



Comhairle Contae Mhaigh Eo  
Mayo County Council



## Castlebar Local Transport Plan 2024

# Appendices



# 1 Policy Context

## **1.1 Regional Spatial and Economic Strategy for the Northern and Western Region (RSES) 2020-2032**

The RSES is a strategic development framework published by the Northern and Western Regional Assembly and sets out a vision for the sustainable physical, economic and social development of the region and provide guidance for local level policies.

Castlebar is outlined as a key town within the RSES and is noted as being the principal retail town in Mayo and having a vibrant town centre. An LTP is required to be prepared for Castlebar under the RSES.

The relevant Key Policy Objectives (KPO) and Regional Policy Objectives (RPO) from the RSES are;

- KPO: Improve cycle and walking tourism/recreational infrastructure and connectivity of the Great Western Greenway at Castlebar to Westport and Wild Atlantic Way and other tourism related infrastructure;
- KPO: Remove barriers to development through enhanced road and rail connectivity to and from Castlebar;
- RPO 6.18: Utilise smart technology to provide for enhanced (bus) service experience for customers;
- RPO 6.19: Reduce dependency on fossil-fuel powered vehicles;
- RPO 6.21: Undertake network reviews for city, regional centres and support towns across the region, to provide local bus services;
- RPO 6.22: Provide new interchange facilities and enhanced bus waiting facilities together with enhanced passenger information, utilising smart technology in appropriate circumstances;
- RPO 6.26: The walking and cycling offer within the region shall be improved to encourage more people to walk and cycle, through:
  - (a) Preparation and implementation of Local Transport Plans for Galway Metropolitan Area, Regional Growth Centres and Key Towns, which shall encourage a travel mode shift from private vehicular use towards sustainable travel modes of walking, cycling and use of public transport.
  - (b) Safe walking and cycle infrastructure shall be provided in urban and rural areas, the design shall be informed by published design manuals, included the Design Manual for Urban Roads and Streets (DMURS) and the NTA Cycle Manual.
  - (c) Development of a network of Greenways.

- RPO 6.29: The management of space in town and village centres should deliver a high level of priority and permeability for walking, cycling and public transport modes to create accessible, attractive, vibrant and safe, places to work, live, shop and engage in community life;
- RPO 6.30: Planning at the local level should promote walking, cycling and public transport by maximising the number of people living within walking and cycling distance of their neighbourhood or district centres, public transport services and other services at the local level such as schools;
- RPO 6.32: Invest in transport networks and services in the region that are socially inclusive and provide a quality of service, connectivity and facilities to meet all societal needs, disabilities (including mobility, sensory and cognitive impairments) and meet the needs and opportunities of an ageing population;
- RPO 6.33: Reduce dependency on the fossil-fuel powered vehicles and have regard to the National Policy Framework for Alternative Fuels Infrastructure for Transport; AND
- RPO 6.34: Promote deployment of targeted, convenient and safe recharging infrastructure across the region to meet the changing needs of the electric vehicle with particular emphasis in public parking areas and employment National Planning Framework 2040 (NPF)

The NPF is the Government's high-level strategic plan to improve transport, tourism and sport infrastructure by 2040.

Sub headed Project Ireland 2040, the framework seeks to achieve ten strategic outcomes, building around the overarching themes of wellbeing, equality and opportunity. Two of these ten shared priorities are Sustainable Mobility and Enhanced Amenity and Heritage. Sustainable Mobility's special focus is on the provision of safe alternative active travel options to alleviate congestion and help to meet climate action objectives, where Enhanced Amenity and Heritage aims to investment in high-quality infrastructure to create living space with defined character and attractiveness.

## **1.2 National Investment Framework for Transport in Ireland (NIFTI)**

The purpose of the NIFTI is to support the delivery of the NPF. Transport is recognised as a key enabler of the National Strategic Outcomes, namely in terms of sustainable mobility and transition to a low carbon and climate resilient society. The NIFTI outlines 10 Key Transport Challenges (KTC) which all transportation projects should aim to address. These are:

- KTC1: Balancing the protection and renewal of existing assets with significant investment in new infrastructure within available resources;

- KTC2: Decarbonising the transport sector while facilitating increased travel demand;
- KTC3: Supporting Ireland's international connectivity through appropriate surface investment;
- KTC4: Incorporating innovative and emerging technologies within the future transport system;
- KTC5: Maintaining existing transport infrastructure and ensuring the resilience of the most strategically important parts of the network;
- KTC6: Increasing sustainable mode share to reduce emissions and address urban congestion;
- KTC7: Improving interurban connectivity, particularly in the South, Northwest and Northeast;
- KTC8: Safeguarding accessibility for rural Ireland by protecting and renewing existing infrastructure;
- KTC9: Ensuring the future capacity of key strategic links to Ireland's international gateways; AND
- KTC10: Ensuring that transport investment decisions are robust to unanticipated shocks and uncertainty.

### **1.3 National Development Plan 2018-2027 (NDP)**

The NDP underpins the NPF by outlining the investment priorities for the framework to ensure successful implementation and value-for-money deliverables. The plan defines National Strategic Outcomes (NSO), with the relevant NSOs defined as;

- NSO 1 – Compact Growth;
- NSO 3 – Public Transport;
- NSO 4 - Sustainable Mobility;
- NSO 8 - Transition to a Low-Carbon and Climate Resilient Society.

### **1.4 Climate Action Plan 2023**

This document is the Government's plan for tackling climate breakdown. It outlines the current state of play across key sectors including Electricity, Transport, Built Environment, Industry and Agriculture and charts a course towards ambitious decarbonisation targets. The Climate Action Plan 2023 (CAP23) builds on the Climate Action Plan 2021 (CAP21) with the objective to achieve a net zero carbon energy system and create a resilient, vibrant and sustainable country.

To meet the required level of emissions reduction as set out in the CAP21 by the Government of Ireland, transport related emissions are set to reduce by 51% by 2030. The CAP23 calls for a significant cut in transport emissions by 2030 in order to meet

this sectoral emission ceiling. This includes a 20% reduction in total vehicle kilometres, a reduction in fuel usage, and significant increases to sustainable transport trips and modal share.

The CAP23 highlights that meeting the 2030 transport abatement targets will require transformational change and accelerated action across all key decarbonisation channels. The CAP21 targets have been revised to meet this higher level of ambition, including a 20% reduction in total vehicle kilometres, a reduction in fuel usage, and significant increases to sustainable transport trips and modal share

This is to be done through active travel infrastructure, improved public transport, planning, innovation and financial supports for improved system, travel, vehicle and demand efficiencies.

Measures related to active travel (from the CAP21) include:

- Action 231: Continue the improvement and expansion of the Active Travel and Greenway Network;
- Action 232: Development of a coherent and connected National Cycle Network Strategy;
- Action 234: Encourage an increased level of modal shift towards Active Travel (walking and cycling) and away from private car use;
- Action 255: Balance better movement priorities within urban areas so transition the built environment and public domain from one that is “vehicle centred” to being “people centred” to align with the goal of net zero by 2050; and
- Action 260: Increase provision of park and ride/share at transport interchanges.
- locations.

### **1.5 National Sustainable Mobility Policy**

The National Sustainable Mobility Policy To sets out a strategic framework to 2030 for active travel and public transport to support Ireland’s overall requirement to achieve a 51% reduction in carbon emissions by the end of this decade. The target is to deliver at least 500,000 additional daily active travel and public transport journeys and a 10% reduction in kilometres driven by fossil fuelled cars by 2030 in line with metrics for transport set out in the CAP21/CAP23.

The goals of the related Action Plan (2022-2025) are:

- Goal 1: Improve mobility safety;
- Goal 2: Decarbonise Public Transport;
- Goal 3: Expand availability of sustainable mobility in metropolitan areas;
- Goal 4: Expand availability of sustainable mobility in regional and rural areas;
- Goal 5: Encourage people to choose sustainable mobility over the private car;
- Goal 6: Take a whole of journey approach to mobility, promoting inclusive access for all;

- Goal 7: Design infrastructure according to Universal Design Principles and Hierarchy of Road Users Model;
- Goal 8: Promote sustainable mobility through research and citizen engagement;
- Goal 9: Better integrate land use and transport planning at all levels; and
- Goal 10: Promote smart and integrated mobility through innovative technologies and development of appropriate regulation.

### **1.6 Smarter Travel – A Sustainable Transport Future**

This policy document is A New Transport Policy for Ireland 2009-2020 and includes the following five key aims:

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

These aims are underpinned four principal themes:

1. Reduce distance travelled by private car by focusing population and employment growth in urban areas, combined with fiscal measures to encourage behavioural change;
2. Ensure alternatives to the car are more widely available, through improved public transport, cycling and walking;
3. Improve the fuel efficiency of motorised transport through improved fleet structure, energy efficient driving and alternative technologies; and
4. Strengthen institutional arrangements to deliver the Smarter Travel targets.

These four principal themes were supported by a total of 49 actions to be delivered over the lifetime of the policy and an overview of the current implementation status of

those individual actions is being published alongside the nine background papers for public consultation.

Action 15 of Smarter Travel relates to cycling and commits toward the publication and implementation of a National Cycle Policy Framework (NCPF) that will address issues such as –

- The creation of traffic-free urban centres to facilitate cycling;
- Investment in a national cycle network with urban networks given priority;
- Cycle training for schoolchildren; and
- Integration of cycling with other transport modes, e.g., carriage of bicycles on public transport.

Action 16 relates to walking and outlines a number of proposed initiatives designed to create a culture of walking in Ireland. These include –

- The creation of larger traffic-free areas in urban centres;
- Providing safe pedestrian routes;
- Improving the surface quality of footpaths;
- Introducing 30 km/h zones in central urban areas where appropriate; and
- Publication of a national walking policy.

### **1.7 Sustainable Mobility Policy Review**

The Sustainable Mobility Policy Review, Background Paper 2, Active Travel was published by the Department of Transport, Tourism and Sport to inform public consultation on Ireland's sustainable mobility policy. The purpose of the paper is to provide an opportunity to review public transport policy 'to ensure services are sustainable into the future and area meeting the needs of a modern economy' and by reviewing the role of Active Travel modes in the context of the wider transport network while raising some issues for consideration in developing future policy.

The five benefits of Active Travel that can be capitalised on are identified as:

- Environmental - reduced levels of carbon emissions and greenhouse gases;
- Health - improved levels of fitness and public health generally from increased activity;
- Safety - increased levels of active travel can stimulate the increased provision of quality footpaths and cycle paths by public authorities;
- Economic - increased active travel usage can lead to reduced congestion levels and improved accessibility in urban areas; and
- Social - increased provision for active travel modes can drive improved transport equity.

# 2 Design Guidance

## **2.1 National Cycle Manual (NCM)**

The National Cycle Manual (NCM) is a national guidance document to guide planners and engineers in their work to improve cycling provision in urban areas.

Cycling as a vulnerable mode of transport should be supported by a good design with principles of sustainable safety applied.

There are five principles, which should be followed in every design:

- **Functionality** – cycle facility design is fit for purpose and follows movement related functions and place related functions.
- **Homogeneity** – reduction in the relative speed, mass and directional differences of different road users sharing the same space.
- **Legibility** – self-evident, self-explanatory and self-enforcing road environment.
- **Forgivingness**
- **Self-awareness**

The NCM also notes that pedestrians are the most vulnerable road users and recognises the need for integration between the two to create a sustainable transport network. This is to be achieved through pedestrian priority to be reinforced by signage and cycling alignment and speed reduction measures.

## **2.2 Design Manual for Urban Roads and Streets (DMURS)**

DMURS provides guidance relating to the design of urban roads and streets. It outlines principles, approaches and standards that are necessary to achieve balanced, best practice design outcomes with regard to street networks and individual streets. This Manual sets out an integrated design approach influenced by the type of place in which the street is located and balance the needs of all users. It also aims to put well designed streets at the heart of sustainable communities creating physical, social and transport networks that promote real alternatives to car journeys, namely walking, cycling and public transport. The manual key design principles are as follows:



- To support the creation of integrated street networks, which promote higher levels of permeability and legibility for all users, and in particular more sustainable forms of transport;
- The promotion of multi-functional, place-based streets that balance the needs of all users within a self-regulating environment;
- The quality of the street is measured by the quality of the pedestrian environment; and
- Greater communication and co-operation between design professional through the promotion of a plan-led, multidisciplinary approach design.

### **2.3 Area Based Transport Assessment (ABTA)**

As part of the requirement for an evidence-based approach to planning, as set out in the National Planning Framework (NPF) and the Regional Spatial and Economic Strategy (RSES), an Area Based Transport Assessment (ABTA) is required to inform a Local Transport Plan (LTP) in order to guide the transport requirements for the future development of the area.

Published by the NTA in September 2021, the 'ABTA 'How To' Guide – Pilot Methodology' serves as the most relevant ABTA guidance document. The guidance is designed to inform the development of LTP's.

The key aims in the development of an ABTA are to:

- Maximise the opportunities for the integration of land use and transport planning by including the ABTA process as integral to the preparation of the Plan;
- Assess the existing traffic, transport and movement conditions within the Plan area and in its wider context;
- Plan for the efficient movement of people, goods and services within, to and from the Plan area;
- Identify the extent to which estimated transport demand associated with the emerging local development objectives can be supported and managed on the basis of existing transport assets;
- Identify the transport interventions required within the Plan area and in the wider context, to effectively accommodate the anticipated increase in demand; and
- Inform Site Specific Transport Assessments for development management applications.

The ABTA process is an iterative process consisting of:

- Part 1 – Baseline Assessment of Plan Area and the Surrounding Area;
- Part 2a – Establish Context for the ABTA (using tools such as SMART Analysis);
- Part 2b – Options Development;
- Part 3 – Options Assessment;
- Part 4 - Refinement & Sense Check the Proposals;
- Part 5 - Finalisation of the Plan; and
- Part 6 - Monitoring and Evaluation

The process aims to develop a desired network that is practically implementable and takes into account the existing physical, ecological, historical and socio-economic constraints within the study area. Through a process of sense checking and refinement as well with stakeholder consultation, an overall LTP for the study area will be generated.

This LTP will be cognisant of the existing sensitives and propose a viable network to encourage mode shift to sustainable modes whilst maintaining a level of service for vehicular traffic that local residents are accustomed to.

## **LOCAL AREA MODEL DEVELOPMENT REPORT**



**SYSTRA**

# Castlebar Active Travel Mobility Plan

## LOCAL AREA MODEL DEVELOPMENT REPORT

### IDENTIFICATION TABLE

<b>Client/Project owner</b>	Mayo County Council
<b>Project</b>	Castlebar Active Travel Mobility Plan
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# 1. INTRODUCTION

## 1.1 Overview

- 1.1.1 SYSTRA has been commissioned by Clifton Scannell Emerson Associates (lead-consultant) on behalf of Mayo County Council to prepare Active Travel Mobility & Transportation Plans for the towns of Castlebar and Ballina. The overall objective is to enable the authorities to introduce transport policies and a series of traffic and transportation measures up to 2040.
- 1.1.2 A Local Area Model (LAM) representing traffic in Castlebar has been developed for this study.
- 1.1.3 The purpose of this Traffic Modelling Report (TMR) is to detail the development of the Castlebar LAM and describe the traffic forecasting that has been undertaken to assess the impact of future transportation schemes.

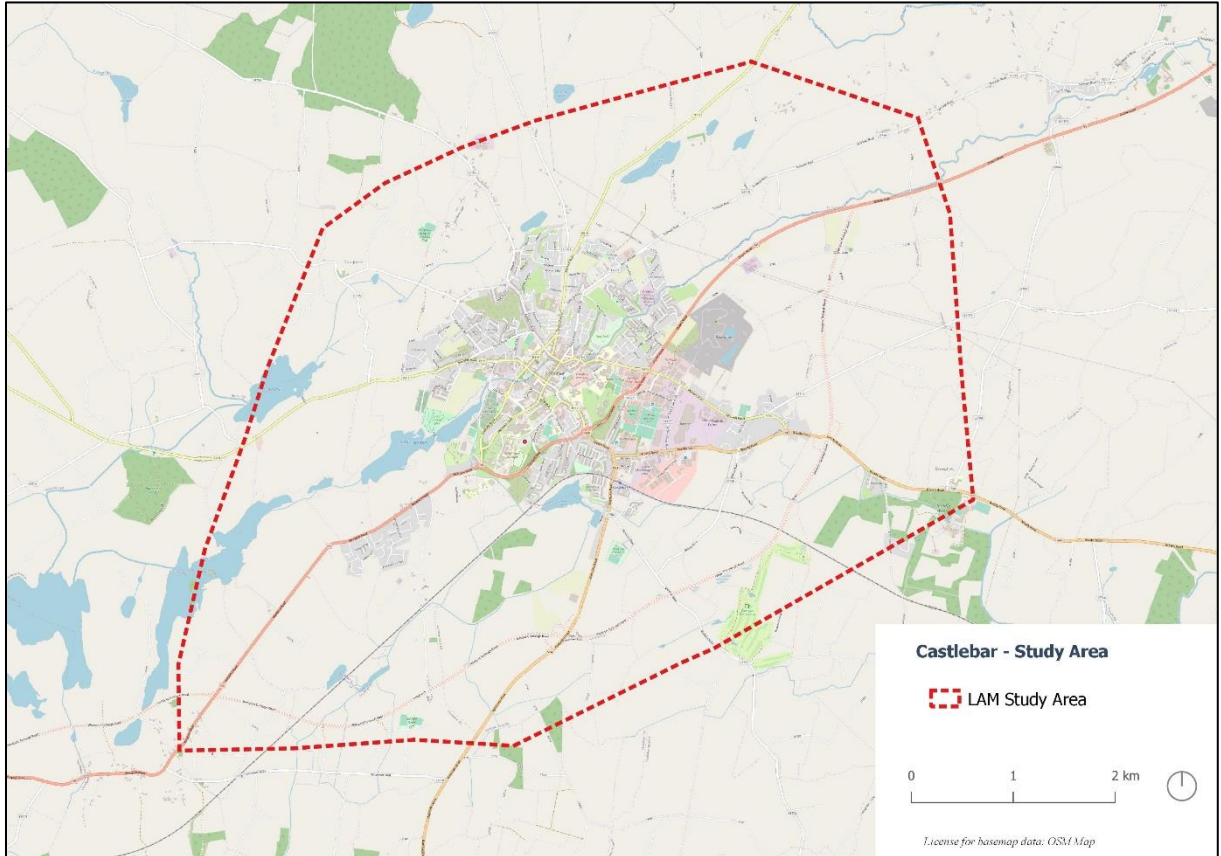
## 1.2 Background information

- 1.2.1 Castlebar is a town in County Mayo, where the national secondary routes N60 and N85 meet the national primary route N5. The N5 is the main access route from Dublin to most of County Mayo. Castlebar was designated as a Key Town in the recently adopted Regional Spatial and Economic Strategy 2020 – 2032 (RSES). A key growth ambition for the Northern and Western Region is to build centres of scale across the region, where people and businesses seek to live, work and invest. The town has a primary role in providing regional, strategic employment development of significant scale to support the growth of the higher tier urban centres in the region, including Galway and Sligo.
- 1.2.2 Traffic congestion and road safety problems are experienced within Castlebar due to the high flow of traffic along the N5, particularly in the summer months when thousands of tourists travel to the West Coast. The Castlebar Active Travel Mobility Plan will underpin evidence-based transport strategies which aim to increase accessibility, promote active travel modes, and seek to reduce car use by a variety of means and to encourage integrated land use and transport planning within and eventually between major towns. The objectives will also benefit Climate Action policies both on a county and regional level.
- 1.2.3 Walking and cycling strategies support sustainable activity within communities, and will serve to develop towns with networks of safe and convenient routes that will improve the quality of life for everybody in the communities. This is achieved by prioritising walking and cycling for travel to work, education, shopping and day-to-day business, whilst also providing high quality public environments and amenities.

## 1.3 Study Area

- 1.3.1 The Study Area adopted for the Castlebar Active Travel Mobility project is illustrated in Figure 1 below.

**Figure 1. Castlebar Study Area**



## 1.4 Structure of this Report

1.4.1 The remainder of this report is structured as follows:

- **Chapter 2** describes the traffic data that was collected and used in the development of the Castlebar LAM;
- **Chapter 3** presents the initial analysis of traffic data;
- **Chapters 4 to 7** set out the development of the base year traffic model, including the development of the network, zone system and model calibration and validation;
- **Chapter 8** presents how the impacts of the pandemic travel restrictions are considered;
- **Chapter 9** details the modelling of the future N5 Westport-Turlough road project; and
- **Chapter 10** summarises the LAM development process.

## **2. DATA COLLECTION**

### **2.1 Summary**

2.1.1 Traffic surveys were carried out in November 2021, comprising:

- Junction Turning Counts (JTC) at key junctions throughout the whole town and at key points on the road network outside Castlebar town centre, undertaken on Thursday 25<sup>th</sup> November 2021 – See Figure 2 below;
- Automatic Traffic Counts (ATC) on key roads undertaken for a period between 22<sup>nd</sup> November and 5<sup>th</sup> December 2021 – See Figure 3 below; and
- Journey time surveys on key routes through the study area, undertaken on Thursday 25<sup>th</sup> November 2021 – See Figure 4 below.

2.1.2 The surveys are described in greater detail below. The processed counts were used for calibrating the base year traffic model, and they reflect the conditions on an average weekday in November.

### **2.2 Traffic Counts**

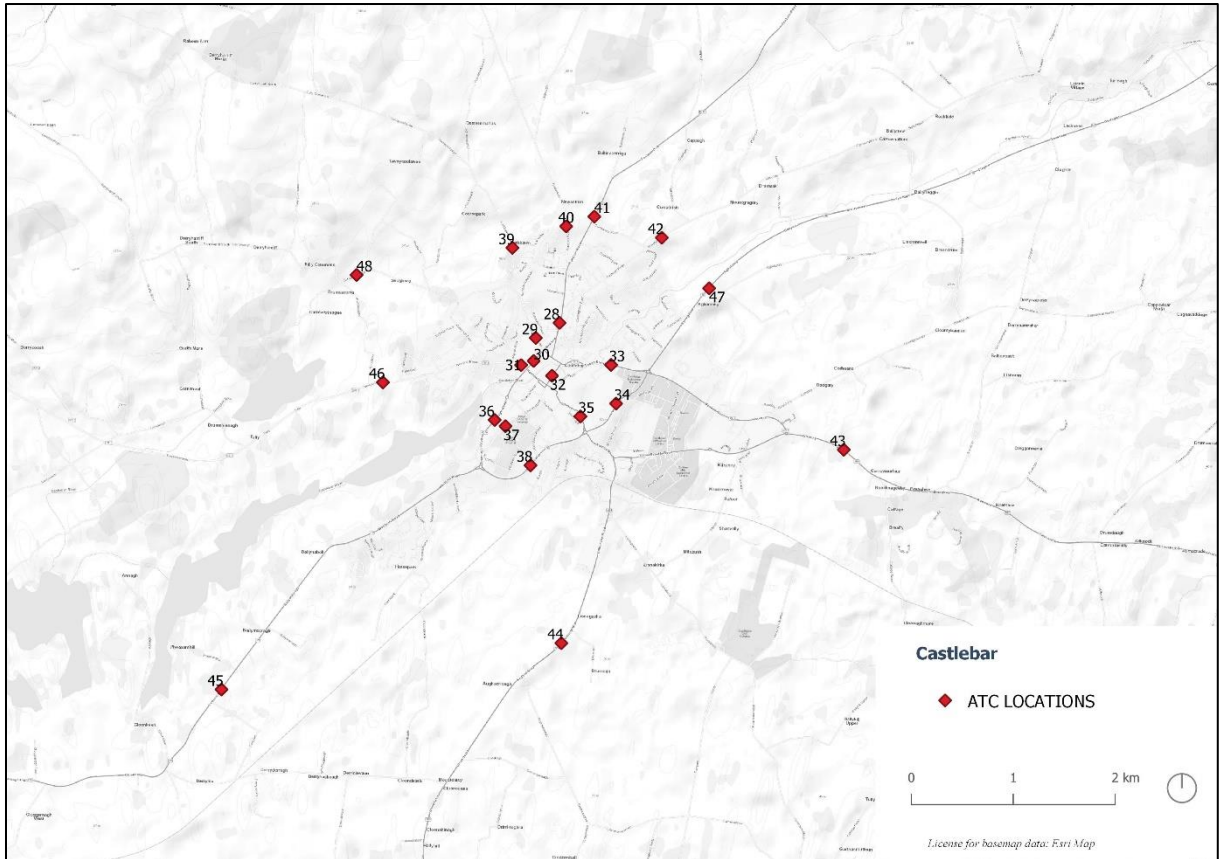
2.2.1 Automatic Traffic Counts (ATC) were carried out at 21 junctions, for a 24-hour period 00:00-24:00 from Monday 22<sup>nd</sup> November 2021 until Sunday 5<sup>th</sup> December 2021. Pneumatic tube detectors attached to automatic count devices were in use for the ATCs.

2.2.2 Table 1 below shows the processed observed flows from the ATCs for each location, split by vehicle classes (Car, Lights Goods Vehicle & Other Goods Vehicle) and peak periods (AM 08:00-09:00, PM 17:00-18:00).

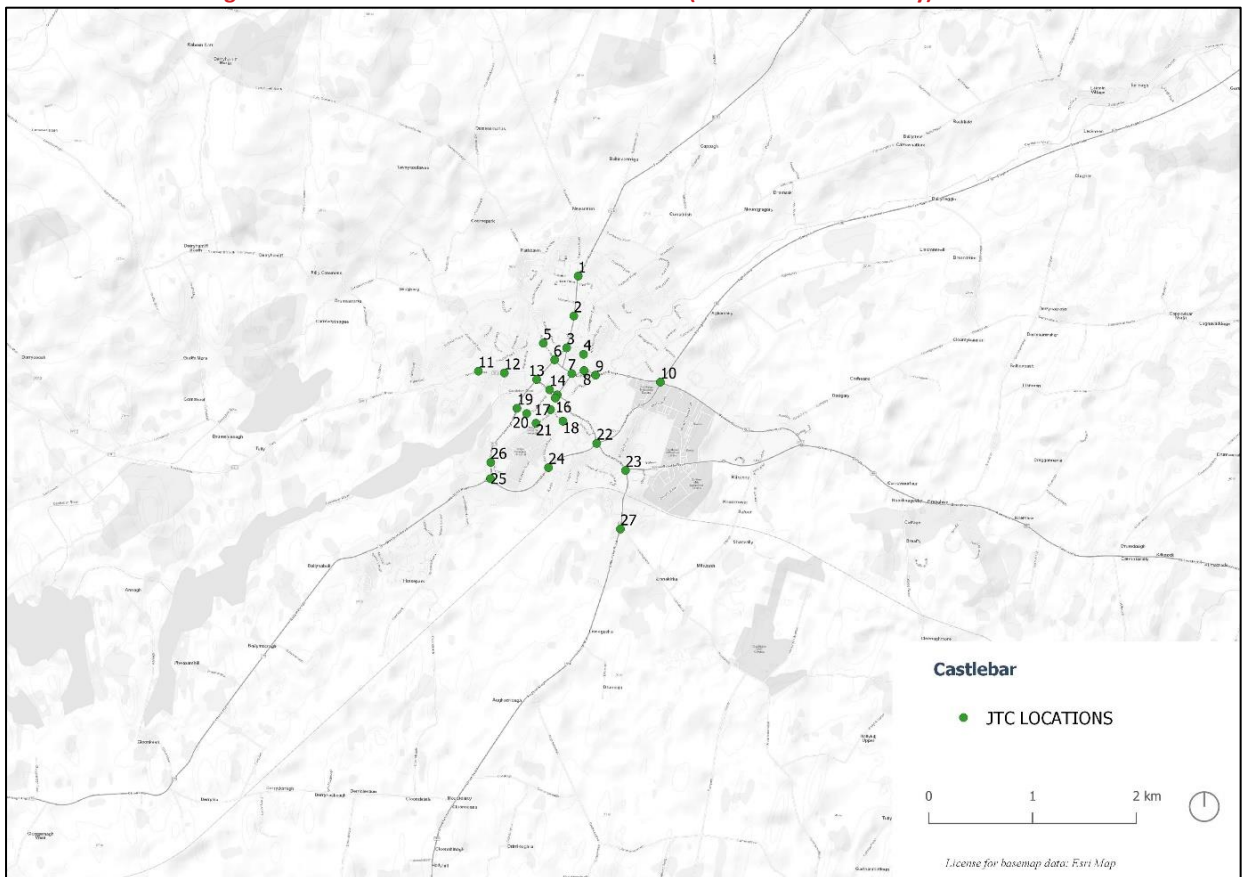
**Table 1. Processed Automatic Traffic Counts (pcu)**

ATC Site	Direction	GeoDirection	AM PEAK			PM PEAK		
			CAR	LGV	OGV	CAR	LGV	OGV
28	A	NB	208	26	8	476	28	10
28	B	SB	420	35	16	289	21	9
29	A	NB	228	21	6	306	29	4
29	B	SB	184	30	8	130	15	6
30	A	NB	360	47	13	626	54	11
31	A	EB	326	19	18	147	13	7
31	B	WB	72	5	4	141	8	4
32	B	SB	397	68	17	449	71	8
33	A	EB	465	32	28	529	32	23
33	B	WB	477	43	35	637	61	28
34	A	NB	583	44	165	343	21	65
34	B	SB	695	66	72	263	44	13
35	A	NB	417	22	14	298	10	16
35	B	SB	286	21	17	418	18	26
36	A	NB	473	43	31	573	42	26
36	B	SB	308	30	20	459	23	13
37	A	NB	106	10	3	154	6	4
37	B	SB	151	15	4	181	10	3
38	A	NB	567	30	99	528	18	94
38	B	SB	530	48	70	681	37	40
39	A	NB	31	6	1	39	5	1
39	B	SB	48	7	2	30	5	2
40	A	NB	21	6	4	78	9	2
40	B	SB	68	9	2	26	4	2
41	A	NB	78	9	10	149	13	4
41	B	SB	126	21	11	82	17	6
42	A	NB	73	9	4	122	10	7
42	B	SB	135	20	6	85	13	4
43	A	NB	335	59	25	195	41	16
43	B	SB	234	23	7	347	35	8
44	A	NB	310	59	37	317	51	15
44	B	SB	200	21	25	270	36	40
45	A	NB	513	60	63	332	61	40
45	B	SB	322	39	50	457	36	26
46	A	NB	328	38	23	184	24	22
46	B	SB	123	28	20	370	35	15
47	A	NB	341	60	73	606	77	57
47	B	SB	587	73	78	361	39	38
48	A	EB	33	5	1	15	4	1
48	B	WB	23	4	1	21	2	1

**Figure 2. Automatic Traffic Counts locations (November 2021 survey)**



**Figure 3. Junction Traffic Counts locations (November 2021 survey)**



## 2.3 Journey Time Surveys

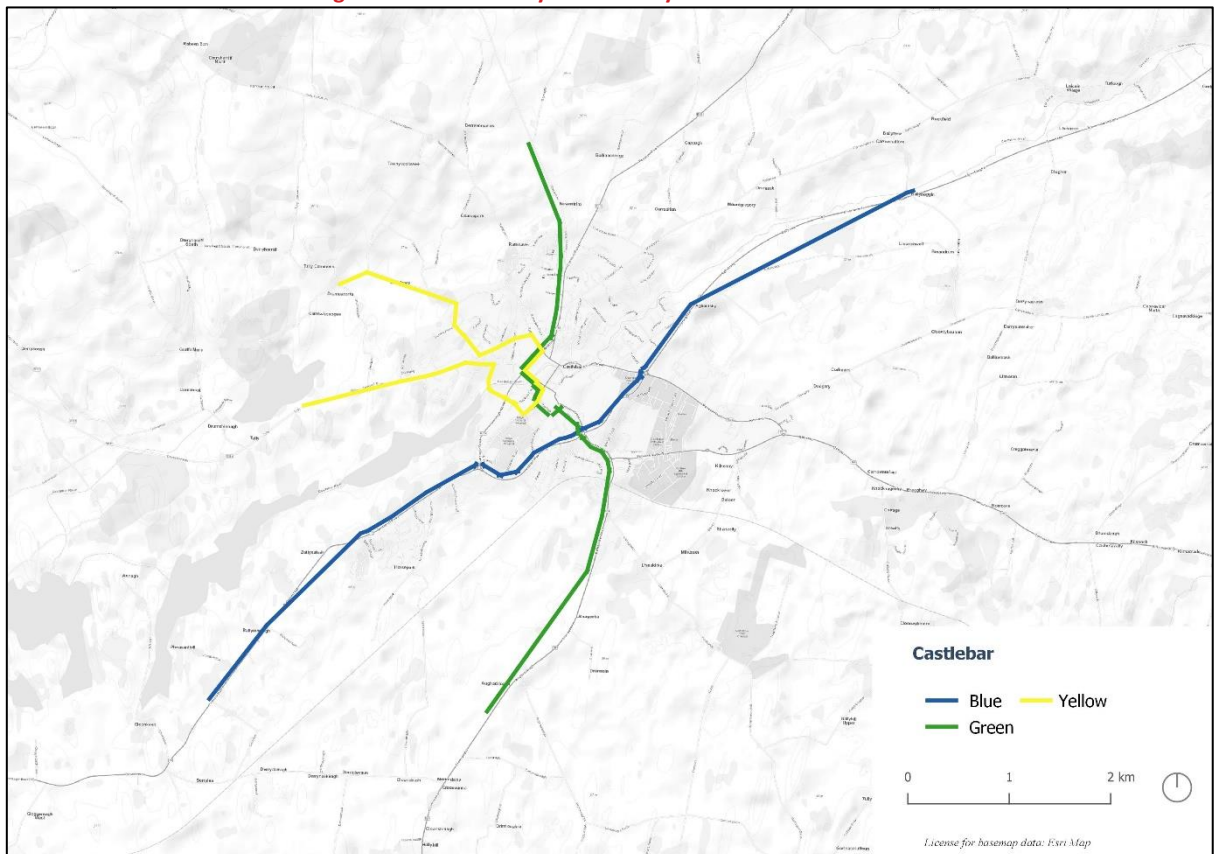
2.3.1 Journey time surveys were undertaken along the three main corridors (colour coded as blue, green and yellow in Figure 4 below) travelling through Castlebar. The routes were surveyed using a single GPS-equipped survey vehicle, driving the routes through the day and recording its position and timing. All recordings were captured on 25th November 2021.

2.3.2 The routes were undertaken with the driver starting before the initial starting node to allow them to get up to speed with the other vehicles on the road before continuing beyond the final point. The driver was instructed to drive at the prevailing traffic speed insofar as it was safe and legal to do so. This is a common form of survey for recording variation in speed along a route.

2.3.3 To increase the sample size, records with a starting and a finishing time within 07:00-10:00 for AM (respectively 16:00-19:00 for PM) were included. Number of observations recorded were (both directions):

- Blue route: 15 in AM and 12 in PM
- Green route: 11 in AM and 10 in PM
- Yellow route: 15 in AM and 13 in PM

**Figure 4. Journey Time Survey Routes**



2.3.4 Table 2 below, shows the recorded average journey times for each of the above routes for each of the time periods surveyed.

**Table 2. Observed Average Journey Times in seconds**

ROUTE	DIRECTION	AM	PM
Blue	Eastbound	636	779
Blue	Westbound	641	859
Green	Northbound	948	954
Green	Southbound	817	1,222
Yellow	Eastbound	693	727
Yellow	Westbound	732	834

2.3.5 Observed travel times on the Green Route were impacted by the on-going N5 bypass construction work around the N84 junction.

### 3. BASE YEAR MODEL DEVELOPMENT

#### 3.1 Introduction

3.1.1 The following chapter describes the methodology used for developing the Castlebar Local Area Model (LAM). The National Transport Authority’s (NTA) Regional Modelling System (RMS) was used as a basis for the LAM development, providing initial network detail and prior demand matrices. Further refinement was undertaken in the modelled area and it was calibrated and validated to observed count data in-line with TII project appraisal guidelines.

#### 3.2 NTA Regional Modelling System (RMS)

3.2.1 The NTA RMS comprises the following three main components:

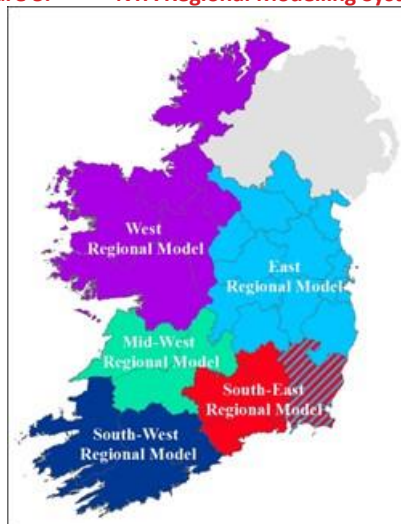
- The National Demand Forecasting Model (NDFM);
- 5 Regional Models; and
- A suite of appraisal Modules.

3.2.2 The NDFM takes input attributes such as land-use data, population etc., and estimates the total quantity of daily travel demand produced by, and attracted to, each of the 18,641 Census Small Areas in Ireland

#### 3.3 West Regional Model (WRM) Overview

3.3.1 The WRM is a strategic multi-modal transport model representing travel by all the primary surface modes, including: walking and cycling (active modes); travel by car, bus, rail, tram, light goods and heavy goods vehicles; and broadly covers the Connaught province of Ireland including the counties of Galway, Leitrim, Sligo, Roscommon, Mayo and Donegal. The five regional models are shown in Figure 5 below, and highlights the location of the WRM.

**Figure 5. NTA Regional Modelling System Extent**



3.3.2 The WRM is comprised of the following key elements:

- Trip End Integration: The Trip End Integration module converts the 24 hour trip ends output by the NDFM into the appropriate zone system and time period disaggregation for use in the Full Demand Model (FDM);
- The Full Demand Model (FDM): The FDM processes travel demand, carries out mode and destination choice, and outputs origin-destination travel matrices to the assignment models.



The FDM and assignment models run iteratively until an equilibrium between travel demand and the cost of travel is achieved; and

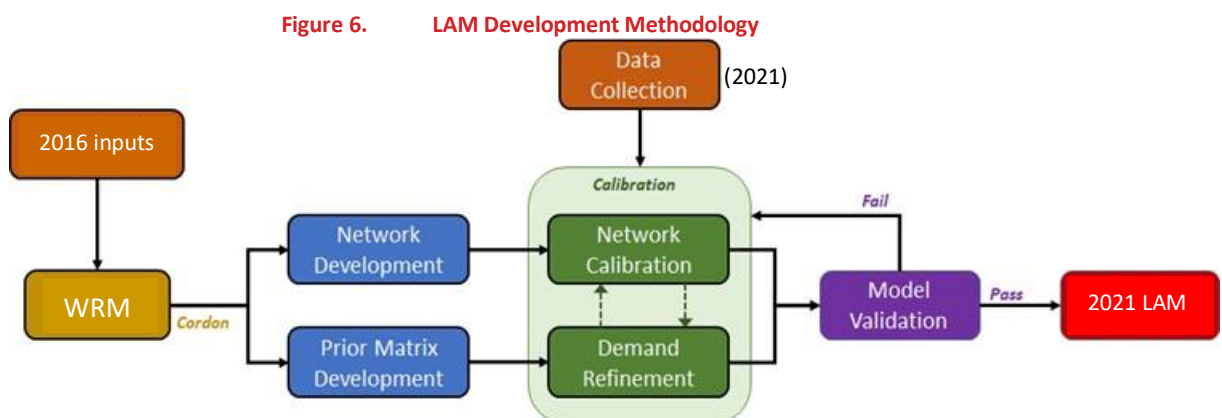
- Assignment Models: The Road, Public Transport, and Active Modes assignment models receive the trip matrices produced by the FDM and assign them in their respective transport networks to determine route choice and the generalised cost for each origin and destination pair.

3.3.3 Destination and mode choice parameters within the WRM have been calibrated using two main sources: Census 2016 Place of Work, School or College - Census of Anonymised Records (2016 POWSCAR), and the Irish National Household Travel Survey (2017 NHTS). The NTA's RMS is the most sophisticated modelling tool available for assessing complex multi modal movements within an urban context. This provides a consistent framework for transport assessment.

3.3.4 As the study area falls within the area covered by the WRM, it therefore is an ideal tool to use as a basis for the development of the Castlebar LAM. In addition, it provides the platform to forecast future trip demand and distribution.

### 3.4 LAM Development Methodology

3.4.1 The methodology for developing the Castlebar LAM from the RMS is illustrated in Figure 6 below.



3.4.2 In summary, the process involves the following steps:

- **2016 WRM Run:** The calibrated base year scenario (W17R02) was used as the starting point for the Castlebar LAM;
- **WRM Cordon:** The 2016 WRM road assignment was cordoned to extract the initial network and traffic matrix covering the Castlebar LAM extent (see Figure 1). No significant change to the land use or the network were recorded between 2016 and 2021, making the 2016 calibrated WRM scenario a valid starting point to build the 2021 LAM.
- **Network and Prior Matrix Development:** The initial WRM cordoned road network was reviewed in greater detail for the study area for items including junction layouts, network speeds, missing links etc... The zone system from the WRM was disaggregated where necessary to provide a more accurate representation of traffic loading onto the road network. Several links were added to the cordoned road network.
- **Data Collection:** Traffic survey data including link counts, junction turning counts and journey time information was collected and used to calibrate and validate the LAM (refer to Chapter 2 for further information).
- **Calibration:** Calibration is the process of adjusting the model to better represent observed data. This was undertaken in two steps:

- Network Calibration: adjustments to the road network based on observations extracted from traffic survey data e.g. altering turning capacities at junctions, updating link speeds etc.; and
  - Demand Refinement: adjustments to the prior matrix to better represent observed travel movements from count data.
- **Validation:** Validation is the assessment of the validity of the calibrated model, and its robustness in representing observed traffic conditions. Calibration and validation is an iterative process. If the results of the validation checks are unsatisfactory, then adjustments will be made as required in order to achieve a better representation of reality. The Castlebar LAM was validated in-line with TII and UK Department of Transport TAG guidance. Further information on model validation is provided in Chapter 6 of this report.

### 3.5 Model Area

3.5.1 The area to be analysed in detail in the Castlebar LAM is illustrated in Figure 1, and was identified through the following:

- Review of all major roads and alternative routing options in the study area; and
- Internal discussions with the project team.

### 3.6 Model Time Periods

3.6.1 Automatic Traffic Counts (ATC's) were undertaken at 21 locations throughout the study area (further information included in Chapter 2 of this report).

3.6.2 These ATC results were utilised to identify the typical profile of traffic demand within the study area throughout an average weekday. The ATC data suggests that the hours experiencing the highest levels of traffic are from 08:00-09:00 in the AM, and 17:00-18:00 in the PM. These peaks are also consistent with the NTA WRM.

3.6.3 Therefore, the Castlebar LAM was developed, calibrated and validated to represent the following time periods:

- AM Morning peak period: 08:00 to 09:00;
- PM Evening peak period: 17:00 to 18:00;

### 3.7 Demand Segmentation

3.7.1 The prior travel demand for the Castlebar LAM was derived from the NTA's WRM (See Chapter 5 for more details). The WRM assignment matrices contain the following ten user classes:

- Car Employer's Business (in work time)
- Car Commute (travel to/from work);
- Car Education (travel to/from school);
- Car Other (other non-work purposes such as shopping, visiting friends, etc);
- Retired
- Taxi;
- Light Goods Vehicles (LGV);
- Other Goods Vehicles (OGV) 1;
- OGV2 Permit Holder (5 or more axles and allowed drive in Dublin city centre); and
- OGV2 (5 or more axles and not allowed drive in Dublin city centre).

3.7.2 Each user class has its own defined set of generalised cost parameters based on a price per kilometre and a price per minute. To ensure consistency with the larger strategic WRM, the ten user classes and their associated generalised cost parameters were retained for the Castlebar LAM.

### 3.8 Model Software

3.8.1 The model software used to develop the Castlebar LAM is the SATURN (Simulation Assignment of Traffic to Urban Road Networks) suite of transportation modelling programs.

3.8.2 SATURN has 6 basic functions:

1. As a combined traffic simulation and assignment model for the analysis of road-investment schemes ranging from traffic management schemes over relatively localised networks (typically of the order of 100 to 200 nodes) through to major infrastructure improvements where models with over 1,000 junctions are not infrequent;
2. As a "conventional" traffic assignment model for the analysis of much larger networks (e.g., up to 6,000 links in the standard PC version, 37,500 in the largest);
3. As a simulation model of individual junctions;
4. As a network editor, data base and analysis system;
5. As a matrix manipulation package for the production of, for example, trip matrices; and
6. As a trip matrix demand model covering the basic elements of trip distribution, modal split, etc.

### 3.9 Assignment Parameters

3.9.1 The Castlebar LAM was developed in SATURN and the model was calibrated and validated using release version 11.4.07 of the software. The SATURN application SATNET was used to build the various data files in to an assignable road network (UFN) file.

3.9.2 Matrices were then assigned to the network using the SATALL application, where it iterates through assignment and simulation loops until the user defined levels of convergence are reached (RSTOP and STPGAP), or the model reaches the user defined maximum number of assignment and simulation loops (MASL). SATALL uses a converged equilibrium assignment method to assign the traffic to the road network over successive iterations, until user defined convergence criteria are achieved.

3.9.3 The generalised cost and assignment parameters from the WRM road model were used in the Castlebar LAM.

## 4. NETWORK DEVELOPMENT

### 4.1 Introduction

4.1.1 This Chapter provides an overview of the network developed for the Castlebar LAM. The goal in developing the LAM was to create a model that accurately reflects current traffic conditions in the study area for the 2021 base year, and to a sufficient level of detail to allow the modelling of alternative schemes. To achieve this goal, the model must have a sufficiently defined road network and trip demand representation.

### 4.2 Network Development

4.2.1 The NTA's WRM was utilised as a base for generating the highway network for the Castlebar LAM. The base WRM network was developed from the HERE mapping layer which provides a detailed representation of all National Primary, Secondary, Regional and local roads in Ireland.

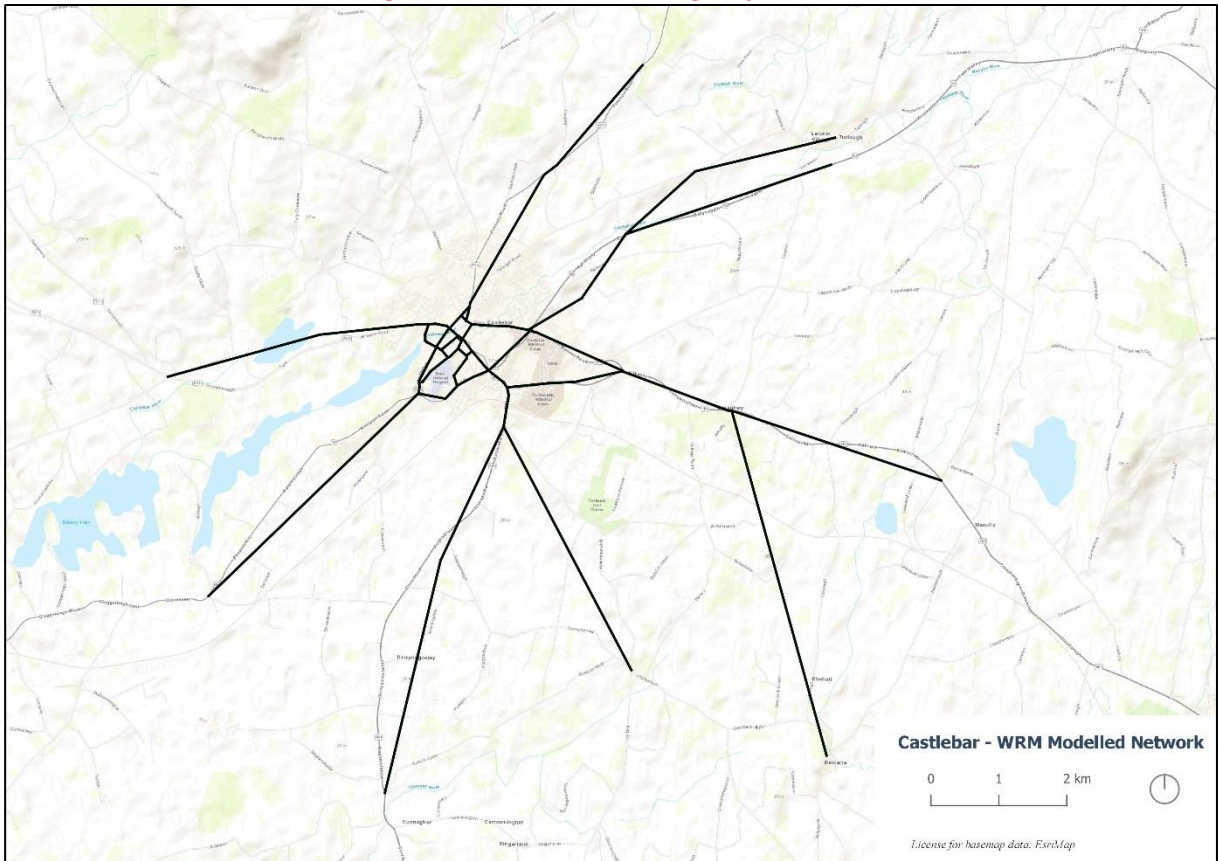
4.2.2 The Castlebar LAM road network, extracted from a cordon of the WRM, is illustrated in Figure 7. A detailed review was undertaken of all model coding in the study area using digital mapping systems such as Google Earth to ensure it represented, as accurately as possible, the existing road network. This included aspects such as network speed limits, availability of bus lanes, junction layouts, pedestrian crossing points etc.

4.2.3 Junction capacities and saturation flows were adopted from the Network Coding Guidelines developed for the NTA as part of the RMS development, and were further reviewed during the calibration process. Where required, additional detail was added to ensure that traffic was loading onto the road network at the correct locations.

4.2.4 Traffic signals' phasing and timing were provided by Mayo County Council and included in the LAM coding.

4.2.5 As illustrated in Figure 7, the WRM provides a detailed representation of all significant roads within the study area. To ensure full network coverage and route choice, all roads have been considered, from the national primary routes to minor residential streets. The short dead-end links in Figure 7 are "spigots" used to load traffic from the zones accurately onto the network, and reflect the further developed zone system that is outlined in Section 5 below.

**Figure 7. Castlebar LAM Highway Network**



## 5. ZONE SYSTEM AND PRIOR MATRIX DEVELOPMENT

### 5.1 Introduction

5.1.1 This chapter describes the development of the base LAM trips matrix with reference to the following aspects:

- Zone system development; and
- Matrix development.

5.1.2 These matrices were later subjected to matrix estimation as part of the process of calibrating the model. The matrices described in this section are referred to as ‘prior’ matrices.

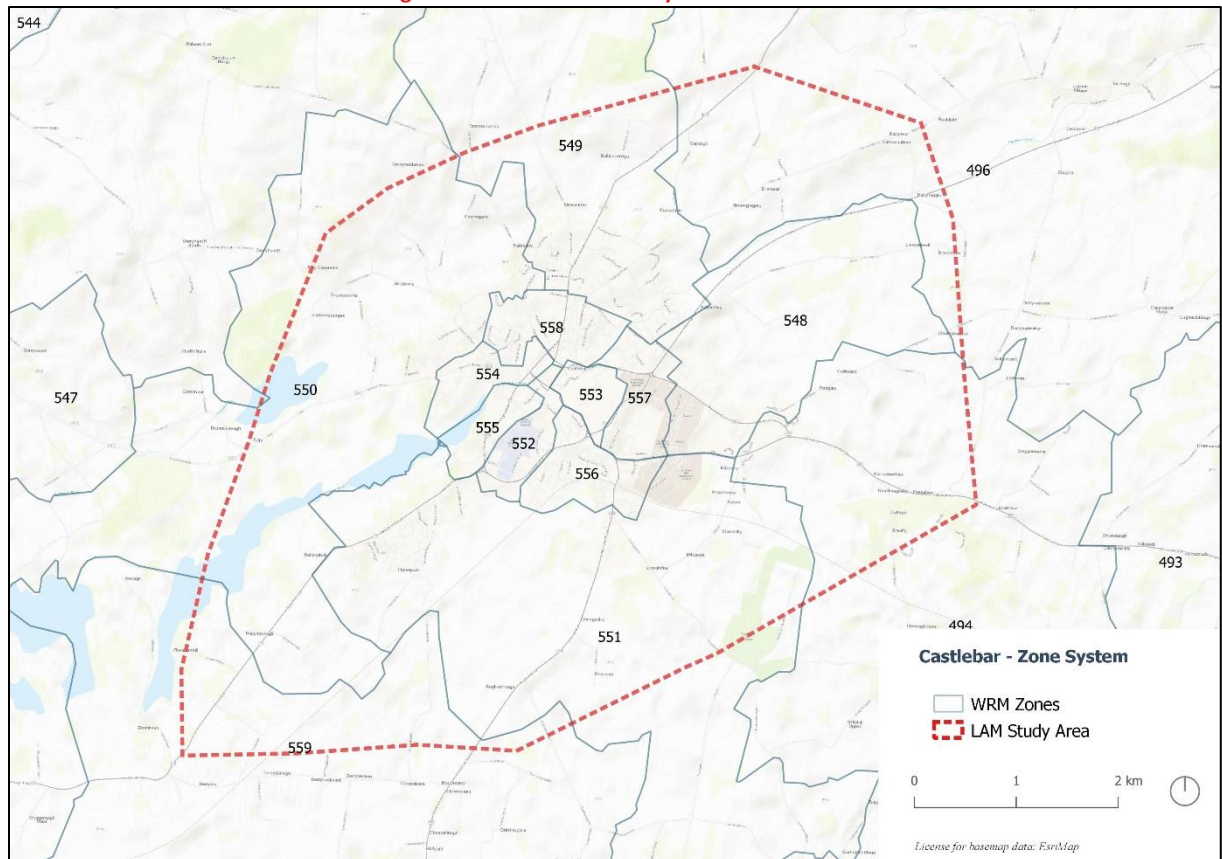
### 5.2 Zone System Development

5.2.1 Similar to the road network described previously, the base Castlebar LAM zone system was adopted from the WRM. The WRM zone system was developed using the Census Small Area Population Statistics (SAPS) and Place of Work, School or College Census of Anonymised Records (POWSCAR) to get detailed information on population, employment and education centres across the model area. Other data sources such as MyPlan and Geo Directory were also used to obtain information on specified land-use zoning and location of commercial development. The following rules were then applied to generate the zone system:

- Population, Employment and Education – the number of zones with values of population, number of jobs and persons in education above a certain threshold should be minimised;
- Activity Levels – the number of zones with activity levels that have very low or very high levels of trips should be minimised;
- Intra-zonal Trips – threshold values should be applied to the proportion of intra-zonal trips within each zone, to avoid an underestimation of flow, congestion and delay on the network;
- Land Use – zones should be created with homogeneous land use and socio-economic characteristics where possible;
- Zone Size/Shape – zone size and the regularity of zone shape should be considered in order to avoid issues with inaccurate representation of route choice;
- Political Geography – it should be possible to aggregate all zones to ED level i.e. zone boundaries do not intersect ED boundaries; and
- Special Generators/Attractors – large generators/attractors of traffic such as Airports, Hospitals, shopping centres etc. should be allocated to separate zones.

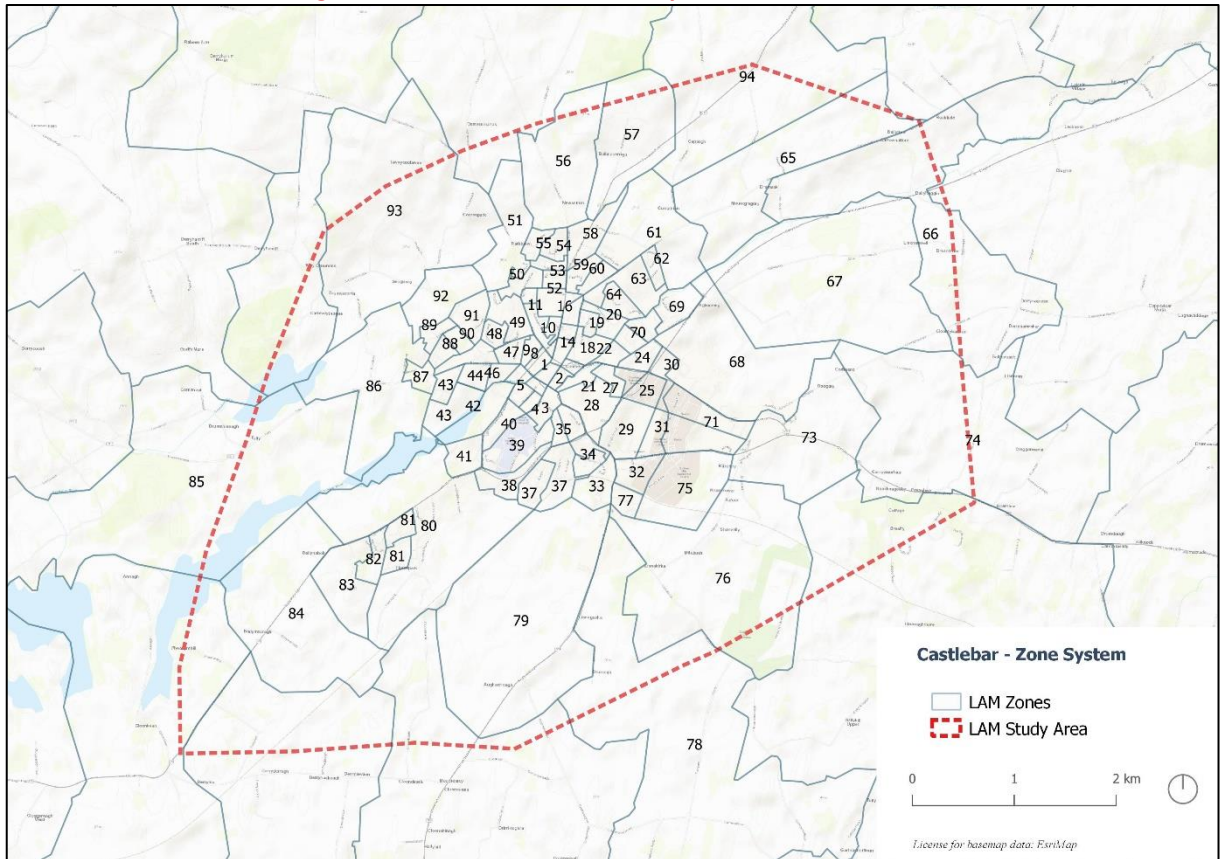
5.2.2 Figure 8 below illustrates the WRM zone system within the study area.

**Figure 8. WRM Zone System**



- 5.2.3 In the parts of the WRM, close to City areas, the WRM zones are represented in quite a high level of detail. As such, individual housing estates and key employers have been given their own zones. However, in areas further away from the town centre, the WRM zones become larger and more aggregate in nature primarily due to the lower levels of activity (population and employment) in these areas.
- 5.2.4 A detailed review was undertaken of all WRM zoning and centroid connectors in the study area. On review of this, a number of edits were applied to the WRM zone system in order to provide a more accurate representation of traffic loading onto the road network for the Castlebar LAM.
- 5.2.5 Figure 9 below illustrates the zonal system developed for the study area. In total, 106 zones have been created, with 94 internal zones within the study area and 12 external zones representing the roads that enter the area of interest. This level of detail ensures that traffic loads accurately within the Castlebar LAM study area.

**Figure 9. Castlebar LAM Zone System**



**5.3 Prior Matrix Development**

- 5.3.1 As noted previously in Chapter 1, the Full Demand Model carries out mode and trip destination choice for all zones within the WRM. The FDM has been calibrated using Census data, hence providing a robust and accurate representation of trip distribution across the model network. In order to generate prior matrices for the study area, a cordon was extracted from the calibrated 2016 WRM base year scenario. The cordon function within SATURN, facilitates the extraction of trip matrices for a subset area of the WRM whilst maintaining route and destination choice from the full model.
- 5.3.2 A bespoke Excel spreadsheet tool was created to disaggregate the cordoned WRM matrices to each of the 94 internal LAM zones. This tool used available data on population, employment, and education places at Census small area level, to split trips to/from each WRM zone between the more detailed LAM zoning system. This allowed for a consistent split of demand within the study area, whilst maintaining consistency with the WRM matrix.



## 6. CASTLEBAR LAM EARLY CHECKS

### 6.1 Introduction

6.1.1 During the development of the Castlebar LAM model 2021 reference case network, initial assignments of the AM and PM periods were undertaken, and flow comparisons undertaken between the WRM 2016 network and the developed LAMs in order to identify model discrepancies.

### 6.2 Flow comparison overview

6.2.1 The comparison showed an impact on flows in the wider area as a result of the addition of more detailed infrastructure in the LAM model. This analysis shows the distribution and choice of all trips associated with the new zone system and so the absolute number of vehicles being forced to re-route is relatively small, particularly given that these are spread around the LAM boundaries, rather than focussed on one point.

Figure 10. AM Traffic Flow Distribution WRM model

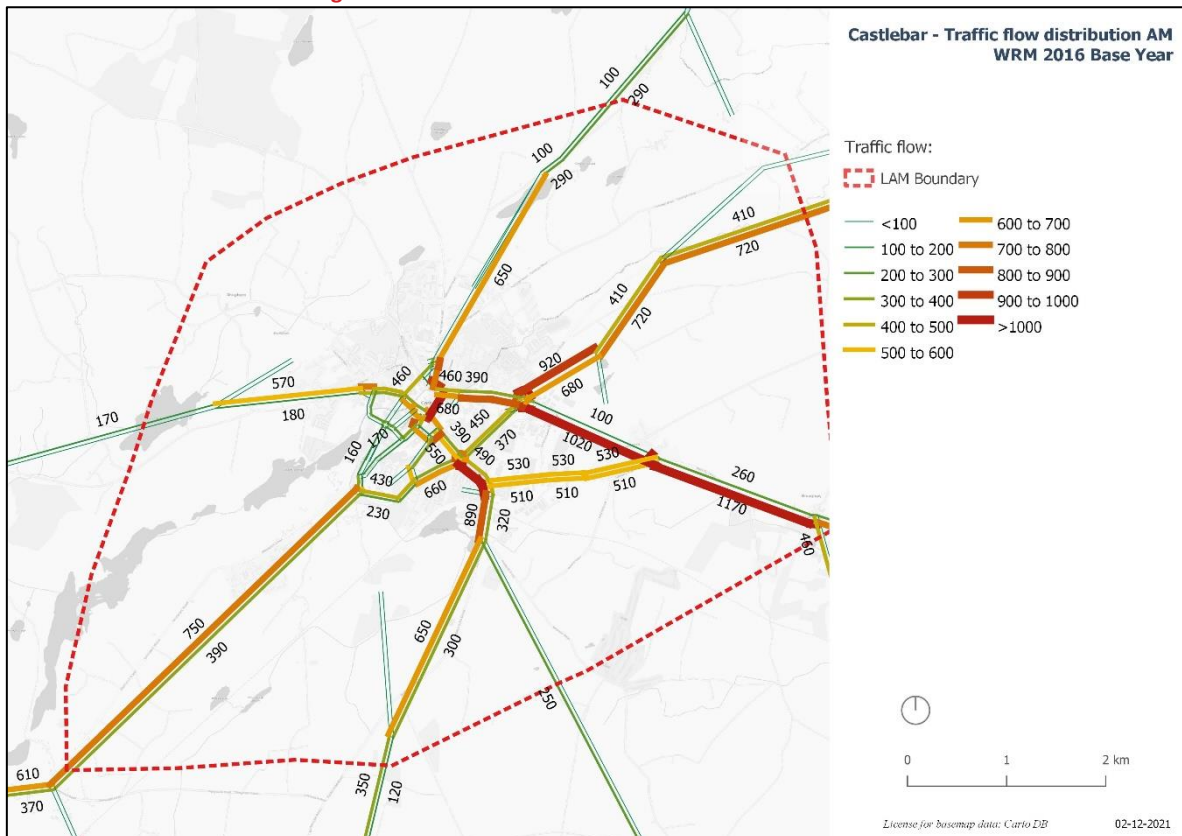
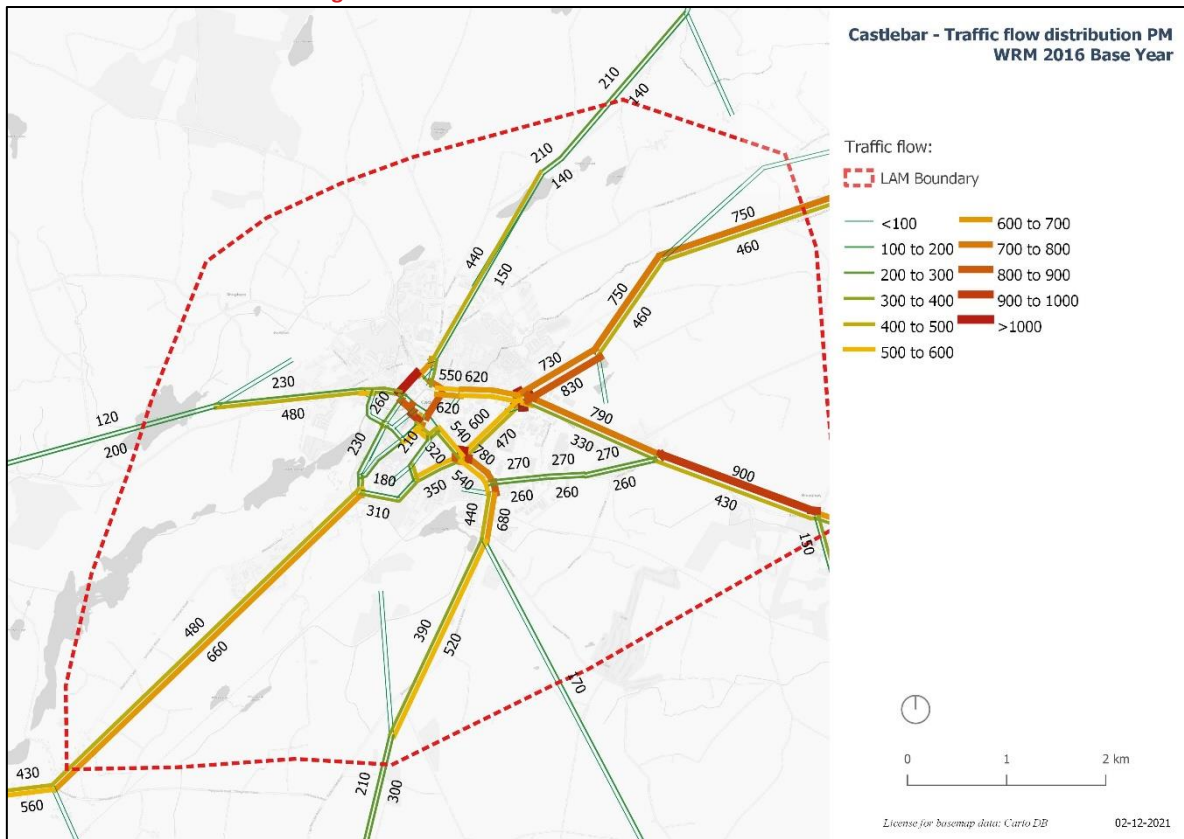


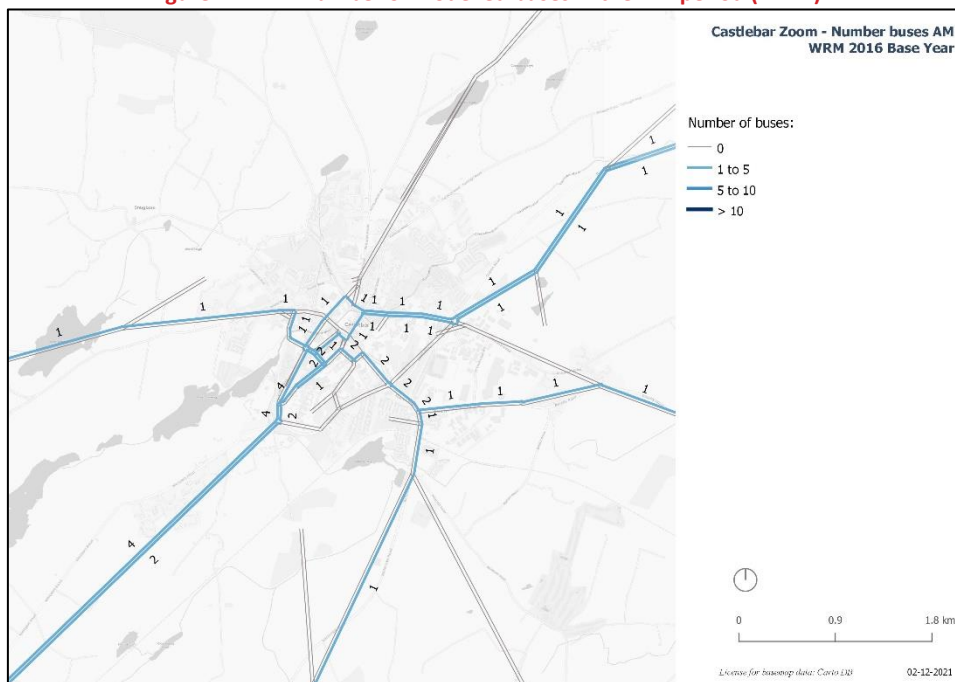
Figure 11. PM Traffic Flow Distribution WRM model



### 6.3 Bus Flow Assumptions

6.3.1 There are only a few modelled buses in Castlebar in the WRM (see Figure 12). Their contribution to traffic is not significant and can be ignored in the LAM.

Figure 12. Number of modelled buses in the AM period (WRM)



## 7. MODEL CALIBRATION AND VALIDATION

### 7.1 Overview of the Calibration and Validation Process

- 7.1.1 Once base prior matrices have been generated, the calibration process aims to reduce differences between observed and modelled traffic characteristics. Generally, the components of the model that may be adjusted on the demand side are trip distribution and trip production/attraction. This adjustment usually involves trip matrix estimation.
- 7.1.2 On the supply side (network), modelled junction and link characteristics may be altered if sufficient new information is available to justify changes to the existing network.
- 7.1.3 The Castlebar LAM was calibrated and validated in accordance with Transport Infrastructure Ireland's (TII) Project Appraisal Guidelines (PAG) for National Roads Unit 5.1 – Construction of Transport Models (October 2016). This is a widely accepted standard in Ireland that provides robust calibration and validation criteria to which certain types of highway models should adhere. Additionally, the LAM development has followed guidance from the UK's Department for Transport's Transport Analysis Guidance (TAG) unit M3-1, particularly in terms of matrix estimation controls.
- 7.1.4 The following sections of this chapter detail the calibration process undertaken to ensure that the LAM accurately reflects baseline conditions, including information on:
- Traffic Count Data;
  - Calibration Steps;
  - Matrix Estimation; and
  - Calibration Statistics (i.e. GEH and Linear Regression Analysis).

#### Traffic Count Data

- 7.1.5 To ensure the robustness of the developed strategic model, a series of traffic counts for the study area have been used to assist in the calibration and validation of base model flows. The following surveys were used in the process:
- Junction Turning Counts (JTC) at 27 points (178 individual movements);
  - Automatic Traffic Counts (ATC) at 38 points; and
  - Moving Car Observer (MCO) Journey Time Surveys along 3 existing paths.
- 7.1.6 The ATC and JTC survey locations are illustrated in Figure 2 and Figure 3 respectively. The Journey Time Surveys are discussed in further detail in section 8.3 describing the model validation process.
- 7.1.7 Turning counts were undertaken at key locations to provide detailed movements within the specified junctions. The locations of ATC surveys provide a record of traffic in the study area over an extended period of time (14 days). Incorporating this information enables an accurate representation of traffic flows within the model.

#### Calibration Steps

- 7.1.8 As an initial calibration step, all modelled movements with corresponding junction turning counts were examined to determine if the count exceeded modelled capacity. Remedial steps were then taken to permit realistic flows in the model.

- 7.1.9 Similarly, the capacity and speeds of modelled links were also checked to ensure they were broadly in line with survey information.
- 7.1.10 As the LAM was coded based on best practice guidelines developed during the NTA Regional Model Scoping Process, the network coded was an accurate and up-to date representation of the existing road network. If required however, the following network model parameters were adjusted if there was clear reason for doing so:
- Junction type (Priority, Signalised, Roundabout);
  - Road lengths;
  - Signal timings;
  - Link free flow travel speed;
  - The number of approach lanes at each junction arm;
  - Traffic lane width per junction approach, and the lane discipline adopted (including prohibited turns);
  - Saturation flow through junctions;
  - Assumed road capacities;
  - Link based flow-delay relationships;
  - Any other traffic management measures that may impact on capacity, such as bus lanes, traffic calming, parking controls and cycle-lanes.
  - Zone co-ordinates; and
  - Zone loading points (connections to the network).

#### **Trip Demand Adjustment (Matrix Estimation)**

- 7.1.11 Following calibration of the network, trip demand is adjusted in line with count data, so that there is an improved agreement between counts and modelled flows. The base prior matrix is fed into a SATURN programme called ME2. ME2 then adjusts origin-destination patterns to produce a trip demand matrix that better replicates traffic counts when assigned to the network. When this replication is satisfactory, the matrix is said to be calibrated.
- 7.1.12 The prior matrix is adjusted only after all options for improving the network are exhausted. Any matrix adjustment must significantly improve the match between observed and modelled flows and not introduce more trips into a zone than could realistically be expected. Controls are placed on zones to ensure that the trip demand generated is sensible and in line with census population and employment statistics.
- 7.1.13 The algorithm driving the ME2 estimation process tends to reduce long trips in place of chains of short trips, especially when counts are spread over the entire area, which may not fully reflect reality. Constraints are therefore placed on the adjustment process to protect the number of movements and distribution of the through trips contained within the original car trip matrix. By restricting such long through trips, the matrix adjustment algorithm is forced to create or re-distribute short trips.

#### **Calibration Statistics - GEH**

- 7.1.14 The GEH statistic is a measure that considers both absolute and proportional differences in flows. Thus, for high levels of flow, a low GEH may only be achieved if the percentage difference in flow is small. For lower flows, a low GEH may be achieved even if the percentage difference is relatively large. GEH is formulated as:

$$GEH = \sqrt{\frac{(\text{observed} - \text{modelled})^2}{0.5 \times (\text{observed} + \text{modelled})}}$$

- 7.1.15 The reason for introducing such a statistic is due to the inability of either the absolute difference or the relative difference to cope over a wide range of flows. For example, an absolute difference of 100 PCUs/hr may be considered a big difference if the flows are of the order of 100 PCUs/hr, but would be unimportant for flows in the order of several thousand PCUs/hr. Equally, a 10% error in 100 PCUs/hr would not be important, whereas a 10% error in, say, 3,000 PCUs/hr might mean the difference between adding capacity to a road or not.
- 7.1.16 In general, the GEH parameter is less sensitive to the above statistical biases since a modeller would probably feel that an error of 20 in 100 would be roughly as bad as an error of 90 in 2,000, and both would have a GEH statistic of roughly 2.
- 7.1.17 As a rule of thumb in comparing assigned volumes with observed flows, a GEH parameter of 5 or less would be an acceptable fit, while GEH parameters greater than 10 would require closer attention.
- 7.1.18 The UK Design Manual for Road & Bridges (DMRB) Volume 12a guidelines (Traffic Appraisal in Urban Areas) are a widely accepted standard in Ireland (with TII basing their guidelines on this document) that provides extremely robust validation criteria to which certain types of highway models should adhere. This document sets a guideline that 85% of links should have a GEH less than 5 (when measured in vehicles per hour) as shown in Table 3 below. In addition, it is commonplace to establish that 90% of assessment links have a GEH of less than 10 and that 100% of validation links have a GEH less than 20.

**Table 3. Calibration Criteria**

CRITERIA	ACCEPTABILITY GUIDELINE
<b>Assigned hourly flows compared with observed flows</b>	
Individual flows within 100 v/h for flows less than 700 v/h	>85% of cases
Individual flows within 15% for flows between 700 & 2,700 v/h	
Individual flows within 400 v/h for flows greater than 2,700 v/h	
Individual flows – GEH < 5	
<b>Modelled journey times compared with observed times</b>	
Times within 15% or 1 minute if higher	>85% of cases

## 7.2 Model Calibration Results

### Traffic Flow and GEH Calibration Results

7.2.1 Table 4 below summarises the GEH calibration results for the model after the matrix estimation process, for each of the three modelled time periods. The full list of GEH results for each traffic count location are presented in the accompanying calibration dashboards in Appendix A.

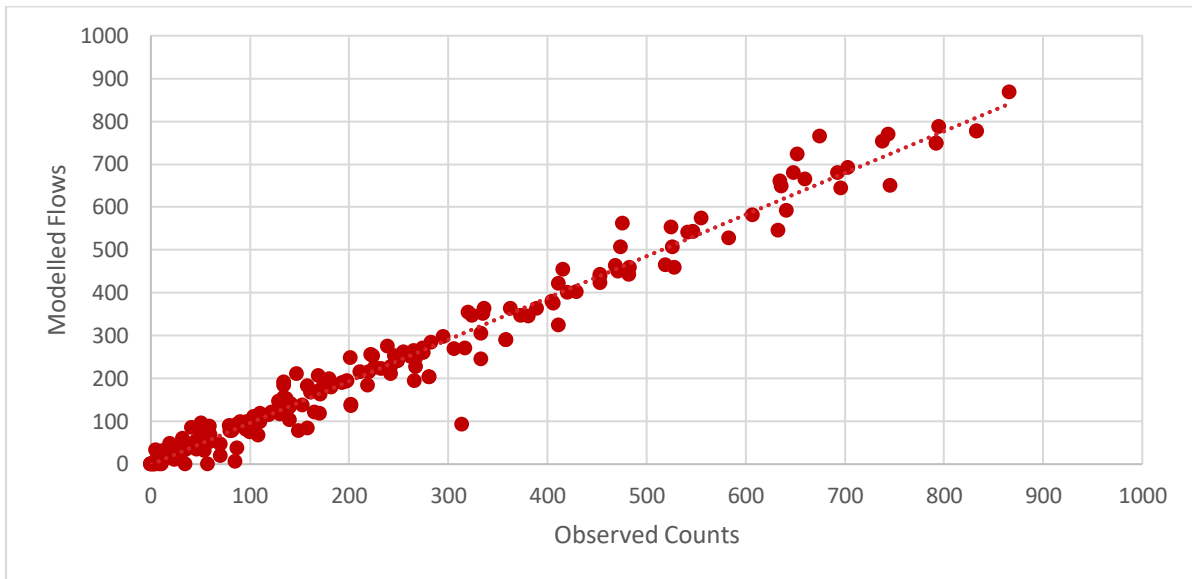
**Table 4. Count Calibration Statistics (Post-Calibration)**

GEH	AM	PM
GEH < 5	94%	85%
GEH 5 to 10	5%	12%
GEH > 10	1%	3%

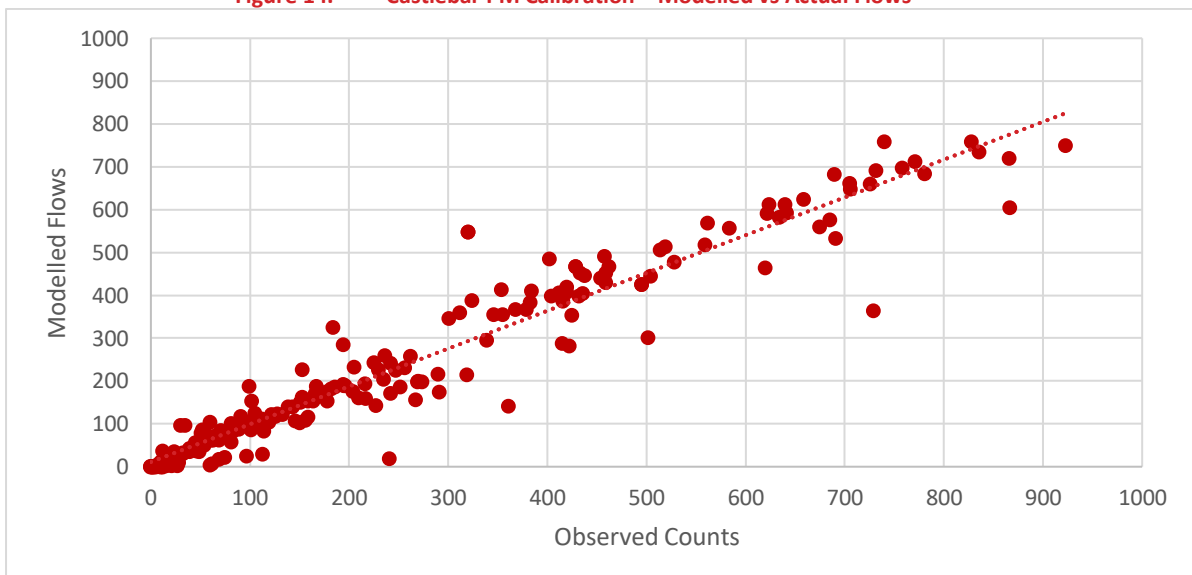
7.2.2 The figures demonstrate that an excellent calibration has been achieved in the model for the morning and evening peak periods, with overall GEH<5 of 94% and 85% respectively, which falls well within TII standards.

7.2.3 Figure 13 to Figure 14 show the Modelled vs Observed flow totals for the AM & PM peak hours.

**Figure 13. Castlebar AM Calibration – Modelled vs Actual Flows**



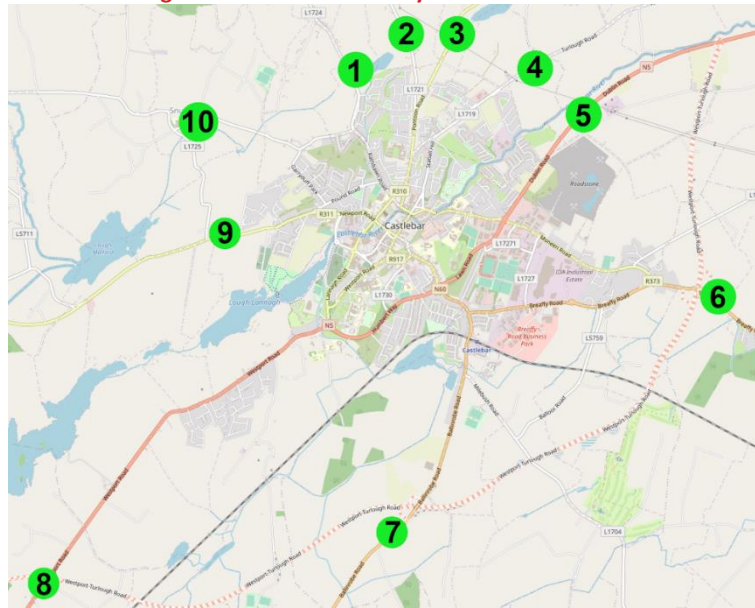
**Figure 14. Castlebar PM Calibration – Modelled vs Actual Flows**



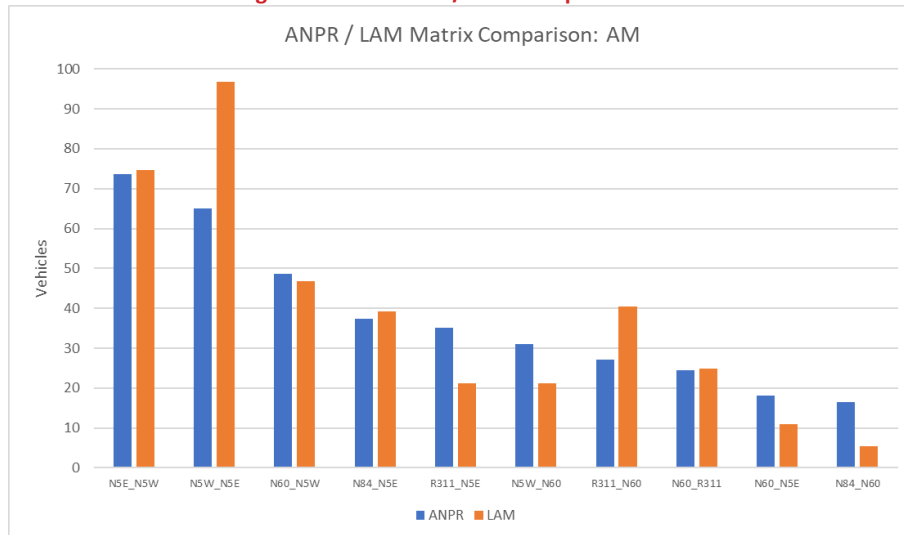
### Comparison with Automated Number Plate Recognition (ANPR) data

- 7.2.4 ANPR data was collected by TRACSIS on 25<sup>th</sup> of November 2021 between 7am and 7pm at 10 points, as shown in Figure 15. This was used to generate an observed “through traffic” matrix between these 10 zones for the AM (7-10am) and PM (4-7pm) periods.
- 7.2.5 An equivalent matrix of vehicular trips between these 10 LAM external zones was skimmed. The observed matrices were factored to convert the 3-hour period to a single hour, as in the LAM. Figure 16 & Figure 17 compare the top ten OD-pairs observed and modelled demand in the AM and PM periods. It can be seen from the figure that the major external-to-external movements in the LAM matches the ANPR data quite well.

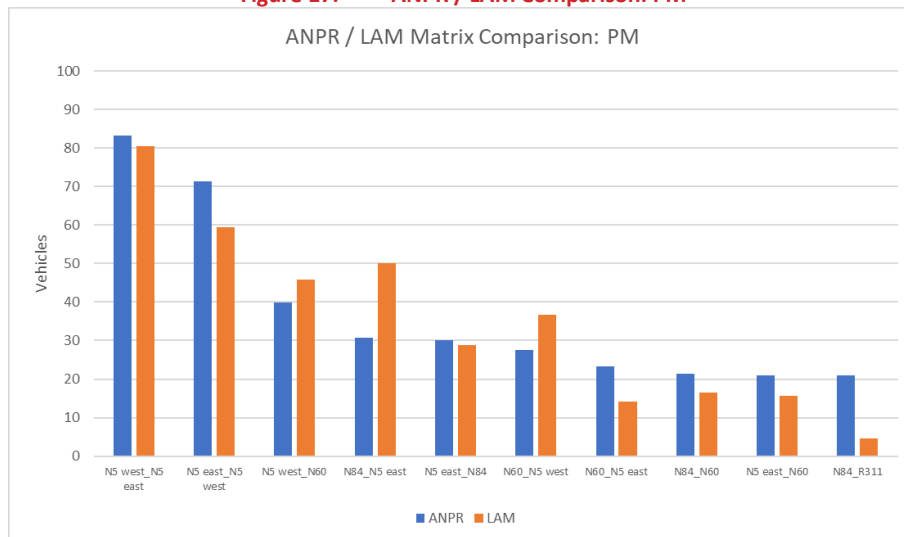
**Figure 15. ANPR Survey Sites**



**Figure 16. ANPR / LAM Comparison: AM**



**Figure 17. ANPR / LAM Comparison: PM**





### 7.3 Journey Time Validation

7.3.1 As outlined in Section 7.1, Table 3, TII guidelines recommend that modelled journey times should be within +/- 15% of the observed time, or 1 minute if higher, in more than 85% of cases. Table 5 below details the overall results for the cumulative route totals and the individual timing sections for the coloured journey time routes shown in Figure 4. The results show a good match to TII guidelines, with 8 routes of 10 meeting the +/-15% observed criterion.

7.3.2 The Green Southbound route is not included in the validation table as modelled and observed distances differ significantly (28%). Clarifications are currently pending with the project survey team in relation to these differences.

**Table 5. Journey Time Validation**

PERIOD	ROUTE	DISTANCE (m)			TIME (s)			TII Criteria
		Obs	Mod	%Diff	Obs	Mod	%Diff	
AM	Blue Eastbound	8,948	9,096	2%	636	651	2%	ok
AM	Blue Westbound	8,900	9,070	2%	641	650	1%	ok
AM	Green Northbound	6,915	6,842	-1%	948	879	-7%	ok
AM	Green Southbound	9,086	6,552	-28%	817	736	-10%	-
AM	Yellow Eastbound	6,090	6,141	1%	693	784	13%	ok
AM	Yellow Westbound	6,064	6,089	0%	732	786	7%	ok
PM	Blue Eastbound	8,948	9,096	2%	779	696	-11%	ok
PM	Blue Westbound	8,900	9,070	2%	859	665	-23%	No
PM	Green Northbound	6,915	6,842	-1%	954	959	1%	ok
PM	Green Southbound	9,086	6,552	-28%	1,222	861	-30%	-
PM	Yellow Eastbound	6,090	6,141	1%	727	870	20%	No
PM	Yellow Westbound	6,064	6,089	0%	834	921	10%	ok

### 7.4 Calibration and Validation Summary

7.4.1 This chapter provides an overview of the calibration and validation of the Castlebar local area traffic model. In summary:

- The NTA WRM was used as a basis for development of Castlebar local area traffic model with additional network and zonal detail added to more accurately represent localised traffic movements;
- The model has been calibrated and validated in-line with TII Project Appraisal Guidelines and meets all specified criteria for both the AM and PM;
- The LAM is fit for purpose, and represents AM and PM peak period base year traffic conditions well, as demonstrated statistically through calibration and validation.
- It provides a robust basis for assessing transport scheme options as:
  - The model realistically represents journey times; and
  - The modelled traffic flows match observed count data.

## 8. PANDEMIC TRAVEL RESTRICTIONS CONSIDERATION

### 8.1 Introduction

8.1.1 Recommendations to limit movements and encouragements to work from home if possible were in place at the time the traffic survey was made (November 2021).

8.1.2 Traffic volumes and patterns were obviously impacted by these travel restrictions. We analysed historical data from TII automated counters in the area to quantify the impacts the restrictions has on traffic at the time of the survey.

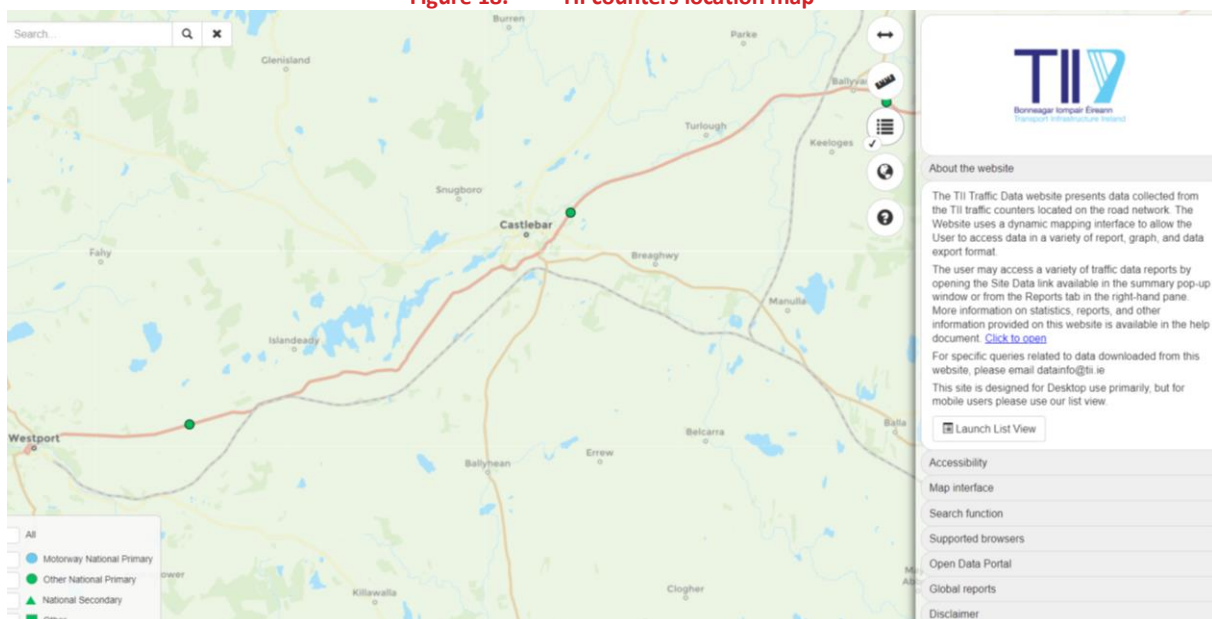
### 8.2 TII counters analysis

8.2.1 The following two TII traffic counters were included in the analysis:

- TMU N05 130.0 E - N05 Between Turlough and Castlebar
- TMU N05 110.0 W - N05 Between Westport and Castlebar

8.2.2 Map below shows their location on a map. Both are recording N5 traffic on either side of Castlebar.

**Figure 18. TII counters location map**



8.2.3 We extracted traffic data for the same period of the year (last 2 weeks in November) in 2018, 2019 and 2021. Comparing 2021 traffic to the average 2018-2019 traffic allows us to estimate what the traffic would have been in “normal” conditions at the time of the survey.

**Table 6. TII counters observed flows**

Description	Average weekday 08:00-9:00				Average weekday 17:00-18:00			
	2021	2019	2018	2021 Vs. Av (2018-2019)	2021	2019	2018	2021 Vs. Av (2018-2019)
N05 Between Turlough and Castlebar	1,114	1,196	1,170	-6%	1,133	1,226	1,226	-8%
N05 Between Westport and Castlebar	813	896	876	-8%	809	910	889	-10%

### 8.3 Outcome

- 8.3.1 The TII counters analysis shows that traffic in 2021 at the time of the survey was lower than it was in 2018 and 2019 over the same period.
- 8.3.2 For consistency, the 2021 LAM has been calibrated using non-modified observed data from the survey. To test scenarios in the LAM it is however recommended to factor the demand to represent normal traffic conditions, without the travel recommendations that were in place at the time of the survey.
- 8.3.3 For the Castlebar LAM, 2021 calibrated demand matrices should be factored by:
- 1.07 (i.e. +7%) in the AM
  - 1.09 (i.e. +9%) in the PM

## 9. N5 WESTPORT TO TURLOUGH ROAD PROJECT

### 9.1 Introduction

9.1.1 The proposed N5 Westport to Turlough project (refers as the N5 road project onwards) stretches from northwest of Westport in the townland of Deerpark East to a point East of Castlebar in the townland of Ballyneggin. The design of the proposed N5 mainline is a Type 2 Dual Carriageway with major junctions proposed at the intersection of the N59, existing N5, N84 and N60.

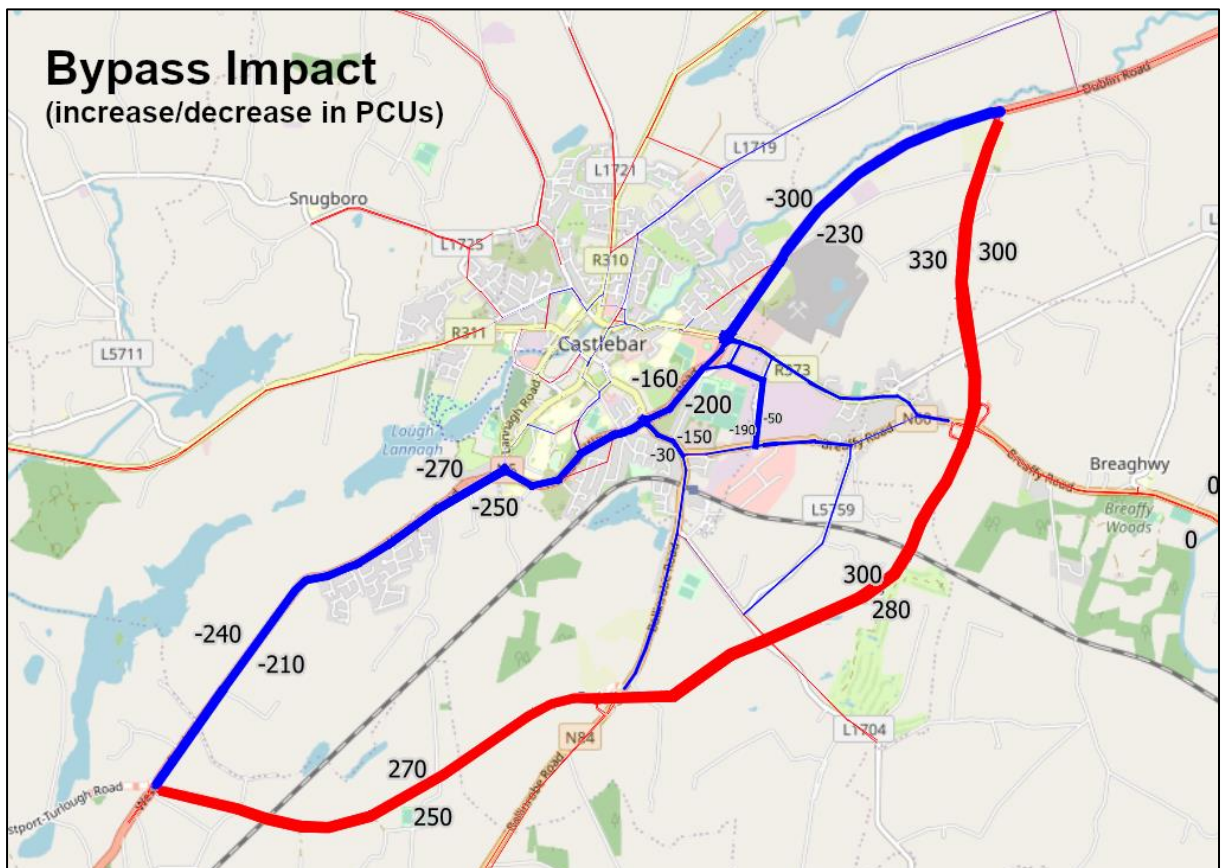
### 9.2 Modelling the N5 road project in Castlebar LAM

9.2.1 The N5 road project has been coded in the LAM as per available design maps. The calibrated 2021 LAM AM road demand has been assigned to a scenario “with the N5 road project” to estimate traffic redistribution in the Castlebar area.

9.2.2 The map below shows a flow difference plot between a scenario with the N5 road project and without. The model predicts circa 300 pcu/h per direction on the new road. It is worth noting the following observations:

- 2021 calibrated demand is slightly lower than a “normal” period – See section 8
- Assigned demand doesn’t include any long distance rerouting as limited to LAM perimeter

**Figure 19. AM Flow difference with/without N5 road project**



## 10. CONCLUSION

- 10.1.1 The Castlebar LAM is a robust tool representing traffic in the study area in greater details. Two time periods are considered and both validate well against observed data.
- 10.1.2 The impacts of the pandemic-related travel restrictions have been assessed and quantified. The 2021 calibrated demand can be adjusted to represent more “normal” traffic conditions.
- 10.1.3 The N5 Westport to Turlough road project, due to open in 2022/2023, has been coded and tested in the LAM. Due to the near-completion of this scheme, it should be included in any scenario testing.

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Clifton Scannell Emerson & Associates

Castlebar Town, Co. Mayo

Non-Motorised Road User Accessibility  
Assessment

Clifton Scannell Emerson & Associates

## Castlebar Town, Co. Mayo

### Non-Motorised Road User Accessibility Assessment

<b>Document Ref:</b>	<b>P22-018-UQA-GEN-RP-001</b>
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Rev	Prepared By	Reviewed By	Approved By	Issue Date	Reason for Revision
3.0	MAH/HO	PJM	PJM	22 <sup>nd</sup> November 2022	Revised Final
2.0	MAH/HO	PJM	PJM	17 <sup>th</sup> November 2022	Final
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# 1 Introduction

## 1.1 Assessment Overview and Scope

This Non-Motorised Road User (NMU) Accessibility Assessment has been undertaken as part of the Area-Based Transport Assessment (ABTA) for Castlebar, Co Mayo.

The purpose of this NMU Accessibility Assessment is to identify gaps in the existing non-motorised road user provisions in Castlebar, including cycle lanes/tracks, greenways, footpaths and crossings from the perspective of all users, including people with disabilities, and to recommend improvements where considered appropriate.

The scope of this Accessibility Assessment includes: -

- I. Assessment of the local road network conditions;
- II. Identify the key active travel destinations;
- III. Identify existing/likely NMU routes;
- IV. Classify the routes;
- V. Identify any issues within each route/area;
- VI. Propose measures to address any issues identified; and
- VII. Suggest priorities for implementing recommended measures.

## 1.2 Castlebar Town

### 1.2.1 Overview

Castlebar is located in west County Mayo and has a population of just over 12,000. The Castlebar River passes through the Town Centre and a number of National Roads pass around the town, including the N5, which connects the town to Westport and Dublin, and the N60 and N84, which connect the town to Galway. The Scope of this Assessment includes the Castlebar Urban Electoral Division (ED) as shown in Figure 1-1. In addition, other residential and recreational areas located at the periphery of the urban ED were included as part of the Assessment.

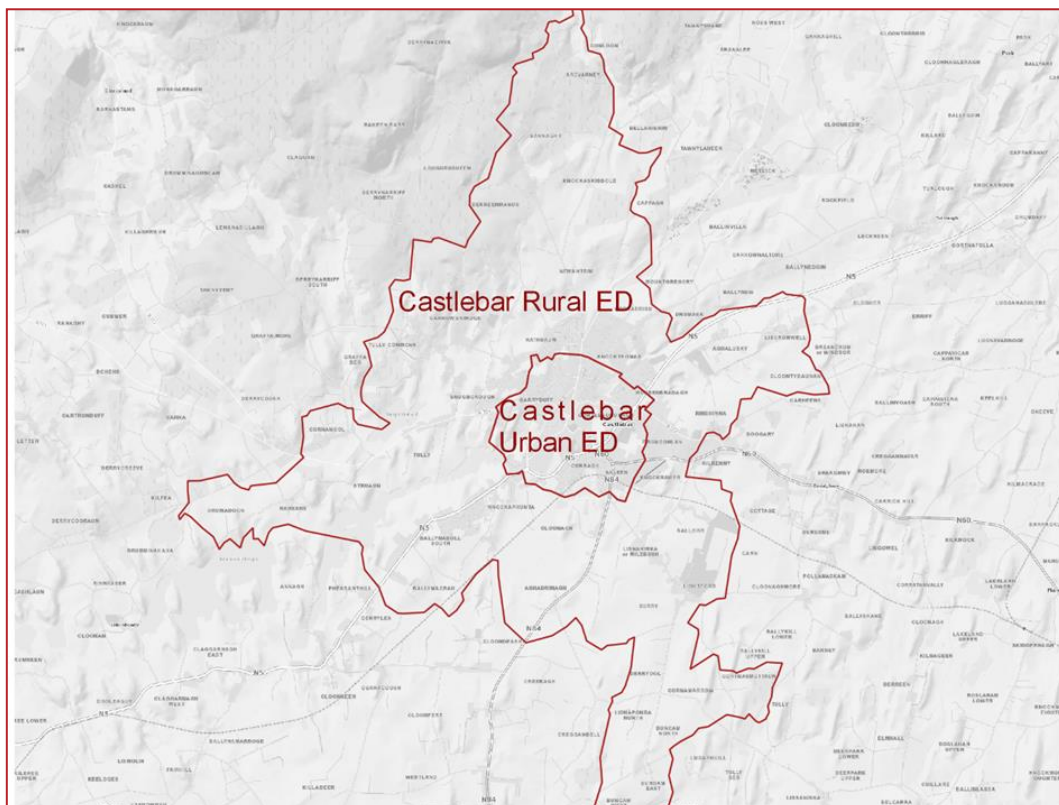
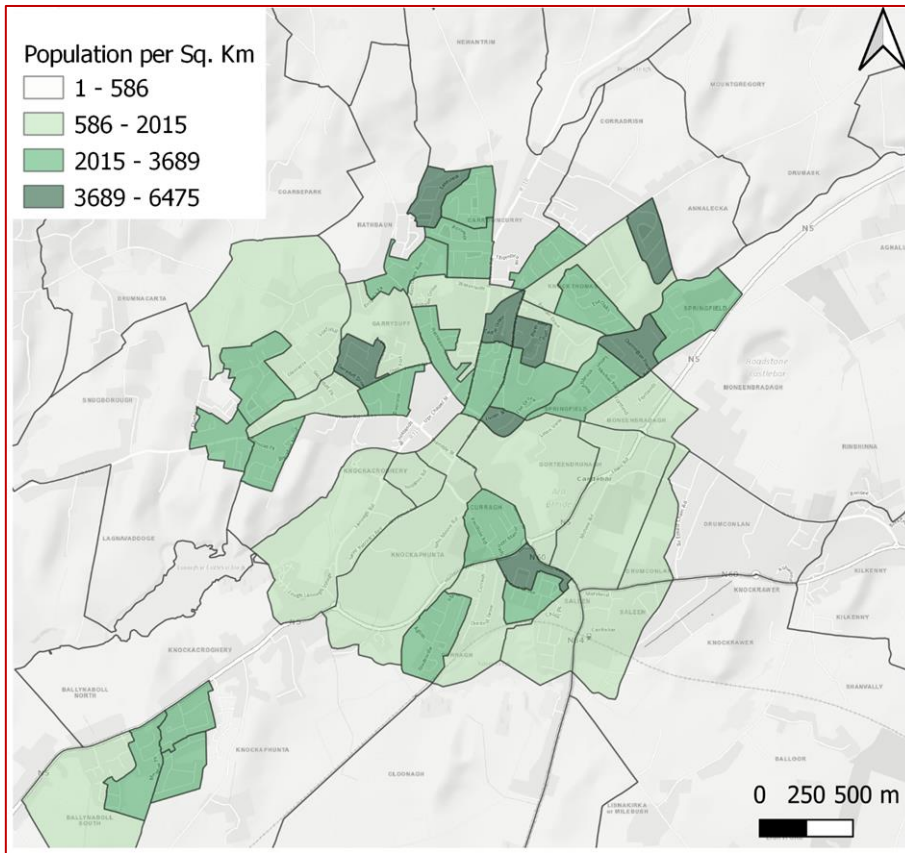
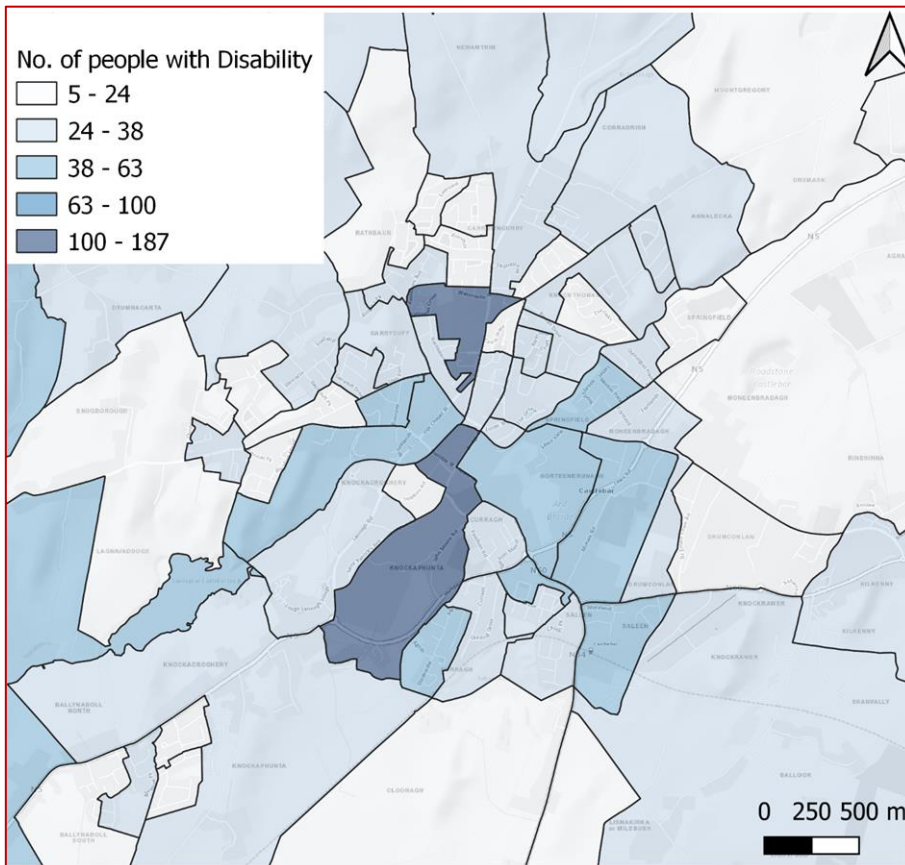


FIGURE 1-1: LOCATION PLAN (SOURCE: (SOURCE: WWW.CSO.IE & WWW.OSI.IE)

Figure 1-2 shows the population density of the areas within Castlebar. The data was obtained from the Central Statistics Office Census survey of 2016. The map shows the population density per square kilometre. Figure 1-3 shows the number of people with disabilities within each area.



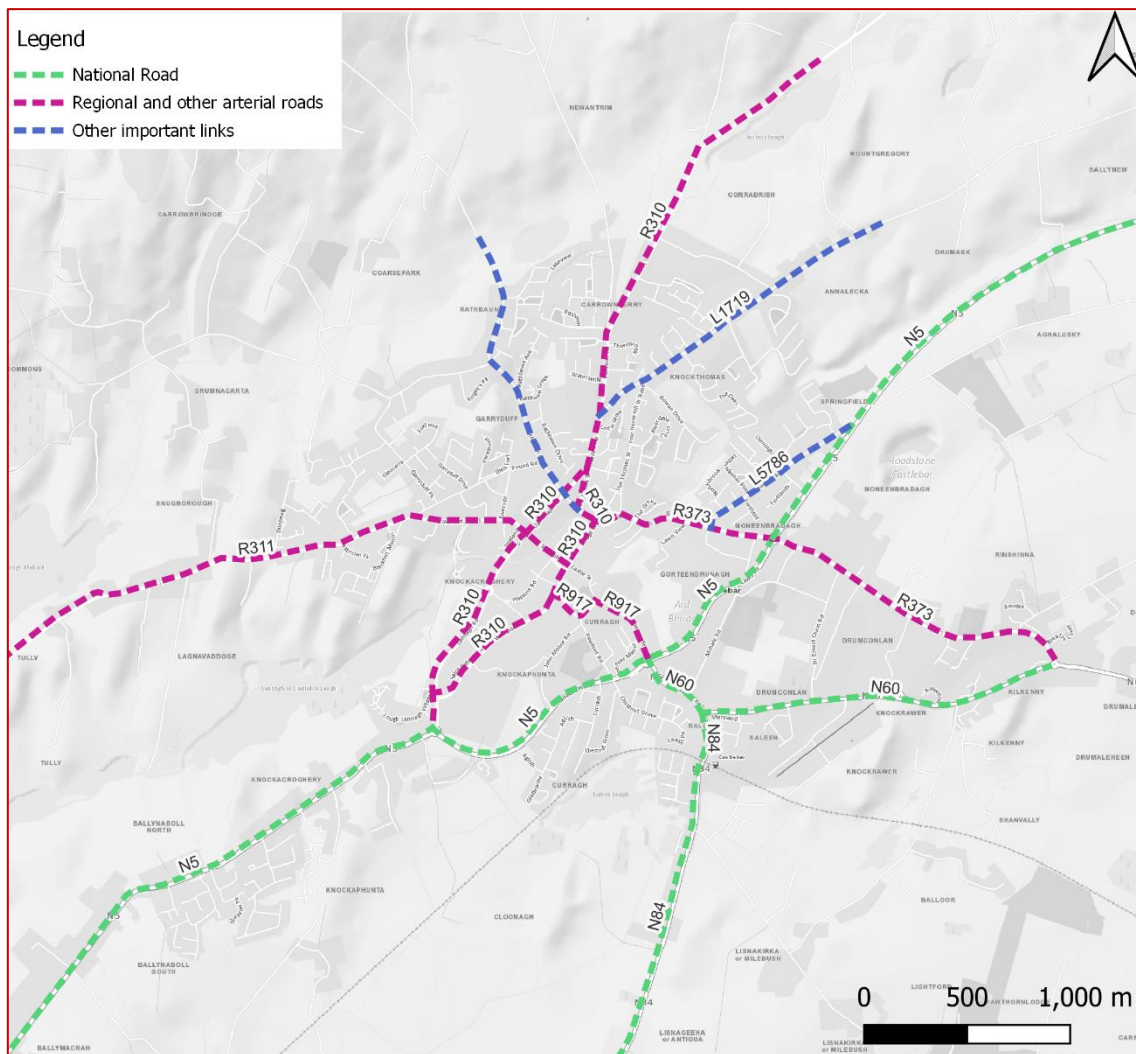
**FIGURE 1-2: CENSUS 2016 SMALL AREAS POPULATION DENSITY (SOURCE: WWW.CSO.IE & WWW.OSI.IE)**



**FIGURE 1-3: CENSUS 2016 SMALL AREAS POPULATION WITH DISABILITY (SOURCE: WWW.CSO.IE & WWW.OSI.IE)**



### 1.2.3 Main Roads



**FIGURE 1-5: MAIN ROADS WITHIN CASTLEBAR TOWN CO. MAYO (SOURCE: www.CSO.ie & www.OSI.ie)**

Figure 1-6 shows the main roads within Castlebar, including the National Roads (shown in green), Regional and other Arterial Roads (shown in magenta); and other important links (shown in blue).

- N5 National Road:** is a two-way National Primary Road with a posted speed limit of 50kph within the Castlebar urban area, which passes to the south of the Castlebar town area.

There are pedestrian footpaths along the N5 from its junction with the Knockaphunta Park to the roundabout with the R373 and intermittent cyclist facilities, primarily within the urban areas of the town.

The N5 also serves a number of housing estates on its northern side and multiple direct accesses along its southwestern side.



- N60 (Breaffy Road):** is a two-way National Secondary Road with a posted speed limit of 50kph within Castlebar, which commences at its junction with the N5 to the west and extends eastwards from Castlebar through Breaffy, Claremorris, Ballyhaunis & Castlerea, to where it meets the N60 in Roscommon.

There are pedestrian footpaths along the N60 from its junction with the N5 to its junction with the R373 Commons, however there are no cyclist facilities along it.



The N60 serves a number of housing estates on its northern side, has multiple direct accesses along both sides and passes through Castlebar's enterprise and employment areas.

- **N84 National Road:** is a two-way National Primary Road with a posted speed limit of 50kph within Castlebar urban area which changes to 60kph west of its junction with the L1704.

There are pedestrian footpaths and cyclist facilities along the N84 from its junction with the N60 to its junction with The Waterways.

The N84 serves a number of housing estates on both sides and multiple direct accesses along its western side.



- **R373 (Springfield Road/Moneen Road):** is a two-way Regional Road with a posted speed limit of 50kph and a footpath along both sides. The road commences at its junction with the R310 within the town centre to its junction with the N60.

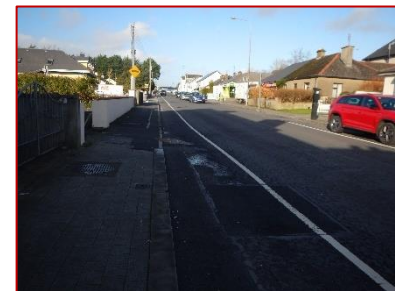
There are no cyclist facilities on the road, which serves a number of housing estates and which also has multiple direct accesses.

It also links major trip attractors such as the town centre, Castlebar Greenway, schools, enterprise and employment areas.



- **Davitts Terrace (R310):** Davitts Terrace is a narrow two-way road with footpaths on both sides which serves a number of housing estates along with multiple direct access on both sides, with some sections including on-street parallel parking along the eastern side.

There are cyclist facilities along Davitts Terrace, however these are located on the western side of the road only.



- **Pontoon Road(R310):** is a two-way Regional Road with a posted speed limit of 50kph and a footpath along both sides.

There are cycle facilities on both sides of the road, and the road serves a number of housing estates and multiple direct accesses.



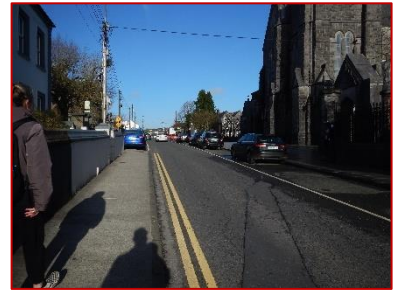
- **Main Street/Linenhall Street/New Antrim Street (R310):** Main Street, Linenhall Street & New Antrim Street form a one-way street within the town centre.

Traffic on this route travels in southerly direction with footpaths on both sides, however there are no cyclist facilities along the route. There is parallel parking along one side of the carriageway.



- **Market Street/ Upper Chappel Street (R310):** is a one-way road with footpaths along both sides there are no cyclist facilities along this route.

The route serves traffic traveling northbound along the R310 within Castlebar town centre.



- **Ellison Street (R310):** is a narrow two-way road with footpaths on both sides of the road. There is on-street parallel parking along both sides of the road, but no cyclist facilities.



- **Mountain View (R310):** is a two-way Regional Road with footpaths on both sides. There are no cycle facilities on the road. There is on-street parallel parking along both sides of the road.



- **Westport Road (R310):** a wide two-way road with footpaths on both sides of the road. There is on-street parallel parking along northern side. There is no cyclist facilities along this road.



- **R311 (Newport Road):** is a two-way Regional Road with a posted speed limit of 50kph and footpaths along both sides. The road commences at its junction with the R310 within the town centre.

The road serves a number of housing estates and have multiple direct accesses. There are cyclist facilities along both sides of the road west of its junction with Pound Grove.



- **L5786:** is cul-de-sac local road that runs parallel to the N5 and serves a number of housing estates.



- **L1719 (Turlough Road):** is a two-way Local Road with footpaths on both sides. The road commences at its junction with the R310.

There are cyclist facilities along both sides of the road, which serves a number of housing estates and have multiple direct accesses.

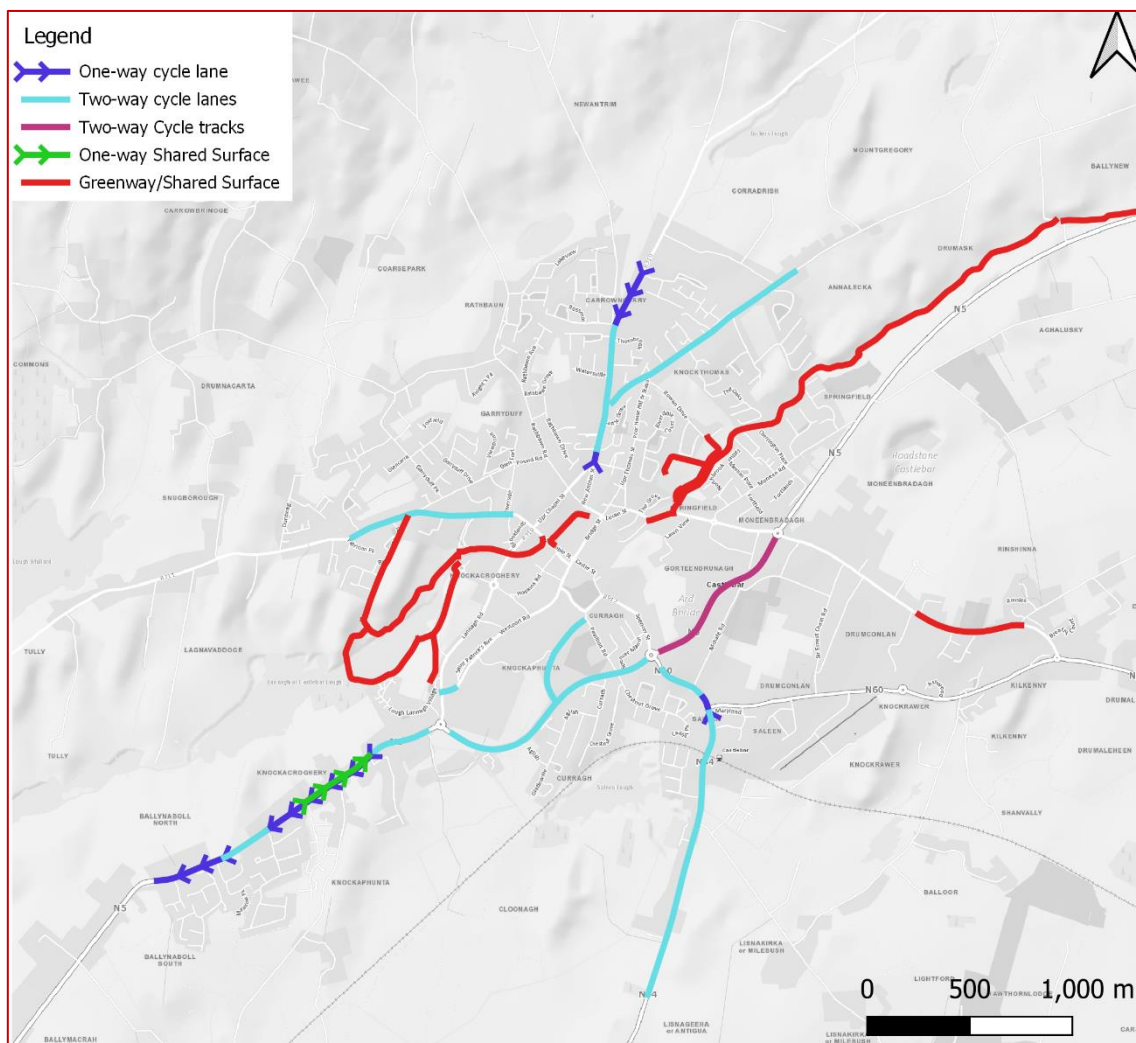


- **Rathbawn Road:** is a narrow two-way road in the vicinity of the town centre, which widens outside of the town centre area.

There are footpaths on both sides of the road, but no cyclist facilities, and it serves a number of housing estates and have multiple direct accesses.



### 1.2.4 Existing Cycle Facilities



**FIGURE 1-6: EXISTING CYCLIST FACILITIES (SOURCE: WWW.OSI.IE)**

Figure 1-6 shows the existing cycle facilities within Castlebar, which are comprised of discrete sections of cycle lanes, cycle tracks and/or shared paths of varying lengths.

The majority of the existing facilities do not extend through/across the town centre, with many terminating at the periphery of the town centre with no dedicated facilities to cater for cyclists to/from many of the main trip attractors (i.e. schools, shops and recreational areas). In addition, all existing cycle facilities terminate at major junctions (i.e. roundabouts) with no provisions to assist cyclists traversing the junction.



## 2 Methodology

The methodology adopted for the assessment was as follows: -

- collection of available data/information on the Study Area, including Ordnance Survey mapping, historical collision data and traffic flow/volume data;
- a Desktop Review of the collected data/information, and the identification of key routes for NMUs within the town as well as key facilities and trip attractors in Castlebar for pedestrians, cyclists and the mobility- or visually-impaired;
- a site visit, undertaken on the 22<sup>nd</sup> and 23<sup>rd</sup> February 2022, where all roads/areas within the town were reviewed to identify gaps, or areas for improvement, in the existing NMU provisions with a particular focus on the key routes identified in the previous step; and
- the collation of all issues identified, categorised by the road user-type affected and whether the issue identified was an accessibility or a safety issue.

The extents of the area within the scope of this assessment are indicated in Figure 1-1. Weather conditions during the site visit were wet, traffic volumes were moderate and pedestrian & cyclist volumes were moderate.

## 3 Key Routes and Areas

### 3.1 Active Travel Trip Attractors

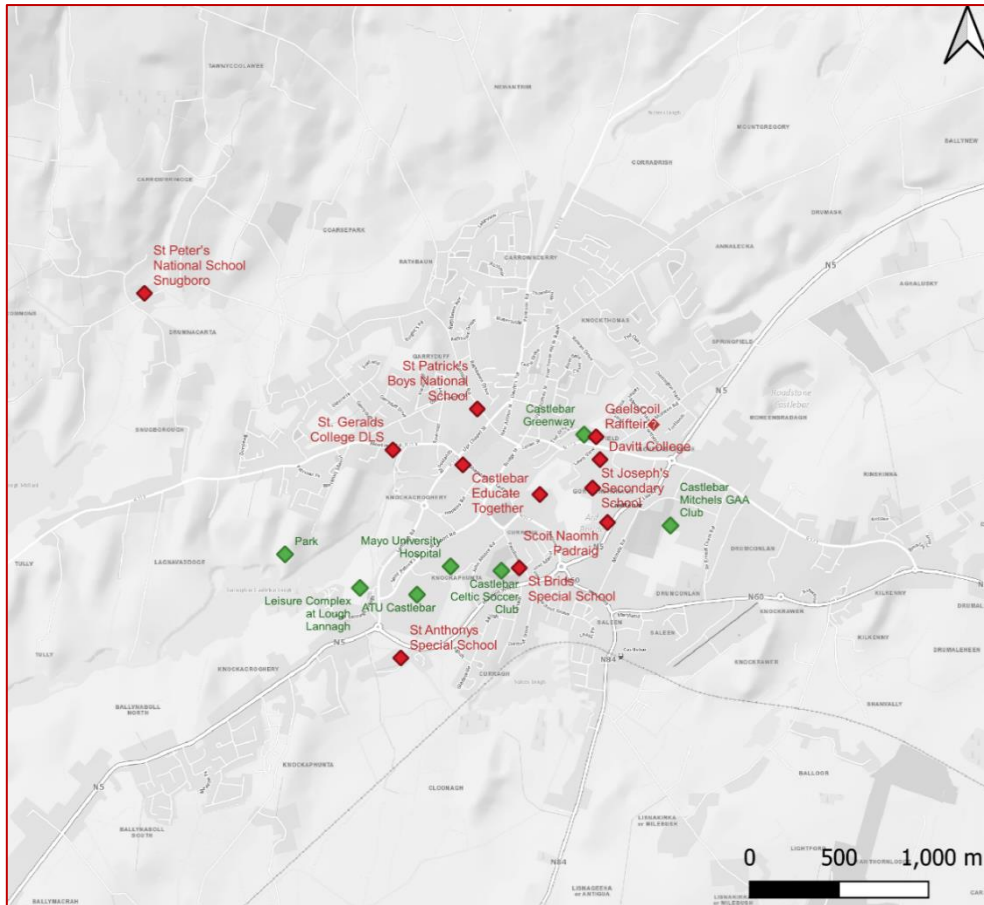
A number of trip attractors were identified that would likely generate demand to/from each high-density population area, as follows: -

- **Town Centre:** Castlebar Town centre includes the main shopping areas, public transport stops (Figure 3-2 shows the Trian and Bus stops), banks, restaurants, offices and hotels;
- **Schools:** these are shown in Figure 3 1. Ten schools were identified within the urban town centre, with Table 3-1 summarising the school populations.

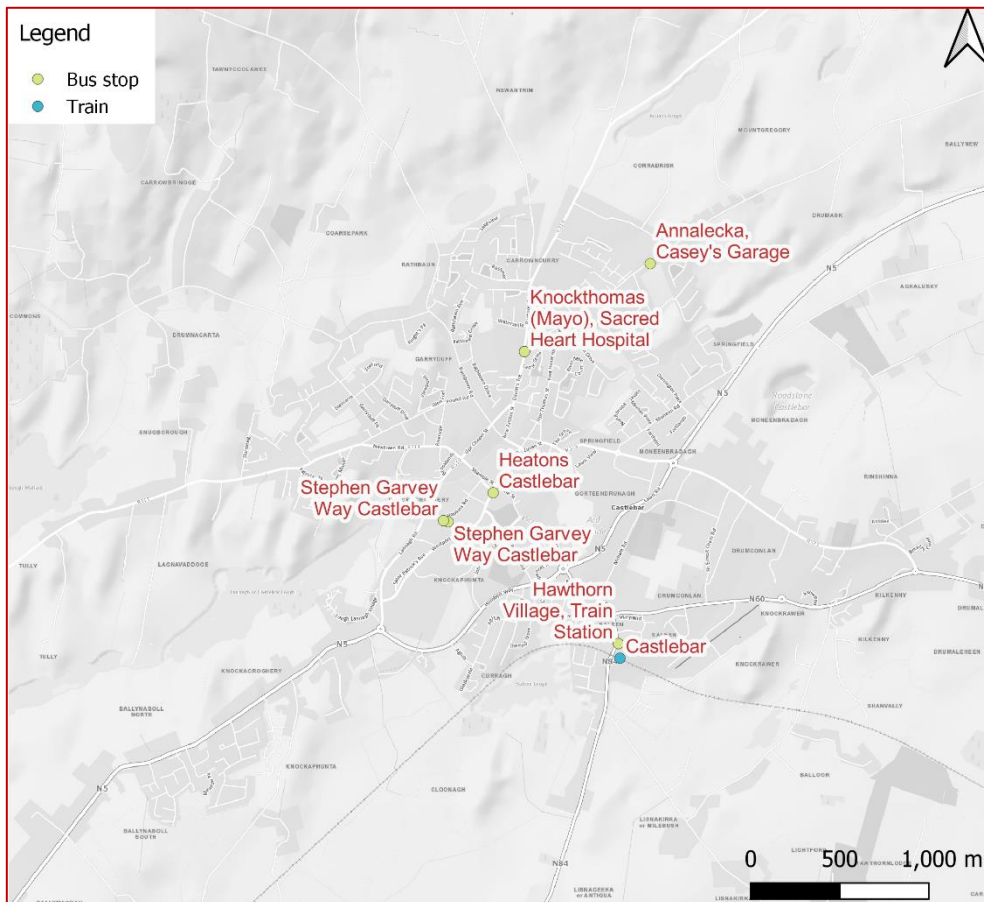
**TABLE 3-1: CASTLEBAR SCHOOLS POPULATION**

School	Number of Students
Davitt College	800
St. Gerald's College DLS	620
St Joseph's Secondary School	600
St Patrick's Boys National School	500
Scoil Naomh Padraig	462
St Angelas National School	350
Gaelscoil Raifteir	218
St Anthony's Special School	44
St Brides Special School	22
Castlebar Educate Together	12

- **Recreational Areas:** a number of recreational areas were identified, including attractions like Lough Lannagh Amenity Park, Great Western Greenway (GWG) and the Leisure Complex at Lough Lannagh, located west of Castlebar Town. Other areas include the ATU Mayo Campus (1,000 students).



**FIGURE 3-1: SCHOOLS AND OTHER TRIP ATTRACTORS (SOURCE: WWW.OSI.IE)**



**FIGURE 3-2: TRAIN AND BUS STOPS WITHIN CASTLEBAR (SOURCE: WWW.OSI.IE)**

### 3.2 Active Travel Routes

#### 3.2.1 Residential Areas-Routes

Based on the Active Travel Trip Attractors identified in Section 3.1, a number of Routes were identified which would serve the different residential areas and link them to Castlebar Town centre, the Schools and the Recreational area.

The routes have been identified by assuming an NMU journey commencing in the primary residential areas to the north, north-east, north-west, west, south-west & south respectively. The six routes identified are shown in Appendix A.

These routes were then combined/overlaid in order to identify the Key Active Travel Routes within Castlebar.

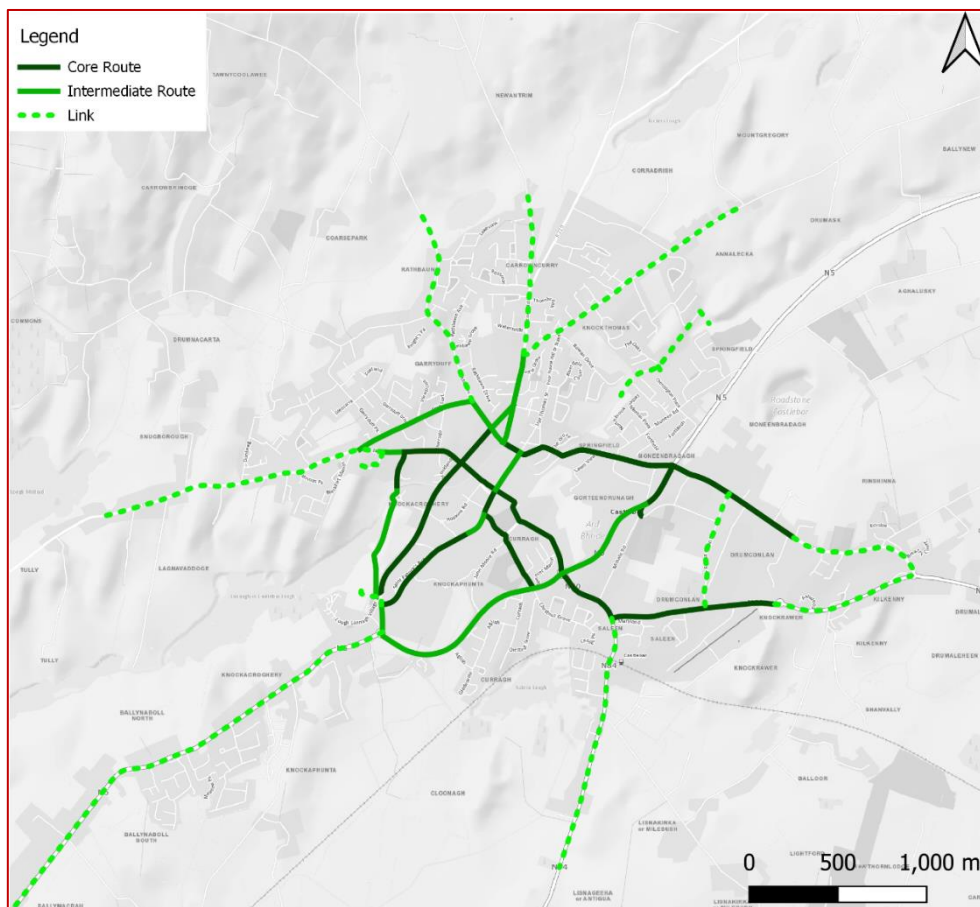
#### 3.2.2 Core Routes

Based on the likely destinations from the primary residential areas identified in the previous section, three route groupings were identified, as follows: -

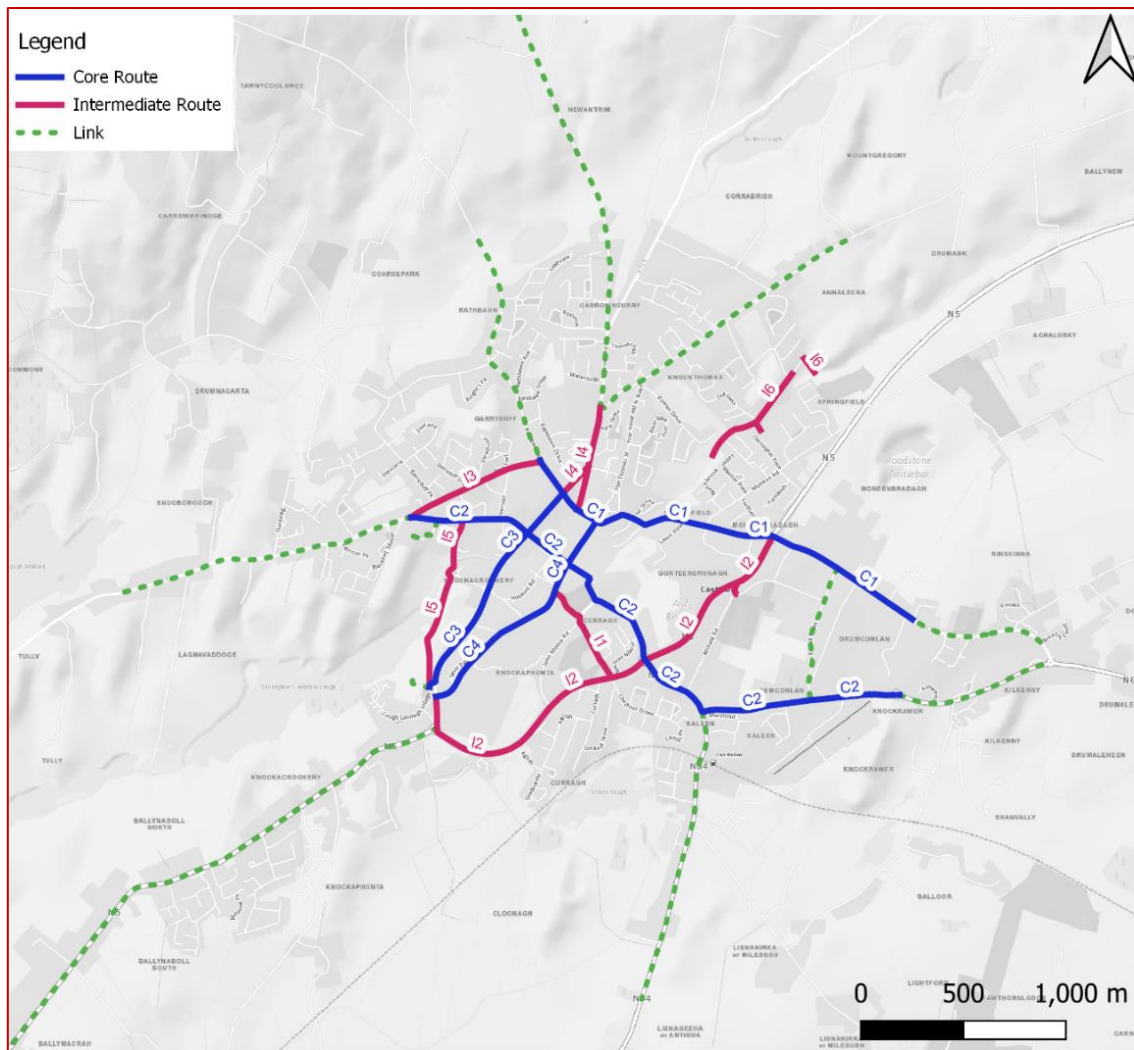
- Core Routes,
- Intermediate Routes; and
- Link Routes.

These routes (shown on Figure 3-3) link the majority of the residential areas in Castlebar with the identified main active travel trip attractors. Core Routes are those routes that pass through high trip attractors locations and where multiple routes from the residential areas to the trip attractors overlap.

Intermediate Routes are similar to the core routes, however with less overlapping of the routes from residential areas to the trip attractors. Link Routes are routes that link residential areas to the Core and Intermediate Routes.



**FIGURE 3-3: PRIMARY ACTIVE TRAVEL ROUTES IDENTIFIED (SOURCE: WWW.OSI.IE)**



**FIGURE 3-4: ACTIVE TRAVEL ROUTE REFERENCES (SOURCE: WWW.OSI.IE)**

Figure 3-4 shows the Active Travel Demand Routes numbered as four Core routes (C1, C2, C3 and C4), six Intermediate routes (I1, I2, I3, I4, I5 and I6) and 10 link routes.

- **Core Route C1:** Core Route C1 travels predominantly along the R373 Regional Road and would provide access to multiple schools, the northern side of the enterprise and employment area, the Castlebar Greenway, Castlebar Mitchels GAA Club & Hastings Insurance MacHale Park.
- **Core Route C2:** Core Route C2 travels through the N60 National Road, R917 Regional Road, Castle Street, Market Square and the R311 Regional Road. It would provide access to multiple schools, the southern side of the enterprise and employment area and link the eastern & western sides of the town through the town centre.
- **Core Route C3:** Core Route C3 travels along Lannagh Road and would link the retail area located on the northern side of the town centre to Core routes C1 and C2. It would also provide access to the Leisure Complex at Lough Lannagh and to Lough Lannagh Park.
- **Core Route C4:** Core Route C4 would connect with Core Route C3, the retail area on the southern side of the town centre and to Core Routes C1 and C2. It would also provide access to ATU Castlebar and Mayo University Hospital.

- **Intermediate Route I1:** this intermediate route would provide access to St. Birds Special School and between the residential areas on the southern side of the town centre to the Core Routes.
- **Intermediate Route I2:** Intermediate Route I2 travels along the N5 National Road, along the southern side of the town centre and would link to Core Routes C1 and C2. Intermediate Route I2 would provide access to the enterprise and employment area for the residential estates located southwest of the town centre.
- **Intermediate Route I3:** Intermediate Route I3 travels along Pound Road and would link the residential areas north of the town centre to Core Routes C1 and C2.
- **Intermediate Route I4:** Intermediate Route I4 travels along the R310 Regional Road and would connect the link roads to the residential estates northeast of the town centre to Core Route C1.
- **Intermediate Route I5:** Intermediate Route I5 travels along an existing section of Castlebar greenway as well as the Link Road and would serve as an alternative route to Core Route C3 for access to/from the residential areas northwest of the of the town centre.
- **Intermediate Route I6:** Intermediate Route I6 would serve active travel to/from Cois Abhann, An Sruthán and The Oaks, and has the potential to improve pedestrian and cyclists access to the Greenway along Castlebar River for these three residential areas and also for the residential areas on the northern side of the Torough Road.

## 4 Assessment Findings

### 4.1 General Findings

#### 4.1.1 Absence of Footpaths along Pedestrian Desire Lines

There is a lack of footpaths linking some of the residential developments to existing footpaths and/or to the town centre. In these locations Vulnerable Road Users (VRUs) must travel within the verge or carriageway, with a consequent increased risk of slips, trips and falls or of being struck by a vehicle.

In addition, an absence of dropped kerbs at appropriate locations could result in mobility-impaired pedestrians be unable to access the footpath, or cross the carriageway, which could lead to them choosing to travel within the carriageway to an appropriate access location with a resulting increased risk of being struck by a vehicle or having to ascend/descend a full-height kerb with an increased potential for trips and falls.

At locations where there are no footpaths, visually-impaired pedestrians have no safe means of accessing the town centre and other facilities independently.



### Suggested Treatment

Continuous footpaths, with appropriate crossings, should be provided along the identified NMU desire lines linking the main trip attractors to the residential areas.

In addition, all newly developed areas should have pedestrian links/footpaths to the existing footpath network.

### 4.1.2 Discontinuities in Footpath Provisions

Some existing pedestrian routes are discontinuous within parts of the Town Centre and other areas. At a number of locations footpaths terminate abruptly and/or are blocked by property boundaries or parking spaces. A lack of continuous pedestrian routes results in pedestrians continuing their journey within the carriageway, where they are at increased risk of being struck by a passing vehicle.

In some locations footpaths terminate flush with the adjacent carriageway, or sections of footpath have no vertical separation from the adjacent carriageway. At these locations there is a risk that visually-impaired pedestrians may inadvertently enter the carriageway, where they are at risk of being struck by a vehicle or cyclist.

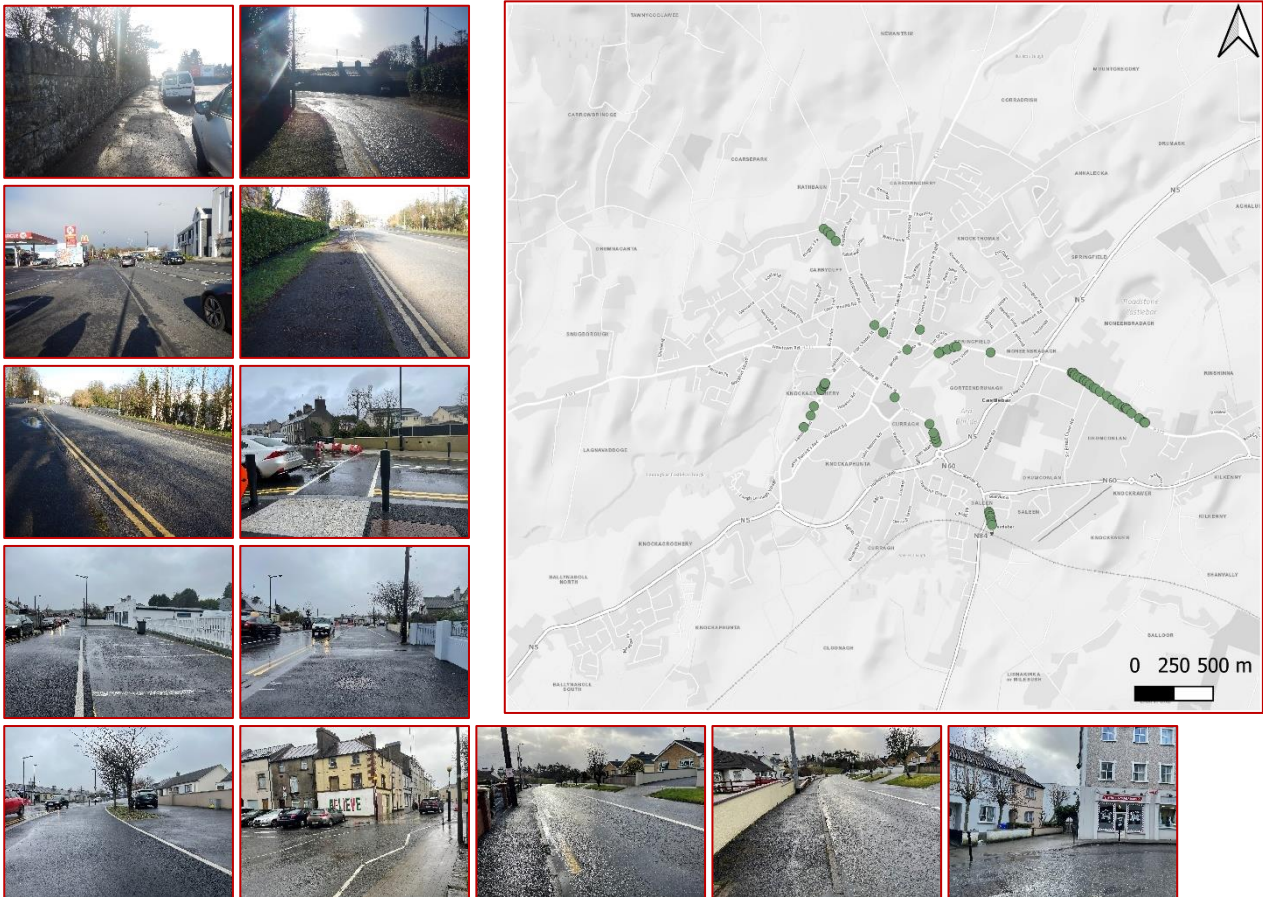


#### Suggested Treatment

Continuous footpaths should be provided throughout the Town Centre. Care should be exercised in the choice of materials used and the provision of an appropriate level difference between the carriageway and the footpaths.

### 4.1.3 Footpath/Carriageway Vertical Separation

There is no vertical separation between the carriageway and some of the footpaths within the Town Centre and also on some the other existing pedestrian routes into the Town Centre. Variations in kerb heights may lead to an increased risk of trips and falls, particularly for visually impaired pedestrians. Visually impaired pedestrians may inadvertently enter the carriageway where there is insufficient vertical separation.



### Suggested Treatment

Full-height kerbs should be provided between footpaths and the adjacent carriageway, other than at crossing locations. Where this is not feasible/possible then footpaths shall have minimum of 60mm vertical separation to the carriageway, 25mm at vehicular accesses and a maximum of 6mm at pedestrian crossings.



#### 4.1.4 Inadequate Width of Shared Paths

There are a number of existing paths which pedestrians share with cyclists. The width of these shared paths varies, and in some instances the path is narrow and is unlikely to be able to safely accommodate both cyclist and pedestrian volumes. This could result in collisions between cyclists and pedestrians or to cyclists choosing to travel within the adjacent carriageway, obviating the benefit intended by the provision of the shared path.



#### Suggested Treatment

Where possible segregated cyclist and pedestrian facilities should be provided. Where this not feasible the shared facilities should have a width sufficient to accommodate the expected volumes of pedestrians & cyclists, and in line with the recommendations in the National Cycle Manual.

### 4.1.5 Absence of Pedestrian Crossings on Likely Desire Lines

Within the Town Centre there are a number of locations where there is no pedestrian crossing along likely pedestrian crossing desire lines at junctions and between discontinuous sections of footpath. The absence of crossing facilities on likely pedestrian crossing desire lines could lead to pedestrians crossing at unsafe locations, leading to an increased risk of vehicle-pedestrian collisions.

The absence of dropped kerbs at pedestrian desire crossing points may create difficulties for mobility-impaired pedestrians undertaking crossings as they are unlikely to be able to safely descend the kerb to cross the carriageway, resulting in potential trips and falls.

Where dropped kerbs are provided to facilitate the mobility-impaired undertaking a crossing, accompanying tactile paving has not been provided in all instances. The absence of tactile paving could result in visually-impaired or partially-sighted pedestrians inadvertently entering the carriageway or encountering difficulties identifying the other side of the crossing.



#### Suggested Treatment

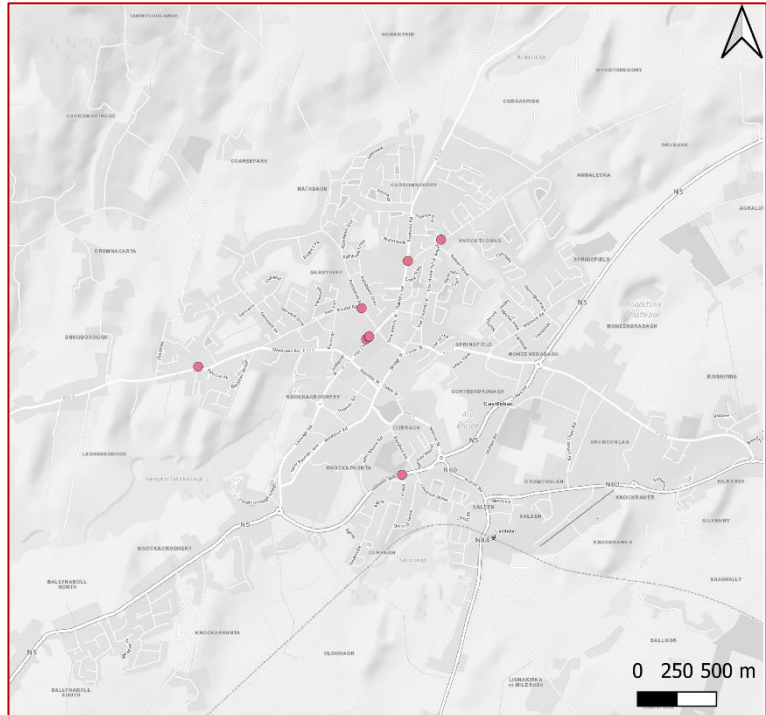
Appropriate pedestrian crossing facilities (either controlled or uncontrolled) should be provided at likely pedestrian crossing desire line locations.

Where possible, footpaths should be continuous across all private access (including private car parks, service stations, etc) with the onus on drivers to yield to pedestrians on the footpath.

Similarly, at junctions with minor, lightly trafficked, side roads a continuous footpath could also be provided, however, where this is not feasible then an appropriate crossing (i.e. dropped kerb and tactile paving or raised table and tactile paving) should be provided.

### 4.1.6 Insufficient Inter-visibility at Crossings

At a number of the uncontrolled pedestrian crossing locations there is a lack of adequate inter-visibility available from the crossing point between approaching drivers and a pedestrian about to commence a crossing, often as a result of the position of adjacent boundary walls or the distance the crossing is offset away from the junction mouth.



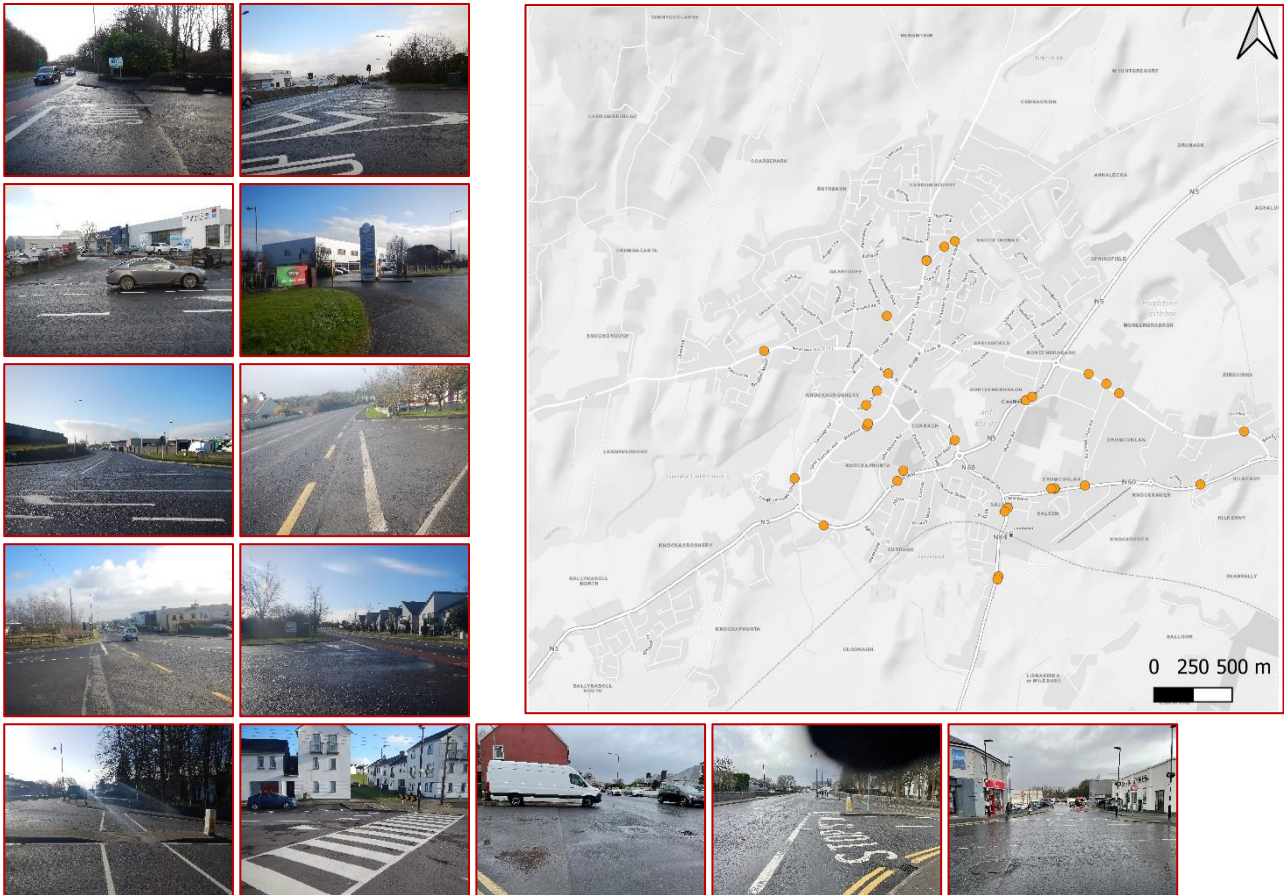
#### Suggested Treatment

Pedestrian crossings should be positioned such that adequate inter-visibility between approaching drivers and a pedestrian about to commence a crossing.

### 4.1.7 Lengthy Pedestrian Crossings

At a number of the junctions along main routes leading to the Town Centre pedestrians are required to cross a relatively wide junction-mouth where no pedestrian refuge island is available. Lengthy crossing distances result in vulnerable road users being exposed to vehicular traffic for an extended distance/time, in particular elderly and mobility-impaired pedestrians.

Wide junction mouths often arise as a result of large-radius corners at junctions, which can encourage high speeds by turning vehicles, further increasing the risk presented to Vulnerable Road Users (VRU).



#### Suggested Treatment

Within the extents of the Town centre, the Overall Town Area and the sub-urban areas junction mouths should be amended in accordance with the recommendation of the Design Manual for Urban Roads & Streets (DMURS). Where crossing distances remain significant, pedestrian refuge islands should be provided.

### 4.1.8 Footpath Condition

The footpath condition at number of locations was noted as being in a poor condition, presenting a possible slip or trip hazard to pedestrians.

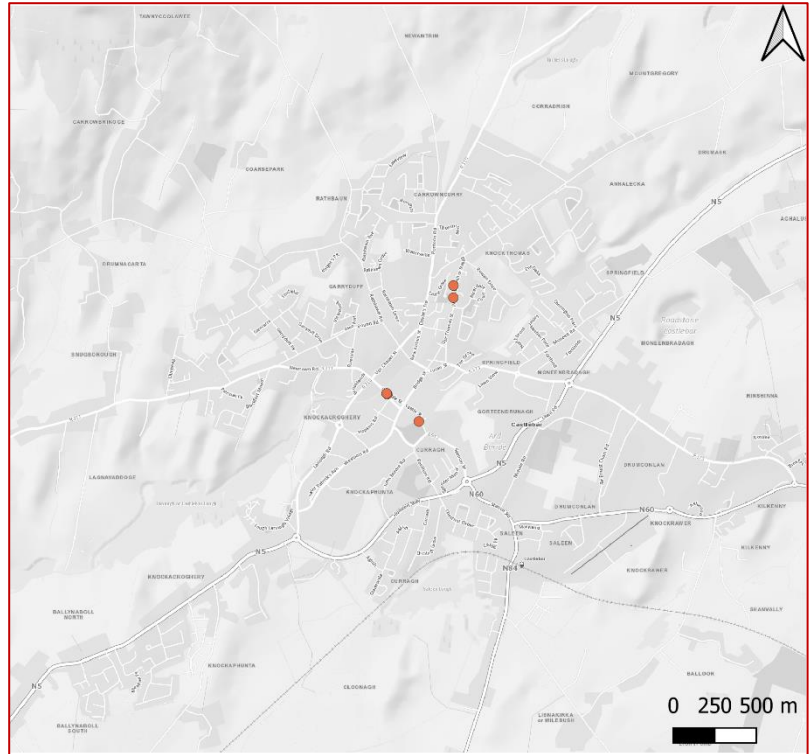


### Suggested Treatment

Footpath surfaces at these locations should be renewed, ensuring that where vehicles cross the footpaths (e.g. at private vehicular accesses) that the footpath strength is sufficient to withstand the vehicular loading without deformation or deterioration.

### 4.1.9 Absence of Hazard Tactile Paving at Steps

Tactile paving at height hazards (i.e. corduroy tactile paving) is absent at the landings at the top and bottom of steps at a number of locations within the Town. The absence of hazard tactile paving at the top and bottom of steps may lead to visually impaired pedestrians being insufficiently aware of the height hazard resulting in an increased risk of falls.



### Suggested Treatment

Hazard tactile paving should be provided at steps in accordance with the recommendations of the National Disability Authority.

### 4.1.10 Ladder and Tramline Tactile Paving

At the start & end of shared pedestrian and cycle facilities the roadmarkings provided (e.g. pedestrian and cyclist symbols and straight-ahead arrows) are faded and there is no 'Ladder & Tramline' tactile paving to advise visually-impaired pedestrians that they are entering/leaving an area shared with cyclists.



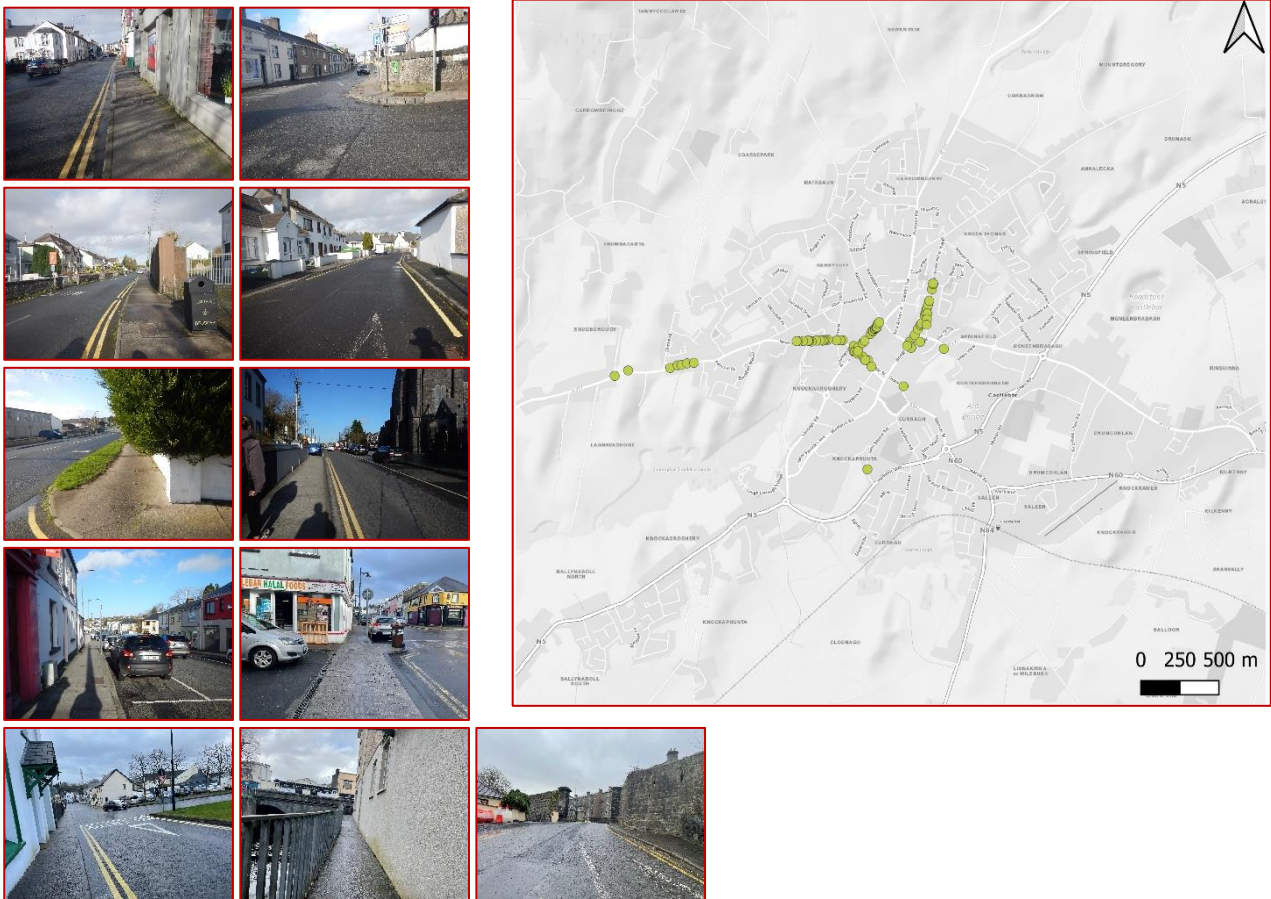
### Suggested Treatment

Adequate warning signage, markings and 'Ladder & Tramline' tactile paving should be provided at the start and end of shared pedestrian/cycle facilities.

### 4.1.11 Narrow Footpaths

At number of locations the existing footpath is narrow (<1.2m) and unlikely to be sufficient to safely accommodate the likely volumes of pedestrians. This may result in pedestrians entering the carriageway where there is an increased risk of being struck by a vehicle.

In addition, items of roadside furniture are positioned centrally within the footpath reducing the effective width of the footpath, and presenting an obstacle to mobility impaired individuals using a wheelchair, possibly leading to these road users entering the carriageway in order to progress along the road where they are at an increased risk of a collision with a vehicle.



### Suggested Treatment

Footpaths, where possible, should be widened to cater for the expected/likely volumes of pedestrians at the location in question. Items of roadside/street furniture should be located where they do not obstruct the path.



### 4.1.12 Cycle Lane Pavement Condition

At number of locations along the existing cycle lanes and shared pedestrian/cyclist facilities the pavement condition was noted as being poor. The poor surface condition within the cycle lanes could lead to erratic cyclist manoeuvres as they undertake avoidance measures with resulting increased risk of vehicle/cyclist collisions.



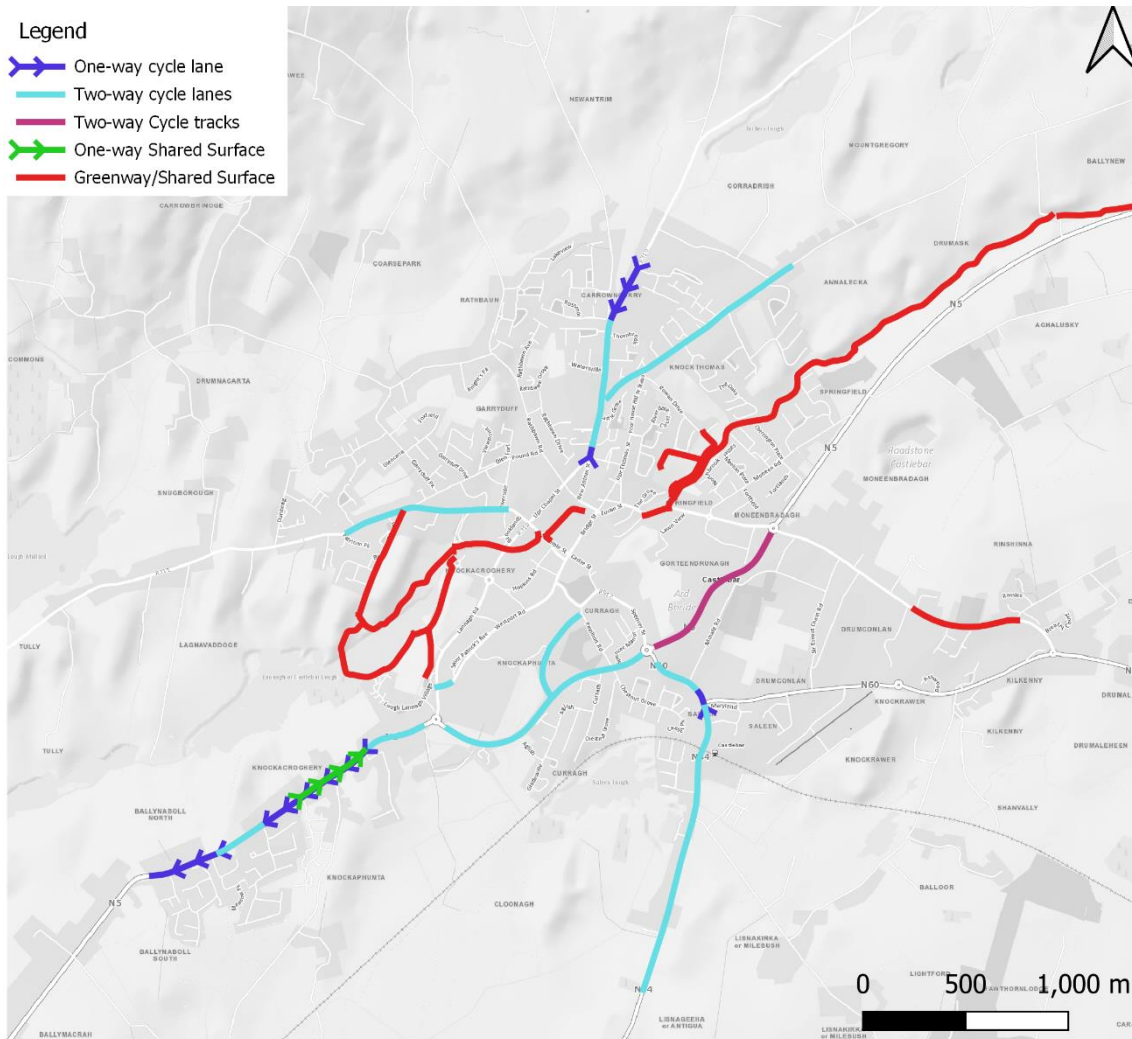
### Suggested Treatment

The pavement should be repaired within the cycle lanes and where new cycle facilities are proposed along existing routes then the existing pavement condition should be assessed and improved where necessary.

### 4.1.13 Discontinuous Cycle Facilities

Within Castlebar the existing cycle facilities are discontinuous and are located primarily in the periphery of the Town, don't extend to/through the Town Centre and don't link all of the main amenities (i.e. schools, shops, recreational areas) to the residential areas.

This results in cyclists using the carriageway for many of the journeys, making cycling a less attractive mode of transport for the young or inexperienced, and increasing cyclists' exposure to the risk of being struck by a vehicle. Alternatively, some cyclists may choose to travel within the footpaths, with a resulting increased risk of collisions between cyclists & pedestrians.



### Suggested Treatment

Cycle facilities should be provided which provide suitable links between the residential areas, the town centre and the main amenities (e.g. schools, shops and recreational areas).

#### 4.1.14 Buffer between Cycle Lane and Parking

At number of locations along the existing cycle lanes there is no buffer area between the cycle lane and the existing parallel parking spaces. This might result in vehicle occupants opening doors into the path of an oncoming cyclist.



#### Suggested Treatment

Where cycle lanes are positioned adjacent to parallel parking spaces a buffer zone should be provided between them.

#### 4.1.15 Faded Cycle Lane Red Surfacing

At number of locations along the existing cycle lanes the existing red surfacing is faded. At some locations (i.e. junctions) where no red surfacing is present there is an increased potential for conflicts between cyclists and vehicles. The absence of the red surfacing may result in drivers being insufficiently aware of the cycle lane resulting in possible conflicts with cyclists or in sudden avoidance manoeuvres to avoid cyclists.



#### Suggested Treatment

Red surfacing should be provided within the cycle lanes at all conflict points (i.e. junctions, access etc).

#### 4.1.16 Step Transverse Gradient (crossfall) on Footpaths

At number of locations along the existing footpaths have relatively steep crossfalls. Steep crossfalls make it difficult for elderly or encumbered pedestrians to walk on the footway. Crossfalls steeper than 3% are uncomfortable to walk on and if the slope runs towards a road it can be dangerous, as wheeled users will tend to edge down the crossfall.

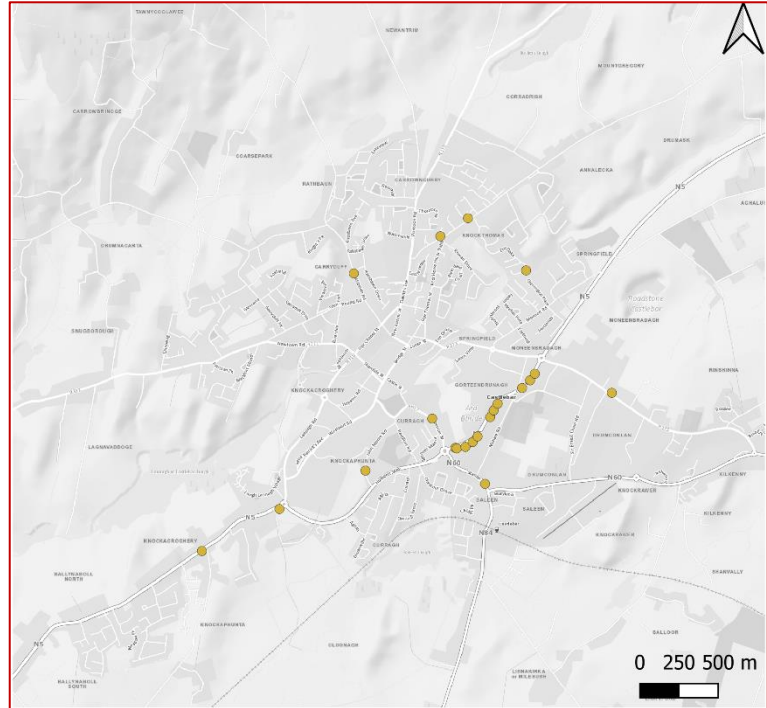


#### Suggested Treatment

Crossfalls at these locations should be revised to more suitable gradients.

### 4.1.17 Ponding

During the site visit ponding was noted within the carriageway, footway, cycle facilities and/or within the pedestrian crossings. Ponding within the cycle facilities or pedestrian crossings could result in loss of traction for cyclists, especially during icy weather, leading to loss of control type incidents and the potential for cyclists to fall from their bicycle and suffer personal injury or fall into the adjacent traffic lane where more serious injuries are likely.



### Suggested Treatment

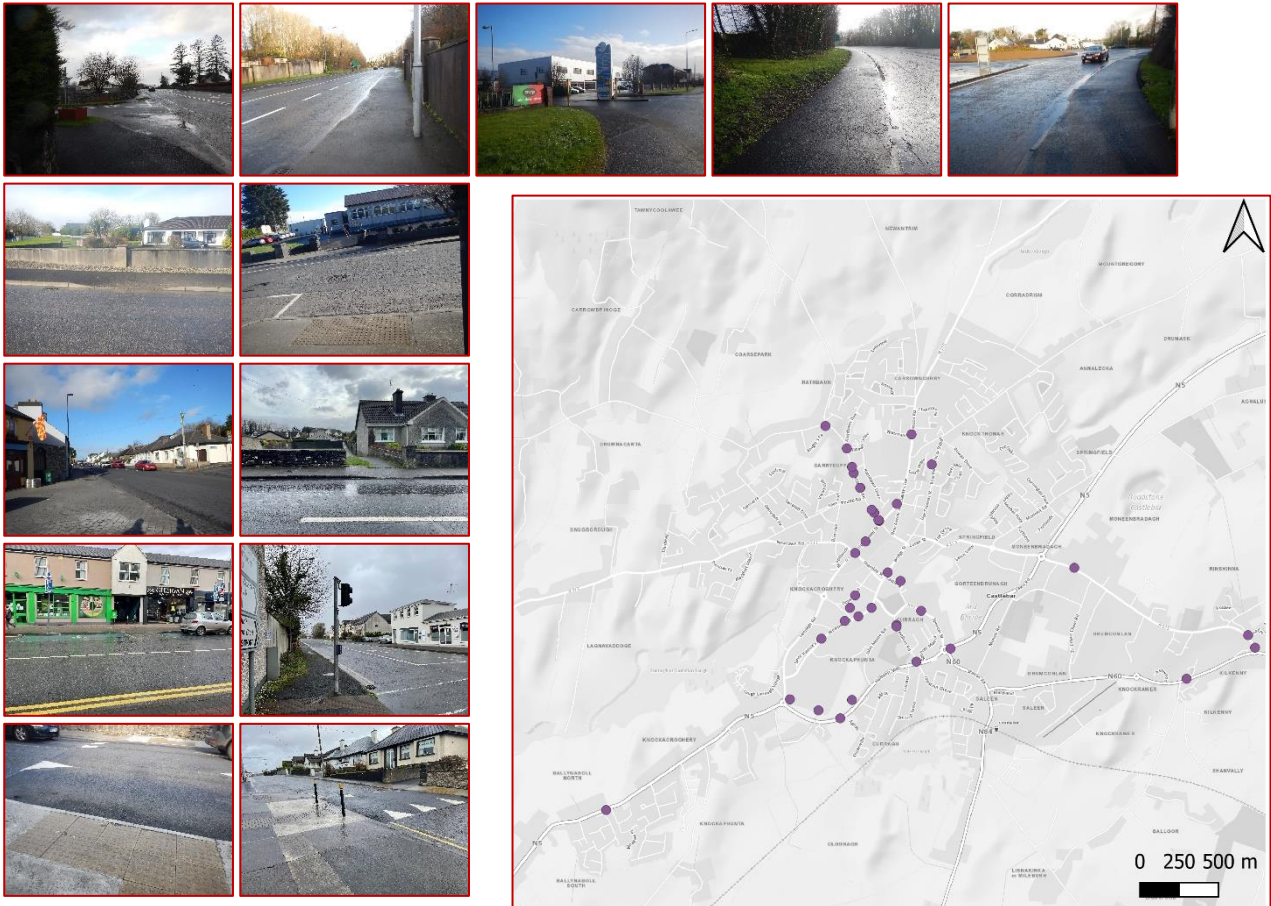
Additional drainage measures, or re-profiling of the carriageway/footpath surface, should be provided to ensure that the surfaces adequately shed surface run-off without ponding.

#### 4.1.18 Missing or Incorrect Tactile Paving

At a number of locations there are dropped kerbs provided at crossing points without tactile paving. This may lead to visually impaired pedestrians not being aware of the upcoming carriageway, resulting in them stepping into the carriageway and being struck by a vehicle.

The tactile paving at some inline uncontrolled pedestrian crossing is not of the required depth (1.2m). This could lead to visually impaired pedestrians inadvertently stepping over the tactile paving and entering the carriageway where they are at risk of being struck by vehicles.

At some locations the tactile paving colour and layout is incorrect for the type of crossing.

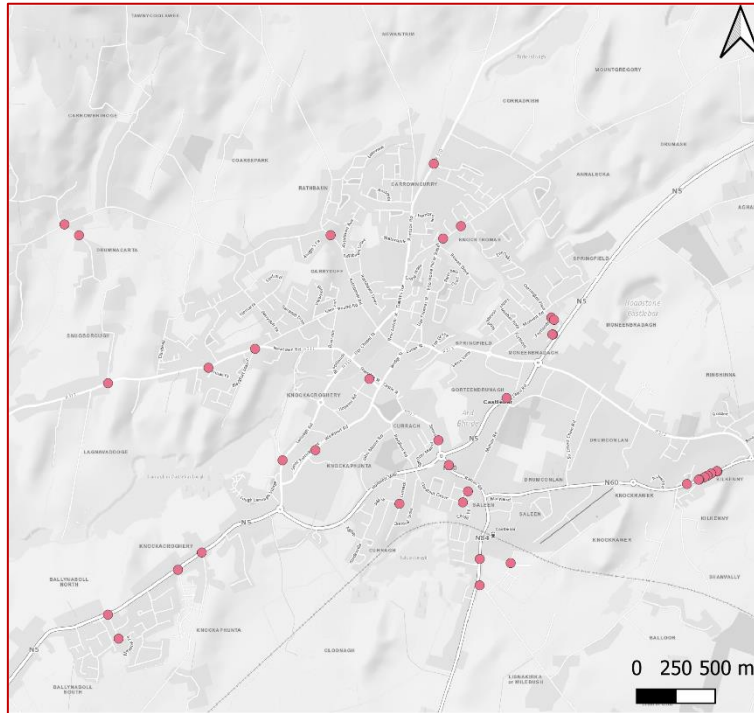


#### Suggested Treatment

Tactile paving should be provided at all dropped kerb locations. In addition, the correct colour, depth and layout should be provided based on the crossing type.

#### 4.1.19 Poor Lighting

Poor lighting exists at some locations resulting in dark areas within the carriageway, in other locations there is no public lighting provision. Dark areas within the carriageway, footway or cycleway could result in cyclists/pedestrians being insufficiently visible to other road users resulting in collisions between cyclists and pedestrians or motorists.



#### Suggested Treatment

Adequate public lighting levels should be provided throughout the road/street network, particularly where pedestrians/cyclists are likely to be present and at pedestrian crossing locations.

#### 4.1.20 Filtered Permeability Opportunities

A number of opportunities to improve pedestrian and cyclist permeability within the network were identified. These include the providing pedestrian and cyclist links between existing residential estates, which have the potential to save travel time. The filtered permeability opportunities identified are: -

- Cois Abhann, An Sruthán and The Oaks to Rowan Drive or Turlough Greenway;
- The Brambles to Castlehill Park;
- Summerfield to Turlough Greenway; and
- Victoria Place to Woodville.

#### Suggested Treatment

Provision of pedestrian and cyclist filtered permeability links at suitable locations.

## 4.2 Area-specific Findings

### 4.2.1 N5/N60 Roundabout

The footpath within the south-western quadrant of the N5/N60 roundabout is at lower level than the adjacent verge area. This results in ponding along this length of footpath. Similarly, ponding was noted at the pedestrian crossing of the roundabout's western arm.

Ponding within the footway and crossing could result in slips, especially during icy weather, leading to personal injury.



#### Suggested Treatment

Measures to ensure that the footpaths and crossings are adequately drained should be provided.

### 4.2.2 N5 Humbert Way Service Station

An existing service station is located at Humbert Way (N5) which has two wide vehicle access/egress points. At the entrance and exit to the service station the existing footpath terminates and there are no crossing facilities to the opposite footpath.



#### Suggested Treatment

The layout of the entrance and exit to the service station should be revised & if possible the width reduced, and continuous footpaths provided across the access/egress.

### 4.2.3 N5/Lannagh Road Roundabout

The existing N5/Lannagh Road roundabout has three wide approach arms, however there are no pedestrian crossing facilities or cyclist facilities on any of these relatively wide approaches.

The absence of pedestrian crossing facilities presents an obstacle for the mobility impaired proceeding past the roundabout.



No cyclist provisions are provided on the approaches to, or at the roundabout which would present challenges to less-confident cyclists in navigating the roundabout.



**Suggested Treatment**

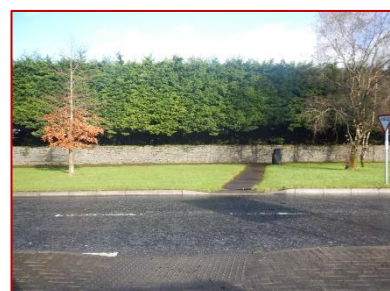
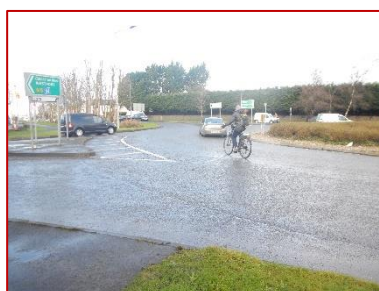
The junction should be amended/ upgraded to incorporate pedestrian crossings and cyclist facilities.

**4.2.4 N5/R373 Roundabout**

The existing N5/R373 Roundabout has four wide approach arms, however the existing pedestrian crossing facilities and cyclists facilities are insufficient to cater for the needs of all non-motorised road users.

Uncontrolled pedestrian crossings are provided on the roundabout arms, however these crossing facilities do not cater for visually-impaired pedestrians resulting in them being unable to cross at the roundabout safely & independently.

No cyclist provisions are provided on the approaches to, or at the roundabout which would present challenges to less-confident cyclists in navigating the roundabout.



### Suggested Treatment

The junction should be amended/upgraded to incorporate pedestrian crossings and cyclist facilities.

#### 4.2.5 Ashwood/ N60 junction

The existing footpaths within Ashwood and along the N60 are not linked, with pedestrians having to walk on the verge or in the carriageway to access to the footpath on the N60, with a consequent increased risk of slips, trips and falls or of being struck by a vehicle.



### Suggested Treatment

The footpaths within Ashwood and along the N60 should be linked and an appropriate crossing provided at this residential estate access junction.

#### 4.2.6 N60/IDA Roundabout

The existing N60/IDA roundabout has three wide approach arms, but lacks suitable pedestrian crossing facilities and cyclists facilities. The absence of pedestrian crossing facilities prevents visually impaired pedestrians from being able to cross the roundabout independently.

No cyclist provisions are provided on the approaches to, or at the roundabout which would present challenges to less-confident cyclists in navigating the roundabout.



### Suggested Treatment

The junction should be amended/upgraded to incorporate pedestrian crossings and cyclist facilities.

#### 4.2.7 Baxter Healthcare & National Learning Network Centre Accesses

There are two accesses for Baxter Healthcare & the National Learning Network Centre onto the N60 located in close proximity to each other.

The accesses have wide junction mouths resulting in lengthy crossings for non-motorised road users. In addition, the access layouts prevent the visually impaired from crossing the accesses safely and independently.



### Suggested Treatment

The accesses to both facilities should be rationalised, the junction mouths narrowed and crossing facilities provided.

#### 4.2.8 N60/N84 Signalised Junction

A number of issues were identified at the N60/N84 Signalised junction, as follows: -

- Footpath discontinuity at the north-eastern quadrant due to the access lane/parking;
- Lack of vertical separation between the footpath and the access lane/parking;
- Discontinues cycle facilities across the junction;
- Narrow pedestrian crossing; and
- Insufficient crossing/green time.

The combination of these problems creates difficulties for visually impaired pedestrians navigating the junction safely and independently. The lack of sufficient crossing time might result in the mobility-impaired and/or elderly pedestrians being stranded in the centre of the carriageway.



## Suggested Treatment

The footpath facilities within the north-eastern quadrant should be revised to provide greater vertical segregation between the access lane and parking. In addition, the footpath should be continued across the access lane with onus on the driver to yield for pedestrians. The crossings at the junction should be widened and the signal timings should be revised to ensure sufficient time for all road users to complete a crossing safely. In addition, the cyclist facilities should be continued through the junction.

### 4.2.9 Castlebar Train Station

The footpath width at the link road between the N84 and the Castlebar Train Station is relatively narrow and the footpath along the eastern side of the carriageway terminates at an uncontrolled crossing. Insufficient footpath width for peak pedestrian volumes might lead to pedestrian entering the carriageway where they are at increased risk of being struck by vehicle. The absence of a controlled crossing presents an obstacle for visually-impaired public transport users.



## Suggested Treatment

The footpath widths along the link road should be widened to accommodate the expected peak pedestrian flows and to accommodate mobility-impaired road user requirements. A controlled crossing should be provided where the footpath on the eastern side of the link road terminates to facilitate visually-impaired public transport users.

### 4.2.10 Service Station N60 (Station Road)

An existing service station is located at Station Road (N60), which has wide accesses/egresses. The footpath along Station Road terminates at these entrances and no crossing facilities are provided. In addition, the service station includes a number of echelon (angled) parking spaces. Entry to these parking spaces would require reversing manoeuvres across the pedestrian route.

The footpath layout at this location would present difficulties for visually impaired in safely and independently travelling along Station Road.



**Suggested Treatment**

A continuous footpath should be provided across the entry and exit of the service station. In addition, the parking arrangements should be revised such that no reversing manoeuvres would take place across the footpath or within the N60 carriageway.

**4.2.11 Newport Road (R311)/Pound Road junction**



At the Newport Road (R311)/Pound Road junction a number of issues were identified as follows: -

- Wide junction mouth resulting in lengthy crossing for the mobility-impaired and/or elderly pedestrians;
- Faded red surfacing within the cycle lane which could reduce the awareness of drivers of the likely presence of cyclists;
- A lack of pedestrian crossings which would prevent visually impaired pedestrians from crossing at the junction safely and independently; and
- A lack of footpaths linking Newport Road and Pound Road.

### Suggested Treatment

- The junction corner radii should be reduced in accordance with the guidance provided in the DMURS.
- A red surfacing should be provided at the cycle lane across the junction.
- A crossing linking both sides of the footpath along Newport Road should be provided.
- A footpath should be provided to link Newport Road and Pound Road.

#### 4.2.12 Lough Lannagh Amenity Park access via Newport Road

There is an existing access to the Lough Lannagh Amenity Park from the Newport Road, compromised of a shared surface. The footpaths on either side of the access terminate with no crossing provision. The lack of a continuous footpath would prevent visually-impaired pedestrians from being able to access the park independently.

The absence of crossing facilities at the Newport Road could result in pedestrians crossing the road at unsafe location increasing the likelihood of conflicts with vehicles. In addition, the lack of crossing facilities would also prevent the mobility impaired from crossing to the opposite side of Newport Road resulting in them having to undertake a longer route to access the footpath on the other side.



### Suggested Treatment

The footpath should be continued across the access and into the park. A crossing of Newport Road should be provided.

#### 4.2.13 Lough Lannagh Amenity Park link via Newport Road

Along the link between Lough Lannagh Amenity Park and Newport Road a number of pedestrian desire lines along informal routes to and from Blackfort Manor were identified that are not catered for by formal pedestrian facilities. Pedestrian and/or cyclists traversing unpaved routes increases the risk of slips, trips or falls particularly during wet or icy weather.



### Suggested Treatment

Pedestrian/cyclist facilities for access to Blackfort Manor should be provided along the link between the Lough Lannagh Amenity Park and the Newport Road.

**4.2.14 L1725 to Snugborough**

The L1725 local road leading to Snugborough is relatively narrow and includes a number of high demand bends where forward visibility is limited. In addition, the pavement condition was noted as being poor in places and during the site visit ponding was observed occurring frequently along the whole route.

There is no public lighting along this route and pedestrians were observed travelling within the carriageway during daylight and darkness hours. There are no footpaths along the route, and the absence of provisions for non-motorised road users coupled with the carriageway condition could increase the likelihood of pedestrian/vehicular collisions.



**Suggested Treatment**

Facilities for pedestrians should be provided and the carriageway surface renewed. A review should be undertaken on the need for public lighting along the route, however this may be unnecessary should a footpath be provided.

**4.2.15 Pedestrian Link to Lough Lannagh Village**

There is a pedestrian link from Lough Lannagh Amenity Park to Lough Lannagh Village the link leads pedestrian onto the carriageway. This might lead to visually impaired being unaware that they have entered carriageway resulting in increased risk of conflicts.



**Suggested Treatment**

A segregation (i.e. vertical) between the shared footpath and the carriageway should be provided.

#### 4.2.16 Greenway Interface with Car Parks

The Greenway travels through car parks at number of locations within the Lough Lannagh Amenity Park. The arrangement at these locations is that the Greenway's shared surface terminates at the car park, and there are no routes provided to enable the visually impaired to continue safely and independently to cross the car park and rejoin the Greenway.



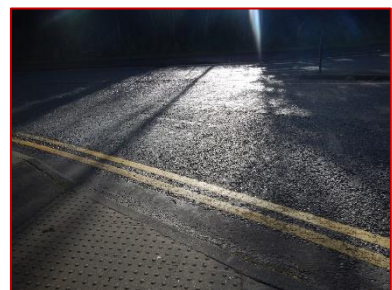
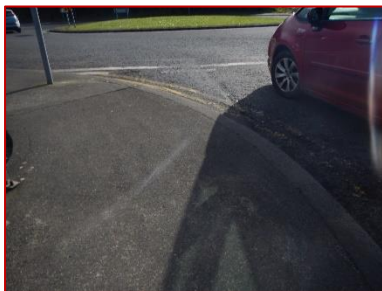
#### Suggested Treatment

A continuous footpath/shared surface should be provided along the Greenway route through the car park areas. Appropriate crossing facilities should be provided where the Greenway crosses a carriageway.

#### 4.2.17 TK Maxx, Next & Aldi Car Park Roundabout

The roundabout to the southwest of the car park serving TK Maxx, Next & Aldi has three wide approach arms. Uncontrolled pedestrian crossings are provided on the roundabout arms, however these crossing facilities do not cater for visually-impaired pedestrians resulting in them being unable to cross at the roundabout safely & independently.

No cyclist provisions are provided on the approaches to, or at the roundabout which would present challenges to less-confident cyclists in navigating the roundabout.



#### Suggested Treatment

Measures should be provided to cater for all non-motorised road users at this junction.



### 4.2.18 Lannagh Road/Hopkins Road Roundabout

Lannagh Road/Hopkins Road Roundabout have four wide approach arms. The Roundabout includes one zebra crossing at the northern arm and lacks suitable pedestrian crossing facilities at the other three arms.

Uncontrolled pedestrian crossings are provided on the other roundabout arms, however these crossing facilities do not cater for visually-impaired pedestrians resulting in them being unable to cross at the roundabout safely & independently.

No cyclist provisions are provided on the approaches to, or at the roundabout which would present challenges to less-confident cyclists in navigating the roundabout.



#### Suggested Treatment

A review of safer and more accessible junction option for pedestrian and cyclists should be considered for this roundabout.

### 4.2.19 Hopkins Road/Stephen Garvey Way Roundabout



Hopkins Road/Stephen Garvey Way Roundabout have five wide approach arms. The Roundabout includes one zebra crossing at the northern arm and lacks suitable pedestrian crossing facilities at the other arms.

Uncontrolled pedestrian crossings are provided on the roundabout arms, however these crossing facilities do not cater for visually-impaired pedestrians resulting in them being unable to cross at the roundabout safely & independently.

No cyclist provisions are provided on the approaches to, or at the roundabout which would present challenges to less-confident cyclists in navigating the roundabout.

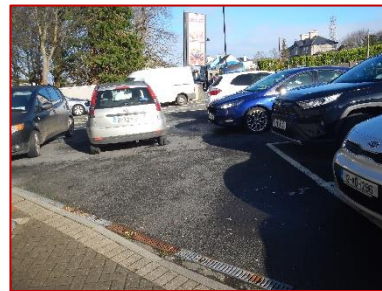
### Suggested Treatment

A review of safer and more accessible junction option for pedestrian and cyclists should be considered for this roundabout.

#### 4.2.20 The Royal Theatre and Event Centre

The footpath along Westport Road in the vicinity of The Royal Theatre and Event Centre terminates abruptly at a location where perpendicular parking spaces are provided in front of The Royal Theatre and Event Centre.

This arrangement results in pedestrians having to enter the carriageway to continue their journey resulting in increased risk of being struck by a vehicle. In addition, this arrangement would prevent visually impaired pedestrians from traversing this location safely and independently.



### Suggested Treatment

A continuous footpath should be provided at this location linking the existing footpath along Westport Road.

#### 4.2.21 Springfield Road

There is an existing shared surface along Springfield Road, located in front of a wide parking area. There is no vertical separation between the carriageway and the shared surface, and the position of the parking spaces to the rear of the shared surface increases the risk of conflicts between drivers and pedestrian/cyclists.

The lack of vertical separation between the carriageway and the shared surface could result in visually-impaired pedestrians inadvertently entering the carriageway.



### Suggested Treatment

The position of the shared path and the parking arrangements at this location should be reconfigured such that the path runs to the rear of parallel parking along the roadside.

The reconfiguration should maintain access to the existing driveways at this location, and full-height kerbs should be provided between the shared surface and the adjacent carriageway/parking spaces, other than at crossing locations.

Where the provision of a full height kerb is not feasible/possible then the kerb should generally have a minimum of 60mm upstand to the carriageway, a 25mm upstand at vehicular accesses and a maximum of 6mm at pedestrian crossings.

### 4.3 Location-Specific Findings

During the assessment site visits a number of existing safety and/or accessibility issues were identified, the locations of which are shown on the map below and are described in the following sections.



#### 4.3.1 N60/N84 Junction

Deteriorating pavement around a manhole cover located within crossing and cycle lane. This may lead to slips trips or falls.

##### Suggested Treatment

The carriageway pavement should be repaired.



#### 4.3.2 Newport Road/Garryduff Court junction

Vegetation resulting in reduced footpath width and presenting an obstacle for the mobility-impaired and a hazard for visually-impaired pedestrians.

##### Suggested Treatment

Vegetation should be cut back and regular maintenance undertaken.



#### 4.3.3 Lough Lannagh Amenity Park Access on Newport Road

There is a height restriction barrier at the entrance to Lough Lannagh Amenity Park access from the Newport Road.

The height of the barrier is low and would present a hazard for cyclists using this access and may lead to personal injury.

##### Suggested Treatment

The height of the barrier should be increased to a minimum of 2.5m



#### 4.3.4 Blackfort Manor

An uncontrolled Pedestrian crossing is provided of the Blackfort Manor access, however no dropped kerbs are provided at this location resulting in the mobility-impaired being unable to use it.

##### Suggested Treatment

Dropped kerbs should be provided at this crossing.



#### 4.3.5 Westport Road

The tactile paving at the uncontrolled crossing of Westport Road is damaged, resulting in pedestrian trip hazards and unstable ground.

##### Suggested Treatment

The tactile paving either side of the crossing should be repaired to remove any trip hazards and unstable pavement.



### 4.3.6 Westport Road

The colour of the tactile paving at the Zebra crossing of Westport Road is the same as the surrounding path, resulting in the crossing being difficult to locate for the partially-sighted.

#### Suggested Treatment

It is recommended that using any red path surfaces in the vicinity of a controlled crossing is avoided where possible.

Where this is not possible then a 150mm wide border should be provided around the blister surface that contrasts in colour and tone with the adjacent path.



### 4.3.7 Westport Road

A ramped access to the footpath is provided at an existing zebra crossing of Westport Road. The ramps provided are unsuitable for mobility-impaired access and may result in difficulties for these road users accessing the footpath and may result in them being stranded in the carriageway.

#### Suggested Treatment

An appropriate ramp or dropped kerb arrangement with accessible gradients should be provided at this crossing.



### 4.3.8 Greenway/Market Square

Narrow entrance to Greenway within car park with a lack of inter-visibility between pedestrians on the footpath along Market Square and the Greenway users possibly resulting in conflicts between cyclists and pedestrians.

#### Suggested Treatment

The access to and from the greenway from Market Square should be widened



### 4.3.9 Linenhall Street/ Rush Street/ Lucan Street/ Main Street Junction

There is no vertical separation between the carriageway and the footpaths at the Linenhall Street/ Rush Street/ Lucan Street/ Main Street signalised junction.

Visually impaired pedestrians may inadvertently enter the carriageway where there is insufficient vertical separation.

#### Suggested Treatment

Full-height kerbs should be provided between footpaths and the adjacent carriageway, other than at crossing locations. Where this is not feasible/possible then footpaths shall have minimum of 60mm vertical separation to the carriageway, 25mm at vehicular accesses and a maximum of 6mm at pedestrian crossings.



## 5 Route Issues, Priority and Treatment

### 5.1 Route Issues & Priority

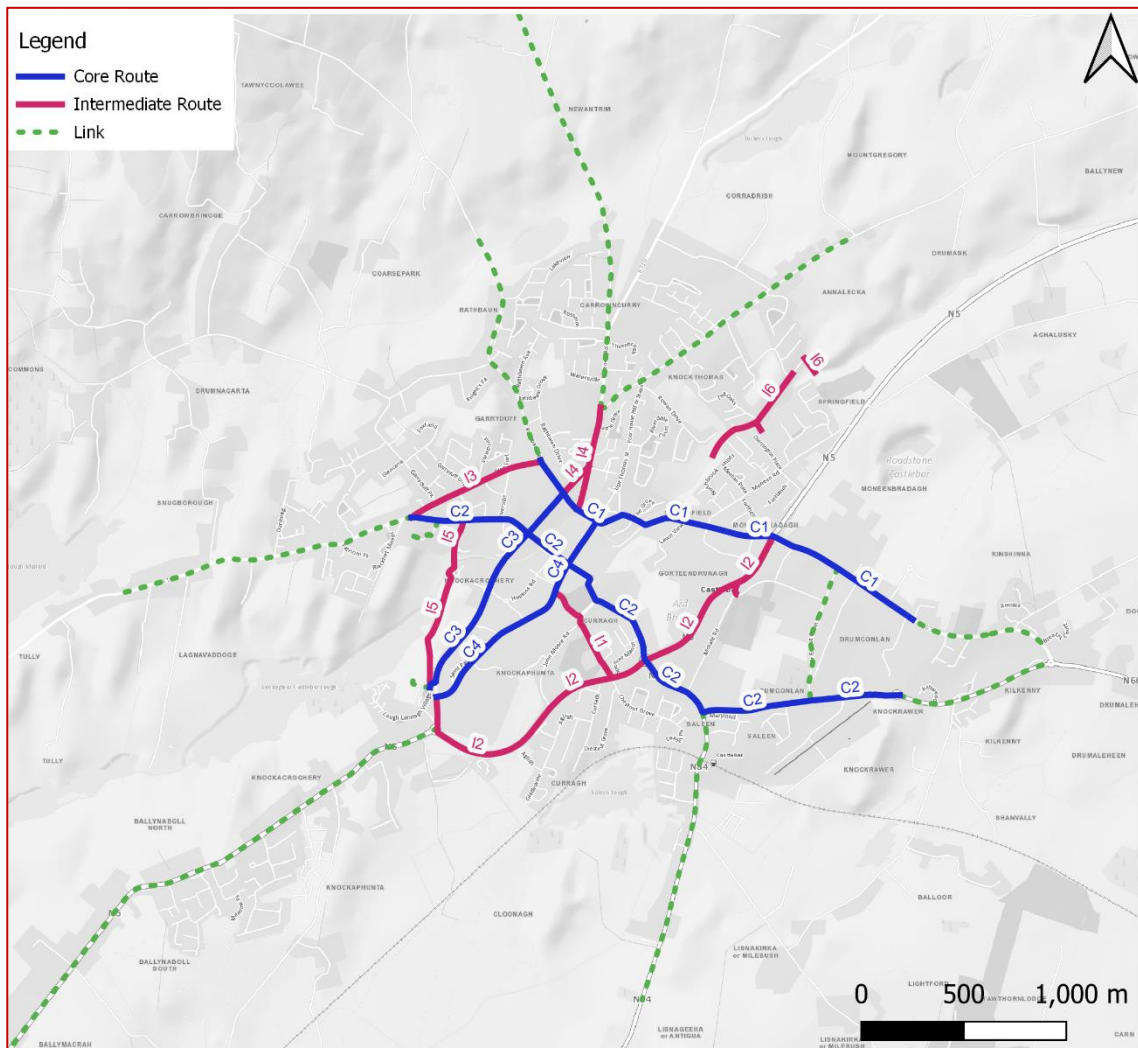


FIGURE 5-1: ACTIVE TRAVEL SIMPLIFIED ROUTES (SOURCE: WWW.OSI.IE)

Table 5-1 summarises the issues identified along each Core & Intermediate Route (Ref: Figure 3-4) and assigns a priority to each Route based on the concentration of trip attractors and the number of connecting/overlapping Link Routes along the Core Route.

TABLE 5-1: SUMMARY OF ISSUES & PRIORITISATION FOR TREATMENT OF ACTIVE TRAVEL ROUTES

Route	Main Roads	Related Issues	Priority
C1	<ul style="list-style-type: none"> <li>Moneen Road (R373)</li> <li>Charles Street Lower(R373)</li> <li>Lucan Street (R373)</li> <li>Linhall Street (R373)</li> <li>Tucker Sreet</li> </ul>	<p><b>General Issues:</b></p> <ul style="list-style-type: none"> <li>4.1.2 Discontinuities in Footpath Provisions</li> <li>4.1.3 Footpath/Carriageway Vertical Separation</li> <li>4.1.5 Absence of Pedestrian Crossings on Likely Desire Lines Insufficient Inter-visibility at Crossings</li> <li>4.1.6 Insufficient Inter-visibility at Crossings</li> <li>4.1.7 Lengthy Pedestrian Crossings</li> <li>4.1.8 Footpath Condition</li> <li>4.1.11 Narrow Footpaths</li> <li>4.1.13 Discontinuous Cycle Facilities</li> <li>4.1.17 Ponding</li> <li>4.1.18 Missing or Incorrect Tactile Paving</li> </ul> <p><b>Area-specific Issues</b></p> <ul style="list-style-type: none"> <li>4.2.4 N5/R373 Roundabout</li> <li>4.2.21 Springfield Road</li> </ul> <p><b>Location Specific Issues</b></p> <ul style="list-style-type: none"> <li>4.3.9 :Linhall Street/ Rush Street/ Lucan Street/ Main Street Junction</li> </ul>	1
C2	<ul style="list-style-type: none"> <li>Breaffy Road (N60)</li> <li>Station Road(N60)</li> <li>Spencer Street (R917)</li> <li>Tha Mall</li> <li>Castle Street</li> <li>Shamble Street</li> <li>Market Square</li> </ul>	<p><b>General Issues:</b></p> <ul style="list-style-type: none"> <li>4.1.1 :Absence of Footpaths along Pedestrian Desire Lines</li> <li>4.1.2 :Discontinuities in Footpath Provisions</li> <li>4.1.3 :Footpath/Carriageway Vertical Separation</li> <li>4.1.5 :Absence of Pedestrian Crossings on Likely Desire Lines</li> <li>4.1.7 :Lengthy Pedestrian Crossings</li> <li>4.1.8 :Footpath Condition</li> <li>4.1.9 :Absence of Hazard Tactile Paving at Steps</li> <li>4.1.10: Ladder and Tramline Tactile Paving</li> <li>4.1.11 :Narrow Footpaths</li> <li>4.1.12 :Cycle Lane Pavement Condition</li> <li>4.1.13 :Discontinuous Cycle Facilities</li> <li>4.1.16 :Steep Transverse Gradient (crossfall) on Footpaths</li> <li>4.1.17 :Ponding</li> <li>4.1.18 :Missing or Incorrect Tactile Paving</li> <li>4.1.19 :Poor Lighting</li> </ul> <p><b>Area-specific Issues</b></p> <ul style="list-style-type: none"> <li>4.2.1 :N5/N60 Roundabout</li> <li>4.2.6 :N60/IDA Roundabout</li> <li>4.2.7 :Baxter Healthcare &amp; National Learning Network Centre Accesses</li> <li>4.2.8 :N60/N84 Signalised Junction</li> <li>4.2.9 :Castlebar Train Station</li> <li>4.2.10 :Service Station N60 (Station Road)</li> </ul> <p><b>Location specific Issues</b></p> <ul style="list-style-type: none"> <li>0 :</li> <li>N60/N84 Junction</li> <li>4.3.2 :Newport Road/Garryduff Court junction</li> <li>4.3.8 :Greenway/Market Square</li> </ul>	1

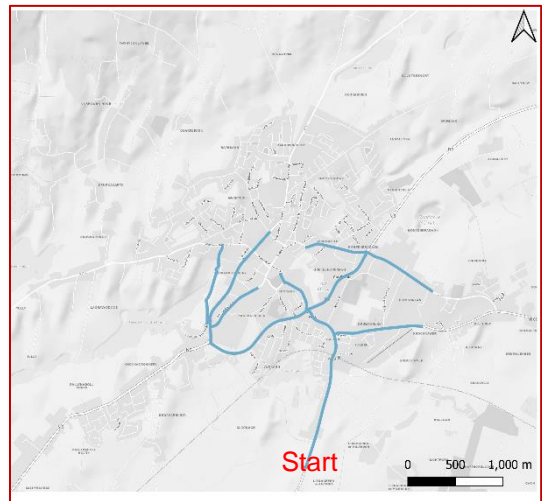
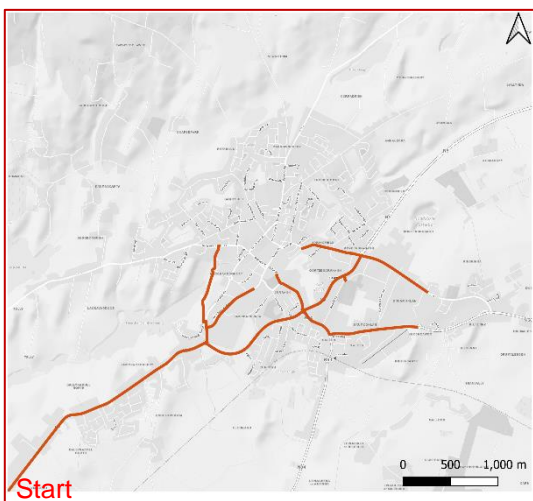
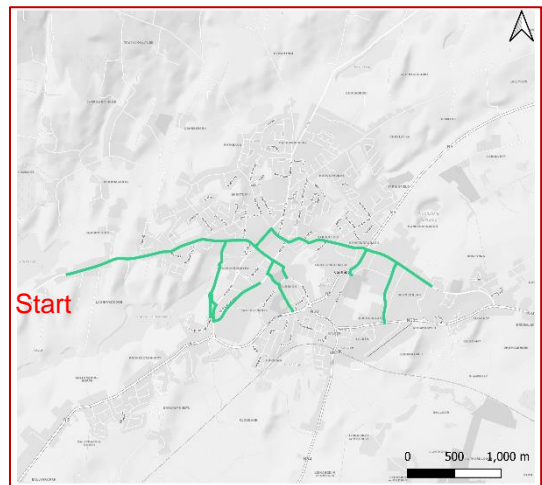
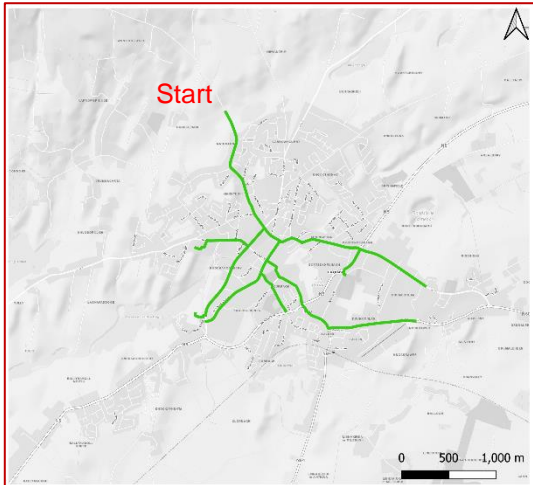
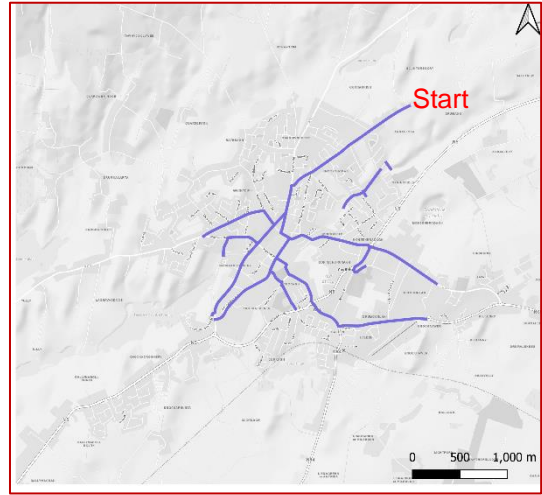
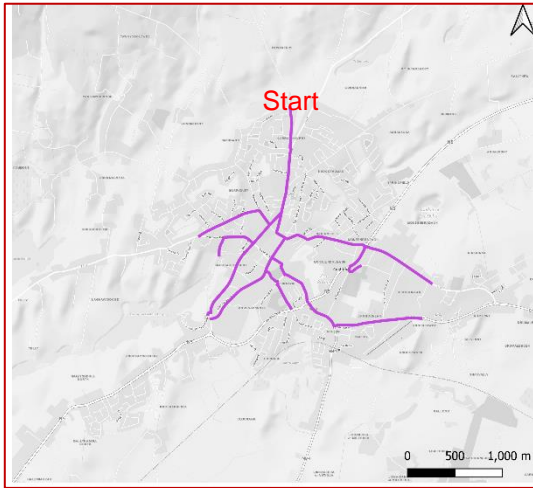
Route	Main Roads	Related Issues	Priority
C3	<ul style="list-style-type: none"> <li>Lannagh Road (R310)</li> <li>Upper Chapel Street (R310)</li> </ul>	<p><b>General Issues:</b></p> <ul style="list-style-type: none"> <li>4.1.1 :Absence of Footpaths along Pedestrian Desire Lines</li> <li>4.1.2 :Discontinuities in Footpath Provisions</li> <li>4.1.3 :Footpath/Carriageway Vertical Separation</li> <li>4.1.5 :Absence of Pedestrian Crossings on Likely Desire Lines</li> <li>4.1.6 :Insufficient Inter-visibility at Crossings</li> <li>4.1.7 :Lengthy Pedestrian Crossings</li> <li>4.1.8 :Footpath Condition</li> <li>4.1.11 :Narrow Footpaths</li> <li>4.1.16 :Steep Transverse Gradient (crossfall) on Footpaths</li> <li>4.1.18 :Missing or Incorrect Tactile Paving</li> <li>4.1.19 :Poor Lighting</li> </ul> <p><b>Area-specific Issues</b></p> <ul style="list-style-type: none"> <li>4.2.3 :N5/Lannagh Road Roundabout</li> <li>4.2.18 :Lannagh Road/Hopkins Road Roundabout</li> </ul>	2
C4	<ul style="list-style-type: none"> <li>Westport Road (R310)</li> <li>Mountain View (R310)</li> <li>Elison Street (R310)</li> <li>Main Street (R310)</li> </ul>	<p><b>General Issues:</b></p> <ul style="list-style-type: none"> <li>4.1.1 :Absence of Footpaths along Pedestrian Desire Lines</li> <li>4.1.2 :Discontinuities in Footpath Provisions</li> <li>4.1.3 :Footpath/Carriageway Vertical Separation</li> <li>4.1.5 :Absence of Pedestrian Crossings on Likely Desire Lines</li> <li>4.1.7 :Lengthy Pedestrian Crossings</li> <li>4.1.11 :Narrow Footpaths</li> <li>4.1.13 :Discontinuous Cycle Facilities</li> <li>4.1.18 :Missing or Incorrect Tactile Paving</li> <li>4.1.19 :Poor Lighting</li> </ul> <p><b>Area-specific Issues</b></p> <ul style="list-style-type: none"> <li>4.2.20 :The Royal Theatre and Event Centre</li> </ul> <p><b>Location specific Issues</b></p> <ul style="list-style-type: none"> <li>4.3.5 :Westport Road</li> <li>4.3.6 :Westport Road</li> <li>4.3.7 :Westport Road</li> <li>4.3.9 :Linenhall Street/ Rush Street/ Lucan Street/ Main Street Junction</li> </ul>	2
I1	<ul style="list-style-type: none"> <li>The Mall (R917)</li> <li>Pavilion Road</li> </ul>	<p><b>General Issues:</b></p> <ul style="list-style-type: none"> <li>4.1.6 :Insufficient Inter-visibility at Crossings</li> <li>4.1.8 :Footpath Condition</li> <li>4.1.13 :Discontinuous Cycle Facilities</li> <li>4.1.17 :Ponding</li> </ul>	4



Route	Main Roads	Related Issues	Priority
		<ul style="list-style-type: none"> <li>4.1.18 :Missing or Incorrect Tactile Paving</li> </ul>	
I2	<ul style="list-style-type: none"> <li>Humbert Way (N5)</li> <li>Lawn Road (N5)</li> </ul>	<p><b>General Issues:</b></p> <ul style="list-style-type: none"> <li>4.1.1 :Absence of Footpaths along Pedestrian Desire Lines</li> <li>4.1.2 :Discontinuities in Footpath Provisions</li> <li>4.1.4 :Inadequate Width of Shared Paths</li> <li>4.1.6 :Insufficient Inter-visibility at Crossings</li> <li>4.1.7 :Lengthy Pedestrian Crossings</li> <li>4.1.8 :Footpath Condition</li> <li>4.1.10: Ladder and Tramline Tactile Paving</li> <li>4.1.12 :Cycle Lane Pavement Condition</li> <li>4.1.13 :Discontinuous Cycle Facilities</li> <li>4.1.17 :Ponding</li> <li>4.1.18 :Missing or Incorrect Tactile Paving</li> <li>4.1.19 :Poor Lighting</li> </ul> <p><b>Area-specific Issues</b></p> <ul style="list-style-type: none"> <li>4.2.1 :N5/N60 Roundabout</li> <li>4.2.2 :N5 Humbert Way Service Station</li> <li>4.2.3 :N5/Lannagh Road Roundabout</li> <li>4.2.4 :N5/R373 Roundabout</li> <li>4.2.10 :Service Station N60 (Station Road)</li> </ul>	3
I3	<ul style="list-style-type: none"> <li>Pound Road</li> </ul>	<p><b>General Issues:</b></p> <ul style="list-style-type: none"> <li>4.1.1 :Absence of Footpaths along Pedestrian Desire Lines</li> <li>4.1.2 :Discontinuities in Footpath Provisions</li> <li>4.1.3 :Footpath/Carriageway Vertical Separation</li> <li>4.1.5 :Absence of Pedestrian Crossings on Likely Desire Lines</li> <li>4.1.6 :Insufficient Inter-visibility at Crossings</li> <li>4.1.7 :Lengthy Pedestrian Crossings</li> <li>4.1.17 :Ponding</li> <li>4.1.19 :Poor Lighting</li> </ul> <p><b>Location specific Issues</b></p> <ul style="list-style-type: none"> <li>4.2.11 :Newport Road (R311)/Pound Road junction</li> <li>4.2.12 :Lough Lannagh Amenity Park access via Newport Road</li> </ul>	2
I4	<ul style="list-style-type: none"> <li>Lower Chapel Road (R310)</li> <li>New Antrim Street(R310)</li> <li>Davitts Terrace (R310)</li> </ul>	<p><b>General Issues:</b></p> <ul style="list-style-type: none"> <li>4.1.3 :Footpath/Carriageway Vertical Separation</li> <li>4.1.5 :Absence of Pedestrian Crossings on Likely Desire Lines</li> <li>4.1.6 :Insufficient Inter-visibility at Crossings</li> <li>4.1.11 :Narrow Footpaths</li> <li>4.1.18 :Missing or Incorrect Tactile Paving</li> </ul>	4

Route	Main Roads	Related Issues	Priority
I5	<ul style="list-style-type: none"> <li>• Link Road</li> <li>• Greenway</li> </ul>	<p><b>General Issues:</b></p> <ul style="list-style-type: none"> <li>• 4.1.5 :Absence of Pedestrian Crossings on Likely Desire Lines</li> <li>• 4.1.7 :Lengthy Pedestrian Crossings</li> <li>• 4.1.10: Ladder and Tramline Tactile Paving</li> <li>• 4.1.13 :</li> <li>• 4.1.17 :Ponding</li> </ul> <p><b>Area-specific Issues</b></p> <ul style="list-style-type: none"> <li>• 4.2.15 :Pedestrian Link to Lough Lannagh Village</li> <li>• 4.2.16 :Greenway Interface with Car Parks</li> <li>• 4.2.17 :TK Maxx, Next &amp; Aldi Car Park Roundabout</li> </ul>	4
I6	-	<p><b>General Issues:</b></p> <ul style="list-style-type: none"> <li>• 4.1.1 :Absence of Footpaths along Pedestrian Desire Lines</li> <li>• 4.1.20: Filtered Permeability Opportunities</li> </ul>	2

## **Appendix A - Residential Area Active Travel Routes for Various Origins**



# 4. Options Development

## *Initial Option Generation by Mode*

### **Walking**

- Upgrades and repairs to “day to day” key routes between residential areas and local education, employment and community facilities to include resurfacing, kerb repairs, widening, drainage and landscaping.
- Installation of new crossing facilities along main roads and at major junctions, particularly along the N5, N60, Lannagh Road, Hopkins Road/Stephen Garvey Way and Westport Road.
- Provision of infrastructure which can directly serve “partial” journeys on foot, such as Park and Stride using Castle Street Car Park for Davitt College, Gaelscoil Raifteirí, St Josephs Secondary School and St Angelas National School.
- Improved filtered permeability through the use of laneways and the opening up of cul-de-sacs for pedestrians to increase directness and connectivity.
- Improved accessibility for vulnerable population cohorts within the town centre to include priority parking, handrails at gradients, public seating, footpath widening, public toilets and public bins.
- New or improved public lighting, security and signage for walking routes.

### **Cycling**

- Maintenance of the existing infrastructure to include resurfacing, kerb repairs, widening and drainage.
- Development of a connected and continuous cycle network comprised of greenway, primary, secondary and feeder routes to connect the residential, education, employment, retail, commercial, healthcare and community centres. The infrastructure required will be determined for a route-by-route basis and depend on existing conditions/constraints and will be delivered to NTA standard for cycle facilities.
- Provision of dedicated cycle facilities at junctions.
- Create a network that can cater for demand from commuter, delivery and leisure cyclists that is accessible to all population cohorts.
- Provision of safe and secure covered cycle parking within the town centre and at major trip attractors.
- Provision of charging infrastructure for electric bikes within the town centre.
- Improved filtered permeability through the use of laneways and the opening up of cul-de-sacs for cyclists to increase directness and connectivity.
- New or improved public lighting, security and signage for cycling routes.

### **Public Transport**

- Enhance connectivity of Castlebar Train Station with the provision of improved active travel connections and ‘Park and Ride’ infrastructure.

- Develop a local bus network comprised of 2 routes to serve the town area. The routes, either linear or circular, shall provide the maximum coverage to the town area and run with a frequency of 30mins.
- Enhance the existing bus services through co-ordinated timetabling to facilitate quick interchange between local and regional services.
- Development of a bus interchange at Stephen Garvey Way with covered and secure waiting area and welfare facilities.

## **Road Network**

- Provision of Electric Vehicle charging infrastructure within the town centre.
- Promote car sharing.
- Transport demand management measures/parking strategies.
- Traffic management measures such as traffic calming and junction redesign.
- Provide partial trip infrastructure.

## **Complementary Measures**

- Partial trip incentives such as 'Park and Ride' and 'Park and Stride'.
- Provide a mobility hub with charging facilities for electric bikes and scooters, covered waiting area, secure bicycle parking and welfare facilities.
- Mobility Management Plans for planned developments.
- Monitoring of existing travel patterns and introducing behavioural change programmes.
- Liaising with local businesses to promote the 'Bike to Work' scheme.
- Promotion of active travel in schools and community groups.

# Existing Conditions by Area

The study area in Castlebar is divided into six key areas for the ease of screening and assessment of network options, as shown in Figure 3-0.

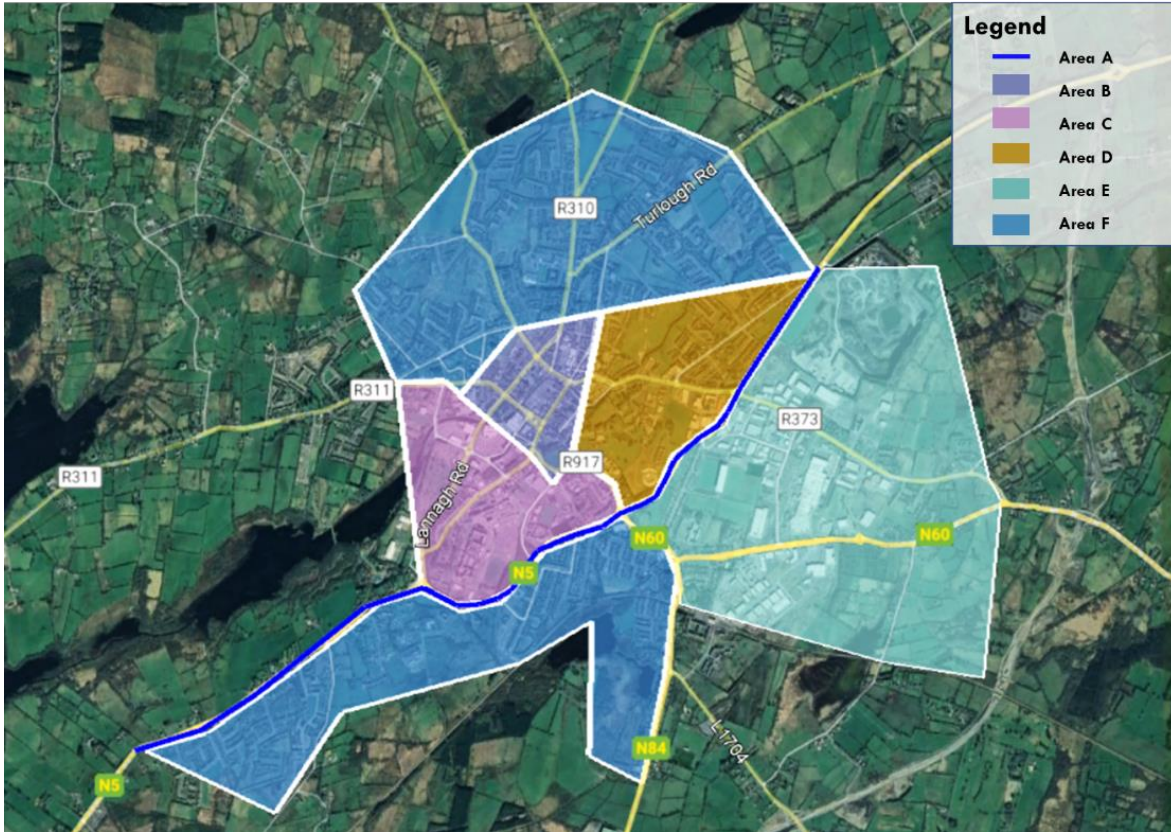


Figure 3-0 Area Map for Screening

Area	Location	Existing Conditions
Area A	N5	<ul style="list-style-type: none"> <li>National road (Single carriageway)</li> <li>Cycle facilities provided</li> <li>Cycle lane markings worn and surface is chipping</li> </ul>
Area B	Town Centre (Main Street/Upper Chapel Street)	<ul style="list-style-type: none"> <li>One way street for motor vehicles</li> <li>Carriageway is approximately 5.5 m, parking is present in certain stretches and is 2.5 m wide and footpaths are 2.5-5 m wide.</li> </ul>
	Town Centre (Hopkins Road)	<ul style="list-style-type: none"> <li>Two -way carriageway</li> <li>Varying footpath from 2.5 to 5 m</li> <li>On-street car parking at few locations</li> <li>Total cross-section width available 13.5 m</li> </ul>
	Town Centre (Tucker Street/New Antrim Street)	<ul style="list-style-type: none"> <li>One way street for motor vehicles</li> <li>Continuous on-street car parking</li> <li>Total cross-section width is approximately 10.8 m</li> </ul>

Area	Location	Existing Conditions
Area C	Hospital and Nearby Areas (Westport Road)	<ul style="list-style-type: none"> <li>• Two -way carriageway</li> <li>• Existing cycle lanes are discontinuous</li> <li>• Wide verges</li> <li>• Continuous on-street car parking</li> <li>• Total cross section width is approximately 15 m</li> </ul>
	Hospital and Nearby Areas (Stephen Garvey Road)	<ul style="list-style-type: none"> <li>• Wide two-way carriageway and footpath</li> <li>• No cycle facilities</li> <li>• Bus Stop</li> <li>• Carriageway width (without bus stop) is 10.5 m</li> <li>• Total cross-section width of approximately 20 m</li> </ul>
Area D	Schools and Nearby Areas (Moneen Road/Charles Street)	<ul style="list-style-type: none"> <li>• Wide two-way carriageway and wide footpath</li> <li>• No cycle lanes</li> <li>• Total cross-section width of approximately 12.6 m</li> </ul>
	Schools and Nearby Areas (Dublin Road)	<ul style="list-style-type: none"> <li>• National Road with speed up to 100 kmph</li> <li>• No cycle facilities</li> <li>• Land on the roadside</li> </ul>
Area E	Industrial Area (N60 Breaffy Road)	<ul style="list-style-type: none"> <li>• Wide two-way carriageway</li> <li>• No cycle facilities</li> <li>• Land on the side of a footpath</li> </ul>
	Industrial Area (McHale Road)	<ul style="list-style-type: none"> <li>• Wide two-way Carriageway</li> <li>• No cycle facilities</li> <li>• On-street parking observed</li> </ul>
Area F	Residential Areas (Rathbawn Road L1724)	<ul style="list-style-type: none"> <li>• Two-way carriageway</li> <li>• No cycle facilities</li> <li>• Intermittent verges</li> <li>• Total cross-section width ranges from 12.8-13.5 m</li> </ul>
	Residential Areas (Rathbawn Road)	<ul style="list-style-type: none"> <li>• Two-way carriageway</li> <li>• Total cross-section width is approx. 11.5 m</li> </ul>



Key junctions in the town lack pedestrian and cycle facilities. Table 1-1 shows the Options Development to provide active travel facilities for several key junctions.

Table 1-1: Options Development - Key Junctions

Option 1	Do Nothing	Retain the existing
Option 2	Do Minimum	<ul style="list-style-type: none"> <li>Upgrade the existing facilities (cycle lanes) though resurfacing, kerb adjustments, line markings, drainage and signage as necessary.</li> </ul>
Option 3	Do something	<ul style="list-style-type: none"> <li>Retain existing roundabout junctions</li> </ul>
		<ul style="list-style-type: none"> <li>Provide dedicated pedestrians facilities</li> </ul>
		<ul style="list-style-type: none"> <li>Provide dedicated cycle facilities</li> </ul>
Option 4	Do something	<ul style="list-style-type: none"> <li>Retain existing priority/signalised</li> </ul>
		<ul style="list-style-type: none"> <li>Provide dedicated pedestrians facilities</li> </ul>
		<ul style="list-style-type: none"> <li>Provide dedicated cycle facilities</li> </ul>
Option 5	Do something	<ul style="list-style-type: none"> <li>Signalise existing roundabout junction</li> </ul>
		<ul style="list-style-type: none"> <li>Provide dedicated pedestrians facilities</li> </ul>
		<ul style="list-style-type: none"> <li>Provide dedicated cycle facilities</li> </ul>

**Error! Reference source not found.** shows area specific Options Development for the junctions shown in Figure 3-2.

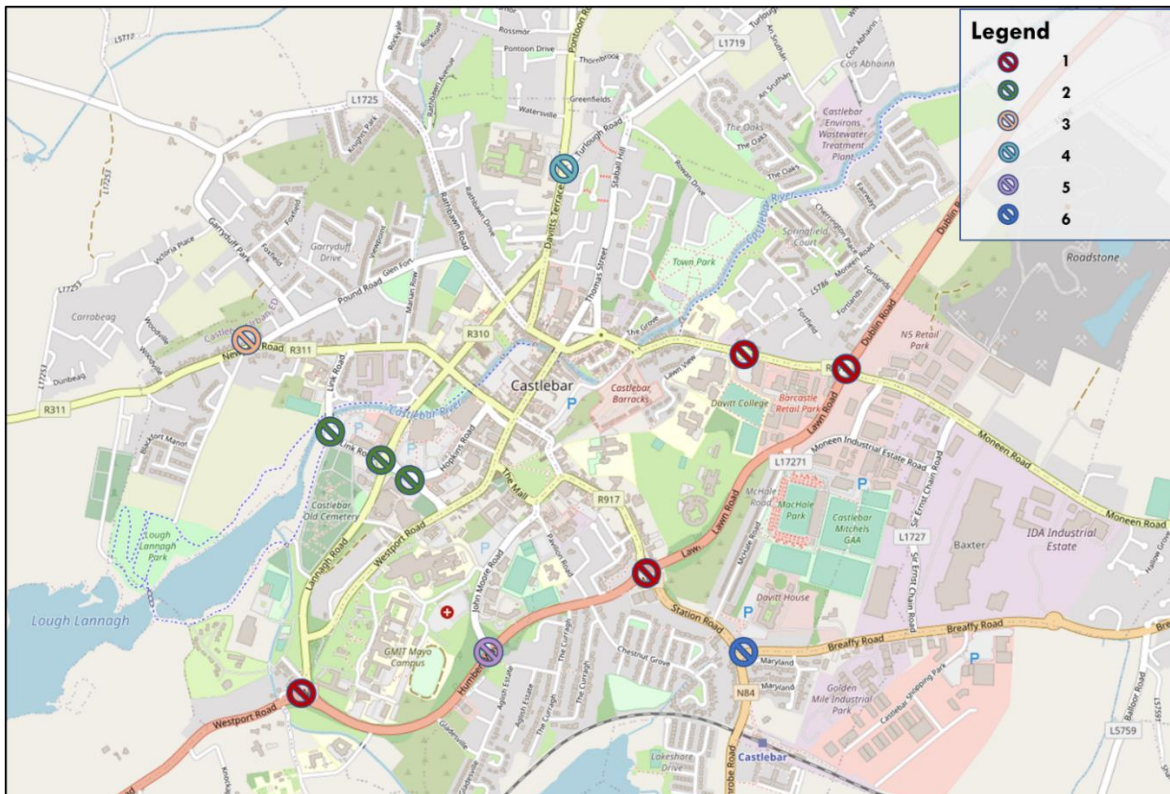


Figure 3-2 Area Specific Options Development – Key Junctions

# Options Development By Mode

## Walking

Table 1-2 shows the Options Development for the pedestrian network.

*Table 1-2 Options Development - Pedestrian Network*

<b>Option 1</b>	Do Nothing	Retain the existing.
<b>Option 2</b>	Do Minimum	Upgrade the existing facilities though resurfacing, kerb adjustments, line markings, drainage and landscaping as necessary.
<b>Option 3</b>	Do Something	Provide a continuous pedestrian footpaths and dedicated crossing facilities along the route, where there is available space without the need for landtake from the carriageway/private owners.
<b>Option 4</b>	Do Something	Provide continuous 2m wide pedestrian footpaths and dedicated crossing facilities along the route, with landtake from the carriageway/private owners where required.

# Cycle

Table 1-3 shows the Options Development for the cycle network.

Table 1-3: Options Development – Cycle Network

Option 1	Do Nothing	Retain the existing.
Option 2	Do Minimum	Upgrade the existing facilities though resurfacing, kerb adjustments, line markings, drainage and signage as necessary.
Option 3	Do Something	<ul style="list-style-type: none"> <li>Provide a <b>cycle track/lane</b> in each direction</li> </ul>
Option 4	Do Something	Provide a <b>two-way cycle</b> track/lane
Option 5	Do Something	<ul style="list-style-type: none"> <li>Provide a <b>contra-flow cycle track/lane</b> on one-way streets.</li> <li>Provide a shared carriageway for cyclists travelling in the direction of traffic.</li> </ul>
Option 6	Do Something	<ul style="list-style-type: none"> <li><b>No facilities for contra-flow cyclists</b></li> <li>Provide a <b>shared carriageway between</b> on a one-way street to facilitate cyclists travelling in the direction of traffic.</li> <li>30km/hr speed limit for vehicular traffic.</li> <li>Resurface the carriageway to facilitate safe shared usage between cyclists and cars.</li> <li>Provide traffic calming and road signage.</li> </ul>
Option 7	Do Something	<ul style="list-style-type: none"> <li>Provide a <b>shared carriageway between cyclists and vehicular traffic</b> on a two-way streets.</li> <li>30km/hr speed limit for vehicular traffic.</li> <li>Resurface the carriageway to facilitate safe shared usage between cyclists and cars.</li> <li>Provide traffic calming and road signage.</li> </ul>
Option 8	Do Something	<ul style="list-style-type: none"> <li><b>Provide a shared surface</b></li> </ul>

# Public Transport

Table 1-4 shows the Options Development for the public transport network.

Table 1-4 Options Development - Public Transport Network

<b>Option 1</b>	Do Nothing	Retain the existing.
<b>Option 2</b>	Do Minimum	<ul style="list-style-type: none"> <li>Enhance the existing services</li> <li>Improve the connectivity of Castlebar Train Station for Active Travel Modes</li> </ul>
<b>Option 3</b>	Do Something	<ul style="list-style-type: none"> <li>Enhance the existing services</li> <li>Improve the connectivity of Castlebar Train Station for Active Travel Modes</li> <li>Provide a local bus network with 2 linear routes (Figure 3-3)</li> </ul>
<b>Option 4</b>	Do Something	<ul style="list-style-type: none"> <li>Enhance the existing services</li> <li>Improve the connectivity of Castlebar Train Station for Active Travel Modes</li> <li>Provide a local bus network with 2 circular routes (Figure 3-4)</li> </ul>

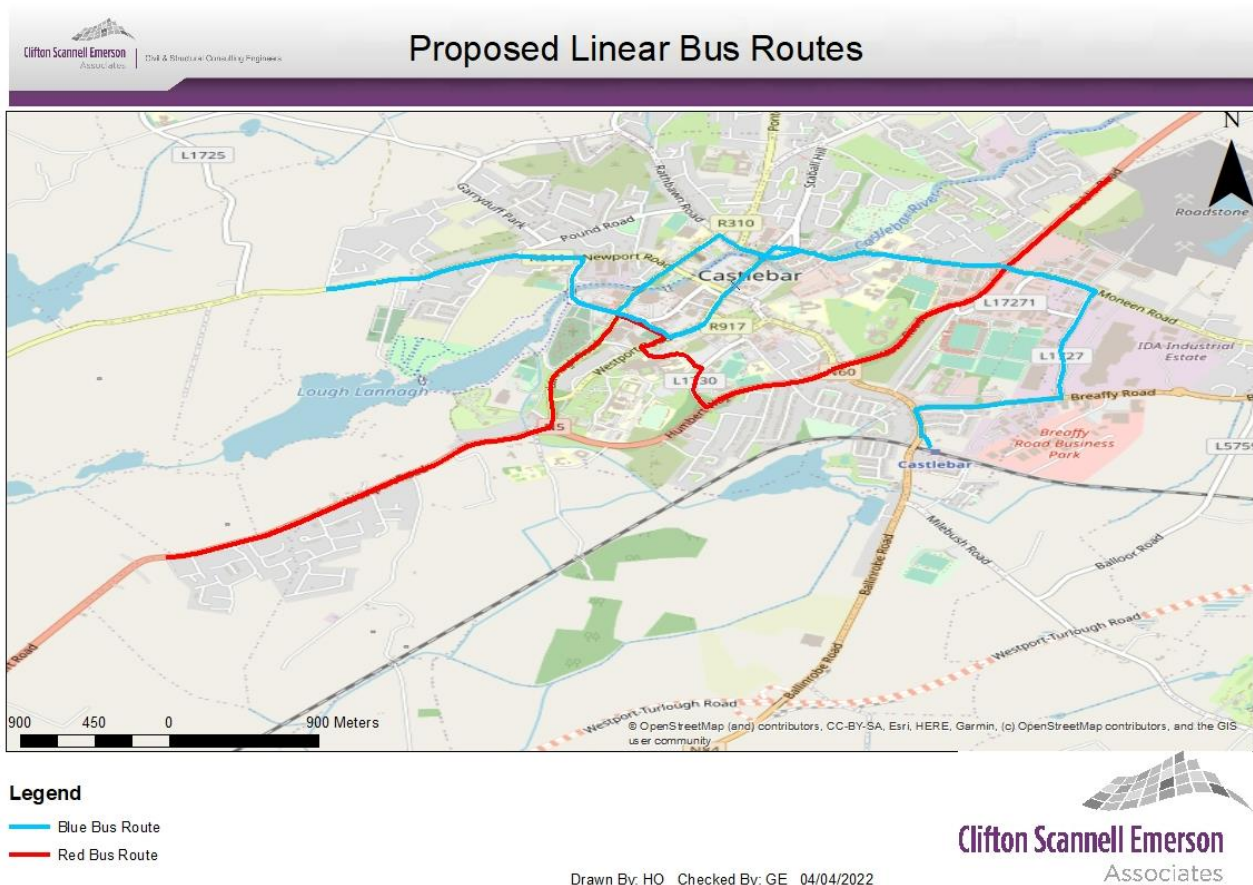
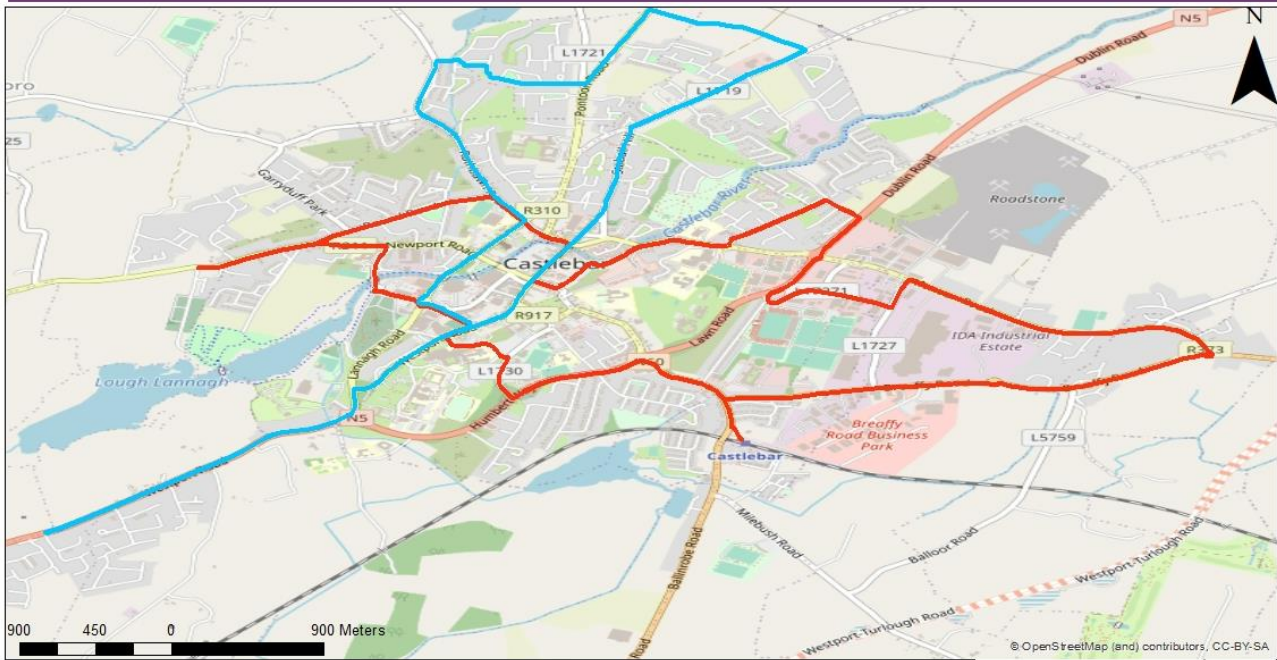


Figure 3-3 Option 3 – Proposed Linear Bus Routes

# Proposed Circular Bus Routes



**Legend**

- Blue Bus Route
- Red Bus Route

Drawn By: HO Checked By: GE 04/04/2022

Figure 3-4 Option 4 - Proposed Circular Bus Routes

# Road Network

Table 1-5 shows the Options Development for the general vehicular network.

*Table 1-5 Options Development – General Vehicular Network*

<b>Option 1</b>	Do Nothing	Retain the existing
<b>Option 2</b>	Do Minimum	Resurface the existing carriageway
<b>Option 3</b>	Do Something	<ul style="list-style-type: none"> <li>• Implement 'Park and Stride' to reduce 'school-run' traffic congestion in the town centre. Feasible car parks and schools are:               <ul style="list-style-type: none"> <li>– St Patricks Boys National School – Market Square Car Park;</li> <li>– Davitt College - Castle Street Car Park</li> <li>– Gaelscoil Raifteirí - Castle Street Car Park</li> <li>– St Josephs Secondary School - Castle Street Car Park</li> <li>– St Angelas National School - Castle Street Car Park</li> </ul> </li> </ul>
<b>Option 4</b>	Do Something	<ul style="list-style-type: none"> <li>• Provide Electric Vehicle charging points in the town centre.</li> <li>• Provide car sharing services (ie; GoCar)</li> </ul>
<b>Option 5</b>	Do Something	<ul style="list-style-type: none"> <li>• Transport demand management measures/parking strategies.</li> </ul>
<b>Option 6</b>	Do Something	<ul style="list-style-type: none"> <li>• Provide partial trip infrastructure.</li> </ul>

# 4.1

## Options Development: Proposal 1

Location	Feasible Options		
	Pedestrian Network	Cycle Network	Road Network
<b>N5 - Old Dublin Road</b>	Option 1 Option 2 Option 3 Option 4	Option 1 Option 2 Option 3	Option 1 Option 2 Option 5
<b>N5 - Lawn Road</b>	Option 1 Option 2 Option 3 Option 4	Option 1 Option 2 Option 3	Option 1 Option 2 Option 5
<b>N5 - Humbert Way</b>	Option 1 Option 2 Option 3 Option 4	Option 1 Option 2 Option 3	Option 1 Option 2 Option 5
<b>N5 - Westport Road</b>	Option 1 Option 2 Option 3 Option 4	Option 1 Option 2 Option 3	Option 1 Option 2 Option 5
<b>N84 - Station Road</b>	Option 1 Option 2 Option 3 Option 4	Option 1 Option 4 Option 5 Option 8	Option 1 Option 2 Option 5
<b>John Moore Road</b>	Option 1 Option 2 Option 3 Option 4	Option 1 Option 2 Option 3	Option 1 Option 2 Option 3 Option 4 Option 5
<b>Pavilion Road</b>	Option 1 Option 2 Option 3 Option 4	Option 1 Option 2 Option 3	Option 1 Option 2 Option 3 Option 4 Option 5
<b>L1704</b>	Option 1 Option 2 Option 3 Option 4	Option 1 Option 2 Option 3	Option 1 Option 2 Option 5



## 4.2

# Options Development: Proposal 2

Location	Feasible Options		
	Pedestrian Network	Cycle Network	Road Network
<b>N60 - Breaffy Road</b>	Option 1	Option 1	Option 1
	Option 2	Option 4	Option 2
	Option 3	Option 5	Option 5
	Option 4	Option 8	
<b>Moneen Road East</b>	Option 1	Option 1	Option 1
	Option 2	Option 4	Option 2
	Option 3	Option 5	Option 5
	Option 4	Option 8	
<b>Moneen Road West</b>	Option 1	Option 1	Option 1
	Option 2	Option 4	Option 2
	Option 3	Option 5	Option 5
	Option 4	Option 8	

## 4.3

# Options Development: Proposal 3

Location	Feasible Options		
	Pedestrian Network	Cycle Network	Pedestrian Network
<b>Newport Road</b>	Option 1 Option 2 Option 3 Option 4	Option 1 Option 2 Option 3	Option 1 Option 2 Option 5
<b>Lannagh Road</b>	Option 1 Option 2 Option 3 Option 4	Option 1 Option 2 Option 3	Option 1 Option 2 Option 5
<b>Hopkins Road</b>	Option 1 Option 2 Option 3 Option 4	Option 1 Option 2 Option 3	Option 1 Option 2 Option 3 Option 4 Option 5
<b>Stephen Garvey Way</b>	Option 1 Option 2 Option 3 Option 4	Option 1 Option 2 Option 3	Option 1 Option 2 Option 3 Option 4 Option 5
<b>Old Westport Road</b>	Option 1 Option 2 Option 3 Option 4	Option 1 Option 2 Option 3	Option 1 Option 2 Option 5

## 4.4

# Options Development: Proposal 4

Location	Feasible Options		
	Pedestrian Network	Cycle Network	Road Network
<b>Turlough Road</b>	Option 1 Option 2 Option 3 Option 4	Option 1 Option 2 Option 3	Option 1 Option 2 Option 5
<b>Upper Thomas Street</b>	Option 1 Option 2 Option 3 Option 4	Option 1 Option 5 Option 6	Option 1 Option 2 Option 5
<b>Thomas Street/Richard Street/Rush Street/Lucan Street</b>	Option 1 Option 2 Option 3 Option 4	Option 1 Option 5 Option 6	Option 1 Option 2 Option 5

**4.5**

**Options Development:  
Proposal 5**

Proposed	Feasible Options - Active Travel Links
<b>Existing Permeability Links to be Upgraded</b>	4x Mill Street Car Park 2x Dunnes Car Park 1x Castle Street Car Park 1x Supervalu Car Park
<b>Proposed New Permeability Link</b>	Greenway to Blackfort Manor Greenway to Lannagh Road Churchview Villas to Rathbawn Road Castlebar Primary School to St Joseph's Secondary School School to Lawn Park Proposed Active Travel Bridge to Rowan Drive Proposed Active Travel Bridge to Springfield Court Lidl to Davitt College Train Station to Industrial Estate Train Station to Lios na Circe Humbert Way to St Anthony's Special School



## **4.6**

# **Options Development: Proposal 6**

Location	Feasible Options		
	Pedestrian Network	Cycle Network	Road Network
<b>Rathbawn Road</b>	Option 1 Option 2 Option 3 Option 4	Option 1 Option 5 Option 6	Option 1 Option 2 Option 5
<b>Pontoon Road</b>	Option 1 Option 2 Option 3 Option 4	Option 1 Option 2 Option 3	Option 1 Option 2 Option 5
<b>L5786/Fortville Estate</b>	Option 1 Option 2 Option 3 Option 4	Option 1 Option 5 Option 6	Option 1 Option 2 Option 5
<b>Sir Ernst Chain Road</b>	Option 1 Option 2 Option 3 Option 4	Option 1 Option 2 Option 3	Option 1 Option 2 Option 5
<b>Pound Road</b>	Option 1 Option 2 Option 3 Option 4	Option 1 Option 2 Option 8	Option 1 Option 2 Option 5
<b>Upper Chapel Street</b>	Option 1 Option 2 Option 3 Option 4	Option 1 Option 2 Option 8	Option 1 Option 2 Option 5
<b>Main Street</b>	Option 1 Option 2 Option 3 Option 4	Option 1 Option 2 Option 8	Option 1 Option 2 Option 5
<b>New Antrim Street</b>	Option 1 Option 2 Option 3 Option 4	Option 1 Option 2 Option 8	Option 1 Option 2 Option 5
<b>Tucker Street</b>	Option 1 Option 2 Option 3 Option 4	Option 1 Option 2 Option 8	Option 1 Option 2 Option 5
<b>Spencer Street</b>	Option 1 Option 2 Option 3 Option 4	Option 1 Option 2 Option 8	Option 1 Option 2 Option 5
<b>Moneen Road Industrial Estate (Internal Roads)</b>	Option 1 Option 2 Option 3 Option 4	Option 1 Option 2 Option 8	Option 1 Option 2 Option 5

# 5 Options Assessment: Sifting

The assessment is based on a two-stage approach:

- Initially a sifting (“Screening of Options Long List”) assessment was carried out on all possible route options. This process was a high-level assessment whereby routes were appraised on their ability to provide a bus corridor, and whether they could practically be delivered. A simple pass/fail result was given for each route at this stage.
- The routes that passed Stage 1 were then taken forward and combined into a number of feasible longer routes between points. These were then assessed by a “Multi-Criteria Analysis” process, in which routes were ranked in a comparative manner under a number of criteria.

## ***Screening of Options Long List***

The options list generated within Appendix 4: Options Development was measured against the SWOT analysis from Section 4: Baseline Assessment to identify all weaknesses.

The Do Nothing, Do Minimum and Do Something options are assessed for key routes within each area/designation. Broad cross sections were developed for each scenario and assessed for each route.

These options per area of the route, were then assessed as part of a high level “screening” process in order to determine their suitability and the feasibility of their implementation. The sifting exercise identifies whether the cross sections would achieve the scheme objectives and if they would be subject to significant cost and/or impact to achieve these objectives. This assessment stage focused on the immediate constraints by means of the identification of undue traffic delays, environmental issues, economically unjustifiable and require extensive land take.

A simple pass/fail result was given for each option at this stage. This was determined using a high-level qualitative method based on professional judgement and a general appreciation for existing physical conditions/constraints within the study area from available survey information and site visits. Options were considered to fail the sifting process if there were immediate and apparent design issues, economic, social or environmental issues that made them impracticable.

**5.1**

**Options Assessment:  
Sifting**

**Proposal 1**

Location	Option		Design Feasibility	Pass/Fail
N5 - Old Dublin Road	Option 1	Do Nothing	Feasible	Pass
	Option 2	Do Minimum	Feasible	Pass
	Option 3	Do Something	Feasible	Pass
	Option 4	Do Something	Feasible	Pass
	Option 5	Do Something	Feasible	Pass
	Option 6	Do Something	Feasible	Pass
N5 - Lawn Road	Option 1	Do Nothing	Feasible	Pass
	Option 2	Do Minimum	Feasible	Pass
	Option 3	Do Something	Unfeasible - This provides a level of service below the Do Minimum Scenario	Fail
	Option 4	Do Something	Feasible	Pass
	Option 5	Do Something	Feasible	Pass
N5 - Humbert Way	Option 1	Do Nothing	Feasible	Pass
	Option 2	Do Minimum	Feasible	Pass
	Option 3	Do Something	Unfeasible - This represents the Do Minimum Scenario	Fail
	Option 4	Do Something	Feasible	Pass
	Option 5	Do Something	Feasible	Pass
	Option 6	Do Something	Unfeasible - there are major trip attractors/connecting routes along each extent. A single two-way cycle track would remove a large quantity of cyclists from the desire lines and would therefore be sub-standard.	Fail
N5 - Westport Road	Option 1	Do Nothing	Feasible	Pass
	Option 2	Do Minimum	Feasible	Pass
	Option 3	Do Something	Feasible	Pass
	Option 4	Do Something	Feasible	Pass
	Option 5	Do Something	Feasible	Pass
	Option 6	Do Something	Feasible	Pass
N84 - Station Road	Option 1	Do Nothing	Feasible	Pass
	Option 2	Do Minimum	Feasible	Pass
	Option 3	Do Something	Feasible	Pass
	Option 4	Do Something	Feasible	Pass
	Option 5	Do Something	Feasible	Pass
	Option 6	Do Something	Feasible	Pass
John Moore Road	Option 1	Do Nothing	Feasible	Pass
	Option 2	Do Minimum	Feasible	Pass
	Option 3	Do Something	Unfeasible - This represents the Do Minimum Scenario	Fail
	Option 4	Do Something	Feasible	Pass
	Option 5	Do Something	Unfeasible - there are major trip attractors/connecting routes along each extent. A single two-way cycle track would remove a large quantity of cyclists from the desire lines and would therefore be sub-standard.	Fail

Location	Option		Design Feasibility	Pass/Fail
<b>Pavillion Road</b>	Option 1	Do Nothing	Feasible	Pass
	Option 2	Do Minimum	Feasible	Pass
	Option 3	Do Something	Unfeasible - This represents the Do Minimum Scenario	Fail
	Option 4	Do Something	Feasible	Pass
	Option 5	Do Something	Unfeasible - there are major trip attractors/connecting routes along each extent. A single two-way cycle track would remove a large quantity of cyclists from the desire lines and would therefore be sub-standard.	Fail
<b>L1704</b>	Option 1	Do Nothing	Feasible	Pass
	Option 2	Do Minimum	Feasible	Pass
	Option 3	Do Something	Unfeasible - This represents the Do Minimum Scenario	Fail
	Option 4	Do Something	Feasible	Pass
	Option 5	Do Something	Unfeasible - there are major trip attractors/connecting routes along each extent. A single two-way cycle track would remove a large quantity of cyclists from the desire lines and would therefore be sub-standard.	Fail

**5.2**

**Options Assessment:  
Sifting  
Proposal 2**

Location	Option	Design Feasibility	Pass/Fail	
N60 - Breaffy Road	Option 1	Do Nothing	Feasible	Pass
	Option 2	Do Minimum	Feasible	Pass
	Option 3	Do Something	Feasible	Pass
	Option 4	Do Something	Feasible	Pass
	Option 5	Do Something	Feasible	Pass
	Option 6	Do Something	Feasible	Pass
Moneen Road (East)	Option 1	Do Nothing	Feasible	Pass
	Option 2	Do Minimum	Feasible	Pass
	Option 3	Do Something	Feasible	Pass
	Option 4	Do Something	Feasible	Pass
	Option 5	Do Something	Unfeasible - there are major trip attractors/connecting routes along each extent. A single two-way cycle track would remove a large quantity of cyclists from the desire lines and would therefore be sub-standard.	Fail
	Option 6	Do Something	Unfeasible - there are major trip attractors/connecting routes along each extent. A two-way cycle track would remove a large quantity of cyclists from the desire lines and would be under-utilised in the contra-flow direction and therefore be sub-standard.	Fail
Moneen Road (West)	Option 1	Do Nothing	Feasible	Pass
	Option 2	Do Minimum	Feasible	Pass
	Option 3	Do Something	Feasible	Pass
	Option 4	Do Something	Feasible	Pass
	Option 5	Do Something	Unfeasible - there are major trip attractors/connecting routes along each extent. A single two-way cycle track would remove a large quantity of cyclists from the desire lines and would therefore be sub-standard.	Fail
	Option 6	Do Something	Unfeasible - there are major trip attractors/connecting routes along each extent. A two-way cycle track would remove a large quantity of cyclists from the desire lines and would be under-utilised in the contra-flow direction and therefore be sub-standard.	Fail
Humbert Mall/ Castle Street Car Park	Option 1	Do Nothing	Feasible	Pass
	Option 2	Do Minimum	Feasible	Pass
	Option 3	Do Something	Feasible	Pass
	Option 4	Do Something	Feasible	Pass
	Option 5	Do Something	Unfeasible - there are major trip attractors/connecting routes along each extent. A single two-way cycle track would remove a large quantity of cyclists from the desire lines and would therefore be sub-standard.	Fail
	Option 6	Do Something	Unfeasible - there are major trip attractors/connecting routes along each extent. A two-way cycle track would remove a large quantity of cyclists from the desire lines and would be under-utilised in the contra-flow direction and therefore be sub-standard.	Fail



## **5.3**

# **Options Assessment:**

## **Sifting**

### **Proposal 3**

Location	Option	Design Feasibility	Pass/Fail	
Newport Road	Option 1	Do Nothing	Feasible	Pass
	Option 2	Do Minimum	Feasible	Pass
	Option 3	Do Something	Unfeasible – This represents the Do Minimum Scenario	Fail
	Option 4	Do Something	Feasible	Pass
	Option 5	Do Something	Unfeasible - there are major trip attractors/connecting routes along each extent. A single two-way cycle track would remove a large quantity of cyclists from the desire lines and would therefore be sub-standard.	Fail
	Option 6	Do Something	Unfeasible - there are major trip attractors/connecting routes along each extent. A two-way cycle track would remove a large quantity of cyclists from the desire lines and would be under-utilised in the contra-flow direction and therefore be sub-standard.	Fail
Lannagh Road	Option 1	Do Nothing	Feasible	Pass
	Option 2	Do Minimum	Feasible	Pass
	Option 3	Do Something	Feasible with the removal of on-street parking (Lannagh Road East) although there will be pinch points where a shared carriageway will be required.	Pass
	Option 4	Do Something	Feasible with the removal of on-street parking although there will be pinch points where a shared carriageway will be required.	Pass
	Option 5	Do Something	Unfeasible - there are major trip attractors/connecting routes along each extent. A single two-way cycle track would remove a large quantity of cyclists from the desire lines and would therefore be sub-standard.	Fail
	Option 6	Do Something	Unfeasible - there are major trip attractors/connecting routes along each extent. A two-way cycle track would remove a large quantity of cyclists from the desire lines and would be under-utilised in the contra-flow direction and therefore be sub-standard.	Fail
Hopkins Road	Option 1	Do Nothing	Feasible	Pass
	Option 2	Do Minimum	Feasible	Pass
	Option 3	Do Something	Feasible with the removal of on-street parking although there will be pinch points where a shared carriageway will be required.	Pass
	Option 4	Do Something	Feasible with the removal of on-street parking although there will be pinch points where a shared carriageway will be required.	Pass
	Option 5	Do Something	Unfeasible - there are major trip attractors/connecting routes along each extent. A single two-way cycle track would remove a large quantity of cyclists from the desire lines and would therefore be sub-standard.	Fail

Location	Option		Design Feasibility	Pass/Fail
<b>Stephen Garvey Way</b>	Option 1	Do Nothing	Feasible	Pass
	Option 2	Do Minimum	Feasible	Pass
	Option 3	Do Something	Feasible	Pass
	Option 4	Do Something	Feasible	Pass
	Option 5	Do Something	Unfeasible - there are major trip attractors/connecting routes along each extent. A single two-way cycle track would remove a large quantity of cyclists from the desire lines and would therefore be sub-standard.	Fail
	Option 6	Do Something	Unfeasible - there are major trip attractors/connecting routes along each extent. A two-way cycle track would remove a large quantity of cyclists from the desire lines and would be under-utilised in the contra-flow direction and therefore be sub-standard.	Fail
<b>Old Westport Road</b>	Option 1	Do Nothing	Feasible	Pass
	Option 2	Do Minimum	Feasible	Pass
	Option 3	Do Something	Feasible - the current vehicular lanes are wider than required and there is an abundance of on street parking adjacent to residences, Mayo University Hospital and GMIT which all have private parking provisions.	Pass
	Option 4	Do Something	Feasible - the current vehicular lanes are wider than required and there is an abundance of on street parking adjacent to residences, Mayo University Hospital and GMIT which all have private parking provisions.	Pass
	Option 5	Do Something	Unfeasible - there are major trip attractors/connecting routes along each extent. A single two-way cycle track would remove a large quantity of cyclists from the desire lines and would therefore be sub-standard.	Fail
	Option 6	Do Something	Unfeasible - there are major trip attractors/connecting routes along each extent. A two-way cycle track would remove a large quantity of cyclists from the desire lines and would be under-utilised in the contra-flow direction and therefore be sub-standard.	Fail

## **5.4**

# **Options Assessment:**

## **Sifting**

### **Proposal 4**

Location	Option		Design Feasibility	Pass/Fail
Turlough Road	Option 1	Do Nothing	Feasible	Pass
	Option 2	Do Minimum	Feasible	Pass
	Option 3	Do Something	Feasible	Pass
	Option 4	Do Something	Feasible	Pass
	Option 5	Do Something	Unfeasible - there are major trip attractors/connecting routes along each extent. A single two-way cycle track would remove a large quantity of cyclists from the desire lines and would therefore be sub-standard.	Fail
	Option 6	Do Something	Unfeasible - there are major trip attractors/connecting routes along each extent. A two-way cycle track would remove a large quantity of cyclists from the desire lines and would be under-utilised in the contra-flow direction and therefore be sub-standard.	Fail
Upper Thomas Street	Option 1	Do Nothing	Feasible	Pass
	Option 2	Do Minimum	Feasible	Pass
	Option 3	Do Something	Feasible - Although some quantum of on street parking/loading facilities will need to be retained	Pass
	Option 4	Do Something	Unfeasible - Some quantum of on street parking/loading facilities will need to be retained making the proposed dedicated cycle facilities unfeasible due to space constraints.	Fail
	Option 5	Do Something	Unfeasible - Some quantum of on street parking/loading facilities will need to be retained making the proposed dedicated cycle facilities unfeasible due to space constraints.	Fail
	Option 6	Do Something	Unfeasible - Some quantum of on street parking/loading facilities will need to be retained making the proposed dedicated cycle facilities unfeasible due to space constraints.	Fail
Thomas Street/Richard Street/Rush Street/Lucan Street	Option 1	Do Nothing	Feasible	Pass
	Option 2	Do Minimum	Unfeasible - It is noted that Pontoon Road has been recently upgraded to the Do Minimum scenario	Fail
	Option 3	Do Something	Feasible	Pass
	Option 4	Do Something	Feasible	Pass
	Option 5	Do Something	Unfeasible - there are major trip attractors/connecting routes along each extent. A single two-way cycle track would remove a large quantity of cyclists from the desire lines and would therefore be sub-standard.	Fail
	Option 6	Do Something	Unfeasible - there are major trip attractors/connecting routes along each extent. A two-way cycle track would remove a large quantity of cyclists from the desire lines and would be under-utilised in the contra-flow direction and therefore be sub-standard.	Fail

**5.5**

**Options Assessment:**

**Sifting**

**Proposal 5**

Location	Design Feasibility	Pass/Fail
Mill Lane Car Park	Feasible	Pass
Dunnes Car Park	Feasible	Pass
Castle Street Car Park	Feasible	Pass
Supervalu Car Park	Feasible	Pass
Greenway to Blackfort Manor	Feasible	Pass
Greenway to Lannagh Road	Feasible	Pass
Churchview Villas to Rathbawn Road	Feasible	Pass
Castlebar Primary School to St Joseph's Secondary School to Lawn Park	Feasible	Pass
Proposed Active Travel Bridge to Rowan Drive	Feasible	Pass
Proposed Active Travel Bridge to Springfield Court	Feasible	Pass
Lidl to Davitt College	Feasible	Pass
Train Station to Industrial Estate	Feasible	Pass
Train Station to Lios na Circe	Feasible	Pass
Humbert Way to St Anthony's Special School	Feasible	Pass

**5.6**

**Options Assessment:**

**Sifting**

**Proposal 6**



Location	Option	Design Feasibility	Pass/Fail	
Rathbawn Road	Option 1	Do Nothing	Feasible	Pass
	Option 2	Do Minimum	Feasible	Pass
	Option 3	Do Something	Unfeasible - no available width	Fail
	Option 4	Do Something	Unfeasible - no available width	Fail
	Option 5	Do Something	Unfeasible - no available width	Fail
	Option 6	Do Something	Unfeasible - no available width	Fail
Pontoon Road	Option 1	Do Nothing	Feasible	Pass
	Option 2	Do Minimum	Unfeasible - It is noted that Pontoon Road has been recently upgraded to the Do Minimum scenario	Fail
	Option 3	Do Something	Feasible	Pass
	Option 4	Do Something	Feasible	Pass
	Option 5	Do Something	Unfeasible - there are major trip attractors/connecting routes along each extent. A single two-way cycle track would remove a large quantity of cyclists from the desire lines and would therefore be sub-standard.	Fail
	Option 6	Do Something	Unfeasible - there are major trip attractors/connecting routes along each extent. A two-way cycle track would remove a large quantity of cyclists from the desire lines and would be under-utilised in the contra-flow direction and therefore be sub-standard.	Fail
L5786/Fortville Estate	Option 1	Do Nothing	Feasible	Pass
	Option 2	Do Minimum	Feasible	Pass
	Option 3	Do Something	Unfeasible - no available width	Fail
	Option 4	Do Something	Unfeasible - no available width	Fail
	Option 5	Do Something	Unfeasible - no available width	Fail
	Option 6	Do Something	Unfeasible - no available width	Fail
Sir Ernst Chain Road	Option 1	Do Nothing	Feasible	Pass
	Option 2	Do Minimum	Feasible	Pass
	Option 3	Do Something	Feasible	Pass
	Option 4	Do Something	Feasible	Pass
	Option 5	Do Something	Unfeasible - there are major trip attractors/connecting routes along each extent. A single two-way cycle track would remove a large quantity of cyclists from the desire lines and would therefore be sub-standard.	Fail
	Option 6	Do Something	Unfeasible - there are major trip attractors/connecting routes along each extent. A two-way cycle track would remove a large quantity of cyclists from the desire lines and would be under-utilised in the contra-flow direction and therefore be sub-standard.	Fail
Pound Road/ Pound Grove/ Churchview Villas	Option 1	Do Nothing	Feasible	Pass
	Option 2	Do Minimum	Feasible	Pass
	Option 3	Do Something	Unfeasible - no available width	Fail
	Option 4	Do Something	Unfeasible - no available width	Fail
	Option 5	Do Something	Unfeasible - no available width	Fail
	Option 6	Do Something	Unfeasible - no available width	Fail
Location	Option	Design Feasibility	Pass/Fail	

<b>Upper Chapel Street</b>	Option 1	Do Nothing	Feasible	Pass
	Option 2	Do Minimum	Feasible	Pass
	Option 3	Do Something	Feasible	Pass
	Option 4	Do Something	Feasible - There are alternatives to on-street parking	Pass
	Option 5	Do Something	Feasible - There are alternatives to on-street parking	Pass
	Option 6	Do Something	Feasible - There are alternatives to on-street parking	Pass
	Option 7	Do Something	Feasible - There are alternatives to on-street parking	Pass
<b>Main Street (incl Mountain</b>	Option 1	Do Nothing	Feasible	Pass
	Option 2	Do Minimum	Feasible	Pass
	Option 3	Do Something	Unfeasible - Some quantum of on street parking/loading facilities will need to be retained making the proposed dedicated cycle facilities discontinuous.	Fail
	Option 4	Do Something	Unfeasible - Some quantum of on street parking/loading facilities will need to be retained making the proposed dedicated cycle facilities discontinuous.	Fail
	Option 5	Do Something	Unfeasible - Some quantum of on street parking/loading facilities will need to be retained making the proposed dedicated cycle facilities discontinuous.	Fail
	Option 6	Do Something	Unfeasible - Some quantum of on street parking/loading facilities will need to be retained making the proposed dedicated cycle facilities discontinuous.	Fail
	Option 7	Do Something	Unfeasible - Some quantum of on street parking/loading facilities will need to be retained making the proposed dedicated cycle facilities discontinuous.	Fail
<b>New Antrim Street</b>	Option 1	Do Nothing	Feasible	Pass
	Option 2	Do Minimum	Feasible	Pass
	Option 3	Do Something	Unfeasible - no available width to provide dedicated cycle facilities.	Fail
	Option 4	Do Something	Unfeasible - no available width to provide dedicated cycle facilities.	Fail
	Option 5	Do Something	Unfeasible - no available width to provide dedicated cycle facilities.	Fail
	Option 6	Do Something	Unfeasible - no available width to provide dedicated cycle facilities.	Fail
	Option 7	Do Something	Unfeasible - Some quantum of on street parking/loading facilities will need to be retained making the proposed dedicated cycle facilities discontinuous.	Fail
<b>Location</b>	<b>Option</b>		<b>Design Feasibility</b>	<b>Pass/Fail</b>

<b>Tucker Street/Linenhall Street</b>	Option 1	Do Nothing	Feasible	Pass
	Option 2	Do Minimum	Feasible	Pass
	Option 3	Do Something	Unfeasible - Some quantum of on street parking/loading facilities will need to be retained making the proposed dedicated cycle facilities discontinuous.	Fail
	Option 4	Do Something	Unfeasible - Some quantum of on street parking/loading facilities will need to be retained making the proposed dedicated cycle facilities discontinuous.	Fail
	Option 5	Do Something	Unfeasible - Some quantum of on street parking/loading facilities will need to be retained making the proposed dedicated cycle facilities discontinuous.	Fail
	Option 6	Do Something	Unfeasible - Some quantum of on street parking/loading facilities will need to be retained making the proposed dedicated cycle facilities discontinuous.	Fail
	Option 7	Do Something	Unfeasible - Some quantum of on street parking/loading facilities will need to be retained making the proposed dedicated cycle facilities discontinuous.	Fail
<b>Spencer Street (incl The Mall)</b>	Option 1	Do Nothing	Feasible	Pass
	Option 2	Do Minimum	Feasible	Pass
	Option 3	Do Something	Feasible	Pass
	Option 4	Do Something	Feasible - There are alternatives to on-street parking	Pass
	Option 5	Do Something	Feasible - There are alternatives to on-street parking	Pass
	Option 6	Do Something	Feasible - There are alternatives to on-street parking	Pass
	Option 7	Do Something	Feasible - There are alternatives to on-street parking	Pass
<b>Pavillion Road</b>	Option 1	Do Nothing	Feasible	Pass
	Option 2	Do Minimum	Feasible	Pass
	Option 3	Do Something	Feasible	Pass
	Option 4	Do Something	Feasible	Pass
	Option 5	Do Something	Unfeasible - there are major trip attractors/connecting routes along each extent. A single two-way cycle track would remove a large quantity of cyclists from the desire lines and would therefore be sub-standard.	Fail
	Option 6	Do Something	Unfeasible - there are major trip attractors/connecting routes along each extent. A two-way cycle track would remove a large quantity of cyclists from the desire lines and would be under-utilised in the contra-flow direction and therefore be sub-standard.	Fail
<b>Moneen Road Industrial Estate (Internal Roads)</b>	Option 1	Do Nothing	Feasible	Pass
	Option 2	Do Minimum	Feasible	Pass
	Option 3	Do Something	Feasible	Pass
	Option 4	Do Something	Feasible	Pass
	Option 5	Do Something	Unfeasible - there are major trip attractors/connecting routes along each extent. A single two-way cycle track would remove a large quantity of cyclists from the desire lines and would therefore be sub-standard.	Fail
	Option 6	Do Something	Unfeasible - there are major trip attractors/connecting routes along each extent. A two-way cycle track would remove a large quantity of cyclists from the desire lines and would be under-utilised in the contra-flow direction and therefore be sub-standard.	Fail

# 6 Options Assessment

## MCA

The assessment is based on a two-stage approach:

- Initially a sifting (“Screening of Options Long List”) assessment was carried out on all possible route options. This process was a high-level assessment whereby routes were appraised on their ability to provide a bus corridor, and whether they could practically be delivered. A simple pass/fail result was given for each route at this stage.
- The routes that passed Stage 1 were then taken forward and combined into a number of feasible longer routes between points. These were then assessed by a “Multi-Criteria Analysis” process, in which routes were ranked in a comparative manner under a number of criteria.

### ***Packaging of Land Use and Transport Options (Scenarios)***

Individual measures involving land use, transport demand, transport network, traffic management and demand management that are compatible with the ABTA process have been incorporated into the Options Assessment. This association will support a collective scenario that contribute to achieving the ABTA objectives.

There are no planned land use changes of a substantial scales within the study area that would be deemed influence the existing transport demand patterns. Future development will fundamentally build on the strength of established development areas and hence demand patterns.

### **Transport Network**

Primarily, the N5 Westport to Turlough Road project, due to be completed in 2023, will create a bypass of Castlebar for through traffic travelling along the N5. The LAM was modelled to account for the opening of this bypass and associated traffic redistribution for through traffic, long distance traffic and internal traffic. Due to the near-completion of this scheme, it is included in any scenario testing. This traffic redistribution and projected flows have been accounted for in the MCA process to allow for the delivery of future proofed design proposals and the introduction of fit for purpose infrastructure.

Systra were engaged to carry out detailed traffic modelling to inform the scheme. The baseline assessment included the collection of extensive traffic and POWSCAR data to develop a Local Area Model (LAM) for the Castlebar town area. This LAM is integrated with the Western Regional Model (WRM).

The LAM developed has been calibrated and validated in-line with TII Project Appraisal Guidelines and meets all specified criteria for both the AM and PM showing that the model is fit for purpose. The model represents AM and PM peak period base year traffic conditions well, as demonstrated statistically through calibration and validation. The model realistically represents journey times and the modelled traffic flows match observed count data. It therefore provides a robust basis for assessing transport scheme options.

The N5 Westport to Turlough Road project is the only major road project that has either under construction, undergoing the planning process, options process or been allocated funding/timelines within the study area. However, it is noted that MCC are assessing the feasibility of a northern ring road to the west of the study

area. Due to the known timelines associated with projects of this scale, the direct impact of the proposed link is not assessed but the proposals do account for future proofing and tie-ins with this additional scheme.

MCC are currently reviewing the active travel network within the study area. Most notably, the Castlebar Urban Greenway is currently undergoing upgrade works which is improving the at standard of the existing infrastructure and increasing the length of the greenway. This has been taken as the baseline for the cycling network.

Additionally, MCC are progressing the County Cycle Network Plan with proposals to connect towns via greenways. This plan is at development stage. Tie-ins for this plan are accounted for.

## ***Transport Demand***

The Castlebar Local Area Model (LAM) was developed in line with the National Demand Forecasting Model (NDFM) which takes input attributes such as land-use data, population etc., and estimates the total quantity of daily travel demand produced by, and attracted to, the Study Area. Therefore, transport demand characteristics have been fully accounted for in the Options Assessment process.

## ***Multi Criteria Analysis***

The full MCA analysis for the study areas is shown in Appendix 4.

This section outlines the methodology used in the assessment of five scheme options. The proposed options were assessed using 'Multi Criteria Analysis' (MCA) as outlined in the 'Common Appraisal Framework for Transport Projects and Programmes' published by the Department of Transport, July 2019.

The required criteria are as follows:

- Economy
- Safety
- Physical Activity
- Environment
- Accessibility and Social Inclusion
- Integration

Each option will be appraised under the criteria outlined above and compared based on a five-point scale, ranging from having significant advantages to having significant disadvantages over other route options. Table 0-1 shows the colour coding of the five-point scale, with advantageous routes graded "dark green" and disadvantageous routes graded "red".

Table 0-1 Options Colour Coded Ranking Scale

Colour	Description
	Significant advantages over other options.
	Some advantages over other options.
	Neutral compared to other options.
	Some disadvantages to other options.
	Significant disadvantages to other options.

## Assessment Criterion

### *Economy*

#### Capital Cost and Value for Money

Capital cost estimates are determined from both the indicative high-level infrastructure cost estimate and land acquisition cost. Indicative cost estimate is established to assess options for their likely capital infrastructure cost.

Each option has been assessed relative to the nature and extent of infrastructure works requirements to deliver the scheme objectives. The indicative cross-section for each option was used to determine the extent of the works required to provide the pedestrian and cycle facilities.

#### Access for All, Transport Reliability and Efficiency, and Quality of Service

This sub-criterion assesses the extent to which new users will be attracted to the cycle facilities, creating a mode shift that results in journey time savings for all users including and especially those choosing cycling and public transport.

The safer, more consistent and higher quality the cycling facilities are, the more new users will be attracted to these route.

### *Safety*

#### Pedestrian Safety

This criterion considers the safety of pedestrians along the route. The safety of access, location, availability and crossing facilities and the junctions and between them are the items considered when assessing safety of those walking on the routes.

#### Cyclist Safety

This criterion assesses the safety of cyclists within the study area. This assessment is predominately concerned with the level of segregation provided between cyclists and motorised traffic.

#### Road Safety

In general, road collisions may be reduced along a dedicated cycle route due to modal shift. The speed of motorised vehicles is influenced by carriageway width. For the purposes of comparing the proposed options, the proposed cross-section is used to assess road safety.

### *Physical Activity*

This criterion identifies the potential impact of each proposed option in facilitating a healthier lifestyle. This assessment considers how each option provides measures which support walking and cycling.

### *Environment*

The scope and methodology for the environmental assessment was established by considering what environmental aspects are likely to be impacted and are, therefore, of importance in evaluating the route options. The potential impacts of route options are assessed at desktop study level. The environmental constraints considered are outlined in the following sections.

#### *Landscape and Visual Quality*

This criterion assesses the possible effects of each route on the surrounding streetscapes and considers whether the proposed option provides opportunities for better integration between transport and urban form. It also considered whether the proposed option may result in reduced traffic volumes.

#### *Air Quality*

The potential of each option to affect air quality as a result of mode shift, required diversions, etc. is assessed in this section. An option's potential to minimise harmful transport related emissions is considered.

#### *Noise and Vibration*

This criterion assesses the noise and vibration impact of each option.

#### *Land Use*

The potential impact on lands use through land-take, severance or reduction of viability, or which prevents or reduces its value for intended use is considered under this heading.

### *Accessibility and Social Inclusion*

Key trip attractors are also considered in this criterion. The following land-uses have been considered as key trip attractors for the purposes of this assessment:

- Education (schools, universities, community centre, etc.)
- Retail and leisure (shopping centres, town centre, etc.)
- Health (hospitals, clinics, etc.)
- Employment (business parks, office developments, etc.)
- Residential (housing estates and predominantly residential roads and streets, etc.)

### **Multi-modal**

This criterion assesses how the proposed options will improve multi-modal accessibility within residential, employment, educational and retail centres by improving accessibility by walking and cycling, public transport, car and HGV.

### **Socially Inclusive**

Consideration is given to whether an option helps provide a socially inclusive transport network and whether it will benefit vulnerable groups in society such as people on low income, non-car owners, people with disabilities and the young and the old.

## *Integration*

### Land Use Integration

This criterion identifies the extent to which an option supports or encourages planned future development or provides economic opportunities. It considers whether an option supports integration between sustainable transport and land-use planning and policies. As part of this assessment, cognisance was taken of the ability of each option to offer opportunities to regenerate particular streets or areas or enhance the urban environment in general.

### Transport Network Integration

This criterion identifies the possible links between each option and existing and proposed sustainable transport modes. Additionally, major effects on general traffic are also considered.

### Cycling Integration

This criterion identifies the integration of the proposed options with the existing and proposed adjacent routes, and the quality of infrastructure along the route.



**6.1**

**Options Assessment:**

**MCA**

**Proposal 1**

Area:	1	Sub-Area:	D	Description:	National Road	Location:	N5 -OLD DUBLIN ROAD
		Option 1	Option 2	Option 3	Option 4	Option 5	Option 6
		Do Nothing	Do Minimum	Do Something	Do Something	Do Something	Do Something
Assessment Criteria	Assessment Sub-Criteria	Retain the existing	*Retain the existing cross section layout * Improve surfacing, reduce vehicular speed limit, signage and road markings * Provide dedicated crossing points to improve pedestrian safety	* Improve surfacing, reduce vehicular speed limit, signage and road markings * Provide cycle lanes in each direction to be provided for through narrowing of the vehicular lanes/kerb adjustments * Improve surfacing, reduced speeds, signage and road markings * Provided continuous footpath along each extent * Provide dedicated crossing points	* Improve surfacing, reduce vehicular speed limit, signage and road markings * Provide cycle tracks in each direction to be provided for through narrowing of the vehicular lanes/kerb adjustments * Provided continuous footpath along each extent * Provide dedicated crossing points	* Improve surfacing, reduce vehicular speed limit, signage and road markings * Provide two-way cycle track on the eastern extent to be provided for through narrowing of the vehicular lanes/kerb adjustments * Provided continuous footpath along each extent * Provide dedicated crossing points	* Improve surfacing, reduce vehicular speed limit, signage and road markings * Provide two-way cycle track on the eastern extent to be provided for through narrowing of the vehicular lanes/kerb adjustments * Provide a cycle lane on the western extent * Provide footpath in each direction * Provide dedicated crossing points
Economy	Capital Cost						
	Transport Reliability						
Safety	Pedestrian Safety						
	Cyclist Safety						
	Road Safety						
Physical Activity	Physical Activity						
Environment	Landscape						
	Air Quality						
	Noise & Vibration						
	Land Use Character						
Accessibility & Social Inclusion	Multi-modal						
	Socially Inclusive						
Integration	Land Use Integration						
	Transport Network						
	Cycling Integration						

Area:	1	Sub-Area:	C	Description:	National Road	Location:	N5 - LAWN ROAD
		Option 1	Option 2		Option 4	Option 5	Option 6
		Do Nothing	Do Minimum		Do Something	Do Something	Do Something
Assessment Criteria	Assessment Sub-Criteria	Retain the existing	*Retain the existing cross section layout * Improve surfacing, reduce vehicular speed limit, signage and road markings * Provide dedicated crossing points to improve pedestrian safety		* Improve surfacing, reduce vehicular speed limit, signage and road markings *Provide cycle tracks in each direction to be provided for through narrowing of the vehicular lanes/kerb adjustments * Provided continuous footpath along each extent * Provide dedicated crossing points	* Improve surfacing, reduce vehicular speed limit, signage and road markings * Provide two-way cycle track on the eastern extent to be provided for through narrowing of the vehicular lanes/kerb adjustments * Provided continuous footpath along each extent * Provide dedicated crossing points	* Improve surfacing, reduce vehicular speed limit, signage and road markings * Provide two-way cycle track on the eastern extent to be provided for through narrowing of the vehicular lanes/kerb adjustments * Provide a cycle lane on the western extent * Provide footpath in each direction * Provide dedicated crossing points
<b>Economy</b>	Capital Cost						
	Transport Reliability						
<b>Safety</b>	Pedestrian Safety						
	Cyclist Safety						
	Road Safety						
<b>Physical Activity</b>	Physical Activity						
<b>Environment</b>	Landscape						
	Air Quality						
	Noise & Vibration						
	Land Use Character						
<b>Accessibility &amp; Social Inclusion</b>	Multi-modal						
	Socially Inclusive						
<b>Integration</b>	Land Use Integration						
	Transport Network						
	Cycling Integration						

Area:	1	Sub-Area:	B	Description:	National Road	Location:	N5 - HUMBERT WAY
		Option 1	Option 2		Option 4	Option 5	
		Do Nothing	Do Minimum		Do Something	Do Something	
Assessment Criteria	Assessment Sub-Criteria	Retain the existing	*Retain the existing cross section layout * Improve surfacing, reduce vehicular speed limit, signage and road markings * Provide dedicated crossing points to improve pedestrian safety		* Improve surfacing, reduce vehicular speed limit, signage and road markings * Provide cycle tracks in each direction to be provided for through narrowing of the vehicular lanes/kerb adjustments * Provided continuous footpath along each extent * Provide dedicated crossing points	* Improve surfacing, reduce vehicular speed limit, signage and road markings * Provide two-way cycle track on the eastern extent to be provided for through narrowing of the vehicular lanes/kerb adjustments * Provided continuous footpath along each extent * Provide dedicated crossing points	
<b>Economy</b>	Capital Cost						
	Transport Reliability						
<b>Safety</b>	Pedestrian Safety						
	Cyclist Safety						
	Road Safety						
<b>Physical Activity</b>	Physical Activity						
<b>Environment</b>	Landscape						
	Air Quality						
	Noise & Vibration						
	Land Use Character						
<b>Accessibility &amp; Social Inclusion</b>	Multi-modal						
	Socially Inclusive						
<b>Integration</b>	Land Use Integration						
	Transport Network						
	Cycling Integration						

Area:	1	Sub-Area:	A	Description:	National Road	Location:	N5 - WESTPORT ROAD
		Option 1	Option 2	Option 3	Option 4	Option 5	Option 6
		Do Nothing	Do Minimum	Do Something	Do Something	Do Something	Do Something
Assessment Criteria	Assessment Sub-Criteria	Retain the existing	*Retain the existing cross section layout * Improve surfacing, reduce vehicular speed limit, signage and road markings * Provide dedicated crossing points to improve pedestrian safety	* Improve surfacing, reduce vehicular speed limit, signage and road markings * Provide cycle lanes in each direction to be provided for through narrowing of the vehicular lanes/kerb adjustments * Improve surfacing, reduced speeds, signage and road markings * Provided continuous footpath along each extent * Provide dedicated crossing points	* Improve surfacing, reduce vehicular speed limit, signage and road markings * Provide cycle tracks in each direction to be provided for through narrowing of the vehicular lanes/kerb adjustments * Provided continuous footpath along each extent * Provide dedicated crossing points	* Improve surfacing, reduce vehicular speed limit, signage and road markings * Provide two-way cycle track on the eastern extent to be provided for through narrowing of the vehicular lanes/kerb adjustments * Provided continuous footpath along each extent * Provide dedicated crossing points	* Improve surfacing, reduce vehicular speed limit, signage and road markings * Provide two-way cycle track on the eastern extent to be provided for through narrowing of the vehicular lanes/kerb adjustments * Provide a cycle lane on the western extent * Provide footpath in each direction * Provide dedicated crossing points
Economy	Capital Cost						
	Transport Reliability						
Safety	Pedestrian Safety						
	Cyclist Safety						
	Road Safety						
Physical Activity	Physical Activity						
Environment	Landscape						
	Air Quality						
	Noise & Vibration						
	Land Use Character						
Accessibility & Social Inclusion	Multi-modal						
	Socially Inclusive						
Integration	Land Use Integration						
	Transport Network						
	Cycling Integration						

Area:	1	Sub-Area:	F	Description:	National Road	Location:	N84 - STATION ROAD
		Option 1	Option 2		Option 4		
		Do Nothing	Do Minimum		Do Something		
Assessment Criteria	Assessment Sub-Criteria	Retain the existing	*Retain the existing cross section layout * Improve surfacing, reduce vehicular speed limit, signage and road markings * Provide dedicated crossing points to improve pedestrian safety		* Improve surfacing, reduce vehicular speed limit, signage and road markings * Provide cycle tracks in each direction to be provided for through narrowing of the vehicular lanes/kerb adjustments * Provided continuous footpath along each extent * Provide dedicated crossing points		
Economy	Capital Cost						
	Transport Reliability						
Safety	Pedestrian Safety						
	Cyclist Safety						
	Road Safety						
Physical Activity	Physical Activity						
Environment	Landscape						
	Air Quality						
	Noise & Vibration						
	Land Use Character						
Accessibility & Social Inclusion	Multi-modal						
	Socially Inclusive						
Integration	Land Use Integration						
	Transport Network						
	Cycling Integration						

Area:	3	Sub-Area:	F	Description:	Town Centre Two Way	Location:	JOHN MOORE RD
		Option 1	Option 2		Option 4		
		Do Nothing	Do Minimum		Do Something		
Assessment Criteria	Assessment Sub-Criteria	Retain the existing	*Retain the existing cross section layout * Improve surfacing, reduce vehicular speed limit, signage and road markings * Provide dedicated crossing points to improve pedestrian safety		* Improve surfacing, reduce vehicular speed limit, signage and road markings *Provide cycle tracks in each direction to be provided for through narrowing of the vehicular lanes/kerb adjustments * Provided continous footpath along each extent * Provide dedicated crossing points		
<b>Economy</b>	Capital Cost						
	Transport Reliability						
<b>Safety</b>	Pedestrian Safety						
	Cyclist Safety						
	Road Safety						
<b>Physical Activity</b>	Physical Activity						
<b>Environment</b>	Landscape						
	Air Quality						
	Noise & Vibration						
	Land Use Character						
<b>Accessibility &amp; Social Inclusion</b>	Multi-modal						
	Socially Inclusive						
<b>Integration</b>	Land Use Integration						
	Transport Network						
	Cycling Integration						

Area:	3	Sub-Area:	F	Description:	Town Centre Two Way	Location:	PAVILION RD
		Option 1	Option 2		Option 4		
		Do Nothing	Do Minimum		Do Something		
Assessment Criteria	Assessment Sub-Criteria	Retain the existing	*Retain the existing cross section layout * Improve surfacing, reduce vehicular speed limit, signage and road markings * Provide dedicated crossing points to improve pedestrian safety		* Improve surfacing, reduce vehicular speed limit, signage and road markings *Provide cycle tracks in each direction to be provided for through narrowing of the vehicular lanes/kerb adjustments * Provided continous footpath along each extent * Provide dedicated crossing points		
<b>Economy</b>	Capital Cost						
	Transport Reliability						
<b>Safety</b>	Pedestrian Safety						
	Cyclist Safety						
	Road Safety						
<b>Physical Activity</b>	Physical Activity						
<b>Environment</b>	Landscape						
	Air Quality						
	Noise & Vibration						
	Land Use Character						
<b>Accessibility &amp; Social Inclusion</b>	Multi-modal						
	Socially Inclusive						
<b>Integration</b>	Land Use Integration						
	Transport Network						
	Cycling Integration						



Area:	3	Sub-Area:	F	Description:	Town Centre Two Way	Location:	L1704
		Option 1	Option 2		Option 4		
		Do Nothing	Do Minimum		Do Something		
Assessment Criteria	Assessment Sub-Criteria	Retain the existing	*Retain the existing cross section layout * Improve surfacing, reduce vehicular speed limit, signage and road markings * Provide dedicated crossing points to improve pedestrian safety		* Improve surfacing, reduce vehicular speed limit, signage and road markings *Provide cycle tracks in each direction to be provided for through narrowing of the vehicular lanes/kerb adjustments * Provided continous footpath along each extent * Provide dedicated crossing points		
<b>Economy</b>	Capital Cost						
	Transport Reliability						
<b>Safety</b>	Pedestrian Safety						
	Cyclist Safety						
	Road Safety						
<b>Physical Activity</b>	Physical Activity						
<b>Environment</b>	Landscape						
	Air Quality						
	Noise & Vibration						
	Land Use Character						
<b>Accessibility &amp; Social Inclusion</b>	Multi-modal						
	Socially Inclusive						
<b>Integration</b>	Land Use Integration						
	Transport Network						
	Cycling Integration						

**6.2**

**Options Assessment:  
MCA  
Proposal 2**

Area:	1	Sub-Area:	E	Description:	National Road	Location:	N60 - BREAFFY ROAD
		Option 1	Option 2	Option 3	Option 4	Option 5	Option 6
		Do Nothing	Do Minimum	Do Something	Do Something	Do Something	Do Something
Assessment Criteria	Assessment Sub-Criteria	Retain the existing	*Retain the existing cross section layout * Improve surfacing, reduce vehicular speed limit, signage and road markings * Provide dedicated crossing points to improve pedestrian safety	* Improve surfacing, reduce vehicular speed limit, signage and road markings * Provide cycle lanes in each direction to be provided for through narrowing of the vehicular lanes/kerb adjustments * Improve surfacing, reduced speeds, signage and road markings * Provided continuous footpath along each extent * Provide dedicated crossing points	* Improve surfacing, reduce vehicular speed limit, signage and road markings * Provide cycle tracks in each direction to be provided for through narrowing of the vehicular lanes/kerb adjustments * Provided continuous footpath along each extent * Provide dedicated crossing points	* Improve surfacing, reduce vehicular speed limit, signage and road markings * Provide two-way cycle track on the eastern extent to be provided for through narrowing of the vehicular lanes/kerb adjustments * Provided continuous footpath along each extent * Provide dedicated crossing points	* Improve surfacing, reduce vehicular speed limit, signage and road markings * Provide two-way cycle track on the eastern extent to be provided for through narrowing of the vehicular lanes/kerb adjustments * Provide a cycle lane on the western extent * Provide footpath in each direction * Provide dedicated crossing points
Economy	Capital Cost						
	Transport Reliability						
Safety	Pedestrian Safety						
	Cyclist Safety						
	Road Safety						
Physical Activity	Physical Activity						
Environment	Landscape						
	Air Quality						
	Noise & Vibration						
	Land Use Character						
Accessibility & Social Inclusion	Multi-modal						
	Socially Inclusive						
Integration	Land Use Integration						
	Transport Network						
	Cycling Integration						

Area:	5	Sub-Area:	A	Description:	Employment/Industrial	Location:	MONEEN ROAD (E)
		Option 1	Option 2	Option 3	Option 4		
		Do Nothing	Do Minimum	Do Something	Do Something		
Assessment Criteria	Assessment Sub-Criteria	Retain the existing	<ul style="list-style-type: none"> <li>*Retain the existing cross section layout</li> <li>* Improve surfacing, reduce vehicular speed limit, signage and road markings</li> <li>* Provide dedicated crossing points to improve pedestrian safety</li> </ul>	<ul style="list-style-type: none"> <li>* Improve surfacing, reduce vehicular speed limit, signage and road markings</li> <li>* Provide cycle lanes in each direction to be provided for through narrowing of the vehicular lanes/kerb adjustments</li> <li>* Improve surfacing, reduced speeds, signage and road markings</li> <li>* Provided continuous footpath along each extent</li> <li>* Provide dedicated crossing points</li> </ul>	<ul style="list-style-type: none"> <li>* Improve surfacing, reduce vehicular speed limit, signage and road markings</li> <li>* Provide cycle tracks in each direction to be provided for through narrowing of the vehicular lanes/kerb adjustments</li> <li>* Provided continuous footpath along each extent</li> <li>* Provide dedicated crossing points</li> </ul>		
Economy	Capital Cost						
	Transport Reliability						
Safety	Pedestrian Safety						
	Cyclist Safety						
	Road Safety						
Physical Activity	Physical Activity						
Environment	Landscape						
	Air Quality						
	Noise & Vibration						
	Land Use Character						
Accessibility & Social Inclusion	Multi-modal						
	Socially Inclusive						
Integration	Land Use Integration						
	Transport Network						
	Cycling Integration						

Area:	4	Sub-Area:	F	Description:	Residential	Location:	MONEEN ROAD (W)
		Option 1	Option 2	Option 3	Option 4		
		Do Nothing	Do Minimum	Do Something	Do Something		
Assessment Criteria	Assessment Sub-Criteria	Retain the existing	*Retain the existing cross section layout * Improve surfacing, reduce vehicular speed limit, signage and road markings * Provide dedicated crossing points to improve pedestrian safety	* Improve surfacing, reduce vehicular speed limit, signage and road markings * Provide cycle lanes in each direction to be provided for through narrowing of the vehicular lanes/kerb adjustments * Improve surfacing, reduced speeds, signage and road markings * Provided continuous footpath along each extent * Provide dedicated crossing points	* Improve surfacing, reduce vehicular speed limit, signage and road markings * Provide cycle tracks in each direction to be provided for through narrowing of the vehicular lanes/kerb adjustments * Provided continuous footpath along each extent * Provide dedicated crossing points		
Economy	Capital Cost						
	Transport Reliability						
Safety	Pedestrian Safety						
	Cyclist Safety						
	Road Safety						
Physical Activity	Physical Activity						
Environment	Landscape						
	Air Quality						
	Noise & Vibration						
	Land Use Character						
Accessibility & Social Inclusion	Multi-modal						
	Socially Inclusive						
Integration	Land Use Integration						
	Transport Network						
	Cycling Integration						

**6.3**

**Options Assessment:**

**MCA**

**Proposal 3**

Area:	4	Sub-Area:	B	Description:	Residential	Location:	NEWPORT ROAD
		Option 1	Option 2		Option 4		
		Do Nothing	Do Minimum		Do Something		
Assessment Criteria	Assessment Sub-Criteria	Retain the existing	*Retain the existing cross section layout * Improve surfacing, reduce vehicular speed limit, signage and road markings * Provide dedicated crossing points to improve pedestrian safety		* Improve surfacing, reduce vehicular speed limit, signage and road markings *Provide cycle tracks in each direction to be provided for through narrowing of the vehicular lanes/kerb adjustments * Provided continous footpath along each extent * Provide dedicated crossing points		
Economy	Capital Cost						
	Transport Reliability						
Safety	Pedestrian Safety						
	Cyclist Safety						
	Road Safety						
Physical Activity	Physical Activity						
Environment	Landscape						
	Air Quality						
	Noise & Vibration						
	Land Use Character						
Accessibility & Social Inclusion	Multi-modal						
	Socially Inclusive						
Integration	Land Use Integration						
	Transport Network						
	Cycling Integration						

Area:	3	Sub-Area:	E	Description:	Town Centre Two Way	Location:	LANNAGH ROAD
		Option 1	Option 2	Option 3	Option 4		
		Do Nothing	Do Minimum	Do Something	Do Something		
Assessment Criteria	Assessment Sub-Criteria	Retain the existing	<ul style="list-style-type: none"> <li>* Retain the existing cross section layout</li> <li>* Improve surfacing, reduce vehicular speed limit, signage and road markings</li> <li>* Provide dedicated crossing points to improve pedestrian safety</li> </ul>	<ul style="list-style-type: none"> <li>* Improve surfacing, reduce vehicular speed limit, signage and road markings</li> <li>* Provide cycle lanes in each direction to be provided for through narrowing of the vehicular lanes/kerb adjustments</li> <li>* Improve surfacing, reduced speeds, signage and road markings</li> <li>* Provided continuous footpath along each extent</li> <li>* Provide dedicated crossing points</li> </ul>	<ul style="list-style-type: none"> <li>* Improve surfacing, reduce vehicular speed limit, signage and road markings</li> <li>* Provide cycle tracks in each direction to be provided for through narrowing of the vehicular lanes/kerb adjustments</li> <li>* Provided continuous footpath along each extent</li> <li>* Provide dedicated crossing points</li> </ul>		
Economy	Capital Cost						
	Transport Reliability						
Safety	Pedestrian Safety						
	Cyclist Safety						
	Road Safety						
Physical Activity	Physical Activity						
Environment	Landscape						
	Air Quality						
	Noise & Vibration						
	Land Use Character						
Accessibility & Social Inclusion	Multi-modal						
	Socially Inclusive						
Integration	Land Use Integration						
	Transport Network						
	Cycling Integration						



Area:	3	Sub-Area:	D	Description:	Town Centre Two Way	Location:	HOPKINS ROAD
		Option 1	Option 2	Option 3	Option 4		
		Do Nothing	Do Minimum	Do Something	Do Something		
Assessment Criteria	Assessment Sub-Criteria	Retain the existing	*Retain the existing cross section layout * Improve surfacing, reduce vehicular speed limit, signage and road markings * Provide dedicated crossing points to improve pedestrian safety	* Improve surfacing, reduce vehicular speed limit, signage and road markings * Provide cycle lanes in each direction to be provided for through narrowing of the vehicular lanes/kerb adjustments * Improve surfacing, reduced speeds, signage and road markings * Provided continuous footpath along each extent * Provide dedicated crossing points	* Improve surfacing, reduce vehicular speed limit, signage and road markings * Provide cycle tracks in each direction to be provided for through narrowing of the vehicular lanes/kerb adjustments * Provided continuous footpath along each extent * Provide dedicated crossing points		
Economy	Capital Cost						
	Transport Reliability						
Safety	Pedestrian Safety						
	Cyclist Safety						
	Road Safety						
Physical Activity	Physical Activity						
Environment	Landscape						
	Air Quality						
	Noise & Vibration						
	Land Use Character						
Accessibility & Social Inclusion	Multi-modal						
	Socially Inclusive						
Integration	Land Use Integration						
	Transport Network						
	Cycling Integration						

Area:	3	Sub-Area:	B	Description:	Town Centre Two Way	Location:	STEPHEN GARVEY WAY
		Option 1	Option 2	Option 3	Option 4		
		Do Nothing	Do Minimum	Do Something	Do Something		
Assessment Criteria	Assessment Sub-Criteria	Retain the existing	<ul style="list-style-type: none"> <li>*Retain the existing cross section layout</li> <li>* Improve surfacing, reduce vehicular speed limit, signage and road markings</li> <li>* Provide dedicated crossing points to improve pedestrian safety</li> </ul>	<ul style="list-style-type: none"> <li>* Improve surfacing, reduce vehicular speed limit, signage and road markings</li> <li>* Provide cycle lanes in each direction to be provided for through narrowing of the vehicular lanes/kerb adjustments</li> <li>* Improve surfacing, reduced speeds, signage and road markings</li> <li>* Provided continuous footpath along each extent</li> <li>* Provide dedicated crossing points</li> </ul>	<ul style="list-style-type: none"> <li>* Improve surfacing, reduce vehicular speed limit, signage and road markings</li> <li>* Provide cycle tracks in each direction to be provided for through narrowing of the vehicular lanes/kerb adjustments</li> <li>* Provided continuous footpath along each extent</li> <li>* Provide dedicated crossing points</li> </ul>		
<b>Economy</b>	Capital Cost						
	Transport Reliability						
<b>Safety</b>	Pedestrian Safety						
	Cyclist Safety						
	Road Safety						
<b>Physical Activity</b>	Physical Activity						
<b>Environment</b>	Landscape						
	Air Quality						
	Noise & Vibration						
	Land Use Character						
<b>Accessibility &amp; Social Inclusion</b>	Multi-modal						
	Socially Inclusive						
<b>Integration</b>	Land Use Integration						
	Transport Network						
	Cycling Integration						

Area:	3	Sub-Area:	A	Description:	Town Centre Two Way	Location:	OLD WESTPORT ROAD
		Option 1	Option 2	Option 3	Option 4		
		Do Nothing	Do Minimum	Do Something	Do Something		
Assessment Criteria	Assessment Sub-Criteria	Retain the existing	*Retain the existing cross section layout * Improve surfacing, reduce vehicular speed limit, signage and road markings * Provide dedicated crossing points to improve pedestrian safety	* Improve surfacing, reduce vehicular speed limit, signage and road markings * Provide cycle lanes in each direction to be provided for through narrowing of the vehicular lanes/kerb adjustments * Improve surfacing, reduced speeds, signage and road markings * Provided continuous footpath along each extent * Provide dedicated crossing points	* Improve surfacing, reduce vehicular speed limit, signage and road markings * Provide cycle tracks in each direction to be provided for through narrowing of the vehicular lanes/kerb adjustments * Provided continuous footpath along each extent * Provide dedicated crossing points		
Economy	Capital Cost						
	Transport Reliability						
Safety	Pedestrian Safety						
	Cyclist Safety						
	Road Safety						
Physical Activity	Physical Activity						
Environment	Landscape						
	Air Quality						
	Noise & Vibration						
	Land Use Character						
Accessibility & Social Inclusion	Multi-modal						
	Socially Inclusive						
Integration	Land Use Integration						
	Transport Network						
	Cycling Integration						

**6.4**

**Options Assessment:**

**MCA**

**Proposal 4**

Area:	4	Sub-Area:	F	Description:	Residential	Location:	TURLOUGH ROAD
		Option 1	Option 2	Option 3	Option 4		
		Do Nothing	Do Minimum	Do Something	Do Something		
Assessment Criteria	Assessment Sub-Criteria	Retain the existing	*Retain the existing cross section layout * Improve surfacing, reduce vehicular speed limit, signage and road markings * Provide dedicated crossing points to improve pedestrian safety	* Improve surfacing, reduce vehicular speed limit, signage and road markings * Provide cycle lanes in each direction to be provided for through narrowing of the vehicular lanes/kerb adjustments * Improve surfacing, reduced speeds, signage and road markings * Provided continuous footpath along each extent * Provide dedicated crossing points	* Improve surfacing, reduce vehicular speed limit, signage and road markings * Provide cycle tracks in each direction to be provided for through narrowing of the vehicular lanes/kerb adjustments * Provided continuous footpath along each extent * Provide dedicated crossing points		
<b>Economy</b>	Capital Cost						
	Transport Reliability						
<b>Safety</b>	Pedestrian Safety						
	Cyclist Safety						
	Road Safety						
<b>Physical Activity</b>	Physical Activity						
<b>Environment</b>	Landscape						
	Air Quality						
	Noise & Vibration						
	Land Use Character						
<b>Accessibility &amp; Social Inclusion</b>	Multi-modal						
	Socially Inclusive						
<b>Integration</b>	Land Use Integration						
	Transport Network						
	Cycling Integration						

Area:	4	Sub-Area:	D	Description:	Residential	Location:	UPPER THOMAS STREET
		Option 1	Option 2	Option 3			
		Do Nothing	Do Minimum	Do Something			
Assessment Criteria	Assessment Sub-Criteria	Retain the existing	<ul style="list-style-type: none"> <li>* Retain the existing cross section layout</li> <li>* Improve surfacing, reduce vehicular speed limit, signage and road markings</li> <li>* Provide dedicated crossing points to improve pedestrian safety</li> </ul>	<ul style="list-style-type: none"> <li>* Improve surfacing, reduce vehicular speed limit, signage and road markings</li> <li>* Provide cycle lanes in each direction to be provided for through narrowing of the vehicular lanes/kerb adjustments</li> <li>* Improve surfacing, reduced speeds, signage and road markings</li> <li>* Provided continuous footpath along each extent</li> <li>* Provide dedicated crossing points</li> </ul>			
<b>Economy</b>	Capital Cost						
	Transport Reliability						
<b>Safety</b>	Pedestrian Safety						
	Cyclist Safety						
	Road Safety						
<b>Physical Activity</b>	Physical Activity						
<b>Environment</b>	Landscape						
	Air Quality						
	Noise & Vibration						
	Land Use Character						
<b>Accessibility &amp; Social Inclusion</b>	Multi-modal						
	Socially Inclusive						
<b>Integration</b>	Land Use Integration						
	Transport Network						
	Cycling Integration						

Area:	3	Sub-Area:	G	Description:	Town Centre Two Way	Location:	Thomas Street/Richard Street/Rush Street/Lucan Street
		Option 1 Do Nothing	Option 2 Do Minimum	Option 3 Do Something	Option 4 Do Something		
Assessment Criteria	Assessment Sub-Criteria	Retain the existing	*Retain the existing cross section layout * Improve surfacing, reduce vehicular speed limit, signage and road markings * Provide dedicated crossing points to improve pedestrian safety	* Improve surfacing, reduce vehicular speed limit, signage and road markings * Provide cycle lanes in each direction to be provided for through narrowing of the vehicular lanes/kerb adjustments * Improve surfacing, reduced speeds, signage and road markings * Provided continuous footpath along each extent * Provide dedicated crossing points	* Improve surfacing, reduce vehicular speed limit, signage and road markings * Provide cycle tracks in each direction to be provided for through narrowing of the vehicular lanes/kerb adjustments * Provided continuous footpath along each extent * Provide dedicated crossing points		
Economy	Capital Cost						
	Transport Reliability						
Safety	Pedestrian Safety						
	Cyclist Safety						
	Road Safety						
Physical Activity	Physical Activity						
Environment	Landscape						
	Air Quality						
	Noise & Vibration						
	Land Use Character						
Accessibility & Social Inclusion	Multi-modal						
	Socially Inclusive						
Integration	Land Use Integration						
	Transport Network						
	Cycling Integration						

**6.5**

**Options Assessment:**

**MCA**

**Proposal 5**



## ***Permeability Network***

There is no detailed MCA for the permeability network as all proposed and existing links will be upgraded to meet minimum DMURS and NCM standards to include as necessary:

- Surfacing;
- Lighting
- Security;
- Crossings; and
- Directness.

**6.6**

**Options Assessment:  
MCA**

**Proposal 6**



Area:	4	Sub-Area:	E	Description:	Residential	Location:	PONTOON ROAD
		Option 1		Option 3	Option 4		
		Do Nothing		Do Something	Do Something		
Assessment Criteria	Assessment Sub-Criteria	Retain the existing		<ul style="list-style-type: none"> <li>* Improve surfacing, reduce vehicular speed limit, signage and road markings</li> <li>* Provide cycle lanes in each direction to be provided for through narrowing of the vehicular lanes/kerb adjustments</li> <li>* Improve surfacing, reduced speeds, signage and road markings</li> <li>* Provided continuous footpath along each extent</li> <li>* Provide dedicated crossing points</li> </ul>	<ul style="list-style-type: none"> <li>* Improve surfacing, reduce vehicular speed limit, signage and road markings</li> <li>* Provide cycle tracks in each direction to be provided for through narrowing of the vehicular lanes/kerb adjustments</li> <li>* Provided continuous footpath along each extent</li> <li>* Provide dedicated crossing points</li> </ul>		
<b>Economy</b>	Capital Cost						
	Transport Reliability						
<b>Safety</b>	Pedestrian Safety						
	Cyclist Safety						
	Road Safety						
<b>Physical Activity</b>	Physical Activity						
<b>Environment</b>	Landscape						
	Air Quality						
	Noise & Vibration						
	Land Use Character						
<b>Accessibility &amp; Social Inclusion</b>	Multi-modal						
	Socially Inclusive						
<b>Integration</b>	Land Use Integration						
	Transport Network						
	Cycling Integration						

Area:	4	Sub-Area:	E	Description:	Residential	Location:	L5786 / FORTVILLE ESTATE
		Option 1		Option 3	Option 4		
		Do Nothing		Do Something	Do Something		
Assessment Criteria	Assessment Sub-Criteria	Retain the existing		<ul style="list-style-type: none"> <li>* Improve surfacing, reduce vehicular speed limit, signage and road markings</li> <li>* Provide cycle lanes in each direction to be provided for through narrowing of the vehicular lanes/kerb adjustments</li> <li>* Improve surfacing, reduced speeds, signage and road markings</li> <li>* Provided continous footpath along each extent</li> <li>* Provide dedicated crossing points</li> </ul>	<ul style="list-style-type: none"> <li>* Improve surfacing, reduce vehicular speed limit, signage and road markings</li> <li>* Provide cycle tracks in each direction to be provided for through narrowing of the vehicular lanes/kerb adjustments</li> <li>* Provided continous footpath along each extent</li> <li>* Provide dedicated crossing points</li> </ul>		
Economy	Capital Cost						
	Transport Reliability						
Safety	Pedestrian Safety						
	Cyclist Safety						
	Road Safety						
Physical Activity	Physical Activity						
Environment	Landscape						
	Air Quality						
	Noise & Vibration						
	Land Use Character						
Accessibility & Social Inclusion	Multi-modal						
	Socially Inclusive						
Integration	Land Use Integration						
	Transport Network						
	Cycling Integration						

Area:	5	Sub-Area:	C	Description:	Employment/Industrial	Location:	MONEEN ROAD (E)
		Option 1	Option 2	Option 3	Option 4		
		Do Nothing	Do Minimum	Do Something	Do Something		
Assessment Criteria	Assessment Sub-Criteria	Retain the existing	<ul style="list-style-type: none"> <li>*Retain the existing cross section layout</li> <li>* Improve surfacing, reduce vehicular speed limit, signage and road markings</li> <li>* Provide dedicated crossing points to improve pedestrian safety</li> </ul>	<ul style="list-style-type: none"> <li>* Improve surfacing, reduce vehicular speed limit, signage and road markings</li> <li>* Provide cycle lanes in each direction to be provided for through narrowing of the vehicular lanes/kerb adjustments</li> <li>* Improve surfacing, reduced speeds, signage and road markings</li> <li>* Provided continuous footpath along each extent</li> <li>* Provide dedicated crossing points</li> </ul>	<ul style="list-style-type: none"> <li>* Improve surfacing, reduce vehicular speed limit, signage and road markings</li> <li>* Provide cycle tracks in each direction to be provided for through narrowing of the vehicular lanes/kerb adjustments</li> <li>* Provided continuous footpath along each extent</li> <li>* Provide dedicated crossing points</li> </ul>		
Economy	Capital Cost						
	Transport Reliability						
Safety	Pedestrian Safety						
	Cyclist Safety						
	Road Safety						
Physical Activity	Physical Activity						
Environment	Landscape						
	Air Quality						
	Noise & Vibration						
	Land Use Character						
Accessibility & Social Inclusion	Multi-modal						
	Socially Inclusive						
Integration	Land Use Integration						
	Transport Network						
	Cycling Integration						

Area:	2	Sub-Area:	D	Description:	Town Centre One Way	Location:	UPPER CHAPEL STREET	
		Option 1	Option 2	Option 3	Option 4	Option 5	Option 6	Option 7
		Do Nothing	Do Minimum	Do Something	Do Something	Do Something	Do Something	Do Something
Assessment Criteria	Assessment Sub-Criteria	Retain the existing	* Retain the existing carriageway layout * Improve surfacing, reduced speeds, signage and road markings to improve cyclist safety * Provide dedicated crossing points	* Remove parking * Improve surfacing, reduced speeds, signage and road markings to improve cyclist safety * Provide cycle lane in the direction of vehicular traffic * No contra-flow cycle facilities	* Remove parking * Improve surfacing, reduced speeds, signage and road markings to improve cyclist safety * Provide cycle lane in the direction of vehicular traffic * Provide contra-flow cycle lane	* Remove parking * Improve surfacing, reduced speeds, signage and road markings to improve cyclist safety * Provide cycle track in the direction of vehicular traffic * Provide contra-flow cycle track	* Remove parking * Improve surfacing, reduced speeds, signage and road markings to improve cyclist safety * Provide cycle lane in the direction of vehicular traffic * Provide contra-flow cycle track	* Remove parking * Improve surfacing, reduced speeds, signage and road markings to improve cyclist safety * Provide two way cycle track on one extent
<b>Economy</b>	Capital Cost							
	Transport Reliability							
<b>Safety</b>	Pedestrian Safety							
	Cyclist Safety							
<b>Physical Activity</b>	Road Safety							
	Physical Activity							
<b>Environment</b>	Landscape							
	Air Quality							
	Noise & Vibration							
<b>Accessibility &amp; Social Inclusion</b>	Land Use Character							
	Multi-modal							
<b>Integration</b>	Socially Inclusive							
	Land Use Integration							
	Transport Network							
	Cycling Integration							





Area:	2	Sub-Area:	C	Description:	Town Centre One Way	Location:	TUCKER STREET
		Option 1	Option 2				
		Do Nothing	Do Minimum				
Assessment Criteria	Assessment Sub-Criteria	Retain the existing	* Retain the existing carriageway layout * Improve surfacing, reduced speeds, signage and road markings to improve cyclist safety * Provide dedicated crossing points				
Economy	Capital Cost						
	Transport Reliability						
Safety	Pedestrian Safety						
	Cyclist Safety						
	Road Safety						
Physical Activity	Physical Activity						
Environment	Landscape						
	Air Quality						
	Noise & Vibration						
	Land Use Character						
Accessibility & Social Inclusion	Multi-modal						
	Socially Inclusive						
Integration	Land Use Integration						
	Transport Network						
	Cycling Integration						

Area:	3	Sub-Area:	C	Description:	Town Centre Two Way	Location:	SPENCER STREET
		Option 1	Option 2	Option 3	Option 4		
		Do Nothing	Do Minimum	Do Something	Do Something		
Assessment Criteria	Assessment Sub-Criteria	Retain the existing	*Retain the existing cross section layout * Improve surfacing, reduce vehicular speed limit, signage and road markings * Provide dedicated crossing points to improve pedestrian safety	* Improve surfacing, reduce vehicular speed limit, signage and road markings * Provide cycle lanes in each direction to be provided for through narrowing of the vehicular lanes/kerb adjustments * Improve surfacing, reduced speeds, signage and road markings * Provided continous footpath along each extent * Provide dedicated crossing points	* Improve surfacing, reduce vehicular speed limit, signage and road markings *Provide cycle tracks in each direction to be provided for through narrowing of the vehicular lanes/kerb adjustments * Provided continous footpath along each extent * Provide dedicated crossing points		
Economy	Capital Cost						
	Transport Reliability						
Safety	Pedestrian Safety						
	Cyclist Safety						
	Road Safety						
Physical Activity	Physical Activity						
Environment	Landscape						
	Air Quality						
	Noise & Vibration						
	Land Use Character						
Accessibility & Social Inclusion	Multi-modal						
	Socially Inclusive						
Integration	Land Use Integration						
	Transport Network						
	Cycling Integration						

Area:	3	Sub-Area:	C	Description:	Town Centre Two Way	Location:	MONEEN ROAD INDUSTRIAL ESTATE (INTERNAL ROADS)
		Option 1 Do Nothing	Option 2 Do Minimum	Option 3 Do Something	Option 4 Do Something		
Assessment Criteria	Assessment Sub-Criteria	Retain the existing	*Retain the existing cross section layout * Improve surfacing, reduce vehicular speed limit, signage and road markings * Provide dedicated crossing points to improve pedestrian safety	* Improve surfacing, reduce vehicular speed limit, signage and road markings * Provide cycle lanes in each direction to be provided for through narrowing of the vehicular lanes/kerb adjustments * Improve surfacing, reduced speeds, signage and road markings * Provided continuous footpath along each extent * Provide dedicated crossing points	* Improve surfacing, reduce vehicular speed limit, signage and road markings * Provide cycle tracks in each direction to be provided for through narrowing of the vehicular lanes/kerb adjustments * Provided continuous footpath along each extent * Provide dedicated crossing points		
Economy	Capital Cost						
	Transport Reliability						
Safety	Pedestrian Safety						
	Cyclist Safety						
	Road Safety						
Physical Activity	Physical Activity						
Environment	Landscape						
	Air Quality						
	Noise & Vibration						
	Land Use Character						
Accessibility & Social Inclusion	Multi-modal						
	Socially Inclusive						
Integration	Land Use Integration						
	Transport Network						
	Cycling Integration						

# 7 EPO

**7.1**

**EPO:**

**Proposal 1**

Location	Length	Width	EPO Option	EPO Description
<b>N5 - Old Dublin Road</b>	250m	19m	Option 4	* Improve carriageway surfacing, signage and road markings
				* Provide cycle tracks in each direction
				* Improve footpath condition along each extent
				* Provide dedicated crossing points
<b>N5 - Lawn Road</b>	850m	20m	Option 4	* Improve carriageway surfacing, signage and road markings
				* Provide cycle tracks in each direction
				* Improve footpath condition along each extent
				* Provide dedicated crossing points
<b>N5 - Humbert Way</b>	1200m	16m	Option 4	* Improve carriageway surfacing, signage and road markings
				* Provide cycle tracks in each direction
				* Improve footpath condition along each extent
				* Provide dedicated crossing points
<b>N5 - Westport Road</b>	1600m	16m	Option 4	* Improve carriageway surfacing, signage and road markings
				* Provide cycle tracks in each direction
				* Improve footpath condition along each extent and provide a continuous footpath.
				* Provide dedicated crossing points
<b>N84 - Station Road</b>	950m	13m	Option 4	* Improve carriageway surfacing, signage and road markings
				* Provide cycle tracks in each direction
				* Improve footpath condition along each extent
				* Provide dedicated crossing points
<b>John Moore Road</b>	500m	15m	Option 4	* Improve carriageway surfacing, signage and road markings
				* Provide cycle tracks in each direction
				* Improve footpath condition along each extent
				* Provide dedicated crossing points
<b>Pavilion Road</b>	300m	15m	Option 4	* Improve carriageway surfacing, signage and road markings
				* Provide cycle tracks in each direction
				* Improve footpath condition along each extent
				* Provide dedicated crossing points
<b>L1704</b>	300m	14m	Option 4	* Improve carriageway surfacing, signage and road markings
				* Provide cycle tracks in each direction
				* Provide a continuous footpath.
				* Provide dedicated crossing points

**7.2**

**EPO: Proposal 2**

Location	Length	Width	EPO Option	EPO Description
<b>N60 - Breaffy Road</b>	1700m	15m	Option 4	* Improve carriageway surfacing, signage and road markings
				* Provide cycle tracks in each direction
				* Improve footpath condition along each extent and provide a continuous footpath.
				* Provide dedicated crossing points
<b>Moneen Road East</b>	1500m	15m	Option 4	* Improve carriageway surfacing, signage and road markings
				* Provide cycle tracks in each direction
				* Improve footpath condition along each extent
				* Provide dedicated crossing points
<b>Moneen Road West</b>	750m	13m	Option 4	* Improve carriageway surfacing, signage and road markings
				* Provide cycle tracks in each direction
				* Improve footpath condition along each extent
				* Provide dedicated crossing points



**7.3**

**EPO:**

**Proposal 3**

Location	Length	Width	EPO Option	EPO Description
<b>Newport Road</b>	1300m	15m	Option 4	* Improve carriageway surfacing, signage and road markings
				*Provide cycle tracks in each direction
				* Improve footpath condition along each extent
				* Provide dedicated crossing points
<b>Lannagh Road</b>	1000m	13m	Option 4	* Improve carriageway surfacing, signage and road markings
				*Provide cycle tracks in each direction
				* Improve footpath condition along each extent
				* Provide dedicated crossing points
<b>Hopkins Road</b>	300m	16m	Option 3	* Improve carriageway surfacing, signage and road markings
				*Provide cycle tracks in each direction
				* Improve footpath condition along each extent
				* Provide dedicated crossing points
<b>Stephen Garvey Way</b>	200m	15m	Option 4	* Improve carriageway surfacing, signage and road markings
				*Provide cycle tracks in each direction
				* Improve footpath condition along each extent
				* Provide dedicated crossing points
				* Improve carriageway surfacing, signage and road markings
<b>Old Westport Road</b>	200m	15m	Option 4	* Improve carriageway surfacing, signage and road markings
				*Provide cycle tracks in each direction
				* Improve footpath condition along each extent
				* Provide dedicated crossing points

**7.4**

**EPO:**

**Proposal 4**

Location	Length	Width	EPO Option	EPO Description
<b>Turlough Road</b>	1000m	15m	Option 4	* Improve carriageway surfacing, signage and road markings
				* Provide cycle tracks in each direction
				* Improve footpath condition along each extent
				* Provide dedicated crossing points
<b>Upper Thomas Street</b>	500m	12m	Option 3	* Improve carriageway surfacing, signage and road markings
				* Provide cycle lanes in each direction
				* Improve footpath condition along each extent
				* Provide dedicated crossing points
<b>Thomas Street/Richard Street/Rush Street/Lucan Street</b>	500m	10m	Option 3	* Improve carriageway surfacing, signage and road markings
				* Provide cycle lanes in each direction
				* Improve footpath condition along each extent
				* Provide dedicated crossing points

**7.5**

**EPO:**

**Proposal 5**

Proposal	Location
<b>Existing Permeability Links to be Upgraded</b>	4x Mill Street Car Park 2x Dunnes Car Park 1x Castle Street Car Park 1x Supervalu Car Park
<b>Proposed New Permeability Link</b>	Greenway to Blackfort Manor Greenway to Lannagh Road Churchview Villas to Rathbawn Road Castlebar Primary School to St Joseph's Secondary School to Lawn Park Proposed Active Travel Bridge to Rowan Drive Proposed Active Travel Bridge to Springfield Court Lidl to Davitt College Train Station to Industrial Estate Train Station to Lios na Circe Humbert Way to St Anthony's Special School

**7.6**

**EPO:**

**Proposal 6**

Location	Length	Width	EPO Option	EPO Description
<b>Rathbawn Road (Upper)</b>	600m	14m	Option 4	* Improve carriageway surfacing, signage and road markings
				*Provide cycle tracks in each direction
				* Improve footpath condition along each extent
				* Provide dedicated crossing points
<b>Rathbawn Road (Lower)</b>	200m	10m	Option 2	* Improve carriageway surfacing, signage and road markings
				*Provide traffic management to make the area conducive to cycling
				* Improve footpath condition along each extent
				* Provide dedicated crossing points
<b>Pontoon Road</b>	300m	14m	Option 4	* Improve carriageway surfacing, signage and road markings
				*Provide cycle tracks in each direction
				* Improve footpath condition along each extent
				* Provide dedicated crossing points
<b>L5786/Fortville Estate</b>	900m	14m	Option 4	* Improve carriageway surfacing, signage and road markings
				*Provide cycle tracks in each direction
				* Improve footpath condition along each extent
				* Provide dedicated crossing points
<b>Sir Ernst Chain Road</b>	650m	14m	Option 4	* Improve carriageway surfacing, signage and road markings
				*Provide cycle tracks in each direction
				* Improve footpath condition along each extent
				* Provide dedicated crossing points
<b>Pound Road</b>	700m	11m	Option 2	* Improve carriageway surfacing, signage and road markings
				*Provide traffic management to make the area conducive to cycling
				* Improve footpath condition along each extent
				* Provide dedicated crossing points



Location	Length	Width	EPO Option	EPO Description
<b>Upper Chapel Street</b>	250m	13m	Option 2	* Improve carriageway surfacing, signage and road markings
				* Provide traffic management to make the area conducive to cycling
				* Improve footpath condition along each extent
				* Provide dedicated crossing points
<b>Main Street (including Castle Street and Market Street)</b>	350m	7m	Option 2	* Improve carriageway surfacing, signage and road markings
				* Provide traffic management to make the area conducive to cycling
				* Improve footpath condition along each extent
				* Provide dedicated crossing points
<b>New Antrim Street</b>	200m	9m	Option 2	* Improve carriageway surfacing, signage and road markings
				* Provide traffic management to make the area conducive to cycling
				* Improve footpath condition along each extent
				* Provide dedicated crossing points
<b>Tucker Street</b>	200m	10m	Option 2	* Improve carriageway surfacing, signage and road markings
				* Provide traffic management to make the area conducive to cycling
				* Improve footpath condition along each extent
				* Provide dedicated crossing points
<b>Spencer Street (including The Mall)</b>	650m	13m	Option 2	* Improve carriageway surfacing, signage and road markings
				* Provide traffic management to make the area conducive to cycling
				* Improve footpath condition along each extent
				* Provide dedicated crossing points
<b>Moneen Road Industrial Estate (Internal Roads and McHale Road)</b>	1200m	13m	Option 2	* Improve carriageway surfacing, signage and road markings
				* Provide traffic management to make the area conducive to cycling
				* Improve footpath condition along each extent
				* Provide dedicated crossing points

## **8.1**

# **Objectives Achieved: Proposal 1**

**Table 8.1: Objectives Achieved: Proposal 1**

Pedestrian Network	Cycle Network	Public Transport Network	General Vehicular Network
<b>P1:</b> Provide an integrated network for Castlebar Town through the development of a connected and continuous pedestrian network to connect the main origin and destinations via a functional pedestrian network with adequate crossing facilities to make walking the most attractive mode choice.	<b>C1:</b> Provide an integrated network for Castlebar Town through the development of a connected and continuous cycle network comprising greenway, primary, secondary and feeder routes to connect the residential, education, employment, retail, commercial, healthcare and community centres.	<b>PT5:</b> Ensure convenient access from residential, employment, education, healthcare, and retail facilities to public transport stops.	<b>R1:</b> Reduce unnecessary vehicular trips (through-traffic trips) passing through Castlebar Town Centre through traffic management measures, transport demand management measures and parking strategies.
<b>P2:</b> Upgrades and repairs to “day to day” key routes between residential areas and local education, employment, and community facilities to include resurfacing, kerb repairs, widening, drainage and landscaping. Where possible, upgrade the footpaths up to DMURS standards, and provide dedicated pedestrian facilities.	<b>C2:</b> Upgrades and repairs to “day to day” key routes between residential areas and local education, employment, and community facilities to include resurfacing, kerb repairs, widening, drainage and landscaping. The infrastructure required will be determined for a route-by-route basis and depend on existing conditions/constraints and will be delivered to NCM standard for cycle facilities.	<b>PT8:</b> Enhance connectivity of Castlebar Train Station with the provision of improved active travel connections and ‘Park and Ride’ infrastructure.	<b>R2:</b> Revise vehicular emissions in town centre by promoting mode transfer to sustainable travel modes
<b>P3:</b> Enhance the existing infrastructure through the provision of new pedestrian links to overcome severance caused by the N5 and Castlebar River.	<b>C3:</b> Enhance the existing infrastructure through the provision of new cycle links to overcome severance caused by the N5 and Castlebar River.		<b>R5:</b> Maintain adequate vehicular capacity and access.
<b>P5:</b> Formalise existing permeability links.	<b>C5:</b> Formalise existing permeability links.		
<b>P6:</b> Improve safety for pedestrians, particularly for vulnerable road users, by improving crossing points particularly along the N5, N84, Stephen Garvey Way/Hopkins Road, Lannagh Road and Westport Road.	<b>C6:</b> Provision of dedicated cycle facilities at junctions (N5 & Moneen, N5 & Spencer Street, N5 & Lannagh, Stephen Garvey Way & Hopkins Road & Tesco, Hopkins Road & Lannagh Road)		
<b>P7:</b> Improved accessibility for all within the town centre to include priority parking,	<b>C7:</b> Create a network that can cater for demand from commuter, delivery, leisure,		

Pedestrian Network	Cycle Network	Public Transport Network	General Vehicular Network
handrails at gradients, public seating, footpath widening, public toilets and public bins.	and tourist cyclists that is accessible to all population cohorts.		
<b>P8:</b> New or improved public lighting, security, and signage for walking routes to enhance visibility of existing links to create a more connected and safer pedestrian network.	<b>C10:</b> Prioritise investment in schemes that will deliver the greatest modal shift potential		
<b>P9:</b> Engage with schools with the aim of increasing walking mode share and support Safe Routes to Schools (SRTS)	<b>C11:</b> New or improved public lighting, security, and signage for cycling routes.		
	<b>C12:</b> Engage with schools with the aim of increasing cycling mode share.		

**Table 8-2: Indicators and Targets: Proposal 1**

SN	Indicators	Targets	Timeline
1.	<b>Upgraded Footpaths:</b> <i>Footpaths up to DMURS standards</i>	19.4 km length of upgraded footpaths	Short Term
2.	<b>New and continuous Footpaths</b> <i>up to DMURS standards</i>	620 m length of new footpath	
3.	<b>Upgraded Cycle Facilities</b> <i>up to DMURS standards</i>	19.4 km length of upgraded cycle tracks	
4.	<b>Proposed Park and Stride facilities</b> <i>to promote active travel to schools and reduce congestion</i>	2 locations proposed to include park and stride facilities	
5.	<b>Junction Upgrades:</b> <i>Revised Layout</i>	Layout of 3 junctions is proposed to be revised	
6.	<b>Safe pedestrian and cyclist facilities at junctions</b>	Proposed 5 junction upgrades to include dedicated pedestrian and cyclist crossings	
7.	<b>Controlled Crossings:</b> <i>Safe crossings near key destinations, junctions and where footpaths disappear on one side.</i>	Proposed Controlled Crossings: 19 (including junction upgrades)	
8.	<b>Public Lighting:</b> <i>Presence of standard lighting and signages</i>	Upgrade of public lighting and signages along the routes	

## **8.2**

# **Objectives Achieved: Proposal 2**

**Table 8-3: Objectives Achieved: Proposal 2**

Pedestrian Network	Cycle Network	Public Transport Network	General Vehicular Network
<p><b>P1:</b> Provide an integrated network for Castlebar Town through the development of a connected and continuous pedestrian network to connect the main origin and destinations via a functional pedestrian network with adequate crossing facilities to make walking the most attractive mode choice.</p>	<p><b>C1:</b> Provide an integrated network for Castlebar Town through the development of a connected and continuous cycle network comprising greenway, primary, secondary and feeder routes to connect the residential, education, employment, retail, commercial, healthcare and community centres.</p>	<p><b>PT5:</b> Ensure convenient access from residential, employment, education, healthcare, and retail facilities to public transport stops.</p>	<p><b>R1:</b> Reduce unnecessary vehicular trips (through-traffic trips) passing through Castlebar Town Centre through traffic management measures, transport demand management measures and parking strategies.</p>
<p><b>P2:</b> Upgrades and repairs to “day to day” key routes between residential areas and local education, employment, and community facilities to include resurfacing, kerb repairs, widening, drainage and landscaping. Where possible, upgrade the footpaths up to DMURS standards, and provide dedicated pedestrian facilities.</p>	<p><b>C2:</b> Upgrades and repairs to “day to day” key routes between residential areas and local education, employment, and community facilities to include resurfacing, kerb repairs, widening, drainage and landscaping. The infrastructure required will be determined for a route-by-route basis and depend on existing conditions/constraints and will be delivered to NCM standard for cycle facilities.</p>	<p><b>PT6:</b> Improve integration between the train station, town centre and local bus routes</p>	<p><b>R2:</b> Revise vehicular emissions in town centre by promoting mode transfer to sustainable travel modes</p>
<p><b>P3:</b> Enhance the existing infrastructure through the provision of new pedestrian links to overcome severance caused by the N5 and Castlebar River.</p>	<p><b>C3:</b> Enhance the existing infrastructure through the provision of new cycle links to overcome severance caused by the N5 and Castlebar River.</p>	<p><b>PT8:</b> Enhance connectivity of Castlebar Train Station with the provision of improved active travel connections and ‘Park and Ride’ infrastructure.</p>	<p><b>R5:</b> Maintain adequate vehicular capacity and access.</p>
<p><b>P5:</b> Formalise existing permeability links.</p>	<p><b>C5:</b> Formalise existing permeability links.</p>		
<p><b>P6:</b> Improve safety for pedestrians, particularly for vulnerable road users, by improving crossing points particularly along the N5, N84, Stephen Garvey Way/Hopkins Road, Lannagh Road and Westport Road.</p>	<p><b>C6:</b> Provision of dedicated cycle facilities at junctions (N5 &amp; Moneen, N5 &amp; Spencer Street, N5 &amp; Lannagh, Stephen Garvey Way &amp; Hopkins Road &amp; Tesco, Hopkins Road &amp; Lannagh Road)</p>		
<p><b>P7:</b> Improved accessibility for all within the town centre to include priority parking, handrails at</p>	<p><b>C7:</b> Create a network that can cater for demand from commuter, delivery, leisure, and tourist cyclists that is</p>		

Pedestrian Network	Cycle Network	Public Transport Network	General Vehicular Network
gradients, public seating, footpath widening, public toilets and public bins.	accessible to all population cohorts.		
<b>P8:</b> New or improved public lighting, security, and signage for walking routes to enhance visibility of existing links to create a more connected and safer pedestrian network.	<b>C10:</b> Prioritise investment in schemes that will deliver the greatest modal shift potential		
<b>P9:</b> Engage with schools with the aim of increasing walking mode share and support Safe Routes to Schools (SRTS)	<b>C11:</b> New or improved public lighting, security, and signage for cycling routes.		
	<b>C12:</b> Engage with schools with the aim of increasing cycling mode share.		



**Table 8-4: Indicators and Targets: Proposal 2**

SN	Indicators	Targets	Timeline
1.	<b>Upgraded Footpaths:</b> <i>Footpaths up to DMURS standards</i>	8.2 km length of upgraded footpaths	Short Term
2.	<b>New and continuous Footpaths</b> <i>up to DMURS standards</i>	820 m length of new footpath	
3.	<b>Upgraded Cycle Facilities</b> <i>up to DMURS standards</i>	8.2 km length of upgraded cycle tracks	
4.	<b>Proposed Mobility Hub</b> <i>to promote active travel to and from key destinations</i>	1 location (indicative) proposed for Mobility Hub	
5.	<b>Proposed Park and Stride facilities</b> <i>to promote active travel to schools and reduce congestion</i>	3 locations proposed to include park and stride facilities	
6.	<b>Junction Upgrades:</b> <i>Revised Layout</i>	Layout of 1 junction is proposed to be revised	
7.	<b>Safe pedestrian and cyclist facilities at junctions</b>	Proposed 3 junction upgrades to include dedicated pedestrian and cyclist crossings	
8.	<b>New Permeability Links:</b> <i>Standardised permeability link that reduces travel distance to key destinations using active modes</i>	2 New Permeability Links connecting existing greenway and pedestrian facilities on roads	
9.	<b>Controlled Crossings:</b> <i>Safe crossings near key destinations, junctions and where footpaths disappear on one side.</i>	Proposed Controlled Crossings: 14 (including junction upgrades)	
10.	<b>Public Lighting:</b> <i>Presence of standard lighting and signages</i>	Upgrade of public lighting and signages along the routes	

## **8.3**

# **Objectives Achieved: Proposal 3**

**Table 8-6: Objectives Achieved: Proposal 3**

Pedestrian Network	Cycle Network	Public Transport Network	General Vehicular Network
<p><b>P1:</b> Provide an integrated network for Castlebar Town through the development of a connected and continuous pedestrian network to connect the main origin and destinations via a functional pedestrian network with adequate crossing facilities to make walking the most attractive mode choice.</p>	<p><b>C1:</b> Provide an integrated network for Castlebar Town through the development of a connected and continuous cycle network comprising greenway, primary, secondary and feeder routes to connect the residential, education, employment, retail, commercial, healthcare and community centres.</p>	<p><b>PT5:</b> Ensure convenient access from residential, employment, education, healthcare, and retail facilities to public transport stops.</p>	<p><b>R1:</b> Reduce unnecessary vehicular trips (through-traffic trips) passing through Castlebar Town Centre through traffic management measures, transport demand management measures and parking strategies.</p>
<p><b>P2:</b> Upgrades and repairs to “day to day” key routes between residential areas and local education, employment, and community facilities to include resurfacing, kerb repairs, widening, drainage and landscaping. Where possible, upgrade the footpaths up to DMURS standards, and provide dedicated pedestrian facilities.</p>	<p><b>C2:</b> Upgrades and repairs to “day to day” key routes between residential areas and local education, employment, and community facilities to include resurfacing, kerb repairs, widening, drainage and landscaping. The infrastructure required will be determined for a route-by-route basis and depend on existing conditions/constraints and will be delivered to NCM standard for cycle facilities.</p>	<p><b>PT6:</b> Improve integration between the train station, town centre and local bus routes</p>	<p><b>R2:</b> Revise vehicular emissions in town centre by promoting mode transfer to sustainable travel modes</p>
<p><b>P3:</b> Enhance the existing infrastructure through the provision of new pedestrian links to overcome severance caused by the N5 and Castlebar River.</p>	<p><b>C3:</b> Enhance the existing infrastructure through the provision of new cycle links to overcome severance caused by the N5 and Castlebar River.</p>	<p><b>PT8:</b> Enhance connectivity of Castlebar Train Station with the provision of improved active travel connections and ‘Park and Ride’ infrastructure.</p>	<p><b>R5:</b> Maintain adequate vehicular capacity and access.</p>
<p><b>P5:</b> Formalise existing permeability links.</p>	<p><b>C5:</b> Formalise existing permeability links.</p>		
<p><b>P6:</b> Improve safety for pedestrians, particularly for vulnerable road users, by improving crossing points particularly along the N5, N84, Stephen Garvey Way/Hopkins Road, Lannagh Road and Westport Road.</p>	<p><b>C6:</b> Provision of dedicated cycle facilities at junctions (N5 &amp; Moneen, N5 &amp; Spencer Street, N5 &amp; Lannagh, Stephen Garvey Way &amp; Hopkins Road &amp; Tesco, Hopkins Road &amp; Lannagh Road)</p>		
<p><b>P7:</b> Improved accessibility for vulnerable population cohorts within the town</p>	<p><b>C7:</b> Create a network that can cater for demand from commuter, delivery, leisure,</p>		

Pedestrian Network	Cycle Network	Public Transport Network	General Vehicular Network
centre to include priority parking, handrails at gradients, public seating, footpath widening, public toilets and public bins.	and tourist cyclists that is accessible to all population cohorts.		
<b>P8:</b> New or improved public lighting, security, and signage for walking routes to enhance visibility of existing links to create a more connected and safer pedestrian network.	<b>C10:</b> Prioritise investment in schemes that will deliver the greatest modal shift potential		
<b>P9:</b> Engage with schools with the aim of increasing walking mode share and support Safe Routes to Schools (SRTS)	<b>C11:</b> New or improved public lighting, security, and signage for cycling routes.		
	<b>C12:</b> Engage with schools with the aim of increasing cycling mode share.		

**Table 8-7: Indicator and Targets: Proposal 3**

SN	Indicators	Targets	Timeline
1.	<b>Upgraded Footpaths:</b> <i>Footpaths up to DMURS standards</i>	7.2 km length of upgraded footpaths	Short Term
2.	<b>Upgraded Cycle Facilities</b> <i>up to DMURS standards</i>	7.2 km length of upgraded cycle tracks	
3.	<b>Proposed Mobility Hub</b> <i>to promote active travel to and from key destinations</i>	1 location (indicative) proposed for Mobility Hub	
4.	<b>Junction Upgrades:</b> <i>Revised Layout</i>	Layout of 2 junctions is proposed to be revised	
5.	<b>Safe pedestrian and cyclist facilities at junctions</b>	Proposed 3 junction upgrades to include dedicated pedestrian and cyclist crossings	
6.	<b>Controlled Crossings:</b> <i>Safe crossings near key destinations, junctions and where footpaths disappear on one side.</i>	Proposed Controlled Crossings: 14 (including junction upgrades)	
7.	<b>Public Lighting:</b> <i>Presence of standard lighting and signages</i>	Upgrade of public lighting and signages along the routes	

## **8.4**

# **Objectives Achieved: Proposal 4**

**Table 8-8: Objectives Achieved: Proposal 4**

Pedestrian Network	Cycle Network	Public Transport Network	General Vehicular Network
<p><b>P1:</b> Provide an integrated network for Castlebar Town through the development of a connected and continuous pedestrian network to connect the main origin and destinations via a functional pedestrian network with adequate crossing facilities to make walking the most attractive mode choice.</p>	<p><b>C1:</b> Provide an integrated network for Castlebar Town through the development of a connected and continuous cycle network comprising greenway, primary, secondary and feeder routes to connect the residential, education, employment, retail, commercial, healthcare and community centres.</p>	<p><b>PT5:</b> Ensure convenient access from residential, employment, education, healthcare, and retail facilities to public transport stops.</p>	<p><b>R1:</b> Reduce unnecessary vehicular trips (through-traffic trips) passing through Castlebar Town Centre through traffic management measures, transport demand management measures and parking strategies.</p>
<p><b>P2:</b> Upgrades and repairs to “day to day” key routes between residential areas and local education, employment, and community facilities to include resurfacing, kerb repairs, widening, drainage and landscaping. Where possible, upgrade the footpaths up to DMURS standards, and provide dedicated pedestrian facilities.</p>	<p><b>C2:</b> Upgrades and repairs to “day to day” key routes between residential areas and local education, employment, and community facilities to include resurfacing, kerb repairs, widening, drainage and landscaping. The infrastructure required will be determined for a route-by-route basis and depend on existing conditions/constraints and will be delivered to NCM standard for cycle facilities.</p>		<p><b>R2:</b> Revise vehicular emissions in town centre by promoting mode transfer to sustainable travel modes</p>
<p><b>P3:</b> Enhance the existing infrastructure through the provision of new pedestrian links to overcome severance caused by the N5 and Castlebar River.</p>	<p><b>C3:</b> Enhance the existing infrastructure through the provision of new cycle links to overcome severance caused by the N5 and Castlebar River.</p>		<p><b>R5:</b> Maintain adequate vehicular capacity and access.</p>
<p><b>P5:</b> Formalise existing permeability links.</p>	<p><b>C5:</b> Formalise existing permeability links.</p>		
<p><b>P7:</b> Improved accessibility for vulnerable population cohorts within the town centre to include priority parking, handrails at gradients, public seating, footpath widening, public toilets and public bins.</p>	<p><b>C7:</b> Create a network that can cater for demand from commuter, delivery, leisure, and tourist cyclists that is accessible to all population cohorts.</p>		
<p><b>P8:</b> New or improved public lighting, security, and signage for walking routes to enhance visibility of</p>	<p><b>C10:</b> Prioritise investment in schemes that will deliver the greatest modal shift potential</p>		

Pedestrian Network	Cycle Network	Public Transport Network	General Vehicular Network
existing links to create a more connected and safer pedestrian network.			
<b>P9:</b> Engage with schools with the aim of increasing walking mode share and support Safe Routes to Schools (SRTS)	<b>C11:</b> New or improved public lighting, security, and signage for cycling routes.		
	<b>C12:</b> Engage with schools with the aim of increasing cycling mode share.		



**Table 8-9: Indicators and Targets: Proposal 4**

SN	Indicators	Targets	Timeline
1.	<b>Upgraded Footpaths:</b> <i>Footpaths up to DMURS standards</i>	6.6 km length of upgraded footpaths	Medium Term
2.	<b>Upgraded Cycle Facilities</b> <i>up to DMURS standards</i>	6.6 km length of upgraded cycle tracks	
3.	<b>New Road Link</b> <i>with segregated cycle tracks and standard footpaths on both sides</i>	780 m length of new road link	
4.	<b>New Permeability Link:</b> <i>Standardised permeability link that reduces travel distance to key destinations using active modes</i>	1 new permeability link to connect the new road link with the existing greenway	
5.	<b>Safe pedestrian and cyclist facilities at junctions</b>	Proposed 4 junction upgrades to include dedicated pedestrian and cyclist crossings	
6.	<b>Controlled Crossings:</b> <i>Safe crossings near key destinations, junctions and where footpaths disappear on one side.</i>	Proposed Controlled Crossings: 10 (including junction upgrades)	
7.	<b>Public Lighting:</b> <i>Presence of standard lighting and signages</i>	Upgrade of public lighting and signages along the routes	

## **8.5**

# **Objectives Achieved: Proposal 5**

**Table 8-10: Objectives Achieved: Proposal 5**

Pedestrian Network	Cycle Network	Public Transport Network	General Vehicular Network
<p><b>P1:</b> Provide an integrated network for Castlebar Town through the development of a connected and continuous pedestrian network to connect the main origin and destinations via a functional pedestrian network with adequate crossing facilities to make walking the most attractive mode choice.</p>	<p><b>C1:</b> Provide an integrated network for Castlebar Town through the development of a connected and continuous cycle network comprising greenway, primary, secondary and feeder routes to connect the residential, education, employment, retail, commercial, healthcare and community centres.</p>	<p><b>PT5:</b> Ensure convenient access from residential, employment, education, healthcare, and retail facilities to public transport stops.</p>	<p><b>R1:</b> Reduce unnecessary vehicular trips (through-traffic trips) passing through Castlebar Town Centre through traffic management measures, transport demand management measures and parking strategies.</p>
<p><b>P2:</b> Upgrades and repairs to “day to day” key routes between residential areas and local education, employment, and community facilities to include resurfacing, kerb repairs, widening, drainage and landscaping. Where possible, upgrade the footpaths up to DMURS standards, and provide dedicated pedestrian facilities.</p>	<p><b>C2:</b> Upgrades and repairs to “day to day” key routes between residential areas and local education, employment, and community facilities to include resurfacing, kerb repairs, widening, drainage and landscaping. The infrastructure required will be determined for a route-by-route basis and depend on existing conditions/constraints and will be delivered to NCM standard for cycle facilities.</p>	<p><b>PT6:</b> Improve integration between the train station, town centre and local bus routes</p>	<p><b>R2:</b> Revise vehicular emissions in town centre by promoting mode transfer to sustainable travel modes</p>
<p><b>P3:</b> Enhance the existing infrastructure through the provision of new pedestrian links to overcome severance caused by the N5 and Castlebar River.</p>	<p><b>C3:</b> Enhance the existing infrastructure through the provision of new cycle links to overcome severance caused by the N5 and Castlebar River.</p>	<p><b>PT8:</b> Enhance connectivity of Castlebar Train Station with the provision of improved active travel connections and ‘Park and Ride’ infrastructure.</p>	<p><b>R5:</b> Maintain adequate vehicular capacity and access.</p>
<p><b>P4:</b> Improved filtered permeability using laneways and the opening up of cul-de-sacs for pedestrians to increase directness and connectivity to enhance access to homes, jobs, schools, shops, public transport and services.</p>	<p><b>C5:</b> Formalise existing permeability links.</p>		
<p><b>P5:</b> Formalise existing permeability links.</p>	<p><b>C6:</b> Provision of dedicated cycle facilities at junctions (N5 &amp; Moneen, N5 &amp; Spencer Street, N5 &amp; Lannagh, Stephen Garvey Way &amp; Hopkins Road &amp; Tesco, Hopkins Road &amp; Lannagh Road)</p>		

Pedestrian Network	Cycle Network	Public Transport Network	General Vehicular Network
<p><b>P7:</b> Improved accessibility for vulnerable population cohorts within the town centre to include priority parking, handrails at gradients, public seating, footpath widening, public toilets and public bins.</p>	<p><b>C7:</b> Create a network that can cater for demand from commuter, delivery, leisure, and tourist cyclists that is accessible to all population cohorts.</p>		
<p><b>P8:</b> New or improved public lighting, security, and signage for walking routes to enhance visibility of existing links to create a more connected and safer pedestrian network.</p>	<p><b>C10:</b> Prioritise investment in schemes that will deliver the greatest modal shift potential</p>		
<p><b>P9:</b> Engage with schools with the aim of increasing walking mode share and support Safe Routes to Schools (SRTS)</p>	<p><b>C11:</b> New or improved public lighting, security, and signage for cycling routes.</p>		
	<p><b>C12:</b> Engage with schools with the aim of increasing cycling mode share.</p>		

**Table 8-11: Indicators and Targets: Proposal 6**

SN	Indicators	Targets	Timeline
1.	<b>New Active Travel Bridge</b> <i>to improve accessibility by active travel</i>	1 new active travel bridge with links to existing road network and controlled crossings at access points	Long Term
2.	<b>New Permeability Link:</b> <i>Standardised permeability link that reduces travel distance to key destinations using active modes</i>	9 new permeability links to improve accessibility via active travel	
3.	<b>Upgraded Permeability Link:</b> <i>Standardised permeability link that improves accessibility and safety via active travel</i>	7 upgrades in existing permeability links to improve accessibility via active travel	
4.	<b>Public Lighting:</b> <i>Presence of standard lighting and signages</i>	Upgrade of public lighting and signages along the routes	

## **8.6**

# **Objectives Achieved: Proposal 6**

**Table 8-12: Objectives Achieved: Proposal 6**

Pedestrian Network	Cycle Network	Public Transport Network	General Vehicular Network
<p><b>P1:</b> Provide an integrated network for Castlebar Town through the development of a connected and continuous pedestrian network to connect the main origin and destinations via a functional pedestrian network with adequate crossing facilities to make walking the most attractive mode choice.</p>	<p><b>C1:</b> Provide an integrated network for Castlebar Town through the development of a connected and continuous cycle network comprising greenway, primary, secondary and feeder routes to connect the residential, education, employment, retail, commercial, healthcare and community centres.</p>	<p><b>PT5:</b> Ensure convenient access from residential, employment, education, healthcare, and retail facilities to public transport stops.</p>	<p><b>R1:</b> Reduce unnecessary vehicular trips (through-traffic trips) passing through Castlebar Town Centre through traffic management measures, transport demand management measures and parking strategies.</p>
<p><b>P2:</b> Upgrades and repairs to “day to day” key routes between residential areas and local education, employment, and community facilities to include resurfacing, kerb repairs, widening, drainage and landscaping. Where possible, upgrade the footpaths up to DMURS standards, and provide dedicated pedestrian facilities.</p>	<p><b>C2:</b> Upgrades and repairs to “day to day” key routes between residential areas and local education, employment, and community facilities to include resurfacing, kerb repairs, widening, drainage and landscaping. The infrastructure required will be determined for a route-by-route basis and depend on existing conditions/constraints and will be delivered to NCM standard for cycle facilities.</p>	<p><b>PT8:</b> Enhance connectivity of Castlebar Train Station with the provision of improved active travel connections and ‘Park and Ride’ infrastructure.</p>	<p><b>R2:</b> Revise vehicular emissions in town centre by promoting mode transfer to sustainable travel modes</p>
<p><b>P5:</b> Formalise existing permeability links.</p>	<p><b>C5:</b> Formalise existing permeability links.</p>		<p><b>R5:</b> Maintain adequate vehicular capacity and access.</p>
<p><b>P6:</b> Improve safety for pedestrians, particularly for vulnerable road users, by improving crossing points particularly along the N5, N84, Stephen Garvey Way/Hopkins Road, Lannagh Road and Westport Road.</p>	<p><b>C6:</b> Provision of dedicated cycle facilities at junctions (N5 &amp; Moneen, N5 &amp; Spencer Street, N5 &amp; Lannagh, Stephen Garvey Way &amp; Hopkins Road &amp; Tesco, Hopkins Road &amp; Lannagh Road)</p>		
<p><b>P7:</b> Improved accessibility for vulnerable population cohorts within the town centre to include priority parking, handrails at gradients, public seating, footpath widening, public toilets and public bins.</p>	<p><b>C7:</b> Create a network that can cater for demand from commuter, delivery, leisure, and tourist cyclists that is accessible to all population cohorts.</p>		

Pedestrian Network	Cycle Network	Public Transport Network	General Vehicular Network
<p><b>P8:</b> New or improved public lighting, security, and signage for walking routes to enhance visibility of existing links to create a more connected and safer pedestrian network.</p>	<p><b>C10:</b> Prioritise investment in schemes that will deliver the greatest modal shift potential</p>		
<p><b>P9:</b> Engage with schools with the aim of increasing walking mode share and support Safe Routes to Schools (SRTS)</p>	<p><b>C11:</b> New or improved public lighting, security, and signage for cycling routes.</p>		
	<p><b>C12:</b> Engage with schools with the aim of increasing cycling mode share.</p>		



**Table 8-13: Indicators and Targets: Additional Proposals**

SN	Indicators	Targets	Timeline
1.	<b>Upgraded Footpaths:</b> <i>Footpaths up to DMURS standards</i>	9.8 km length of upgraded footpaths (including 5.5 km of upgrades in shared streets)	Long Term
2.	<b>Upgraded Cycle Facilities</b> <i>up to DMURS standards</i>	4.3 km length of upgraded cycle tracks and 5.5 km of shared streets	
3.	<b>Safe pedestrian and cyclist facilities at junctions</b>	Proposed 1 junction upgrade to include dedicated pedestrian and cyclist crossings	
4.	<b>Public Lighting:</b> <i>Presence of standard lighting and signages</i>	Upgrade of public lighting and signages along the routes	