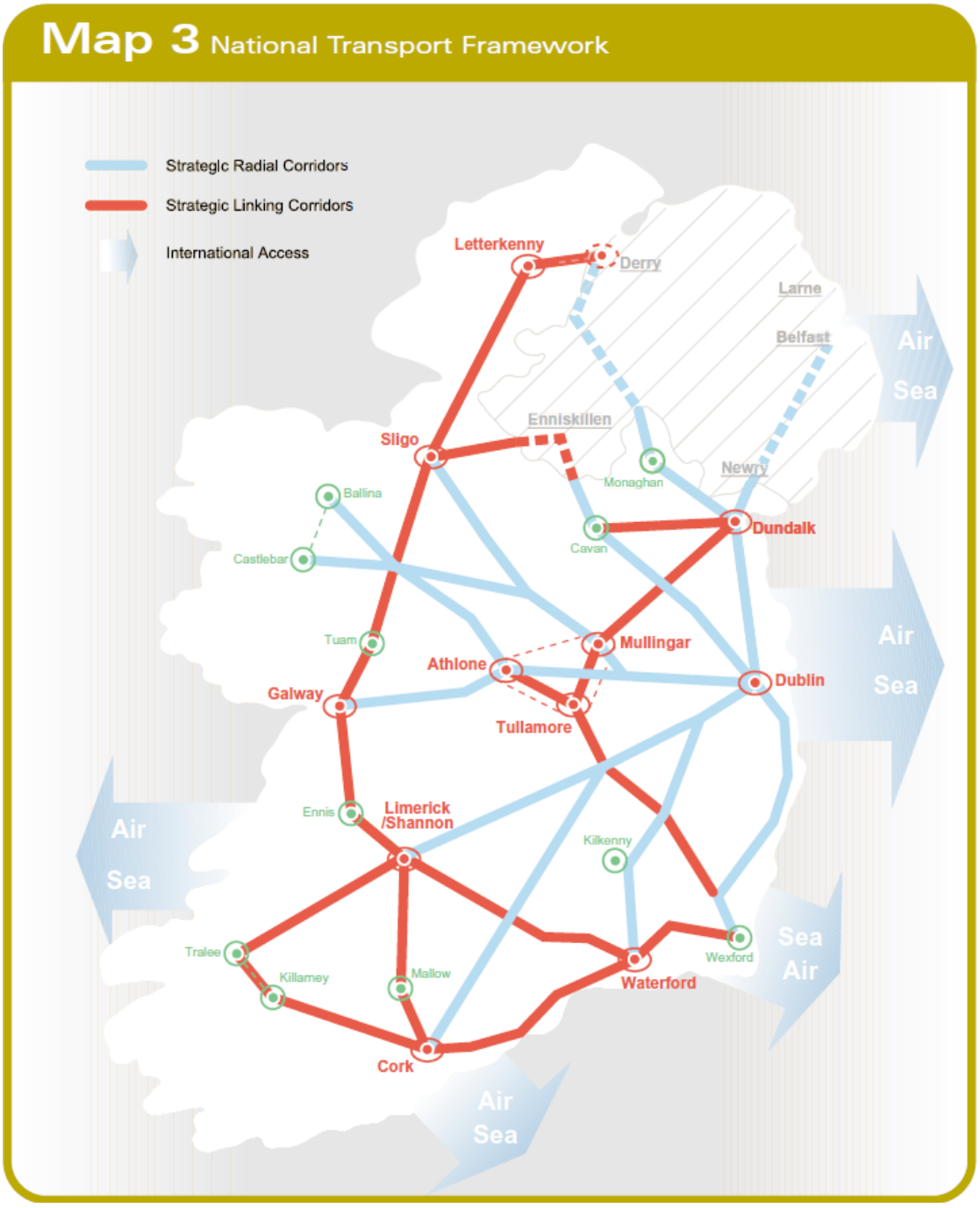

Plate 2.4 National Spatial Strategy National Transport Framework

2.2.3.2 Ireland 2040 Our Plan. Draft National Planning Framework (NPF)

The draft National Planning Framework (NPF), published on 27 September 2017, states "*The National Planning Framework -"Ireland 2040 – Our Plan" – will set a new strategic planning and development context for Ireland and all of its regions in the period between now and 2040, setting a high-level framework for the co-ordination of a range of national, regional and local authority policies and activities, planning and investment, both public and private*."

The NPF sets out a vision and a set of National Policy Objectives (NPO), and when combined with governance arrangements and aligned with capital investment,

collectively, will form an overall national strategy that will deliver desired National Strategic Outcomes (NSO).

One of the four principle elements of the NPF Strategy is "Our Regions and Rural Fabric". In this regard, the NPF identifies two principal variables that need to be addressed to prevent the continued unsustainable growth of Dublin and surrounding counties while inhibiting growth in more peripheral areas of Ireland including the north-west:

- Scale of concentration of activity, and
- Relative distance, or ease of accessibility, to centres of scale.

In this regard, NPO 2c states "*Accessibility to the north-west of Ireland and between centres of scale separate from Dublin will be improved, focused on cities and larger regionally distributed centres and on key east-west and north-south routes*".

The draft NPF proposes ten National Strategic Outcomes and describes how the National Investment Plan will support these. In terms of the proposed road development, the most relevant NSO is "*Enhancing Regional Accessibility*". In this regard, the objective includes the following in relation to Inter-Urban Roads:

1. Maintaining the strategic capacity and safety of the national roads network including planning for future capacity enhancements; and
2. Improving average journey times targeting an average interurban speed of 90kph.

The proposed road development is consistent with the draft national Planning Framework. The proposed road development provides for the upgrade of the last remaining unimproved section of the N5 National Primary Route (and part of the EU TEN-T comprehensive road network) which serves the west and north-west of Ireland including large settlements in Mayo. It will provide for average interurban speed of 90kph.

2.2.3.3 National Development Plan 2007 – 2013

In January 2007, the then Government published Ireland National Development Plan 2007 – 2013 (NDP). The NDP sought to achieve the objectives set out in relation to National Roads in the National Spatial Strategy. Among the General Goals of the NDP are:

- Decisively tackle structural infrastructure deficits that continue to impact on competitiveness, regional development and general quality of life and to meet the demands of the increasing population; and
- Integrate regional development within the National Spatial Strategy framework of Gateway cities and Hub towns to achieve the goals of economic growth in the regions and provide for major investment in the rural economy;

The NDP also states the following:

"The Hubs identified in the NSS are also generally located on key transport corridors between the Gateways and will therefore benefit from ongoing investments under the NDP. To drive the process of strengthening the Hubs, it will be vital that national investment is partnered with local vision and leadership and the attraction of private investment. For example, good local planning added to urban renewal initiatives have transformed the central areas of many Hubs, encouraging significant and subsequent private investment in retailing and commercial activities".

The NDP includes the N5 as part of its development strategy for National Primary Roads. It requires that major improvements be carried along the N5 corridor between Westport and Longford, identified as a Strategic Corridor. As such, the NDP includes for an improvement of the N5 National Primary network between Ballaghaderreen and Scramoge, which the proposed development seeks to deliver.

While the NDP has been formally withdrawn as a result of the need to review the budgetary commitments, it remains the most current assessment of long term objectives for infrastructure investment, albeit to an amended timeline. (Note Ireland 2040 Our Plan Draft National Planning Framework (NPF) has been published for consultation but has not yet been adopted.)

2.2.3.4 Smarter Travel – A Sustainable Transport Future

Smarter Travel, A Sustainable Transport Future, is a sustainable transport policy for Ireland covering the period 2009 to 2020. Delivering this policy is a key objective of Government because transport and travel trends are currently unsustainable.

Despite investment in road infrastructure, congestion will get worse, transport emissions will continue to grow, economic competitiveness will suffer and quality of life will decline unless more sustainable transport policies are adopted. This document outlines the Government's vision for sustainability in transport by setting down key goals, which are to:

- Improve quality of life and accessibility to transport for all and, in particular, for people with reduced mobility and those who may experience isolation due to lack of transport;
- Improve economic competitiveness through maximising the efficiency of the transport system and alleviating congestion and infrastructural bottlenecks;
- Minimising the negative impacts of transport on the local and global environment through reducing localised air pollutants and greenhouse gas emissions;
- Reduce overall travel demand and commuting distances travelled by the private car; and
- Improve security of energy supply by reducing dependency on imported fossil fuels.

In relation to roads, the policy proposed is to retain investment in roads that will remove bottlenecks, ease congestion and pressure in towns and villages, and provide the necessary infrastructure links to support the National Spatial Strategy. This is consistent with prioritised network improvements along the National Primary and Secondary Road Networks.

For bus transport providers, including the CIE Group and private operators, quality roads are an essential requirement. Investment in the road network is therefore a key ingredient in improved public transport in Ireland. Improved public transport is also a key priority under the Government's Strategic Investment Framework for Land Transport and the Infrastructure and Capital Investment Plan 2016 – 2021.

2.2.3.5 Investing in Our Transport Future – Strategic Investment Framework for Land Transport

The Strategic Investment Framework for Land Transport (SIFLT) published by the Department of Transport, Tourism and Sport (DTTaS) outlines the key principles against which national and regional, comprehensive and single mode based plans and programmes will be drawn up and assessed. While the framework does not set

out a list of projects to be prioritised the following three priorities are noted in terms of investment:

- Priority 1 – Achieve steady state maintenance;
- Priority 2 – Address urban congestion; and
- Priority 3 – Maximise the value of the road network.

In terms of Priority 3, the report states that "*the value of the road network will be maximised through targeted investments that:*

- *Improve connections to key seaports and airports;*
- *In the case of roads provide access to poorly served regions, for large scale employment proposals, to complete missing links and to address critical safety issues; and*
- *Support identified national and regional spatial planning priorities"*

The proposed road development will support the objectives of the SIFLT by improving connectivity to and within the poorly served West Region as identified in the National Spatial Strategy and the Western Development Commission, including improved access to Ireland West Airport Knock. The proposed road development will complete the last outstanding section in relation to improving the quality and safety of the N5 corridor and support the identified need to upgrade the N5 as per the investment priority included in the West Regional Planning Guidelines and the National Spatial Strategy.

2.2.3.6 Building on Recovery – Infrastructure and Capital Investment 2016 – 2021

Building on Recovery is the Capital Plan that presents the Government's current framework for infrastructure investment in Ireland over the period 2016 to 2021.

It states that the "…Capital Plan is a high level financial and budgetary framework. It is not part of the physical planning process". It goes on to state that *"The Exchequer transport capital allocation is largely framed by the recommendations and priorities set out in the recently published Strategic Investment Framework for Land Transport. These priorities are threefold: to maintain and renew the strategically important elements of the existing land transport system; to address urban congestion; and to improve the efficiency and safety of existing transport networks".*

By completing the outstanding section in previous investments along the N5 corridor, the proposed road development improves the efficiency and safety of the N5 corridor and is consistent with Priority 3 of the SIFLT as described in Section 2.2.3.4 above.

2.2.3.7 Road Safety Authority Road Safety Strategy 2013 – 2020

The Road Safety Authority (RSA) Road Safety Strategy 2013 – 2020, sets out targets to be achieved in terms of road safety in Ireland as well as policies to achieve these targets. The primary target of this strategy is:
"A reduction of road collision fatalities on Irish roads to 25 per million population or less by 2020 is required to close the gap between Ireland and the safest countries. This means reducing deaths from 162 in 2012 to 124 or fewer by 2020.

A provisional target for the reduction of serious injuries by 30% from 472 (2011) to 330 or fewer by 2020 or 61 per million population has also been set."

The plan sets out strategies for engineering and infrastructure improvements in terms of the benefits that they can have in terms of reducing collisions. The provision of the

upgraded sections of national road in this proposed road development will support this RSA strategy.

It is a policy to extend the measures in the EU Road Infrastructure Safety Management Directive 2008/96/EC relating to road safety inspection and traffic management on TEN-T routes to the entire national road network by 2016. This policy has been adopted for all National Routes since 2013. Addressing the series of accident clusters identified in section 2.6 below responds to this policy.

2.2.3.8 A Programme for a Partnership Government – May 2016

In May 2016, the Government launched its programme for government outlining the policies and objectives over the term of the government.

Under Section 4, Jobs and Rural Development, the objectives/policies are:

- *"reinforce the role of the Western Development Commission, so that it supports the implementation of regional jobs in the West and North – West";*
- *"creating sufficient scale in the West of Ireland, through an Atlantic Economic Corridor, to match other areas in developing infrastructure";*
- *"Key radial routes will be prioritised from the existing motorway network to ensure that communities isolated by inadequate national primary roads have direct access to ports and airports."*

The proposed road development aims to support the objectives and policies contained within the programme for a partnership government, by improving access to the western region, supporting the investment and providing infrastructure improvements to enable the development of the Atlantic Economic Corridor. The proposed road development specifically addresses the policy objective to upgrade key radial routes from the existing motorway network, improving access to the western region and direct access to Ireland West Airport Knock.

2.2.4 Regional Policy Context

2.2.4.1 Regional Planning Guidelines for the Northern & Western Regional Assembly (formerly West Regional Authority) Region 2010 – 2022

The Northern and Western Regional Assembly came into being on the 1st January 2015 following the dissolution of the Border, Midland and Western Regional Assembly and Southern and Eastern Regional Assembly.

The region covers eight counties, representing 36.2% of the landmass of the Republic of Ireland, 18.3% (837,350) of the population and produces 14.6% of the national output.

The regional planning guidelines have been adopted by the authority for the west region and refer to a number of proposals of the National Roads Authority (now Transport Infrastructure Ireland) and central government to improve and construct National Roads in the West Region within the lifetime of the Guidelines, subject to finance being provided.

A number of key investment priorities are set out in the guidelines under section 1.5.3 *'Future Investment Priorities'*. The guidelines state that these key investments are required to support the sustainable development of the region. One of the key priorities listed which relates directly to the N5 is the *"improvement of the N5 Charlestown to the Roscommon/Longford borders inclusive of the Ballaghaderreen Bypass"*

A number of specific objectives in relation to road infrastructure are listed under Section 5.2.1 of the guidelines. Under Objective IO5 a number of road infrastructure projects in the region are identified for priority completion in order to promote balanced regional development. Objective IO5 (3) refers the upgrading of the *"N5 corridor from Westport to Roscommon/Longford borders minimising environmental impact"*

The former Midlands Regional Planning Guidelines (now part of the Eastern and Midland Regional Assembly 2010 – 2022) also recognise the need to upgrade the N5 corridor and the potential impact that its improvement would bring to the region.

2.2.4.2 Western Development Commission

The Western Development Commission (WDC) is the statutory body established to promote, foster and encourage economic and social development in the western region, which covers the counties of Donegal, Sligo, Leitrim, Roscommon, Mayo, Galway and Clare.

The WDC website lists its key policies (http://www.wdc.ie/policy/) and has a policy in relation to connectivity and access to the western region, which highlights "*the WDC emphasises the need for improvements in road, rail and air connectivity for the western region*". The policy specifically relating to roads states:

"The road network is particularly important in rural regions where access to rail services are more limited. The WDC argues that the western region, especially the north west, requires improved quality road infrastructure if businesses located there are not to be at a competitive disadvantage in terms of transport accessibility. The quality of the road network is also critical for tourism development and improved road safety."

The proposed road development aims to significantly improve the quality and safety of the primary national road network through county Roscommon, greatly improving access to the wider western region.

2.2.5 Local Policy Context

2.2.5.1 Roscommon County Council Development Plan 2014 – 2020

Chapter 4 of the Roscommon County Development Plan – Transportation and Movement outlines a number of objectives regarding national roads. The plan notes the importance of the N5 corridor for the promotion of regional development and prioritises the completion of planned works on the N5 corridor, which includes the N5 Ballaghaderreen to Scramoge Road Project (referred to in the plan as the N5 Strategic Corridor).

The following policies/objectives regarding National Roads are contained within the plan:

- Policy 4.11 – Provide a safe and modern road network throughout the county, having regard to National and Regional policies;
- Objective 4.22 – Facilitate the programmed improvements to the National Road Network; and
- Objective 4.30 – Continue to improve road access to Knock Airport.

The proposed road development seeks to fulfil the objectives of the County Development Plan by closing the gap in previous investment in the N5 Strategic

Corridor, providing a high quality, safe, modern strategic road serving both the local and western region.

2.2.6 Transport Infrastructure Ireland's Studies

2.2.6.1 National Roads Needs Study

The following road improvements were recognised as far back as the National Roads Authority (now TII) National Road Needs Study in July 1998:

- N5 between Charlestown and Ballaghaderreen (including Ballaghaderreen Bypass);
- N5 between Ballaghaderreen and Tulsk;
- N5 Strokestown Bypass; and
- N5 Strokestown to Longford.

At the time of publication of the NRNS study the design year (2019) traffic volumes for the N5 Charlestown and Ballaghaderreen were estimated to be 6,500. The 2019 estimated traffic volumes for the N5 Ballaghaderreen and Tulsk were estimated to be between 5,000 – 6,500 AADT. The 2019 estimated traffic volumes for the section of N5 between Tulsk and Longford were estimated to be between 5,000 – 7,500 AADT with the recommendation that these sections of the N5 be upgraded to Standard (now Type 1) Single Carriageway.

The N5 Charlestown to Ballaghaderreen, Ballaghaderreen Bypass and the N5 Strokestown to Longford schemes have been implemented. The proposed road development seeks to address the remaining unimproved section located between these previous investments along the N5 corridor.

2.3 Existing Road Network

2.3.1 The Existing N5 and National Roads

The N5 national primary route is 134km in length and connects Westport in County Mayo to Longford Town, as illustrated in Plate 2.5, where it joins the N4-M4 east to Dublin. The N5 passes through the counties of Longford, Roscommon and Mayo and provides connectivity and accessibility to various towns and villages in this region of the country. As illustrated in Plate 2.5, the N5 serves a large geographical area and provides a strategic function in terms of connecting the Western Region of Ireland to the Midlands and the East of the country. It provides access to Ireland West Airport Knock while also serving road based public transport services. Many businesses in the region depend on the N5 corridor for access to both national and international markets.

Plate 2.5 Setting of the N5 Within the National Road Network

Numerous improvement schemes have been implemented on the N5 between Westport and Longford from the 1970's to 2014. These are as shown in Table 2.1 below. This previous investment along the N5 corridor including the recently completed N5 Longford Bypass (2013) and N5 Ballaghaderreen Bypass (2014) has improved the N5 corridor in terms of improved journey times and safety. It is noted that the route section between Westport and Turlough has received planning consent (An Bord Pleanála Ref: 16.KA0028) and construction advance works are underway.

With the exception of the planned Type 2 Dual between Westport and Turlough, all of the projects which have been carried out to date have consisted of upgrading the existing N5 to a Type 1 single carriageway cross-section, or the equivalent at the time of construction. 72% of the overall length of the N5 has either been improved or is in the process of being improved to meet the needs of high speed long distance traffic on a national primary road. The N5 between Ballaghaderreen and Scramoge is therefore the last rural section of the strategic N5 route from Longford to Westport that has yet to be upgraded and is the missing piece in the upgrading of the Dublin to Mayo corridor to meet current design standards.

Table 2.1 Road Improvement Projects on the N5

Name	Year opened	Carriageway Type	Length	Comments
Clondara Bypass	1978	Type 1 Single	7.8km	
Scramoge – Cloonmore	2004	Type 1 Single	8km	
Pavement Rehabilitation Scramoge to Ballaghaderreen	**2000 – 2005**	**As Existing, Typically Type 2 & 3 Single Carriageway but with narrow verges**	**35km**	**Limited to re-surfacing of the existing carriageway**

Name	Year opened	Carriageway Type	Length	Comments
N5 Longford Bypass	2013	Type 1 Single	2.6km	
N5 Ballaghaderreen Bypass	2014	Type 1 Single	13.6km	
Turlough to Swinford	1970's & 1980's	Type 1 Single	16.7km	Carried out as a number of smaller projects
Turlough Bypass	1990	Type 1 Single	10km	
Swinford Bypass	1993	Type 1 Single	5km	
Charlestown Bypass	2007	Type 1 Single	18.2km	
N5 Westport to Turlough	Planning Approval Received	Type 2 Dual	22km	Site clearance and fencing ongoing

2.3.2 Existing N5 Ballaghaderreen to Scramoge

The section of the existing N5 route under consideration is shown on Plate 2.6 and described below.

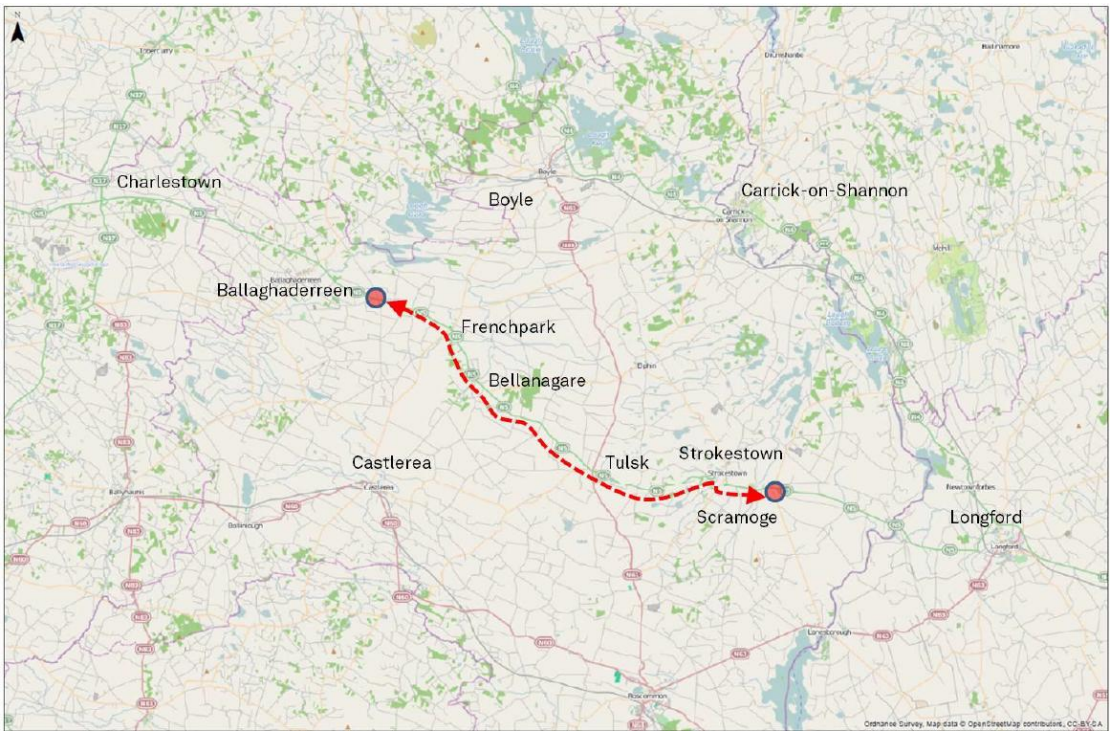

Plate 2.6 Existing N5 Ballaghaderreen to Scramoge

The existing N5 progresses south eastward from Ballaghaderreen at the tie-in with the recently constructed N5 Ballaghaderreen Bypass Road Project in the townland of Rathkeery and continues in a south easterly direction, crossing the R361 south of Frenchpark. From Frenchpark the alignment heads south towards the village of Bellanagare. Passing through Bellanagare the alignment heads south east towards Tulsk where it bisects the archaeological complex of Rathcroghan. The N5 intersects the N61 – Boyle to Athlone National Secondary Route in the village of Tulsk. From Tulsk the route continues east passing through the townlands of Ardkeenagh,

Kilcooley, Lissaphuca, Ardakillin, Cloonfree, Cloonslanor and Lisroyne before reaching the town of Strokestown. The N5 intersects with the R368 in Strokestown at a roundabout located in the centre of the town. From here the N5 travels south for approximately 1km to Farnbeg until the alignment turns sharply east. The N5 alignment passes through the townland of Newtown and Bumlin until it reaches Scramoge where it joins the previously improved section (2004) between Scramoge and Cloonmore. The 35.9km section of the N5 between the end of the Ballaghaderreen Bypass and Scramoge, passes through the centres of Frenchpark, Bellanagare, Tulsk and Strokestown, has seen no investment beyond pavement rehabilitation works and remains un-improved, with average speeds well below the minimum 80kph target and collision rates above and in sections twice above the national average.

2.3.3 Existing National Secondary Roads

The existing N5 between Ballaghaderreen to Scramoge intersects the N61 Athlone to Boyle National Secondary Route in the village of Tulsk.

2.3.4 Existing Regional Roads

There are five Regional Roads that intersect the existing N5 route between Ballaghaderreen and Scramoge, connecting County Roscommon to the national primary road network, as follows:

- *R361: Williamstown to Boyle* – The R361 intersects the existing N5 at Frenchpark.
- *R369: Elphin to Gortnagoyne* – The R369 terminates at the intersection with the existing N5 at *Gortnagoyne*, to the east of Bellanagare.
- *R367: Ballymoe to Tulsk* – The R367 terminates at the intersection with the existing N5 at Tulsk.
- *R368: Carrick–on Shannon to Four-Mile-House* – The R368 connects to a roundabout on the existing N5 on the southern side of Strokestown town centre.
- *R371: Roosky to Ballyleague* – The R371 intersects the existing N5 at Scramoge.

2.3.5 Local Roads

There are numerous local roads along the length of the proposed road development connecting the surrounding community with the national primary route. These roads generally have cross-sections ranging from 3 to 7m in width, with limited verges and in many cases poor visibility on the approach to the national road. There are 85 local road junctions that intersect the route of the existing N5 between Ballaghaderreen and Scramoge. These roads vary in function from local connector roads to access roads serving only two or three individual properties.

2.4 Character of the Existing N5 Ballaghaderreen to Scramoge

2.4.1 General

The existing N5 national primary road is predominately rural in nature, but passes through the centres of Frenchpark, Bellanagare, Tulsk and Strokestown where it performs the dual functions of a national road and an urban street. Throughout these centres a mixture of established commercial, tourist, social and residential properties front directly onto the road on both sides. Through the town and village centres, speed limits of 50 and 60km/h are in place and the cross-section includes the

provision of footpaths and on-street parking typically located within the limited available verge width. In Strokestown, the N5 bisects the historic wide Church Street.

Table 2.2 below provides details of the rural and urban sections of the existing N5, with lengths corresponding to entering and exiting the posted urban speed limit zones. This requirement for speed restrictions on the national primary road delays long distance through traffic, but does not remove the severance and safety concerns for local traffic, and in particular pedestrians, associated with heavy good vehicles and platoons of traffic passing through the main street within the town/village centres.

Table 2.2 Existing N5 Lengths of Urban & Rural Type

Start	End	Length	Rural / Urban
N5 Ballaghaderreen Bypass	Frenchpark	4.5km	Rural
Frenchpark		1km	Urban
Frenchpark	Bellanagare	3.3km	Rural
Bellanagare		1km	Urban
Bellanagare	Tulsk	10.2km	Rural
Tulsk		1.5km	Urban
Tulsk	Strokestown	8.6km	Rural
Strokestown		2.2km	Urban
Strokestown	Scramoge	3.6km	Rural
Total Length		**35.9km**	
Length of Urban		5.7km	15.9%
Length of Rural		30.2km	84.1%

Plate 2.7 N5 in Frenchpark at R361 Junction

Plate 2.8 N5 to the East Tulsk

Plate 2.9 N5 Church Street in Strokestown

2.4.2 Road Geometry and Road Cross Sections

The existing N5 Ballaghaderreen to Scramoge road is a single carriageway road with varying cross section, typical carriageway cross sections widths are between 6m and

7m wide, with lane widths on average of 2.5m to 3m and hardstrips of 0.5m. The verges are narrow, typically 1m in width.

The existing road cross section is sub-standard with approximately 47% of the road having a paved width less than or equal to 7.3m and only 14% meets the Type 1 Single carriageway width requirement of a 12.3m paved width provided on the adjoining Ballaghaderreen Bypass and Scramoge to Longford sections.

The narrow cross-section and in particular the narrow verges severely restricts stopping sight visibility over approximately 40% of the route and results in an unforgiving environment for any vehicle that might deviate from its traffic lane for any reason. Recognising that 45% of fatal road accidents across the European Union are single vehicle accidents the Conference of European Directors of Roads (CEDR) produced the Forgiving Roadsides Design Guide in 2012 highlighting the importance of providing clear verges alongside high speed roads, free from hazards, to allow drivers the opportunity to correct errors and bring vehicles to a safe stop.

The horizontal and vertical alignment are also substandard and do not complement each other (e.g. long straights with sharp crests in the vertical alignment), so even when the horizontal alignment provides sufficient visibility to facilitate increased speeds the vertical alignment restricts stopping sight distance and overtaking sight distance. Many of the horizontal and vertical radii are up to four and even five steps below those required by current design standards, dictating safe speeds of just 50km/hr or less through these most deficient sections.

Plate 2.10 N5 at Rathcroghan Mound/Visitor Car Park

Plate 2.11 N5 East of Tulsk Highlighting Sub-standard Horizontal Alignment

Plate 2.12 N5 West of Bellanagare

2.4.3 Junctions and Access

Overall, along the rural sections of the existing N5 between Ballaghaderreen and Scramoge there are a total of 546 junctions and direct accesses, which includes;

- 74 public road junctions,
- 262 field accesses,
- 210 dwelling / commercial accesses.

This junction frequency is above 9 junctions and accesses per kilometre (excluding single field accesses) outside the speed restricted sections, and is categorised as 'High' in accordance with the design standard NRA TD 9, Clause 1.4. Many of these junction and accesses do not provide sufficient visibility to meet safety standards for 100kph Design speed. Furthermore, the majority of these junctions are simple junctions with no provision for right turning vehicles to stop without obstructing the flow on the National Primary Road. The Major/Minor junction design standard TD41-42 requires the provision of a ghost island where the flow on the local road exceeds 300 vehicles per day. While the vast majority of these junctions and accesses have flows below this threshold, nine junctions are carrying flows that exceed this threshold, adding to the delays and poor safety record along this section of the national primary road network.

Fifteen of the Local, Regional and National Secondary roads intersected by the existing N5 form cross-road junctions. This junction form is not permitted under the current design standards due to the high accident rates associated with this junction type, as is evident from the accident statistics where 75% of all junction accidents occur at cross-road junctions.

2.4.4 Road Pavement

Following pavement rehabilitation and resurfacing works undertaken on the existing N5 between Ballaghaderreen and Scramoge between 2000 and 2005, a large proportion of the existing road pavement surface is generally in good condition, with only short sections displaying visible signs of distress.

Plate 2.13 Existing N5 Road Pavement

2.4.5 Overtaking Opportunities

An assessment of the existing N5 has been undertaken to determine the extent of overtaking visibility on the existing road. The existing N5 has 9% of the 35km length with overtaking visibility in the eastbound direction and 10% in the westbound direction.

Current design standards for a Type 1 Single Carriageway road require a minimum of 30% of the total length of the proposed road development to have overtaking sight distance. The minimal overtaking opportunities, in combination with frequent junctions and accesses, many of which have restricted visibility, is substandard and detrimental to both road safety and average journey times, with platoons forming behind slower moving vehicles.

The limited lengths of hard shoulder and verge along this length coupled with the agricultural activities further limit the opportunities for vehicles to overtake as slower moving agricultural vehicles have little or no area within which to pull-in to allow other faster vehicles to pass, resulting in a platooning of vehicles behind slow moving traffic. Similarly, vehicles that break down are likely to cause delays as there are limited opportunities to pass a stationary vehicle.

Plate 2.14 Existing N5 Platooning effect

2.4.6 Pedestrians and Cycle Facilities

No designated cycle or pedestrian facilities are provided along the existing N5 between Ballaghaderreen and Scramoge, with the exception of footpaths within the towns/villages of Frenchpark, Bellanagare, Tulsk and Strokestown. Due to the absence of hard shoulders, pedestrians and cyclists are forced to use the trafficked lanes along the large majority of this length of the route. The high volumes of vehicles using this route, often travelling at high speeds or in platoons, make this length particularly unattractive and unsafe for non-motorised users.

2.5 Traffic Conditions, Journey Times, Level of Service and Economic Impacts

2.5.1 Traffic Volumes

This section of the N5 carries traffic across County Roscommon along a West to East axis, linking Ballaghaderreen to Scramoge. In addition to linking the settlements of

Ballaghaderreen, Frenchpark, Bellanagare, Tulsk and Strokestown, the N5 accommodates inter-urban traffic flow to Longford and between the twinned hub of Castlebar/Ballina and the Midlands Gateway at Mullingar and onward to the Dublin Gateway. The route also carries significant tourist traffic heading to and from the west of Ireland, in particular the popular tourist town of Westport.

Chapter 5 of this EIAR describes in detail the traffic modelling exercise that has been undertaken to inform the design process. Traffic flows on the various sections of the N5 between Ballaghaderreen and Scramoge are generally in the range of 4,600 to 6,800 AADT with Heavy Commercial Vehicle (HCV) contents of between 7.7% and 10%. These are predicted to increase to 5,400 to 8,100 AADT with HCV contents of 10% to12.6% in the design year 2035. These modest flows do not of themselves indicate a significant traffic capacity deficiency. The key issues are the effects of the poor standard of the N5 on journey times and level of service, as described below.

2.5.2 Existing Journey Times

As outlined in Section 2.4, the majority of the existing N5 between the tie-in of the Ballaghaderreen Bypass and Scramoge is sub-standard in cross section and also both in its vertical and horizontal alignment. These network deficiencies combined with the high density of junctions, direct accesses and limited safe overtaking opportunities reduce the operating speed of the N5 corridor leading to delays and driver frustration. A significant proportion of the traffic on this section of the N5, in particular the HGV content are on long distance journeys, for which this section of the N5 is an essential part of their journey between the West Region and the Midlands and Dublin Gateways.

The existing average end to end journey time along this section of the N5 corridor is approximately 32 minutes, as illustrated in Table 2.3. Data on journey times along the N5 was collected between 19th May and 25th May 2014 using Automatic Number Plate Registration (ANPR) cameras at 11 sites, which recorded the registration plate number and the time at which the registration was recorded at various points along the N5.

Table 2.3 N5 Journey Time Data

From	To	Average Time	Distance (km)	Average Speed (km/h)
Ballaghaderreen	Scramoge	00:32:17	35.2	65.4
Scramoge	Ballaghaderreen	00:31:21	35.2	67.4

The target minimum average speed set by TII[2] for an inter-urban national primary road operating at a Level of Service D corresponds to an average speed of 80km/h. Table 2.3 demonstrates that the section of the N5 between Ballaghaderreen and Scramoge currently falls below this target.

In 2012, the Road Safety Authority (RSA) produced the report Free Speed Survey 2011 (Urban and Rural). Free speeds are speeds at which drivers choose to travel when unconstrained by road geometry (e.g. sharp bends, intersections or hills), weather conditions (e.g. rain) or traffic conditions (e.g. congestion). The average free speed for national primary single carriageway was measured as 90km/h.

[2] NRA National Roads Needs Study (1998)/National Development Plan (2000 – 2006)

2.5.3 Level of Service

The US Highway Capacity Manual (HCM) specifies a Level of Service (LOS) for a road as a quality measure describing operational conditions within a traffic stream. This is generally in terms of such service measures as speed and travel time, freedom to manoeuvre, traffic interruptions, and comfort and convenience. Six LOS are defined ranging from A to F, with LOS A representing the best operating conditions and LOS F the worst.

TII policy is to maintain a minimum LOS D on the inter-urban national road network. This minimum level of service provides for an average speed of 80kph, with passing extremely difficult (with very high demand and limited opportunity) and platoon sizes of 5 to 10 vehicles. At this minimum level of service there is driver delay of up to 75%, with turning vehicles or roadside distractions causing major shockwaves in the traffic system. Table 2.4 (extracted from Table 2.5.1 of the National Road Needs Study, 1998) provides the classification of the conditions experienced for the different Level of Service provisions on two-way single carriageway roads in Ireland.

Table 2.4 Level of Service Classification (National Road Needs Study 1998)

Classification	% Time Delay	Average Speed	Passing Conditions	Driving Conditions
LOS A	≤ 30	93kph	Passing demand well below capacity	Slow vehicles causing delay < 30% of time
LOS B	≤ 45	88kph	Passing demand approximately equal to passing opportunity	Driver delay, 45% of the time due to slower vehicles
LOS C	≤ 60	84kph	Platoon formation occurs with passing demand exceeding opportunity	Driver delay up to 60% due to slower vehicles
LOS D	≤ 75	80kph	Passing extremely difficult with very high demand and limited opportunity. Platoon sizes of 5-10 vehicles	Driver delay up to 75%. Turning vehicles or roadside distractions cause major shockwaves in the traffic system
LOS E	≤ 75	72kph	Passing becomes impossible with intense platooning	Driver delay over 75%. LOS E rarely maintained as traffic disturbance leads to LOS F.
LOS F	≤ 100	<72kph	No passing – platoon flow	Congested traffic

The journey time surveys undertaken along the N5 corridor indicated an end to end average speed of 66kph, which equates to a LOS F. This is consistent with the narrow cross section, poor alignment and numerous junctions and accesses described in section 2.4 above, all of which limit speeds and prevent overtaking.

2.5.4 Economic Impacts

2.5.4.1 General

The poor level of service has significant economic impacts, both direct impacts associated with the journey times of traffic using the N5 and indirectly on the wider

economic performance of the western region that it serves. Parts of both County Roscommon and County Mayo, particularly the rural areas outside Castlebar and Westport are recognised as areas of social exclusion through the now closed CLÁR Programme (Programme for Revitalisation of Rural Areas).

In order to gain a better understanding of the indirect impacts of the poor level of service on this section of the N5 a business consultation exercise was undertaken and the associated report is included as Appendix 2.1 at the end of this chapter. The report presents the key findings of a questionnaire based consultations with businesses and business representative bodies in Counties Mayo and Roscommon regarding the impact on business operations of transportation in general, the current condition of the N5 and future possible improvements to the N5. Many wider economic implications are identified via the qualitative based approach taken in the study. The key finding is that the need for improvement of the N5 between Ballaghaderreen and Scramoge is entirely consistent with the investment priorities, and in particular the principles underlying Priority 3, of the Strategic Investment Framework for Land Transport, as highlighted in section 2.2.3.4 above.

A number of findings were established for businesses and business representative bodies consulted under the headings of: (1) business location decisions; (2) staff recruitment; (3) integration of the transport system; (4) access to customers; (5) access to suppliers; and (6) impacts of improvements to the N5. The findings are briefly summarised below.

2.5.4.2 In Terms of Business Location Decisions

- Current transport infrastructure has a significant negative impact on connectivity to other business locations including ports and airports;
- Quality of roads, journey times and accessibility are all factors in business location decisions;
- Transport infrastructure is a key influence for many in their business location decisions;
- Opportunities exist to create industry clusters with improved transport infrastructure;
- Access is hugely important for manufacturing, transport of goods and the ability to attract talent, senior visitors and customers;
- Perceived remoteness is seen as a major deterrent to investment in the west;
- Lack of adequate transport could impact on future business growth and expansion.

2.5.4.3 Regarding Staff Recruitment

- Transportation and access issues impact negatively on recruitment due to current journey times and perception of remoteness;
- Major employers felt that improvements to the N5 would have the greatest impact on staff recruitment;
- N5 improvements would enhance greater collaboration between universities and companies and assist in the development of industry clusters in addition to widening the talent pool and facilitating the recruitment of senior experienced staff;
- Most agreed that improvements to the N5 would be positive in terms of staff recruitment and in terms of attracting highly skilled staff, saving time and

money for staff, making the west more appealing as a place to live; and attracting more employment.

2.5.4.4 Regarding Integration of the Transport System

- Transport infrastructure is perceived to be very important for accessing airports, ports, train stations and regional centres for conduct of business and exporting/importing products and supplies;
- The majority of respondents foresee positive impacts for costs, productivity, competiveness, growth, expansion and investment arising from better connectivity to these locations;
- Ireland West Airport Knock is seen as a key piece of infrastructure for the region, vital for tourism development, and convenient for local users;
- Further investment, allowing greater connectivity to airports would bring benefits to the region in terms of foreign direct investment, exports and accessibility;
- Good access to international airports such as Dublin is seen as being critically important for the Foreign Direct Investment (FDI) employers in order to allow them to have a full working day in UK and European markets;
- Access to sea ports is an issue with difficulties for road haulage being cited due to the current poor state of the road infrastructure;
- Importance of road infrastructure for better connectivity to regional centres is emphasised particularly in relation to the ability to develop industry clusters and attract new investment;
- An improved N5 would improve the perceptions of investors (of the area) and lead to increased investment opportunities.

2.5.4.5 In Terms of Access to Customers

- The majority of customers travel by road and to a lesser extent by rail and air;
- In terms of accessibility nearly all of the respondents stated that the area is either not very accessible (citing remoteness, journey length, and journey time to Dublin) or reasonably accessible but with time and cost being key issues for customers.
- N5 improvements to date are perceived as having not kept pace with infrastructure in other areas in the West (such as Galway and the M6). Respondents feel that the North-West and Roscommon are at a disadvantage as a result and are missing out on opportunities to attract staff and jobs from East to West as a result;
- Existing condition of the N5 means that customer visits to FDI companies often take place at the airport rather than at the company's location due to access issues and long journey times – this is seen as a disadvantage for the companies concerned;
- All respondents mentioned accessibility difficulties/issues for customers travelling to the area including:
    - Challenges travelling by road;
    - Long journey times;
    - Road quality through Roscommon and road quality generally;
    - Long journey times and journey time commitment;
    - Length of journey to Mayo versus Dublin to Galway/Cork;

- Poor overtaking capability on sections of the existing N5 leading to uncertain travel times;
- Poor impression of the area for foreign customers created by the road condition.

Most respondents agree that the condition/capacity of the N5 impacts on their ability to attract and retain customers with many of these respondents expressing the view that the impacts would be significant.

2.5.4.6 In Terms of Access for Suppliers Issues Cited Included:

- Long journey times, time commitment required, road quality, poor perceptions of the N5, and lack of air routes out of Ireland West Airport Knock;
- Nearly all respondents expressed the view that the area is either not accessible/has poor accessibility or is accessible albeit with long journey times;
- Opinion was divided among businesses over whether the condition of the N5 impacts on their businesses' ability to attract new or retain existing suppliers;
- Access for suppliers is seen to be very important but perhaps less so for larger companies due to their substantial buying power. Nonetheless, there could be negative impacts for collaboration between these companies and suppliers;
- Most business representative bodies strongly agreed that the condition/capacity of the N5 impacts on their members' ability to attract new or retain existing suppliers;
- Overall, most stakeholders felt that improvements to the N5 have positive impacts in terms of retaining/attracting new suppliers.

2.5.4.7 Businesses in the Region Agree that Improvements to the N5 Would be a Positive Development Leading to

- Additional business opportunities;
- Growth in traffic between east and west;
- Balanced economic development between east and west;
- Opportunities to attract and sustain investment to the region;
- Improved competitiveness;
- Improved regional confidence;
- Increased jobs, income and improvements to the local economy;
- Growth in tourism both from overseas and between towns and regions;
- Ease of access for employees/customers/suppliers/visitors;
- Improved journey times;
- Better perceptions of the area as a place to live, work and invest;
- Enhanced accessibility to the area;
- Improved quality of life for residents;
- Higher usage of Ireland West Airport Knock;
- Improved access to major seaports and airports.

In general, the respondents strongly felt that not upgrading the N5 will cut off the region from further opportunities and growth. Overall, this study has shown, via a qualitative approach, that wider potential impacts result from the poor level of service provided by the N5 and that significant benefits beyond the direct impact of journey

time savings may be realised if further N5 improvements take place. It is evident that the potential wider benefits identified by the stakeholders (in their responses to the potential of improvements to the N5) strongly support the contention that the upgrade of the N5 is entirely consistent with the priorities of the SIFLT.

2.6 Safety Issues

The existing N5 has an average collision rate of 1.6 collisions per 10 million vehicle kilometres, which is more than 50% above the average for Roscommon, which has a collision rate of 1.0 collisions per 10 million vehicle kilometres and 50% above the national average of 1.1 collisions per 10 million vehicle kilometres.

2.6.1 Observed Accident Information for the N5

Examining the recent accident history along the N5 corridor, the data shows a significant accident history. Over the period from 1996 to 2012 there have been eleven fatalities and an estimated 689 injuries along the N5 between Ballaghaderreen and Scramoge, as indicated in Table 2.5. This total includes for the effect of under-reporting of non-fatal injuries that has been observed in Ireland. This equates to a rate of approximately 0.65 fatalities per annum along the corridor, with 5 serious injuries and approximately 35 minor injuries per annum.

Table 2.5 Observed Casualties per Annum (1996 – 2012)

Severity	Observed Casualties	Under-Reporting Factor*	Casualties	Casualty Per Annum
Fatal	11	1	11	**0.65**
Serious	57	1.5	86	**5.0**
Minor	201	3	603	**35.5**

*Under reporting factor taken from the EU HEATCO (Developing Harmonised European Approaches for Transport Costing and Project Assessment) Deliverable 5 – Proposal for Harmonised Guidelines February 2006.

Examining the more recent collision history (2008 to 2012) and by applying the under reporting factors, there has been one fatality and it is estimated that a total of approximately 261 persons have been injured along the N5 between Ballaghaderreen and Scramoge. This equates to a rate of approximately 0.2 fatalities per annum along the corridor, with 1.8 serious injuries and approximately 50 minor injuries per annum. This may be attributed largely to improved vehicle safety systems (such as airbags) that are now fitted as standard to a large proportion of vehicles. These safety systems have improved the survivability of accidents, resulting in a reduction of fatal and serious injuries and a corresponding increase in minor injuries as indicated in Table 2.6 below.

Table 2.6 Observed Casualties per Annum (2008 - 2012)

Severity	Observed Casualties	Under-Reporting Factor	Casualties	Casualty Per Annum
Fatal	1	1	1	**0.2**
Serious	6	1.5	9	**1.8**
Minor	84	3	252	**50.4**

Source: Road Safety Authority

Given the number of collisions along the route, between the years 1996 to 2012, it is difficult to identify cluster locations. This is attributed to the substandard alignment and associated safety issues along most of the route which results in a relatively high rate of accidents along this section. By examining more recent data over a five year period (2008 to 2012), as shown in Table 2.5, twelve cluster locations can be identified. The locations are shown in Plate 2.15 overleaf.

The collision analyses and commentary presented were undertaken using the above 2008-2012 data. However recently released data for 2013 shows a further two collisions resulting in fatalities and five collisions resulting in minor injuries on the section of N5 under consideration.

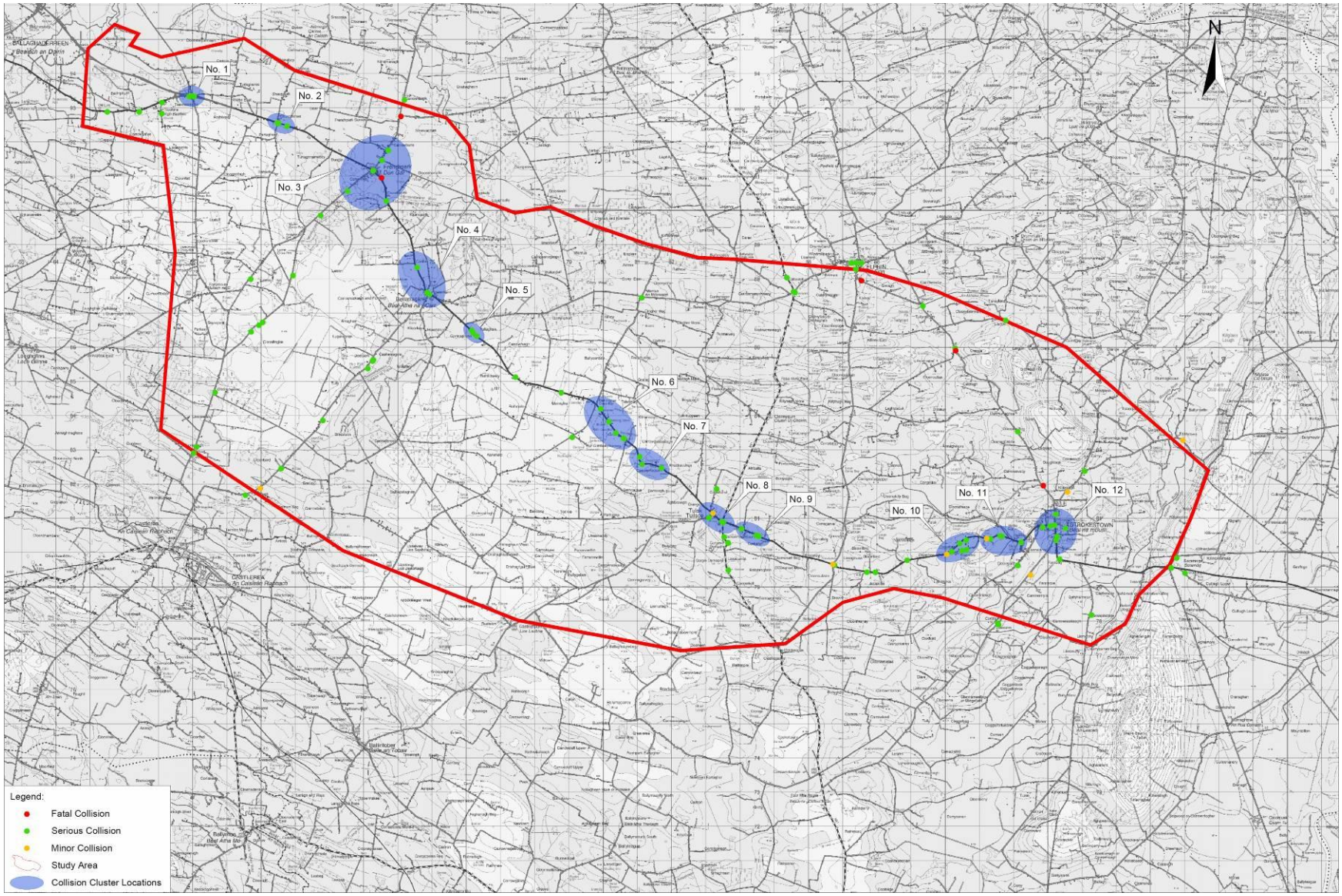

Plate 2.15 Observed Casualties Location Map (2008 - 2012)

2.6.2 Network Safety Ranking – NRA HD 15/12

NRA Standard HD 15 is used to identify sections of the national road network which have a high concentration of collisions and to rank the safety of the road network. The ranking is based on the collision rate (number of collision per 100 million vehicle kilometres travelled) on road sections of approximately 1km compared against the national average collision rate for a similar road type.

Plate 2.16 shows the ranking of the relevant section of N5 under consideration based on HD 15. The N5 is considered as a "Rural Single Carriageways" and the ranking of collisions is split into four bands as follows:

- Twice above national average collision rate;
- Above national average collision rate;
- Below national average collision rate; and
- Twice below national average collision rate.

Plate 2.16 overleaf demonstrates that there are several sections on the N5 corridor which have a ranking of above or twice above the national average collision rate for a rural single carriageway road. Under HD15, sections of road with a ranking of above twice the national average require rectification as a priority. Whilst HD15 refers to 2010-2012, the 2012-2014 collision rates have now been published and are largely consistent with above.

Of the twelve cluster locations identified for the period 2008-2012 in Plate 2.15, nine correspond to the NRA Network Ranking of twice above average accident rates and of these nine, four are within the 9km from east of Bellanagare, through Rathcroghan and just west of Tulsk. These four clusters represent 14 accidents which have resulted in one serious and 26 minor injuries on the section of road through the Rathcroghan archaeological landscape and the medieval settlement at Tulsk. Previous improvements to this section of road have been extremely limited due to the proximity of archaeological and cultural heritage remains. The Department of Arts, Heritage and Local Government, National Monuments Service, have advised that *"any online upgrade of the existing N5 would impact negatively upon the important archaeological remains at the Rathcroghan complex and is therefore undesirable and should be avoided"*.

The collision records for 1996 to 2008 give an average of 11.1 observed collision injuries per year. The collision records for the study period 2008 to 2012 give an average of 18.2 observed collision injuries per year. During this study period on-going routine maintenance consisting of overlay and signing and lining refurbishment schemes have been progressed but the rates have worsened over the five years 2008 to 2012 compared to the previous 12 years (1996 to 2008).

It is therefore evident that despite the recent pavement rehabilitation schemes and ongoing routine maintenance carried out over this section of the existing N5, the inherent safety issues associated with the existing road still remain and that routine maintenance will not address the underlying safety issues.

Plate 2.16 **HD15 Collision Rates 2010 – 2012**

Note: HD 15 Collision Rates for 2012-2014 have been published and are largely consistent with above.

2.6.3 Analysis of Accident Types

Table 2.7 Breakdown of Existing Collisions 2008 to 2012

Existing Collision Type	Fatal	Serious	Minor	Total
Single Vehicle	1	2	23	**26**
Head On / Head On Right Turn		1	9	**10**
Rear End Straight and Right			5	**5**
Angled both straight			1	**1**
Pedestrian			2	**2**
Other		1	11	**12**
TOTAL	**1**	**4**	**51**	**56**

As described in section 2.3 above, the existing N5 between Ballaghaderreen and Scramoge has a narrow cross-section with particularly sub-standard verges, and contain a high proportion of hazards within the clear-zone of the carriageway. The existing N5 also has a high density of junctions, particularly cross-road junctions and direct accesses outside of the urban centres.

As can be seen in Table 2.7 above, 68% of the collisions were classified as "single vehicle" or "other". Table 2.8 below further analyses these single vehicle collisions, and indicates that the majority (78%) of these collisions involve a collision with roadside hazards, such as a pole, ditch, wall and trees. This preponderance of collisions with roadside hazards is to be expected in the absence of both hard shoulders and hazard free verges, leaving drivers with no opportunity to take corrective action.

Further analysis of the collisions at junctions indicates that of the 12 collisions occurring at junction locations from 2008 to 2012, 75% of these occurred at cross-road type junction. When compared to the national average (*Table 44 of the Road Collision Facts 2012 [outside built-up areas]*) of 38.2%, this is almost double the national average, reflecting the prevalence of this dangerous junction type along this section of the N5.

The sub-standard horizontal and vertical geometry, limiting the overtaking visibility and overtaking opportunities to 9% eastbound and 10% westbound of the 35km length of the existing N5 between Ballaghaderreen and Scramoge is likely to result in people carrying out inappropriate overtaking manoeuvres. This in turn leads to an increase in head-on type collisions, which from Table 2.7 accounts for 17.8% of the accidents on this section of the N5.

Table 2.8 Single Vehicle Collisions (including Pedestrians) Classified by Type (1996 – 2012)

Single vehicle Collision With									
Year	**Bollard**	**Parked Truck**	**Pole**	**Tree**	**Animal**	**Wall / Gate**	**Ditch**	**Other**	**Total**
1996							3		3
1997			1			2	1	1	5
1998				1		4			5
1999				1		2	1		4
2000				1			1		2

Single vehicle Collision With									
Year	**Bollard**	**Parked Truck**	**Pole**	**Tree**	**Animal**	**Wall / Gate**	**Ditch**	**Other**	**Total**
2001				1		1	1		3
2002						1	1		2
2003							3		3
2004									
2005		2					2		4
2006							2		2
2007			1				3		4
2008			1			4	2	1	8
2009						1	4	1	6
2010				1		1	1	1	4
2011						2	2		4
2012				1		1	1	3	6
Total		2	3	6		19	28	6	65
%		3.1%	4.6%	9.2%		29.2%	43.1%	10.8%	

2.6.4 'Do – Minimum' Accident Forecasts for the N5

The Traffic Modelling described in Chapter 5 shows that the average annual daily traffic on the existing N5 between Ballaghaderreen and Scramoge is generally forecast to increase by approximately 20% between 2015 and 2035, and by 36% at Scramoge. This increase in traffic on a sub-standard road will inevitably lead to an increase in accidents.

The prediction of future accident rates is undertaken using specialist software developed by TII known as COBALT. This is a comparative tool that takes data from the traffic models for the "Do-Minimum" and "Do-Something" scenarios and assesses the relative safety aspects of the two scenarios using detailed inputs of all links where traffic levels may be impacted by the proposed "Do-Something" road improvement. The results are not specific to the particular link under consideration, in this case the N5, but sum the effects across the whole of the modelled road network. Where a proposed road improvement attracts traffic from roads of poor quality onto a higher quality link then a relative benefit arises, and visa-versa, if traffic is attracted onto a poor quality short cut then the safety benefits of the proposed road improvement can be cancelled out by the increased accidents on the adjoining poor quality road. In order to gain an understanding of the safety problems associated with the existing network it is necessary to make a comparison with a proposed improved network. Analysis of the potential collisions over the 30 year appraisal period has been carried out using the COBALT to compare the "Do-Minimum" or existing network with a "Do-Something" network which includes the proposed road development. This comparative analysis shows that in the absence of the proposed road development, the continued use of the existing road network with increasing traffic is predicted to result in the following casualties:

- 8 fatalities;
- 23 serious injuries; and
- 461 minor injuries.

The modelled figures are clearly substantial with significant consequences for those individuals involved and their communities.

2.7 Environmental Issues

2.7.1 Archaeology and Cultural Heritage

The environment of the study area is dominated by Rathcroghan Archaeological complex, one of the country's former royal seats, which is on the tentative list, as part of the Royal Sites of Ireland, submitted by the Irish Government for consideration as a UNESCO World Heritage Site.

Plate 2.14 Rathcroghan Mound

Rathcroghan or *Rath Cruachain* is one of six major royal sites in ancient Ireland and is represented as an archaeological complex of over 100 monuments[3]. 47 monuments are listed as in the ownership or guardianship of the State in the National Monument List for Roscommon (DEHLG 2009) for the Rathcroghan Archaeological Complex and these monuments have been assigned National Monument Numbers 473 and 294[4].

Situated to the north west of Tulsk, the monuments of Rathcroghan are scattered over an elevated limestone plateau that constitutes an archaeological landscape which stretches from the Neolithic to Medieval times reflecting over five thousand years of settlement and ritual activity. It is a focal point of many ancient sagas, myths

[3] Herity (1991) in his study 'Rathcroghan and Carnfree' attributes over 200 pre-Norman monuments to this part of Roscommon. The Archaeology Ireland Heritage Guide (2009) 'Rathcroghan Co Roscommon' estimate the complex to contain over 60 monuments while the 'Rathcroghan Archaeological Complex Conservation Study' (2007) defined the study area of Rathcroghan to largely follow the 120-140m contour comprising a total of 114 Recorded Monuments, of which 39 are in state care. Waddell 2009 has identified over 60 monument centred on Rathcroghan, including 19 enclosures, 27 burial mounds, pillar stones and other earthworks, mostly dating from the prehistoric period.

[4] The Rathcroghan Archaeological Complex Conservation study lists 39 monuments in the ownership or guardianship of the State within its study area

and legends and is associated with the legendary Queen Maeve and her various consorts in the great Irish sagas *Táin Bó Cúailgne* and *Táin Bó Fraíc*.

Holistically the monuments of Rathcroghan present as well preserved and a largely intact complex incorporating many different monument types and phases while retaining high visual landscape qualities which help to preserve the ancient character of the landscape. The existing N5 road bisects this important archaeological complex as well as some of its individual monuments.

The main mound at Rathcroghan, a large prominent ceremonial monument and focal point of the complex, is situated c.4km northwest of Tulsk in close proximity to the existing N5 (c.164m to the south) and is designated a national monument in state care. It is of national importance and is publically accessible.

Research of this monument has discovered a wealth of previously unknown subsurface archaeological features such as a large outer enclosure (c. 360m in diameter) and ceremonial avenues which are likely to extend up to or across the existing N5 road. Other important monuments that contribute to this internationally significant complex in close proximity to the main mound and roadside include pillar stones known as Migaun Meva and Millen Meva and several barrows, some of which are upstanding monuments within 100-200m and in clear view of the road. An ancient roadway (RO022-057021) located to the southeast and associated with the main mound is traversed by the existing N5.

Further to the northwest of the Rathcroghan ceremonial mound, close to the Rathcroghan crossroads, are two national monuments known as Rathbeg and Rathmore, both of which are within a 100m of the existing N5. Rathmore is immediately adjacent to the N5 and presents as a large raised ringfort site within a large outer ceremonial enclosure with clear views of Rathcroghan. The extant remains of the ringfort are within less than 10m from the existing N5 and the ceremonial enclosure is thought to be bisected by the N5. Rathbeg, a ringbarrow, is situated c.100m south from the existing N5.

Another ringbarrow monument situated c. 1.7km to the southeast of the Rathcroghan mound is located directly adjacent to the N5, with its constraint area bisected by the N5.

In addition to the Rathcroghan complex several other significant and important archaeological and cultural heritage key constraints[5] are present along the existing N5. To the southeast of the plateau of Rathcroghan is the historic medieval settlement of Tulsk, founded by the O'Connor lords in the early 15th century. There are a number of monuments associated with the settlement such as a castle site, a Dominican friary and graveyard, a fortified tower house, a well, a roadway, field systems and a rath. It remains a well-preserved, important medieval settlement. The existing N5 traverses through the centre of this extensive historic settlement.

Cloonfree an important moated site, is located over 1km west of Strokestown along the N5. This recorded monument is a highly important historical site documented as being the stronghold of the O'Connor's and built by Aodh O'Connor, king of Connacht in the early 14th century. It is a large well preserved monument located on a slight rise c.75m to the north of the existing N5.

[5] This term is used in the archaeological assessment for Phase 2 Constraints Study and Appendix 3C of Phase 3 Route Corridor Selection Report (2010)

The 18th century town of Strokestown is centred on Strokestown House and Demesne. Strokestown Park House was owned by the Mahon family, who were responsible for formally setting out the town of Strokestown to be orientated on their demesne house. The 18th century town and Strokestown Park House are within an Architectural Conservation Area. The house and some of its associated features are protected structures.

Due to the historic nature of the landscape within the study area, the proliferation of recorded monuments (RMP sites) is not limited to Rathcroghan and the Key Constraints of Tulsk, Cloonfree and Strokestown. There are also numerous recorded archaeological sites within the study area along the extent of the existing N5, many of which are either in close proximity to the existing road (i.e. within 100m) or their constraint areas abut the road boundary or are traversed by it, such as is the case at a ringfort and church and graveyard site at Kilcooley townland. Over 45 Recorded Monuments are recorded within 100m of the existing N5 roadway.

The routing of national traffic, especially heavy goods vehicles, through these archaeological and cultural heritage areas, has the potential to significantly detract from their setting and heritage value. It also has the potential to disturb below ground archaeological remains and individual monuments which contribute to the Rathcroghan complex which has been put forward for inclusion on the tentative list for UNESCO World heritage status.

The existence of these numerous constraints have greatly restricted any previous attempts to upgrade the existing N5, leading to the retention of its winding and undulating alignment, narrow cross-section and congested roadside which includes features such as road signs, walls, gates, public lighting columns, ESB/Telecom poles, etc.

The increase in traffic has had an adverse impact on the sensitive archaeological landscape and is predicted to continue to do so.

Plate 2.15 **HGV Traffic Immediately Adjacent to the Rathcroghan Mound and Visitor Car Park**

2.7.2 Hydrology and Ecology

The existing N5 passes close to the following Special Areas of Conservation and Special Protection Areas:

- Bellanagare Bog SAC;
- Cloonshanville Bog SAC; and
- Bellanagare Bog SPA.

It also passes close to the following proposed Natural Heritage Areas:

- Ardkillan Lough pNHA;
- Ardagh Bog pNHA;
- Bellanagare Bog pNHA;
- Cloonshanville Bog pNHA; and
- Corbally Turlough pNHA.

Currently the majority of surface water runoff from the N5 is discharged un-attenuated and untreated into the sensitive surrounding watercourses, loughs and turloughs associated with these protected sites. As vehicle numbers increase the risk of pollution increases proportionately.

2.7.3 Population and Community Effects

The existing N5 passes through the settlements of Frenchpark, Bellanagare, Tulsk and Strokestown. The routing of national road traffic through these settlements results in community severance, noise and reduced air quality for the many properties facing directly onto the national road, and in the communities either side. The is also extensive ribbon/housing development outside and between these settlements which also experience noise and severance which has increased as vehicle sizes, numbers and speeds have increased, and are predicted to continue to do so.

2.8 Project Objectives

The framing of objectives has been undertaken in accordance with the TII Project Management Guidelines (PMG) 2010 and Project Appraisal Guidelines (PAG) 2016. These guidelines are in compliance with the Department of Transport, Tourism & Sport (DTTAS) Common Appraisal Framework (CAF) for Transport Projects and Programmes (2016).

PAG Unit 3.0 *Project Brief* includes a recommendation that project objectives are established which fall under the criteria included in the Common Appraisal Framework, inter alia:

- Economy;
- Safety;
- Environment;
- Accessibility & Social Inclusion; and
- Integration.

On the basis of the deficiencies of the existing corridor and responding to the aspirations of national and strategic policy documentation, a series of defined objectives have been developed and are presented here.

2.8.1 Economic Objectives

The above description of the need for the proposed road development describes how the existing national road network between Ballaghaderreen and Scramoge is significantly sub-standard in terms of both alignment and cross-section, with average speeds of approximately 66kph in 2015 between Ballaghaderreen and Scramoge observed throughout the day. This has a negative impact on transport costs for all road users, including commuting, business, commercial, and tourist/leisure trips.

From a policy perspective the N5 corridor between Longford and Westport will form part of the Comprehensive EU TEN-T road network. The aim of the TEN-T network is to promote growth and competitiveness, remove bottlenecks, upgrade infrastructure and streamline cross border transport operations for passengers and businesses throughout the EU. The upgrading of the remaining sections of the existing N5 corridor which do not currently meet the requirements of TEN-T will create a high quality route from Dublin to Westport and has the potential to generate wider benefits for the West Region of the country. The importance of the tourism industry in the Western Region makes good transport links equally important for both commercial and tourist/leisure trips. From an economic perspective the key objectives of this scheme are:

- To reduce journey times and improve journey time reliability between Ballaghaderreen and Scramoge, especially for long distance trips between the West Region, the linked hubs of Castlebar and Ballina and the Midlands and Dublin gateways; and
- To support the economic performance of the counties of Mayo and Roscommon and the linked hub of Castlebar-Ballina through the provision of improved transport infrastructure which will reduce the cost of travel for business and tourism and assist in reducing the overall cost of production thereby improving competitiveness.

2.8.2 Safety Objectives

The above description of the need for the proposed road development identified numerous sections of the N5 corridor between Ballaghaderreen and Scramoge with a collision rate above or twice above the national average rate. Alongside this, the RSA Road Safety Strategy (2013 – 2020) targets a reduction in road fatalities on Irish roads through engineering and infrastructure improvements. From a safety perspective the key objectives of this scheme are:

- To reduce the collision rate along the national road network between Ballaghaderreen and Scramoge to below the national average rate;
- To reduce the severity of collisions along the national road network between Ballaghaderreen and Scramoge;
- To improve safety for all road users including pedestrians and cyclists along both the national road network and on the surrounding road network between Ballaghaderreen and Scramoge; and
- To support the RSA Road Safety Strategy 2013-2020.

2.8.3 Environment

Air quality and noise pollution are significant issues, particularly Heavy Commercial Vehicles (HGV) in urban areas. The above description of the need for the proposed road development identifies that there is a high proportion of HGVs using the existing N5 corridor between Ballaghaderreen and Scramoge (approximately 8-12%). Vehicles travelling at low speeds or queuing through towns and villages along the

existing N5 road corridor generate high levels of emissions as a result of continuous braking and accelerating. Reduced levels of traffic along the existing N5, particularly through the various towns and villages will have a positive health impact through improved air quality and reduce the level of severance with these areas.

This area of Roscommon is particularly rich in archaeological, architectural and cultural heritage sites and protected ecology as discussed in Section 2.7 above. From an environmental perspective the key objectives of this scheme are:

- To improve the environments of Frenchpark, Bellanagare, Tulsk and Strokestown by the removal of through traffic and in particular HGV's;
- To reduced levels of severance along the existing N5, particularly through the various towns and villages;
- To minimise impact on the Candidate UNESCO World Heritage Site of the Rathcroghan Archaeological complex; and
- To avoid adverse impacts on the internationally important European Sites.

2.8.4 Accessibility & Social Inclusion Objectives

Parts of both County Roscommon and County Mayo, particularly the rural areas outside Castlebar and Westport are recognised as areas of social exclusion through the former CLÁR Programme (Programme for Revitalisation of Rural Areas). The above description of the need for the proposed road development highlights that the existing national road network between Ballaghaderreen and Scramoge has a negative impact on transport costs for all road users due to its sub-standard alignment and cross section.

The description of the need for the proposed road development also identifies the severance effects of the existing N5 through the settlements of Frenchpark, Bellanagare, Tulsk and Strokestown and the lack of pedestrian and cycle provision for the extensive ribbon development between these towns. This has a negative impact, particularly on the elderly and young children. From an accessibility and social inclusion perspective the key objectives of this scheme are:

- To improve accessibility to key facilities, such as employment, education and healthcare for all road users, but in particular vulnerable groups;
- To reduce travel costs in the region and thereby encourage and support investment and employment in County Roscommon and the Western Region;
- To support the accessibility and social inclusion objectives of national, regional and local planning policy; and
- To reduce severance impacts on vulnerable groups.

2.8.5 Integration Objectives

The project is required to integrate with general policies and plans under the headings of Transport, Land Use, Geographical and Government Policy. Key integration objectives include:

- To meet the requirements of the EU Regulations relating to the TEN-T network;
- To support the integration objectives set out in European, National, Regional and Local Planning policy;
- To support initiatives to bring investment into the West Region; and

- To support transport integration within the wider region, maximising the benefits of previous investment in the N5 corridor and improving access to Ireland West Airport Knock.

2.9 Function and Operational Outcomes

2.9.1 Proposed Road Development

The proposed road development provides a Type 1 Single Carriageway cross section typically with two 3.65m traffic lanes, 2.5m hard shoulders and 3m verges. The proposed road alignment has been designed to meet current standards for the posted speed limit on national roads of 100kph. The number of junctions and accesses is proposed to be reduced from 546 (on the rural sections of the existing N5) to 33 with designed agricultural access roads eliminating direct field access onto the national road. In accordance with current design standards, the proposed road development provides clear overtaking in excess of the minimum requirement of 30% overtaking opportunities on national primary roads. The selected route bypasses the settlements of Frenchpark, Bellanagare, Tulsk and Strokestown, and passes north of the Rathcroghan/Carnfree archaeological complexes. The proposed drainage system is designed to collect, attenuate and treat runoff prior to discharge to the surrounding environment and the selected route avoids any new impacts on designated ecological sites. A full description of the proposed road development is provided in Chapter 4, together with detailed assessments of the environmental impacts in subsequent chapters.

2.9.2 Economy

The increased efficiency of the road network will improve journey times and journey time reliability along the N5 corridor between the N5 Ballaghaderreen Bypass and Scramoge, especially for long distance traffic between the Western region, the linked hubs of Castlebar and Ballina and the Midlands and Dublin gateways. The analysis presented in Chapter 5 indicates a reduction in end to end journey time from 32 minutes to 22 minutes. The proposed road development would achieve a Level of Service C, significantly improving journey time reliability. This will reduce travel costs for business and tourism and assist in reducing the overall cost of production, thereby improving competitiveness. The benefits of reduced journey times are reflected in the positive economic return of the scheme which delivers a benefit cost ratio of 1.4.

When this 10 minute time saving is added to the time savings delivered through schemes such as the N5 Longford Bypass, N5 Ballaghaderreen Bypass and approved schemes such as the N5 Westport to Turlough Road Project, the overall the N5 corridor has the potential to significantly reduce travel cost for the wider region, reducing perception of being remote and thereby supporting economic development.

Based on the above the proposed road development meets the economic objectives of the project.

2.9.3 Safety

The proposed road development is predicted to reduce the number and severity of accidents along the N5 corridor by:

- Reducing the number of local road junctions on the national road, providing full visibility at all junctions and in particular eliminating cross-road junctions;

- Creating sufficient sections of road to facilitate safe overtaking evenly distributed throughout the proposed road development length;
- Removing long distance HCV traffic from the existing N5, improving conditions for pedestrians, cyclists and agricultural vehicles. Where pedestrians, cyclists and agricultural vehicles use the proposed N5 a continuous hard shoulder is provided to accommodate their movements;
- Improve safety at farm, house and field entrances by substantially reducing the number of direct accesses onto the national road network and ensuring that those that remain provide good visibility and space to stop clear of the carriageway;
- Improving visibility and general road conditions on the national primary route; and
- Improving the safety of the roadside in the event of high speed single-vehicle collisions on the national primary route.

For single-vehicle accidents, data from the Road Safety Authority as illustrated in Table 2.8 above shows the type of collisions with roadside objects (e.g. walls, ditches, bollards and trees). The provision of clear roadside verges, careful location of roadside equipment and the introduction of safety barriers where required will significantly reduce the risk and severity of such accidents. The incorporation of these measures, in conjunction with improved geometry, improved cross-section and junction arrangements is a major contributing factor in reducing the risk of accidents and the severity of associated injuries.

The proposed road development will improve safety due to three main changes as detailed below:

- Traffic using the N5 will be provided with a safer route, leading to a substantial reduction in the number of accidents along that corridor;
- The local traffic utilising the existing N5, will not be in conflict with the long-distance through traffic, improving safety for road users and vulnerable users within the population centres on the existing N5; and
- Traffic on other corridors (e.g. alternative local and regional roads) will re-route to instead follow the N5 corridor. As such, traffic flows on alternative routes will reduce, thereby leading to a reduction in accidents on those other routes. This can often lead to a strong improvement in the casualty rate given the relatively poor safety record (expressed as a function of the traffic volumes) on some non-national routes.

The proposed road development will divert heavy traffic away from those sections of the existing N5 which currently have a collision rate twice above the national average collision rate.

The collisions predicted using the COBALT analysis indicates that when the improved road network is compared to the Do-Minimum scenario the implementation of the proposed N5 will result in the following:

- A reduction of 8 fatalities;
- A reduction of 23 serious injuries; and
- A reduction of 461 minor injuries.

This reduction in injuries is substantial and demonstrates the scale of the benefits associated with the proposed road development, in support of the RSA Road Safety Strategy 2013-2020.

Based on the above the proposed road development meets the safety objectives of the project.

2.9.4 Environment

The proposed road development will remove long distance national road traffic from the centres of Frenchpark, Bellanagare, Tulsk and Strokestown, leading to significant reductions in noise and severance. This coupled with reduced congestion within the towns and a decrease in stop-start driving, with more constant driving conditions, will result in an overall improvement in air quality. Similar benefits will be achieved for the occupants of the extensive ribbon development alongside the existing N5 between these settlements. Some properties located close to the proposed road will be impacted by increased noise levels. For these affected properties mitigation measures will be implemented where necessary through the construction of noise barriers or other appropriate measures to limit the potential impacts of noise and vibration.

The proposed road development will divert traffic that currently passes through the heart of the Rathcroghan archaeological complex, and immediately adjacent to the Rathcroghan Mound and will instead be routed 3.7km to the north. The traffic which currently goes right through the Rathcroghan Complex will be rerouted to the proposed road development which is sited 3.7km from the Rathcroghan Mound. The centre line of the proposed road development is located approximately 1km north of the 100m contour line (at its closest point) which surrounds the complex and roughly corresponds with the edge of the plateau and over 0.8km from the outer edge of the proposed road development. With the proposed landscape planting mitigation there will be no appreciable difference to the northern views extending from the monuments and the complex to where the proposed road development is located.

All surface water runoff from the carriageway of the proposed road development will be collected by a combination of piped drainage systems, ditches and concrete/grass channels, and discharged through stormwater retention and treatment ponds at greenfield runoff rates. In terms of water quality improvement, the diversion of 75% of the traffic away from the existing N5 and onto a new road that incorporates the collection and treatment of run-off prior to discharging to existing watercourse is a significant positive.

The selected route seeks to minimise impact upon the existing environment wherever possible through avoidance of sensitive areas. Where this is not feasible mitigation measures will be put in place.

The proposed road development will pass close to a number of designated sites, however the Appropriate Assessment (Natura Impact Statement) identified that there will be no adverse effects on the integrity of any European Site. Avoidance, protective and mitigation measures as described in the EIAR and NIS will be fully implemented, so as to minimise all likely significant effects.

Removing a large proportion of traffic (approx. 75%) from the towns and villages along the existing N5 corridor will improve air quality, reduce noise, reduce severance and improve the overall quality of the environment for residents and in particular pedestrians and cyclists. The selection of an offline option which avoids

the Rathcroghan archaeological complex minimises the impact on the Candidate UNESCO World Heritage Site and improves the integrity of the complex as it removes a large proportion of traffic from the most sensitive area. In addition, adverse impacts on the internationally important European Sites have been avoided through careful route selection and development.

Based on the above the proposed road development meets the environmental objectives of the project.

2.9.5 Accessibility (and Social Inclusion)

The proposed road development will improve road based public transport at local, regional and national level, by reducing travel costs along this section of the N5 corridor. The proposed road development is likely to reduce the cost of providing inter-urban bus services and reduce bus journey times between Castlebar and Longford. For bus transport providers, including the CIE group and private operators, quality roads are an essential requirement.

The proposed development will achieve the objectives of the national, regional and local plans to generally improve quality of life and improve accessibility to work, education and other key facilities.

Reducing journey times along the N5 corridor and improving journey time reliability will improve access to key facilities for both private car and public transport users through reduced travel cost and improved quality and reliability. The reduced transport costs delivered through the upgrading of the overall N5 corridor have the potential to generate wider benefits and help encourage investment in the region.

The reduced travel costs for users are reflected in the positive economic return of the scheme. All of the above is consistent with national, regional and local planning policy. The removal of traffic, particularly HGV's from the various towns and villages along the existing N5 will reduce severance for communities and improve access to the local area for older or mobility/sensory impaired persons.

Based on the above the proposed road development meets the accessibility and social inclusion objectives of the project.

2.9.6 Integration

The proposed road development will integrate with general policies and plans under the headings of Transport, Land Use, Geographical and Government Policy, including European, national, regional and local plans and policies.

The proposed road development will support Smarter Travel through improving journey time reliability for long distance and rural public transport services, improving the potential for strong growth in walking and cycling within the settlements that are bypassed and improve the fuel efficiency of long distance traffic bypassing the population centres. Its alignment will support consolidation of development within the bypassed settlements. The proposed road development will support more efficient driving through the provision of higher quality infrastructure, and create new cycle and pedestrian linkages.

The proposed cross section, including hard shoulders and clear roadside verges greatly improves safety for cyclists and pedestrians, connecting the similar provisions on the remainder of the N5 for long distance cyclists. The proposed road provides

numerous new and upgraded linkages between local roads, providing new potential pedestrian and cycle routes.

The proposed road development will meet the requirements of a TEN-T road network and facilitate the overall improvement of the N5 corridor to TEN-T standard. The proposed road development will integrate with the wider investment in the national road network, in particular between Dublin and Westport and also improve connectivity to Ireland West Airport Knock, thereby supporting initiatives to bring investment into the Western Region.

Based on the above the proposed road development meets the integration objectives of the project.

APPENDIX 2.1

Business Consultation Findings Report