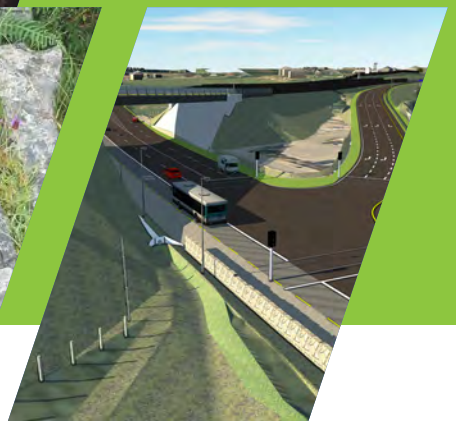


Volume 1

N6 Galway City Ring Road

Environmental Impact Assessment Report

Non-Technical Summary | September 2018

Comhairle Cathrach na Gaillimhe
Galway City Council

Comhairle Chontae na Gaillimhe
Galway County Council

An Roinn Iompair Turasóireachta agus Spóirt
Department of Transport, Tourism and Sport

TII
Bonneagar Iompair Éireann
Transport Infrastructure Ireland

ARUP

List of Volumes

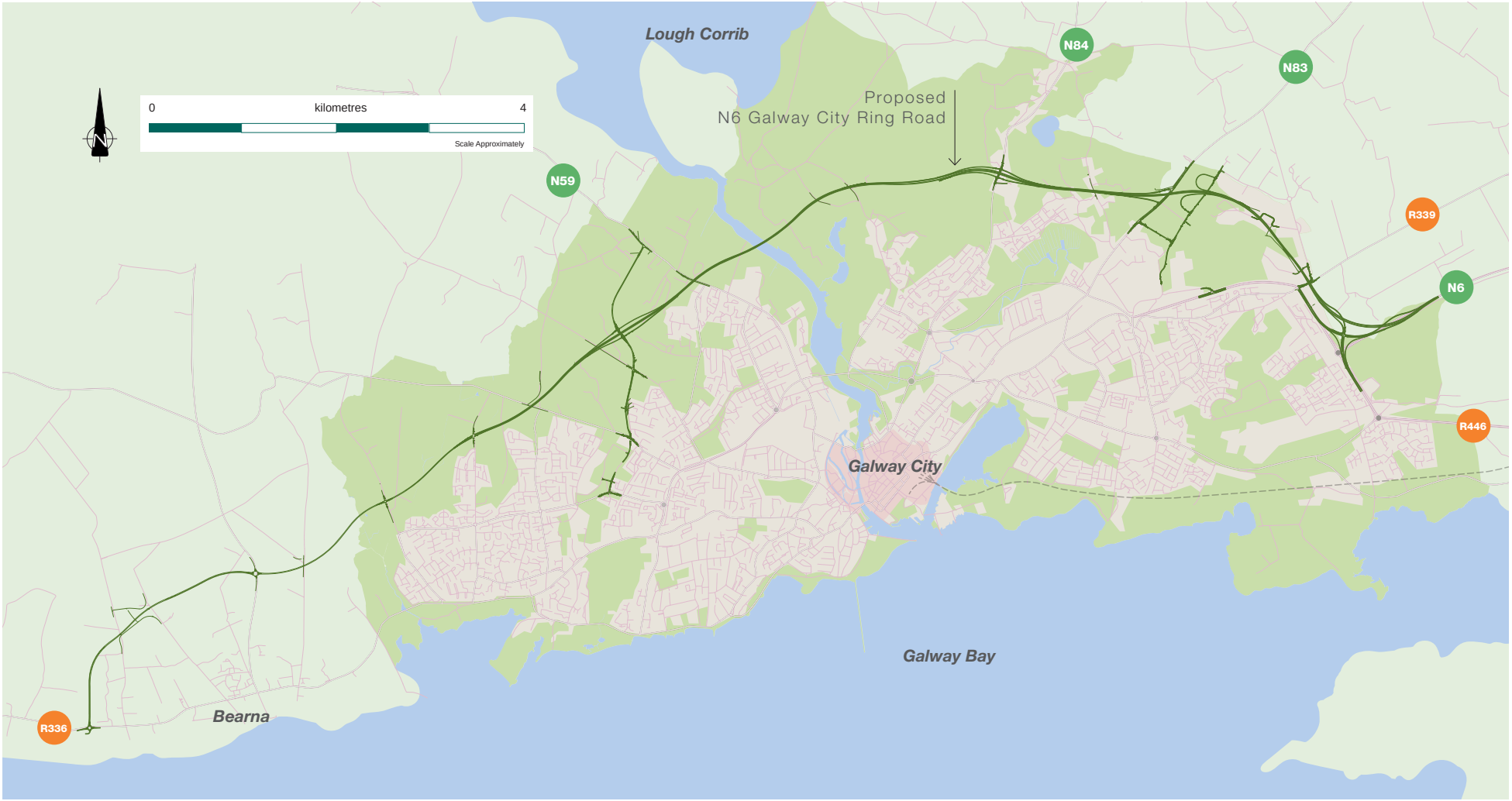
Volume 1	Volume 2	Volume 3	Volume 4
Non-Technical Summary	Environmental Impact Assessment Report	Figures	Appendices
This document			

Volume 1 - Content


MANDATE
FOR MARRIAGE:
ONE MAN,
ONE WOMAN
VOTE NO
Sinn Féin
YES
DIVERTED
TRAFFIC
TAXI
MEGANE

1 Introduction

Figure NTS 01 - Schematic showing the route of the proposed N6 Galway City Ring Road



1. Introduction

Galway County Council (GCC) on behalf of itself and on behalf of Galway City Council is proposing to develop the N6 Galway City Ring Road (N6 GCRR) around Galway City.

GCC has made a Protected Road Scheme and a Motorway Scheme which are being submitted for approval to An Bord Pleanála (ABP) under Section 49 of the Roads Act 1993, as amended and these Schemes are referred to throughout this report as the proposed road development or the N6 GCRR.

The proposed road development comprises approximately 18km of road infrastructure from a new junction with the R336 at the western side of Bearna to tie-in to the existing N6 to the east of Galway City at Coolagh, Briarhill.

The route of the N6 GCRR is presented on **Figure NTS-1.**

This new road will consist of a single carriageway from the R336 Coast Road to the Ballymoneen Road and a dual carriageway from the Ballymoneen Road to the eastern tie-in at Coolagh, Briarhill.

The new road will be a 'protected road'[1] from the R336 Coast Road to the N59 Letteragh Junction and a motorway from this junction to the eastern tie-in at Coolagh. The proposed road development also incorporates associated link roads, side roads, junctions and structures and localised works to the existing electricity transmission and distribution networks.

A previous application to ABP in 2006 for the then defined 'N6 Galway City Outer By-pass' (GCOB) underwent an Environmental Impact Assessment (EIA) process, from which ABP concluded that "the need for an outer by-pass of Galway City connecting the N6/M6 National Primary Road at Garraun to the R336 regional coast road at An Baile Nua as an essential component of the strategic transport network of the Galway area had been established" (ABP decision 07.ER.2056). The eastern section only of that scheme was granted approval by ABP but subsequently legally challenged on environmental grounds which resulted in the scheme not progressing. The western section of this scheme did not receive planning permission from ABP due to potential environmental impacts in the area of Moycullen Bogs Natural Heritage Area (NHA) (an ecological area with national protection) at Tonabrocky.

1. A protected road has the same protection as a motorway in terms of limiting any direct access from any land adjoining to it, or from it to such land. Pedestrians and cyclists are permitted on the protected road but not on the motorway.

The Environmental Impact Assessment Report (EIA Report) is defined as

"a statement of the effects, if any, which the proposed development, if carried out, would have on the environment"

(Environmental Protection Agency (EPA) 2017).

1. Introduction Cont.

In developing the N6 GCRR project, GCC have been cognisant of the need to consider alternatives to the proposed road development. Having established the need for the project, and in consideration in detail of alternatives, the N6 GCRR was developed.

The N6 GCRR forms part of, and is identified as a project within the 'Galway Transport Strategy' (GTS). The GTS was prepared by Galway City Council and GCC, in partnership with the National Transport Authority (NTA). The GTS is based on a comprehensive assessment of transport issues facing Galway City and the wider environs and the need to develop a sustainable integrated transport solution to accommodate existing and future travel demand, thereby facilitating Galway growing *"in an integrated, sustainable manner that aligns transport investment with settlement patterns, travel movements and also supports a sustainable use of land*" (Galway City Council Development Plan 2017-2023).

The GTS is currently being implemented by Galway City Council, both in terms of the policy objectives established and the delivery of transport projects identified within the strategy.

The Environmental Impact Assessment Report (EIA Report) prepared for the N6 GCRR is defined as *"a statement of the effects, if any, which the proposed development, if carried out, would have on the environment"* (Environmental Protection Agency (EPA) 2017).

This EIA Report details the consideration of alternatives, consideration and assessment of likely significant effects/impacts, mitigation and avoidance measures to reduce significant adverse effects/ impacts, and assessment of residual impacts. The EIA Report contains all of the information prescribed by the relevant provisions of the Roads Act, 1993 as amended, the Roads Regulations, 1993 as amended, Article 5 and Annex IV of Directive 2011/92/EU as amended by Directive 2014/52/EU, and due regard has been given to the guidelines and advice notes in preparation of same.

This EIA Report has been compiled by Arup on behalf of GCC with assessment and reporting provided by competent experts for each individual specific topic. The EIA Report contains the following documents:

Volume 1
Non-Technical Summary

Volume 2
Environmental Impact Assessment Report (Main Text)

Volume 3
Figures

Volume 4
Appendices

This document forms Volume 1 – Non Technical Summary. It summarises the contents of Volumes 2 to 4, to which interested readers should refer should they require more detailed information on any aspect of the proposed road development.

In addition, potential impacts on designated Natura 2000 sites (these are special protection areas and special areas of conservation which are designated for protection under the EU Habitats Directive, and are also known as European sites) are specifically assessed in the Natura Impact Statement (NIS), which also forms part of this application for approval to ABP.

2 Context

“As Galway City and its environs continues to grow as planned, it is crucial to safeguard the future development of the city as the principal economic centre in the west of Ireland and to ensure that its development is sustainable.”

2. Context

The need for the proposed road development has been considered at both a regional level in terms of its strategic function, and at a local level in terms of providing an integrated transport solution for the city and environs.

As recognised in the recently published Project Ireland 2040 'National Planning Framework' (NPF) *"Galway has been Ireland's most rapidly developing urban area for half a century and is a key driver for the west of Ireland"*. Galway is, however, a city of contrasts in terms of its physical development and transport requirements. While Galway has a compact walkable core, outside of the city centre, the suburbs have developed as a succession of low density residential areas interspersed with employment areas, leading to a predominance of private car usage as a means of travel.

As Galway City and its environs continues to grow as planned, it is crucial to safeguard the future development of the city as the principal economic centre in the west of Ireland and to ensure that its development is sustainable.

At a regional level, the N6 GCRR is seen as key, critically enabling transport infrastructure which, through the rerouting of the national primary route, and thereby through traffic from the centre of Galway City, allows a currently dysfunctional section of the national road network to function again in terms of:

- Acting as a gateway to Connemara and the Western Region. Improving **connectivity and accessibility to and through Galway City** is essential in aiding the region to revitalise, improve and develop into the future.
- Providing **well developed transport links** via roads, rail and air to the West Region[2], thereby enabling enterprises and the local economy of the west to grow and develop as a viable alternative to the east coast corridor which is of significant public interest at a national level

At a local level, the GTS identified key challenges to be addressed for the city, as:

- *"The need to transform Galway City Centre from a location typically characterised by heavy congestion and significant traffic volumes to a destination of choice for residents, workers and visitors alike;*
- *The need to reduce the reliance on travel by private car;*
- *The need to deliver a public transport network that can offer journey time reliability and frequencies sufficient to maximise the attractiveness of the service and to meet demand;*
- *The need to supplement the public transport network with complementary facilities such as Park & Ride for the benefit of people accessing the city from the surrounding rural areas;*
- *The need to facilitate city-bound, cross-city, cross-county and strategic east-west travel on the National and Regional road network without impacting on the functionality of the city;*
- *The need to improve accessibility to and through residential areas for sustainable travel modes in order to improve the appeal of alternatives to the private car;*
- *The need to maximise connectivity by walking, cycling and public transport to major employment and educational facilities;*
- *The need to minimise non-essential traffic flow through the city centre;*
- *The need to minimise the impact of traffic congestion on Galway City Centre, in order to allow the city to grow in a sustainable manner; and*
- *The need to achieve efficiency and resilience on Galway's transport network, across all modes" (Galway Transport Strategy).*

In seeking to address these issues, the transport strategy which emerged, incorporating the N6 GCRR, will allow the city to 'breathe' again.

2. The West Region comprises the counties of Galway, Mayo and Roscommon.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3 Consultation


An Integrated Transport Management Programme (ITMP) for Galway
An Integrated Sustainable Transport Solution
Public Display
Project Framework
Phase 1
April 2014
Public Display
Route Selection Process
Public Display
Article 6 EU Habitats Directive
Article 6 EU Habitats Directive
Council Directive 92/43/EEC of 21 May 1992 on the conservation of natural habitats and of wild fauna and flora
ARUP


N6
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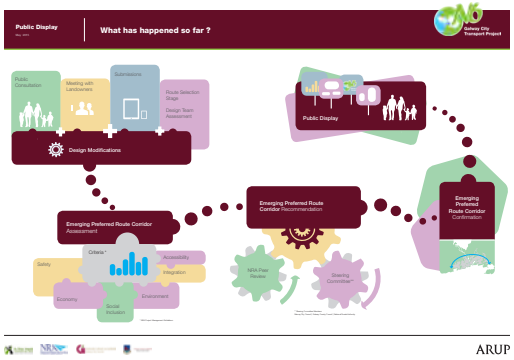
Socio Economic



3. Consultation

Extensive consultation has taken place via public information sessions and discussions with key stakeholders, relevant statutory bodies, property owners, local organisations and utility/ service providers.

Over 950 individual property owner meetings, including many home visits, took place between the design team and property owners and such consultation informed the design of the proposed road development and the environmental impact assessment.

Four public information sessions were held as follows:

- **Public Consultation No. 1** as part of the Constraints Study in July 2014 over two days
- **Public Consultation No. 2** as part of the Options Development in January/February 2015 over four days
- **Public Display No. 3** of the Emerging Preferred Route Corridor for the N6 Galway City Ring Road in May 2015 over two days. The Galway Transport Strategy also formed part of this consultation.
- **Public Display No. 4** of the Design of the N6 Galway City Ring Road in November 2016

The consultations with the public reinforced the significant existing constraints restricting the development of a new road and the need for an integrated multi-modal transport solution. Although some of the significant impacts were unfortunately unavoidable, positive changes were implemented into the design as a result of the consultation process.

A project website was created and used to keep the public informed at all stages as the N6 GCRR project progressed. All property owners identified as owning lands to be acquired to facilitate the construction of the proposed road development received written correspondence in October 2016 with a copy of the design with respect to their property. As part of the final consultation process, written communication was issued to all property owners again in May 2018 with a copy of the final design with respect to their property and an explanation of the next steps.

Relevant statutory bodies and utility/service providers including National Parks and Wildlife Services, Inland Fisheries Ireland, Office of Public Works, ESB Networks, ESB International, Gas Networks Ireland, Irish Water and other service providers were also consulted, and this consultation informed the design development.


MERCHANTS ROAD LOWER
08-C-2710

4 Planning Policy

4.1 National

4.1.1 Smarter Travel – A Sustainable Transport Future

"Smarter Travel – A Sustainable Transport Future" is a policy framework approved by Government in 2009 which sets out how the vision of a sustainable travel and transport system can be achieved. The policy acknowledges that *"transport is vital for our economy. As an island nation we need good transport connections with our trading partners; we also need to ensure efficient movement on the island. Safe and comfortable travel is also a key element of a good quality of life. The issue is not to restrict travel and transport but to facilitate smarter ways of meeting these needs".*

As outlined earlier, the GTS identified the need to develop a sustainable integrated transport solution to accommodate existing and future travel demand, thereby facilitating Galway growing and in doing so aligns fully with Smarter Travel policy framework.

The N6 GCRR also aligns with the key goals of Smarter Travel in its efforts to align land use and transportation policy, and in seeking to deliver viable and attractive alternatives to the private car in Galway. Full implementation of the GTS, of which the N6 GCRR is a significant component, is predicted to result in an improvement of 16% in modal shift to public transport.

4.1.2 Capital Plan, Building on Recovery 2016-2021

The Capital Plan, which was published in 2015, set out a six-year framework for substantial infrastructural investment in Ireland out to 2021. The transport capital allocation in this Capital Plan supports the proposed road development specifically by reference to supporting the commencement of the 'Galway By-Pass' subject to planning permission.

A review of the Capital Plan was published in August 2017 as there was a significant improvement in economic performance of the country which enabled the allocation of additional capital investment for increased public capital investment over the period of the Capital Plan. The increased expenditure is targeted to achieve specific outcomes which achieve value for money.

Following the allocation of this increased capital investment, the Government published a new 10-year national investment plan for the period 2018-2027 which closely aligned with the key objectives of the National Planning Framework to ensure the money is spent in accordance with an overall plan.

4.1.3 Project Ireland 2040

Project Ireland 2040 is government policy which combines planning policy and investment policy to ensure a coordinated and integrated approach for the growth of Ireland over the next 20 years.

"Project Ireland 2040 is the Government's overarching policy initiative to make Ireland a better country for all of us, a country that reflects the best of who we are and what we aspire to be.

Project Ireland 2040 is informed by the Programme for a Partnership Government 2016, which recognises that economic and social progress go hand in hand, as well as by the National Planning Framework to 2040 and the National Development Plan 2018-2027.

The objective of Project Ireland 2040 is to provide a comprehensive social, economic and cultural infrastructure for all our people to flourish, so that together we can create a better society." (Project Ireland 2040)

By 2040, it is expected that an additional one million people will live in Ireland with an additional two-thirds of a million people working here. This means that more people will be travelling to work, schools and universities, more buildings will be needed to accommodate them and more infrastructure will be needed to provide services for them. **Project Ireland 2040**, therefore, consists of the **National Planning Framework (NPF)** which sets out a spatial strategy for Ireland to accommodate this significant population change in a sustainable and balanced fashion and the **National Development Plan (NDP)** which sets out the investment programme to deliver it. The integrated strategy presented in the NPF and the NDP seeks to avoid the pitfalls which resulted in the failure of previous spatial plans. The joint publication as Project Ireland 2040 seeks to align our investment strategy with our strategic planning documents.

The National Planning Framework is backed up by an infrastructure investment programme, the National Development Plan. In short, the State's infrastructure investment – the money – is guided by and follows the Plan. (Project Ireland 2040)

4.1.3.1 National Development Plan 2018-2027

Project Ireland 2040 National Development Plan 2018-2027 sets out the investment priorities that will underpin the successful implementation of the new National Planning Framework (NPF). This will guide national, regional and local planning and investment decisions in Ireland over the next two decades with a ten-year strategy for public capital investment of almost €116 billion.

The NDP identifies the strategic priorities for public capital investment for all sectors. In doing so, the NDP will support the achievement of more balanced development of Ireland's three regions, namely the Northern and Western Region, the Southern Region, and the Eastern and Midland Region as well as Ireland's main cities, Dublin, Cork, Limerick, Galway and Waterford, whose success is central to the success of these regions.

The N6 GCRR is identified as one of the major national infrastructure projects in the NDP, along with the plans for BusConnects and Galway City Centre regeneration. BusConnects will deliver a network of five high-performing cross-city routes which will serve major city centre attractions as well as linking all major destinations across the city. The NDP references the GTS as an example of the NTA working in partnership with the local authorities in Galway to prepare a transport strategy for Galway.

4.1.3.2 National Planning Framework

Project Ireland 2040 National Planning Framework (NPF) now represents the overarching national planning policy document, of direct relevance to the planning functions of regional and planning authorities, including An Bord Pleanála. It replaces the National Spatial Strategy. It is the overall Plan from which other, more detailed plans will take their lead, including regional strategies and city and county development plans.

The National Planning Framework (NPF) focuses on compact growth, connectivity and sustainable mobility – all of which are necessary to deliver a strong economy. The objective is to *"enable all parts of Ireland, whether rural or urban, to successfully accommodate growth and change, by facilitating a shift towards Ireland's regions and cities other than Dublin, while also recognising Dublin's ongoing key role."* (NPF).

The NPF supports ambitious growth targets to enable Galway to grow by at least 50% to 2040 and to become a key driver for the west of Ireland. The NPF targets a population growth to 2040 of 40,000-48,000 people for Galway City and its environs, to achieve a total population of at least 120,000 people. The delivery of the N6 GCRR is identified in the NPF as a key future growth enabler for Galway and the West Region. It is also identified of national importance in enhancing regional accessibility.

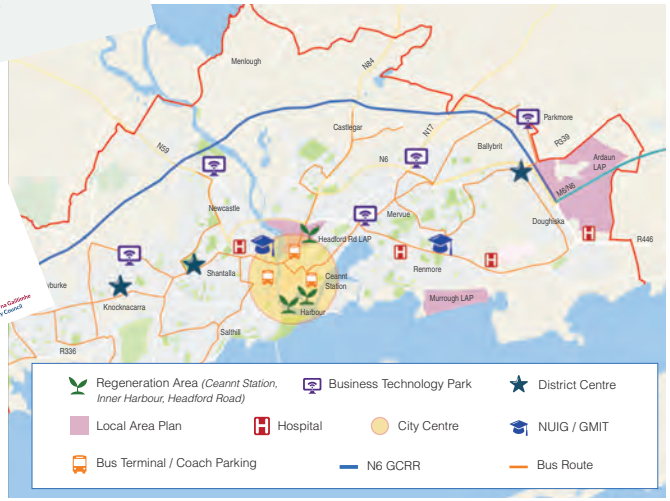
4.2 Regional

Regional governance and regional development are essential for identifying regional policies and coordinating initiatives that support the delivery and implementation of national planning policy at a local scale. The three Regional Assemblies are tasked to co-ordinate, promote and support the strategic planning and sustainable development of the regions. The Northern and Western Regional Assembly includes the county councils of Cavan, Donegal, Leitrim, Galway, Mayo, Monaghan, Roscommon and Sligo and the city council of Galway.

Each of the Regional Assemblies is tasked with preparing a Regional Spatial & Economic Strategy (RSES) for their region which will then replace the Regional Planning Guidelines 2010-2022 (RPGs). The RSESs will provide regional level strategic planning and economic policy in support of the implementation of the NPF. Consultation on an Issues Paper for the Northern and Western Regional Assembly's RSES was undertaken earlier in 2018. This paper identified the completion of the N6 GCRR and the full implementation of the GTS as critically enabling infrastructure. The report on the conclusion of the consultation on the issues paper was published in March 2018, with the finalisation of the RSES for the Northern and Western Region due later.

4.3 Local

Both Galway City and County Councils are committed to intensifying public transport and usage to deliver growth and improve the quality of life in Galway. Both the Galway City Development Plan 2017-2023 and Galway County Development Plan 2015-2021 support the proposed N6 GCRR as part of the GTS which is the overall transport strategy. Galway City Council's transport strategy for the city in its Development Plan aims *"to integrate sustainable land use and transportation, facilitating access and choice to a range of transport modes, accessible to all sections of the community that ensures safety and ease of movement to and within the city and onward connectivity to the wider area of County Galway and the West Region."*



The Galway County Development Plan sets out an objective to *"work with all other relevant bodies including the National Transport Authority (NTA), Transport Infrastructure Ireland (TII) and Galway City Council to deliver the necessary improvements to transportation infrastructure, including new infrastructure if necessary and the plan level environmental protection policies and mitigation measures set out in the GTS."* This infrastructure includes the provision of the N6 GCRR. This objective notes that this is integral in the delivery of the GTS, which in turn is necessary to secure the long term economic and social development of Galway and the west of the county.

The N6 Galway City Ring Road seeks to deliver essential infrastructure for the West Region and aligns with the objectives set out in national, regional and local planning policy.

5 Objectives of the Proposed N6 GCRR

5. Objectives of the Proposed N6 GCRR

The proposed road development is framed by, and responds to planning policies and objectives at a European, national, regional and local level as summarised in **Section 4 and 8.2**.

The specific project objectives established by GCC and the City Council, and in conjunction with Transport Infrastructure Ireland (TII), are as follows:

To provide an essential link in the European Transport Infrastructure (TEN-T[3]) comprehensive transport network which will provide connectivity of the west of Ireland to the single European market

To provide the necessary infrastructure to support the economic growth of Galway and the West Region by improving connectivity to the Gateway of Galway thus supporting the economic performance of Galway by encouraging local, regional, national and international development

To enable other public projects to be realised and to facilitate the effective implementation of the GTS, which includes improved public transport, walking and cycling measures for Galway City and its environs

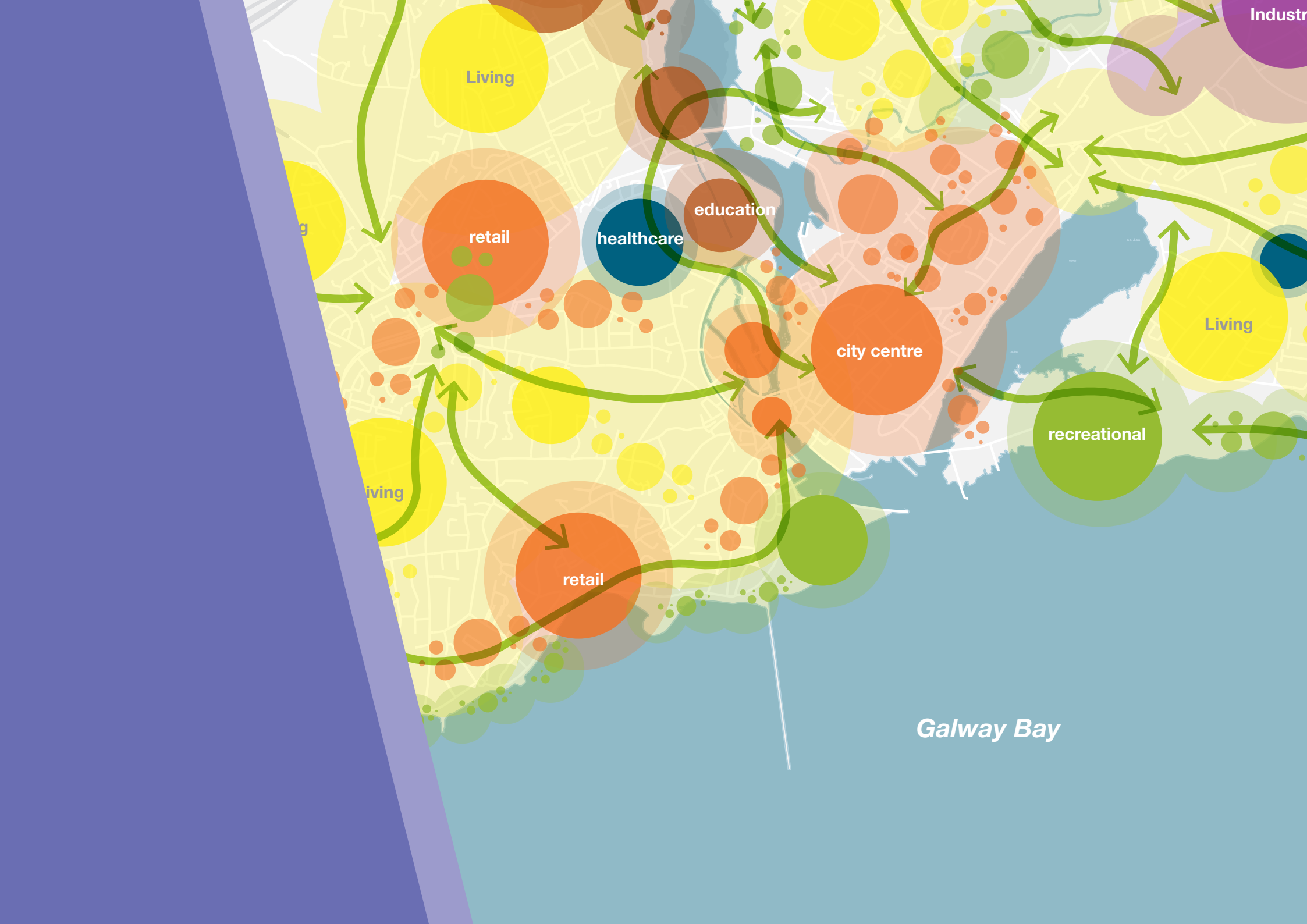
3 . http://ec.europa.eu/transport/infrastructure/tentec/tentec-portal/map/maps.html
The Trans-European Transport Networks are a planned set of road, rail, air and water transport networks in the European Union aimed to create connectivity between regions

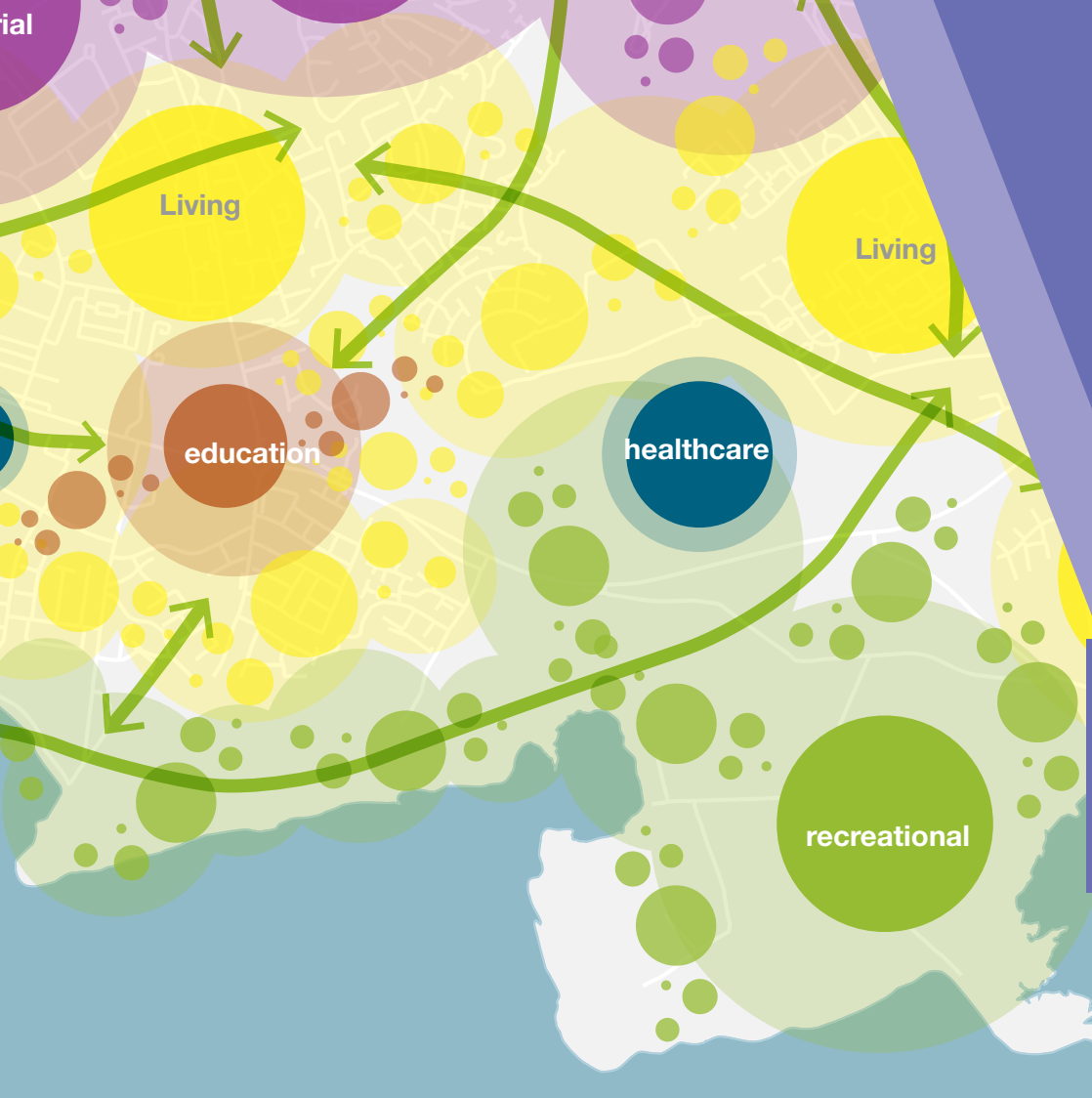
To support a shift towards environmentally friendly transport modes to bring about a sustainable transport and mobility system in Galway City and its environs, which will allow implementation of sustainable transport policies for short commutes

To improve accessibility of the Gaeltacht areas and recognise the role of Galway City as a gateway to the West Region and Connemara which have a very high quality tourist offering which is dependent on connectivity in order to achieve its potential

To reduce road traffic collisions by providing safer urban streets by segregation of the interface of by-passable traffic from urban traffic

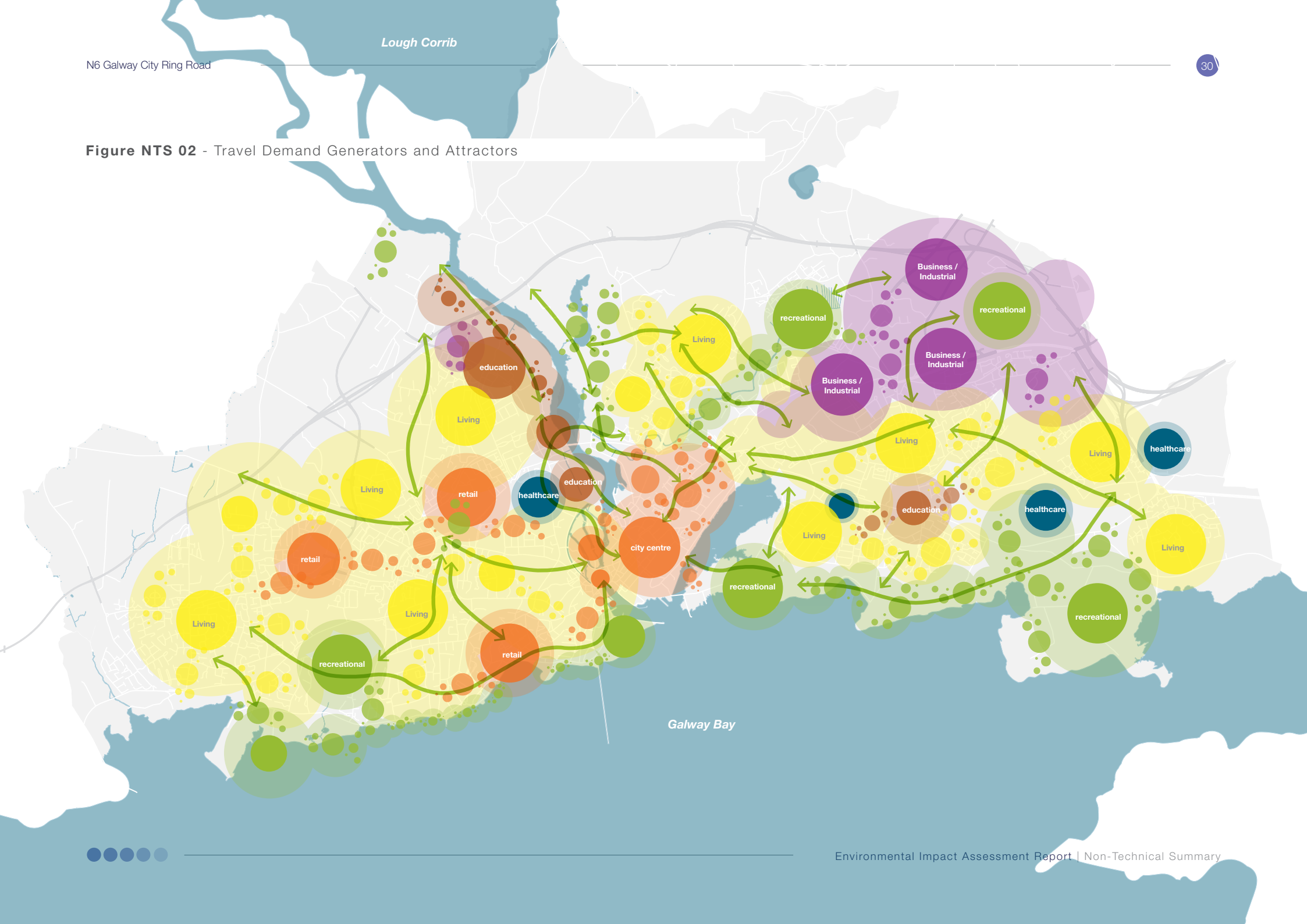
To reduce journey times and improve journey time reliability by removing bottlenecks that hamper the smooth functioning of the internal market


Living
retail
healthcare
education
city centre
Living
recreational
retail
Galway Bay



6 Need for a Transport Solution

Figure NTS 02 - Travel Demand Generators and Attractors



6.1 Overview

23%
of City population travel on foot

6%
of City population travel by bicycle

9%
of City population travel by Bus/Coach

<1%
of City population travel by Train

54 %
of City population are driving in a car/van

Source:
This data is from Census 2016

The consideration of alternatives started with the assessment of doing nothing, followed by the examination of how the incremental addition of transport measures could address the transport issues currently experienced in Galway before considering the addition of road infrastructure.

The incremental transport measures started with walking measures, followed by cycling measures, followed by a review of possible modes of public transport, followed by public transport network configuration to suit Galway.

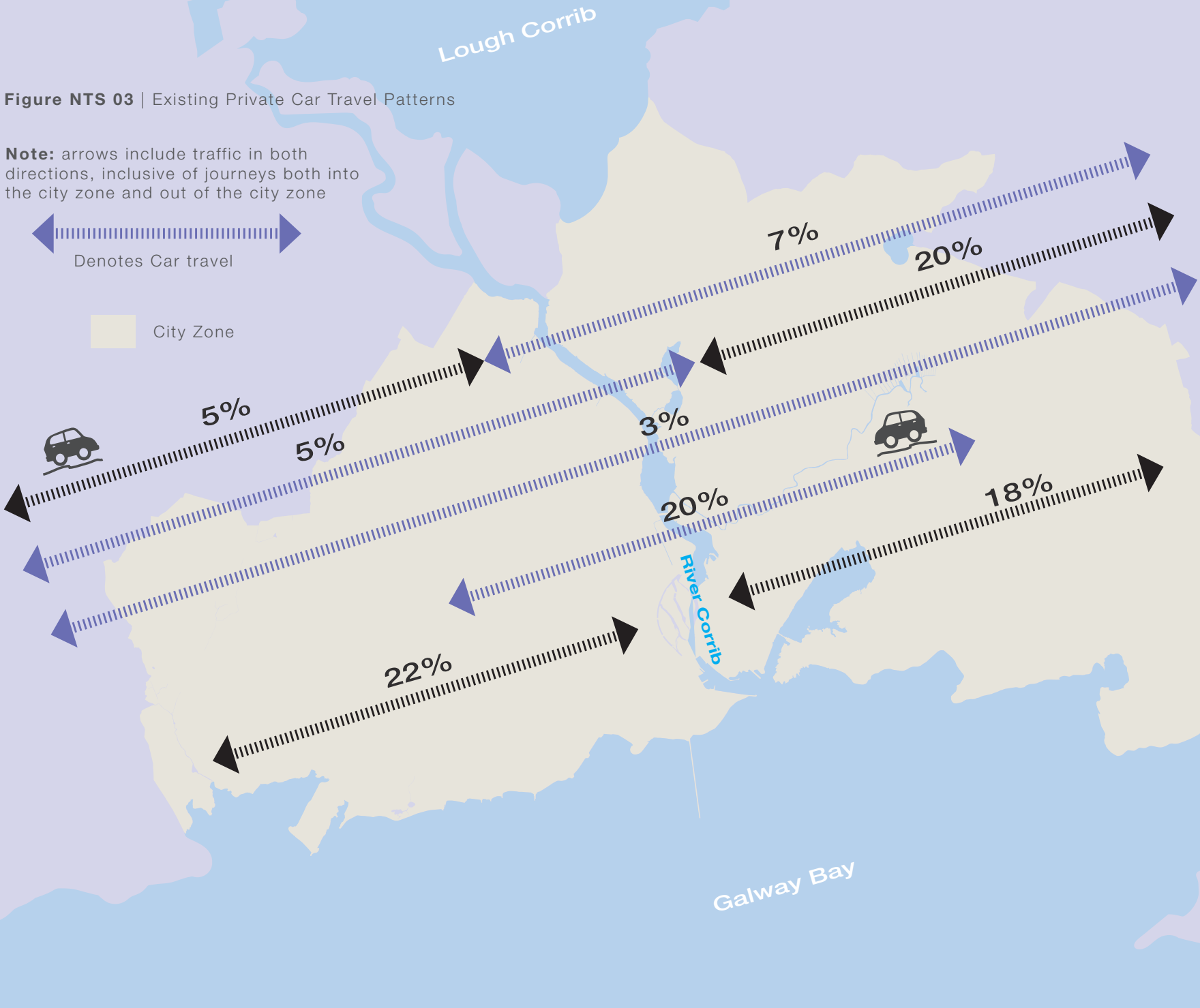
While the proposed road development fulfils specific strategic objectives in terms of the functionality of the national road network in the region, at an early stage in the N6 GCRR project development, GCC and Galway City Council, in partnership with the NTA and supported by TII, commenced the development of the GTS. It was necessary to identify where a new road could potentially be located and its proximity to the city in order to complete the analysis of the performance of the incremental transport measures in addressing the transport issues experienced in Galway. Therefore, N6 GCRR and GTS were progressed in parallel. Equally, the assessment completed through the development of the GTS tested and affirmed the need, if any, for a new road. Throughout the development of the N6 GCRR and the GTS, alternatives were considered. These are set out below.

In considering alternatives, it is firstly important to identify the cause of the existing traffic problems in order to develop an appropriate solution.

During the development process, initial feasibility studies identified the zones of employment, education, retail and residential within Galway City and its environs. These zones are known as zones of traffic generators and attractors.

These zones are shown on **Figure NTS-2**, illustrating the dispersed demographics of the area with the residential areas interwoven with the key attractors of travel demand in terms of employment, social and amenity uses. It also demonstrates how the River Corrib divides this city in terms of ease of movement.

Figure NTS 03 | Existing Private Car Travel Patterns



6.2 Understanding Galway's transport needs

Analysis of existing travel patterns, as illustrated by the desire lines in **Figure NTS-2**, informed the understanding of travel demand and development of a transport solution. The current distribution of private car journeys throughout the area is illustrated graphically in **Figure NTS-3**, and can be summarised as follows:

- 35% of all journeys into and out of the city zone and around Galway City (city zone) cross the River Corrib, of which approximately 9% are bypass traffic (i.e. 3% of 35%)
- 40% of all journeys originate and terminate within the city zone on the same side of the city as where they started i.e. do not cross the river
- Approximately 20% of all journeys are within the city zone and cross the river

This analysis pointed towards a need for a multi-modal transport solution catering for the following various demands:

- A high proportion of short journeys within the city zone can be accomplished via public transport, cycling or walking (i.e. approximately 40% of journeys commencing in the city which remain on the same side of the city as they started are short trips, both in time and distance)
- A further 20% of journeys which occur from one side of the city to the other are also short journeys, making them clear targets for a shift to public transport
- Improved connectivity to the national road network for those on the western side of the River Corrib which is only possible at present by using one of the city centre bridge crossings

35%

trips cross river

40%

of trips which originate within the city remain on same side as they originate

Solution

needs to cater for cross-city traffic as well as through traffic

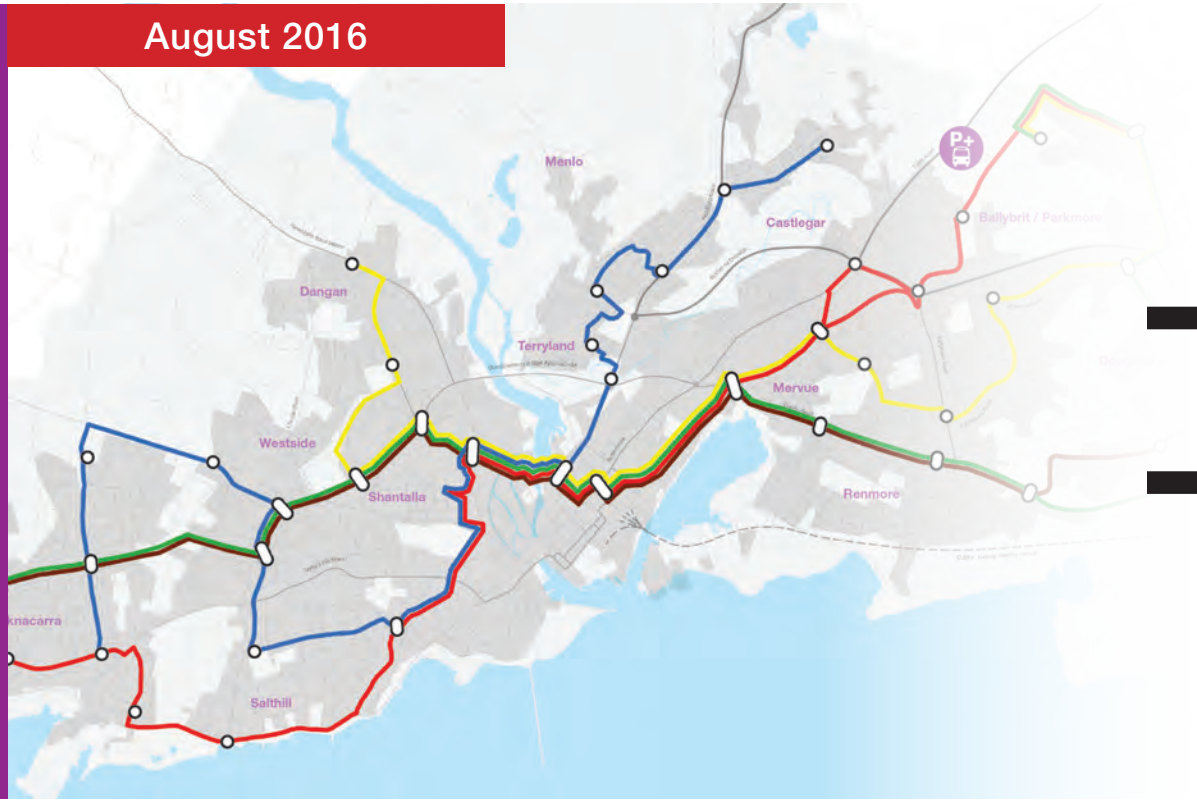
Straitéis Iompair na Gaillimhe
Galway Transport Strategy

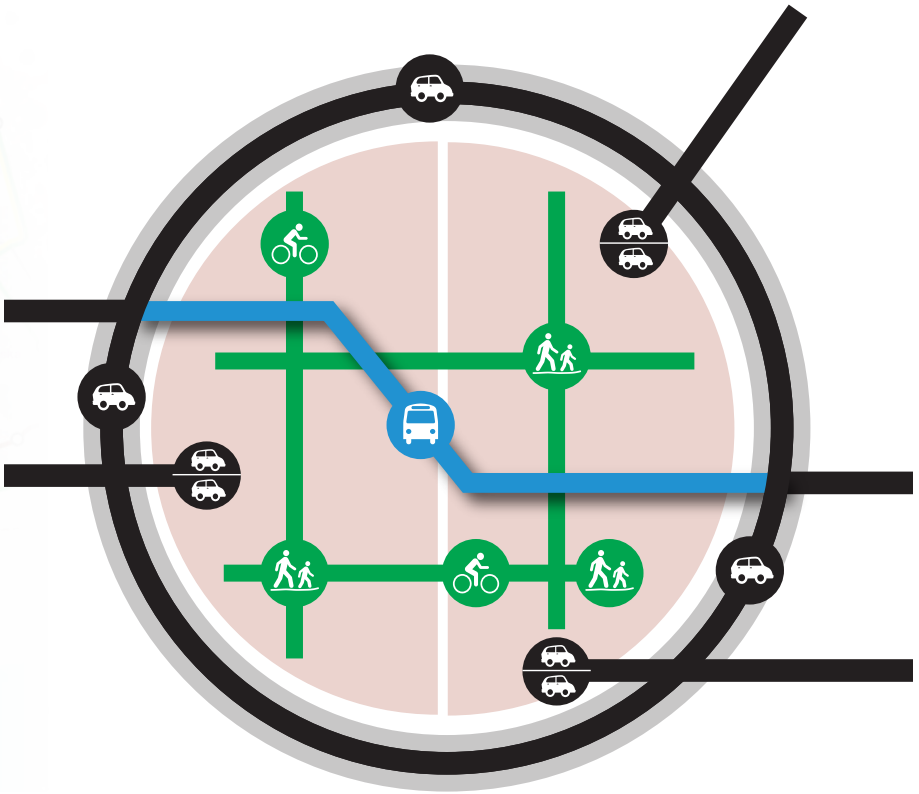
Comhairle Cathrach na Gaillimhe
Galway City Council

Comhairle Chontae na Gaillimhe
Galway County Council

An Integrated Transport Management Programme for Galway City and environs

August 2016





Údarás Náisiúnta Iompair
National Transport Authority

Aonad Iompair na Gaillimhe
Galway Transport Unit

SYSTRA ARUP

6.3 The Galway Transport Strategy (GTS)

In considering the transport needs of Galway City and environs and developing an integrated transport solution to address these, one of the key objectives of the GTS was to consider and appraise alternative transport solutions. This included consideration of alternative public transport options and investment in active travel modes (i.e. walking and cycling), in combination with, and in the absence of, an orbital ring road for the city.

The GTS, including supporting technical studies, is published and available on Galway City Council's website at the link below:

https://www.galwaycity.ie/galway-transport-strategy

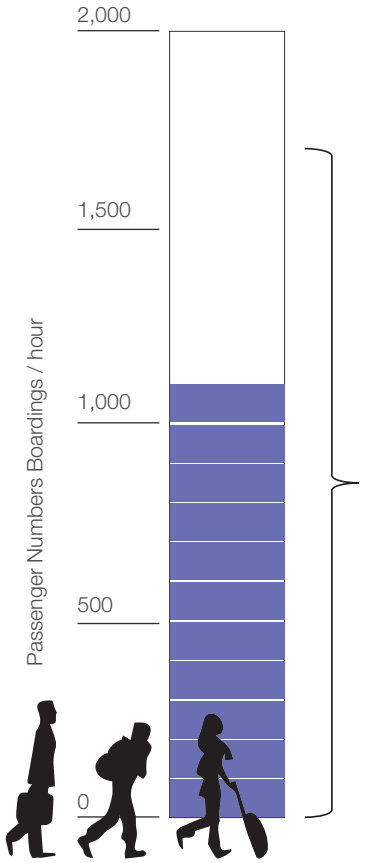
The GTS development followed a structured approach and methodology through a process of:

1. Assessment of existing and projected future levels of travel demand, journey types to be served, and evaluation of existing levels of transport service provision
2. The development and testing strategy options by individual transport mode and in combination to meet forecasted levels of travel demand
3. The development of specific proposals which were subsequently brought together under the overall strategy

The GTS development and assessment utilised NTA's Regional Transport Modelling System, with the West Regional Model (WRM) being centred around Galway City and its environs and covers all surface access modes for personal travel and goods vehicles including private vehicles (taxis and cars), public transport (bus and rail), active modes (walking and cycling) and goods vehicles (light goods vehicles and heavy goods vehicles).

The WRM was also used to assess the N6 GCRR in detail as discussed later in **Section 8.4.**

Figure NTS 04 - Estimated Maximum Occupancy of Public Transport System Options



20-25%
space taken on a light rail tram

80-90%
space taken on a standard bus

6.4 Developing the Transport Solution

The transport solutions which emerged from the GTS were based on achieving a long-term sustainable integrated land-use and transport plan for Galway City and its wider environs within the county.

Walking and Cycling
As a compact city, the strategy places particular emphasis on the improvement of the public realm and the street network for walking, while developing a safe, legible cycle network to better cater for the short journey demand identified within, to, from and through the city centre.

Thereafter, and sequentially in terms of the strategy development and assessment, a number of key questions were considered in terms of public transport and road network choices to be made.

Public Transport
In terms of public transport choices, the type of public transport network configuration that best suits Galway, both in terms of alternative modes and network configuration was considered and assessed in detail.

Transport modelling to test the potential passenger use of high frequency public transport services along the busiest corridors in Galway, looking at a bus-based or light rail-based options on these indicated that with high-frequency services in place, the maximum single directional passenger demand would be approximately 1,100 over a 1-hour period (in the AM Peak). As indicated in **Figure NTS-4**, this broadly equates to 80-90% of the passenger capacity of a frequent bus service, and less than 25% of the capacity of a frequent light rail service.

It was therefore concluded that a light rail service would provide capacity far in excess of what is practically required. Hence, when considering the greater cost of building and operating light rail services at the same frequency as bus services, it was clear that bus-based public transport represents the most appropriate system for Galway over the period considered in the GTS.

The public transport network and type of system (or mode) is also dependent on a number of further considerations:

Street Network: Galway is an historic city and its layout and road network reflect a city that has developed over many years with some roads and streets, especially in the city centre, being very narrow, resulting in turning movements being difficult for some modern public transport vehicles to navigate.

Network or Corridor: The most successful public transport networks and services are generally those that offer a consistently high frequency throughout the day on a network of services, and hence can attract a broad variety of trip purposes such as commuter trips, trips to education and trips for retail and leisure activities.

It was concluded that a high-quality bus-based public transport service will most appropriately cater for the forecasted passenger demand and provide significant flexibility in terms of network options and the ability to integrate with other modes. In particular, a bus-based public transport network can cater for high volumes of demand along combined corridor sections (for example through the city centre) whilst diverging out to efficiently provide greater direct catchment within less-dense suburban areas of Galway.

Having identified the most appropriate form of public transport solution to serve Galway, a further key consideration was the form of network upon which bus services should be reorganised and developed. The primary consideration was whether concentration should be given to increased orbital bus services (for example, via the Quincentenary Bridge) versus services through the city centre.

Analysis from the transport modelling undertaken confirmed the patronage for an orbital service would be approximately half of what would use an equivalent service routed via the city centre. This outcome clearly indicated that cross-city bus services via the city centre will be both more attractive to passengers and more financially viable than operating orbital services. This guided the final bus network and service pattern adopted in the GTS, which is currently being developed by the NTA and Galway City Council.

6.4 Developing the Transport Solution Cont.

Road Network
The GTS affirmed a key aspect of addressing current traffic issues in Galway as being to support and facilitate a shift to more sustainable transport modes, where practical to do so.

As set out earlier, increasing the rates of travel by sustainable modes in Galway City will require a significant improvement in the quality of the public transport, pedestrian and cycling networks. This will require specific traffic management measures to be implemented and the targeted reallocation of road space from general traffic to sustainable modes, which is addressed in the GTS and is separate to the proposed road development.

For example, to deliver cross-city journeys by public transport, major priority measures, such as bus lanes and traffic restrictions are required through the city centre. Whilst this will support travel mode shift, it will also reduce the capacity for general traffic. Therefore, without accompanying road network and traffic management interventions, the GTS concluded that traffic congestion issues will remain.

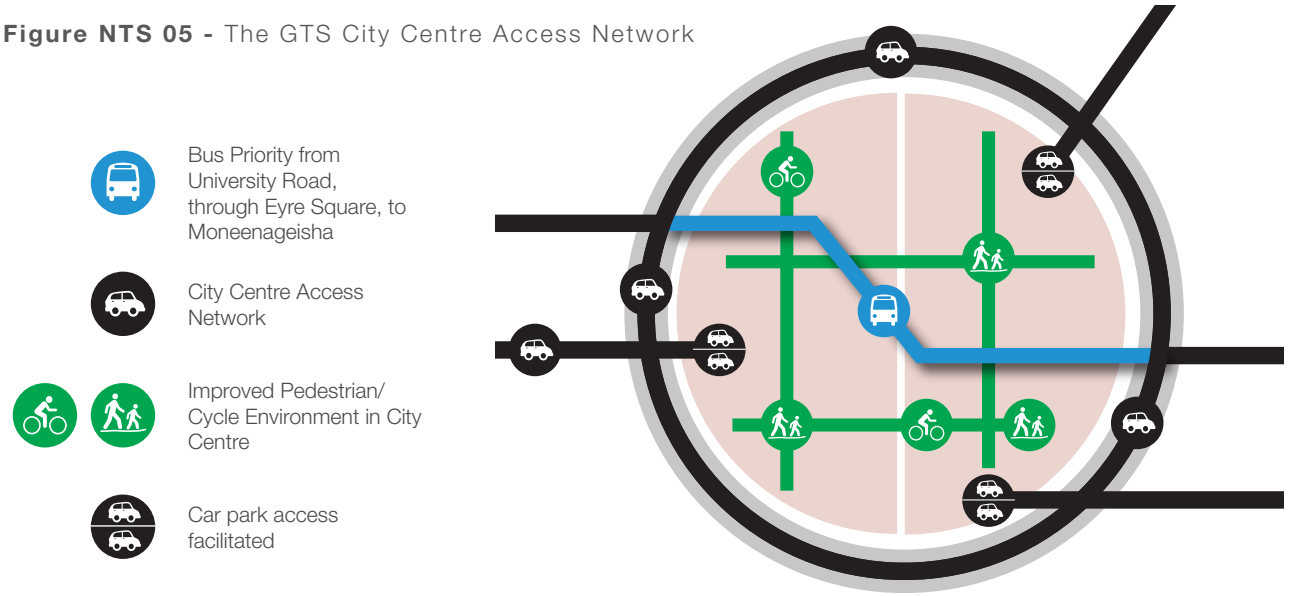
The road and street network options considered by the GTS were primarily focused on better traffic management, rather than increasing capacity for traffic demand. The strategy which emerged from the GTS aims to remove non-essential motorised traffic from the core city centre area (i.e. traffic travelling through the city centre whose destination lies outside the city centre). This will be done using a combination of routes around the city centre, and will prioritise other modes within the core city centre area, a proposed corridor (shown schematically in **Figure NTS-5**) through the core city centre area which will allocate increased priority to walking, cycling and public transport over private car traffic.

Given the catchment of Galway City, the GTS road network proposals are intended to provide a balanced approach to facilitating necessary car trips, with emphasis provided on improving legibility and access to car parking in particular, while also recognising that Heavy Goods Vehicles (HGVs) will continue to need access to the city and the port.

This will be facilitated by means of the now clearly defined 'city centre access network' as illustrated in **Figure NTS-6**.

The need for a Ring Road

Figure NTS 05 - The GTS City Centre Access Network



The GTS specifically looked at the impact of, and need for, a new ring road for Galway City which the national primary network improvement provided by the proposed N6 GCRR project would facilitate.

The NTA's transport model was again used to assess the emerging GTS strategy with and without such a ring road. This analysis clearly concluded that, given the strong negative impact of congestion on achieving the objectives of the transport strategy, unless additional capacity is provided for traffic, the overall objectives of the GTS will not be met.

Furthermore, the GTS concluded that this additional road capacity should not be in conflict with the enhanced sustainable transport network planned, rather it should focus on supporting trips that cannot be facilitated by the proposed measures (i.e. outer-city movements and external-to-external trips).

Therefore, in progressing the N6 GCRR project further, consideration of alternatives at a project level concentrated on the identification and appraisal of options which had the potential to deliver the project objectives set.

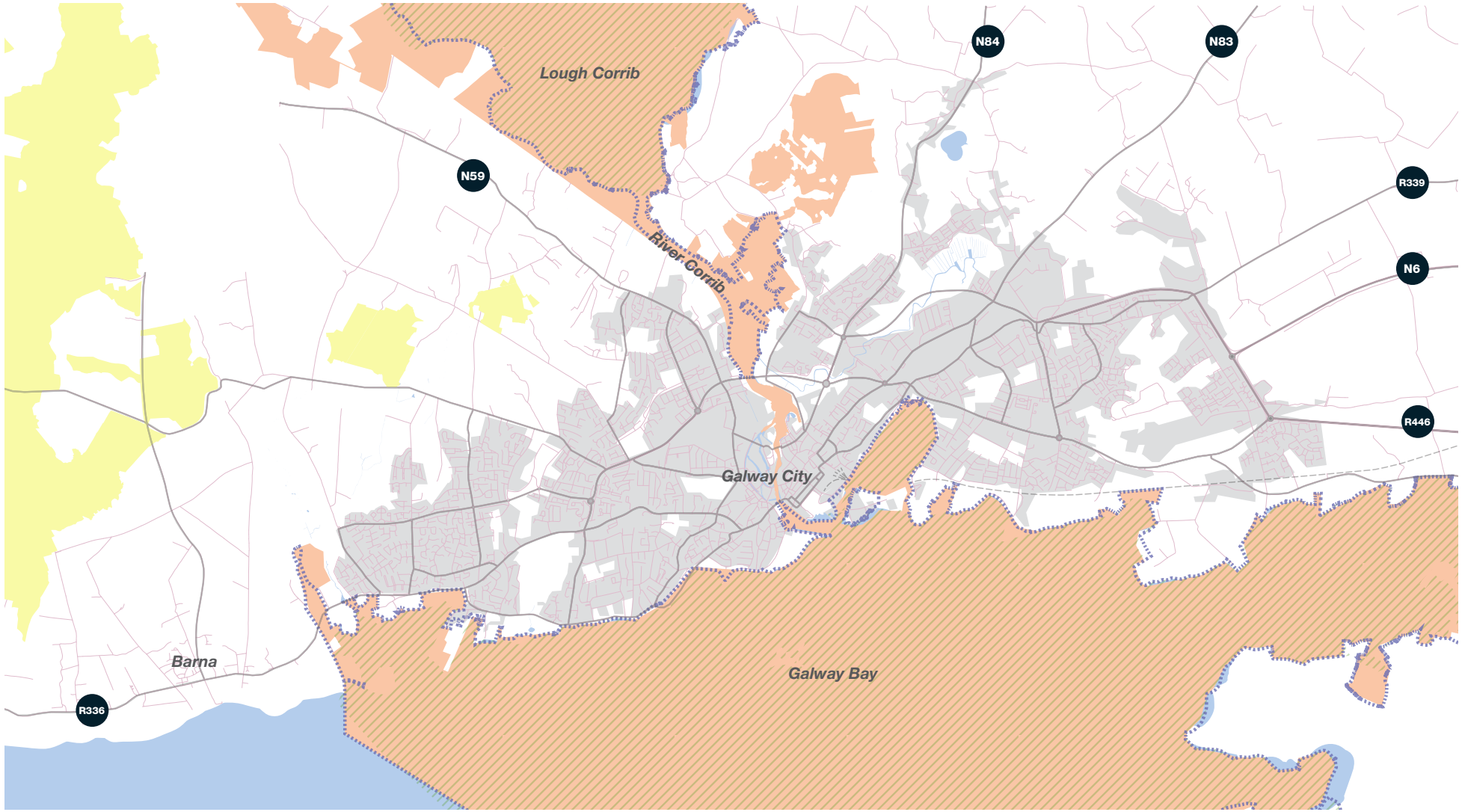
A new ring road to the north of the city is therefore proposed as part of the GTS to deliver the necessary capacity to sustain the City and environs in terms of planned development and growth and to support the delivery of the sustainable transport measures which emerged from the strategy.

It is clear therefore that the proposed N6 GCRR project, in addition to meeting strategic regional requirements in terms of the functionality of the national road network, will also facilitate this specific objective of the GTS.

Figure NTS 06 - The GTS City Centre Access Network

7 Alternative Options for the N6 GCRR

Figure NTS-8: Significant constraints



The physical form of the city in terms of the built and natural environment and residential areas on both sides of the River Corrib, together with the limited available space between the lake and the bay, plus the presence of the designated sites presents significant constraints for developing new infrastructure for the city. The presence of these constraints focused attention on the importance of considering all alternatives in order to minimise the impact on the human environment and the designated sites.

7.1 Constraints

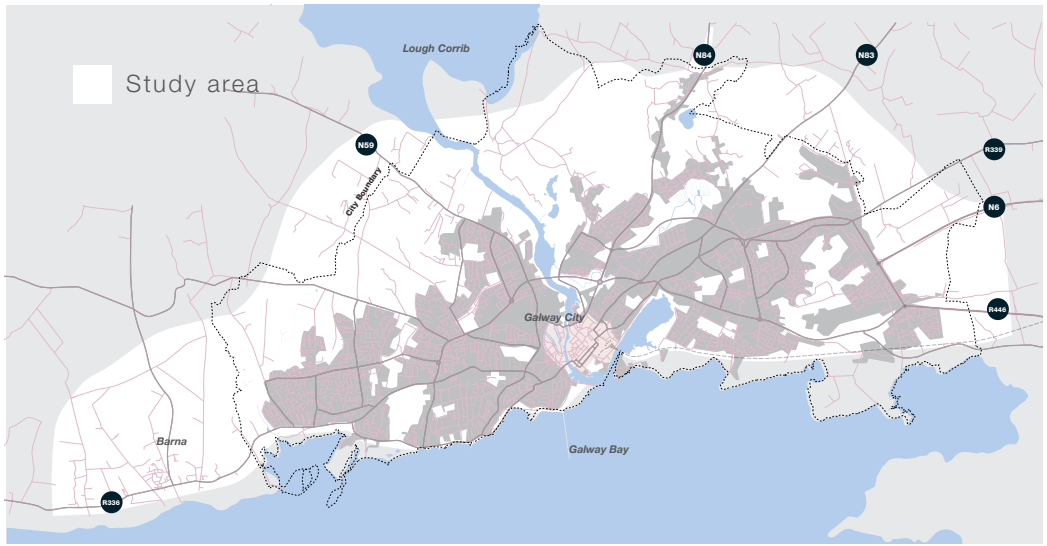
The identification of the most appropriate route for any proposed road development starts with the developing of an understanding of constraints.

In this regard, a comprehensive baseline study of the wider Galway environs was undertaken. The extents of the study area for the proposed road development is shown on **Figure NTS-7** and an overview of the significant constraints is shown on **Figure NTS-8**.

In summary, the significant constraints for developing new transport infrastructure in Galway can be principally categorised as being:

(i) The physical form of the city
(ii) The limited space available
(iii) The built environment and residential areas on both sides of the River Corrib, and
(iv) The presence of ecological areas protected by national and European law (designated sites)

Figure NTS-07
Study area



Working from a blank canvas we want to create

a safer, smarter and sustainable integrated transport system for Galway

7.2 Function of the N6 GCRR

The function of the N6 GCRR is to facilitate the reduction of existing traffic congestion and future proof the effectiveness of this part of the national road network. To achieve this dual functionality, the proposed road development design sought to:

1

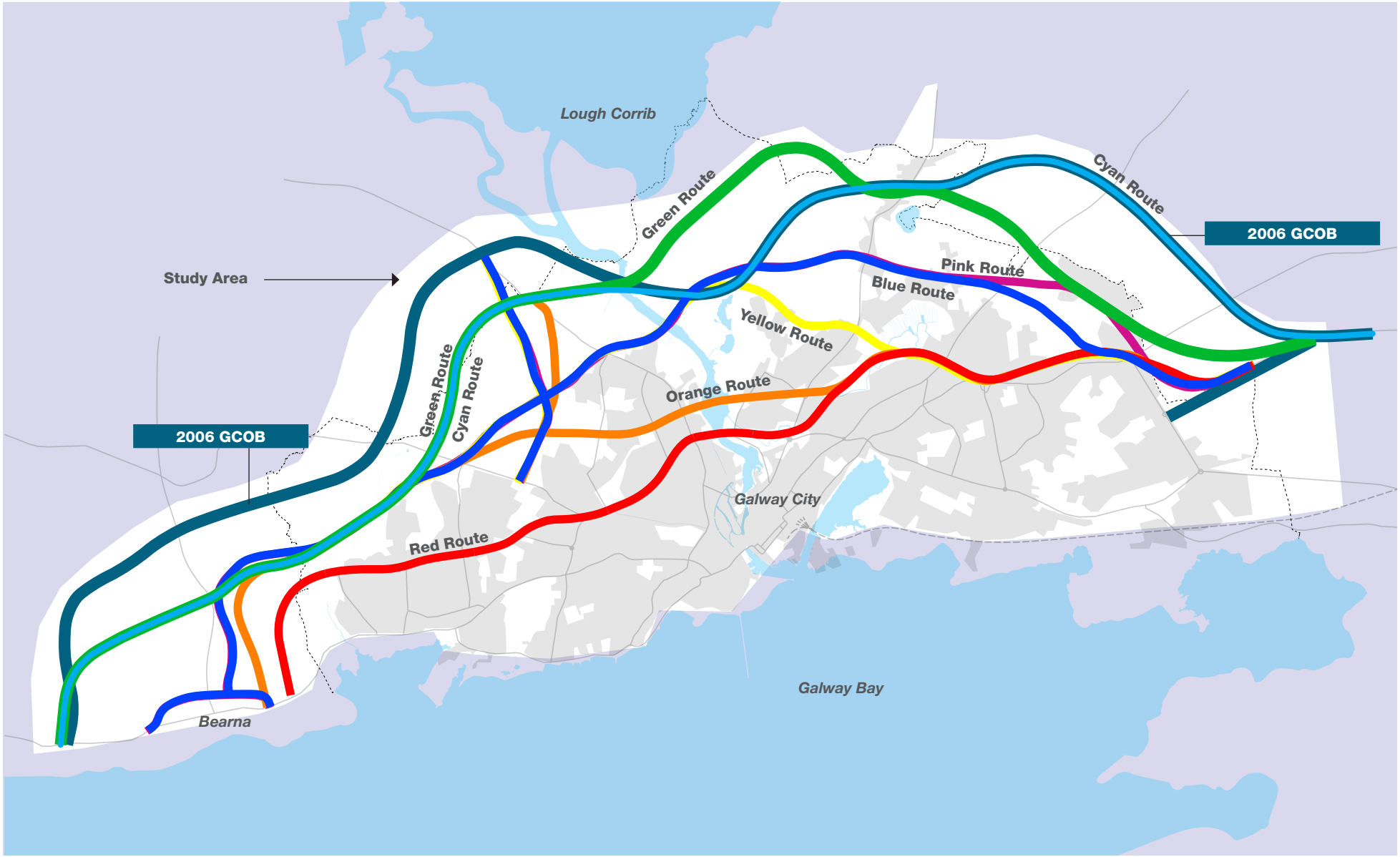
Provide for the strategic need of the TEN-T comprehensive road network and connectivity of Galway City and the West Region to the national road network

2

Provide an additional crossing of the River Corrib, thus facilitating the reduction of congestion on city centre roads, and allow the reallocation of road space in the city network to non-motorised modes of transport, thereby facilitating the effective implementation of all the elements contained in the GTS, namely the improvement of public transport, cycling and walking measures

The transport strategy for Galway (i.e. the GTS) has been developed to segregate and direct people to the most appropriate mode, which allows the road component of this strategy to serve the function for which it is designed. The N6 GCRR will serve the strategic traffic currently trying to cross the city via the existing N6 as well as the strategic traffic that is currently trying to rat-run through the city using the existing city street network due to the congestion levels on the national road network. The N6 GCRR will free up road space in the city centre that can be used by other modes of transport. The city at its heart serves a strategic function as the economic engine for the West Region and must be free of congestion to enable it to do so.

Figure NTS-9 : Route Options



7.3 Options Assessment

In addition to the GTS, at a project level the N6 GCRR also considered a 'Do-Nothing' option in terms of the existing transportation network and infrastructure and its ability to meet future transportation demands, in the absence of any upgrade works other than routine maintenance. This alternative did not provide for any investment in the transportation network and infrastructure of Galway City and its environs. It compounded existing significant congestion issues experienced across the city, particularly during peak hours, which impacts on the economic capability of the city and did not facilitate the implementation of the measures identified in the Galway Transport Strategy measures. As this was unsatisfactory, this alternative was discounted.

Similarly, an effective 'Do-Minimum' was considered, whereby the existing transportation networks and infrastructure combined with likely and committed transportation schemes were examined to determine their ability to meet future transportation demands. The assessment of the 'Do-Minimum' alternative concluded that whilst it would achieve more economic benefit than the 'Do-Nothing' alternative it would not serve to reduce the existing congestion sufficiently such that the overall transportation issues would be solved and it could not facilitate the complete implementation of the measures identified in the Galway Transport Strategy. As this was unsatisfactory, this alternative was discounted.

A 'Do-Something Traffic Management Measures' alternative was considered which represented alternatives that seek to respond to transportation problems by maximising the value of existing infrastructure without construction of major new infrastructure. The 'Do-Something Traffic Management Measures' alternative included local road safety improvements, monetary measures or traffic control measures to manage demand on the transport infrastructure, public transport priority schemes, improvements to pedestrian and cycling provision and technology improvements to traffic signals to improve reliability, safety and operation capacity. This alternative was assessed in an incremental manner starting from improvements to public transport only and moving on to the full implementation of the GTS. Whilst these measures worked towards resolving the transport issues experienced in Galway, they did not resolve the strong negative impact of congestion and limited the ability to achieve the objectives of the transport strategy. Additional capacity is required for traffic to meet the strategic regional requirements in terms of the functionality of the national road network and to connect the east and west of Galway City and County plus to enable the full implementation of the GTS which delivers on the local need.

As additional road infrastructure is required, numerous alternatives for connecting the east and west of Galway City and County with a 'Do-Something Road Based Alternative' were considered as shown on **Figure NTS-9**. Alternatives across Lough Corrib and Galway Bay or a tunnel from the far west of the study area to the east were all considered and discounted as they did not meet the project objectives for various reasons.

The development of a road based alternative included an assessment of the previous 2006 GCOB scheme as well as new route options which included an upgrade of the existing road network known as the on-line upgrade, a partial on-line upgrade coupled with new road infrastructure and a totally new road. The on-line upgrade (Red Route Option) to the existing N6 utilised the existing Quincentenary Bridge for the strategic traffic and included a new bridge immediately south of it to cater for local traffic. Detailed environmental studies were undertaken on the entire study area so that a comprehensive multi-criteria assessment of the various options could be completed. Included in this environmental assessment and criteria is an assessment of the impact on people, homes and communities.

Table NTS-1: Route Options - Property Demolition Assessment

Route Option	Residential Demolitions	Commercial/Industrial Demolitions	Total
Red	94	19	113
Orange	53	9	62
Yellow	106*	11	117
Blue	54	5	59
Pink	46	6	52
Green	76	10	86
2006 GCOB	The western section of this scheme did not receive planning permission from ABP due to potential environmental impacts in the area of Tonabrocky Bog pNHA. Therefore, the property demolitions are not a true reflection of the likely property impacts of a new scheme that would meet the present scheme objectives. It does not provide a connection to the N83 Tuam Road, or does not serve the employment centres at Parkmore and Ballybrit. It had an adverse impact on the site integrity of the Lough Corrib cSAC per the European Court decision.		10
Cyan	41	0	41
	This addresses some of the issues of 2006 GCOB scheme. It avoids Tonabrocky Bog pNHA. It does provide a connection to the N83 Tuam Road, but does not serve the employment centres at Parkmore and Ballybrit. It had an adverse impact on the site integrity of the Lough Corrib cSAC per the European Court decision.		
N6 GCRR	44	5	49

*An apartment block accounts for 37 residential demolitions

7.3 Options Assessment Cont.

Although the route of the N6 GCRR has been designed to skirt the city and lands zoned for development, and every effort was made to avoid homes, the avoidance of all properties is unfortunately not possible given the linear development of the city with housing along every road radiating out of the city.

The final set of road based alternatives assessed during the route selection phase of the project are shown in **Figure NTS-9**. In addition to detailed comparative environmental assessment, a comparative assessment of the potential property demolition on each of the route options was undertaken, and the results are shown in **Table NTS-1**.

Both the 2006 GCOB and the Cyan Route Options were not progressed further due to the reasons outlined in **Table NTS-1** above. Of the remaining options, the option selected has the least number of residential demolitions, whilst also being the least impacting on the receiving environment. It was also acknowledged that significant engineering infrastructure, such as a tunnel beneath Lough Corrib cSAC, a tunnel beneath Galway Racecourse, a viaduct over Limestone pavement outside the Lough Corrib cSAC and a viaduct over NUIG sports campus would form part of the design measures to enable advancement of this preferred route.

In accordance with the Department of Transport's "Guidelines on a Common Appraisal Framework for Transport Projects and Programmes" (updated March 2016), the alternatives were assessed against the six criteria of Economy, Safety, Physical Activity, Environment, Accessibility and Social Inclusion and Integration.

Upon completion of this assessment, the Emerging Preferred Route Corridor of the preferred road based alternative, as shown on **Figure NTS-10**, was developed as an amalgamation of different route options over the length of the study area, which in combination, were considered to be the least impacting on the receiving environment in terms of impacts on people, ecology and all other environmental factors.

The proximity of the proposed road development to the urban environment, which is necessary to provide the optimal solution for a new ring road, results in the unfortunate but unavoidable demolition of 44 dwellings to facilitate construction, and the acquisition of a further 10 dwellings due to the impacts on those properties. This is a significant impact on the people living in these homes. However, this must be viewed and considered and balanced with the overall benefits (as set out in more detail in Section 10 below) that the proposed road development presents for the future of Galway and its environs and connectivity to the West Region.

Further refinement continued during the design to eliminate and reduce impacts on the human environment.

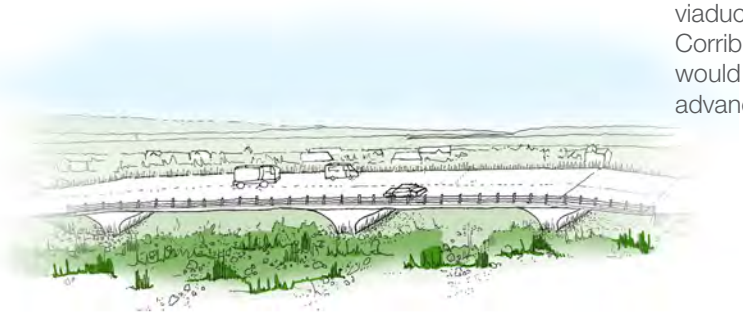
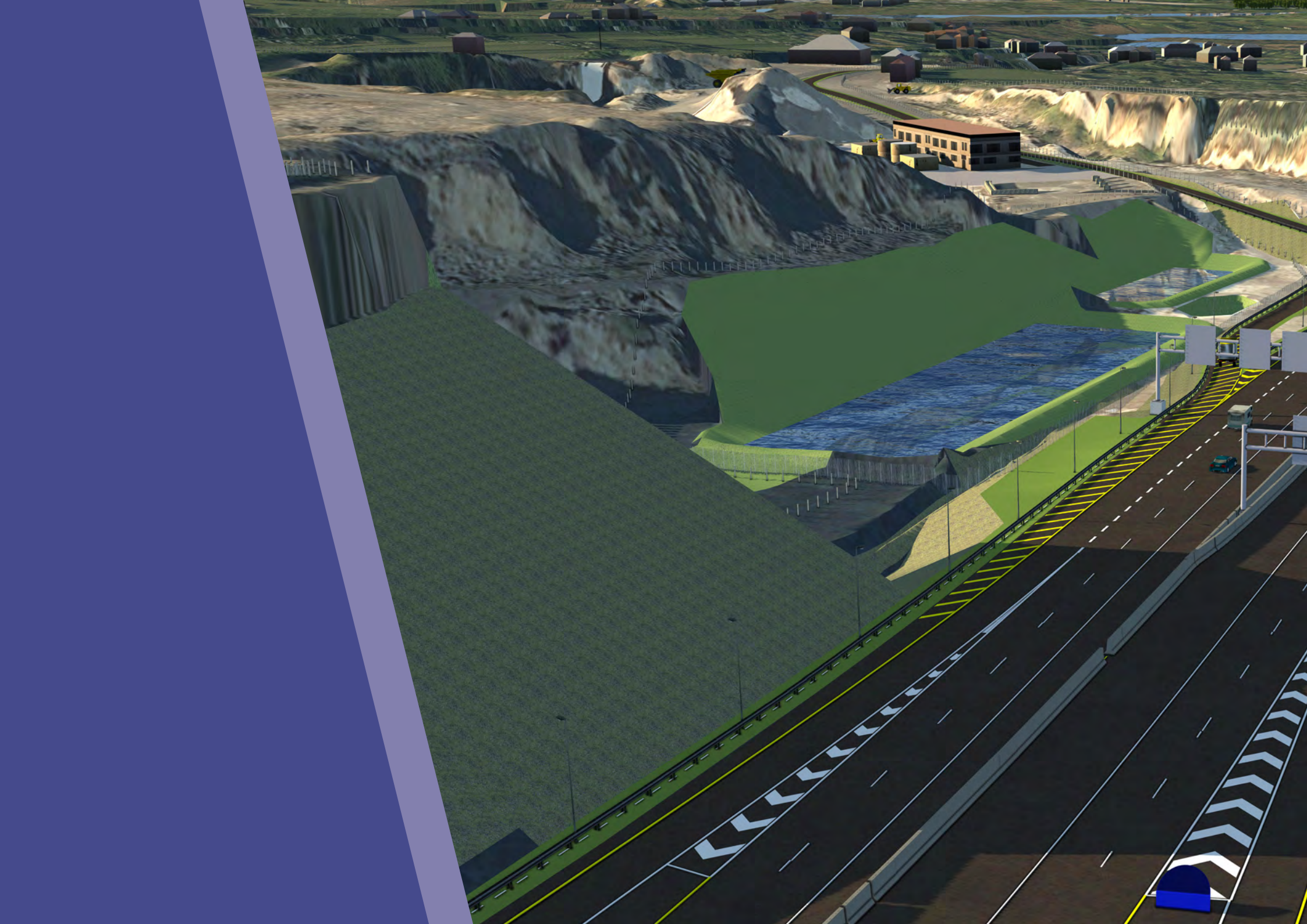
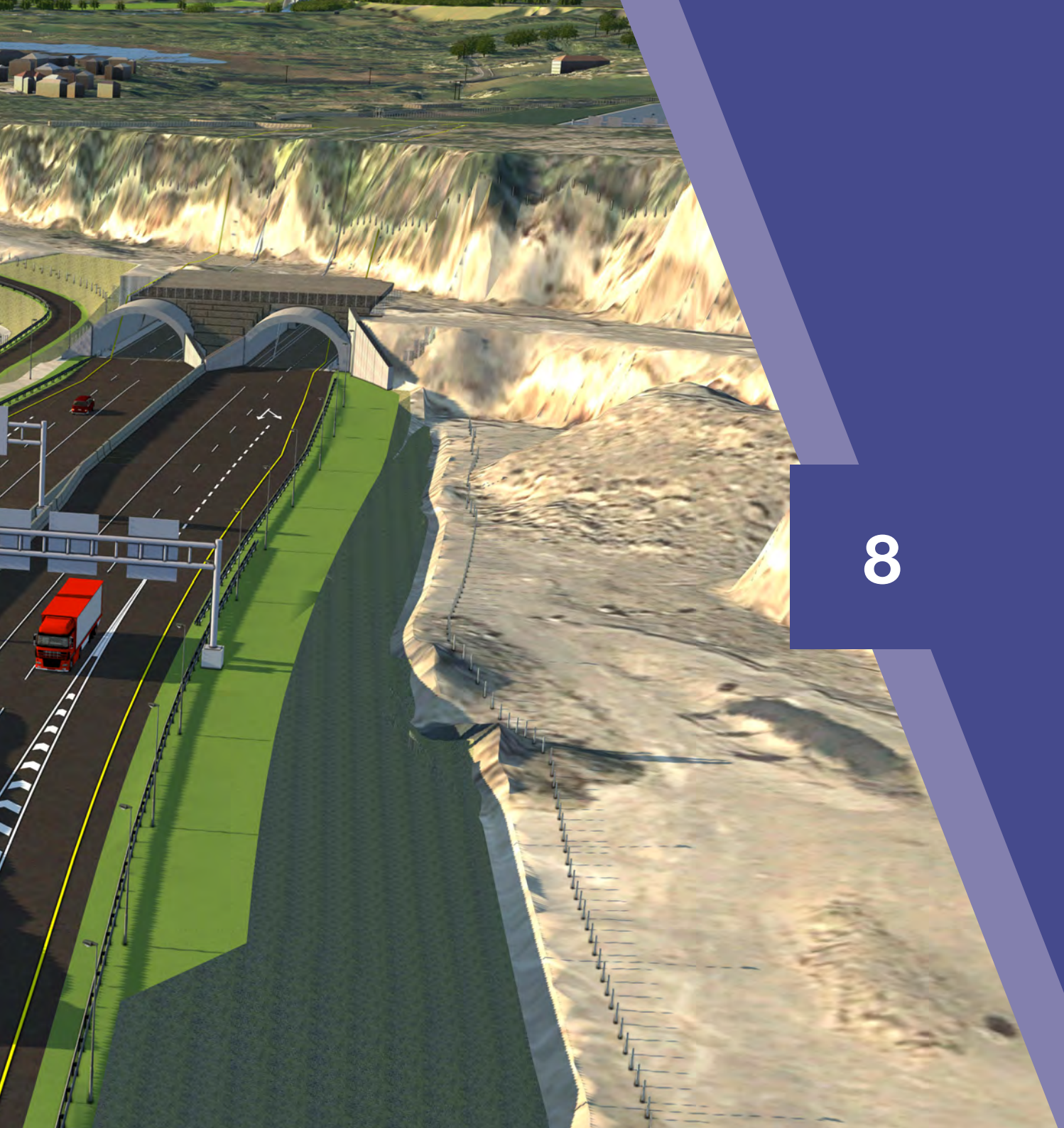


Figure NTS-10: Emerging Preferred Route Corridor





8 The Proposed N6 Galway City Ring Road

8.1 Description

The design of the proposed N6 GCRR advanced from the Emerging Preferred Route Corridor identified, taking cognisance of the consultation with property owners. Its route is described in more detail here.

Plan layout of the proposed road development plans are presented in **Figures NTS-17 to NTS-30**.

The proposed road development will run from the existing R336 Coast Road west of Bearna to tie-in with the existing N6 at Coolagh Junction. The total area within the footprint of the proposed development boundary[4] is 280ha.

It ties into the existing R336 Coast Road in An Baile Nua with an at-grade roundabout junction approximately 2km to the west of Bearna Village and then proceeds north and east as a single carriageway to the north of Bearna Village and onwards towards Ballymoneen. Local connectivity is maintained via the Troscaigh/Na Foraí Maola Overbridge Link whilst an at-grade roundabout is proposed at the Bearna to Moycullen (Maigh Cuilinn) Road L1321. At-grade signalised junctions are proposed at Cappagh Road and Ballymoneen Road.

To the east of the Ballymoneen Road Junction, the proposed road development is a dual carriageway and continues east to the grade separated N59 Letteragh Junction located in Letteragh. This junction connects to the N59 Moycullen Road via the proposed N59 Link Road North, and to the Letteragh Road and Rahoon Road via the proposed N59 Link Road South. The proposed road development continues eastwards, as a motorway, to cross the existing N59 Moycullen Road at Dangan and travels on a viaduct over the NUIG Sporting Campus before crossing the River Corrib (and the Lough Corrib cSAC). The total length of the structure through the NUIG Sporting Campus and over the River Corrib Bridge is 620m.

It is proposed to construct an all-weather full size GAA pitch and a training pitch at the location of the existing GAA pitches at the NUIG Sporting Campus. The NUIG sports pavilion will be modified and will continue to function as a sport facility post construction.

East of the River Corrib, the proposed road development continues east on embankment toward the townland of Menlough. Additional lands to the north of Menlo Castle are included as part of the proposed road development to provide lands for the enhancement of the core foraging habitat for the Lesser horseshoe bat known to roost at Menlo Castle, and to mitigate potential impacts on this species. These lands will be planted with additional hedgerows, maintained as agricultural lands by the local authority and will remain in their ownership. Continuing east, the proposed road development crosses over Bóthar Nua on a viaduct section, the Menlough Viaduct (length 320m), towards Sean Bóthar before entering a section of cut preceding the Lackagh Tunnel (length 250m), immediately west of Lackagh Quarry, and exits the tunnel in the quarry. There is a tunnel maintenance building located adjacent to Lackagh Tunnel.

4 The extents of the lands to be compulsory acquired for the construction and operation of the proposed road development is referred to as the proposed development boundary.

Figure NTS-11: Single Carriageway

Figure NTS-12: Single Carriageway (With Footway)

Figure NTS-13: Single Carriageway (With Footway & Cycleway)

8.1 Description Cont.

The proposed road development continues east from Lackagh Quarry with a grade separated junction located at the N84 Headford Road Junction at Ballinfoyle and continues east through the townland of Castlegar to the grade separated junction at the N83 Tuam Road. This junction provides access to both the N83 Tuam Road and the proposed Parkmore Link Road between the Ballybrit Business Park and the Parkmore Industrial Estate via the proposed City North Business Park Link Road to provide full connectivity at this location.

The proposed road development then continues southeast entering the Galway Racecourse Tunnel (length 230m) at Ballybrit to the north of the racetrack. There is a tunnel maintenance building located adjacent to the Galway Racecourse Tunnel and new stables provided for the Galway Racecourse. On emerging from the tunnel, the proposed road development continues southeast, crossing over the R339 Monivea Road on embankment and continuing south to a tie-in with the existing N6 at Coolagh Junction. The proposed Coolagh Junction will be a fully grade separated junction.

The proposed road development will also include extensive landscape planting for screening and the creation of specific habitat areas to compensate for loss of habitat elsewhere. To mitigate noise impacts across the proposed road development, a low noise road surface (LNRS) will be incorporated to reduce noise at source. In addition, an extensive scheme of noise barriers has also been incorporated into the design to further reduce noise levels along the proposed road development.

Cross-section of the Proposed Road Development

The proposed cross-section is selected based on the forecasted transport demand. As the forecasted traffic numbers decrease in a westerly direction from the M6, the level of provision steps down from motorway to single carriageway.

A dual carriageway cross-section is required for the forecasted traffic numbers from the eastern tie-in with the existing N6 at Coolagh, Briarhill to the Ballymoneen Road, with a speed limit of 100kph. The use of a dual carriageway is proportionate to the existing road network in this area and the motorway designation is also required to secure and future proof it. Junctions have been restricted to the national roads, namely the N6, N83, N84 and N59.

A single carriageway is required from the Ballymoneen Road to the western side of Bearna, with a speed limit of 80kph, to serve the forecasted transport demand. The use of a single carriageway is proportionate to the existing road network in this area and the protected road designation is also required to secure and future proof it.

The extents of single carriageway and dual carriageway is in **Figure NTS-16**. A cross section of the single carriageway is presented in **Figure NTS-11-13** and of the dual carriageway in **Figure NTS-14-15.**

Access to the single carriageway is limited to the terminus at the R336 and the Bearna Moycullen Road in the county area, and the Cappagh Road and the Ballymoneen Road in the city. The Bearna Moycullen Road is an effective north-south distributor for traffic and hence justifies the connection to the strategic network at this point. Access is provided at the Cappagh Road and the Ballymoneen Road as both are radial routes distributing traffic to the Western Distributor Road in the whole of the western city suburbs.

This level of provision, both in terms of cross-section and designation, is deemed necessary to serve the strategic travel demand requiring access as far as the R336 on the west in addition to strategic traffic accessing Galway City.

Figure NTS-14: Dual Carriageway/Motorway (2 Lane Urban)

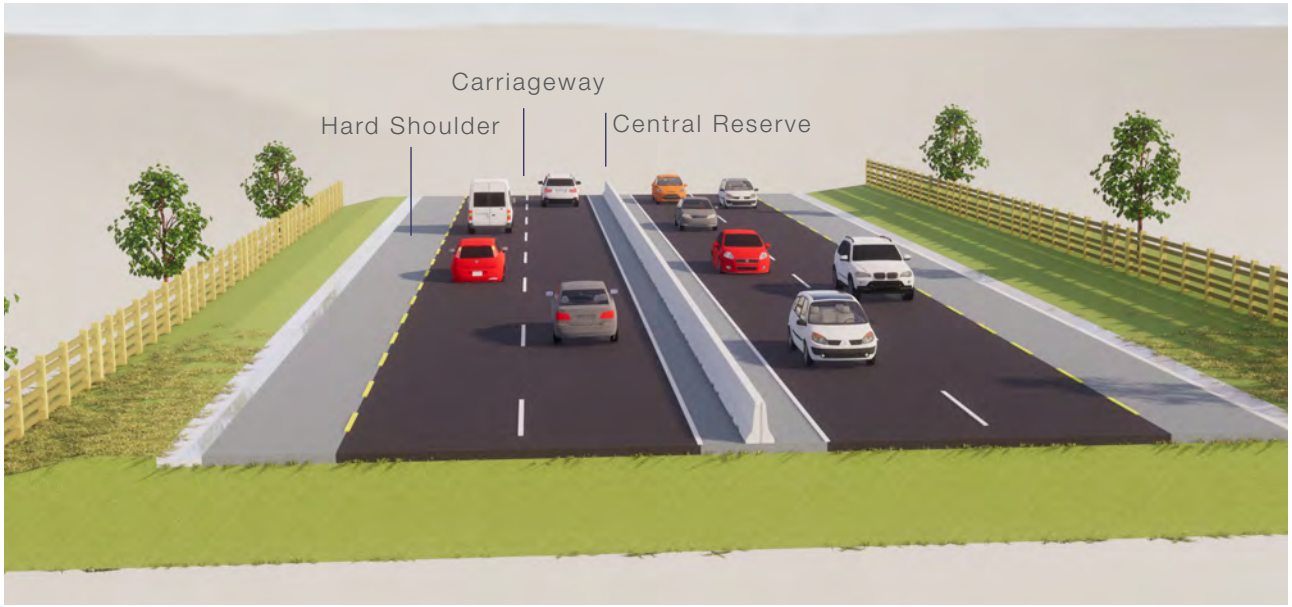
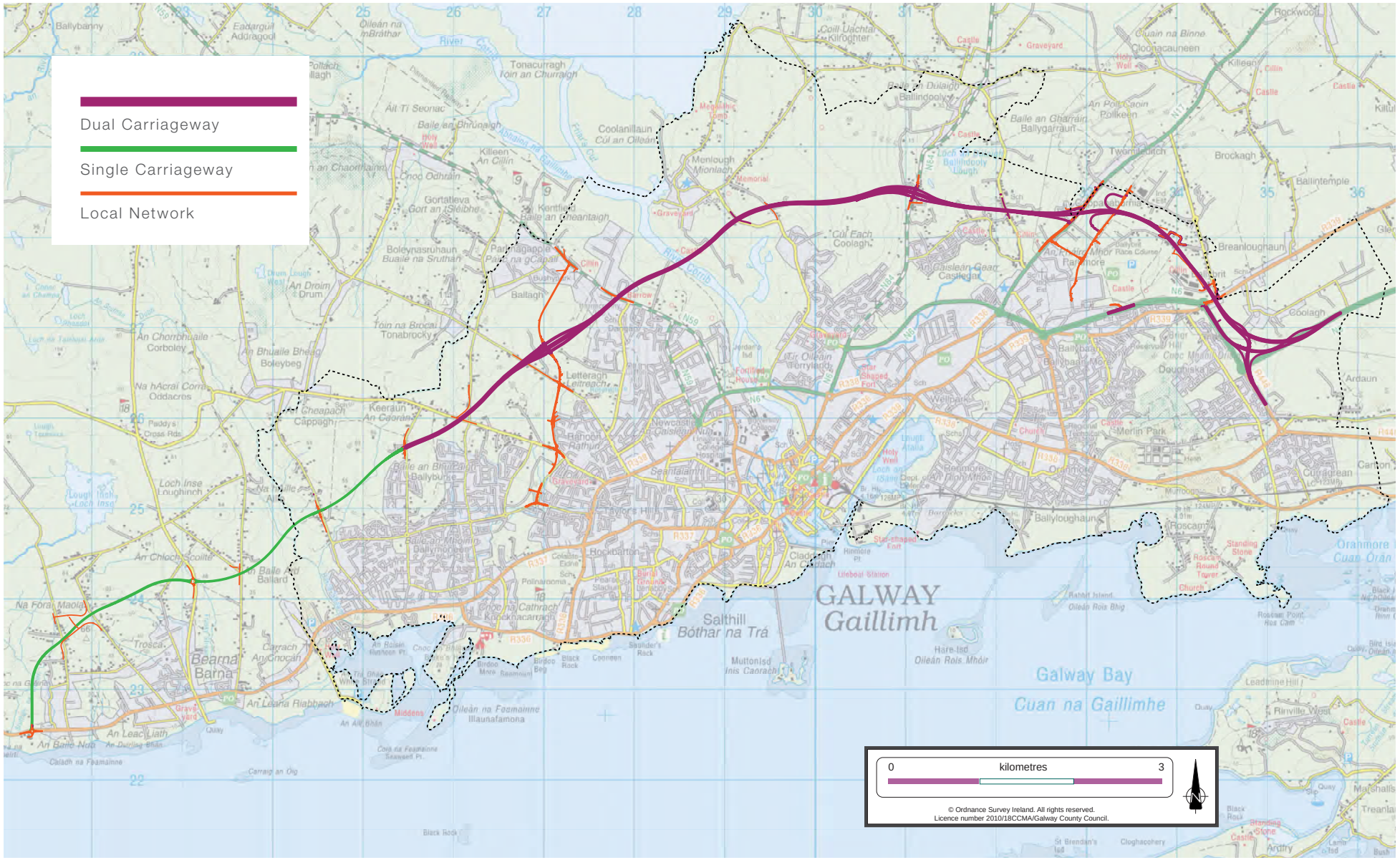


Figure NTS-15: Dual Carriageway/Motorway (3 Lane Urban)

Figure NTS-16: Extents of Single and Dual Carriageway



Legend for following Figures :

- City Boundary
- Proposed Development Boundary
- Proposed Road Geometry
- Earthworks - Fill
- Earthworks - Cut
- Proposed Carriageway Pavement
- Proposed Grass Verge
- Proposed Cycleway
- Proposed Footpath
- Proposed Shared Footpath/Cycleway
- Proposed Traffic Island
- Structure (S)
- Proposed Retaining wall (R)
- Proposed Mammal Underpass (C)
- Proposed Culvert (C)
- Proposed Attenuation Pond / Infiltration Basin / Wetlands
- Proposed Stream Diversion
- AR - Access Road
- WC - Watercourse

Figure NTS-17: Plan layout of the proposed road development - 1of 14

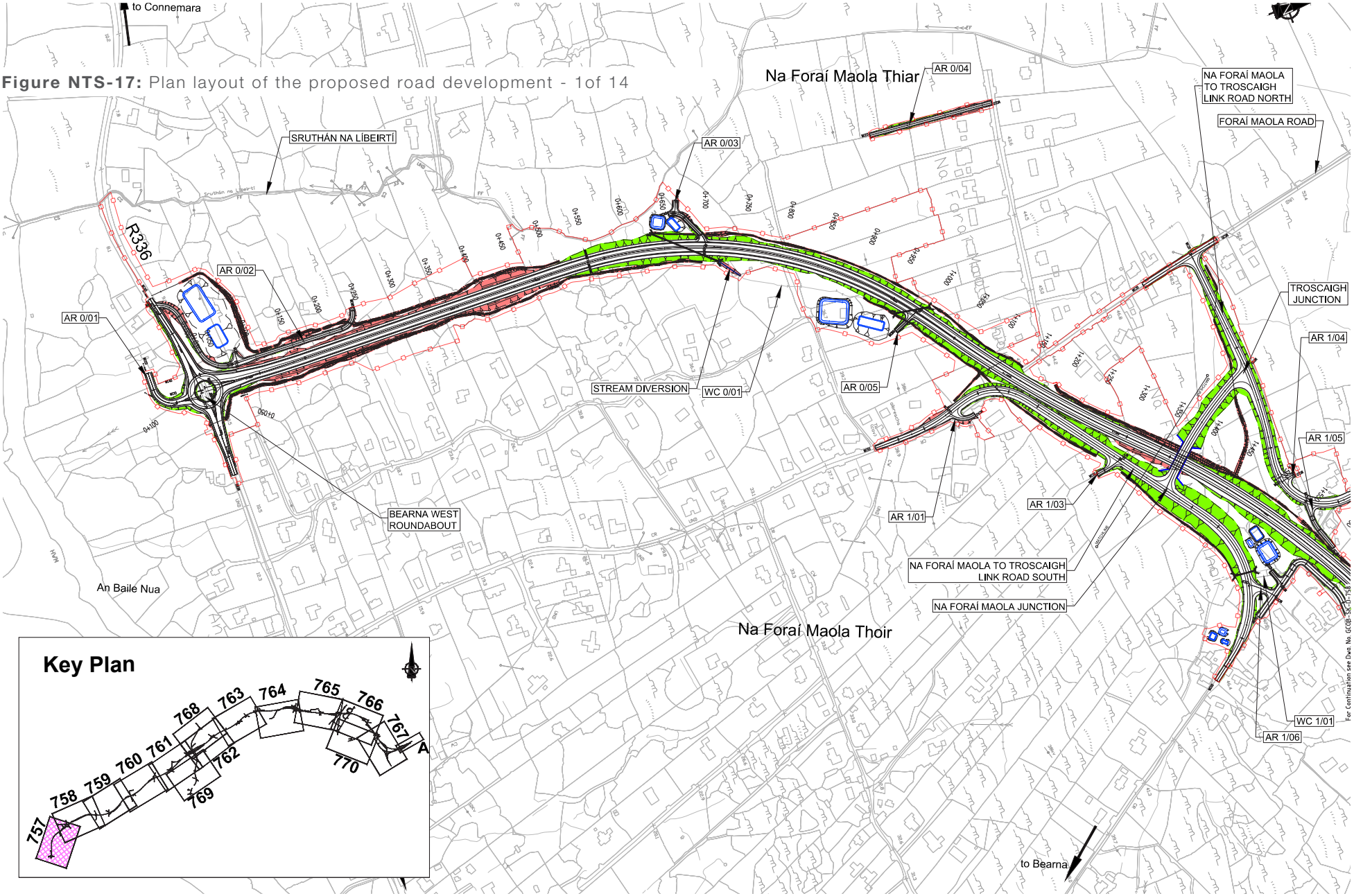


Figure NTS-18: Plan layout of the proposed road development - 2 of 14

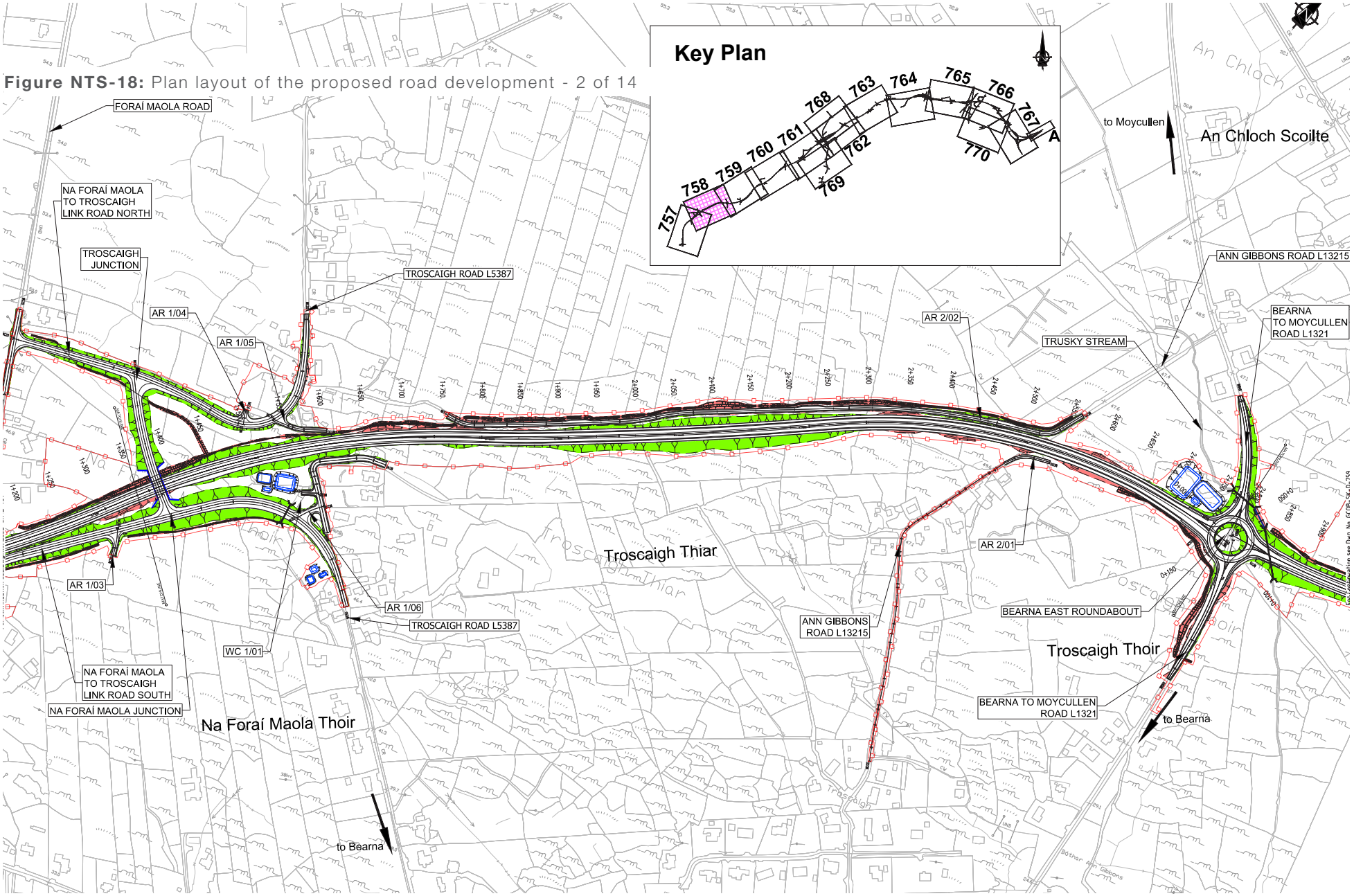


Figure NTS-19: Plan layout of the proposed road development - 3 of 14

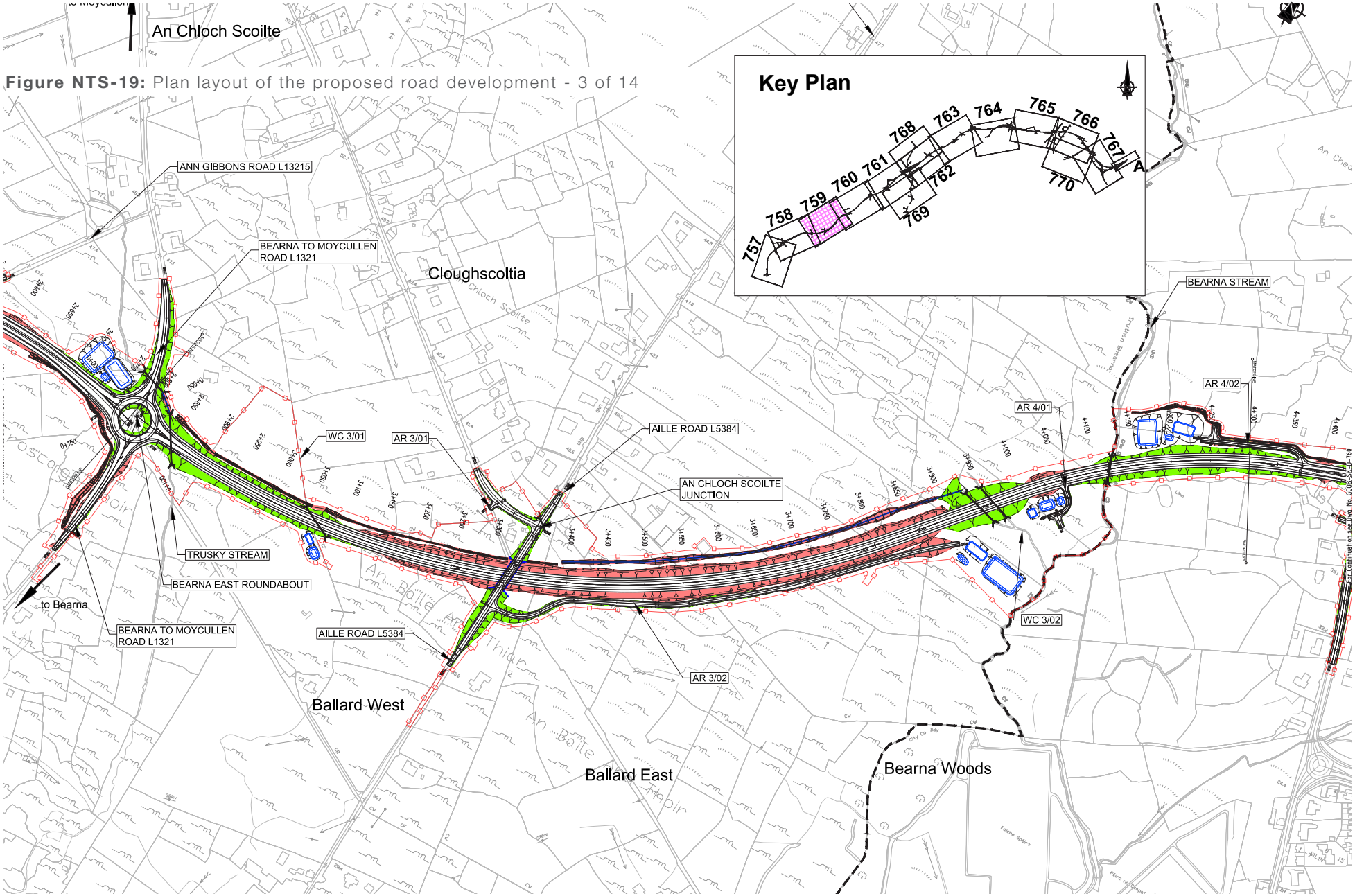


Figure NTS-20: Plan layout of the proposed road development - 4 of 14

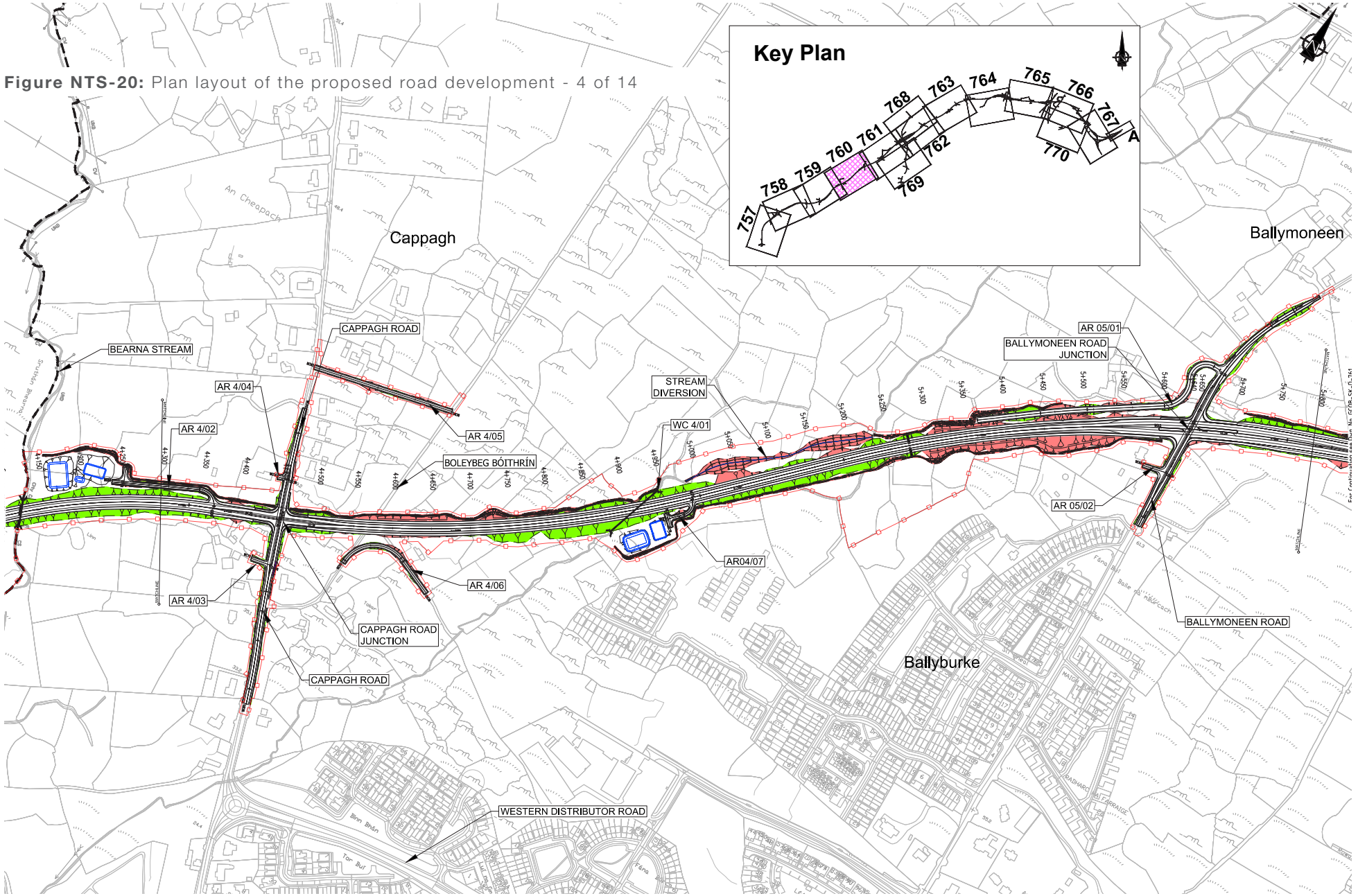


Figure NTS-21: Plan layout of the proposed road development - 5 of 14

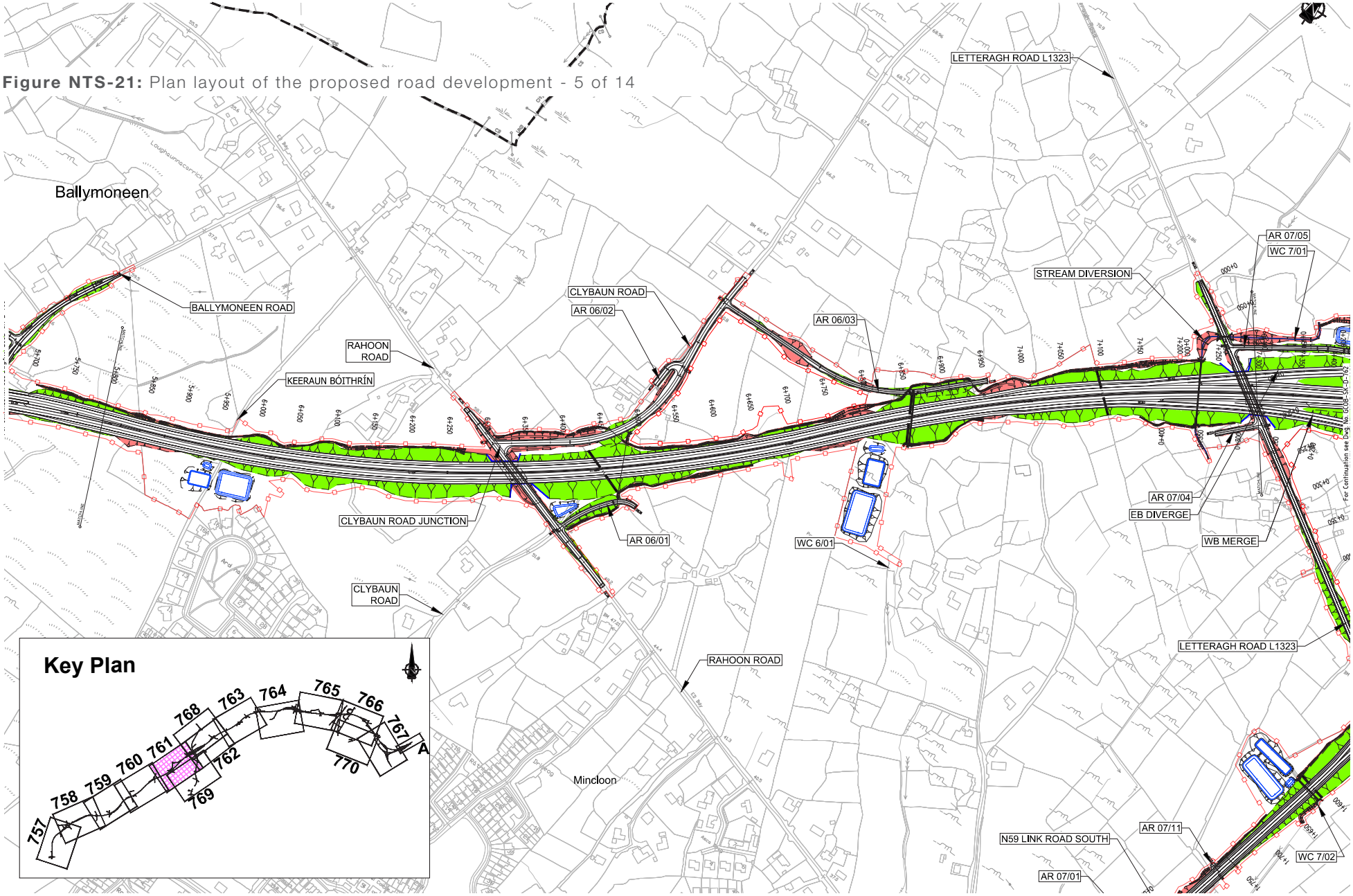


Figure NTS-22: Plan layout of the proposed road development - 6 of 14

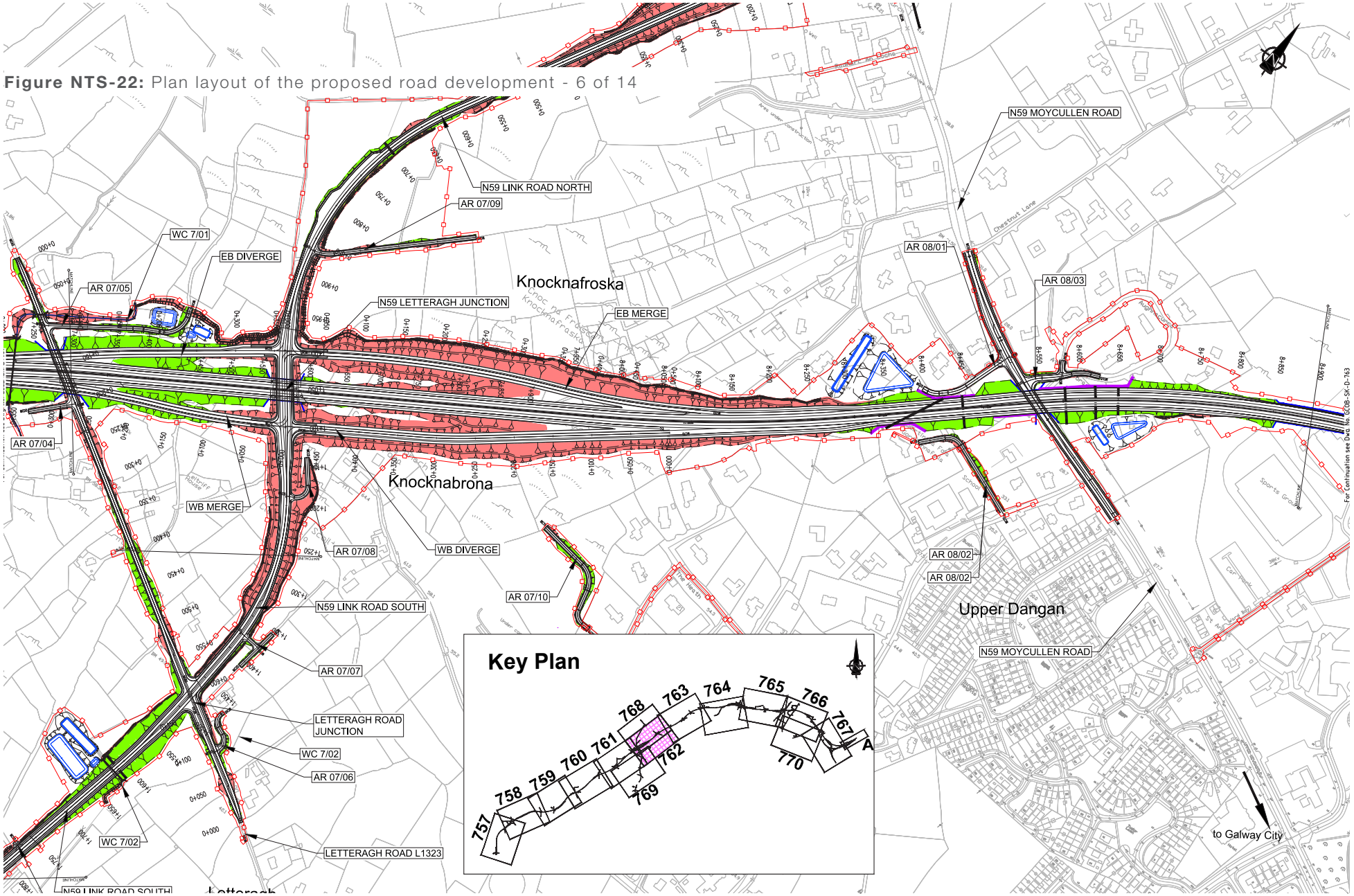
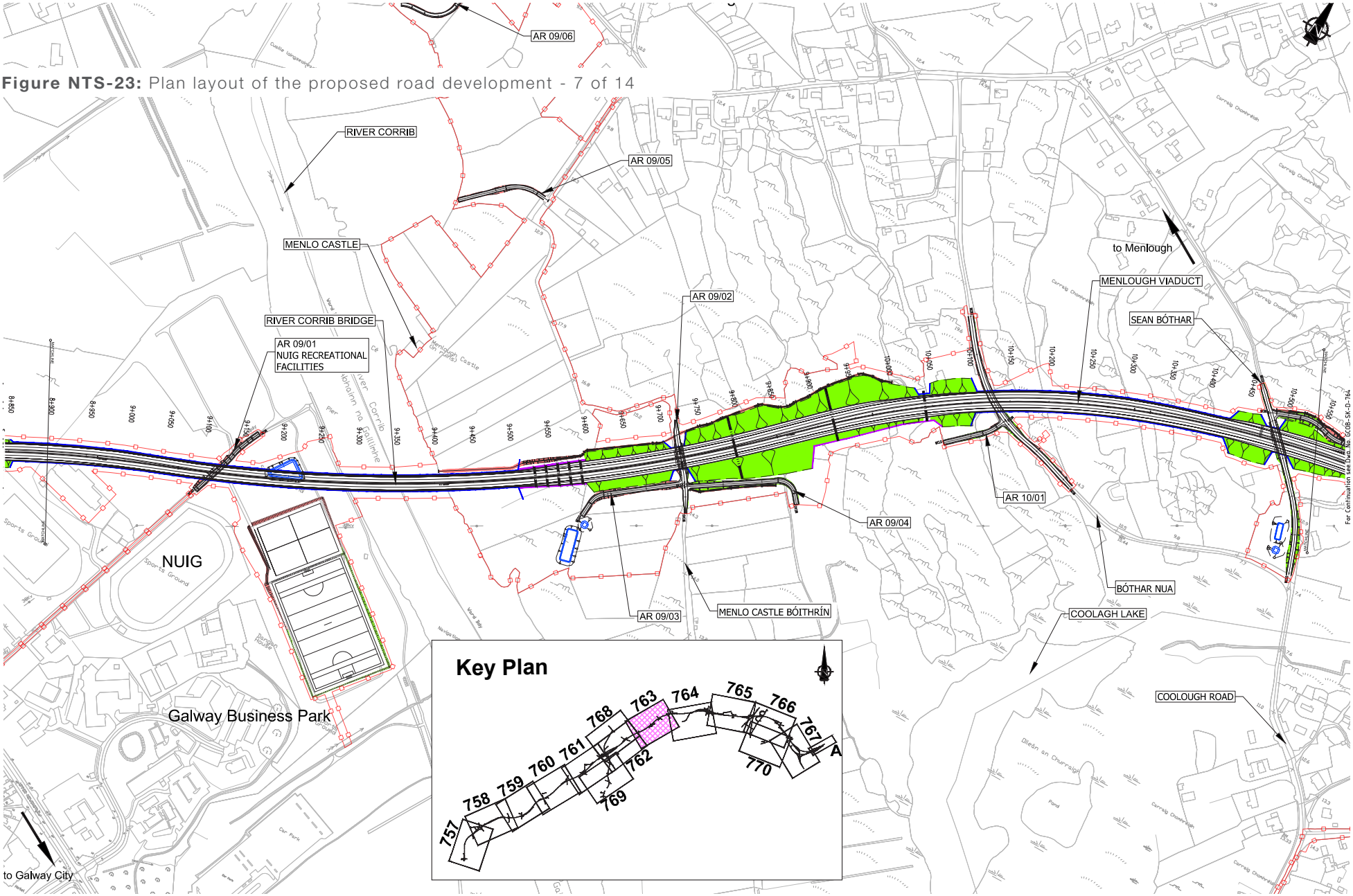


Figure NTS-23: Plan layout of the proposed road development - 7 of 14



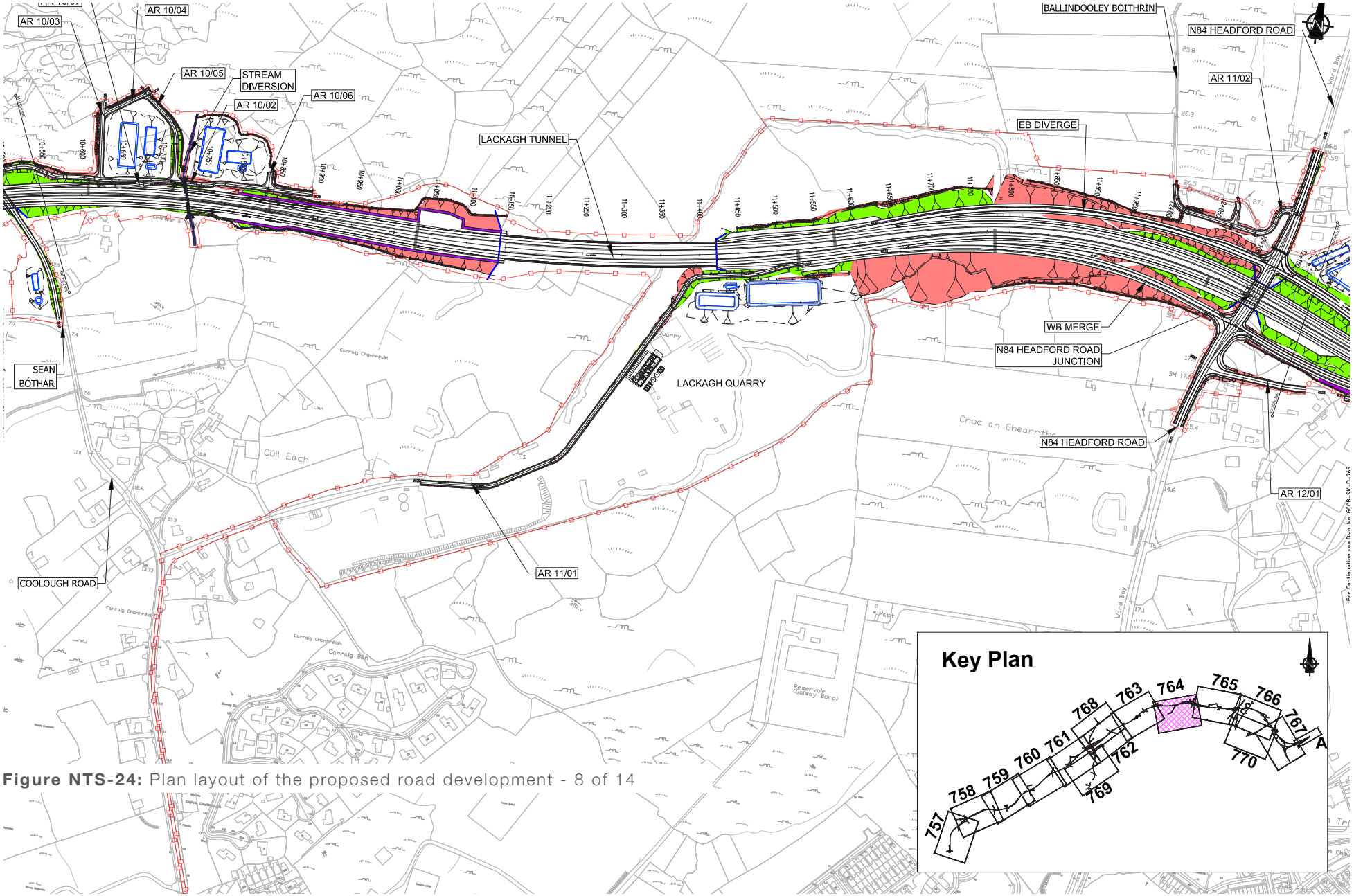
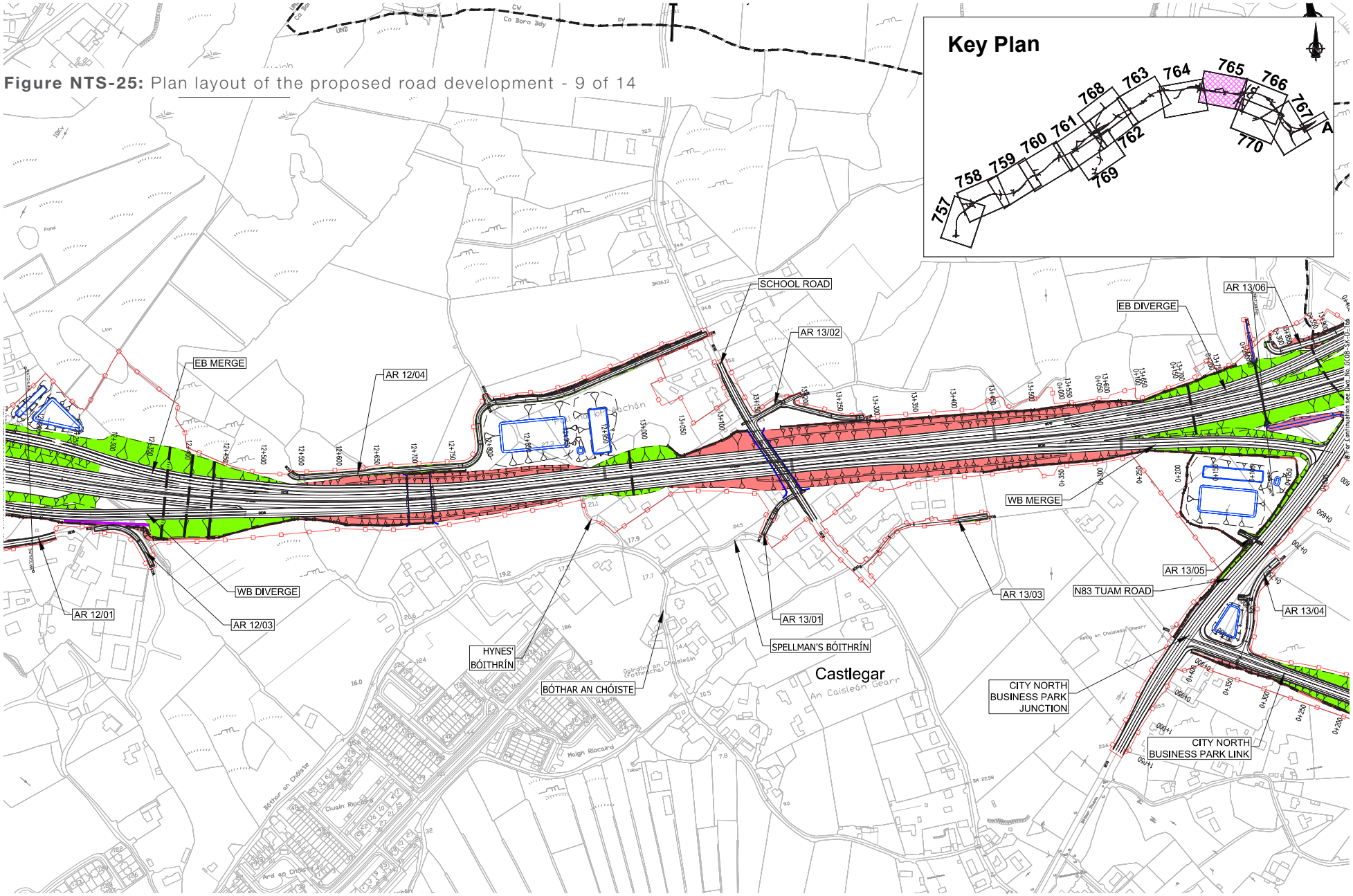


Figure NTS-24: Plan layout of the proposed road development - 8 of 14

Figure NTS-25: Plan layout of the proposed road development - 9 of 14



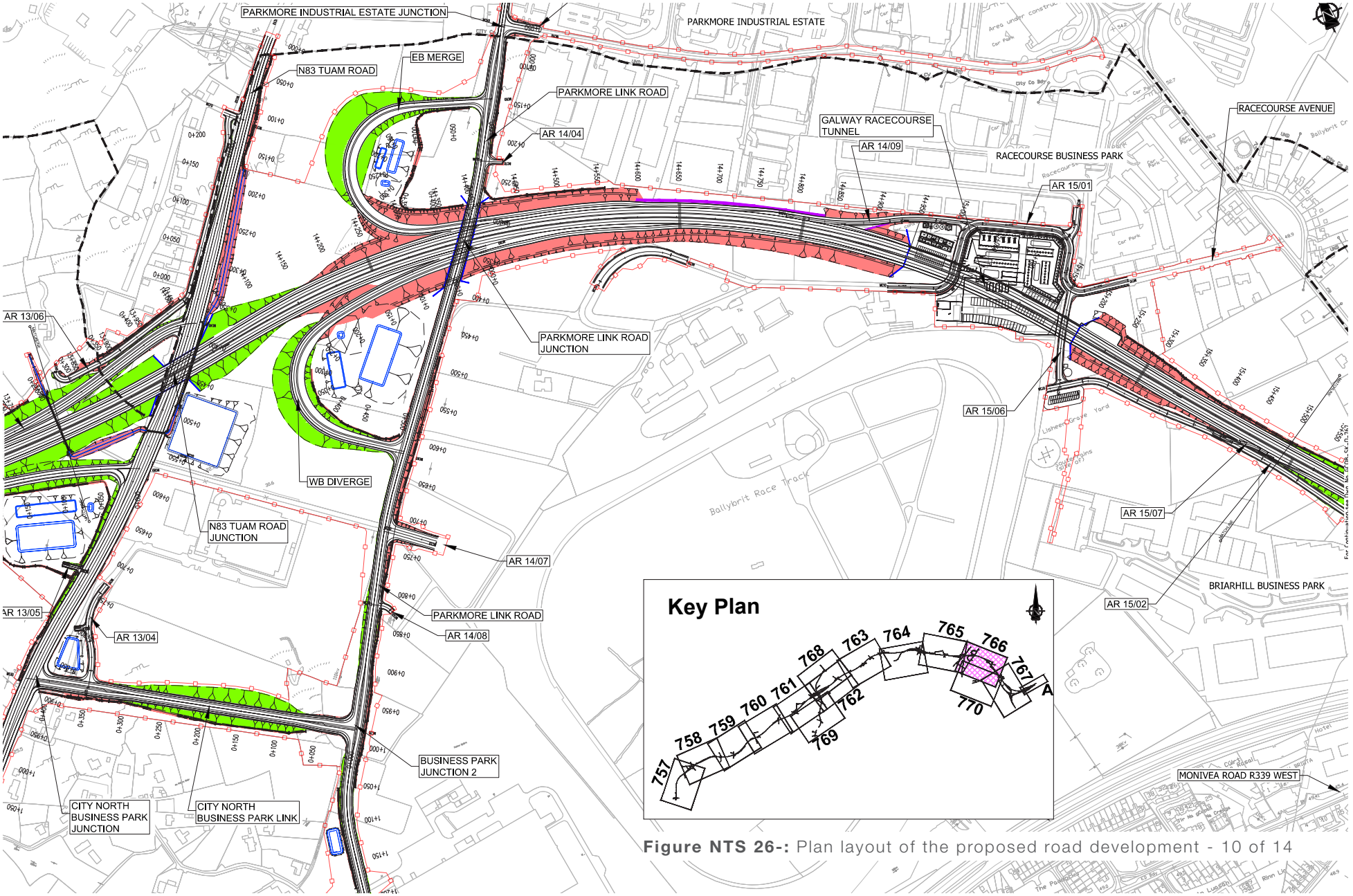


Figure NTS 26-: Plan layout of the proposed road development - 10 of 14

Figure NTS-27: Plan layout of the proposed road development - 11 of 14

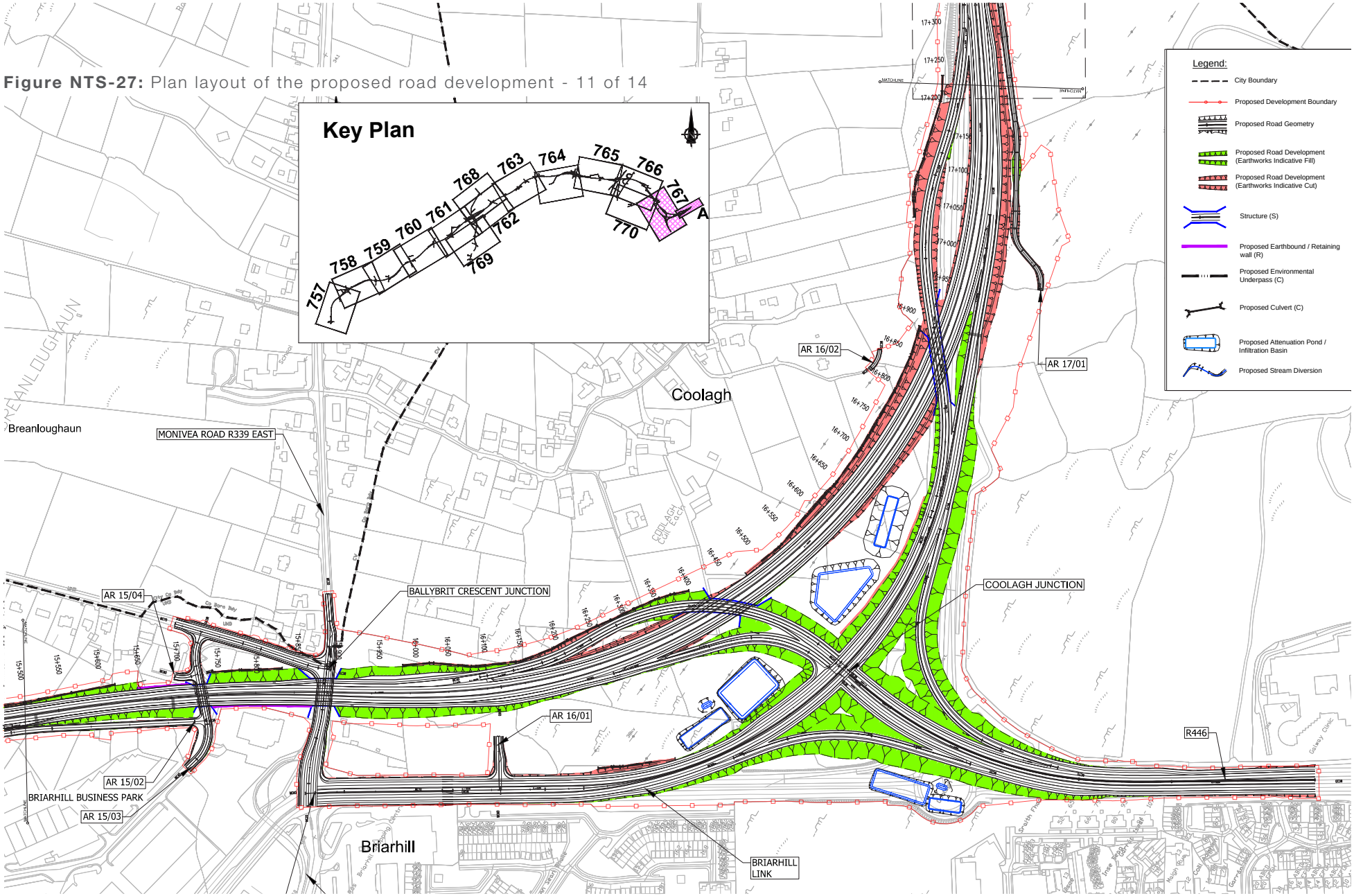


Figure NTS-28: Plan layout of the proposed road development - 12 of 14

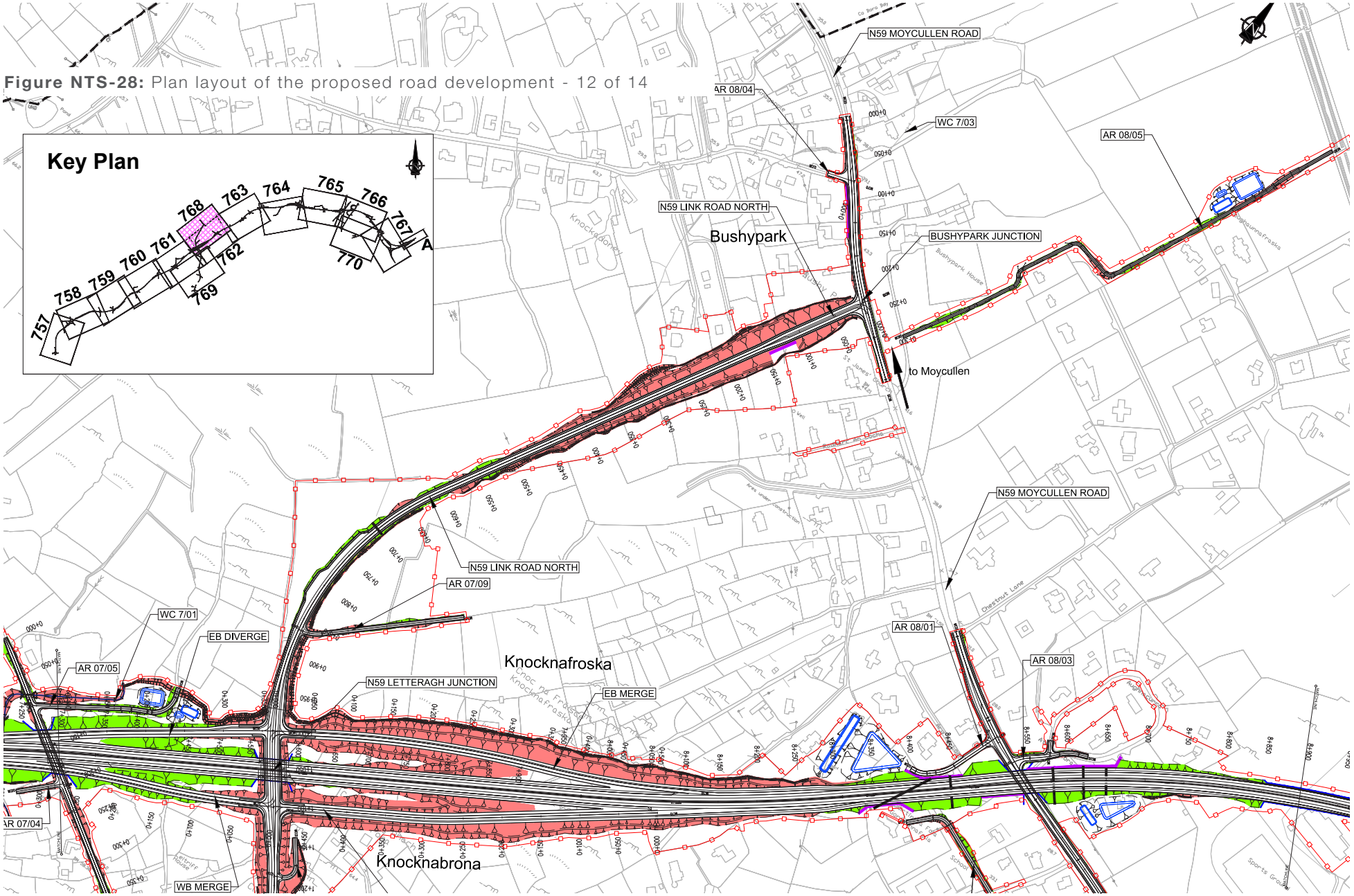
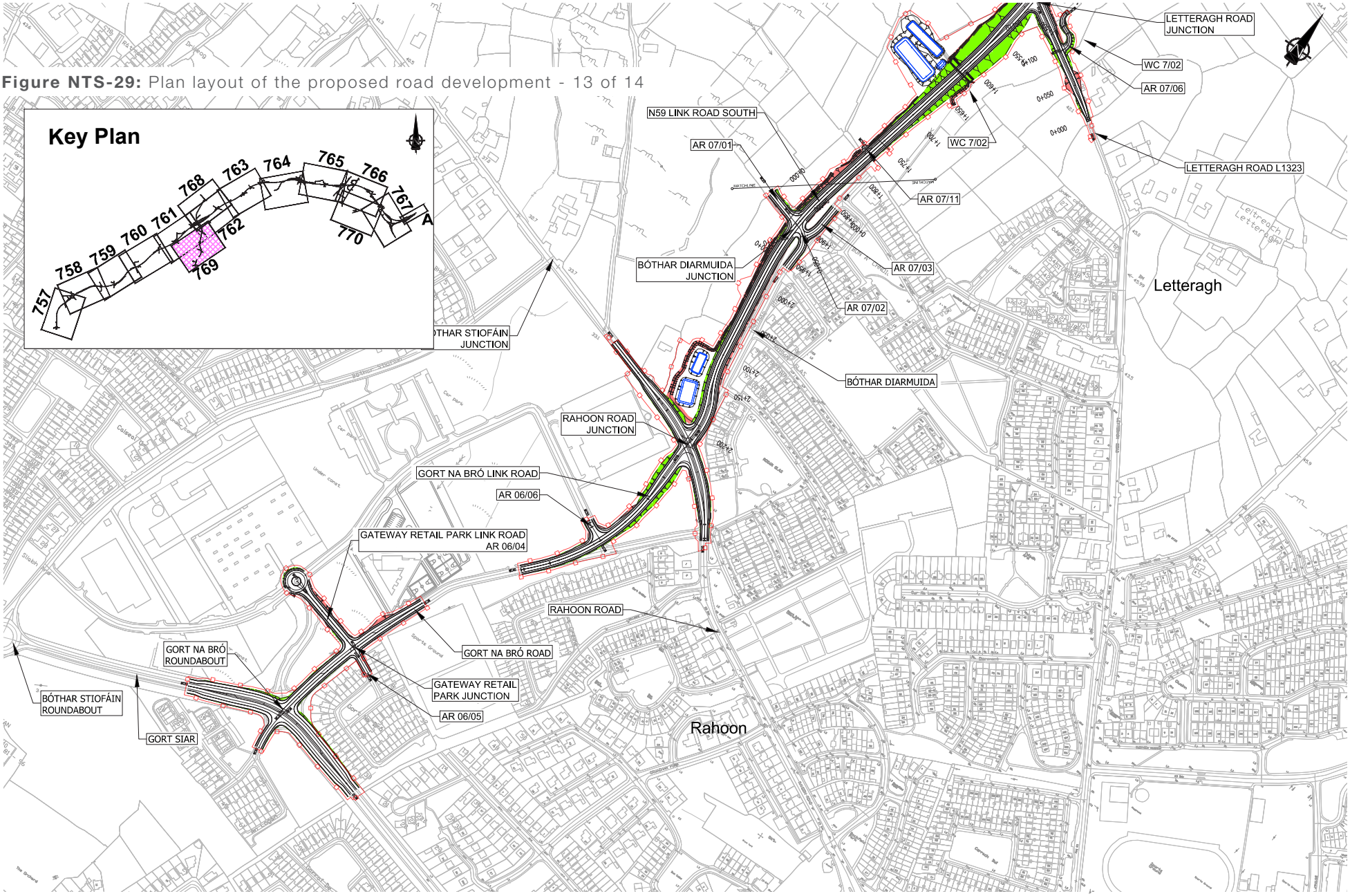


Figure NTS-29: Plan layout of the proposed road development - 13 of 14



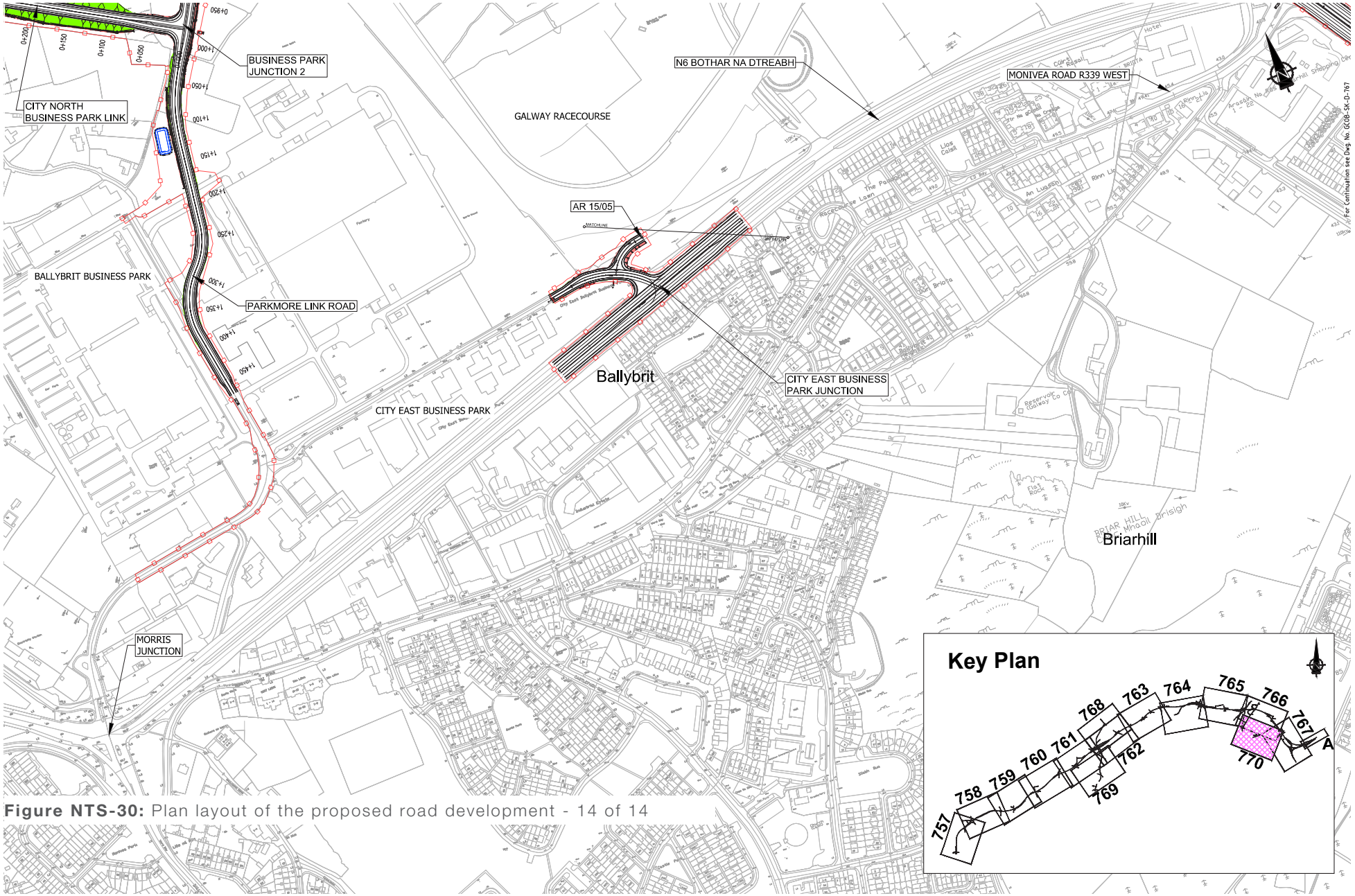


Figure NTS-30: Plan layout of the proposed road development - 14 of 14

8.2 TEN-T Function

Figure NTS-31: TEN-T Network Ireland

The N6 GCRR is classified as part of the TEN-T comprehensive road network, shown in **Figure NTS-31**, as it is a strategic link in the road network in the West Region functioning in accordance with the European Union's (EU) TEN-T transport policy.

The European Union's (EU) TEN-T transport policy aims to create connectivity between regions, remove bottlenecks that hamper the smooth functioning of the EU's internal market and promote a sustainable, multi-modal network for passengers. The N6 GCRR was developed as a high-quality road as part of the TEN-T comprehensive network for the following reasons:

- Supports the economic and social development of the West Region
- Ensures connectivity and accessibility of this region to the single European market, including the port of Rossaveel, Connemara Airport and the Gaeltacht areas which lie west of the city along the R336
- Improves the accessibility of Galway City to its main markets, by facilitating the crossing of the River Corrib without the need to go through the city centre
- Protects the connectivity of key strategic services within Galway, such as NUIG and Galway University Hospital, to the national motorway network
- Removes bottlenecks and congestion in Galway City, which is impacting on the economic capability and functionality of the city
- Attracts traffic from the city centre area, which will facilitate a reallocation of road space to improve capacity and reliability of public transport and facilitate greater opportunities for cycling and walking
- Promotes the reduction of greenhouse gas emissions as it facilitates the advancement of a low-carbon, multi-modal and more energy efficient transport system

The N6 GCRR will be a protected road from the R336 to the N59 Letteragh Junction and a motorway from N59 Letteragh Junction to the existing N6 at Coolagh, affording it additional protection from future access demands. The junctions have been designed and located so as to fulfil the role of the N6 GCRR and to ensure that the entire route is not undermined by local traffic. The functionality of the N6 GCRR is twofold in so far as it serves both strategic traffic connecting to Galway as well as providing the necessary river crossing to facilitate the reallocation of road space within the city. These dual roles are entirely complementary.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8.3 Construction Activities

It is estimated that the overall construction period will last for approximately 36 months. An east to west build sequence is likely and a variety of construction activities will occur simultaneously to ensure efficient delivery.

The constructability of the proposed road development and the associated impacts of the following were assessed:

- construction phasing
- enabling works (including archaeological test trenching and ground investigations)
- site preparation and clearance works (including the demolition of existing structures)
- proposed road closures and diversions
- main construction activities (including mitigation measures such as landscaping measures, noise barriers and ecological habitat planting)
- proposed construction methodologies
- material sources and transportation
- proposed haul routes and construction compounds
- service and utility diversions
- commissioning and decommissioning of the proposed road development

Additionally, the constructability of bespoke, and complex, structural elements and their interaction with the receiving environment was assessed. The construction of the River Corrib Bridge, the Menlough Viaduct, the Lackagh Tunnel, and the Galway Racecourse Tunnel were assessed for their specific construction impacts.

Construction methods employed shall be in accordance with best practice standards and guidelines. All necessary precautions and mitigation measures to reduce the potential impacts of construction activities on the environment will be implemented. A Construction Environmental Management Plan has been prepared which outlines the overall environmental management strategy that will be adopted and implemented during construction. This plan illustrates how construction works can be delivered in a logical, sensible, and safe sequence via the incorporation of specific environmental control measures relevant to road construction.

Major construction activity such as excavation work, requires the use of powerful and often large and heavy equipment. These works take a significant time period to complete and progressive phases of construction entail different activities and require the use of various types of equipment. Overall, however, construction is a temporary activity. Modern machinery and techniques are sophisticated and are designed to be operated to minimise the impact on their surroundings. Residual impacts to the receiving environment, such as deterioration of public roads used as haul routes, will be repaired. In the unlikely event of unintentional structural damage caused to buildings/structures/wells as a result of the construction activities, those affected will undergo full stabilisation and rehabilitation works. The residual impacts of the other construction related activities of the proposed road development such as noise, dust, climate etc., are assessed separately within the relevant chapters of the EIA Report for each individual topic.

Figure NTS-32: - Key Routes and key junctions

8.4 Traffic Impact Assessment

The NTA's West Regional Model (WRM) was used to assess the impacts of the proposed road development. The WRM was calibrated and approved by the NTA and formed a consistent basis with the GTS in terms of using the same model for assessment. It was refined and approved for use by TII.

Future year traffic scenarios for low growth, medium growth, and high growth were evaluated. Additionally, a sensitivity test to assess the performance of the proposed road development in conjunction with the Galway Transport Strategy was undertaken. These scenarios were used to estimate the impact of the proposed road development on the existing and future transport network, determine whether it was necessary to mitigate for such impacts, and to forecast what significant residual impacts remained post mitigation. In addition to assessing traffic impacts, traffic modelling results were used to inform environmental assessments for the EIA Report including, but not limited to, air quality and climate, noise and vibration, human beings, population and health.

Traffic impacts were assessed against key performance indicators. The key performance indicators adopted were **journey time** on identified key routes as shown on **Figure NTS-32** to understand strategic impacts, **junction performance** to understand local impacts at key junctions shown on **Figure NTS-32**, and **network statistics** as indicators of congestion and delay. These key performance indicators served as a means of evaluating and maximising, via design, the benefits accrued through the introduction of the proposed road development.

In fact, traffic impact analysis determined that there will be no significant negative traffic impacts as a result of the introduction of the proposed road development. The traffic impact analysis determined that the introduction of the proposed road development will result in significant benefits in terms of journey times, junction performance, and network statistics, including, but not limited to, the following:

Journey times on key routes around, and into, the city will be reduced because of the introduction of the proposed road development, most notably:

- **Route 3** along the existing Western Distributor Road, which is targeted for a Core Bus Route, will experience approximately 30% reduction in journey time on the inbound direction in the AM peak period
- **Route 4a** along the existing Seamus Quirke Road, a route targeted for a Core Bus Route, will experience approximately 8% reduction in journey time inbound and 16% reduction in journey time outbound in the AM peak period
- **Route 4b** along the existing N6 from Kirwan Roundabout to the existing N6 at Coolagh, Briarhill will experience approximately 35% reduction in journey time, both inbound and outbound in the AM peak period
- **Route 5** from Briarhill to Moneenageisha Junction and onto Lough Atalia along the R4339, a route targeted for a Core Bus Route, will experience approximately 13% reduction in journey time inbound and outbound in the AM peak period
- **Route 11** along the Old Dublin Road, a route targeted for a Core Bus Route will experience approximately 25% reduction in journey time on the inbound direction in the AM peak period
- **Route 4b** above will experience significant improvements in journey time of up to 47% in the inter-peak periods and PM peak period also
- **Route 5** above will experience significant improvements in journey time of up to 47% in the inter-peak periods and PM peak period also

Junction analysis in the peak travel periods shows that the proposed road development will lead to almost a 50% reduction in the number of junctions operating at or close to capacity as follows:

- The number of over-capacity links at key junctions along the N6/ R338 Corridor reduces by over 70% in the PM peak period
- The number of over-capacity links on the entire city network is reduced by almost 50% in the PM peak period

The network delay reduces considerably with the proposed road development in place and provides a higher average speed in all time periods

By providing an alternative route around the city, the proposed road development will result in reduced traffic levels and congestion in the city centre

9 Environmental Assessment of the Proposed Road Development

9.1 EIA Process

Environmental Impact Assessment (EIA) is a process for anticipating the effects on the environment caused by a development, noting that the environment includes people, communities, property, human health, heritage, archaeology, landscape and visual, noise and air, as well as those topics usually associated with it such as ecology, biodiversity, soils and water. Mandatory EIA is required because the proposed road development includes a motorway and a bridge, a viaduct plus two tunnels each of which will be more than 100 metres in length. The EIA Report is submitted to An Bord Pleanála (ABP) under Section 51 of the Roads Acts, from whom approval for the proposed road development is sought. Environmental Impact Statements are now referred to as Environmental Impact Assessment Reports in the EIA Directive (as amended by Directive 2014/52/EU).

The objective of the EIA process is to firstly consider alternatives, and thereafter to identify and predict any likely significant impacts of the proposed road development on the environment, to describe the ways in which these can be mitigated or reduced, and to interpret and communicate all this information through a formal document known as an EIA Report, formerly known as an Environmental Impact Statement (EIS).

Consultation was carried out with the general public, statutory and non-statutory consultees through open information sessions and informative engagement. Comments received during this consultation phase were reviewed and considered in the preparation of this EIA Report.

In addition, potential impacts on designated Natura 2000 sites (these are special protection areas and special areas of conservation which are designated for protection under the EU Habitats Directive, and are also known as European sites) are specifically assessed in the Natura Impact Statement (NIS), which also forms part of this application for approval to ABP. The conclusion of the NIS is that the proposed road development will not adversely affect the integrity of any European site, whether by itself or in-combination with any other plan or project and there is no scientific doubt in relation to that conclusion.

9.2 Human Beings, Population and Human Health

The proposed road development results in the unfortunate but unavoidable impacts on the local communities and people living in the vicinity of the proposed road development. The impact assessment under the heading of Human Beings, Population and Human Health is a broad ranging topic which *"covers the existence, activities and health of people, usually considering people as groups or 'populations'"* (EPA 2015)[5]. Aspects examined primarily relate to impacts from the proposed road development on socio-economic activities and on local community health, each of which is outlined below. It should be noted that potential impacts on humans are also considered under the headings of Material Assets-Agricultural and Non-Agricultural, Soils and Water, Noise and Vibration, Air Quality and Climate and Landscape and Visual.

Aspects related to **socio-economic activities** include journey patterns, amenity and community severance, business, tourism and employment, ecosystem services, and use of the Irish language. Other aspects relevant to human beings such as visual amenity, built and natural heritage, material assets and nuisance are dealt with under their relevant topic.

Human health impacts are primarily considered through an assessment of the environmental pathways by which health can be affected such as air, noise, water or soil. Therefore, the health assessment relies on these specific assessments and draws on them, as necessary, to examine whether the effects arising from any identified impacts may have a health impact. Such impacts may arise from a link to impacts on contaminated lands under the topic of Soils and Geology, to impacts on groundwater identified under the topic of Hydrogeology, to any potential impacts on surface water and areas of flood risk identified under the topic of Hydrology, and to the predicted air quality impacts and noise and vibration impacts at properties adjacent to the proposed road development.

The health assessment also considers psychological effects, health improvement and improvement to services.

9.2.1 Socio-Economic

A socio-economic assessment of the proposed road development was carried out and focused on aspects such as journey patterns, amenity and community severance, business, tourism, employment, and use of the Irish language.

9.2.1.1 Journeys

Overall, the proposed road development will provide a much needed ring road around Galway City, and will serve to link Galway, including its strategic services such as NUIG and Galway University Hospital, to the rest of Ireland. It will provide a very significant reduction in journey times. It will improve the accessibility of Galway City by facilitating the crossing of the River Corrib without the need to go through the central suburbs of the city. It will also improve the accessibility of remote regions, thereby facilitating reductions in the economic and social isolation of remote areas, particularly the Gaeltacht areas.

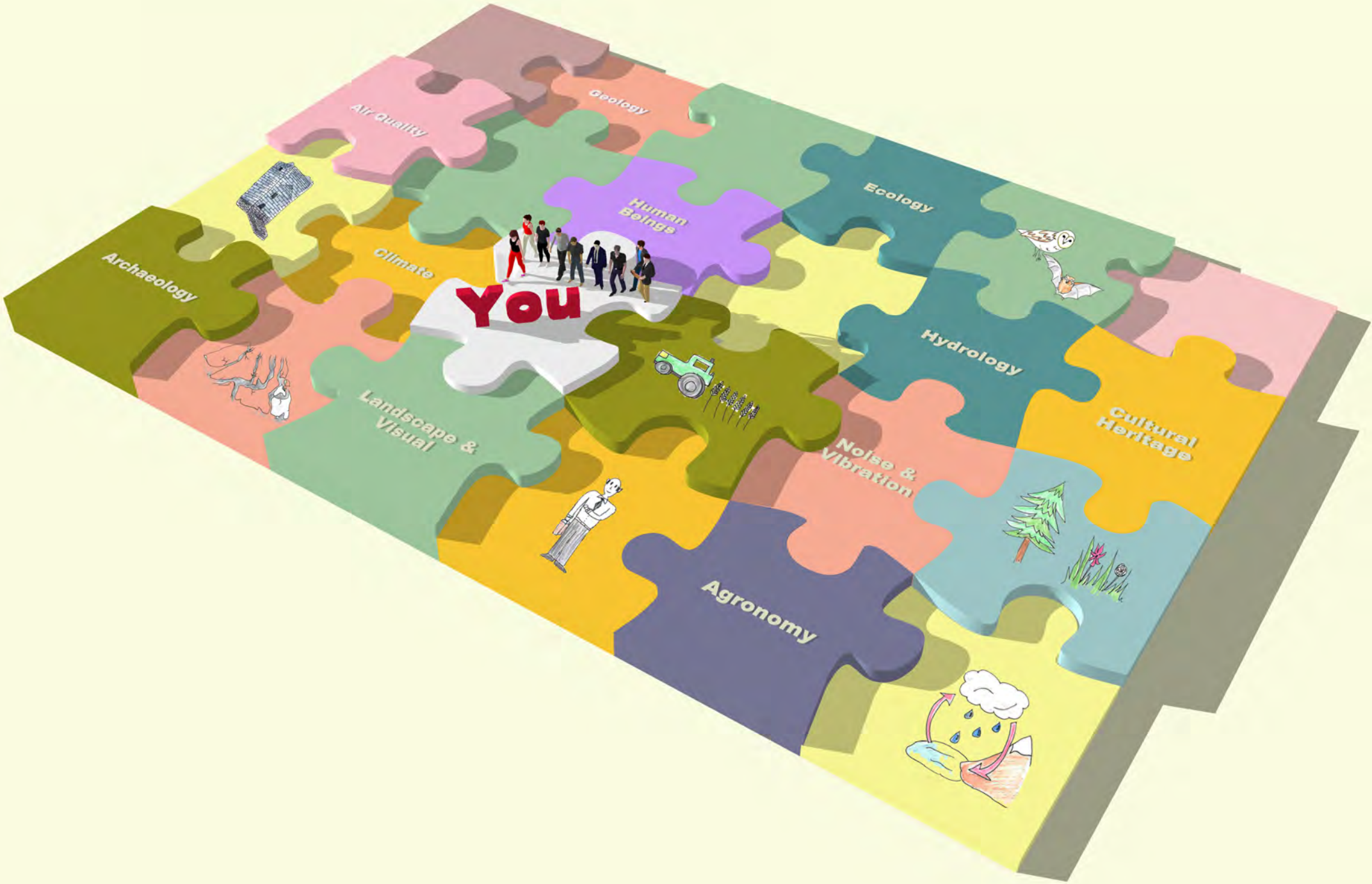
The transfer of traffic from city centre locations will improve journey amenity for all users of the existing road infrastructure. In particular, it will open up road space for the provision of improved pedestrian and cycle facilities and provide opportunities for new public transport in line with the objectives of the GTS. The transfer of traffic will contribute to improve amenity and general well-being of communities living within or beside busy urban roads.

9.2.1.2 Community

The proposed road development has been designed to avoid as many residential properties as possible, but given the distribution of development and the presence of linear development of the city with housing along most roads radiating out of the city, its construction will unfortunately and unavoidably result in a number of property demolitions or acquisitions. This will be concentrated in particular areas. As well as the direct negative impact on the householders themselves, this will present a varying negative impact on remaining residents and at a community level depending on the strength of community interaction that has evolved at each location and the sustainability of community facilities such as schools.

In several locations, and particularly in Na Foraí Maola the vicinity of the N59 Moycullen Road, the N84 Headford Road and in Castlegar, there will be a significant impact on local communities due to the need to acquire or demolish a significant number of existing properties in these areas. The proposed road development will have an impact on lands zoned for residential development by Galway City and County Council.

[5] Extracted from the Advice Notes for Preparing Environmental Impact Statements (EPA draft September 2015) which have not been updated since


Air Quality
Geology
Human Beings
Ecology
Archaeology
Climate
You
Hydrology
Cultural Heritage
Landscape & Visual
Noise & Vibration
Agronomy

9.2 Human Beings, Population and Human Health Cont.

9.2.1.3 Amenity & Business

The proposed road development will impact on commercial premises in the areas of the N84, N83 and Ballybrit. All of these impacts will be addressed as part of the land acquisition process and through financial compensation, but again these businesses represent the livelihoods of many individuals and so impacts will be moderate to significant. The proposed road development will have an impact on lands zoned for commercial or industrial development by Galway City Council.

The proposed road development will have a very significant negative residual impact on the NUIG Sporting Campus at Dangan, although this can be reduced to a moderate residual impact with appropriate reconfiguration by NUIG. Two pitches, one of which has planning permission for conversion to a 3G pitch with flood lighting, and part of the sports pavilion will be lost. A new 3G pitch and training pitch with flood lighting will be provided as a replacement, with financial compensation required to address the remaining impacts. The sports facility will be permanently impacted by the presence of an overhead viaduct carrying the road towards the crossing of the River Corrib. There will be no physical severance, but the crossing will impact on the amenity of users of the sports facility and amenity use of the riverside.

The proposed location of the Galway Racecourse Tunnel and mitigation measures means that there will be no direct amenity impacts on the racecourse business or racing events during operation. New permanent access will be available to the N83 Tuam Road via the City North Business Park Link and Parkmore Link Road and much improved access will be possible from the existing N6 such that the net impacts will be positive.

9.2.1.4 Irish Language

In relation to the Irish language, there is a low-level of daily Irish usage among the population of the area directly affected by the proposed road development, and where it exists, the use of Irish is particularly concentrated in an education context. While population is increasing, the use of Irish as a community language is not growing in parallel. The proposed road development will not have any negative impact on the use of Irish into the future.

9.2.1.5 Employment & Tourism

The proposed road development will have a significant positive impact on the Galway economy by reducing traffic congestion which currently constrains economic growth and competitiveness. The improved connection provided with destinations to the west of Galway City will have a positive impact on the potential for economic development and continued growth in tourism numbers.

9.2.1.6 Ecosystem services

Ecosystem services provide many varied benefits that humans freely gain from the natural environment. A properly functioning ecosystem has the capacity to regulate and support the natural environment that contributes to human well-being. The potential impacts on ecosystem services were considered through the assessment of the environmental factors (pathways) through which ecosystem services could be affected such as water, soils, air, noise and general amenity and relied on the biodiversity assessment in terms of potential impacts to biodiversity and indirectly to ecosystem services. There are no impacts identified in those assessments which would result in a significant residual impact on ecosystem services during the construction of the proposed road development.

9.2.2 Human Health Assessment

The potential health impacts due to the proposed road development were also assessed with the focus on likely significant effects, i.e. on effects that are deemed likely to occur and, if they were to occur, would be expected to be significant. The health assessment focused on three main areas: *health protection, health improvement and improving services*. A review of current and emerging guidance on assessing health in EIA was undertaken. This health assessment utilised both a standards based approach and a wellness assessment which included psychological health issues such as stress and anxiety

9.2.2.1 Health Protection

The data collected in relation to the protection of human health focused on the results of technical assessments of noise, air, soil and water and their mitigation to establish any potential hazard directly attributed to what is proposed.

These technical assessments use standards[6] (such as air quality standards) in order to identify whether significant impacts will arise or not. It is important to point out that health standards do not only exist to protect robust groups within the population, but are primarily intended to protect the vulnerable. The standards are set at levels for which there will be no significant health effects, but do not exclude each and every effect, i.e. slight or moderate health effects are possible even below the levels at which health based standards would apply.

Noise

Construction noise is expected to have some negative effects; however, it will be short term and limited by work practices and restricted working hours. The results of the noise modelling carried out for the operational phase shows that there will be potential noise impacts on people in residential properties adjacent to the proposed road development, but that the implementation of low noise road surfacing and noise barriers will mitigate these potential impacts. The noise assessment also shows that there will be a benefit for a significant number of people within the city due to a proportion of current traffic being transferred from those currently used. On the basis of WHO night-time noise guidelines, there will be beneficial effects for the community living along existing roads where traffic will be reduced.

Air

Air quality has been considered in both the construction and operational phases. Given the proposed mitigation measures with regards to control of dust and other air emissions during the construction phase, and the relative limited period of time duration, air quality impacts are not expected to have an adverse effect on human health during the construction phase. Detailed modelling based on worst case traffic scenarios identify that Air Quality Standards will not be breached, thereby protecting the vulnerable such as asthmatics, the elderly, the very young or the sick in general.

Soils & Water

Adverse effects on soils, water quality or quantity are not predicted either during the construction or the operational phases.

Psychological

Whilst some annoyance during the construction phase is to be expected, this will be of limited duration and is not usually considered to be a health effect. There are potential psychological benefits for the general public in terms of reduced journey times, reduced unforeseen delays as well as movement of traffic away from currently congested and more populated areas. The transfer of a proportion of traffic to inherently safer roads, together with the prospect of reduced traffic accidents and fatalities, is also an important potential benefit.

This does not take away from the adverse effects on individuals whose homes are to be compulsorily acquired. As noted above, the proposed road development has been designed to avoid as many properties as possible, but there remains a significant number of property acquisitions and, although subject to financial compensation, it is important to recognise that these individuals may experience stress and anxiety as a result of this process. Mitigation will include seeking to negotiate acquisition of such properties as soon as possible, subject to attaining consent, availability of funding and no legal challenges, to give these people the maximum amount of time to acquire new homes.

[6] The term standards in this instance covers guidelines for example noise guidelines as such standard are not currently available.

9.2.2.2 Health improvement and improving services

Opportunities for health improvements and improved access to services have been identified during extensive public consultations and analysis of the transport model and include, but are not limited to the following:

- Economic growth and development of tourism which can result in improved socio-economic status and can have a positive impact on health outcomes
- Increased employment and reduced unemployment, particularly long-term unemployment, can lead to improved health. If this is achieved, there will also be benefits in terms of social health including decreased social inequality
- Opportunities for a potential decrease in road traffic accidents
- Potential for improved public transport and an improved environment for cycling and walking within the city centre along roads previously occupied by heavy traffic leading to an overall increase in the health benefits

A quantification of some of the accessibility and social inclusion benefits of the proposed road development and all the GTS measures is outlined as follows:

- There will be improvements in accessibility and social inclusion for almost all parts of Galway City with reduced journey times for all modes of transport
- There is potential for more efficient access to emergency services including ambulances
- There is also the potential for increased opportunities to exercise due to an environment more amenable to walking and cycling, leading to the associated health benefits
- There are significant opportunities for improved access to services. For those within Galway City and its environs, reduced traffic along city streets will facilitate access to services including health centres. For those living outside of Galway City, there is the potential for improved access to the national road network and thereby access to other services including national hospitals

Overall, therefore the impacts of the proposed road development on human health are primarily positive. From a community perspective, there are clear benefits in terms of health protection, opportunities for health improvements and access to services. There are, however, a limited number of individuals, primarily those living close to the proposed road development for whom there may be slight adverse outcomes in terms of noise and air quality. These will be minimised through the use of mitigation measures.

In summary from a human health perspective, the proposed road development will have no significant adverse effects on human health.

9.3 Material Assets – Non-Agriculture

Non-agricultural material assets include settlements and property, utility infrastructure, and land use. The proposed road development will acquire land from non-agricultural properties including residential, commercial, industrial properties, lands zoned for development, sporting grounds, racecourse lands, school lands, and church lands. Acquisition of lands currently located within the public road in the registered ownership of private individuals are included in this figure. Road bed acquisition has an imperceptible impact on affected properties as works are entirely outside of the existing property boundary. Non-agricultural material asset impacts were evaluated to determine whether it was necessary to mitigate for such impacts, and to determine what significant residual impacts remained post mitigation.

From the outset of the design of the proposed road development, every effort was made to avoid property demolitions where possible. Even though specific consideration was given to the number of residential properties to be acquired in the alternatives to the N6 GCRR, avoidance of all properties was unfortunately not possible given the significant constraints for developing new transport infrastructure in Galway including the linear development of the city and the need for proximity between the proposed road development and the urban environment for the delivery of an optimal solution for a new ring road.

Unfortunately, there still are a number of property demolitions necessary for the construction of the proposed road development and to secure the many benefits the proposed road development offers, as follows:

- 44 residential properties
- 2 industrial properties (one property includes four buildings)
- 3 commercial properties

In addition to the demolition of 44 residential properties, an additional 10 residential properties and one landholding that has a full residential planning permission require full acquisition.

The proposed road development will have a very significant impact on the NUIG Sporting Campus at Dangan in the absence of a new University Sports Masterplan. Operational impacts upon the stable yard and associated facilities at Galway Racecourse will be mitigated via their relocation. It is considered that the proposed road development will result in a slight positive residual impact on Galway Racecourse due to the proposed mitigation works.

Mitigation will include seeking to negotiate acquisition of properties as soon as possible, subject to attaining consent, availability of funding and no legal challenges, to give these people the maximum amount of time to acquire new homes.

There are a number of impacts to utility services including Electricity Supply Board (ESB), Gas Networks Ireland (GNI), Eir, Virgin Media, E-Net, BT, Vodafone, Three Networks Ireland, and Irish Water. The remaining conflicts are slight and imperceptible. Where there is an impact on existing services during the construction phase, an alternative supply will be made available. It will be necessary to maintain supply to existing services, as far as possible, during construction. There will be no residual impacts on services.

9.4 Material Assets – Agriculture

The proposed road development will traverse an area mainly consisting of small agricultural holdings. The land quality west of the River Corrib is generally poor and, although mixed, the quality of land is better east of the River Corrib. The main farming enterprise is beef cattle. There is a relatively high proportion of very low to medium sensitivity equine enterprises along the route of the proposed road development.

Material Asset-Agricultural impacts were evaluated to determine whether it was necessary to mitigate for such impacts and to determine what significant residual impacts remained post mitigation.

Measures are proposed in order to mitigate the identified impacts during construction and operation upon agricultural material assets. During construction, these include maintenance of access, services, and boundaries. Construction related mitigation will also include the management of environmental impacts deriving from construction related activities such as dust and water runoff. With respect to the operational phase, the loss of agricultural lands is permanent and can only be mitigated via financial compensation. Where agricultural material assets are severed these impacts have been mitigated via or with the provision of access.

During construction, the generation of noise, dust and traffic will give rise to impacts which are temporary in nature and, with mitigation, generally do not result in significant residual impacts. The operational phase will begin once the road opens to traffic and will continue indefinitely. Residual impacts that occur for this duration are permanent and more significant than the temporary impacts that occur during the construction phase.

9.5 Air Quality and Climate

The potential impact of the proposed road development on air quality was assessed for both the construction and operational phases by considering the pollutant background concentrations, emissions from road traffic, potential for construction dust, and emissions from construction traffic. Predicted concentrations were compared to the relevant limit values.

Road traffic on the national routes (including the existing N6, N83, N67, N59 and N84) and on the local road network currently contributes to air quality pollution in the study area. Emissions are higher under congested traffic conditions, such as those experienced in certain areas of Galway City, particularly during peak times. The Environmental Protection Agency (EPA) carries out air quality monitoring at the Bodkin Junction in Galway. This monitoring shows that all current baseline pollutant concentrations are in compliance with Air Quality Standards. Site specific monitoring of particulate matter and nitrogen dioxide was also carried out over a period of three months in the vicinity of the proposed road development to validate the use of this EPA monitoring data. Carbon emissions were considered in terms of Ireland's obligations to reduce its carbon emissions.

During the operational phase, compliance with all air quality standards will be achieved with and a worst-case impact of slight adverse is expected. Following the implementation of mitigation measures, no significant residual air quality and climate impacts are envisaged as it is predicted that compliance with all air quality standards for the protection of human health and vegetation will be achieved. During the construction phase, particulate monitoring and dust deposition monitoring will be carried out to ensure the effectiveness of the mitigation measures and compliance with air quality standards.

9.6 Noise and Vibration

An assessment relating to the potential noise and vibration impacts of the proposed road development was undertaken for both the construction phase and the operational phase.

During the construction phase, the assessment has determined that noise impacts will be negative moderate short-term and in some instances negative significant and momentary depending on the activities involved. The use of best practice noise control measures, hours of operation, scheduling of works within appropriate time periods, strict construction noise limits, and noise monitoring during the construction phase will ensure impacts are controlled to within the adopted criteria. Similarly, vibration impacts during the construction phase will be well controlled through the use of low impact equipment and adherence to strict limit values which will be subject to monitoring at the nearest sensitive buildings.

During the operational phase, noise levels will be increased at the majority of noise sensitive locations along the length of the proposed road development. Whilst noise levels of varying increases and impact magnitudes are calculated at the assessment locations, the incorporation of a low noise road surface and the use of noise barriers along the proposed roadside boundary will reduce noise levels to within the design goal of 60dB Lden or to the pre-existing Do Minimum noise levels at the majority of noise sensitive locations. Residual noise levels at a small number of locations will remain above the 60dB Lden design goal by 1 to 2dB. The assessment concluded that changes in road traffic noise levels will be negligible to major in accordance with relevant guidance. The overall noise impact at the assessment locations, taking account of the change in the noise environment, the absolute noise levels under consideration and the typical population response to the road traffic noise levels under consideration across the study area, is imperceptible to significant with the majority of properties experiencing a slight to moderate impact.

Overall, noise levels will be increased at properties along the proposed road development once operational and a change in the noise environment will occur. The road has, however, been designed to reduce operational noise levels to within national design guidelines through the incorporation of detailed noise mitigation measures. The number of properties adjacent to the proposed road development is relatively low compared to those within the city centre which are currently exposed to significantly higher noise levels from passing road traffic. The reduction in high volumes of traffic traversing the city centre will result in a moderate to major positive noise impact to an extensive number of noise sensitive properties along the existing road network. There are no significant residual noise and vibration impacts.

9.7 Landscape and Visual

Landscape has two separate closely related aspects. The first is visual impact which is the extent to which the proposed road development can be seen in the landscape. The second is impact on landscape character which is the effects of the proposed road development on the fabric or structure of the landscape.

The visual impact assessment considered visual receptors along the route of the proposed road development. Most receptors involve residential properties; however, cultural and heritage properties, community facilities, e.g. churches, amenities and recreational facilities, open spaces, walkways, and other viewers within the environment are also considered.

Landscape character derives from the appearance of the land, and takes account of natural and man-made features such as topography, landform, vegetation, land uses and built environment and their interaction to create specific patterns that are distinctive to particular localities. Aspects such as landscape character and landscape designations are also considered in the description of the receiving landscape.

The proposed road development passes through a generally rural landscape on the western, northern and eastern edge of Galway City. Residential development is a prominent feature, particularly north of Bearna, Dangan Upper, Dangan Lower, Ballindooley, and Castlegar. Some areas along the proposed road development are of very high landscape and visual quality and sensitivity.

The main features of significance and sensitivity in the receiving landscape are:

- The semi-natural landscape character of marginal grasslands, scrub plantings, small stream valleys and stone walls to the west and north of Bearna Village
- Environmental Management and Open Space Areas, protected views and prospects, and proposed greenways and linkages west and north of Bearna Village
- The open rising landscape, including open space lands, northwest of Galway City
- The River Corrib corridor and its wider landscape setting, which includes the prominent ruins of Menlo Castle, as well as a diverse mosaic of semi-natural and man-influenced landscapes, riparian plantings, grasslands, scrub and woodland. Protected views and prospects and lands on east bank designated as High Amenity Agriculture
- The recreation, sports and amenity lands of NUIG Sporting Campus and surrounding areas. Lands on west bank of River Corrib designated as Recreation, Open Space
- The limestone, grassland and scrub landscape with stone walls northeast of Galway City
- The wider drumlin and valley landscape setting with protected views and prospects around Ballindooley Lough
- The open recreational lands of Galway Racecourse and surrounding areas

The main features of visual significance and sensitivity in the receiving landscape are:

- The presence, prominence and visual amenity of residential property and development in general, especially west and north of Bearna; west and northwest of the city; to either side of the N59 Moycullen Road north of the city; at Ballindooley; and at Castlegar, Ballybrit and Coolagh-Briarhill
- The location of a number of protected views and prospects
- The visual amenity associated with NUIG Sporting Campus
- The visual amenity associated with the River Corrib corridor, including the setting of Menlo Castle
- The visual amenity associated with Galway Racecourse

Due to the nature of the baseline landscape, the construction and initial operational stage of the proposed road development will give rise to a range of significant, very significant and profound landscape and visual impacts, at least until such stage as the extensive landscape mitigation proposals are established and become effective. With the development of mitigation planting, the significance and severity of landscape and visual impacts will gradually decrease over time.

However, even with the development of mitigation planting, some degree of residual visual impact will continue to arise for residential and other properties located close to or adjoining the boundary of the proposed road development and where the proposed road development, including the major River Corrib Bridge, crosses sensitive landscape areas. Therefore, the proposed road development will have longer-term visual impacts for properties located close to the proposed road development and close to high embankments and retaining walls. This includes established residential areas at Barnacranny/ Dangan, Ballindooley, and Castlegar as well as many individual properties located along the proposed road development. The proposed bridge and associated embankments and viaduct on the east bank of the river will have a permanent and significant impact on the semi-natural landscape valley and setting of the River Corrib and Menlo Castle, as well as on the recreational and sports amenity of the northern end of NUIG Sporting Campus and the limestone landscape of Menlough and Coolough east of the river.

9.8 Archaeological, Architectural and Cultural Heritage

Archaeological, architectural, and cultural heritage impacts were evaluated to determine whether it was necessary to mitigate for such impacts, and to identify what significant residual impacts remained post mitigation. The examination identified, as far as reasonably possible, the nature of the archaeological, architectural, and cultural heritage resource within the footprint and in the vicinity of the proposed road development from existing records and site visits.

One recorded monument, which is listed as a Bullaun Stone will be profoundly and directly impacted by the proposed road development. This feature was not located during a field inspection and could not be previously located during a survey carried out by the Archaeological Survey of Ireland. The proposed road development will also have a moderate impact on a quarry site which is post medieval in date and possesses little archaeological significance.

One protected structure will be profoundly and directly impacted. This building, which consists of a single storey thatched structure, will be demolished following a full architectural survey prior to the construction of the proposed road development.

The demesne landscape associated with Menlo Castle will be subject to a direct significant impact. The direct impact on the demesne landscape at Dangan Lower and at Bushypark House is defined as moderate. Due to the developed nature of the environs at Rahoon House, the impact, whilst direct, is imperceptible. A total of twelve significant direct impacts on previously unrecorded sites or structures of cultural heritage significance were identified, along with nine moderate direct impacts.

Ground disturbance associated with the proposed road development has the potential to directly and negatively impact previously unknown archaeological features, deposits or artefacts which may survive beneath the current ground surface or water level.

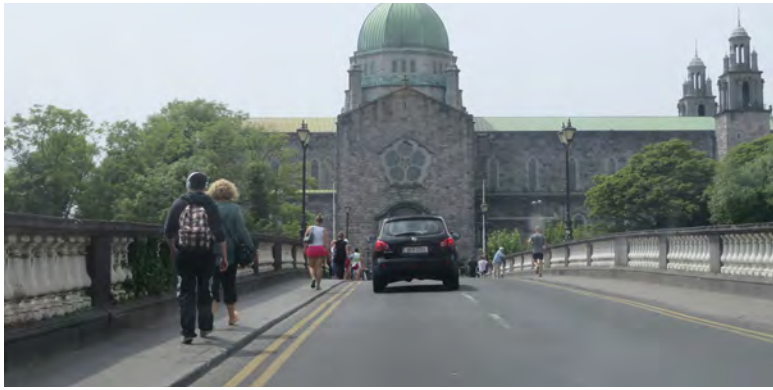
A total of 33 Townland Boundaries will be crossed by the proposed road development. The impact upon these boundaries has been defined as direct and moderate in nature due to the relatively small percentage of a feature to be impacted upon.

A number of sites outside of the receiving environment of the footprint of the proposed road development have been identified but no predicted impacts are anticipated upon these sites as a result of the proposed road development.

Predicted indirect operational residual impacts include significant negative impacts on the ruined summer house at Dangan Lower and Menlo Castle. Moderate indirect negative impacts are predicted at a recorded cashel site, a thatched cottage and church.

The Designed Landscapes will all be subject to the same level of impacts during operation as during construction due to the impacts on setting. Similarly, two cultural heritage sites will experience significant indirect impacts and seven will experience moderate indirect impacts.

A programme of archaeological testing (followed by full excavation, where appropriate, of any identified archaeological features, deposits or artefacts), archaeological underwater or wade surveys, building surveys and townland boundary surveys has been recommended within the footprint of the proposed road development; this will be carried out in advance of construction.



9.9 Soils and Geology

A detailed study of the existing geological baseline along the route of the proposed road development was undertaken using all available regional and local information and more site-specific data obtained from walkover surveys and ground investigations.

An evaluation was made of potential likely significant impacts on the soils and geology environment followed by a determination of whether it was necessary to mitigate for such impacts, and what significant residual impacts remained post mitigation.

The area west of the N59 Moycullen Road generally consists of granular glacial deposits derived from the underlying Granite bedrock. In many situations, the glacial deposits are overlain by peat. The area east of the N59 Moycullen Road generally consists of glacial till with a more cohesive matrix. The glacial till is derived from the underlying karstified[7] Limestone, with some significantly deep infilled buried valleys. No known areas of contaminated ground were identified.

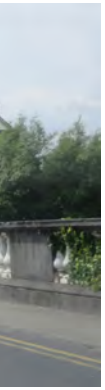
The potential soils and geology impacts are as follows:

- A portion of well drained fertile soil and crushed rock aggregate potential will be lost within the footprint of the proposed road development which leaves a moderate/slight and significant/moderate residual impact respectively
- The loss of part of two enclosed depressions and a spring will result in a moderate residual impact
- Introduction of material derived from a different lithology
- Deposition of sediment on agricultural land due to washout of fines
- Spread of contamination
- Construction induced flooding
- Unwanted disturbance of environment
- The proposed road development traverses locations of Limestone pavement located both within and outside European designated sites. The geological assessment (importance and impact) has not differentiated between Limestone pavement located within or outside the European designated sites.
  - Lackagh Tunnel passes under an area of Limestone pavement that is within a European designated site resulting in minimal to no impact on the feature from a geological perspective
  - Menlough Viaduct and a culvert in Menlough traverse over Limestone pavement (both outside European designated sites), resulting in a loss of a small part of the attribute under the viaduct piers and no direct geological impact on the area under the culvert
  - There are three locations where the proposed road development traverses and covers Limestone pavement (all outside European designated sites): two locations in Menlough and one location in Coolagh, Briarhill. At these locations (outside of the European designated sites), it will result in loss of a small part of the Limestone pavement. From a geological perspective, this was assessed at each location with the results ranging from imperceptible where there is no loss to significant/moderate where loss of a small part of the attribute occurs

Potential impacts due to construction or operational activities have the potential to occur, but the significance of the impact will be reduced, where possible, with implementation of mitigation measures.

Development and implementation of mitigation measures reduce such impacts to a moderate/slight or imperceptible residual impact on the soils and geology environment.

All operational activities of the proposed road development are deemed to produce imperceptible impacts to the surrounding geological environment.



[7] Karst refers to a distinctive terrain that evolves through dissolution of the bedrock and development of efficient underground drainage. The special landforms of karst include sinkholes, dry valleys, pavements, cave systems and associated springs (Waltham et al. 2005)

9.10 Hydrogeology

Hydrogeological desk studies, field studies, and ground investigations were undertaken to facilitate a comprehensive assessment of the hydrogeological impacts of the proposed road development. The potential impacts of the proposed road development on hydrogeological receptors including groundwater resources, groundwater supplies, groundwater dependant terrestrial ecosystems, and groundwater contributions to surface water have been assessed. Groundwater receptors were identified and include groundwater resources, groundwater abstractions, groundwater dependent habitats, and groundwater dependent surface water features. These potential impacts were evaluated to determine whether it was necessary to mitigate for such impacts and to determine what significant residual impacts remained post mitigation.

The hydrogeological study area associated with the proposed road development is divided into two principal areas based on the contrasting aquifer properties for the two main geological rock types in the region. The western section, underlain by granite, is a poor aquifer that is only productive in local zones. The combination of the poor aquifer and blanket bog cover, where rock is not exposed, limits the quantity of recharge that can infiltrate to ground. The groundwater table remains close to the surface and generally follows the topography. The eastern section, underlain by limestone, is a regionally important aquifer that includes surface karst features and underground conduit flows. The aquifer is capable of supplying regionally important abstractions and is associated with the presence of karst landforms and features but also associated with the relatively low abundance of surface water features and man-made drainage.

Groundwater Resources and Supplies
Road cuttings are included as part of the proposed road development and, where these occur, part of the respective aquifer will be removed; however, the amounts are very small and will have no perceptible impact on groundwater quantity. The water quality of the aquifers will not deteriorate due to the proposed road development. Therefore, the proposed road development meets the requirements of the European Water Framework directive in terms of maintaining, protecting, and enhancing the water quality status of the groundwater.

Groundwater Dependant Terrestrial Ecosystems
Potential impacts upon groundwater dependant terrestrial ecosystems due to the proposed road development were assessed. This assessment identified the need to mitigate the risk of interfering with the karst environment and its role in supporting groundwater dependent terrestrial ecosystems. There are no significant negative residual hydrogeological impacts to European sites due to the proposed road development.

There will be residual hydrogeological impacts due to the drawdown of groundwater on groundwater dependent terrestrial ecosystems at five locations in the west of the study area outside of a European site.

Groundwater Contributions to Surface Water
Groundwater contributions to surface water were assessed, including identification of the surface water to which groundwater bodies contribute. The assessment identified that there will be no significant negative impact in the groundwater contribution to surface water.

9.11 Hydrology

All watercourses and water bodies which could be affected, directly or indirectly, by the proposed road development were assessed through a series of initial walkover visits followed up by a more detailed survey and hydrological assessment. These assessments included an assessment of the potential hydrological impacts on European sites and Ballindooley Lough which supports the wintering birds from the local European sites.

Over the extent of the proposed road development, there are two distinct regions of hydrological response, with the area west of the N59 Moycullen Road associated with granite bedrock having high surface run-off and poor drainage characteristics and the area east of the N59 Moycullen Road having low surface run-off associated with generally permeable karst limestone bedrock formation. These geological landscapes result in a reasonably dense network of surface drains and wetland features in the western section and a very sparse surface drainage network in the eastern section associated with the karstified limestone bedrock. Consequently, the drainage solution for the proposed road development is challenging in the eastern section, requiring infiltration to groundwater for suitable disposal of road drainage waters. The drainage system for the proposed road development will include fifty-four road drainage outfalls, which comprise outfalls to watercourses, groundwater, and existing sewers. The proposed road development will also require seventeen culvert crossings and one major bridge crossing. All the culverts cross small watercourses with catchment areas less than 5 km^2. A number of local watercourse diversions and realignments are associated with the proposed road culvert crossings so as to facilitate channel transition to and from the new culverts.

Stringent mitigation and control of potential polluting activities, associated with construction activities, is proposed. This will significantly reduce the risk of accidental spillages from routine road run-off discharges, untreated sediment run-off, construction spillages of concrete and hydrocarbons entering water bodies.

The proposed road development has undergone a detailed Flood Risk Assessment in accordance with the Flood Risk Management Guidelines for Planning Authorities (2009). The assessment identified various sources and their respective flood pathways of flood risk to the proposed road development from fluvial, pluvial, and groundwater sources. Coastal flooding source was screened out as the proposed road development is sufficiently set back and elevated out of the coastal flood zone. The flood risk assessment included suitable allowance for climate change associated with increased rainfall, storm intensity, land use changes and sea level rise. Overall the assessment has concluded that the design of the proposed road development is sustainable and manages flood risk and will not cause unacceptable flood risk to the proposed road development itself and elsewhere to third party lands.

The proposed road development satisfies the requirements of the Water Framework Directive in terms of maintaining, protecting, and enhancing the water quality status of the receiving watercourses and groundwater systems. Protection is achieved through the provision of storm water treatment systems and controlled discharges at the proposed road drainage outfalls and enhancement is achieved by taking road traffic from existing unprotected roads where uncontrolled road runoff enters adjacent watercourses and the groundwater aquifers.

Potential hydrological impacts from the proposed road development have been identified and assessed. Appropriate design and mitigation measures have been incorporated to minimise the risk of significant hydrological impact on the receiving environment. There are no significant negative residual hydrological impacts due to the proposed road development.

The overall residual hydrological impact from the proposed road development on European sites is rated as imperceptible. This is achieved through design of appropriate pollution control measures at the proposed road drainage outfalls, the proposed full spanning bridge structure of the River Corrib channel and effective floodplain area and the proposed implementation of construction environmental controls.

There will be a moderate to significant positive residual impact on flooding and flood risk at N83 Tuam Road Twomileditch area, as the proposed mitigation measure will reduce the flood risk to the existing road and to the six remaining houses. However negative slight residual flood impacts associated with the N83 Tuam Road flood relief measures will remain.

9.12 Biodiversity

The potential impacts of the proposed road development on biodiversity, also referred to as ecology as a broader term to refer to the relationships of biodiversity receptors to one another and to their environment, were assessed. A desktop study was carried out to inform the initial scope of the ecological surveys required for the environmental impact assessment. The desktop study involved collection and review of relevant published and unpublished sources of data, collation of existing information on the ecological environment and consultation with relevant statutory bodies (e.g. National Parks & Wildlife Service (NPWS) and Inland Fisheries Ireland (IFI)).

A comprehensive range of field surveys were carried out between 2013 and 2018 to inform the impact assessment. These included habitat surveys, surveys for protected plant species, mammal surveys (including dedicated surveys for Otter, Badger and bats), White-clawed crayfish surveys, molluscan surveys (including Freshwater pearl mussel and *Vertigo* snail species surveys), Marsh fritillary butterfly surveys, breeding and wintering bird surveys (including dedicated Barn owl, Peregrine falcon, Red grouse and Woodcock surveys), amphibian surveys, Common lizard surveys and fish surveys (including assessment of biological water quality status).

Within the study area, there are areas which are designated for nature conservation at European level i.e. the European sites (cSAC & SPA), and at national level i.e. Natural Heritage Areas (NHA & pNHA):

- There are four European sites which could potentially be affected by the proposed road development: Lough Corrib cSAC which is traversed by the proposed road development, Lough Corrib SPA which is generally located upstream and Galway Bay Complex cSAC and Inner Galway Bay SPA which are located downstream of the proposed road development. There are no other European sites at risk of impacts from the proposed road development.
- A full assessment on the European sites has been carried out and is reflected in the NIS. The conclusion of the assessment in the NIS was that the proposed road development will not adversely affect the integrity of any European site, either alone or in combination with other plans or projects.
- There is one NHA site which could potentially be affected by the proposed road development: Moycullen Bogs NHA which lies immediately adjacent to the proposed road development. However, the proposed road development will not result in likely significant residual effects on this NHA.
- There are two pNHA sites which could potentially be affected by the proposed road development: Lough Corrib pNHA and Galway Bay Complex pNHA. Lough Corrib pNHA is traversed by the proposed road development at the River Corrib Bridge crossing. Galway Bay Complex pNHA lies downstream of the proposed road development where it crosses the Bearna Stream catchment, the Knocknacarra Stream catchment and the River Corrib. However, the proposed road development will not result in likely significant residual effects on these pNHA.

Other receptors considered in the ecological assessment for the proposed road development are habitats, rare and protected flora species, mammal species including in particular otter, bats and badgers, mollusc species, the marsh fritillary butterfly, breeding birds, wintering birds, amphibians, reptiles, and fish.

The potential impacts of the proposed road development on each of these key ecological receptors are identified. Mitigation measures are proposed to avoid or minimise the predicted impacts. In addition, monitoring[8] has been proposed, where relevant. The residual impacts remaining are outlined, and (where relevant) any compensation measures proposed to further address those residual impacts are detailed.

The significant residual impacts remaining after mitigation are those associated with habitat loss, bats and Peregrine falcon. Where possible, compensatory measures will be implemented to reduce or avoid these significant residual impacts. The compensatory measures will reduce the significant residual impacts on all bat species to a local level.

However, despite the implementation of the mitigation and compensation measures proposed, the proposed road development will have the following likely significant residual effects on biodiversity:

- Likely significant residual effect, at the international geographic scale, for the permanent loss of c.0.54ha of Limestone pavement habitat[9]
- Likely significant residual effect, at the national geographic scale, for the permanent loss of c.2.93ha of Wet heath habitat [10]
- A likely significant residual effect, at the county geographic scale, for the permanent loss of a Petrifying spring feature at Lackagh Quarry[11]
- A likely significant residual effect, at the county geographic scale, for the potential permanent loss of a Peregrine falcon nest site at Lackagh Quarry
- A likely significant residual effect, at the local geographic scale, on bat species due to the presence of the proposed road development within their foraging areas
- A likely significant residual effect, at the local geographic scale, for the permanent loss of 15 calcareous springs at Lackagh Quarry, c.7.81ha of Dry-humid acid grassland and c.0.13ha of Poor fen and flush habitat[12]

These significant residual effects will also affect the following local biodiversity areas[13]: Coast Road (R336) to the N59 Moycullen Road, the River Corrib and the Coolagh Lakes, Menlough to Coolagh Hill, Ballindooley – Castlegar and the Doughiska area.

The losses of Limestone pavement habitat (outside any European site), a Petrifying spring (outside any European site) and Wet heath habitat (outside any European site), associated with the proposed road development cannot be directly compensated. However, areas of related habitats will be created to provide a biodiversity gain for both peatland and limestone associated habitats locally. The area of Dry heath habitat being created is c.7.06ha which is greater than the combined losses associated with this habitat type and any Wet heath/Molinia meadow mosaics (c.4.78ha). The area of Calcareous grassland habitat being created is c.7.14ha which is greater than the combined losses of Limestone pavement and Calcareous grassland habitat combined (c.1.24ha).

8. In accordance with the requirement for monitoring set out in the EIA Directive 2014/52/EU to monitor significant effects on the environment
9. None of these areas of habitat to be lost are within any sites designated as cSAC, SPA, pNHA or NHA.
10. None of these areas of habitat to be lost are within any sites designated as cSAC, SPA, pNHA or NHA.
11. None of these areas of habitat to be lost are within any sites designated as cSAC, SPA, pNHA or NHA.
12. None of these areas of habitat to be lost are within any sites designated as cSAC, SPA, pNHA or NHA.
13. These local biodiversity areas are defined in the Galway City Development Plan 2017–2023 and the most recent draft of the Galway City Biodiversity Action Plan 2014–2024


STRABAG
STRABAG

9.13 Major Accidents, Inter-Relationships, Interactions and Cumulative Impacts

The interactions and inter-relationships between environmental factors were taken into consideration as part of the individual environmental assessments. Cumulative effects associated with the proposed road development and other projects were also assessed and no significant impacts were identified.

This section presents an assessment of the likely significant adverse effects on the environment arising from the vulnerability of the proposed road development to risks of major accidents and/or natural disasters. The site-specific risk assessment identifies and quantifies risks due to the proposed road development focusing on: unplanned, but possible and plausible events occurring during the construction and operational phases. From examining all plausible risks associated with the proposed road development, the scenarios which are considered to be the highest risk in terms of a major accident and/or disaster included:

- vehicular events
- structural collapse events
- tunnel fire events
- service utilities events
- ground conditions related events
- water related events

The outcome of the assessment identified that while these events would have 'very serious' consequences should they occur; the risk is considered 'unlikely'. These events have been considered throughout the design process and measures have been included in the design to reduce the severity and potential consequences of such events.

9.14 Schedule of Environmental Commitments

A summary of the mitigation measures and significant residual impacts are presented in Chapter 20 of the EIA Report. The environmental commitments including monitoring requirements are presented in Chapter 21 of the EIA Report.


HOSTEL
hostel
Cosc ar Rothaiocht
No Cycling
An tSráid Thrasna Uacht.
CROSS ST. UPPER
1894
GEL
Coca-Cola
zero

10 Summary - The Solution and its Benefits

10 Summary – The Solution and its Benefits

To summarise, Galway City and its environs have critical transport issues, as identified above, that require urgent resolution.

There are, however, significant constraints for developing new transport infrastructure for Galway given (i) the physical form of the city, (ii) the limited space available, (iii) the built environment and residential areas on both sides of the River Corrib, and (iv) the presence of designated sites.

To address these transport issues, an overall transportation solution for Galway was developed by Galway County Council, Galway City Council and NTA, culminating in the GTS, of which the N6 GCRR forms a key element as the road component of this strategy.

The conclusion of all the analysis and work on this strategy is that the N6 GCRR delivers on the objectives set out in **Section 5** and represents the optimal solution for a new ring road, both from the perspective of human environment and the natural environment.

The functionality of the N6 GCRR is twofold. It provides for the strategic need of the TEN-T comprehensive road network and connectivity of Galway City and the West Region to the national road network, as well as providing a solution to relieve the city centre roads of unnecessary strategic traffic and providing the necessary road space for other modes of transport, namely walking, cycling and public transport. These two functions are complementary.

The capacity of the existing road network is wholly inadequate as all traffic mixes and is interspersed with pedestrians, cyclists and vulnerable road users. The overall transport solution segregates traffic movements and travel demand and directs it to the most appropriate route or alternative mode. The capacity of the proposed N6 GCRR is designed to provide for the demand into the future.

The complexity of the N6 GCRR is a result of (i) the complexity of the transport issues it seeks to address and (ii) the number of significant constraints within which the design team had to work. This has required some significant engineering interventions in places.

However, these engineering interventions are necessary to mitigate and reduce the potential negative impacts of the N6 GCRR that would otherwise arise and are entirely proportionate and justifiable in the circumstances.

Given the built environment and the unavoidable proximity of the proposed road development to residential areas, the N6 GCRR will unfortunately and unavoidably result in a number of property demolitions. However, this must be viewed and balanced in the context of the overall benefits that the proposed road development will deliver as summarised again below:

- It will provide a **strategic route** across the River Corrib without the need to go through the city
- This strategic route will be of a **high standard** cross-section and will provide the **capacity required for the strategic traffic** serving the city and connecting the county to the national network
- Improves **connectivity to the West Region**, i.e. the county areas and hinterland beyond the city zone
- Moreover, access to this strategic route is limited to the junctions which will **protect the road asset in the future** and means that its **capacity is secure**
- This route is of European importance given that the **TEN-T comprehensive network designation** extends west of the city to the terminus of N6 GCRR and will provide a link to the West Region of the standard of a comprehensive route in accordance with TEN-T
- This route provides connections to **essential city links** to better distribute traffic
- By **tackling the city's congestion issues**, it will provide a **better quality of life** for the city's inhabitants and provide a much **safer environment** in which to live
- By **reducing the number of cars** on the roads within the city centre and improving streetscapes, workers and students are facilitated to commute using **multi-modal transport means**. This includes travelling on foot, by bicycle and on the public transport system
- Provides connectivity to the national roads via junctions to maximise the transfer of cross-city movements to the new road infrastructure, thus **releasing and freeing the existing city centre zone from congestion** caused by traffic trying to access a city centre bridge to cross the River Corrib
- Attracts traffic from the city centre zone, thus facilitating reallocation of road space to public transport leading to **improved journey time reliability for public transport**
- **Caters for the strong demand** between zones on either side of the city
- Provides additional river crossing with **connectivity back to the city** either side of the bridge crossing
- Facilitates **improved city centre environment** for all due to reduced congestion, thus **encouraging walking and cycling** as safe transport modes

Numerous alternatives have been considered. However, the alternatives are more damaging in terms of property demolitions and other potential environmental impacts in comparison to the N6 GCRR.

The N6 GCRR is the optimum solution for a new road and is consistent with proper planning and sustainable development. This view is supported and validated by recent inclusion of policy support for both GTS and constituent measures, including the N6 GCRR, in the relevant Galway Development Plans.

11 What Happens Next?

Phase 1
April 2014

Feasibility Study

Constraints Study

Consideration of all Options

Public Consultation No. 1

Do-Nothing Option

Smarter Travel Option

Public Transport Option

Road Option

Do-Minimum Option

Phase 2
February 2015

Project Appraisal of Feasible Options

Public Consultation No. 2

Phase 3
May 2015

Selection of Preferred Option

Public Display No. 3

Design

Public Display No. 4

EIA & The Statutory Process (CPO)

Phase 4
Q4 2018

Application to An Bord Pleanála

You are here

Oral Hearing

Phase 4

Decision

Phase 5

Detailed Design & Land Acquisition

Phase 6

Construction

11 What Happens Next?

A copy of the EIA Report and the Natura Impact Statement (NIS) for the N6 GCRR are available to view at the following locations:

The Offices of Galway County Council,
Áras an Chontae, Prospect Hill,
Galway

The Offices of Galway City Council,
City Hall, College Road,
Galway

Westside Library,
Seamus Quirke Road,
Galway

Galway City Centre Library,
St. Augustine Street,
Galway

Galway National Roads Project Office
(Galway County Council),
Corporate House, City East Business Park, Ballybrit,
Galway

The Offices of An Bord Pleanála
64 Marlborough Street, Dublin 1

The documents are also available to view or download from **www.N6GalwayCityRingRoad.ie.**

The EIA Report can be purchased from the Galway National Roads Project Office, Corporate House, City East Business Park, Ballybrit, Galway on CD for €5 or in hardcopy as follows:

Volume 1 – Non-Technical Summary €10
Volume 2 – EIA Report (Main Text) €200
Volume 3 – EIA Figures €100
Volume 4 – EIA Appendices €300

The NIS can be purchased from the Galway National Roads Project Office, Corporate House, City East Business Park, Ballybrit, Galway on CD for €5 or in hardcopy as follows:

NIS Executive Summary €10
NIS Main Report €50
NIS Figures €10
NIS Appendices €100

The EIA Report, NIS and the maps and schedules associated with the statutory Schemes will be on display in the offices noted above for a period of 8 weeks following publication. Formal written submissions may be made at that time to ABP. Advertisements with respect to the application for approval will provide details of closing dates for submissions.

An Bord Pleanála (ABP) must consider the EIA Report, NIS and any submissions made before making a decision on whether to grant approval to the N6 GCRR. ABP may conduct an oral hearing and/or may seek additional information as part of the statutory processes.

After the oral hearing is held, ABP must consider the report and any recommendations of the Inspector holding the oral hearing. ABP may approve the N6 Galway City Ring Road Scheme or any part thereof under Section 51 of the Roads Act 1993 as amended, with or without conditions or modifications or may refuse to approve such development or any part thereof.

Subject to ABP approval, availability of funding and no legal challenges, the proposed road development then advances to land purchase, detailed design, the procurement of a contractor and, ultimately, the construction phase. Construction may include a number of contracts in advance of the main construction contract for the proposed road development, such as diversion of existing services, site investigations, archaeological investigations, site clearance and fencing. It is estimated that the main construction contract will take 3 years.

EIAR Flowchart for the N6 GCRR

Volume 1

Non-Technical Summary

A summary of the environmental impact assessment report (EIAR) of the N6 Galway City Ring Road (N6 GCRR) including the need for the N6 GCRR, the consideration of alternatives and a description of the N6 GCRR

Volume 2

Environmental Impact Assessment Report (Main Text)

A statement of the effects, if any , which the proposed N6 GCRR, if carried out, would have on the environment. This report details the consideration of alternatives, consideration and assessment of likely significant effect/impacts, mitigation and avoidance measures to reduce significant adverse effects/impacts, and assessment of residual impacts.

Volume 3

Figures

Figures to accompany the assessment detailed within the main text of the EIAR.

Note: The figures in Volume 3 follow the numbering system in Volume 2 and accompany those chapters.

Volume 4

Appendices

Technical reports to support the assessments detailed within the main text of the EIAR, giving additional background information.

Note: The appendices in Volume 4 follow the numbering system in Volume 2 and accompany those chapters.

Volume 2 Chapters

1	Introduction	
2	Planning and Policy Context	Outline of the European, national, regional and local planning policies which support the proposed N6 GCRR
3	Need for the Proposed Road Development	Summary of the need for, and the objectives of the N6 GCRR
4	Alternatives Considered	A description of the reasonable alternatives considered and the main reasons for the selection of the N6 GCRR including a comparison of the environmental effects
5	Description of the Proposed Road Development	
6	Traffic Assessment and Route Cross-Section	Detail of the traffic assessment supporting the need for the N6 GCRR
7	Construction Activities	An overview of the construction activities that will be required for the N6 GCRR including all enabling works
8	Biodiversity	These chapters present an assessment of the likely significant effects/impacts of the proposed development on the receiving environment under various environmental topics.
9	Soils and Geology	
10	Hydrogeology	
11	Hydrology	
12	Landscape and Visual	
13	Archaeology, Architectural and Cultural Heritage	
14	Material Assets Agriculture	
15	Material Assets Non-Agriculture	
16	Air Quality and Climate	
17	Noise and Vibration	
18	Human Beings, Population and Human Health	
19	Major Accidents, Inter-relationships, Interactions and Cumulative Impacts	The assessment of the vulnerability of the proposed road development to risks of major accidents and/or disasters. This chapter also includes the assessment of the interaction/ inter-relationship of impacts between the various environmental factors as a result of the proposed N6 GCRR and an assessment of the cumulative impacts of the proposed N6 GCRR with other projects
20	Summary of Residual Impacts and Mitigation Measures	
21	Schedule of Environmental Commitments	

12 Further Information

To find out more about the N6 Galway City Ring Road, visit the **www.N6GalwayCityRingRoad.ie**

To find out more about how to make a submission or for information on the oral hearing, please contact An Bord Pleanála:

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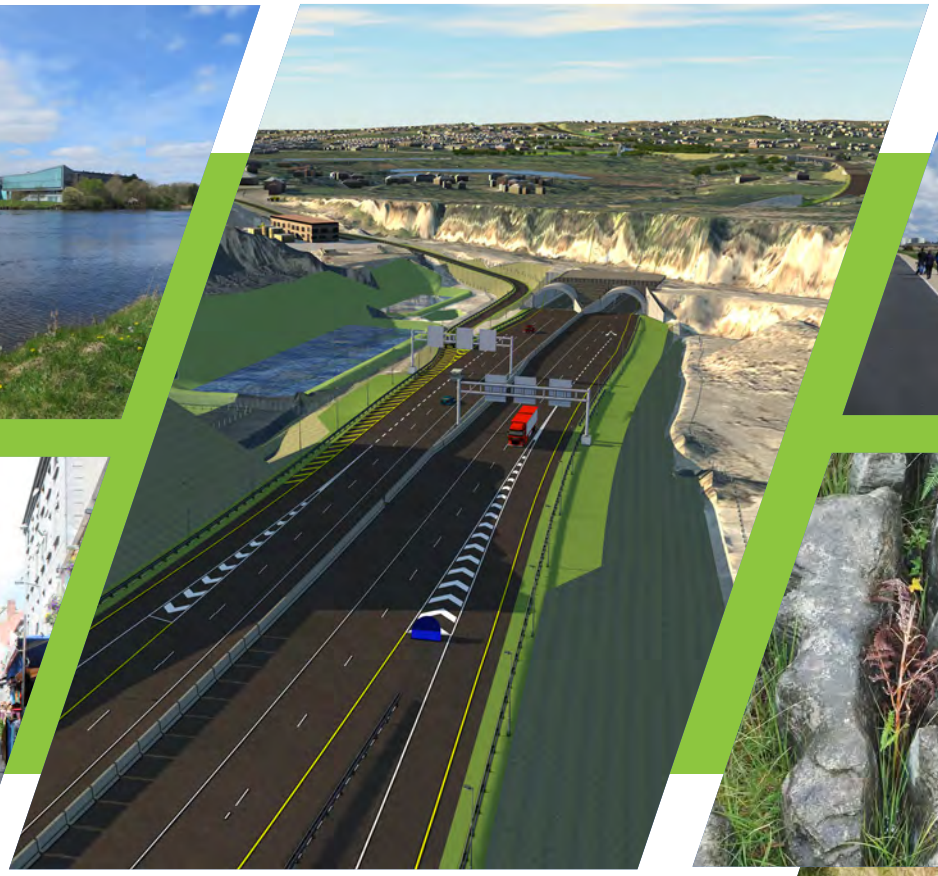

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