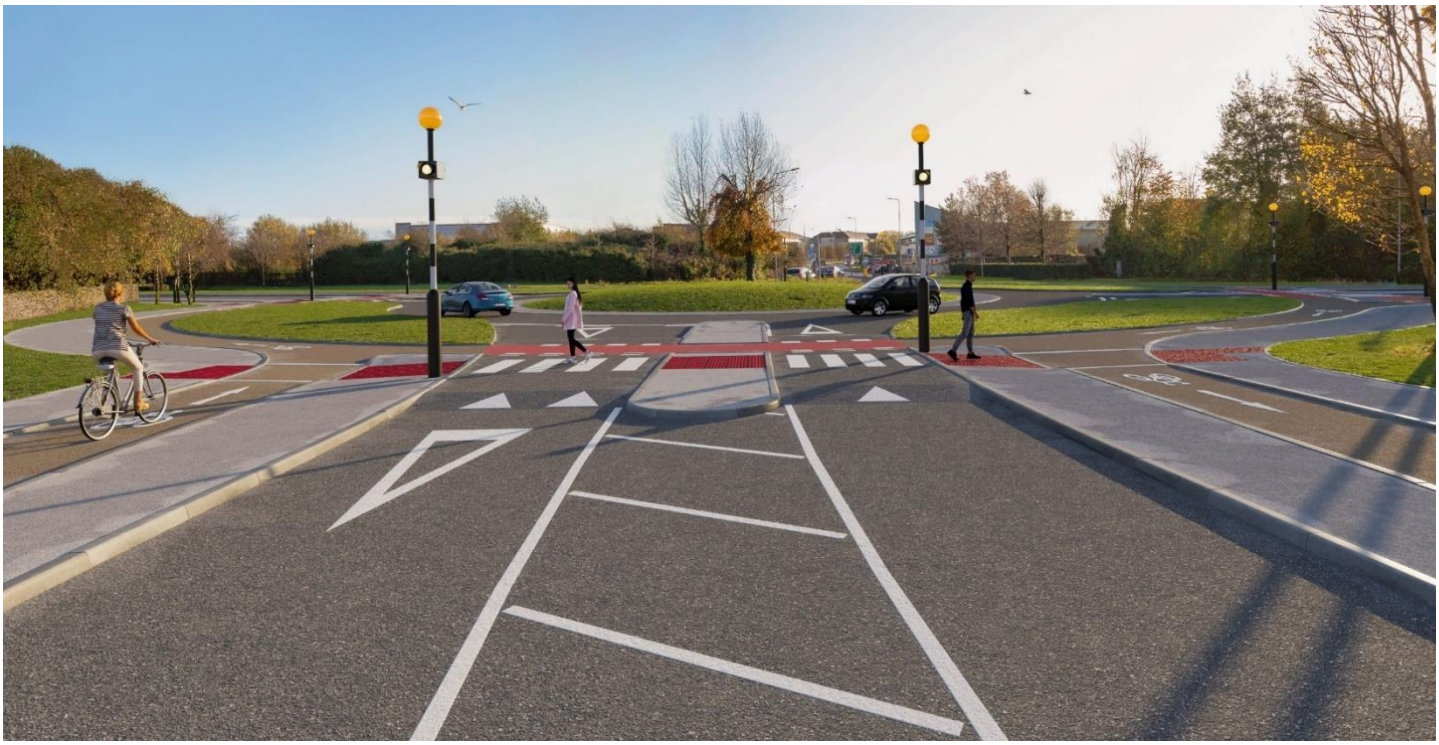
Comhairle Contae Mhaigh Eo
Mayo County Council



DRAFT

Castlebar Local Transport Plan 2023

NTA
Údarás Náisiúnta Iompair
National Transport Authority

Clifton Scannell Emerson
Associates

Executive Summary

The Castlebar Local Transport Plan (LTP) will guide future transport investment in the area. The LTP is a short to medium-term plan that will be used to guide the towns transport strategy for the period to 2028, but also looks beyond to 2040. As such, it should be under consistent review and updated accordingly, with a proposed 2-year review period for short term proposals, 3-5 year review for medium term proposals and 10 year review for long term proposals.

To meet the required level of emissions reduction as set out in the Climate Action Plan 2023 by the Government of Ireland, transport related emissions are set to reduce by 51% by 2030 and reduce vehicle kilometres travelled by 20%. 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.

The strategic aim of the Castlebar LTP is to provide for the planning and delivery of transport infrastructure and services in Castlebar that will allow for the generation of a sustainable transport network that can cater for demand.

The Castlebar LTP examines all transport modes and how they interact both in the town centre and throughout its environs, specifically including linkages with active travel modes and public transport modes.

The opening of the N5 Turlough to Westport Road in early 2023 presents Castlebar with a unique opportunity to implement a sustainable transport network in tandem with the removal of through traffic within the town as a result of the bypass. The development of a sustainable transport network has the potential to contribute positively to both the local area and to its residents through a combination of direct and indirect benefits.

While the LTP has provided high-level Multi Criteria Analysis (MCA) of a range of options, individual projects developed from objectives within the Castlebar LTP will require further design optioneering and analysis. It should also be noted that the individual projects will be subjected to public consultation, environmental assessments, heritage studies, relevant statutory procedures, and consultation with the relevant statutory stakeholders.

The refined options for the LTP of Castlebar are prioritised into six schemes, to be implemented in different phases, which will cover the overall development of transport for the town of Castlebar.

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1. Introduction

1.1 Overview

Clifton Scannell Emerson Associates (CSEA) have been engaged by Mayo County Council (MCC), on behalf of the National Transport Authority (NTA) to prepare a Local Transport Plan (LTP) for the Castlebar Town area.

This LTP aims to identify long-lasting transport improvements to ensure growing use of sustainable travel modes for work, education, business and visitor trips. The LTP presents a comprehensive analysis of the current transport network in Castlebar Town, outlines the impact of future proposed development on transportation and presents potential solutions to improve conditions for active modes, public transport and private vehicles.

The overall aspiration of the LTP is to provide recommendations to deliver a high quality, safe, coherent, direct, and attractive sustainable transport network. The provision of this infrastructure will provide opportunities to upgrade and enhance the identity of localities within the study area, assisting in providing inherent orientation, and enhancing the physical presentation and appeal of localities so as to encourage more walking and more cycling for trips to destinations.

1.2 The Study Area

Castlebar is located in County Mayo and has a population of 12,068 (2016 census). 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 study area encompasses a predominantly residential area with several schools, retail outlets, employment centres, healthcare services and sports facilities.

Castlebar is the main administrative, public health, education and commercial centre in the county. The town provides over 9000 jobs, with a jobs/resident worker ratio of 1.920 (2016 census).

The study area is defined as the Castlebar Town Area with the LTP proposals focusing primarily on the Urban Electoral District (ED) as it contains the major residential, employment, commercial and leisure centres. With an area of 4km^2, all areas within the Urban ED are within practicable walking/cycling catchments of one another.

The area typifies both the opportunity and the challenge of sustainable transport in Mayo County. At present, there is latent demand for active travel facilities as it is a largely residential area within a short distance of trip attractors.

1.3 Local Context

Mayo County is undergoing an exciting and continual process of change in order to adapt and anticipate the needs of its current and growing population.

The transport network within Castlebar has developed with a strong focus on motor-based vehicles. County Mayo has one of the highest usage rates of private cars (73.2%), compared to the national average (65.6%). The opening of the N5 Turlough to Westport Road in early 2023 presents Castlebar with a unique opportunity to implement a sustainable transport network in tandem with the removal of through traffic within the town as a result of the bypass. The development of a sustainable transport network has the potential to contribute positively to both the local area and to its residents through a combination of direct and indirect benefits.

The modal shift from private car to walking or cycling, which is particularly feasible for short distance trips, is linked to a reduction in greenhouse gas emissions. This is a key objective of the CAP23 which seeks to reduce transport related emissions by 51% by 2030 as well as a 20% reduction in vehicle kilometres travelled. Inciting this behavioural change within the local community will contribute hugely to meeting this target and will be complemented by improved public transport measures and electric vehicle provision.

Sustainable transport networks also provide numerous socio-economic benefits. The space and infrastructure required for large numbers of pedestrians, cyclists and public transport users are often significantly more economical to provide when compared to the costs associated with new roads. Active Travel trips are also generally short-distance trips and therefore increase the demand for local retailing. Low-income areas also have associated low levels of car ownership. The provision of Active Travel infrastructure can improve accessibility and mobility for lower income groups, as well as for people with mobility impairments or disabilities.

The LTP proposals will incorporate a better-quality public realm with visual enhancement of the area. This investment will facilitate increased pedestrian and cycle movement across the town improving connectivity between businesses, schools, housing, places of worship, etc creating more attractive and vibrant streets. It would also reduce dependence on the use of cars for short and short to medium trips reducing carbon footprint. The network will be delivered to improve safety, reduce journey times, and contribute towards increased numbers of trips being made by bicycle and by foot in the local catchment.

2. Policy Context

2.1 Policy Context

2.1.1 Draft Castlebar Town and Environs Local Area Plan

Mayo County Council is preparing a Local Area Plan (LAP) for the Castlebar Town & Environs area that will set out the framework to guide future development in the town and environs up to 2027 and beyond. The plan promotes a more efficient strategic transport system integrated with appropriate use of land to support the sustainable economic, social and physical development of Castlebar as an attractive location for enterprise, investment and a place to live, work and visit.

The Draft LAP is currently being finalised in conjunction with the Draft LTP.

2.1.2 Mayo County Development Plan 2022-2028

The Mayo County Development Plan 2022 – 2028 set out the strategic aim to *"to support increased use of sustainable modes of transport; the integration of spatial planning with transport planning; enhanced county and regional accessibility; the transition to a low carbon energy efficient transport system; and the development of a safer, more efficient, effective and connected transport system within Mayo."*

This is set to be achieved through several Integrated Land Use and Transportation Policies. The most relevant to the LTP are:

- MTP 1: To support sustainable travel in the county by ensuring future population and employment growth predominantly takes place in urban areas which will warrant provision of public transport services;
- MTP 2: To support and facilitate the integration of land use with transportation infrastructure, through the development of sustainable compact settlements which are well served by public transport;
- MTP 7: To promote the transition to a low carbon integrated transport system by firstly reducing the need for travel through the use of design solutions and innovative approaches with regards to the Design Manual for Urban Roads and Streets, and subsequently to shift to environmentally sustainable modes of transport;
- MTO 5: To retrospectively provide public transport, walking and cycling infrastructure and facilities in existing development areas to achieve growth in sustainable mobility;

- MTO 7: To establish modal shift targets and a monitoring regime to increase the usage of sustainable modes of transport in the towns of Ballina, Castlebar and Westport, as informed by local transport plans;
- MTP11: To support safer cycling/walking routes to encourage people to be more physically active for transport and leisure purposes;
- MTO 8: To encourage and facilitate the maintenance and further development of the public footpath network, walking and cycling routes and associated infrastructure and where possible the retrofitting of cycle and pedestrian routes into the existing urban road network; and
- MTO 9: To support the establishment of a network of interlinked cycle ways and walk ways in the county and the adjoining counties and specifically to support the development of a link between the Great Northern Greenway and the Great Western Greenway, having regard to best practice standards including the Design Manual for Urban Roads, Streets and the NTA Cycle Manual and the TII Standard DN-GEO-03084 'The Treatment of Transition Zones to Towns and Villages on National Roads or any amending/superseding national guidance or manuals.

2.1.3 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.

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.

2.1.4 Draft Mayo Cycle Network

Published as part of Cycle Connects, the Draft Mayo Cycle Network contains a comprehensive review of the existing cycle network and associated data and proposes a cycle network for developed areas. The purpose of Cycle Connects is to improve the

sustainable travel network by outlining the required infrastructural changes needed to maximise the potential for modal shift.

It is noted that the proposals included within the Cycle Connects programme are in the early stages of the design process and are subject to review and changes prior to finalisation/implementation.

Castlebar is designated as an Urban Cycle Network with the indicative proposals shown in Figure 2-1.

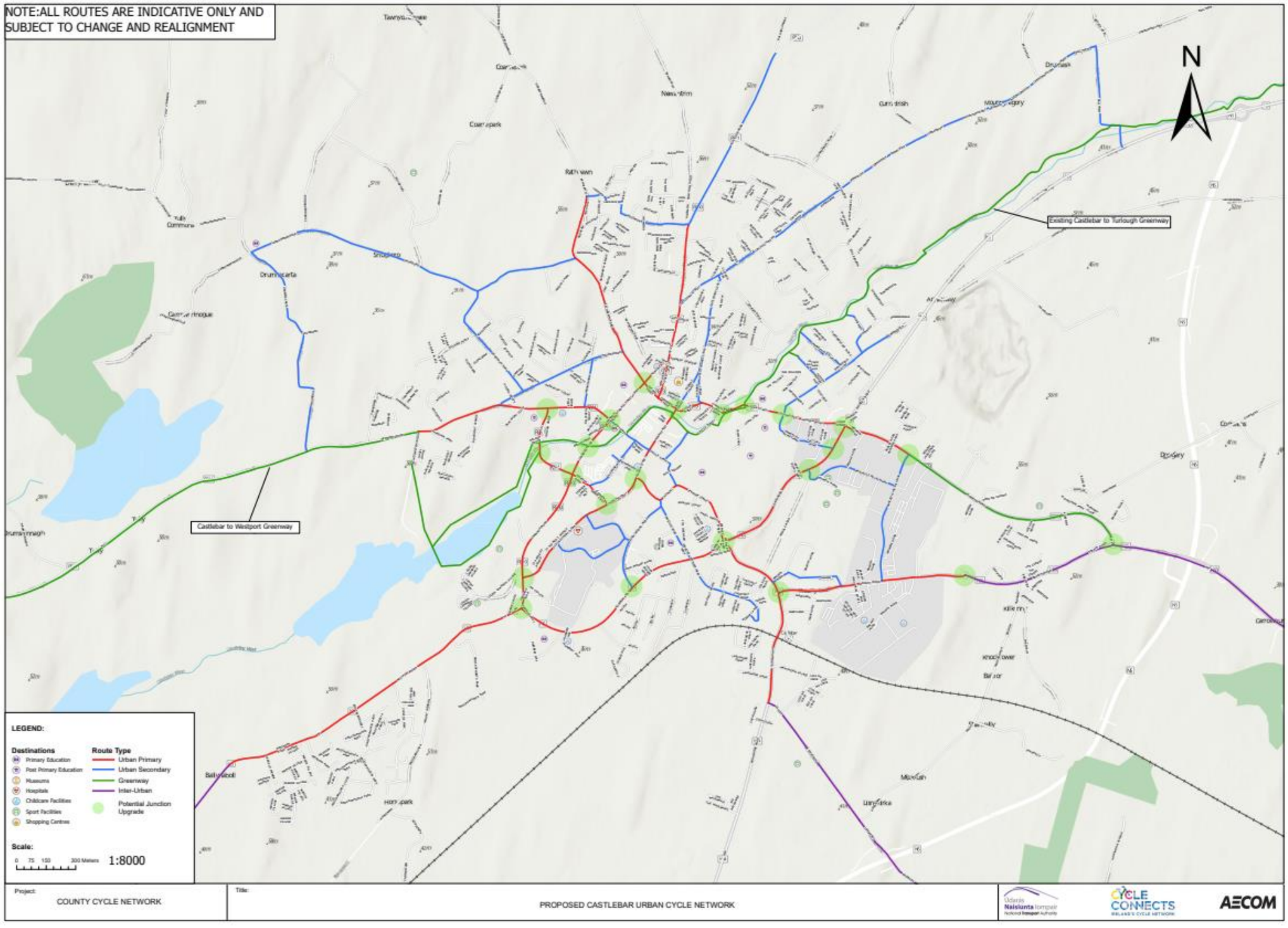


Figure 2-1 Cycle Connects - Castlebar Urban Cycle Network (Indicative Map)

2.1.5 Further Relevant Policy Documents

Further relevant policy documents and design guidance that have guided the development of the LTP include:

- Regional Spatial and Economic Strategy for the Northern and Western Region;
- National Investment Framework for Transport in Ireland (NIFTI);
- National Development Plan 2018-2027 (NDP);
- National Sustainable Mobility Policy;
- Smarter Travel – A Sustainable Transport Future;
- Sustainable Mobility Policy Review;
- Design Manual for Urban Streets and Roads (DMURS); and
- National Cycle Manual (NCM).

Details of these policies are given in Appendix 1.

3. Methodology

3.1 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.

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.

3.2 Consultation

Engagement with key stakeholders and the general public prior to finalising the Castlebar LTP is considered essential in order to gain an appreciation of existing transport issues and opportunities and to ensure that the proposals which will be contained within the strategy will meet community needs.

3.2.1 Public Consultation

The Draft LTP will undergo a process of public consultation before finalisation in accordance with the statutory procedures. The public consultation will be managed by MCC.

3.2.2 Early Stakeholder Consultation

3.2.2.1 Workshop with Councillors

Consultation to inform the development of the Draft LTP was undertaken in March 2022.

A workshop was held with the local councillors to inform them of the proposal to develop a sustainable transport network for Castlebar. This was attended by 7 councillors in addition to representatives from MCC and CSEA. The councillors were presented with high-level initial proposals for review and were invited to give feedback.

3.2.2.2 Written Consultation with Stakeholders

Primary stakeholders within the Castlebar Town Area were identified in conjunction with MCC. These included:

- Public Representatives;
- Schools;
- Staff Based in other departments of MCC;
- Bus Operators;
- Irish Rail;
- State Agencies and Government Departments;
- Utility Companies;
- Large Employers;
- Retail Groups;
- Sports Clubs;
- Local Community Organisations; and
- Service Providers.

All identified primary stakeholders were contacted by email April 2022 and invited to submit feedback by email to help inform the preparation of the LTP.

Feedback received was considered throughout the options development process.

4. Baseline Assessment

4.1 Data Collection

4.1.1 Surveys

The existing conditions were established through the surveys shown in Table 4-1.

Table 4-1 Data Collection

Data Type	Data Collected	Methodology
Traffic Surveys	O-D Survey	Automatic Number Plate Recognition (ANPR)
	Average Speed	Automatic Traffic Counter (ATC)
	AADT	Automatic Traffic Counter (ATC)
	Turning Counts	Junction Turning Count (JTC)
Audits	Non-Motorised User (NMU) Accessibility Audit	Observational
	Active Travel Audit	Observational
	Quality Audit	Observational
	Parking Survey	Observational
Surveys	Delivery/Loading Surveys	Observational
	Refuse Collection Survey	Desktop
	Public Transport Survey	Desktop
	School Traffic Survey	Observational
Future Development Proposals	Planned Developments	Consultation with MCC
	Proposed Developments	Consultation with MCC

4.1.2 LAM / WRM

Detailed traffic modelling has been carried out to inform the plan. The baseline assessment included the collection of extensive traffic and POWSCAR (Place Of Work, School or College – Census of Anonymised Records) 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 Castlebar LAM is shown in Figure 4-1and the LAM Report is shown in Appendix 2.

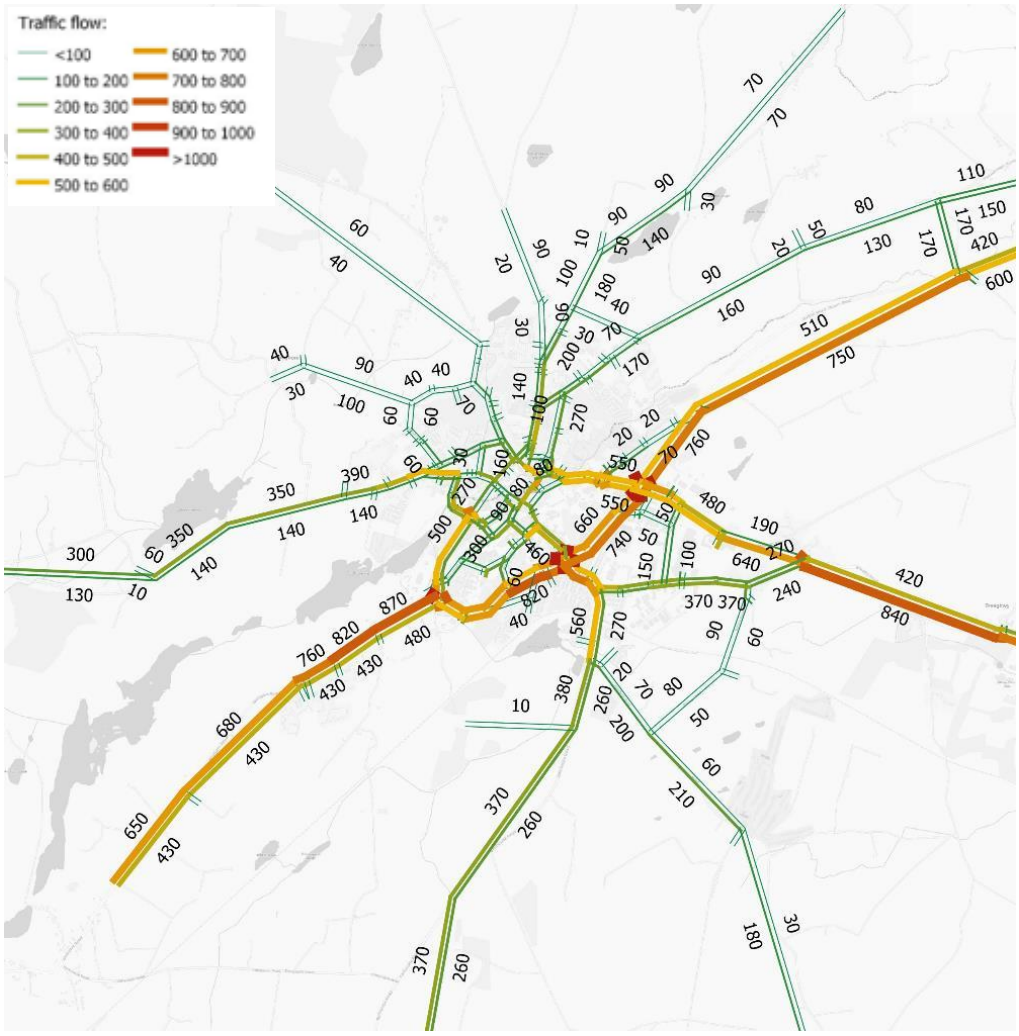


Figure 4-1 Castlebar LAM

4.1.3 Junction and Network Modelling

Junction modelling software including LinSig and ARCADY were used in conjunction with LAM to test junction capacity and the impact of proposed options.

4.1.4 ArcMap

ArcMap is a GIS analyst tool and geospatial processing program. It can be used to view, edit, create, and analyse geospatial data.

A network for the study area was generated to include roads, cycle facilities, pedestrian facilities (formal and informal) and public transport routes. The network was originally extracted from Open Street Map and adjusted as informed by site visits.

4.1.5 ATOS

ATOS (Accessibility To Opportunities and Services) mapping has been provided by the NTA and used to evaluate accessibility to services via GIS analysis using a GIS network of the study area.

The data sources for these service types are:

- Employment – CSO Workplace Zones
- Primary Education – Department of Education
- Secondary Education – Department of Education
- Retail – An Post GeoDirectory
- GP's – An Post GeoDirectory
- Open Space – Development Plan zoning.

An ATOS assessment breaks an area down to $100m^2$ grids. The accessibility (walking/cycling catchments) of these grids relative to a service is calculated dependant on how favourably it compares to the average standard deviation of all grids in the study area.

The software calculates the average journey time for all 100m squares which are within this range, and then calculates values for all other 100m squares within the selected study area relative to this average. Therefore, the ATOS calculation provides a realistic representation of the relative connectivity of a grid to a given service within the study area.

Each square is then assigned a value from A to E dependent on its "individual" accessibility which allows for identification of active travel barriers (i.e.; severance, junctions, geographical barriers etc) and hence mitigation measures can be developed.

4.1.6 NMU Audit

A Non-Motorised User (NMU) Accessibility Audit was carried out by CSEA in conjunction with PMCE Road Safety Auditors in February 2022.

The audit was focused on qualifying the ease of which active travel users could safely navigate through the Castlebar Town Area and determined that area is disconnected for active travel users, particularly for cyclists.

The audit included a thorough examination of the local street / road network specifically from the point of view of non-car users. The audit assessed footpath condition, cycle lane/track condition, junction treatment for active travel users, crossing facilities for active travel users and the public lighting provision within the town area.

The NMU Audit is shown in Appendix 3.

4.2 Town Catchment

GIS analysis shows that the town area is largely captured by the 15min walking catchment and entirely captured by a 10min cycling catchment (Figure 4-2 and Figure 4-3).

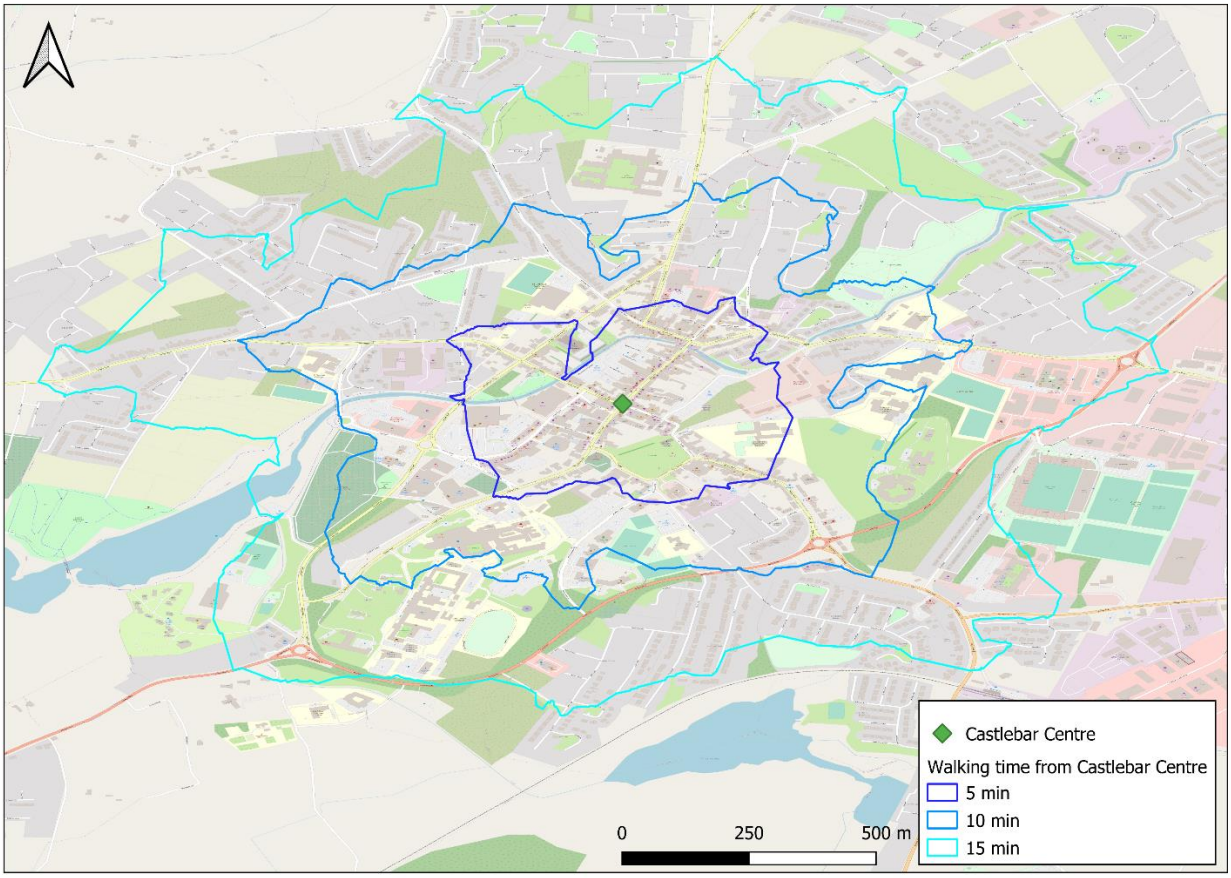


Figure 4-2 GIS Accessibility Map - Walking Catchment

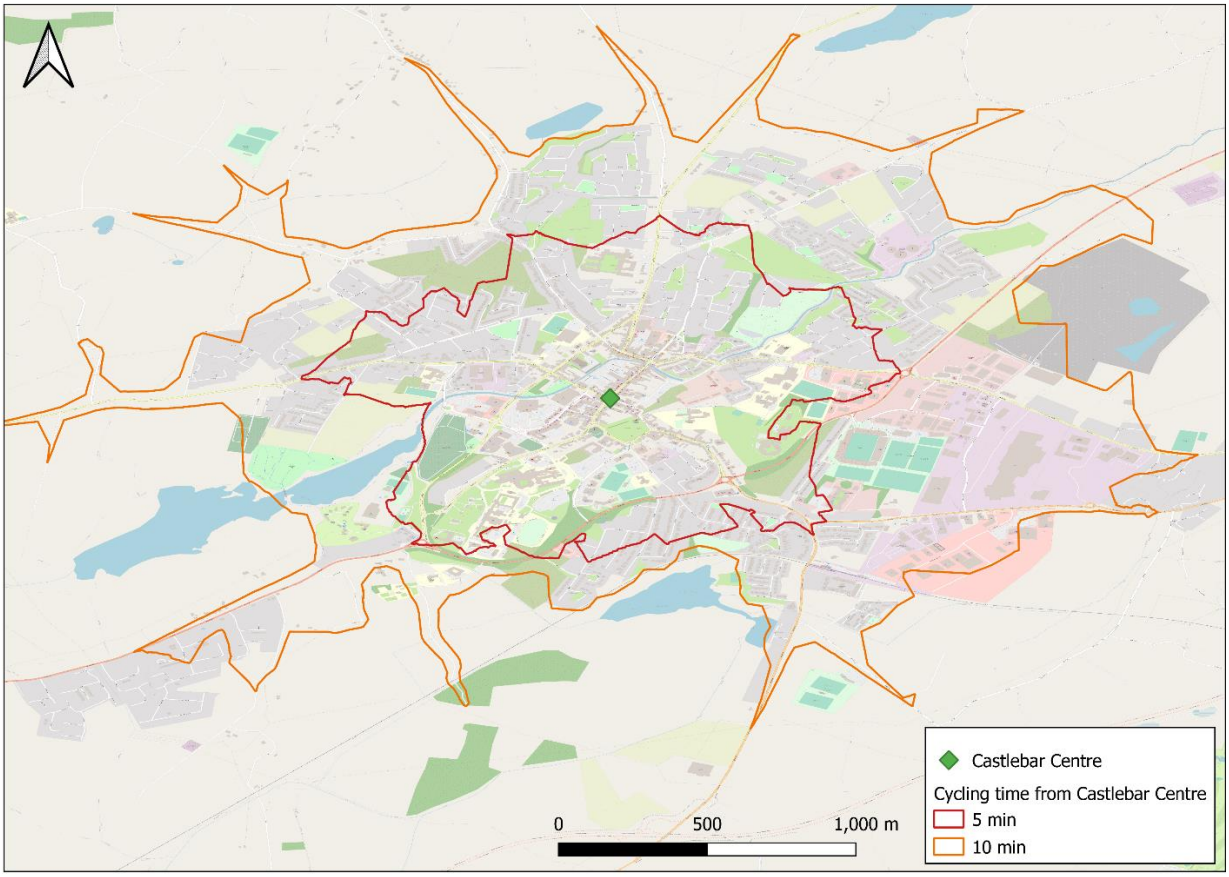


Figure 4-3 GIS Accessibility Map - Cycling Catchment

4.3 Transport Network

4.3.1 Active Travel Network

The existing active travel network in Castlebar is noted as being discontinuous, particularly for cyclists.

For pedestrians, several major junctions are lacking pedestrian facilities, pedestrian crossings are not provided along desire lines throughout the town area, footpath width is narrow and footpaths start/end abruptly.

The cycle facilities are generally sub-standard for the adjacent traffic volumes, the cycle facilities often stop in advance of a junction, pavement condition is poor, and obstructions are often caused by parked cars.

An existing greenway, Great Western Greenway: Castlebar to Turlough, is located in the south and the north of Castlebar along the Castlebar River. The greenway is approximately 8.4 km in length. Figure 4-4 shows the existing greenway within Castlebar.

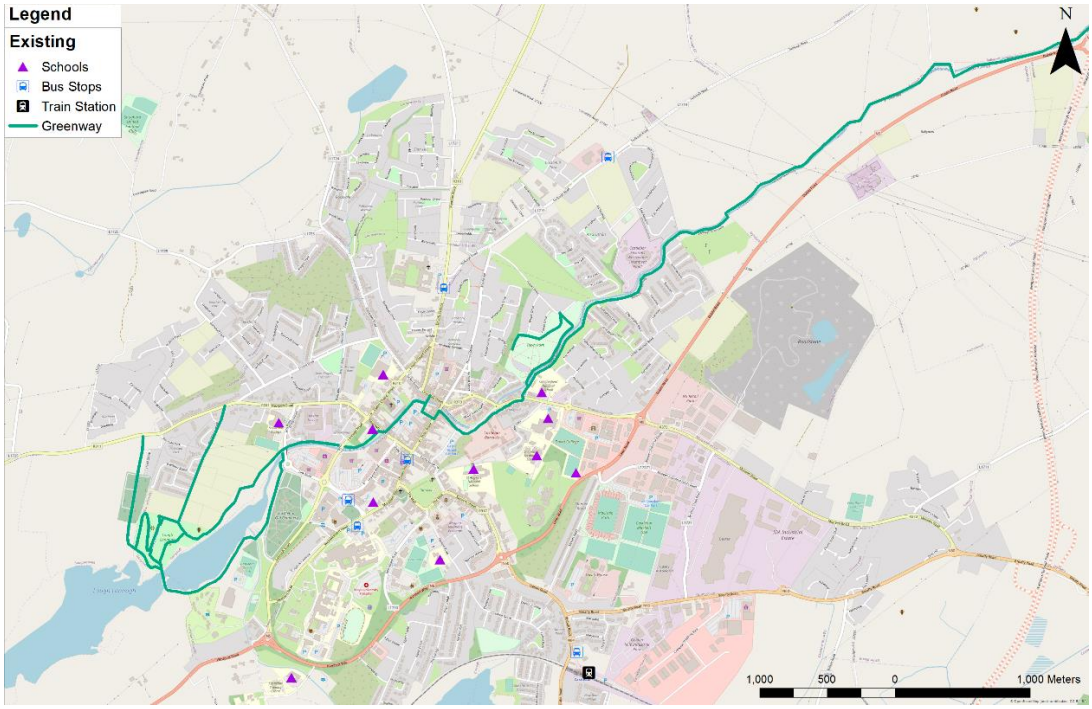


Figure 4-4:Existing Greenway in Castlebar

The existing cycle network is shown in Figure 4-5.

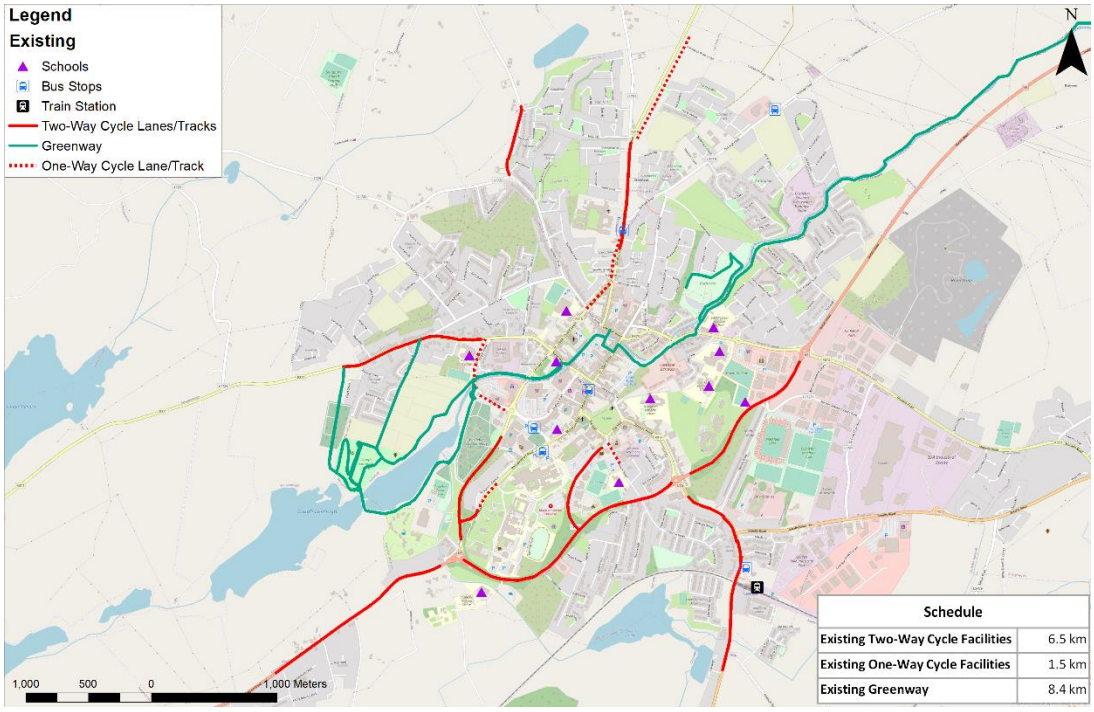


Figure 4-5 Existing Cycle Network

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 in traversing the junction.

4.3.2 Public Transport Network

The Castlebar Town Area is reasonably well connected to neighbouring towns and cities. It is served by several local and intercity buses that stop at Stephen Garvey Way. Bus Eireann Route 456 is the main route serving the town providing connections to Westport, Ballinrobe, Kilmaine, Headford and Galway.

There is no local bus network within the town, however there is a 'Local Link' service available for certain population cohorts. The Local Link services are return, with a 2hr stay at the destination. The existing Local Link network is shown in Figure 4-6 with the route frequency shown in Table 4-2.

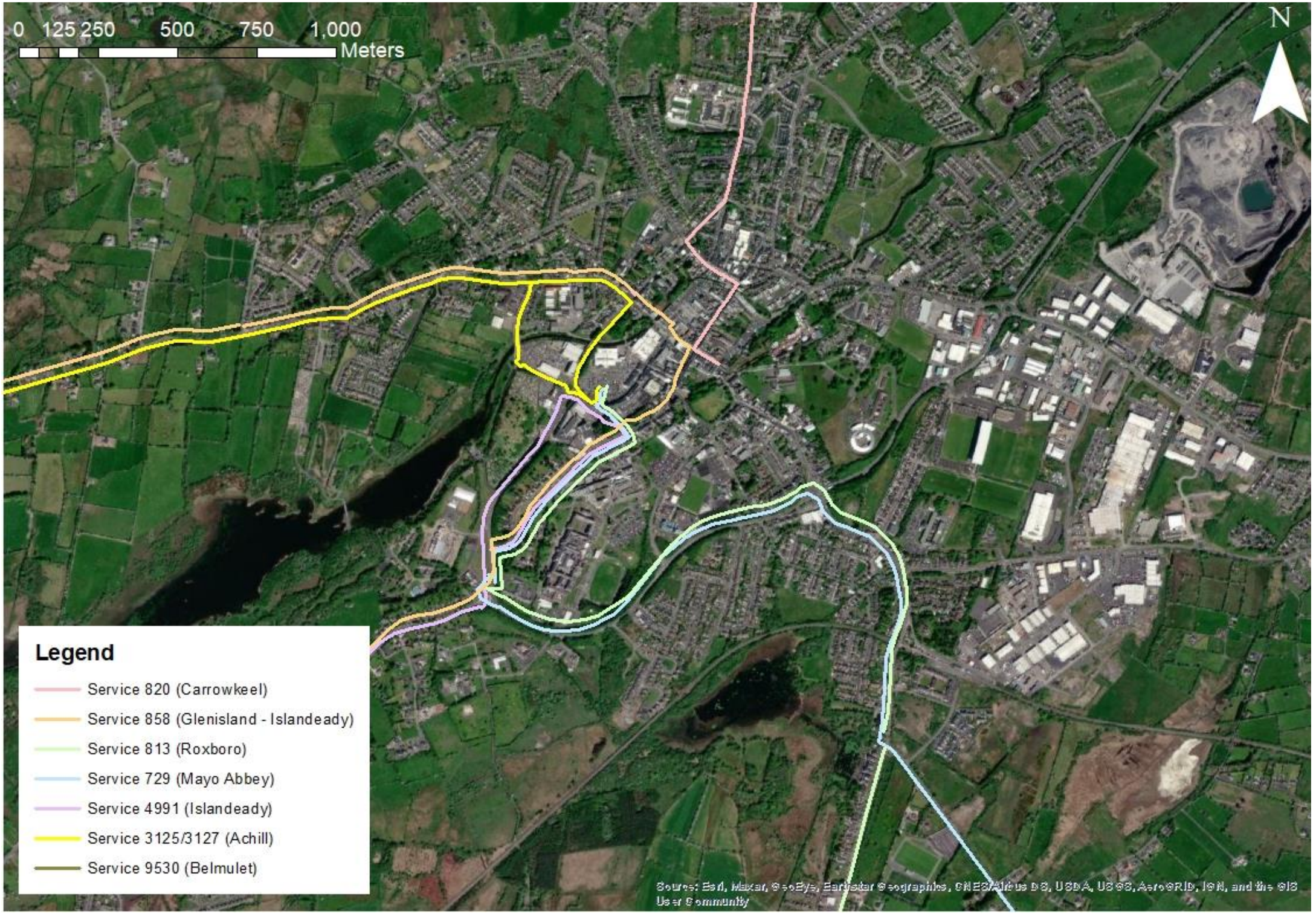


Figure 4-6 Existing Local Link Network

Table 4-2 Local Link Frequency

Service	Connection	Frequency (Departs Castlebar)
820	Carrowkeel	Friday (10:30)
858	Glenisland/Islandeady	Wednesday (11:00)
813 (S2)	Roxboro	Monday (12:32)
729	Mayo Abbey	Tuesday – Saturday (12:20)
4991(S1/S2)	Kilmeena	Friday (20:20/22:20)
3125/3127	Achill	Tuesday & Saturday (10:25/11:10)
9530	Belmullet	Wednesday (11:00)

Castlebar is served by heavy rail via Castlebar Train Station with services connecting to Dublin, Westport and Ballina.

Figure 4-7 shows the existing public transport stops in Castlebar.

Figure 4-7 Public Transport Stops

4.3.3 Existing Road Network

Figure 4-8 shows the National Roads (green), Regional and other Arterial Roads (magenta); and other important links (shown in blue).

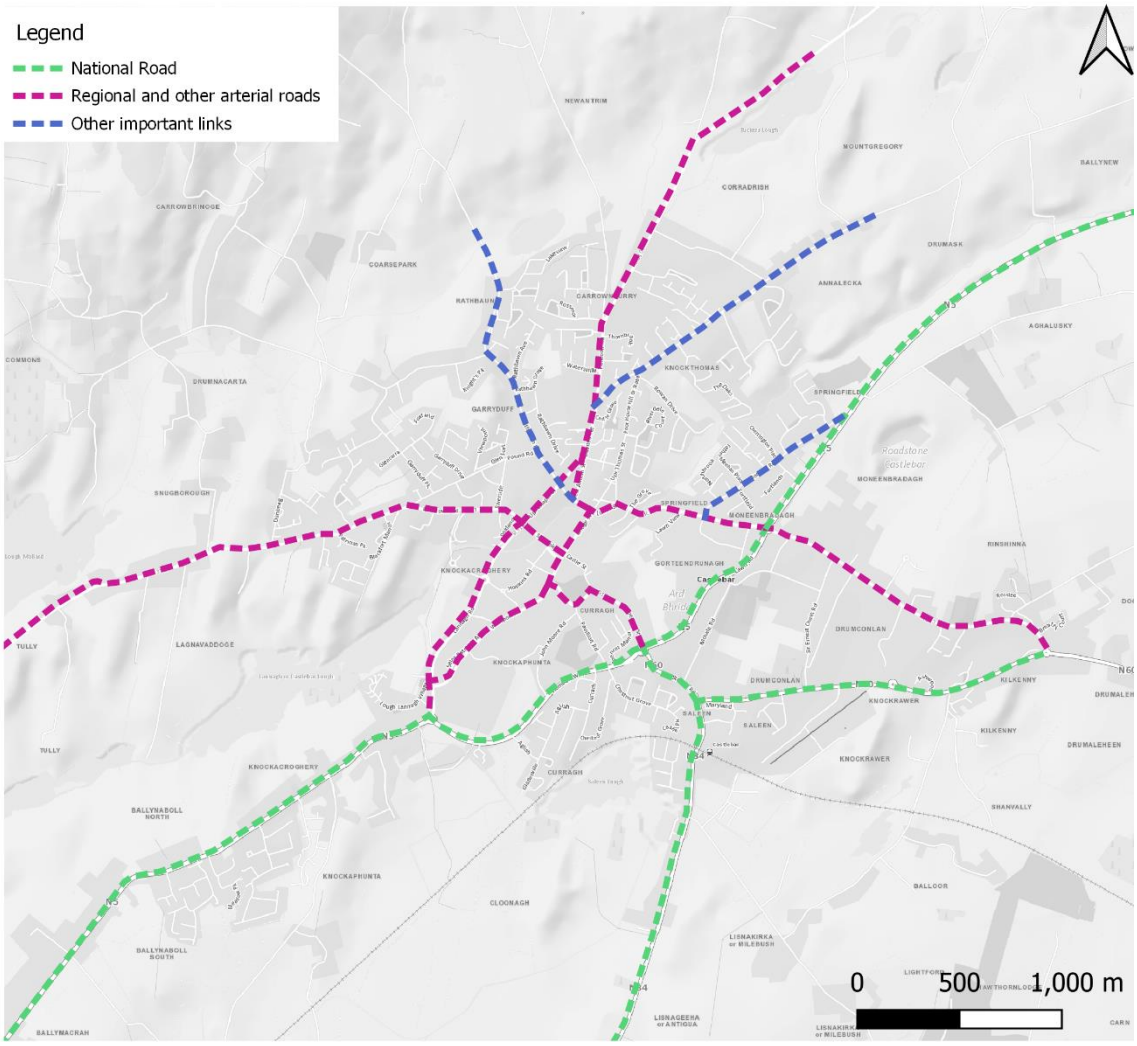


Figure 4-8 Road Network

- **N5 (Dublin Road, Lawn Road, Humbert Way and Westport Road):** is a two-way National Primary Road with a posted speed limit of 50kph within the Castlebar urban area, which bypasses the Castlebar town area to the south.

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

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 and has multiple direct accesses along both sides and passes through Castlebar's enterprise and employment areas.

- **N84 (Station Road):** is a two-way National Primary Road with a posted speed limit of 50kph within Castlebar urban area and 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.

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

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

- **R310 (Pontoon Road ():** 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.

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

  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.

- **R310 (Market Street/ Upper Chapel Street)**: 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.

- **R310 (Ellison Street):** 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. There are no cyclist facilities along this road.

- **R310 (Mountain View):** 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.

- **R310 (Westport Road):** a wide two-way road with footpaths on both sides of the road. There is on-street parallel parking along northern side. There are 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 has multiple direct accesses. There are cyclist facilities along both sides of the road, however these are west of its junction with the 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. The road 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. However, the road widens outside the town centre. There are footpaths on both sides of the road, however there are no cyclist facilities along the road. The road serves a number of housing estates and have multiple direct accesses.

4.4 Trip Generators and Attractors

The trip generators within the Study Area are primarily the residential zones. These areas are located primarily on the periphery of the town, with a higher density to the north.

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

The trip generators and trip attractors are shown in Figure 4-9.

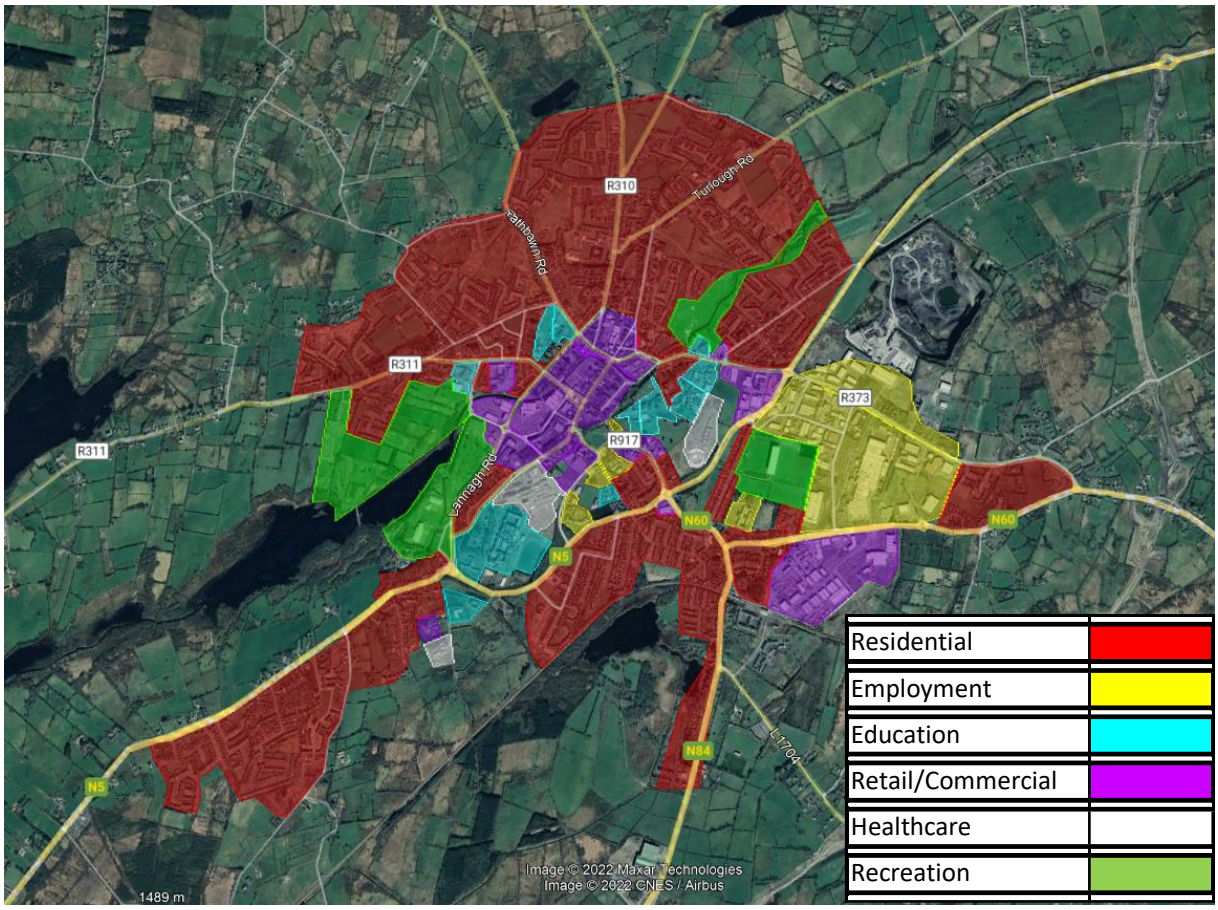


Figure 4-9 Trip Generators and Attractors

- **Residential:** The residential area comprises primarily of housing estates with several smaller residential streets.

- **Employment:** The Moneen Road Industrial Park is the largest employment zone in the study area. Other notable employment are the MCC Offices, Castlebar Court House, The Motor Tax Office, Castlebar Intreo Centre and Revenue Commissioners.

- **Education**: The education centres within the study area include:
  - Davitt College;
  - St. Gerald's College DLS;
  - St Joseph's Secondary School;
  - St Patrick's Boys National School;
  - Scoil Naomh Padraig;
  - St Angela's National School;
  - Gaelscoil Raifteirí;
  - St Anthony's Special School;
  - St Brid's Special School;
  - Castlebar Educate Together; and
  - ATU Castlebar
- **Retail/Commercial:** The Town Centre is identified as the main retail/commercial zone. Additionally, there are retail hubs off the N5 and Breaffy Road.
- **Healthcare:** The healthcare centres within the study are Mayo University Hospital, Sacred Heart Hospital, Mayo Hospice and Cuna Chaitriona Nursing Home.
- **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 and McHale Park.

Other land use zones that would also contribute to trip generation within the area include community services, sports clubs, civic amenities, places of worship and tourist attractions.

4.5 Travel Patterns

The town is adequately served by regional bus and rail connections.

However, there is likely latent demand for a frequent local bus network to connect the main residential, education, employment, retail, commercial, healthcare and community centres. The population volume and density of the town area could support a viable bus network should there be adequate uptake from the urban catchment (Figure 4-10).

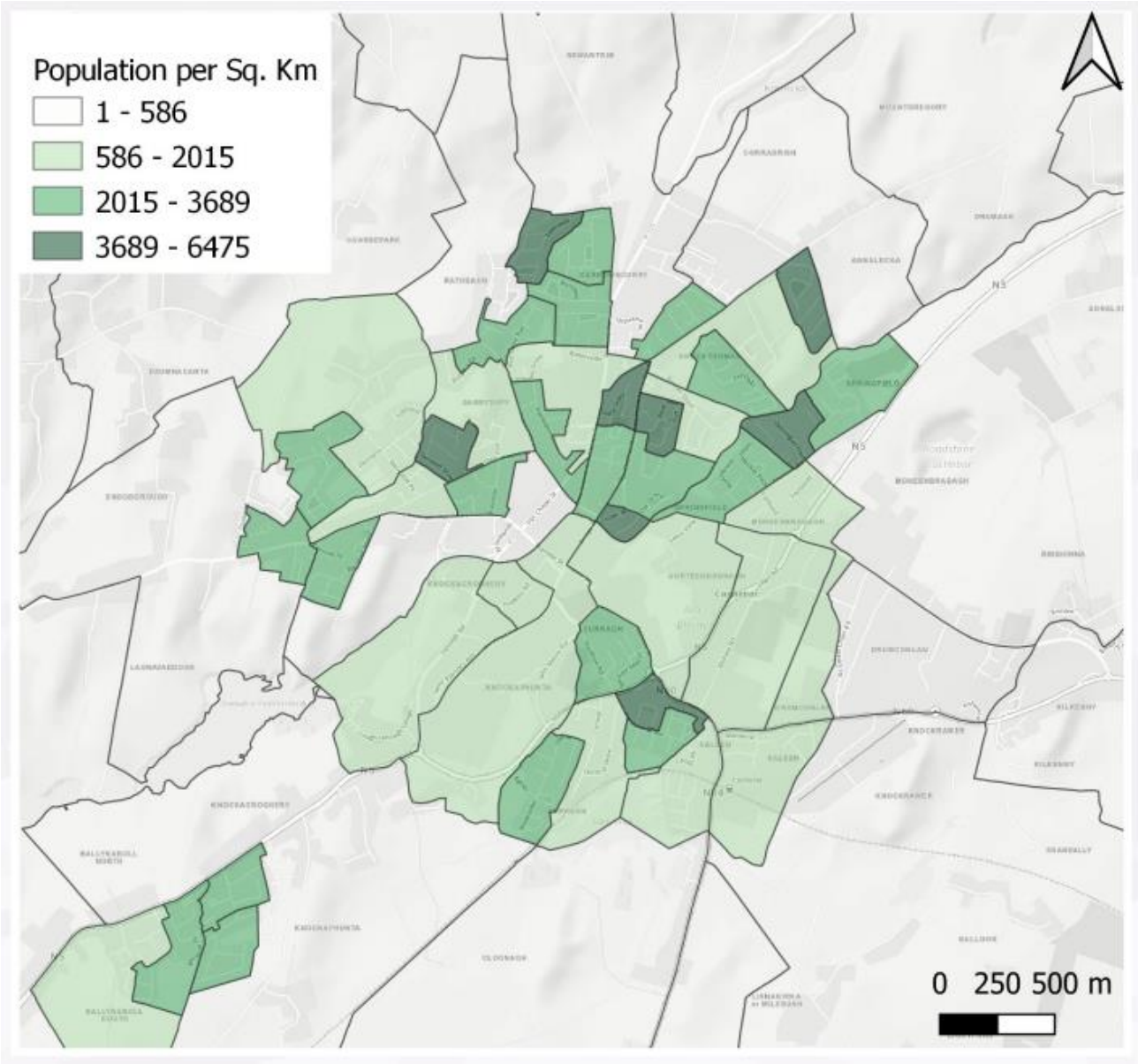


Figure 4-10 Population Density of Castlebar

4.5.1Commuter Travel Patterns

Figure 4-11 shows the commuter car mode share using the POWSCAR Data from the 2016 Census.

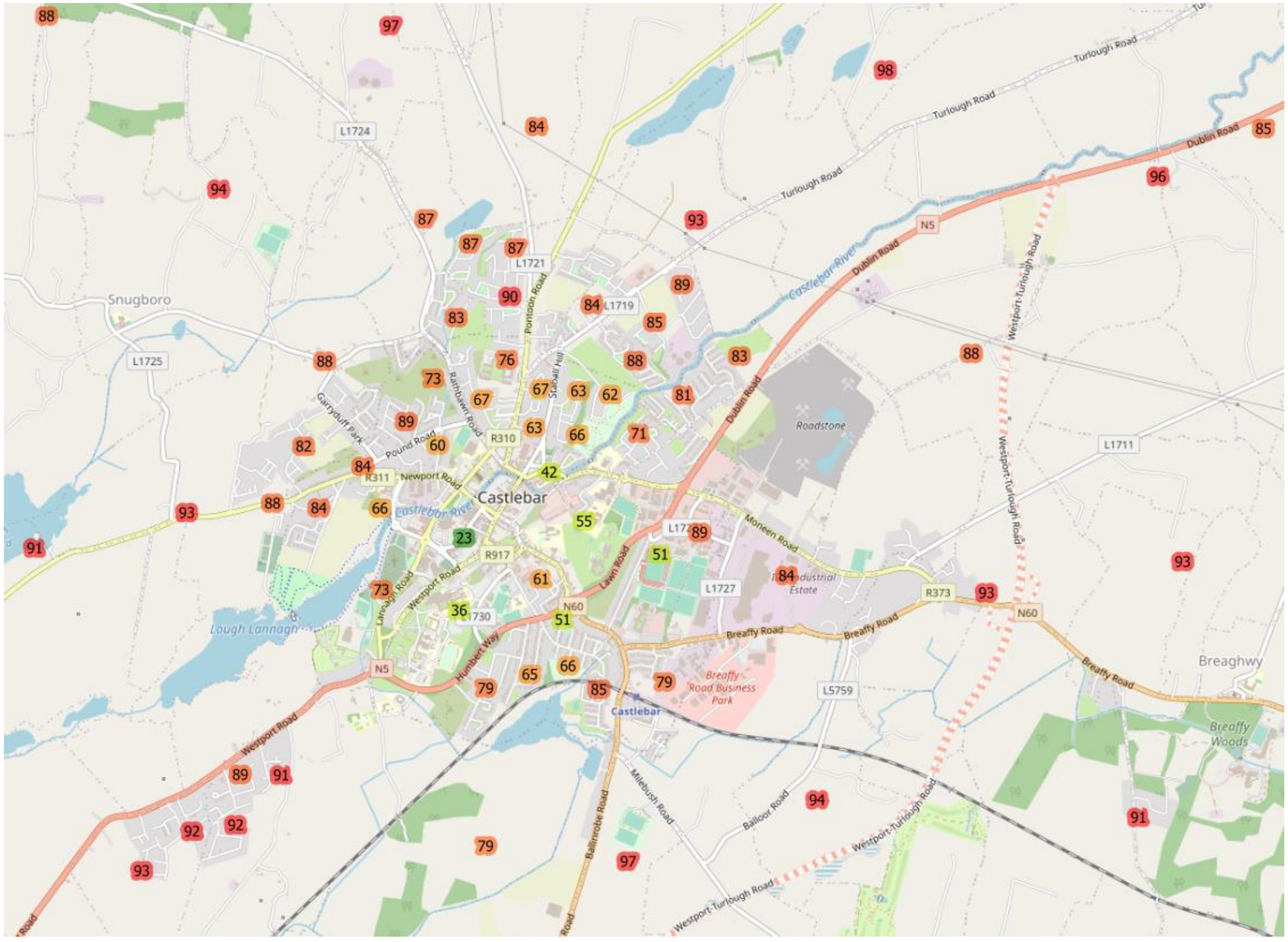
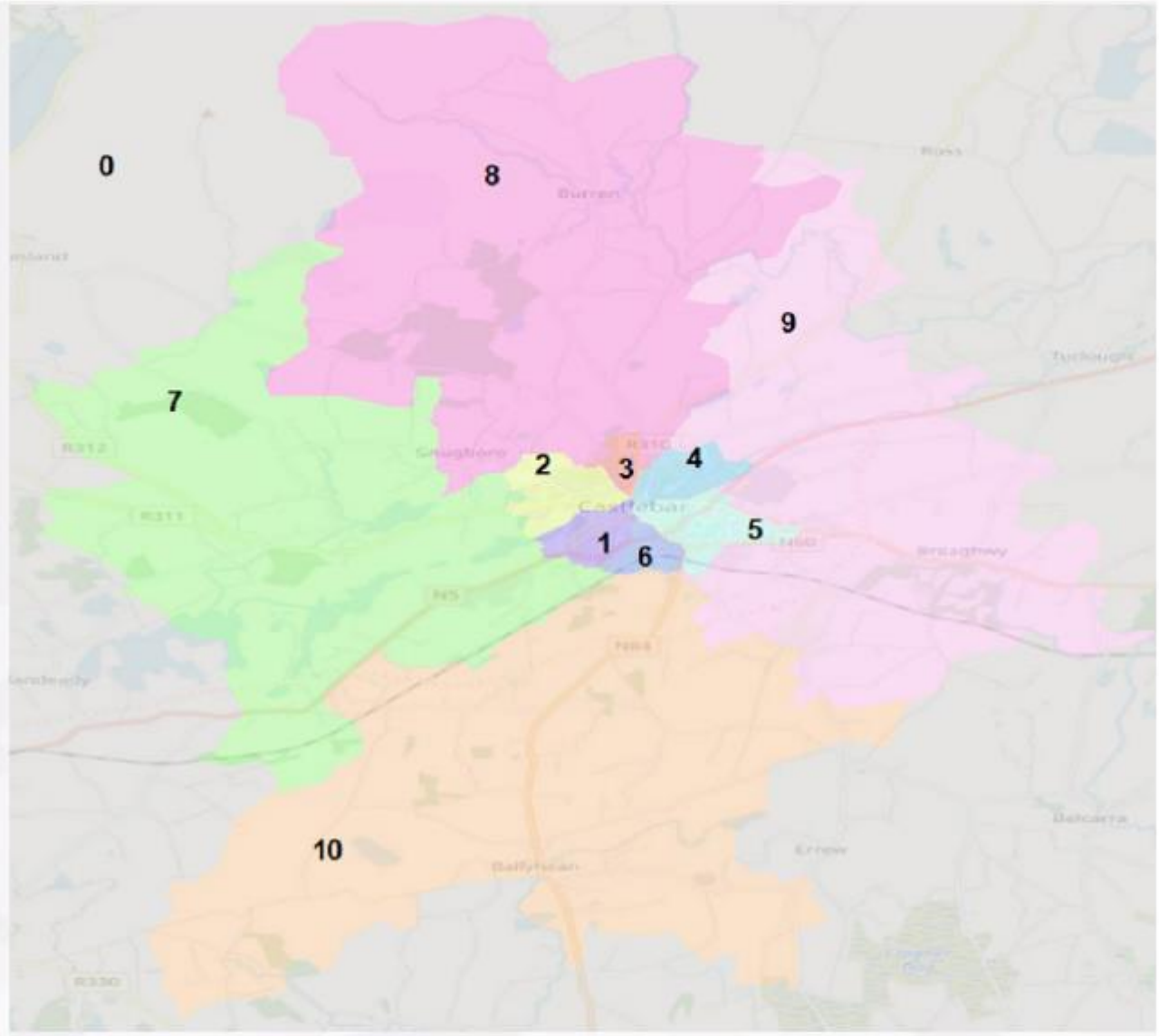


Figure 4-11 Commuter Car Mode Share

The POWSCAR data collected shows that there is a high percentage of car mode share within the town area. A regular local bus service would utilise this demand to alleviate traffic congestion and promote a change to sustainable modes of travel for journeys that cannot be reasonably be undertaken by active travel modes due to distance or inclement weather. The POWSCAR analysis is shown in Figure 4-12.



Car Mode Share Percentage

%ROAD	1	2	3	4	5	6	7	8	9	10	TOT
1	27%	40%	0%	50%	50%	100%	0%	n/a	75%	n/a	38%
2	65%	66%	89%	53%	78%	86%	80%	100%	86%	100%	73%
3	70%	67%	75%	53%	79%	71%	100%	100%	93%	100%	75%
4	67%	50%	43%	49%	80%	69%	100%	100%	79%	100%	70%
5	74%	83%	75%	69%	64%	63%	100%	n/a	55%	100%	70%
6	49%	50%	80%	56%	63%	60%	60%	75%	64%	100%	58%
7	92%	79%	100%	80%	95%	100%	71%	100%	93%	83%	91%
8	91%	86%	83%	91%	92%	100%	100%	90%	91%	100%	91%
9	95%	84%	100%	83%	93%	100%	100%	100%	89%	100%	93%
10	96%	100%	100%	100%	91%	100%	100%	100%	90%	83%	94%
TOT	76%	70%	78%	67%	83%	83%	82%	94%	85%	92%	79%

Figure 4-12 POWSCAR Analysis

The data shows that motorised modes are preferred throughout the study area, including short distance movements that could feasibility be made by active travel modes. This is demonstrated by the following zone-zone analysis:

- Zone 2 to 1 – 65% motorized (235 trips); and
- Zone 4 to 5 – 79% motorized (181 trips).

The POWSCAR data collected shows that there is a high percentage of car mode share within the town area. Local trips that are typically less than 2km make up approximately 40% of car trips on the streets within the town centre (Section 4.6.1). The working population cohort are largely well suited to active travel modes and therefore there is huge potential for mode shift from private car for commuter trips.

The ATOS mapping shows that the trip attractors within the town centre are largely accessible by both walking and cycling.

An ATOS assessment breaks an area down to 100m^2 grids. The accessibility (walking/cycling catchments) of these grids relative to a service is calculated dependant on how favourably it compares to the average standard deviation of all grids in the study area.

The software calculates the average journey time for all 100m squares which are within this range, and then calculates values for all other 100m squares within the selected study area relative to this average. Therefore, the ATOS calculation provides a realistic representation of the relative connectivity of a grid to a given service within the study area.

Each square is then assigned a value from A to E dependent on its “individual” accessibility which allows for identification of active travel barriers (i.e.; severance, junctions, geographical barriers etc) and hence mitigation measures can be developed.

The employment accessibility is shown in Figure 4-13 for walking and Figure 4-14 for cycling.

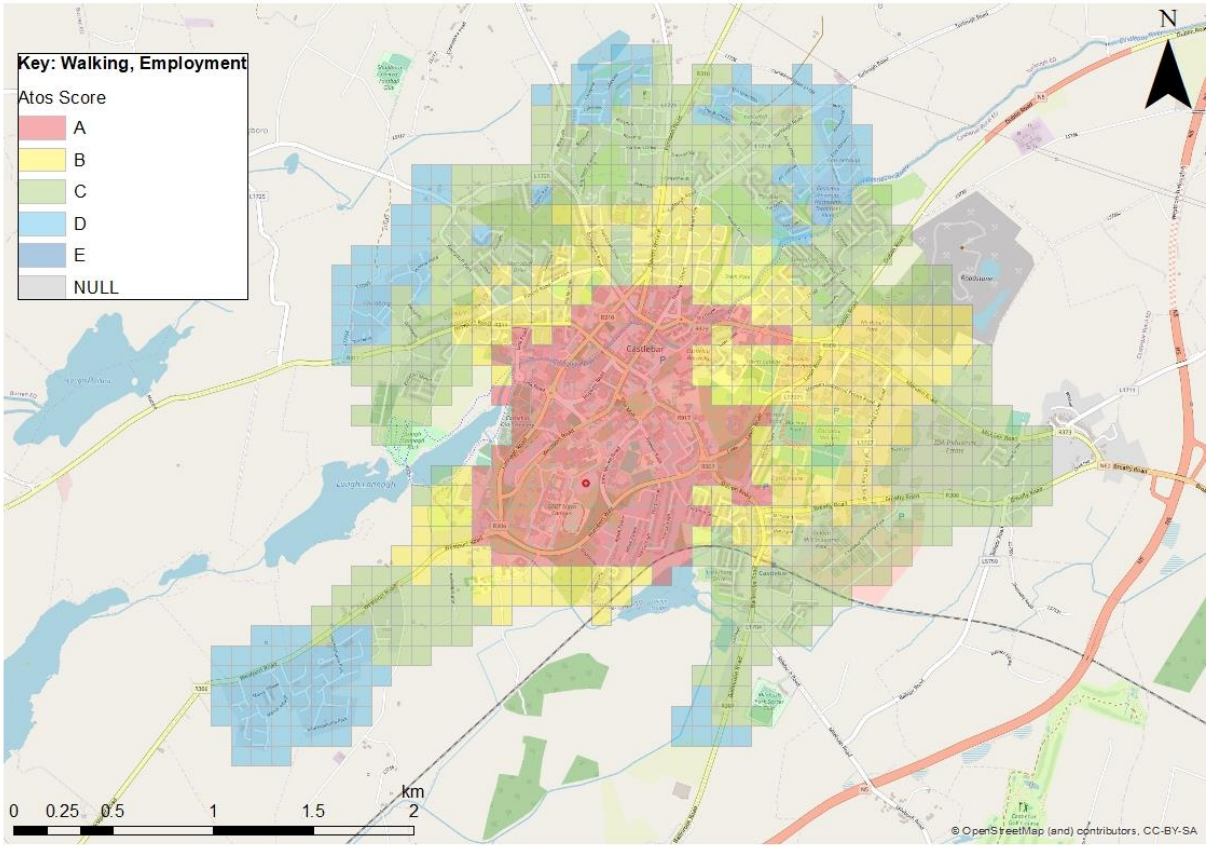


Figure 4-13 Employment Accessibility – Walking

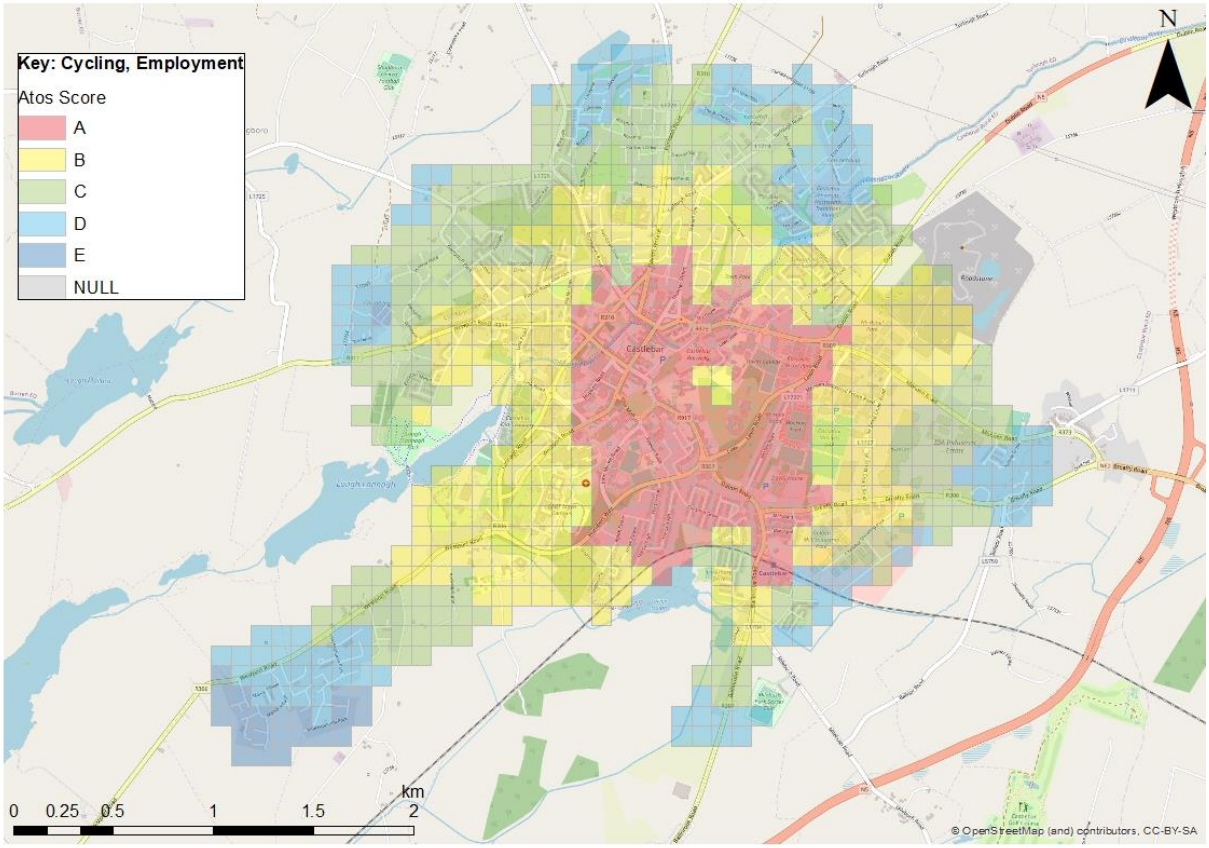


Figure 4-14 Employment Accessibility – Cycling

The industrial area to the east of the town represents a significant area of employment but only achieves a Level B/C level of service for both walking and cycling. This in contrast to the town centre which achieves a Level A level of service. This is due to the fact that the N5, in particular the Moneen Roundabout is acting as a barrier to active travel to this employment zone. Therefore, the accessibility and connectivity of the area is diminished.

4.5.2 School Travel Patterns

Figure 4-15 shows the school mode share using data from the 2016 Census.

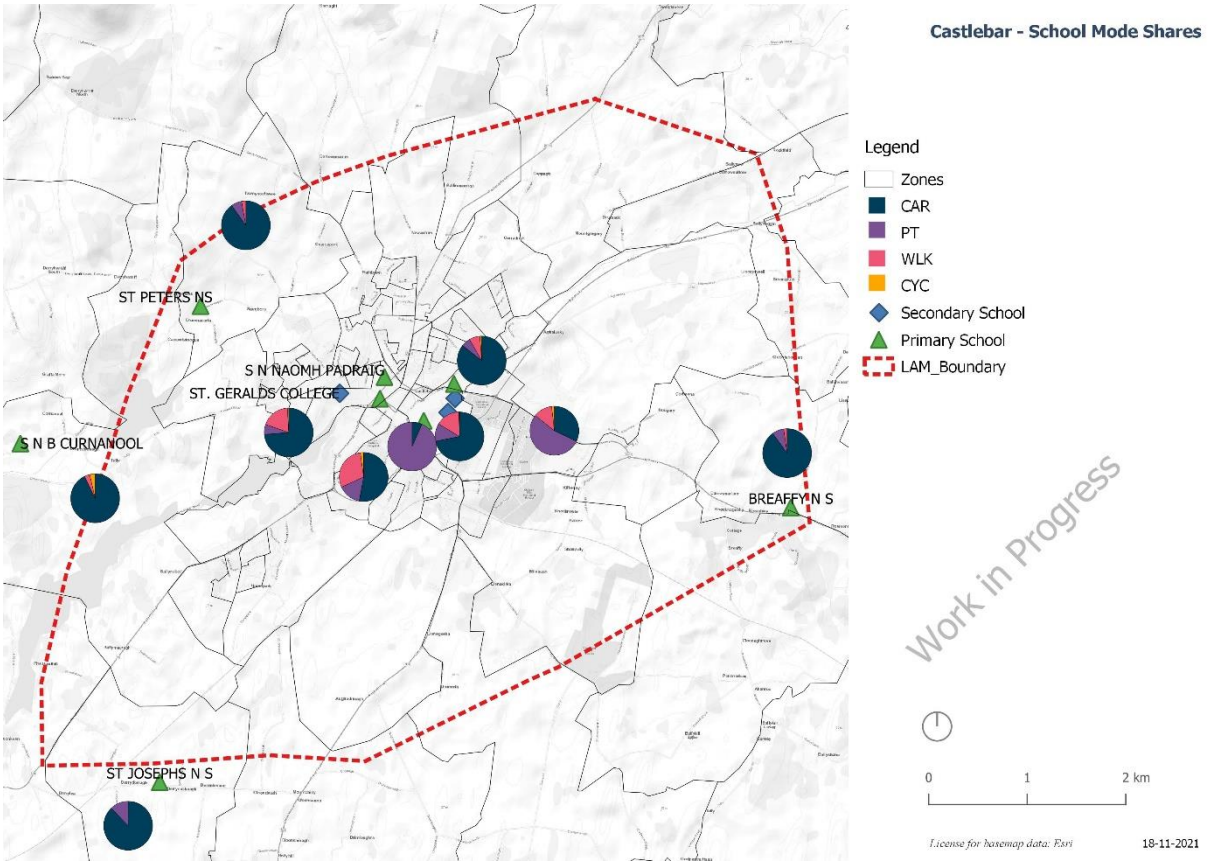


Figure 4-15 School Mode Shares

Private car is the dominant mode share across the Study Area with the exception of St Brid's Special School and St Anthony's Special School which both provide school buses.

Figure 4-16 shows the trip length distribution for school related trips in the Study Area.

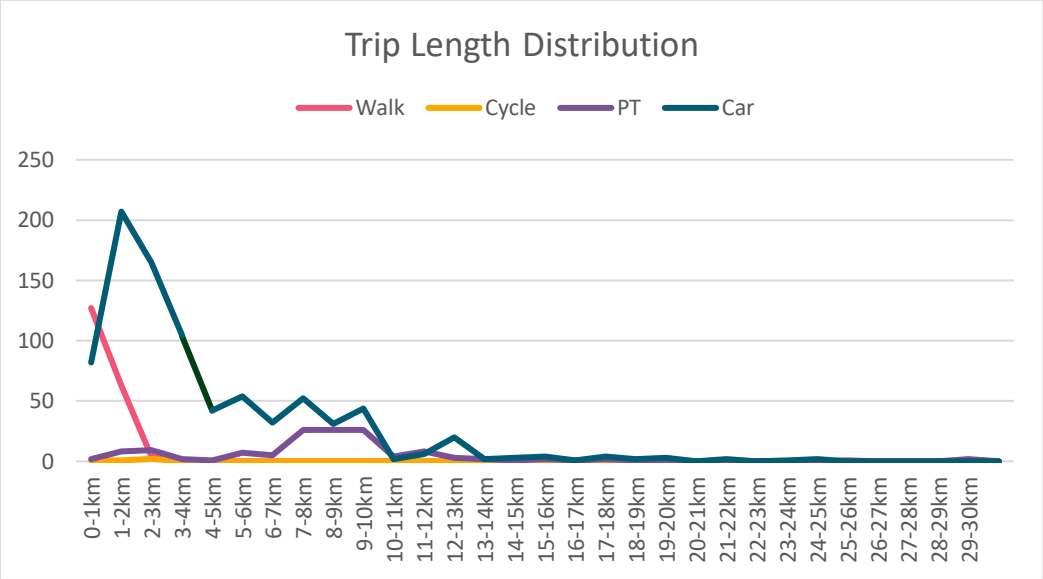


Figure 4-16 Trip Length Distribution

The mode share distribution shows that there are a substantial number of trips being undertaken by private car that are less that 2km (i.e.; within walking catchment) and 5km (i.e.; within cycling catchment).

Within the town centre there are several schools with a combined total of approximately 3,028 students, namely;

- Davitt College - 800 students;
- St. Gerald's College DLS – 620 students;
- St Joseph's Secondary School – 600 students;
- St Patrick's Boys National School – 500 students;
- Scoil Naomh Padraig – 462 students;
- St Angela's National School – 350 students;
- Gaelscoil Raifteirí – 218 students;
- St Anthony's Special School – 44 students;
- St Brid's Special School – 22 students; and
- Castlebar Educate Together – 12 students.

It is noted that out of the school trips in the catchment, 51% are made by private car, 1% by bike and 16% by foot. Private car is the dominant mode choice for trips over 1km in length. This shows that there is significant scope for mode shift to sustainable modes, particularly for cycling which currently has a small mode share percentage.

The GIS analysis (Section 4.2) shows that the school districts, located in the town centre or in close proximity to the town centre, are within a walking and cycling catchment by distance with the major residential zones. This is in contrast to the ATOS mapping that shows both primary and secondary schools are both largely inaccessible by active travel with most residential areas having a level of service of C or below to

the school zones (Figure 4-17 - Figure 4-20). There is therefore a huge potential for a mode shift for these trips. School aged children are well poised to undertake trips of this distance by active travel.

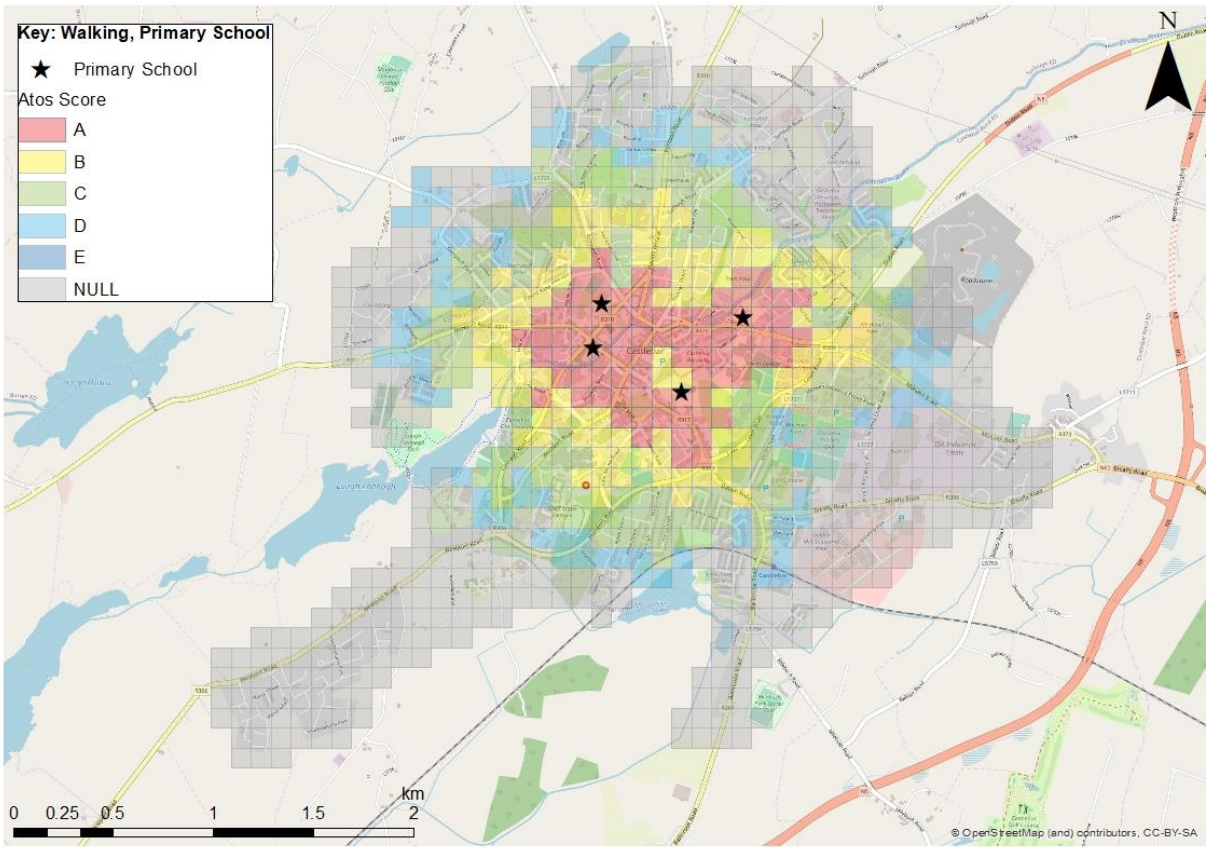


Figure 4-17 Walking Accessibility to Primary School Destinations

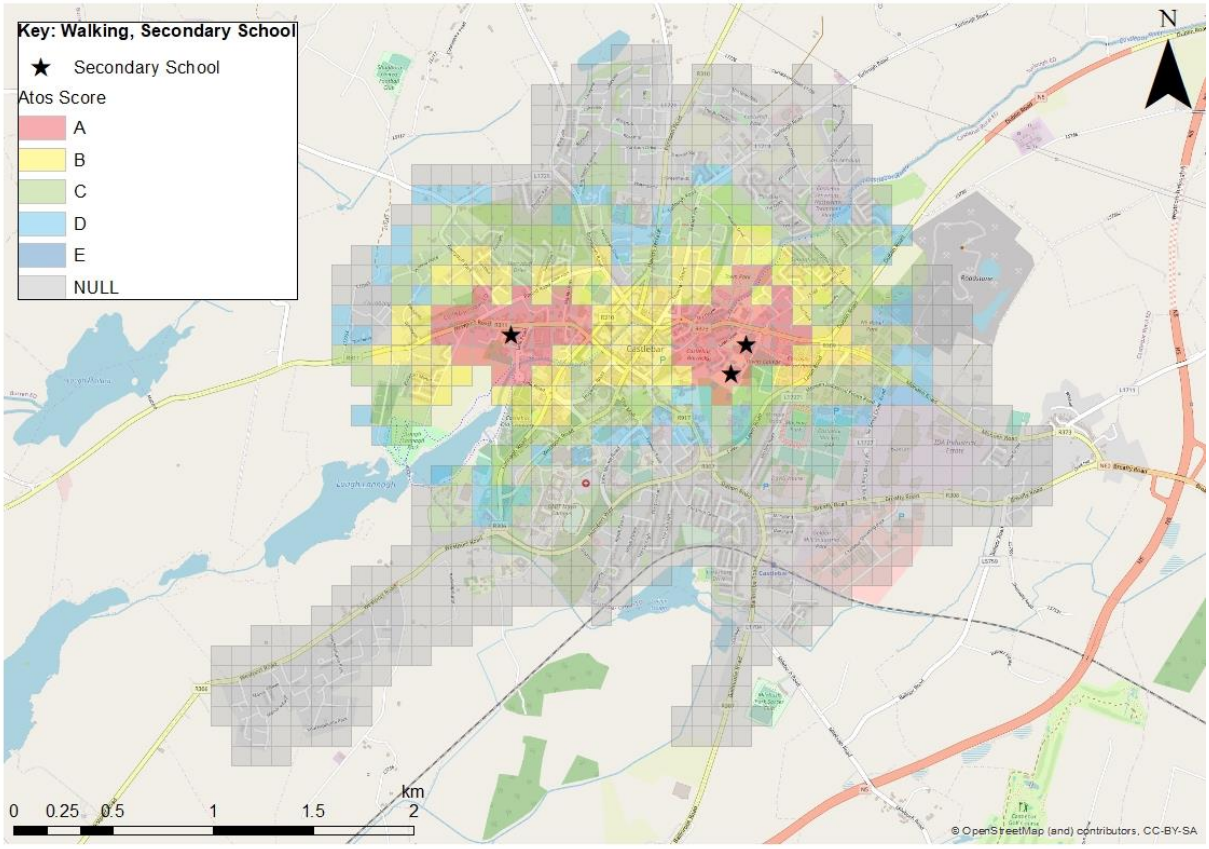


Figure 4-18 Walking Accessibility to Secondary School Destinations

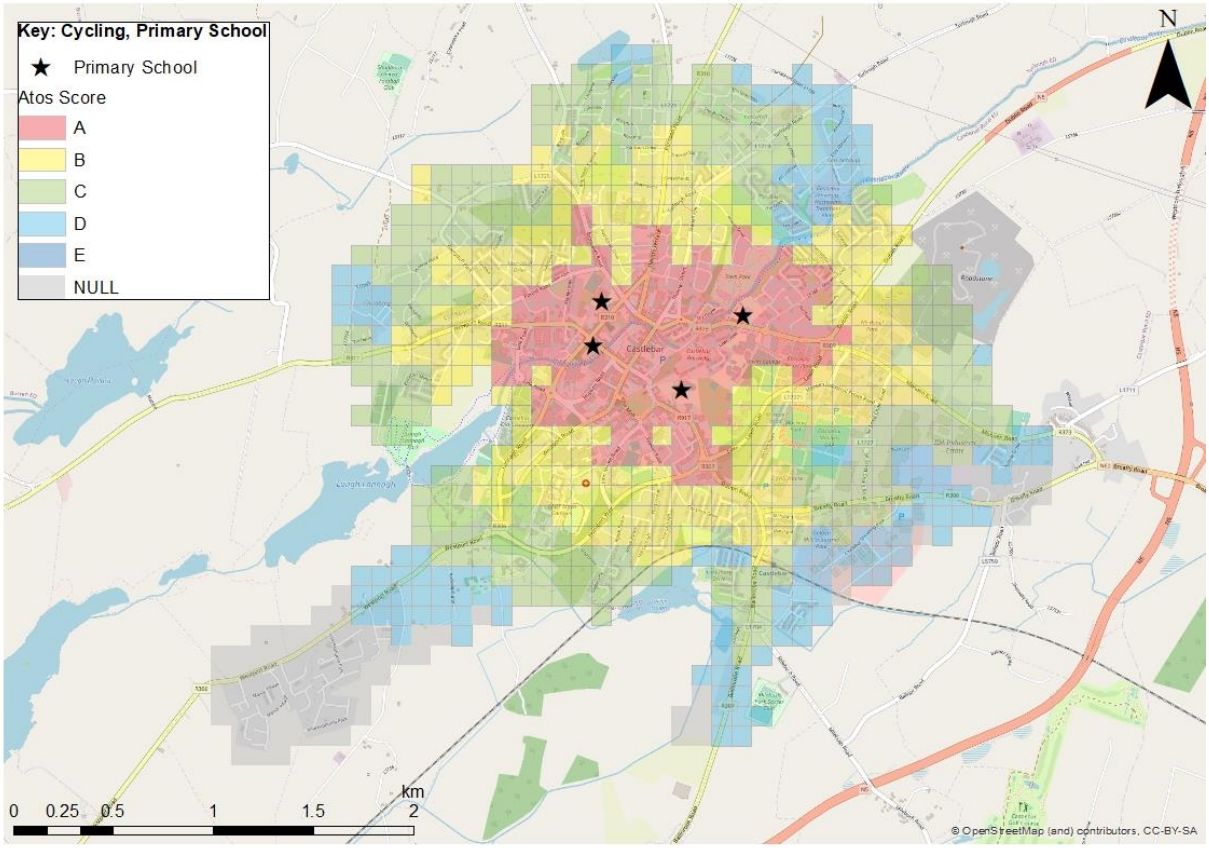


Figure 4-19 Cycling Accessibility to Primary School Destinations

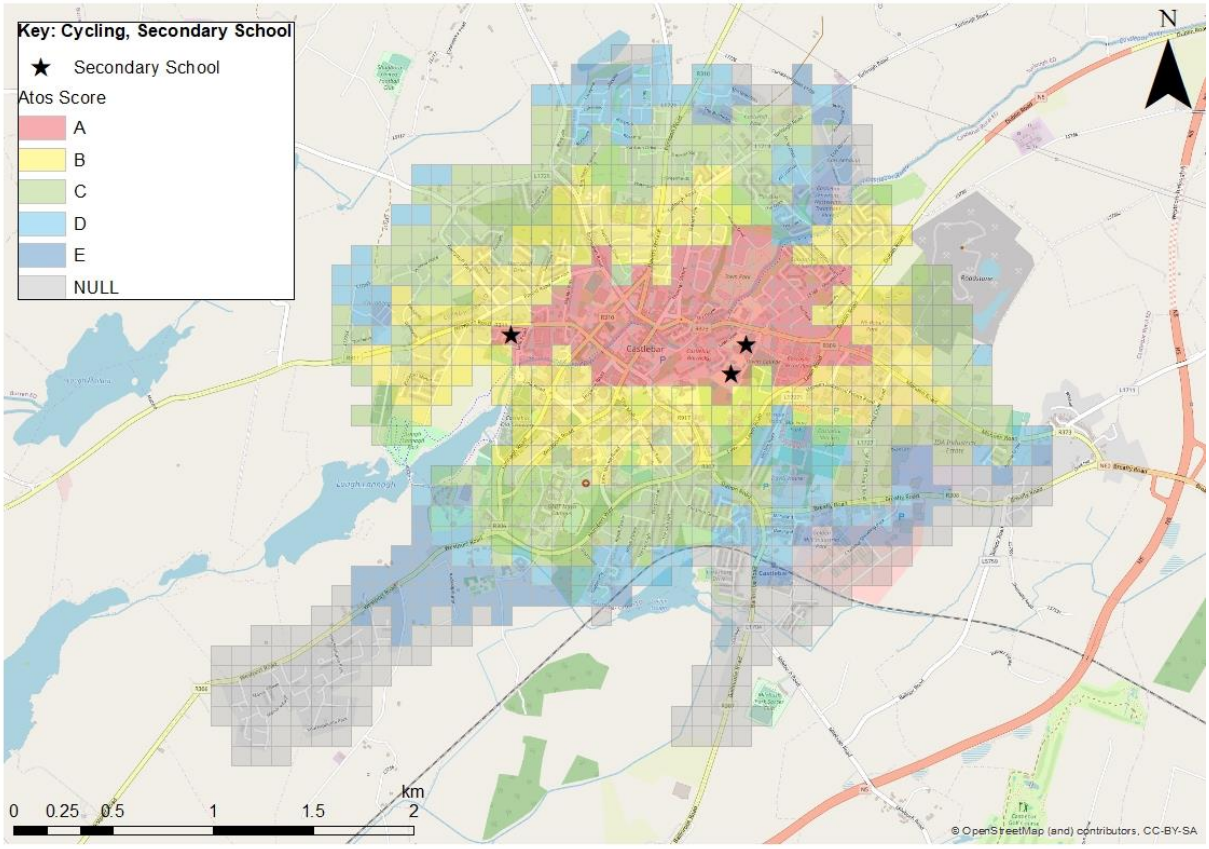


Figure 4-20 Cycling Accessibility to Secondary School Destinations

Overall, primary schools are relatively more accessible than secondary schools. Across the maps, the area south-east of the N5 is the least accessible zone for education centres. It is clear that the N5 is causing huge severance for active travel to school zones. This is shown most notably by the walking accessibility to secondary schools where the areas south of the N5 largely receive a low level of service.

The traffic data collected shows that several major junctions are congested at the typical school drop off and pick up times showing that a reduction in school trips made by private car will alleviate traffic in the town centre.

If there was a significant mode shift to active travel modes from the trips that are within the walking/cycling catchment of primary/secondary schools, there would be a corresponding reduction in private car trips on the road network.

4.5.2.1 School Drop Off/Pick Up

Traffic at the front of schools during drop-off and pick-up times presents a major transport challenge to be addressed.

Front of school congestion is safety hazard as it is where children congregate in the greatest numbers and where they are most vulnerable to indiscriminate parking

practices. Parking outside of school gates is dangerous for school children as they are amongst the traffic and parked cars can reduce visibility of children crossing the road. In addition, parking on footpaths can block access as well as reduce the available footpath width which leads to overcrowding on footpaths or forcing children to walk on the road.

To alleviate front of school congestion, an integrated street design can reduce traffic volumes. Integrated streets provide higher quality street environments that are attractive to pedestrians and cyclists and promote the use of more sustainable forms of transport.

The Safe Routes to Schoolds (SRTS) and 'Park & Stride' programmes are in the initial phases of roll-out in Castlebar (Section 5.2) and will play a key part in delivering the infrastructure along access routes and at the school gates include footpath improvements, cycle facility improvements and front of school redesign.

4.5.3 Local Trips Within the Town Centre/Shopping Trips

It is noted that retail/commercial activity is the main economic driver in Castlebar. As such, several types of shopping trips to the town centre (to Aldi/Tesco/Dunnes etc) and the industrial estate (hardware shops/furniture shops etc) are best suited to be made by private car. Additionally, plenty of people commute by private car from areas beyond the town catchment where there is often no alternative to private car as a mode of transport.

As the POWSCAR data does not include for shopping/leisure trips it is difficult to quantify the number of trips of this nature being made to the town centre. However, it is observed that there are trips being undertaken by car that could feasibly be made by active travel modes. This is particularly true for people who are currently driving 'from shop to shop' within the town centre and trips that are being made to visit small retail shops, cafés, bars and restaurants.

It is important to retain the same level of service and accessibility to Castlebar for visitors while enhancing the active travel facilities within the town centre.

Visitors making trips from the wider catchment area should be encouraged to park their cars in one of the towns car parks and travel by foot for the duration of their stay. Similarly local trips that are being made around the town centre by private car should be encouraged to be transitioned to active travel modes. Removing this internal traffic from the town centre will create an active travel friendly environment that will enhance the public realm of the area.

Parking charges within Castlebar should be reviewed to encourage the use of Park and Stride locations above the use of on street parking. This can be achieved by having a number of different 'parking zones' with relative charges. The most expensive

charges would apply to the central town centre streets. Underutilised car parks on the periphery could be utilised for long-stay parking at an attractive rate.

By providing 'Park and Stride' locations at the edge of the town centre (Castle Street Car Park and Mill Lane Car Park) to cater for the long-distance trips into Castlebar, the provision of Mobility Hubs and bike sharing infrastructure will encourage active travel within the towns retailing and hospitality districts.

4.5.4 Overall Travel Patterns

The LAM modelling shows of the travel patterns broken down as internal trips and external trips (Figure 4-21).

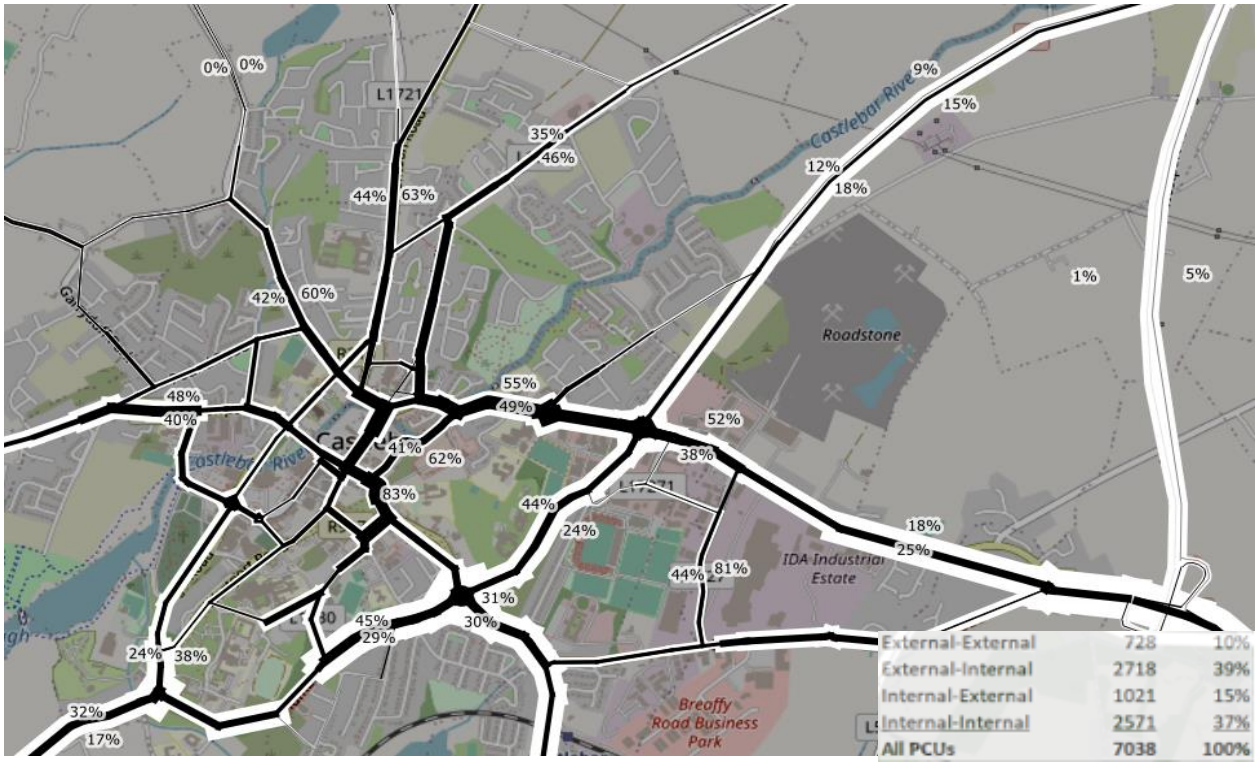


Figure 4-21 Internal Traffic Trips

Of the traffic trips within the study area, 37% are from internal zones to internal zones (i.e.; trips that have an origin and destination within the town area). This 37% of trips will not be impacted by the opening of the bypass but represent a share of trips that could feasibly be made by active travel modes.

The trips that have an origin or destination in an external zone are likely to cover a distance too great to be practically made by active travel modes but have the potential to be undertaken by public transport.

The LAM modelling also shows that within the local road network (i.e.; excluding National Roads), the majority of the traffic is local traffic and characterised by short trips.

The travel patterns within the town reciprocate the POWSCAR data for commuter and school travel. It shows that there is a strong reliance on private cars, including for trips over short distances. There is scope to change the travel patterns of the local community to reduce the number of vehicles travelling on the local road network through the provision of active travel and public transport infrastructure.

4.6 Current Schemes

4.6.1 Breaffy Active Travel and Safety Measures Scheme

Status: *Approved/Detailed Design*

The extents of the LTP area overlap with the extents of the Breaffy Active Travel and Safety Measures Scheme which has currently received approval following the Part VIII process. The scheme incorporates the area of the N60 from Kilkenny Cross Roundabout to the IDA Roundabout, a distance of approximately 800m, as shown in Figure 4-22.

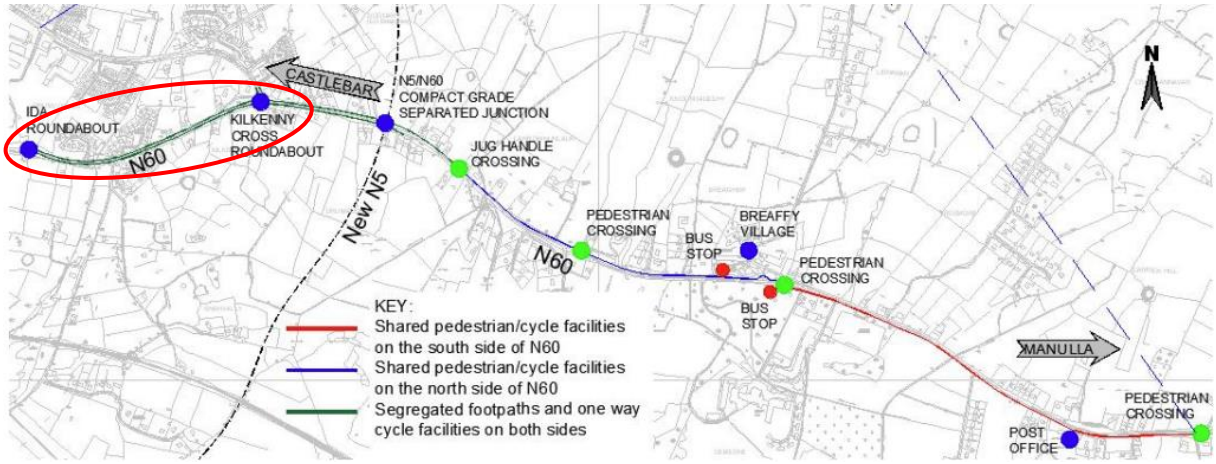


Figure 4-22 Breaffy Active Travel and Safety Measures Scheme (Extents of the scheme overlap is shown in red) from the Part VIII Planning Application Report

The Breaffy Active Travel and Safety Measures Scheme proposes segregated footpaths and one way cycle facilities on both sides of the road. The proposals of the LTP will be in line with these proposals to facilitate a tie-in.

4.6.2 EV Charing Points

Status: *Partial Completion/On-Going*

There are currently 3 EV charging points in Castlebar Town Centre located in Market Square Car Park, The Mall and Lannagh Road

In accordance with the Mayo County Development Plan 2022 – 2028, EV Charge points, a minimum of 10% of the proposed car parking spaces required for the new developments shall be provided with electrical connection points, to allow for functional

EV charging. The remaining car parking spaces shall be fitted with ducting for electrical connection points to allow for the future fit out of charging points at up to 20% of car parking spaces.

4.6.3 Castlebar Urban Greenway Link

Status: *Near Completion*

The Castlebar Urban Greenway Link connecting Bridge Street to the Turlough Greenway is in the final stages of construction (Figure 4-23). The link is the final section of the Urban Greenway and will facilitate uninterrupted cycle travel through the town that will be attractive to all population cohorts.

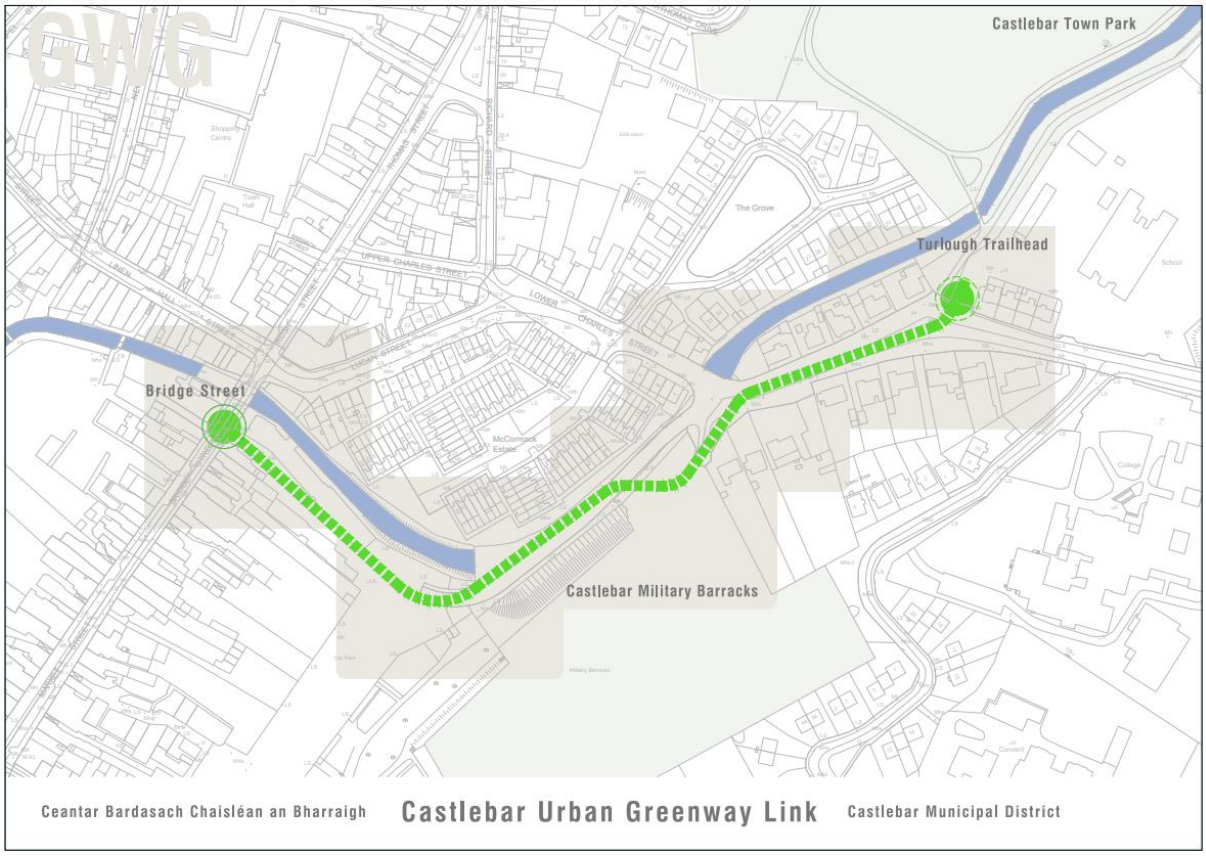


Figure 4-23 Castlebar Urban Greenway Link

4.6.4 Park and Stride

Status: *Early Implementation*

MCC have launched the Park and Stride initiative within the town centre to reduce congestion caused by the school run by utilising the towns car parks as drop zones from which schoolchildren/guardians can walk to the school.

The allocated car parks and participating schools are shown in Figure 4-24.

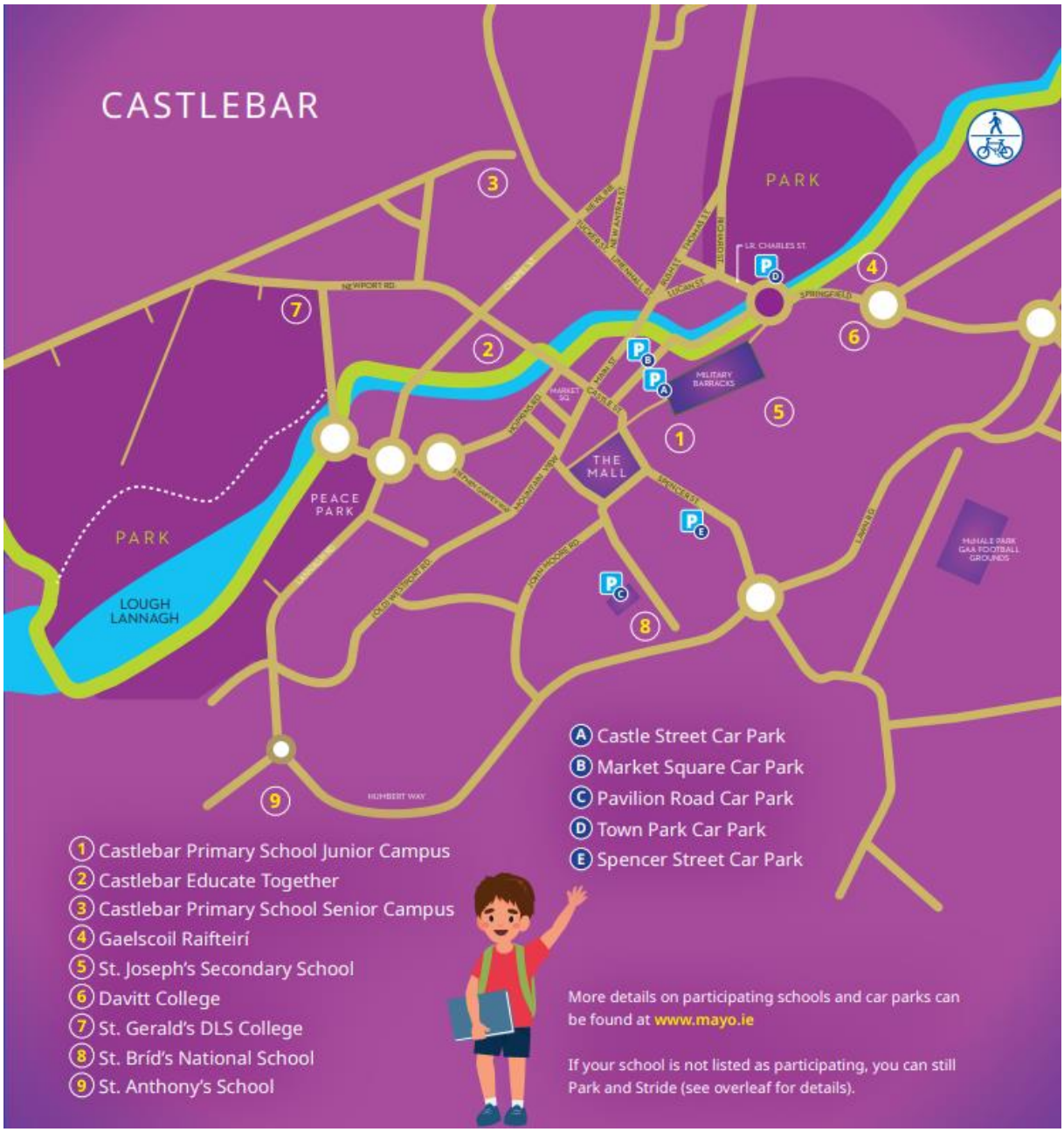


Figure 4-24 Castlebar Park and Stride Locations

The initiative is in the early stages of roll out.

4.6.5 Safe Routes to School

Status: *Delivery*

As part of the first round of SRTS in County Mayo, the Outlie Delivery Plans have been developed and finalised for Davitt College and Gaelscoil Raifteirí. The plans were published in October 2022.

The programme which is funded by the NTA and co-ordinated by An Taisce's Green-Schools will play a key part in delivering the infrastructure along access routes and at the school gates including footpath improvements, cycle facility improvements and front of school redesign. As per the NTA guidance SRTS Design Guide, drop-off zones will be designated away from the school gate. To alleviate front of school congestion, an integrated street design can reduce traffic volumes. Integrated streets provide higher quality street environments that are attractive to pedestrians and cyclists and promote the use of more sustainable forms of transport.

The Draft Delivery Plans contain concept designs of interventions to improve infrastructure outside and on the routes to school with the aim of increasing the number of children who walk, cycle or scoot to school. These proposed interventions are based on survey findings, audits, consultation with the school and the Local Authority, and have been reviewed by the NTA.

The draft proposals are in line with the LTP proposals and are shown in Figure 4-25.

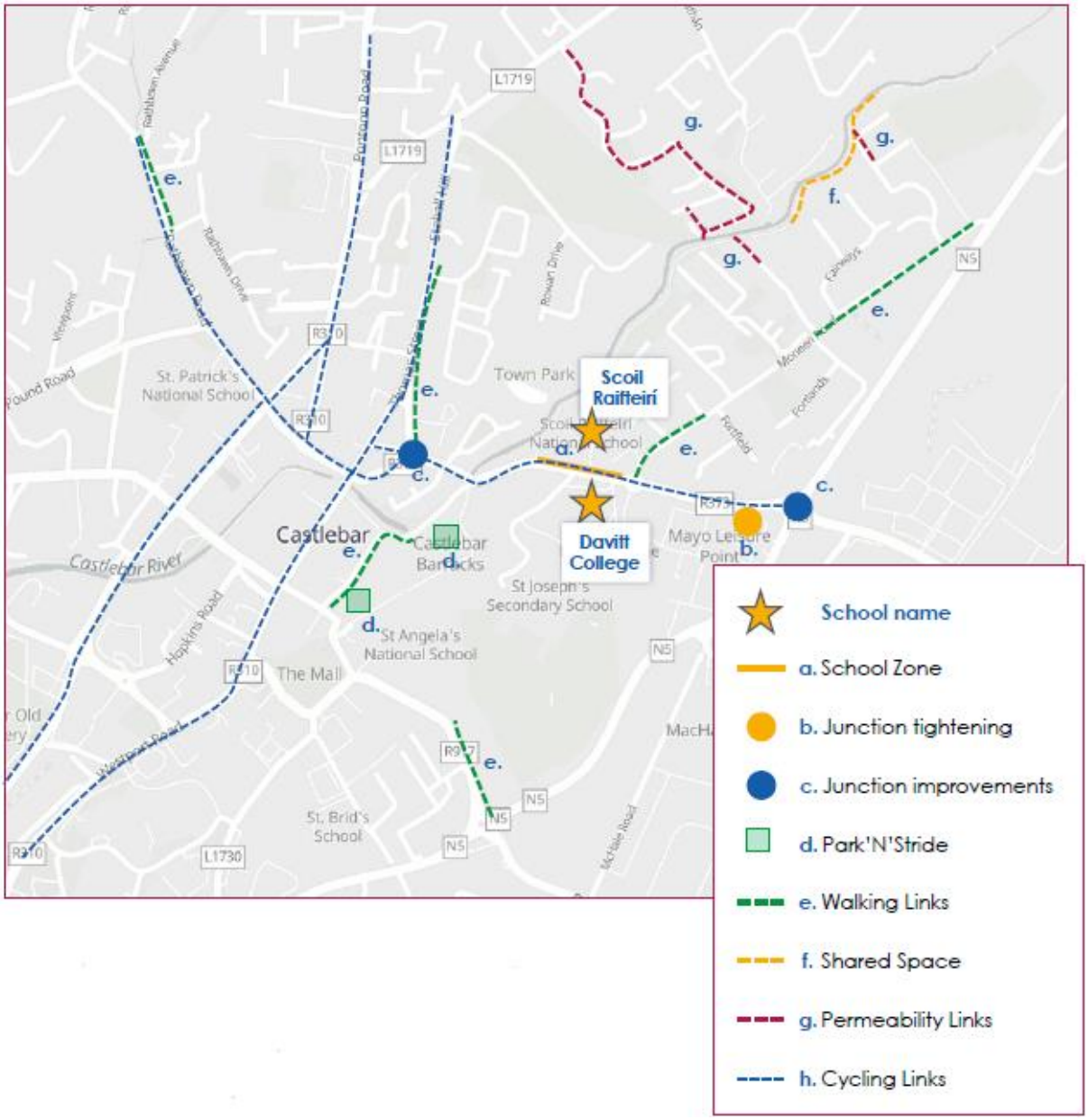


Figure 4-25 SRTS Proposals

Following Round 1 of the programme, SRTS will expand across the school network.

4.7 Future Travel Demand

4.7.1 Impact of the N5 Westport to Turlough Road Bypass

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 developed to account for the opening of this bypass and associated traffic redistribution for through traffic, long distance traffic and internal traffic. The expected change in Volume/Capacity (V/C) ratio at key junctions is shown in Figure 4-26 and the reduction in traffic through the town is shown in Figure 4-27 Impact of the N5 Bypass at the AM peak hour.

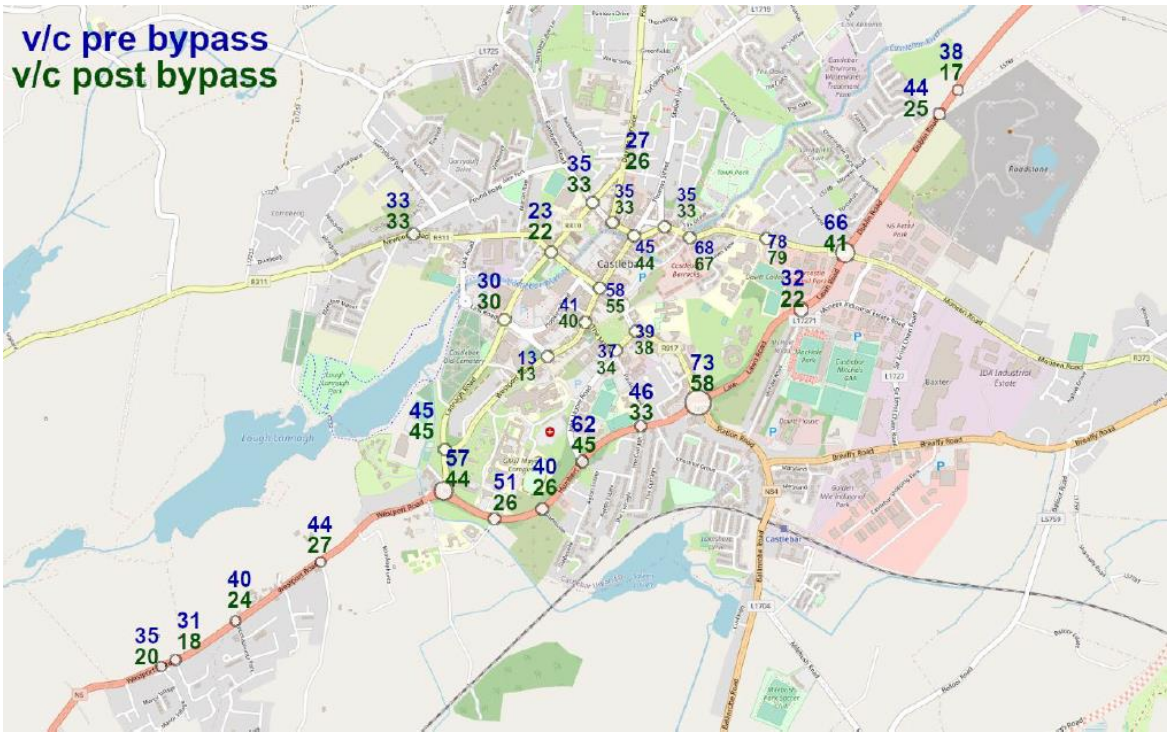


Figure 4-26 V/C Ratio pre/post the Castlebar Bypass

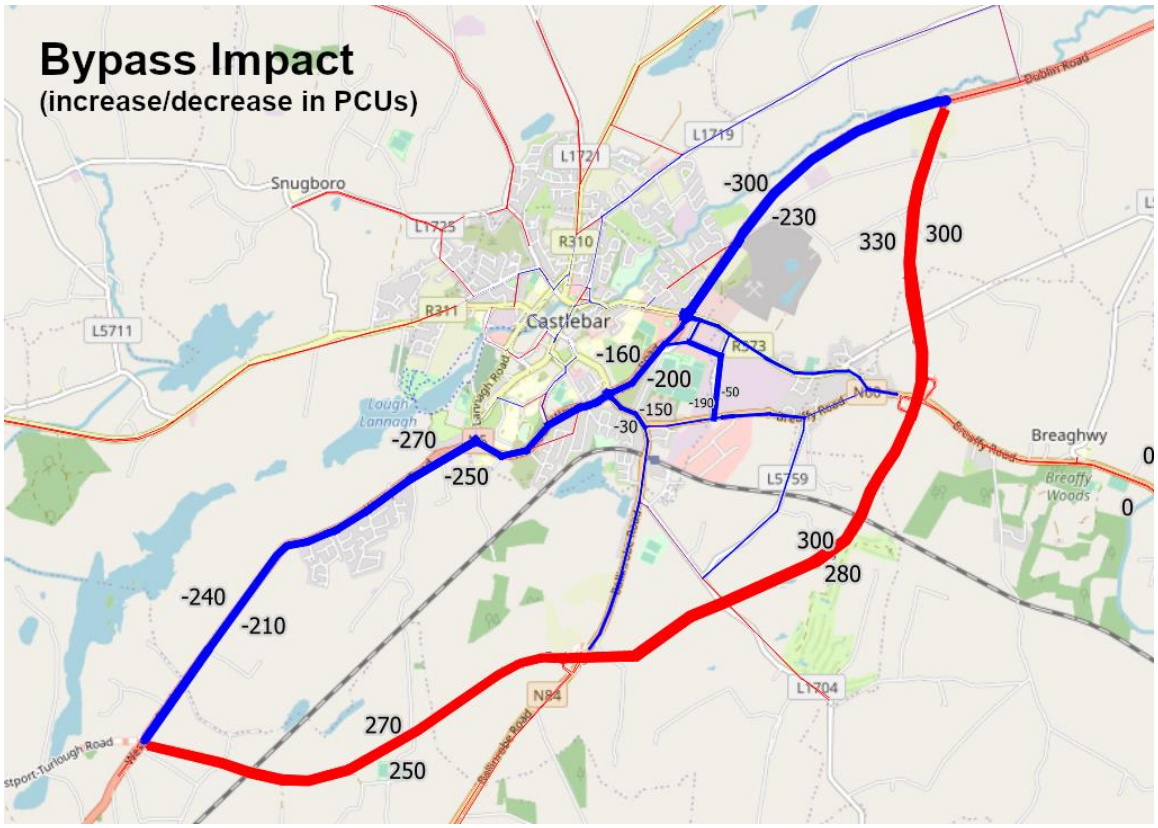


Figure 4-27 Impact of the N5 Bypass (AM Peak Hour)

4.7.2 Integration of Land Use and Transportation

The Castlebar LAP relates to town centre regeneration and focuses on sustainable development with the delivery of new housing within the existing footprint of the town (compact growth), in the town centre brownfield/infill sites, on undeveloped lands on edge of town centre within established neighbourhoods to the west and north of the town and through the densification and consolidation of those neighbourhood areas.

The proposed land use policy of compact growth will ensure that the existing transport demand patterns are substantially sustained. Future development will fundamentally build on the strength of established development areas and hence demand patterns.

4.7.3 Transport Network

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.

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.

4.7.4 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.

4.8 SWOT Analysis

A SWOT (Strengths, Weaknesses, Opportunities and Threats) exercise has been undertaken for the Castlebar area; this analysis is based upon all of the data and other information as outlined in Sections 4.1 - 4.7.

The SWOT analysis is shown in Table 4-3.

Table 4-3 SWOT Analysis

Strengths	Weaknesses
• The Town Centre is compact and within the walking and cycling catchment of the residential areas. • The existing pedestrian network is extensive with coverage across the vast majority of the Castlebar Town Area and there is a high level of footfall in the town centre. • Vehicular traffic in the town centre is forgiving towards pedestrians • The Castlebar Urban Greenway and recent improvements • The existing intercity services provide reasonable connections to nearby towns by rail and bus. • Castlebar Train Station is located in close proximity to the Town Centre • Schools are located in the Town Centre • The current road network can cater for demand and operates largely within capacity. There are strong links to National and Regional roads. • Existing awareness of the local, regional and national policies and strategies. • Land-use Policy to encourage compact development within the Town area • Implemented strategies have been well received	• Several major roundabout junctions are lacking adequate pedestrian and cycle facilities. • Some existing pedestrian routes are discontinuous within parts of the Town Centre and other areas. • Within Castlebar the existing on-road 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. • The train station is poorly connected to the town centre and the existing local link services are infrequent. The existing bus service provides poor connectivity within the town centre and town area. • Severance caused by the N5 and Castlebar River. • The area has developed with private vehicles being predominant mode of transport and as a result there is a high level of car dependency, even for short trips. • Greenhouse gas emissions arising from an over reliance on car usage impacts on the health of the general population.
Opportunities	**Threats**
• The bypass will remove vehicles from the local network, particularly through traffic HGV movements which will allow scope for junction redesign to cater for active travel modes. • To connect the main origin and destinations via a functional active travel network so as to make cycling a more attractive mode choice. • The street network (carparks, laneways, housing estates etc) to allow for filtered permeability • Improve public realm with a more integrated streetscape and increase amenities through the provision of mobility hubs and relocation of parking spaces. • Facilitating latent demand for public transport, walking and cycling • Boost tourism • A new active travel bridge to overcome severance caused by the N5 and Castlebar River. • Introduce bus routes to connect the main origin and destinations via a functional bus network to make public transport a more attractive mode choice • A net reduction in greenhouse gas emissions through modal shift by discouraging private car as the dominant mode choice will lead to an improvement in the general health of the population. This will align the transport strategy of the town with government policies and targets	• Improvements to the pedestrian network will require reducing the vehicular capacity of the road network and relocation of parking. • Inability to overcome physical severance to provide linkages. • Public Transport services must be affordable to the user and economically viable for the operator. • Increased fuel costs in line with climate change action targets. • Increased car usage leading to congestion and increased travel times. • Surrounding villages and towns too far away for active travel modes and bus services are not frequent enough to encourage mode shift away from private car • Public opinion – NIMBYism to filtered permeability - Objections from local residents and businesses • Further construction of low density, impermeable housing estates • Insufficient co-ordination of land use and transport plans. • Future peripheral education and employment development. • Availability of funding.

5. Plan Development

The Castlebar LAP relates to town centre regeneration and focuses on sustainable development with the delivery of new housing within the existing footprint of the town (compact growth), in the town centre brownfield/infill sites, on undeveloped lands on edge of town centre within established neighbours to the west and north of the town and through the densification and consolidation of those neighbourhood areas. The plan aims to ensure sufficient land is zoned for future employment uses to fulfil its regional role by attracting new, and allow existing enterprises to expand, which will provide employment, and therefore attract and retain people to live/work in Castlebar/Mayo.

To meet the required level of emissions reduction as set out in the CAP23, transport related emissions are set to reduce by 51% by 2030. 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.

The LTP is in accordance with the LAP through the commitment to deliver a low carbon and climate resilient Castlebar, which includes the provision of a sustainable transport system for the town through the framework and actions of the Castlebar LTP. It is important to connect in a sustainable way where people in Castlebar live, work, shop and/or go to school.

5.1 Key Transport Challenges to be Addressed

5.1.1 Reduce Private Car Mode Share

The transport network within Castlebar has developed with a strong focus on motor-based vehicles. County Mayo has one of the highest usage rates of private cars (73.2%), compared to the national average (65.6%). The opening of the N5 Turlough to Westport Road in early 2023 presents Castlebar with a unique opportunity to implement a sustainable transport network in tandem with the removal of through traffic within the town centre as a result of the bypass. This is in agreement with the background data gathered (Chapter 4). It is therefore recognised that there is a huge potential for mode shift away from private car due to the existing high mode share and the active travel catchment of the town.

The transport network is designed to provide the most efficiency for road vehicle users which has inadvertently created several barriers to active travel. These barriers are causing the town to continually develop with an over reliance on private cars, particularly for short trips.

There is therefore an opportunity to reduce vehicular traffic volumes by providing a functional active travel network to deliver a lasting transformative change in how we make short journeys within the town. With the provision of this network, there are several benefits to be realised for the local community, including:

- Improved physical wellbeing, reducing rates of inactivity-related illness;
- Improved physical health of the community;
- More efficient use of road space, reducing congestion;
- Increased footfall for local businesses;
- Improved air quality; and
- Reduced greenhouse gas emissions.

5.1.2 Increase Active Travel Mode Share

In the context of concerns over rising levels of physical inactivity, childhood obesity and the impact of transport on local air quality and consequently people's health, there is a recognition of the need to incorporate more active travel and incidental exercise into our transport system through the re-shaping of our public realm and transport choices.

Active Travel has the capacity to contribute positively to both a local area and to its residents through a combination of direct and indirect benefits. The modal shift from private car to walking or cycling, which is particularly feasible for short distance trips, is linked to a reduction in greenhouse gas emissions. This in turn lowers the level of harmful particulate matter in the ambient air. Air quality is further improved upon through reduced vehicular noise and speed levels. Public health is also directly benefited through increased levels of physical activity in the population.

The provision of Active Travel infrastructure to provide a safe, coherent and functional network of cycle and pedestrian facilities encourages uptake through the phenomenon of 'numbers through safety'. Without designated infrastructure and traffic calming measures, the modal share of Active Travel methods for commuting will stagnate due to user hesitance arising from perception of the existing level of service provided to slow modes within a transport network that is dominated by motor vehicles. Increased provision of accessible Active Travel facilities can stimulate user demand in vulnerable population cohorts which were previously uncatered for. Modal shift is best stimulated through initiatives which focus on both infrastructural and behavioural change intervention.

Active Travel also provides numerous socio-economic benefits. The space and infrastructure required for large numbers of pedestrians and cyclists are often significantly more economical to provide when compared to the costs associated with new roads or railways. Active Travel trips are also generally short-distance trips and therefore increase the demand for local retailing. Low-income areas also have associated low levels of car ownership. The provision of Active Travel infrastructure

can improve accessibility and mobility for lower income groups, as well as for people with mobility impairments or disabilities.

A series of schemes should be delivered to encourage greater use of active travel and devised to embed and build upon the positive behavioural changes. The premise of these schemes should be to initially start in the town centre and remove the prominent barriers to active travel that will have a positive impact on the largest number of people.

5.1.3 Severance/Barriers

Castlebar is well suited to active travel as shown by the walking and cycling catchments (Section 4.1), but private car is still the dominant mode of transport. Several barriers and severances within the town have been identified as causing a resistance within the community to active travel.

5.1.3.1 Town Periphery

The town centre can be described as being bounded to the north by Kennedy Gardens, Castle Street Car Park to the east, to the south by Stephen Garvey Way and Hopkins Road and to the west by Upper Chapel Street (Figure 5-1).

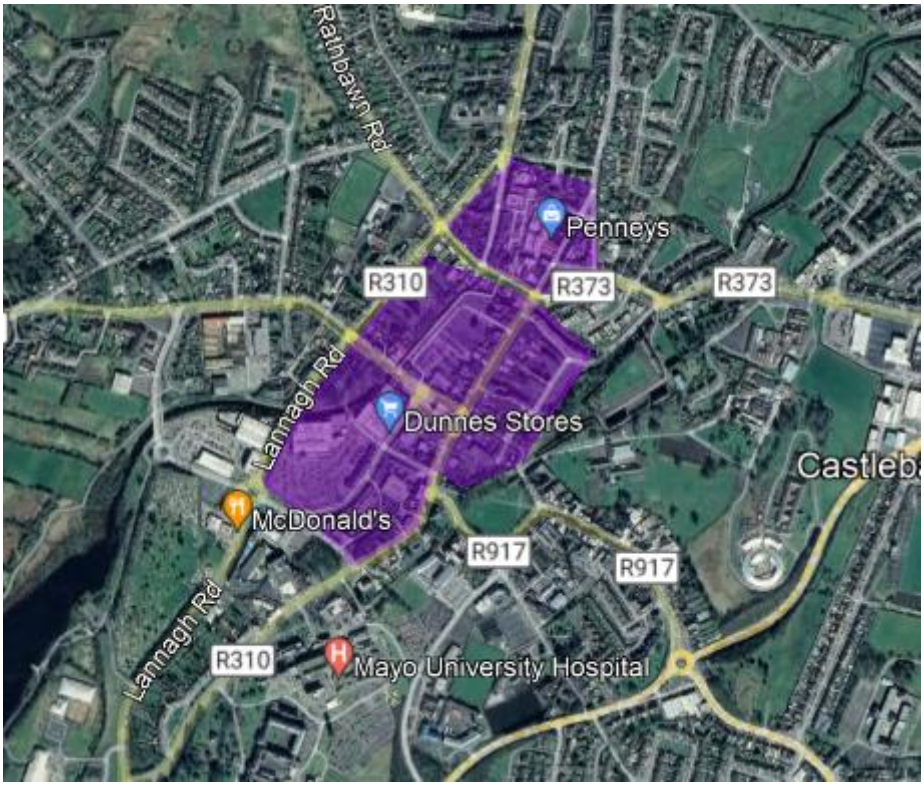


Figure 5-1 Castlebar Town Centre

The town centre boundaries are inadvertently set by the respective active travel barriers at the periphery. The approaches to the centre along Davitts Terrace, Upper

Thomas Street, Springfield, Spencer Street, N5, Old Westport Road, Lannagh Road and Newport Road are all lacking active travel facilities.

These routes are impeding active travel from the residential areas to the town centre. Many of the barriers that are causing severance are easily remedied with interventions such as junction redesign, introduction of controlled crossing points, provision of dedicated cycle facilities and footpath widening.

The Castlebar Town Centre is largely permeable with a network of laneways and traffic calmed streets. Recent interventions such as buildouts and zebra crossings have contributed to a more pedestrian friendly environment however the centre is still a car dominated environment.

The ATOS mapping shows that the town centre enjoys a Level A level of service for active modes. The town centre needs to be reimagined to cater primarily for people and not cars to create a high-quality public realm with an integrated walking network with mixed land use to fully utilise the level of accessibility that exists.

The ATOS mapping shows that there is a notable difference in the level of connectivity for walking and cycling outside of town centre for all parameters assessed. Removing these barriers, starting from the town centre boundaries and moving outwards will increase the accessibility catchment of the town centre.

5.1.3.2 N5

The N5 is the main north/south link in the town and acts as an inner relief road for local traffic as well as a transit route for external traffic.

The key junctions along the N5 are lacking pedestrian and cyclist facilities and in addition there are very few crossing points. The N5 is therefore causing severance for active travel users and is dividing the predominantly industrial/employment area to the east of the town as well as the train station and several residential estates from the town centre and the majority of the residential catchment.

The POWSCAR data shows that there is a significant number of trips from zones that cross the N5 being made by private car (Section 4.5).

Improving active travel facilities across the route will increase permeability and the accessibility of the town centre to active travel users.

5.1.3.3 Castlebar River

The Castlebar River runs through the town centre, largely parallel to the N5. It also represents an important north/south link. Crossings within the town centre are adequate and frequent although the accessibility, connectivity and signposting is lacking in some instances.

To the north of the town, there are few opportunities to cross the river.

The current route for pedestrians and cyclists from the west side of the river to the town centre is circuitous for residents as they have no direct access to the greenway facilities that connect to the Town Park. Improved linkages across the river to the north of the town would provide a more direct connection from the west side, a primarily residential area, to the industrial hub along Moneen Road to the east.

5.1.3.4 Junctions

Several junctions have been identified as being barriers to active travel for their lack of pedestrian and cyclist facilities and the prominence of their locations/locations they serve. Namely these junctions are:

- Mini Roundabout at Lucan Street and Lower Charles Street
- Roundabout at Humbert Way, N5 - Westport Road and Lannagh Road
- Roundabout at Humbert Way, N5 - Lawn Road, Spencer Street and N60 Westport Road
- Roundabout at - Dublin Road, N5 - Lawn Road and Moneen Road
- Roundabout at Stephen Garvey Way and Hopkins Road
- Roundabout at Lannagh Road and Hopkins Road and Tesco Car Park
- Junction of Newport Road and Pound Grove
- Junction of Pontoon Road and Turlough Road
- Junction of John Moore Road and Humbert Way
- Junction of N60 Breaffy Road and N84 - Station Road

Junction redesign to accommodate active travel modes at these locations will make the town centre more accessible to pedestrians and cyclists and contribute to a more sustainable transport network in the town.

5.1.3.5 Discontinuities in the Active Travel Network

The NMU Audit has identified several constraints in the exiting network that are discouraging active travel. These findings are summarised as:

- Absence of footpaths along pedestrian desire lines;
- Discontinuities in footpath provisions;
- Vertical separation of footpath and carriageway;
- Inadequate width of footpath/shared surfaces;
- Absence of pedestrian crossings on likely desire lines;
- Inadequate inter-visibility at crossings;
- Lengthy pedestrian crossings;
- Footpath condition;
- Absence of hazard tactile paving;
- Cycle lane pavement condition;
- Discontinuities in cycle network;
- Separation of cycle lanes and parking;
- Drainage/ponding;

- Lighting; and
- Filtered permeability opportunities.

Several of these active travel barriers can be classed as maintenance issues and can be readily addressed by MCC whilst others will require detailed design and planning to remedy.

5.1.3.6 Current Car-Centric Network

Castlebar Town has developed with private car being the predominant mode of transport and is therefore the mode that the town serves best. Motor traffic is a fundamental barrier to walking and cycling. The car-centric network is outdated and does not meet the needs of the evolving community.

The transport network is designed around private car to provide minimal delay at junctions, minimal congestion on links, maximum parking convenience and maximum accessibility. This is often to the detriment of sustainable modes. However even when the car is not the fastest, most convenient or even reliable way to travel, people still choose to drive within the catchment area. This over reliance on the private car for short trips has led to a correspondingly a relatively low mode share of cycling. A high level of car use for the school run, work commute and shopping trips has supressed walking and cycling and is contributing to car-based congestion during the morning and afternoon inter-peak periods.

The mobility enabled by the private car is deeply engrained in the way people navigate the area and therefore despite the benefits of active transport, the private car continues to dominate people's behaviour. The challenge is to remove the barriers to active travel without causing undue effect to vehicular traffic. The transport network needs to be rebalanced away from the private car to sustainable modes in order to incite these behavioural changes.

5.2 Plan Development Strategy

5.2.1 Avoid, Shift, Improve

As outlined in the National Sustainable Mobility Policy and CAP23, the approach to achieve a more sustainable transport sector is based on the Avoid-Shift-Improve principle (Figure 5-2).

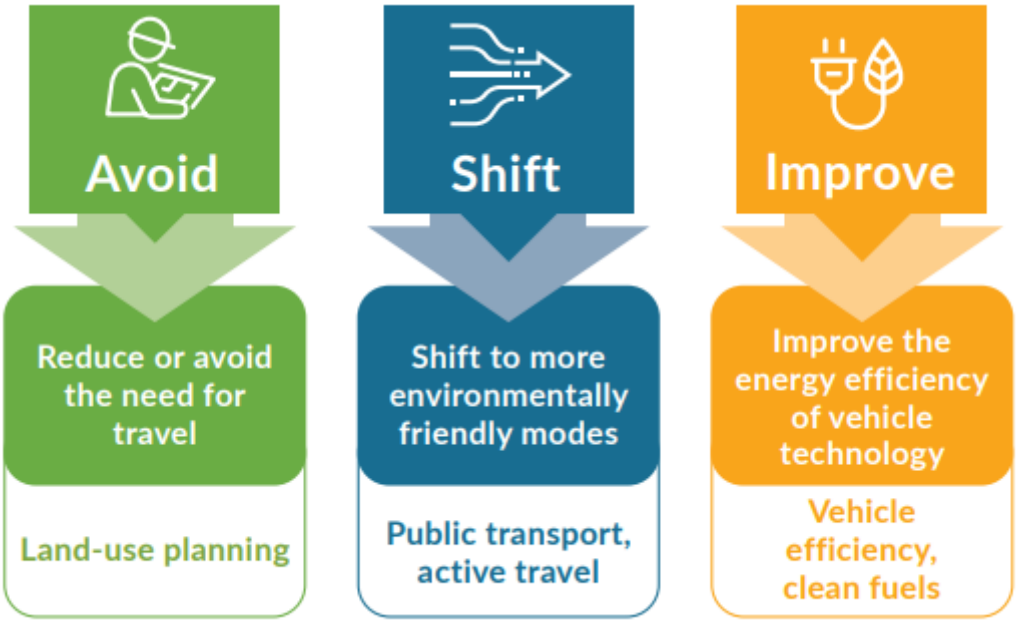


Figure 5-2 'Avoid-Shift-Improve' Principle from the National Sustainable Mobility Policy

The Castlebar LAP relates to town centre regeneration and focuses on sustainable development within the existing footprint of the town (compact growth). Development of brownfield/infill sites in the town centre and densification and consolidation of established neighbourhoods within the town will 'Avoid' longer distance trips and tie in with active travel alternatives to private car use.

The LTP will focus on 'Shift' with the primary focus being the encouragement of modal shift from private car to active travel modes.

There will be 'Improve' measures included such as the provision of EV charging points as part of proposed mobility hubs and public transport improvements.

5.2.2 Road User Hierarchy

The road user hierarchy, as set out in the National Sustainable Mobility Policy, states that the order of consideration to encourage sustainable travel patterns and safer streets is shown in Figure 5-3.

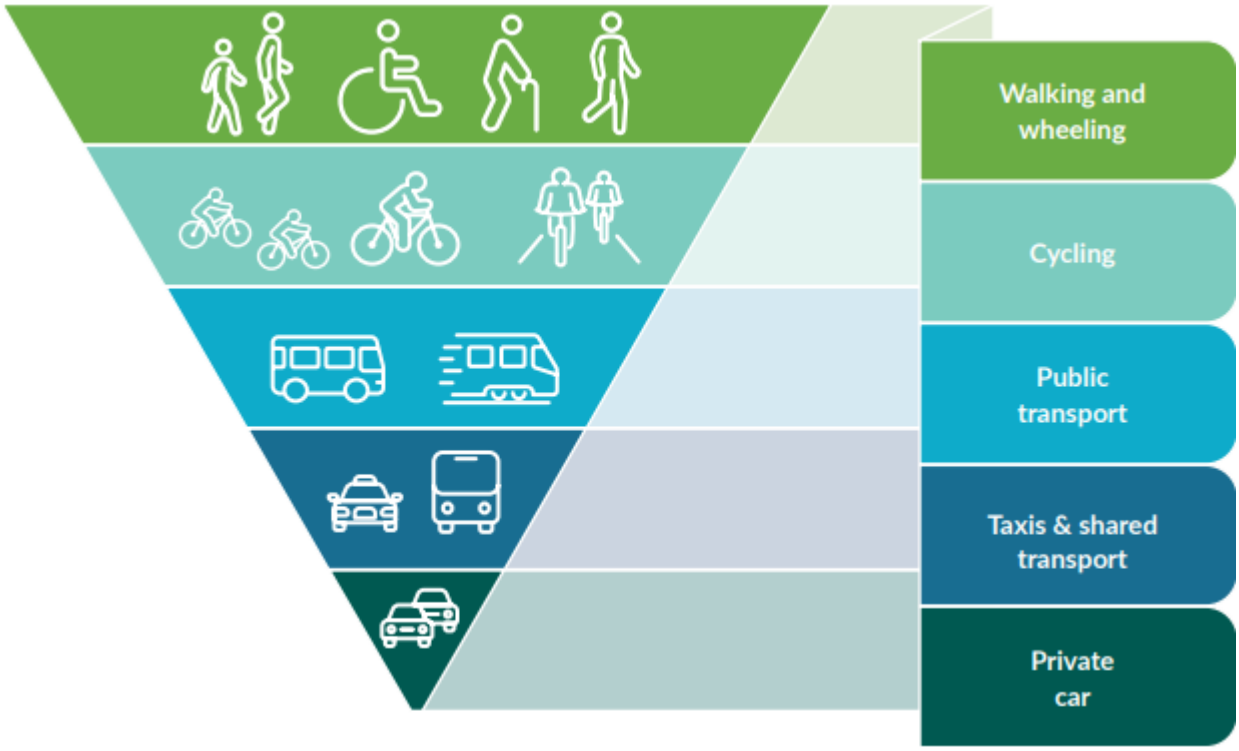


Figure 5-3 Road User Hierarchy from the National Sustainable Mobility Policy

The NCM also notes that pedestrians are the most vulnerable road users and recognises the need for integration between walking and cycling 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. The Hierarchy of Provision within a network, as proposed by the NCM is as follows:

1. Traffic Reduction;
2. Traffic Calming;
3. Junction treatment and traffic management;
4. Redistribution of carriageway;
5. Cycle lanes and cycle tracks; and
6. Cycleway (public roads for the exclusive use of cyclists and pedestrians)

Walking is recognised as the most sustainable form of transport. Furthermore, all journeys begin and end on foot. By prioritising design for pedestrians first, the number of short journeys taken by car can be reduced and public transport made more accessible.

It is noted that the existing road hierarchy provides the basis for a primary active travel network. But there may be additional key connections through the addition of filtered permeability links that should be explored. Therefore, the hierarchy approach should be applied in conjunction with route selection and not with the presumption that the

location of an active travel network is predetermined, and that it is then just a matter of identifying the correct treatment. Locations where people already walk and cycle should be identified as well as new opportunities. Options should be developed to improve the on-road provision and seek alternatives that will bypass obstacles or hazards or provide new, convenient links or alternatives for less users.

The provision must also be designed to integrate with local area traffic management planning, neighbourhood accessibility planning, and travel planning initiatives.

5.2.3 Iterative approach

The outline LTP proposals were developed through an iterative approach incorporating the following process:

- Baseline Assessment
  - NMU Audit (Appendix 3)
  - GIS Analysis
  - ATOS Analysis
  - POWSCAR Analysis
- Establishing Transport Context
  - LAM Modelling (Appendix 2)
  - SWOT Analysis
  - SMART Analysis (Appendix 8)
- Early Stakeholder Consultation
- Options Development (Appendix 4)
- Options Assessment
  - Screening of Options Long List (Appendix 5)
  - MCA (Appendix 6)
- Refinement of EPO (Appendix 7)
- Public Consultation
- Statutory Approval

5.3 Plan Development Approach

The overriding concept of the Castlebar LTP is to design a functional and accessible active travel network from the town centre outwards.

The town centre itself is largely accessible for active travel modes (as shown by the ATOS analysis) with an expansive and permeable network that is enhanced by the Castlebar Urban Greenway. However, this accessibility needs to be capitalised on with enhanced active travel facilities (mobility hubs, frequent bike parking locations etc) and regular maintenance.

The provision of active travel infrastructure (dedicated cycle facilities, bike parking, e-bike charging etc) and mobility hubs will enhance the sustainable transport network to make it the most affordable, accessible, convenient and efficient choice of transport within the town centre.

The key transport challenges and barriers to active travel identified from the baseline assessment (Section 4) have shown that the town centre periphery is not conducive to active travel modes and this is creating a car dominant environment within the town centre itself. Therefore, by addressing these severances to active travel and encouraging a modal shift for commuter, school and leisure trips within the town, traffic volumes will reduce within the town centre.

The aims of the plan development are to;

- Create a ‘15min town’ (ie improve accessibility and connectivity within Castlebar so that residents can reach all necessary services with a 15minute walk/cycle);
- Utilise a ‘centre out approach’ - the ATOS mapping shows that accessibility within the centre is OK and that the issue is accessibility to the centre. Interventions providing the greatest accessibility to the largest catchment will be prioritised.
- Consider the Road User Hierarchy and to propose a network that is functional for all;
- Encouraging active travel trips within the Castlebar town area - particularly for local trips (less than 2km) which make up approximately 40% of car trips on town streets.
- Improving active travel links between the town centre / commercial areas and residential areas.
- Removing blockages to active travel that are causing severance - providing high quality continuous pedestrian and cyclist facilities through junctions and provide crossings at desire lines.

5.4 Plan Development Outcomes

The approach methodology of the plan development has identified what is needed within Castlebar to create an environment that is promotive of active travel. The objectives of the proposals are to are to achieve the following outcomes:

- Increase uptake in active travel trips from surrounding residential areas to the town centre to be facilitated by active travel network improvements that will reduce car reliance and car traffic levels in the town centre core, enabling delivery of further public realm upgrades and rebalancing of streets in favour of 'people' with enhanced active travel environment.
- Remove vehicular traffic from the town centre through mode shift to active modes and a new northern link to facilitate travel between the north of the town to the N5 that bypasses the town centre;
- Capitalise on the benefits of active travel to improve public realm through improved street design and accessibility;
- Improve the frequency and accessibility of the public transport services in the town;
- Create a functional and cohesive transport network that promotes active travel as the most timely, cost-effective and efficient mode;
- Contribute to the national emissions targets as outlined in CAP23 and allow Castlebar to become a leading town for sustainable transport.

The plan development concept is shown in Table 5-1 illustrated in Figure 5-4.

The network-specific proposals for each mode are shown in Figure 5-5 - Figure 5-9.

Table 5-1 Schedule of Proposals

Infrastructure	Total
Proposed/Upgraded Cycle Facilities (km per direction)	45.7km
Upgraded Pedestrian Facilities (km)	41.9km
Proposed Pedestrian Facilities (km)	3.4km
Proposed Shared Streets (km)	5.5km
Proposed Junction Upgrades	16
Proposed Controlled Crossings	62 (of which 40 are associated with junction upgrades)
Upgraded Permeability Link	8
Proposed Permeability Link	14
Proposed Active Travel Bridge	1
Proposed 'Park 'n' Stride'	4
Proposed Mobility Hub	2
Proposed Road Link	740m

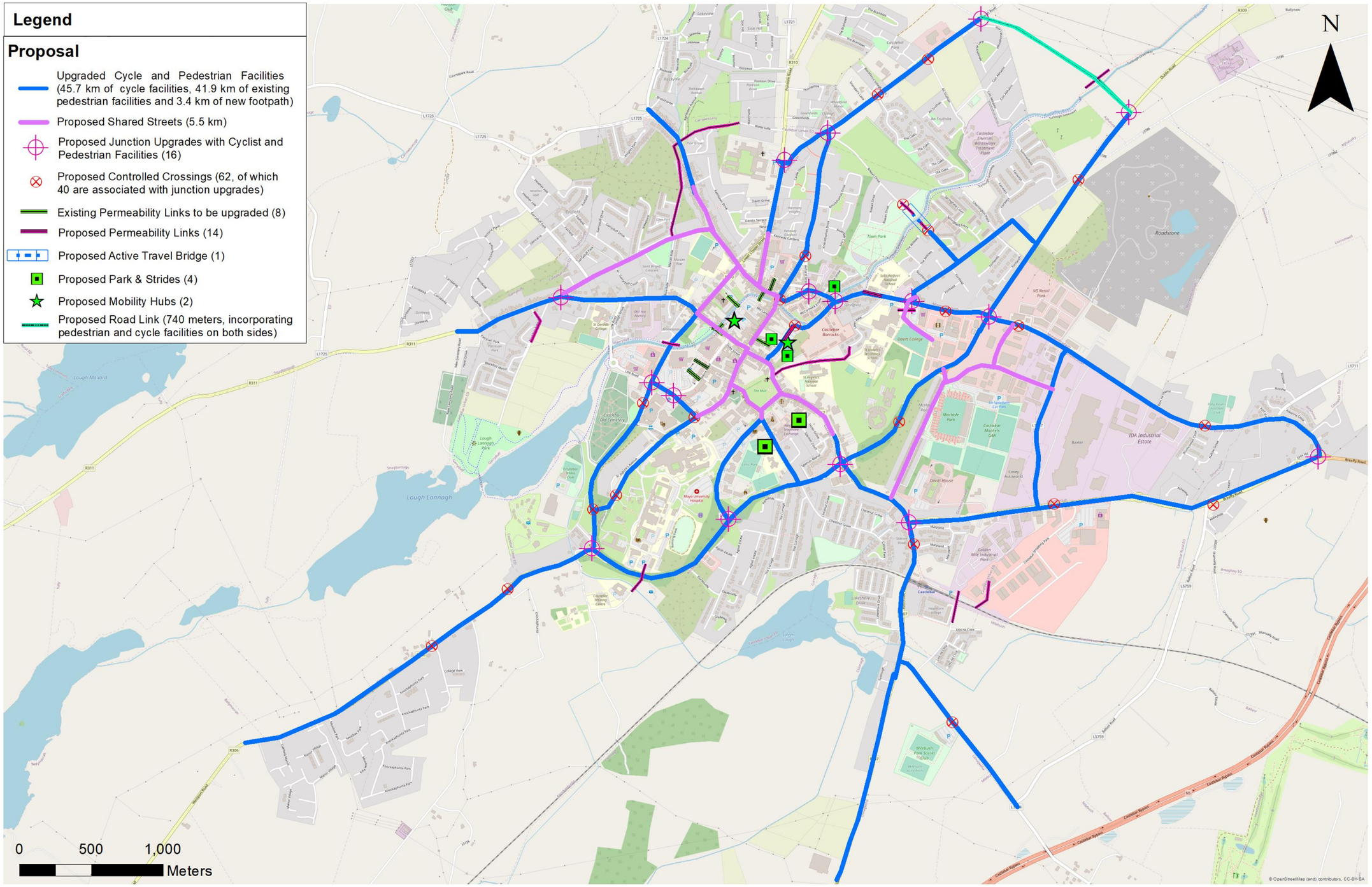


Figure 5-4 Plan Development Concept – Network Proposals

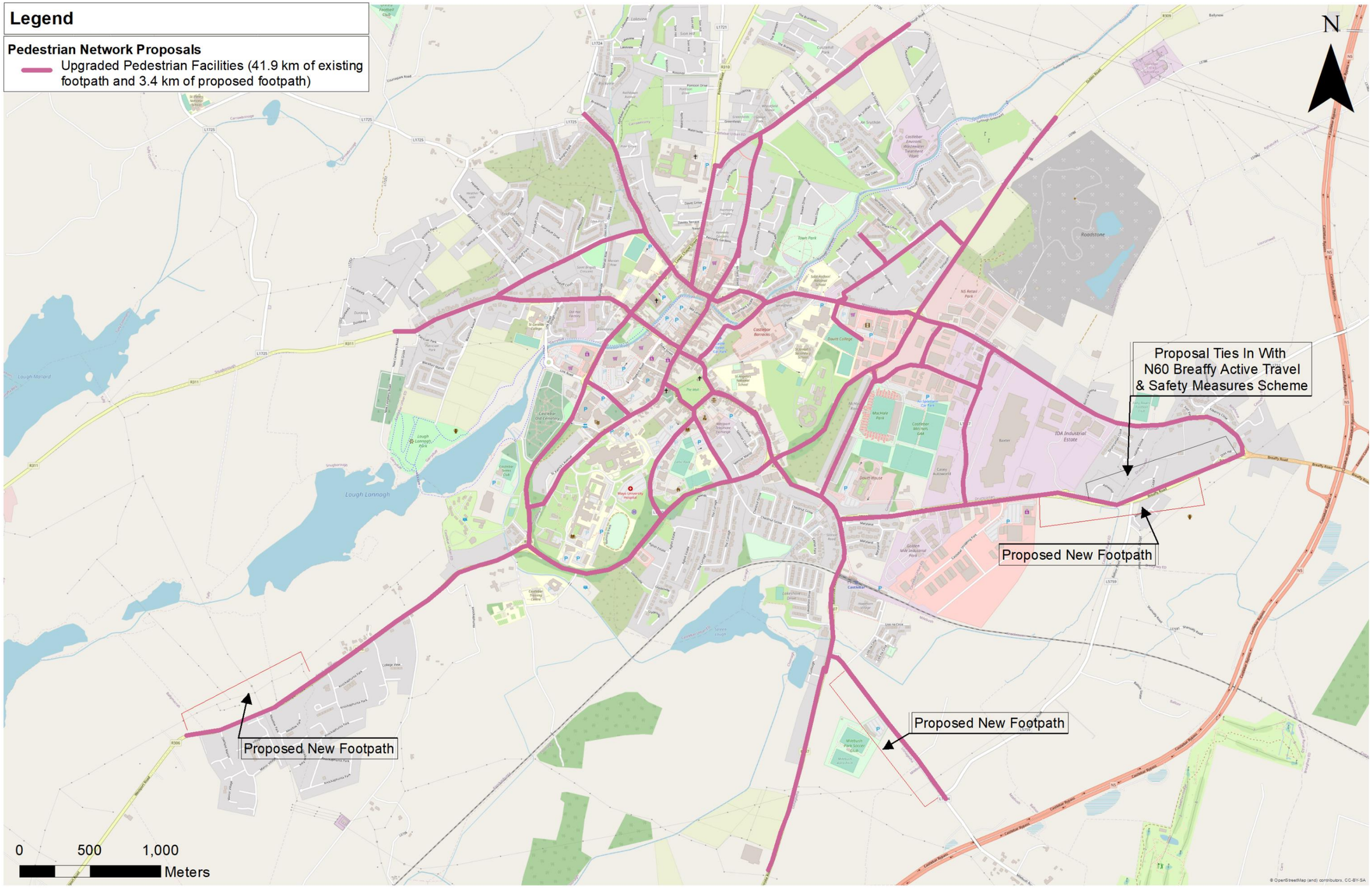


Figure 5-5 Pedestrian Network Proposals

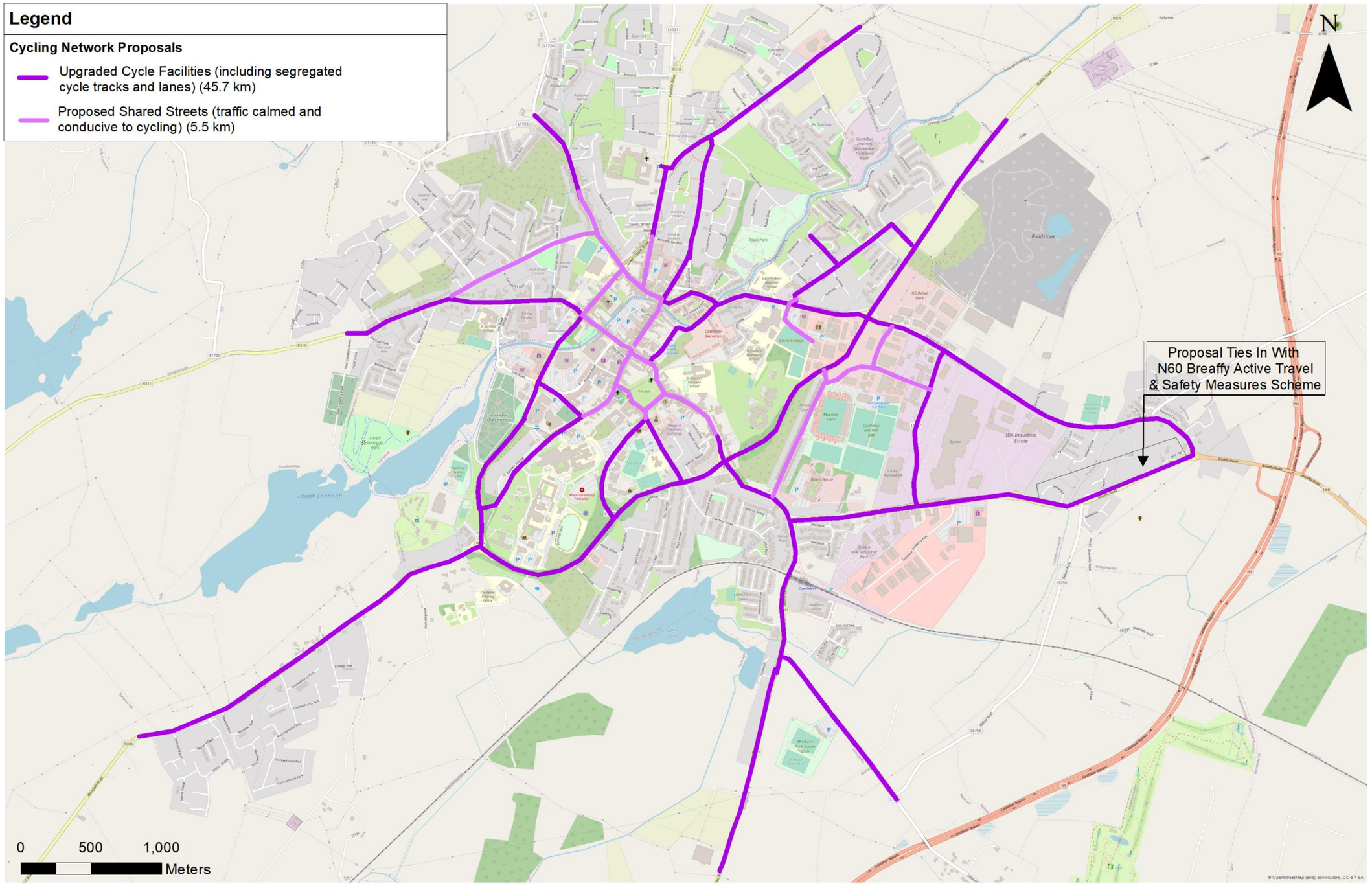


Figure 5-6 Cycle Network Proposals

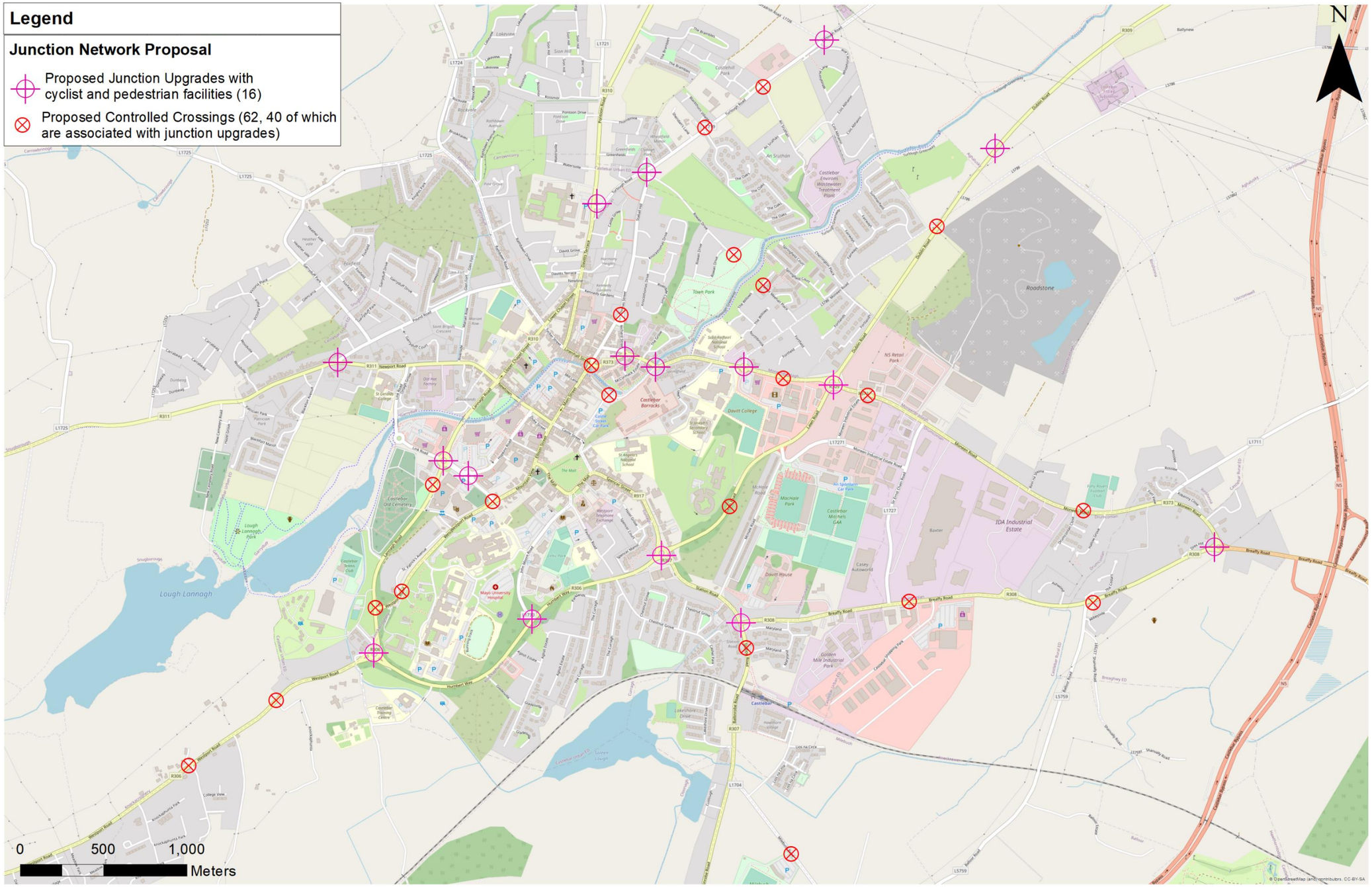


Figure 5-7Junction Network Proposal

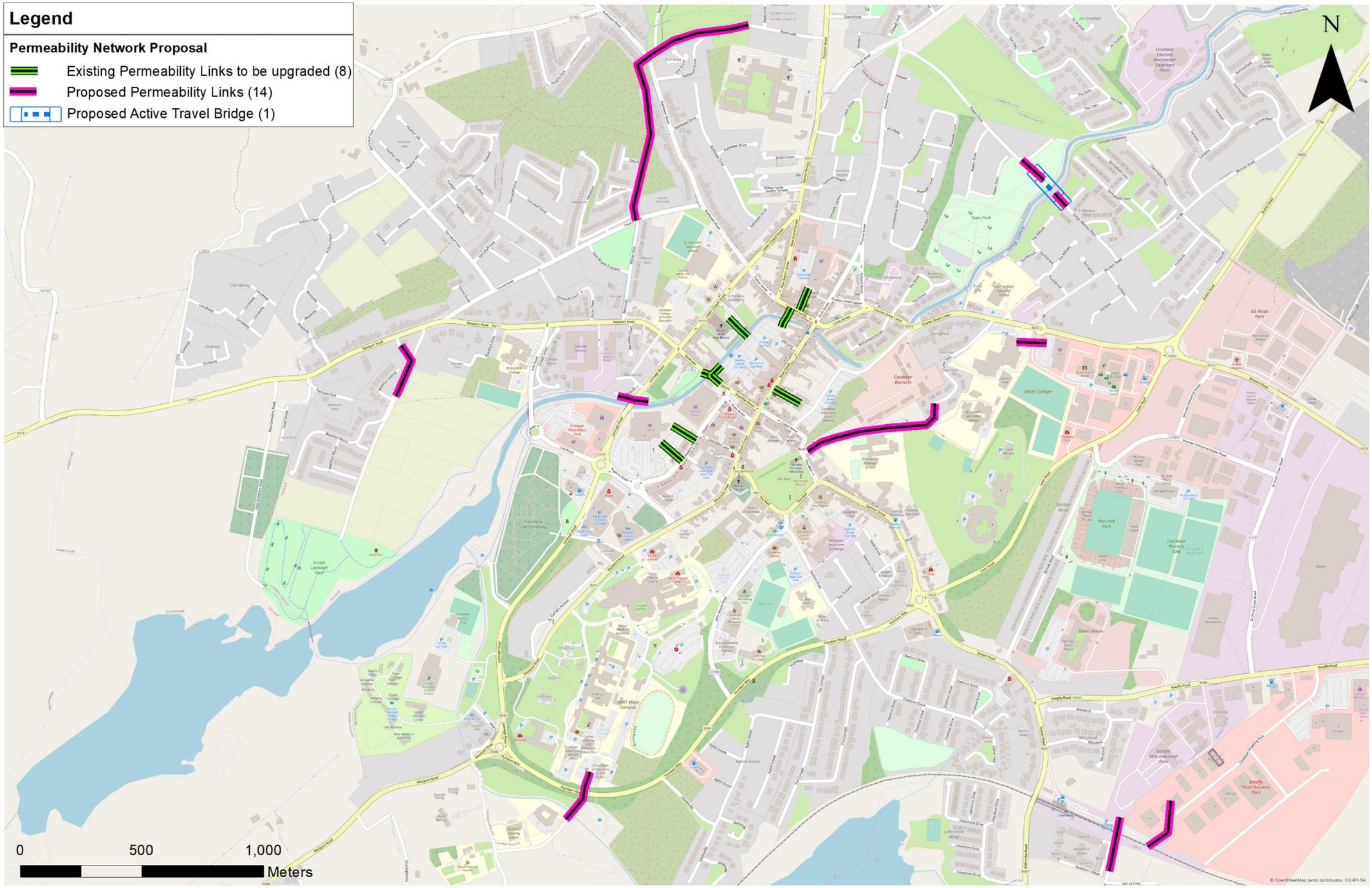


Figure 5-8 Permeability Network Proposals

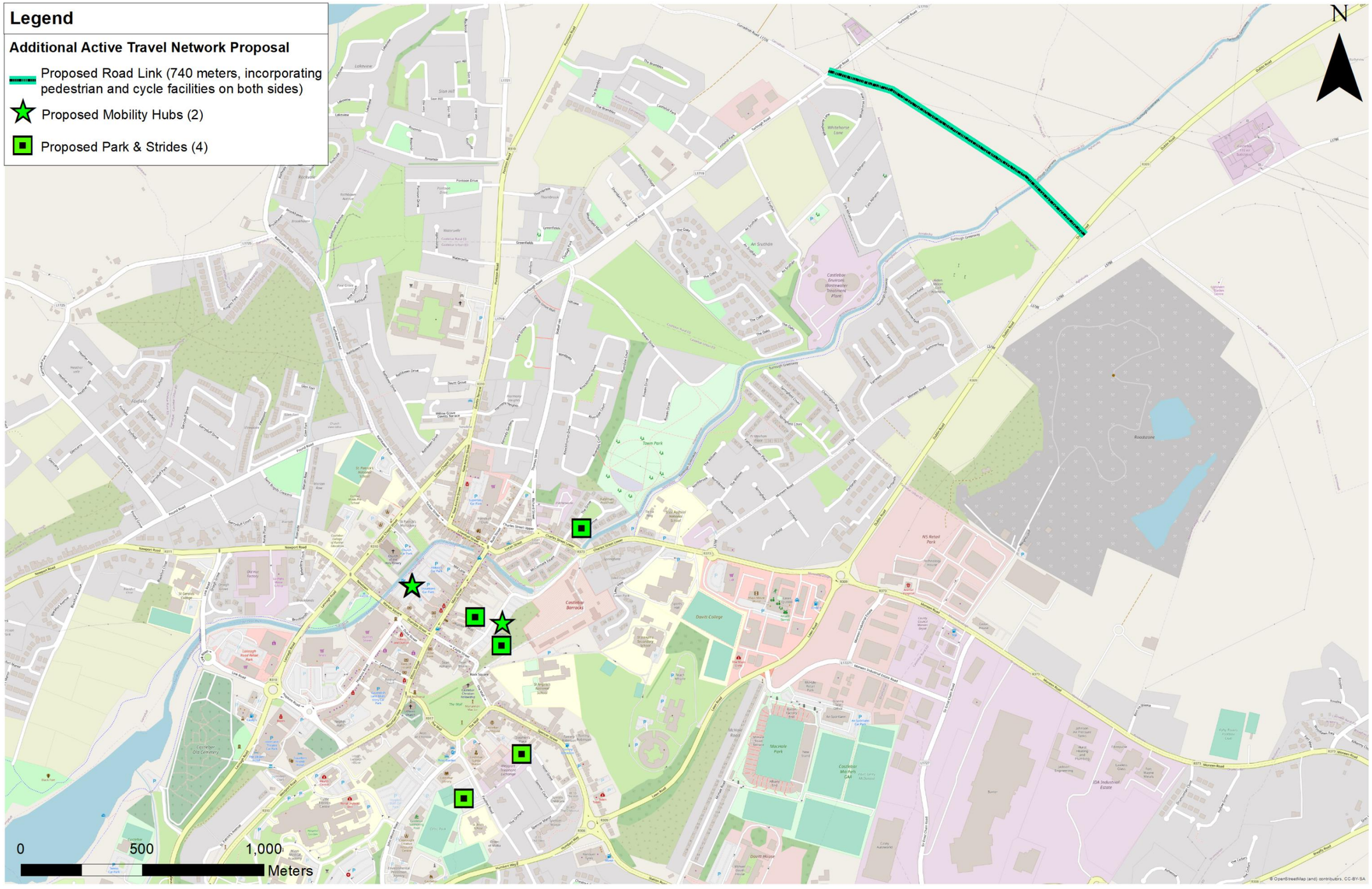


Figure 5-9 Additional Active Travel Network Proposals

6. Plan Objectives

The LTP will propose schemes to deliver the on-street infrastructure necessary to provide continuous and consistent Active Travel links. These links will cater for commuting, leisure, tourist and family cycling, as well as improved accessibility for pedestrians.

The proposals must not only increase accessibility and permeability within the immediate study area, but also provide enhanced and safer connectivity with other areas and routes. Ultimately the routes should be delivered to improve safety, reduced vehicle speeds, reduce journey times, and contribute towards increased numbers of trips being made by bicycle and by foot in the local catchment.

The overall aims of the LTP, that will achieve the outcomes listed in Section 5.3.3, are:

- To promote mode shift to sustainable modes whilst providing a vision for the achievement of a reduction in car dependency and shift to sustainable modes of transport;
- To develop integrated transport that can meet the planned future travel demand, in the context of the statutory plans informing the future development of the Castlebar Town Area;
- Identify policy interventions and infrastructure measures required to enable modal shift including walking, cycling, scooting and public transport and a reduction in the need to travel;
- To maintain or improve the reliability of journey times on key routes;
- To create a transport system that is accessible to all population cohorts;
- To provide a transport system that supports the economy and the growing population of the town;
- Identify opportunities for the integration of transport and land use policy proposals;
- Enhance quality of life and the attractiveness of the urban environment through high quality landscape and biodiversity interventions;
- Reduce air and noise pollution, greenhouse gas emissions and energy consumption;
- Provide a transport system that supports the economy by connecting to key employment areas and supports the growing population of the Castlebar Town Area;
- To protect and enhance the built and natural environment; and
- Ensure economic viability, social equity, and environmental quality.

The objectives listed are SMART ((Specific, Measurable, Accurate, Realistic and Timely), and have undergone SMART analysis which can be found in Appendix 8.

6.1 Pedestrian Network

Table 6-1 LTP Objectives - Pedestrian Network

Objective	Description
P1	Provide an integrated network for Castlebar Town trough 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.
P2	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.
P3	Enhance the existing infrastructure through the provision new pedestrian links to overcome severance caused by the N5 and Castlebar River.
P4	Improved filtered permeability through the use of 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.
P5	Formalise existing permeability links.
P6	Improve safety for pedestrians, by improving crossing points particularly along the N5, N84, Stephen Garvey Way/Hopkins Road, Lannagh Road and Westport Road.
P7	Improved accessibility for all within the town centre to include priority parking, handrails at gradients, public seating, footpath widening, public toilets and public bins.
P8	New or improved public lighting, security and signage for walking route to enhance visibility of existing links to create a more connected and safer pedestrian network.
P9	Engage with schools with the aim of increasing walking mode share and support Safe Routes to Schools (SRTS)

6.2 Cycle Network

Table 6-2 LTP Objectives - Cycle Network

Objective	Description
C1	Provide an integrated network for Castlebar Town through the 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.
C2	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.
C3	Enhance the existing infrastructure through the provision new pedestrian/cycle links to overcome severance caused by the N5 and Castlebar River.
C4	Improved filtered permeability through the use of 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.
C5	Formalise existing permeability links.
C6	Provision of dedicated cycle facilities at junctions (N5 & Moneen, N5 & Spencer Street, N5 & Lannagh, Stephen Garvey Way & Hopkins Road & Tesco, Hopkins Road & Lannagh Road)
C7	Create a network that can cater for demand from commuter, delivery, leisure and tourist cyclists that is accessible to all population cohorts.
C8	Provision of safe and secure covered cycle parking within the town centre and at major trip attractors.
C9	Provision of charging infrastructure for electric bikes within the town.
C10	Prioritise investment in schemes that will deliver the greatest modal shift potential
C11	New or improved public lighting, security and signage for cycling routes.
C12	Engage with schools with the aim of increasing cycling mode share.

6.3 Public Transport Network

Table 6-3 LTP Objectives - Transport Network

Objective	Description
PT1	Improve the routing and frequency of existing bus services, including either an expansion of the 'Local Link' bus network to include short distance trips within the Castlebar Town Area or through the provision of a new high frequency local bus service. Co-ordinated timetabling to facilitate quick interchange between local and regional services will also be facilitated.
PT2	Improve the frequency and connectivity of existing rail services.
PT3	Provide bus priority infrastructure in the town centre where required.
PT4	Improve public transport stops in respect to location, information, accessibility, infrastructure and visibility
PT5	Ensure convenient access from residential, employment, education, healthcare and retail facilities to public transport stops.
PT6	Improve integration between the train station, town centre and local bus routes.
PT7	Development of a bus interchange at Stephen Garvey Way with covered and secure waiting area and welfare facilities.
PT8	Enhance connectivity of Castlebar Train Station with the provision of improved active travel connections and 'Park and Ride' infrastructure.

6.4 Road Network

Table 6-4 LTP Objectives - Road Network

Objective	Description
R1	Reduce unnecessary vehicular trips (through-traffic trips) passing through Castlebar Town Centre through traffic management measures, transport demand management measures and parking strategies.
R2	Reduce vehicular emissions in town centre by promoting mode transfer to sustainable travel modes.
R3	Provide 'Phase 1' of the Northern Orbital Ring Road to improve connectivity from the north of the town to the N5 in order to reduce traffic levels in the town centre to enable active travel infrastructure and improved safer junctions.
R4	Provision of Electric Vehicle charging infrastructure within the town centre.
R5	Maintain adequate vehicular capacity and access.

7. Plan Delivery

The Area Based Transport Assessment (ABTA) of the Castlebar Town Area provided several proposals for the development of a sustainable transport network. The Emerging Preferred Options (EPO's) have been developed to create a connected and cohesive network that is attractive and legible to the user. This is key to encourage a high uptake of the proposed infrastructure and to generate a positive public perception of the proposals.

Additionally, the implementation of the EPO's is crucial to public perception. If the construction and implementation process is not efficient and cohesive, the works will be deemed a nuisance by the local community and therefore uptake will be low. The network should be delivered to develop key routes along desire lines that link the residential areas to the main centres of employment, education, retail and recreation services within the town.

To ensure this, these proposals are prioritesed into six proposals, to be implemented in different phases, which will cover the overall development of transport of the town of Castlebar. The proposals should be delivered to ensure that all measures are mutually supportive in achieving the objectives of the strategy. Investment should prioritise schemes that will deliver the greatest modal shift potential. The EPO's have therefore been allocated into Schemes that offer a deliverable package of works for the design and construction stages. These schemes have been developed to achieve the objectives of each mode as set out in Section 6 and range from short, medium to long term measures.

Figure 7-1 presents the extent of the proposals with details shown in Section 7.2 - Section 7.7. The schemes include proposals for segregated cycle tracks, continuous and standardised pedestrian paths, traffic management strategies, mobility hubs, park and stride/bike facilities, filtered permeability links, controlled crossings and junction upgrades. Figure 7-2 gives an overview of all the proposals. All these proposals together will improve the accessibility of Castlebar by active travel modes. These proposals will also serve as safer routes for pedestrians and cyclists to access key destinations such as education, retail, and employment areas. The routes covered along each of these proposals will have improved public lighting, safety, and signage.

It should also be noted that the individual projects will be subjected to public consultation, environmental assessments, heritage studies, relevant statutory procedures, and consultation with the relevant statutory stakeholders.

7.1 Proposal Assessment

The outline proposals will focus on the town centre initially and expand to cover the entire catchment area. The town centre links the majority of the residential areas in Castlebar with the identified main travel trip attractors (Section 4.4) and is therefore considered as a destination and transit route.

As outlined in Section 5.2.1 and demonstrated by the ATOS analysis, the town centre is relatively permeable with the need identified for small interventions such as increased crossing points, traffic management measures, mobility hubs and frequent bike parking.

The car-dominant environment will abate with the improvement of linkages to the town centre for active travel modes for education, commuter and shopping trips. These linkages need to be improved in a logical and coherent way that provides maximum yield potential. Transit routes that pass through high trip attractor locations and where multiple desire routes overlap will have the greatest level of uptake.

Priority will be assigned to radial and orbital routes based on the concentration of trip attractors and the number of connecting/overlapping linking routes through which they pass. The feasibility of implementation and scope to encourage modal shift is also vitally important.

Priority will be assigned to the radial routes via a combination of the following process:

- **Improvements:** Assigning priority to existing sections of routes that have the lowest LoS. Addressing the 'worst problems first' will cater to existing/potential enthused users although this approach could lead to a scattered and disconnected network.
- **Existing Demand:** Assigning priority to routes that are observed to have existing demand. This will improve the experience for existing users but does not consider demand suppressed by further barriers or diversions by necessity. Observing existing behaviour may not show true desire lines.
- **Forecast Demand:** Assigning priority by predicting the amount of use in the future. This approach accounts for supressed demand and should not encounter capacity issues although demand forecasting is difficult.
- **Safety:** Assigning priority to interventions to improve the safety of the existing facilities for all road users.
- **Barrier Removal:** Assigning priority were removing a single barrier (roundabout, river etc) within the network will greatly increase the connectivity. This is useful where demand exists either side of the barrier.
- **Cost:** Assigning priority by addressing the cheapest elements in the network first. This approach offers 'quick-fix' solutions that are generally well perceived by the general public due to the quick turn-around but the cheapest element

may not always be the most critical. A short-term approach will lead to lower-quality outcomes in the longer term and lead to an incoherent network.

- **Flagship Projects:** Assigning priority to flagship projects that showcases attractive and high-quality facilities. This will have the greatest impact and scope for mode shift and positive public perception.
- **Area Specific:** Assigning priority to consolidated areas. This approach will create an area with a wholly satisfactory LoS and is useful in area where there is high (expected) demand.
- **Modal Shift:** Assigning priority based on the scope to encourage modal shift through the reallocation of road space along the length of the proposed infrastructure. This will have the highest yield potential and can create core active travel routes through the town. However, unless the route is thoughtfully connected at the peripheries it's potential impact will be diminished.
- **Public Realm:** Assigning priority based on the possible improvements to public realm. This approach could generate a new asset for the community or regenerate an existing area but needs to be mindful of the existing public realm enjoyed by local residents.

A balance of these prioritisation measures will be needed to ensure the delivery of the most suitable network. The overall aim is to obtain the greatest improvement in LOS for the greatest number of people (existing and potential users), and for these benefits to outweigh the cost associated with achieving it.

7.2 Proposal Prioritisation

Proposal 1 and Proposal 2 are proposed to be implemented in the short term as there are few constraints impeding their delivery. Both proposals are well suited to early implementation due to the opening of the N5 bypass and the Breaffy Active Travel and Safety Scheme. This represents an opportune time to provide active travel infrastructure in tandem with the expected traffic reduction in the areas. They both represent flagship projects that will be visible to all residents and visitors. They will showcase the best practice standards and will generate a positive public perception and a high level of uptake. Proposal 1 runs the north/south length of the town and Proposal 2 is concentrated in an employment/industrial area but provides a link to residential areas leading to the town centre. As such, there is significant demand from potential users who are not currently catered for with the current active travel provision.

Proposal 3 and Proposal 4 are proposed to be medium-term solutions as they require further detailed design to overcome the noted barriers/severances in the areas. This includes widening of the existing cross section and significant junction redesign to be informed though stakeholder consultation. The proposals present a strong opportunity to encourage modal shift for local trips within the town centre through the removal of through traffic and hence provision of active travel infrastructure.

Proposal 5 and Proposal 6 can be progressed in parallel to Proposals 1-4. They can be broken down into several smaller schemes with quick turnaround times and will be generally well perceived by the general public. As these schemes span the town, there is scope to improve public realm through streetscape/landscape design along the links and to create a sense of cohesion.

7.3 Schedule of Proposals

Table 7-1 shows a schedule of the infrastructure proposed on a short and medium term basis as well as the proposals that can be carried out in parallel with these depending on the associated construction schedule.

Table 7-1 Schedule of Proposals

Infrastructure	Timeline			Total
	Short Term (Proposals 1 & 2)	**Medium Term** (Proposals 3 & 4)	**Concurrent/ Parallel** (Proposals 5 & 6)	
Proposed/Upgraded Cycle Facilities (km per direction)	27.6km	13.8km	4.3km	45.7km
Upgraded Pedestrian Facilities (km)	25.3km	12.3km	4.3km	41.9km
Proposed Pedestrian Facilities (km)	1.9km	1.5km		3.4km
Proposed Shared Streets (km)			5.5km	5.5km
Proposed Junction Upgrades	8	7	1	16
Proposed Controlled Crossings	38	24		62
Upgraded Permeability Link			8	8
Proposed Permeability Link	2	1	11	14
Proposed Active Travel Bridge			1	1
Proposed 'Park 'n' Stride'	4			4
Proposed Mobility Hub	1	1		2
Proposed Road Link		740m		740m

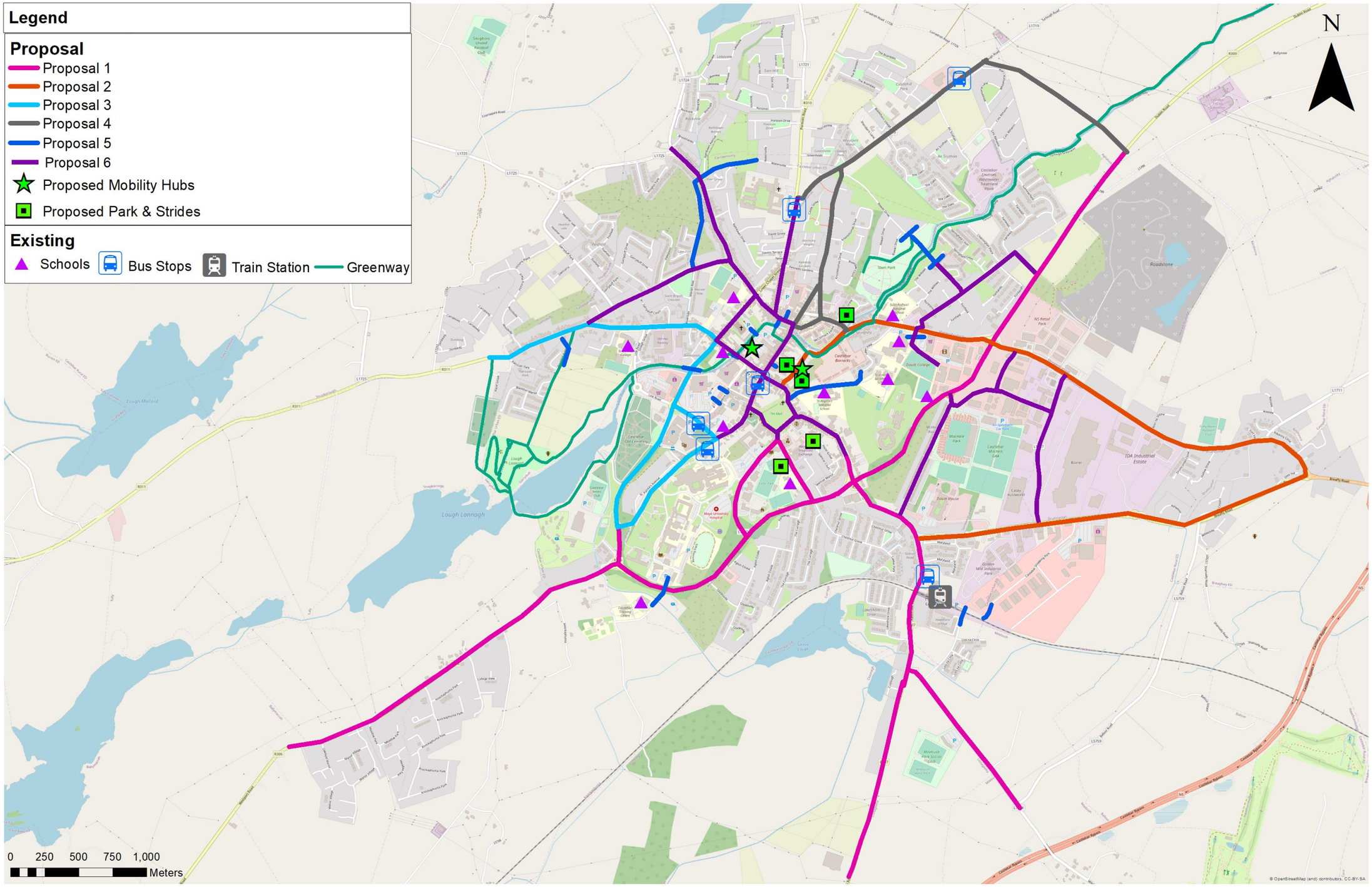


Figure 7-1 LTP Proposals

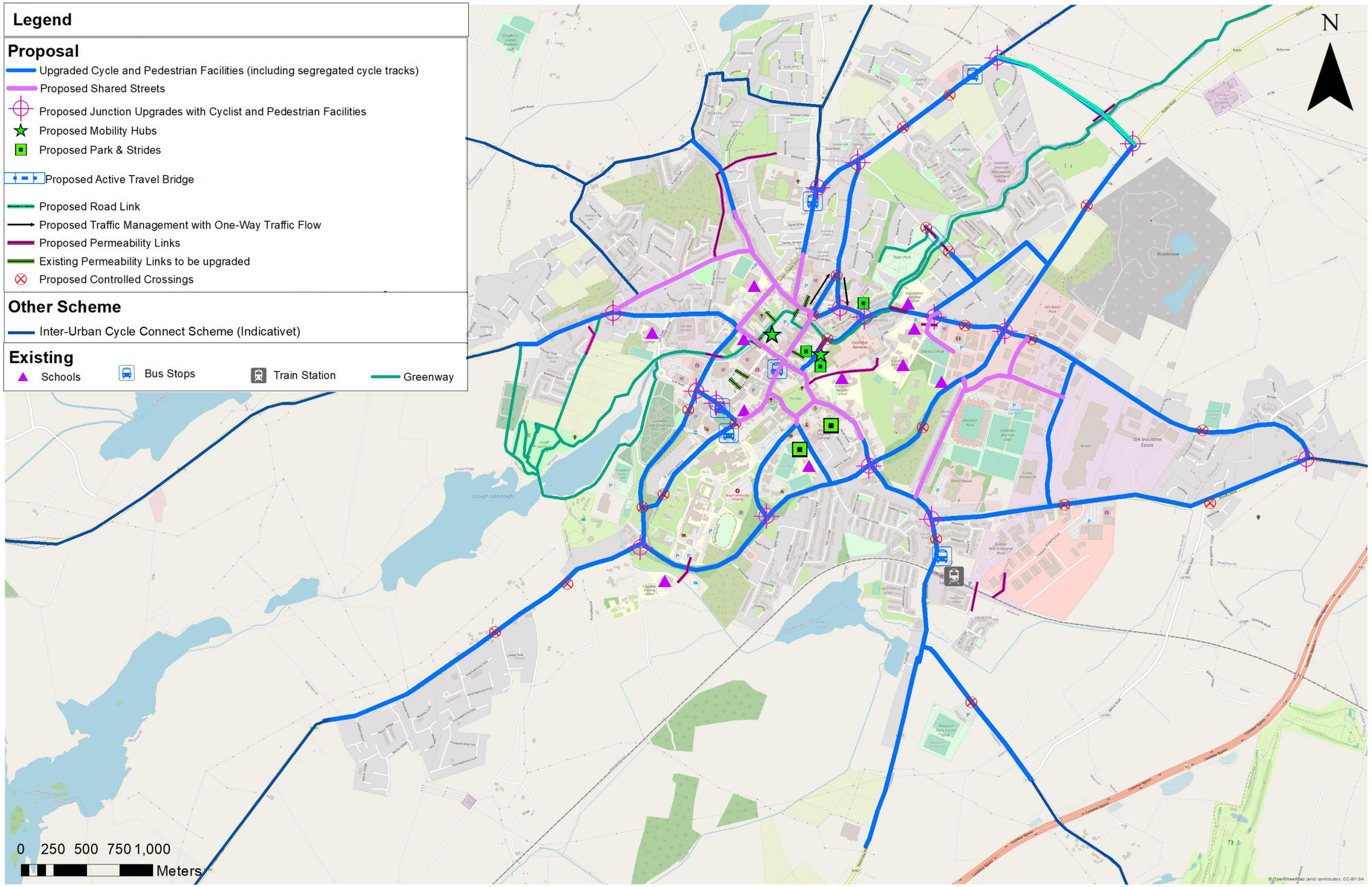


Figure 7-2: Overview of the proposals

7.4 Proposal 1

Table 7-2 shows the schedule for Proposal 1 with the proposals shown in Figure 7-3.

Table 7-2 Proposal 1 Schedule

Infrastructure	Targets	Locations	Timeline	Reference to Appendices					
				NMU Audit	Options Development	MCA	Sifting	EPO	Objectives Achieved
Proposed/Upgraded Cycle Facilities (2-way length)	19.4km	N5 Old Dublin Road N5 Lannagh Road N5 Humbert Way N5 Westport Road N60 Breaffy Road N84 Station Road John Moore Road Pavillion Road L1704	Short Term	3	4.1	5.1	6.1	7.1	8.1
Upgraded Pedestrian Facilities (2-way length)	17.8km	N5 Old Dublin Road N5 Lannagh Road N5 Humbert Way N5 Westport Road N60 Breaffy Road N84 Station Road John Moore Road Pavillion Road	Short Term	3	4.1	5.1	6.1	7.1	8.1
Proposed Pedestrian Facilities (2-way length)	1.22km	N5 Westport Road L1704	Short Term	3	4.1	5.1	6.1	7.1	8.1

Infrastructure	Targets	Locations	Timeline		Reference to Appendices				
				NMU Audit	Options Development	MCA	Sifting	EPO	Objectives Achieved
Proposed Junction Upgrades	5	N5 Moneen Roundabout N5 Spencer Street Roundabout N5 Lannagh Road Roundabout N60 Breaffy Road and N84 Station Road Junction N5 Old Dublin Road and L5786 Junction	Short Term	3	4.1	5.1	6.1	7.1	8.1
Proposed Controlled Crossings (including crossing as part of proposed junction upgrades)	24	Additional to junctions: 1 x N5 Old Dublin Road 1 x N5 Humbert Way 2 x N5 Westport Road 1 x N84 Station Road 1 x L1704	Short Term	3	4.1	5.1	6.1	7.1	8.1
Proposed 'Park'n'Stride'	2	Pavilion Road Car Park John Moore Road Car Park	Short Term	3	4.1	5.1	6.1	7.1	8.1

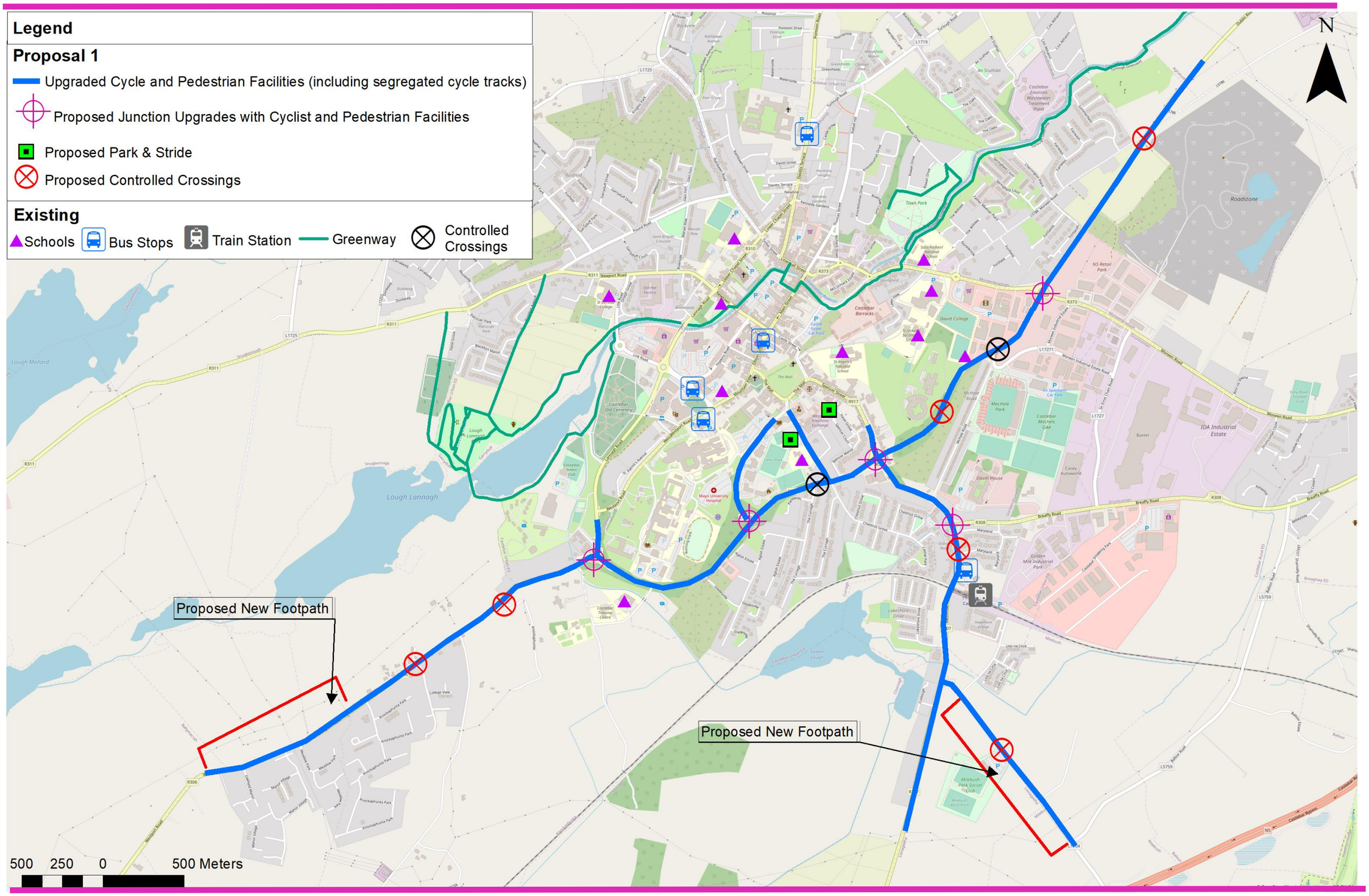


Figure 7-3: Proposal 1

7.4.1Proposal Overview

Proposal 1 proposes short term active travel and sustainable transport startegies along the N5 (Dublin Road, Lawn Road, Humbert Way and Westport Road) and N60/N84 (Station Road). The exents of Proposal 1 are shown in Figure 7-3: Proposal 1 .

The existing facilities cyclefacilites along Westport Road, Humbert Way and Station Road are sub-standard. The cycle facilites along Lawn Road are lacking phscical sepeartion between pedestrian and cyclists.

The pedesitran facilities are expansive but do include discontinouties and below standard width. The three major roundabouts along the N5 (Moneen Roundabout, Spencer Street Roundabout and Westport Road Rounadbout) all lack dedicated crossing for pedestrians and cyclists. This lack of active travel facilites is leading to a car dominated environment within the town centre and acts as a barrier to active travle between residential and employmern areas to the east and the main attractors in the town. This scheme will enhance active travel to Castlebar Train Station.

Trip attractors within the area include residential estates, schools, emplyment centres and amenities.

7.4.1.1 Pedestrian Facilites

Footpaths are rpopsoed to be upgraded to DMURS standards, where practical, along these routes. In instances where there is an absence of a footpath, a footpath is proposed (N5 – Westport Road and Milebush Road). At locations where this is not feasible, safe crossings will be provided. The proposed pedestrian facilities and crossing will be designed to meet standards for safe accessibility by the mobility impaired.

7.4.1.2 Cycle Facilities

The existing cycle lanes along the N5 are proposed to be upgraded to fully segregated cycle tracks. The junctions will also be revised to provide dedicated cycle facilites. The proposals also include the provision of cycle facilites to remedy the existing discontinuties in the network. Figure 9-4 shows some examples of segregated cycle facilities which are also made accessible by adaptive bicycles (cargo-bikes, mobility scooters etc).

Figure 7-4: Indicative layouts for segregated cycle tracks

7.4.1.3 Junction Upgrades

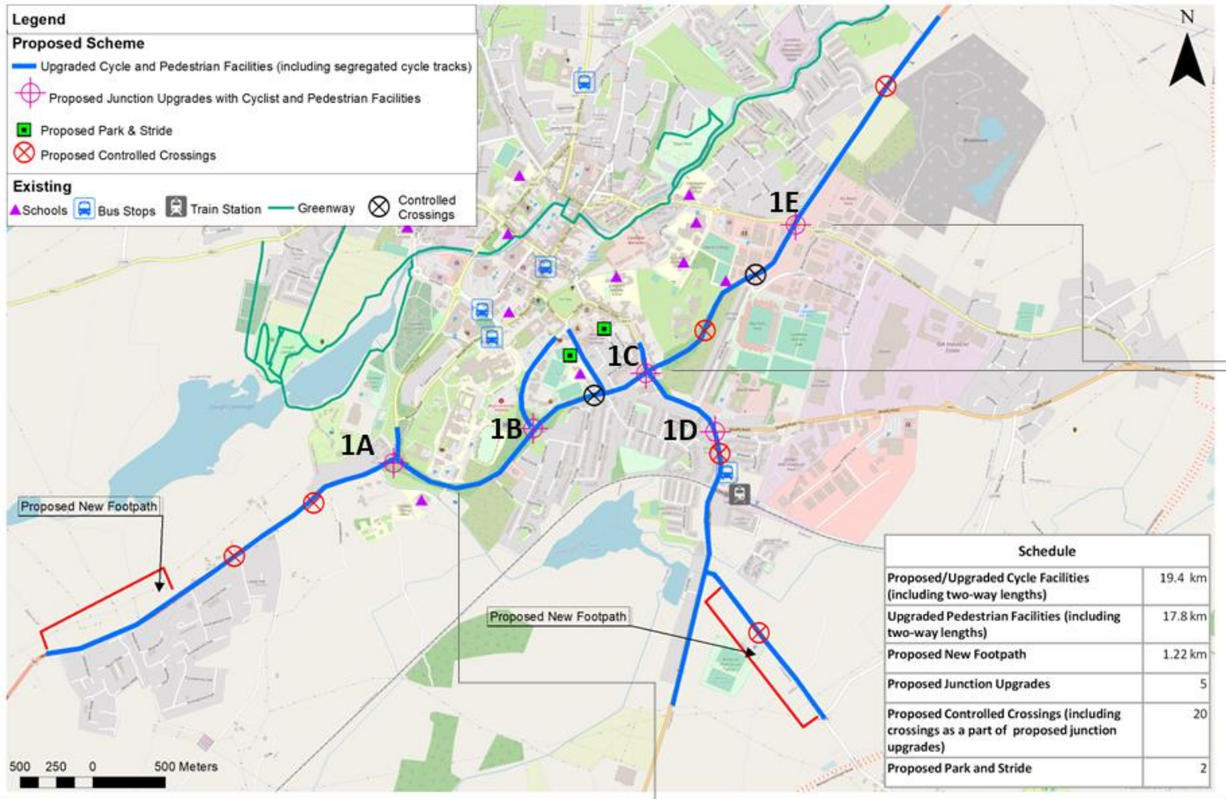
The scheme proposes to upgrade five junctions along the routes. Figure 7-6 summarises the scheme and shows:

- The proposed layout of the junction of Humbert Way, Spencer Street, Lawn Road and Station Road (to be converted into a signallised junction with pedestrian and cyclist crossings)- Junction 1C;
- The proposed layout of the junction of Lawn Road, Moneen Road, Dublin Road and Moneen Road (to be modfied into a roundabout with through cycle lanes and cyclist and pedestrian crossings on all arms) Junction 1E; and
- The proposed road cross-section of N5 Humbert Way;

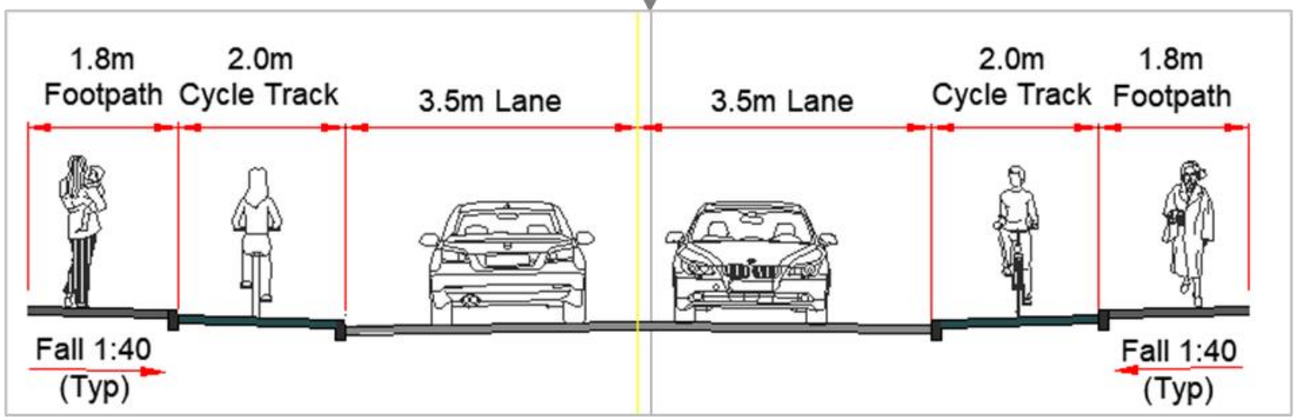
Roundabout 1A (Westport Road) and 1C (Spencer Street) are proposed to be converted into signallised junctions with signallised pedestrian and cyclist crossings. Roundabout 1E (Moneen Road) is proposed to be modified into a safer roundabout with cycle crossings and pedestrian crossings on all arms. Junction 1B (John Moore Road) and 1D (Station Road) will have added cycle and pedestrian crossings to facilitate safe movement across all arms. Figure 7-5 presents an indicative layout for an upgraded roundabout which could be implemented on Roundabout 1E (Moneen Road) in Castlebar.

Figure 7-5: Indicative layout for roundabout with cycle and pedestrian facilities

Photomontages of the proposed roundabout 1E (Moneen Road (E), Lawn Road, Moneen Road (W) and Dublin Road) viewed from Moneen Road (E), and signalised junction 1C (Station Road, Humbert Way, Spencer Street and Lawn Road) viewed from Humbert Way are shown in Figure 7-7 and Figure 7-8 respectively.



Schedule	
Proposed/Upgraded Cycle Facilities (including two-way lengths)	19.4 km
Upgraded Pedestrian Facilities (including two-way lengths)	17.8 km
Proposed New Footpath	1.22 km
Proposed Junction Upgrades	5
Proposed Controlled Crossings (including crossings as a part of proposed junction upgrades)	20
Proposed Park and Stride	2



Proposed road cross-section

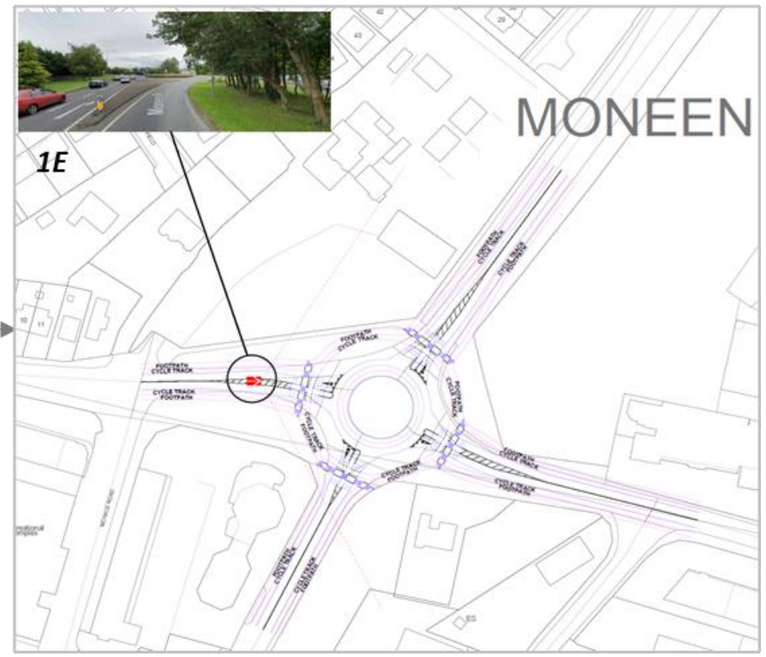


Figure 7-6: Proposed layouts as a part of Proposal 1

Figure 7-7: Draft layout of the proposed roundabout along Moneen Road (E), Lawn Road, Moneen Road (W) and Dublin Road viewed from Moneen Road (E)

Figure 7-8: Draft layout of the proposed signalised junction along Station Road, Humbert Way, Spencer Street and Lawn Road viewed from Humbert Way

7.4.1.4 Park and Stride

It is proposed to utilise Castle Street Car Park, Market Square Car Park, Pavillion Road Car Park, Town Park Car Park and Spencer Street Car Park as 'Park and Stride' facilities. At these loactions, parental/guardians who travel by car for the 'school-run' will be encouraged to park their cars and cover the last leg of the journey to the schools by foot. Park and Stride will help to reduce traffic outside schools, reduce emissions in those areas, and contribute to the improved safety and health of children.

Additionally, Pavilion Car Park is also proposed to include facilities for Park and Bike. It will allow people to park their cars, and rent a bicycle (such as Lime e-bikes which are already available in the town as a shared mode of transport) to complete the journey to their destinations. These facilities will help to promote active travel and reduce traffic congestion in the town whilst improving safety and air quality.

7.4.1.5 Crossing Facilities and Permeability Links

A number of controlled crossings are proposed along the route to allow pedestrians and cyclists to cross safely along desire lines near residential areas and schools providing increasing permeability into town via active travel modes. Figure 7-9 shows the condition of a few existing permeability links in Castlebar.

Existing permeability links along the route are proposed to be upgraded with several informal links proposed to be formalised. These links will provide highly visible upgraded paved pedestrain and cyclist links with safe crossings for pedestrians and cyclists to easily access residential areas and schools/colleges such as GMT, St. Anthony's National School, Davitt College, St. Joseph's Secondary School.

Figure 7-9: Examples of existing permeability links

7.4.2 Objectives Achieved

Proposal 1 of the LTP for Castlebar has been developed to meet several objectives pertaining to safe and efficient travel using the pedestrian network, cycle network, public transport, and road network.

The objectives achieved, as per Section 6, are outlined in Appendix 8.

7.5 Proposal 2

Table 7-3 shows the schedule for Proposal 2 with the proposals shown in Figure 7-10.

Table 7-3 Proposal 2 Schedule

Infrastructure	Targets	Locations	Timeline	Reference to Appendices					
				NMU Audit	Options Development	Sifting	MCA	EPO	Objectives Achieved
Proposed/Upgraded Cycle Facilities (2-way length)	8.2	Moneen Road N60 Breaffy Road	Short Term	3	4.2	5.2	6.2	7.2	8.2
Upgraded Pedestrian Facilities (2-way length)	7.5	Moneen Road N60 Breaffy Road	Short Term	3	4.2	5.2	6.2	7.2	8.2
Proposed Pedestrian Facilities (2-way length)	0.7	N60 Breaffy Road	Short Term	3	4.2	5.2	6.2	7.2	8.2
Proposed Junction Upgrades	3	Moneen Road and Indutrial Estate Access Kilkenny Cross Roundabout of Moneen Road, L5786/Fortville Estate and Lidl	Short Term	3	4.2	5.2	6.2	7.2	8.2

Infrastructure	Targets	Locations	Timeline	Reference to Appendices					
				NMU Audit	Options Development	Sifting	MCA	EPO	Objectives Achieved
Proposed Controlled Crossings (including crossing as part of proposed junction upgrades)	14	Additional to junctions: 2x Springfield 2x Moneen Road 2x N60 Breaffy Road	Short Term	3	4.2	5.2	6.2	7.2	8.2
Proposed Permeability Links	2	Gaelscoil Raiferti Castle Street Car Park	Short Term	3	4.2	5.2	6.2	7.2	8.2
Proposed 'Park'n'Stride'	2	Castle Street Car Park Mill Lane Car Park	Short Term	3	4.2	5.2	6.2	7.2	8.2
Proposed Mobility Hub	1	Castle Street Car Park	Short Term	3	4.2	5.2	6.2	7.2	8.2

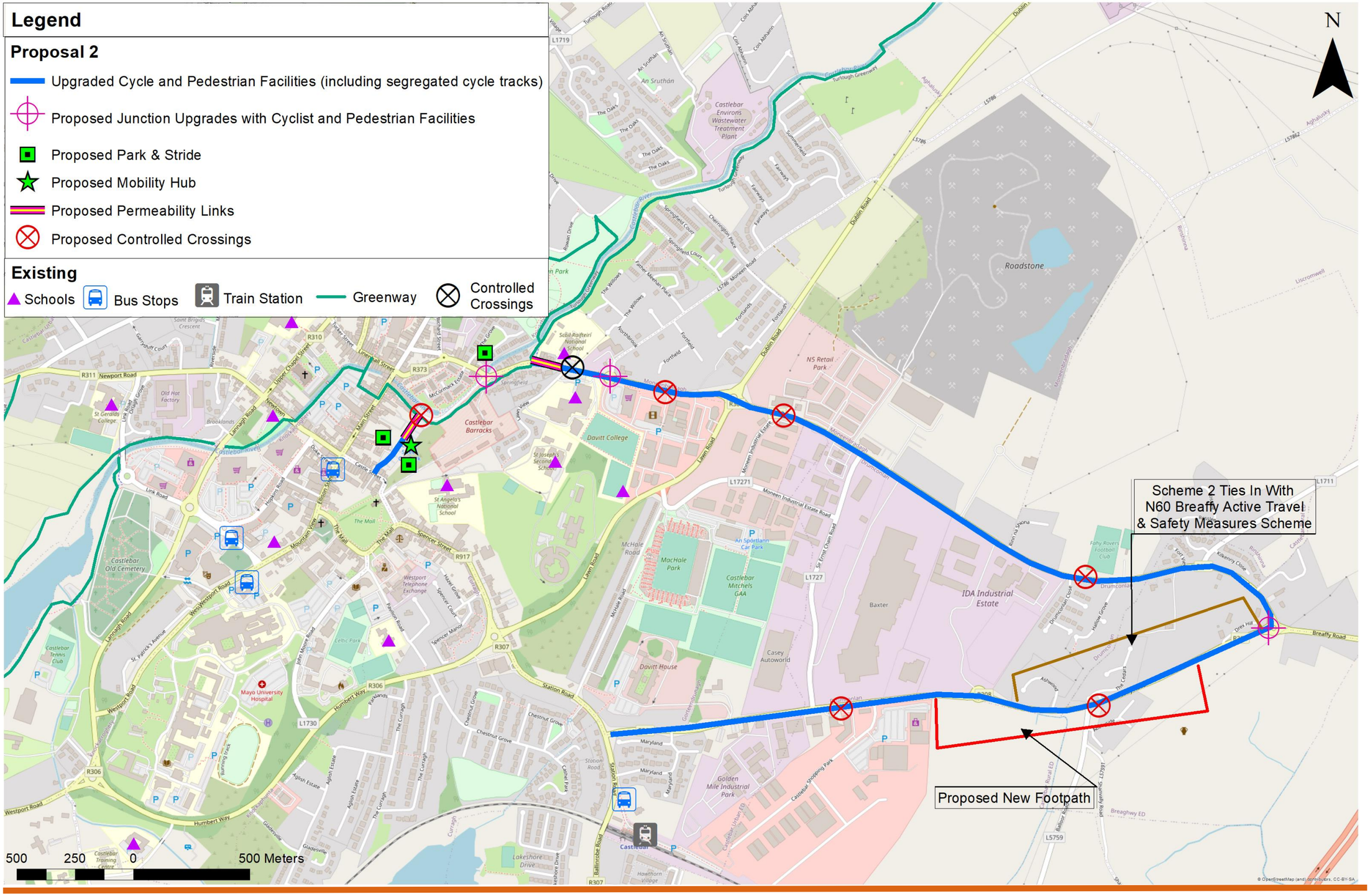


Figure 7-10:Proposal 2

7.5.1 Proposal Overview

Proposal 2 proposes short term active travel and sustainable transport strategies along Breaffy Road, Moneen Road and Charles Street Lower leading to Castle Street Car Park. Figure 7-10 shows the map of Proposal 2 highlighting the proposals.

The area covered under Proposal 2 includes Davitt College, Gaelscoil Raifteiri, St. Angela's National School and St. Joseph's Secondary School. Existing facilities for active travel in this area comprise solely of footpaths which become discontinuous on junction approaches. There is a lack of controlled crossings for pedestrians and cyclists within the area. Existing permeability links are of sub-standard quality.

7.5.1.1 Pedestrian Facilities

Exiting footpaths will be upgraded to DMURS standards, where practical, along these routes. New footpaths will be added in the areas where it becomes discontinuous on either side of the road. In instances where it is not possible to provide a footpath, safe crossings will be provided. The upgraded pedestrian facilities will be designed to meet standards for safe accessibility by the mobility impaired.

7.5.1.2 Cycle Facilities

As a part of Proposal 2, segregated cycle tracks are proposed within the area. These proposed facilities include junction treatments and cycle crossings.

7.5.1.3 Mobility Hub/Park and Stride

A mobility hub is proposed in Castle Street Car Park to increase the visibility of active travel modes within Castlebar. The aim of the hub is to offer a public space where facilities are provided to promote and sustain active travel. The mobility hub will be developed as a pleasant public realm space that provides access to shared modes of transport (Go-Cars and bicycle sharing systems such as Lime), charging stations for e-bikes and electric cars, bicycle parking, taxi stations, private car parking, waiting areas and welfare facilities. The hub will be designed such that it meets accessibility and safety standards for people with disabilities. There will be digital services available to access public transport and alternative shared modes. The

Figure 7-11: Examples of layouts of mobility hubs

proposed location of mobility hub is close to the town centre, which will allow people to walk to the key destinations (commercial, educational, employment etc.) from the hub. The proposed active travel network would link public transport stations to the mobility hub, creating an opportunity for Park and Ride/Bike.

The mobility hub will have facilities for private car parking, which would also be dedicated to Park and Stride for commuting to schools. Two other Park and Stride locations are proposed in Market Square Cark Park and Town Park Car Park. These Park and Stride facilities will help to reduce congestion in front of schools in this area, and will contribute to a safer, more sustainable, and active travel friendly environment for children.

7.5.1.4 Crossing Facilities

Several controlled crossings are proposed for cyclists and pedestrians to cross safely along the observed desire lines near schools, residential areas and industrial areas. Figure 7-12 presents some examples of standard crossing facilities. Two permeability links are proposed to link the existing greenway with proposed cycle facilities along Castle StreetCar Park and Charles Street Lower. These links will provide highly visible upgraded paved active travel links with safe crossings for pedestrians and cyclists. A proposal to upgrade three junctions is also included in Proposal 2. Safe cyclists and pedestrians-controlled crossings will be added along the arms of these junctions to promote active travel and increase road safety.

Figure 7-12: Examples of standard crossing facilities for pedestrians and cyclists

7.5.2 Objectives Achieved

Proposal 2 of the LTP for Castlebar has been developed to meet several objectives pertaining to safe and efficient travel using the pedestrian network, cycle network, public transport, and road network

The objectives achieved, as per Section 6, are outlined in Appendix 8.

7.6 Proposal 3

Table 7-4 shows the schedule for Proposal 3 with the proposals shown in Figure 7-13.

Table 7-4 Proposal 3 Schedule

Infrastructure	Targets	Locations	Timeline	Reference to Appendices					
				NMU Audit	Options Development	Sifting	MCA	EPO	Objectives Achieved
Proposed/Upgraded Cycle Facilities (2-way length)	7.2	Newport Road Lannagh Road Stephen Garvey Way Old Westport Road	Medium Term	3	4.3	5.3	6.3	7.3	8.3
Upgraded Pedestrian Facilities (2-way length)	7.2	Newport Road Lannagh Road Hopkins Road/Stephen Garvey Way Old Westport Road	Medium Term	3	4.3	5.3	6.3	7.3	8.3
Proposed Junction Upgrades	3	Newport Road and Pound Road Lannagh Road and Hopkins Road Hopkins Road and Stephen Garvey Way	Medium Term	3	4.3	5.3	6.3	7.3	8.3

Infrastructure	Targets	Locations	Timeline	Reference to Appendices					
				NMU Audit	Options Development	Sifting	MCA	EPO	Objectives Achieved
Proposed Controlled Crossings (including crossing as part of proposed junction upgrades)	14	Additional to junctions: 1x Stepehn Garvey Way 2x Lannagh Road 1x Old Westport Road	Medium Term	3	4.3	5.3	6.3	7.3	8.3
Proposed Mobility Hub	1	Mill Lane Car Park	Medium Term	3	4.3	5.3	6.3	7.3	8.38

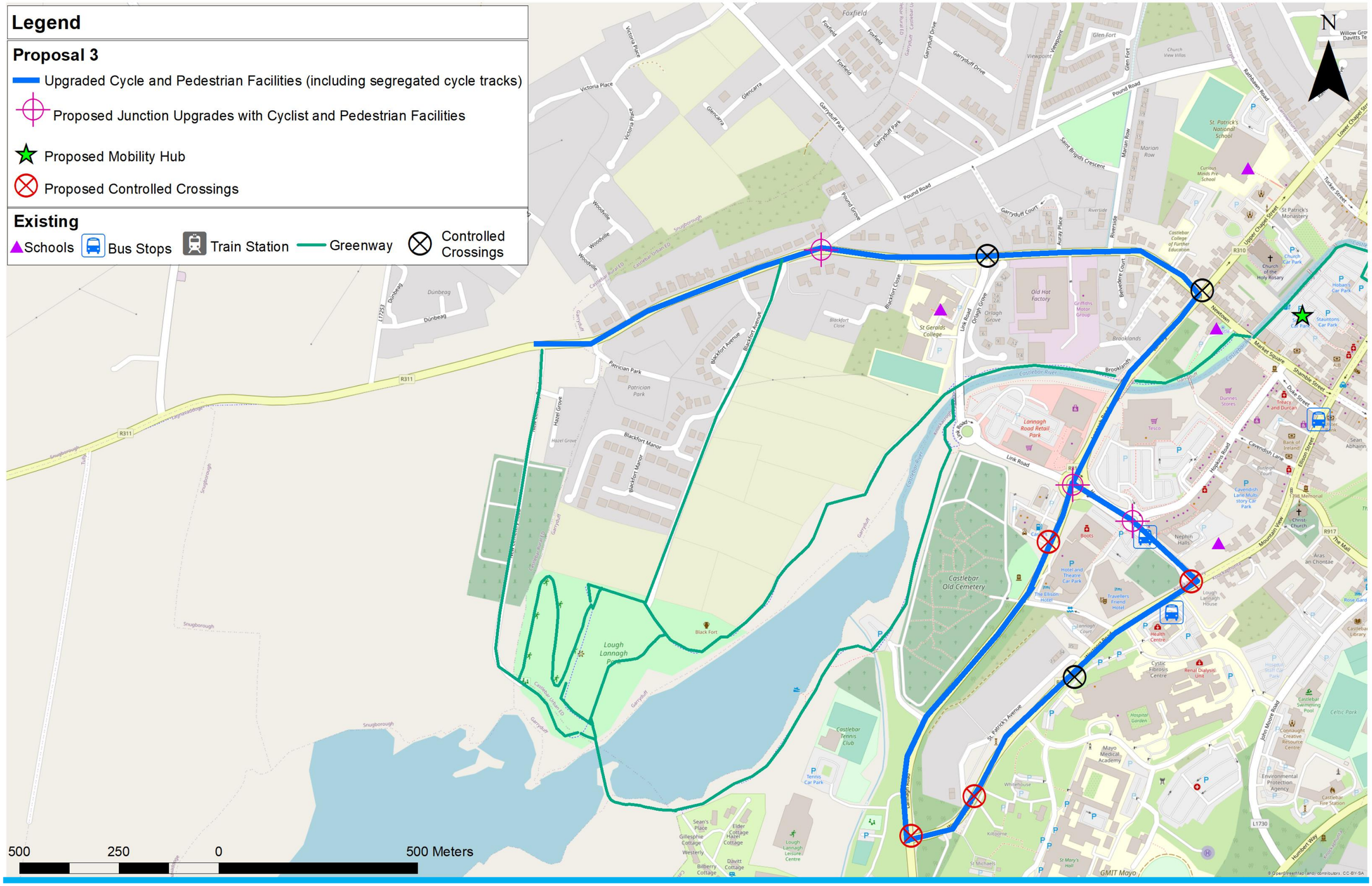


Figure 7-13: Proposal 3

7.6.1 Proposal Overview

Proposal 3 proposes short term active travel and sustainable transport strategies along Westport Road, Lannagh Road, Stephen Garvey Way, Hopkins Road and Newport Road. Figure 7-13 shows the map of Proposal 3 highlighting the proposals.

Existing facilities in this area include sub-standard cycle lanes along Westport Road and Lannagh Road. Footpaths are present on both sides of the roads along the majority of the route.

There are two major roundabouts along Hopkins Road and Stephen Garvey Way, and several junctions which lack safe and standard facilities for pedestrians and cyclists to cross, leading to a car dominated environment in the town.

Proposal 3 encompasses trip attractors including major bus stops at Mayo University Hospital and Stephen Garvey Way, St. Gerald's College, Castlebar Educate Together and Ireland West School, the retail hub within the town centre, employment centres and Lough Lannagh Park.

As a part of proposed public transport improvements, a bus interchange is proposed to be developed at Stephen Garvey Way. This is further discussed in Section 9.7.

7.6.1.1 Pedestrian Facilities

Exiting footpaths will be upgraded to DMURS standards, where practical, along these routes. New footpaths will be added in the areas where it becomes discontinuous on either side of the road. The upgraded pedestrian facilities will be designed to meet standards for safe accessibility by the mobility impaired.

7.6.1.2 Cycle Facilities

Existing cycle lanes within the catchment are proposed to be upgraded to fully segregated cycle tracks. These proposed facilities include junction treatment.

Cycle tracks will be added in areas which currently lack cycle facilities.

7.6.1.3 Junction Upgrades

The scheme proposes to upgrade three junctions along the route to make them safer for pedestrian and cyclists whilst maintaining the vehicular capacity. One proposal for the two roundabouts along Stephen Garvey Way (1A and 1B) is to convert them into signalised junctions with signalised pedestrian and cyclist crossings. This alternative will require relocation of the northern car park access to the roundabout 1A. Figure

7-15 shows one of the proposed layouts of two of the junctions along Stephen Garvey Way, Hopkins Road, and typical proposed road cross-section along Westport Road. The proposed layout is shown in Figure 7-16.

Another proposal is to upgrade the roundabouts and provide safe crossings at each arm with through cycle lanes. This proposal does not necessarily require the relocation of the northern car park access. Further assessment of these options is required to select a final proposal. Figure 7-14 presents examples of a standard signalised junction and roundabout which has adequate vehicular capacity and has safe pedestrian and cyclist facilities. Junction 1C is proposed to have added cycle and pedestrian crossings to facilitate safe movement across all arms.

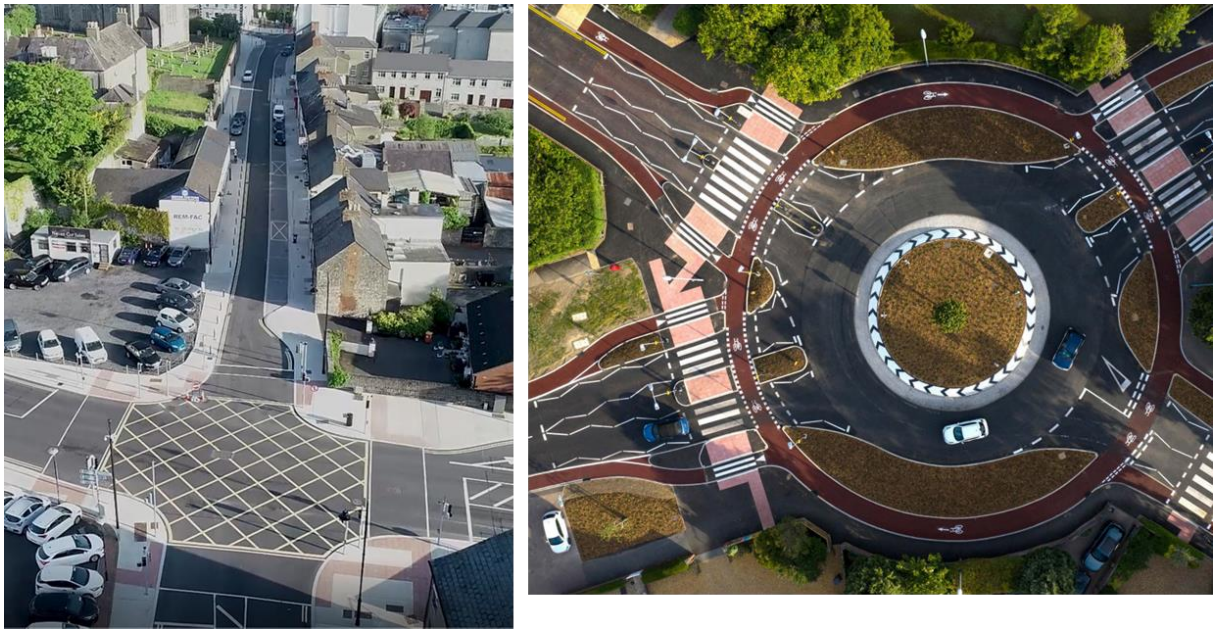


Figure 7-14: Examples of standard junctions

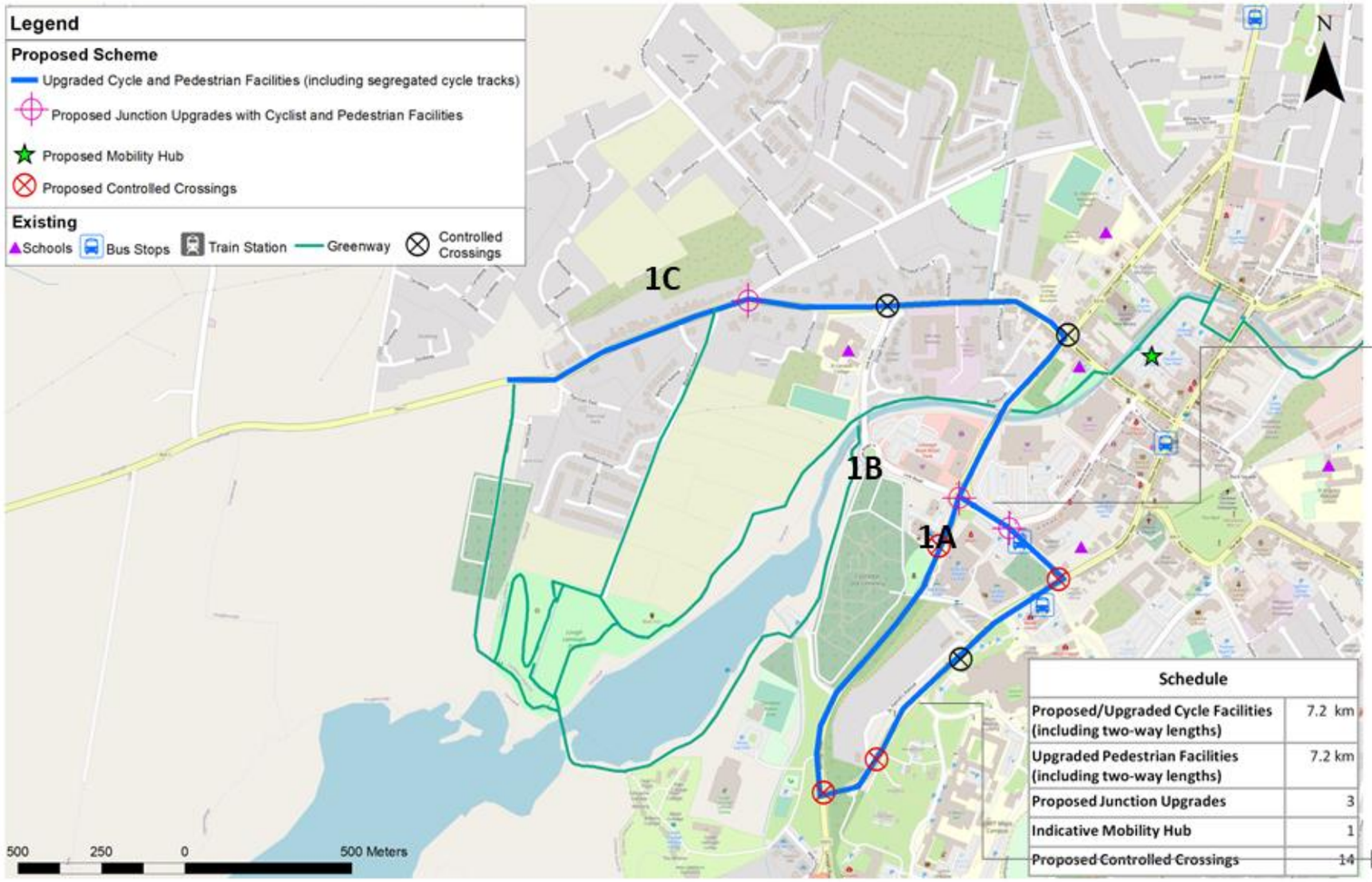
7.6.1.4 Mobility Hub

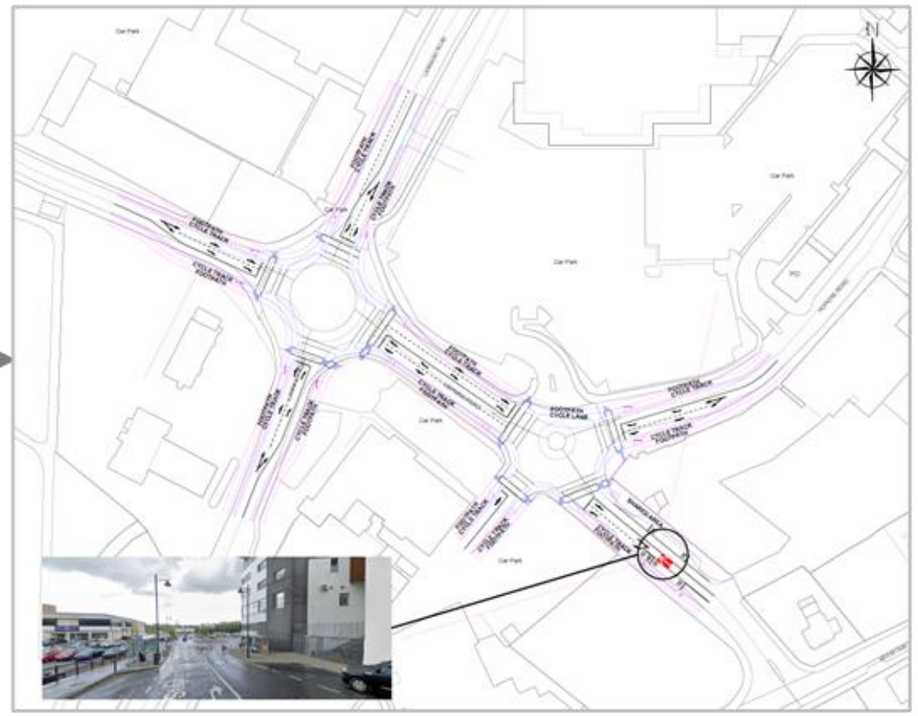
A mobility hub is proposed with an indicative location in Market Square Car Park to increase the visibility of active travel modes within Castlebar. The aim of the hub is to offer a public space where facilities are provided to promote and sustain active travel. The mobility hub will be developed as a pleasant public realm space that provides access to shared modes of transport (Go-Cars and bicycle sharing systems such as Lime), charging stations for e-bikes and electric cars, bicycle parking, taxi stations, waiting areas and welfare facilities. The hub will be designed such that it meets accessibility and safety standards for people with disabilities. There will be digital services available to access public transport and alternative shared modes. The proposed location of the mobility hub is close to the town centre, which will allow people to walk to the key destinations (commercial, educational, employment etc.) from the

hub. The proposed active travel network would link public transport stations to the mobility hub.

7.6.1.5 Crossing Facilities

Several controlled crossings are proposed along the route to allow pedestrians and cyclists to cross safely at desire lines near residential areas, hospitals, commercial areas and schools providing increasing permeability into town via active travel modes.





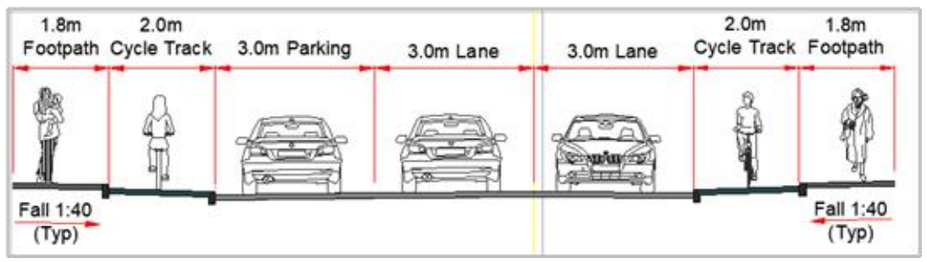


Figure 7-15:Proposed layouts as a part of Proposal 3

Figure 7-16:Draft layout of the proposed signalised junctions along Stephen Garvey Way/Hopkins Road

7.6.2 Objectives Achieved

Proposal 3 of the LTP for Castlebar has been developed to meet several objectives pertaining to safe and efficient travel using the pedestrian network, cycle network, public transport, and road network.

The objectives achieved, as per Section 6, are outlined in Appendix 8.

7.7 Proposal 4

Table 7-5 shows the schedule for Proposal 4 with the proposals shown in Figure 7-17.

Table 7-5 Proposal 4 Schedule

Infrastructure	Targets	Locations	Timeline	Reference to Appendices					
				NMU Audit	Options Development	Sifting	MCA	EPO	Objectives Achieved
Proposed/Upgraded Cycle Facilities (2-way length)	6.6	Turlough Road Upper Thomas Street Thomas Street Lucan Street	Medium Term	3	4.4	5.4	6.4	7.4	8.4
Upgraded Pedestrian Facilities (2-way length)	5.1	Turlough Road Upper Thomas Street Thomas Street Lucan Street	Medium Term	3	4.4	5.4	6.4	7.4	8.4
Proposed Pedestrian Facilities (2-way length)	1.5	Proposed Road Link	Medium Term	3	4.4	5.4	6.4	7.4	8.4
Proposed Road Link	0.74	Phase 1 Northern Orbital Link	Medium Term	3	4.4	5.4	6.4	7.4	8.4

Infrastructure	Targets	Locations	Timeline	Reference to Appendices					
				NMU Audit	Options Development	Sifting	MCA	EPO	Objectives Achieved
Proposed Junction Upgrades	4	Phase 1 Northern Orbital Link, Turlough Road and Curradrish Road Phase 1 Northern Orbital Link, Turlough Road and N5 Upper Thomas Street and Turlough Road Lucan Street and Upper Charles Street	Medium Term	3	4.4	5.4	6.4	7.4	
Proposed Controlled Crossings (including crossing as part of proposed junction upgrades)	10	2x Turlough Road 1x Upper Thomas Street 1x Lucan Street	Medium Term	3	4.4	5.4	6.4	7.4	8.4
Proposed Permeability Link	1	Phase 1 Northern Orbital Link	Medium Term	3	4.4	5.4	6.4	7.4	8.4

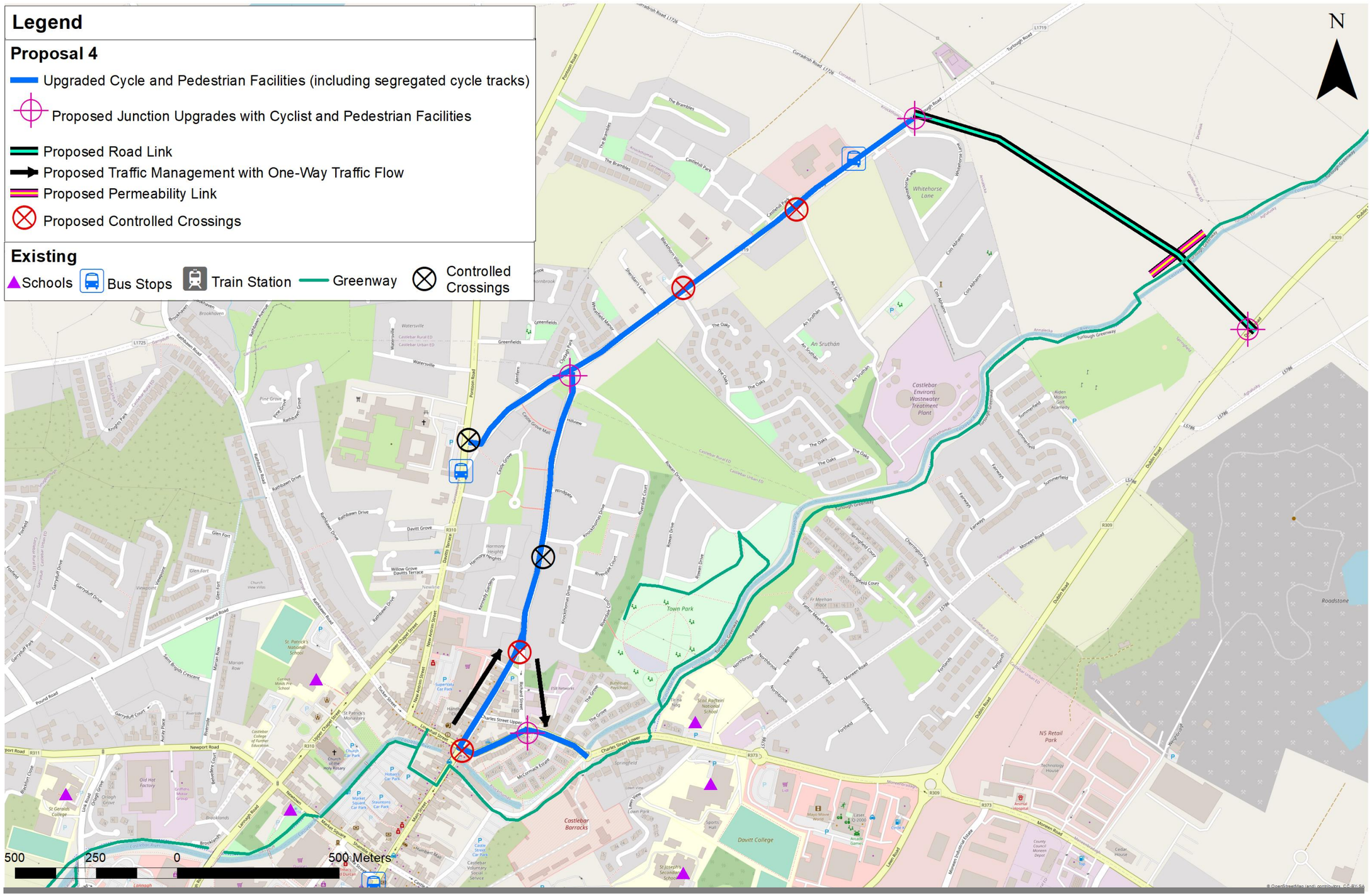


Figure 7-17: Proposal 4

7.7.1 Proposal Overview

Proposal 4 proposes medium term active travel and sustainable transport strategies along, Turlough Road, Staball Hill, Thomas Street, Rush Street, Charles Street, Lucan Street and Richard Street. Figure 7-17 shows the map of Proposal 4 highlighting the proposals.

Existing facilities for active travel in this area only include footpaths which become discontinuous on approach to the junctions. Controlled crossing facilities for pedestrians and cyclists are lacking at junctions in the area. Existing permeability links are informal/of sub-standard quality.

7.7.1.1 Pedestrian Facilities

Exiting footpaths will be upgraded to DMURS standards, where practical, along these routes. New footpaths will be added in the areas where it becomes discontinuous on either side of the road. In instances where it is not possible to provide a footpath, safe crossings will be provided. The upgraded pedestrian facilities will be designed to meet standards for safe accessibility by the mobility impaired.

7.7.1.2 Cycle Facilities

Existing cycle lanes within the catchment are proposed to be upgraded to fully segregated cycle tracks. These proposed facilities include junction treatment.

Cycle tracks will to be added in areas which currently lack cycle facilities.

7.7.1.3 Traffic Management

A new Northern Orbital Link Road is proposed in the north of Castlebar between Dublin Road N5 and Turlough Road. The new link would be connected to the existing N5 and Turlough Road via two signalised junctions. The new road link will have segregated cycle tracks and footpaths all along the stretch and across the new junctions. Figure 7-18 indicates the estimated impact of the new link road on vehicular traffic. As shown in the figure, this proposed link road will contribute significantly to reduce traffic congestion within the town centre by allowing traffic from the residential areas north of the town to access the N5 without using town centre streets. The reduced traffic flow within the town will improve air quality, road safety and reduce congestion. It will also result in more free space on the roads which could be utilised to provide for new active travel infrastructure. The new Northern Orbital Link Road will also improve connectivity from the north of the town to the N5. A permeability link is also proposed between the new road link and existing greenway. This will improve the accessibility of the town via active travel modes.

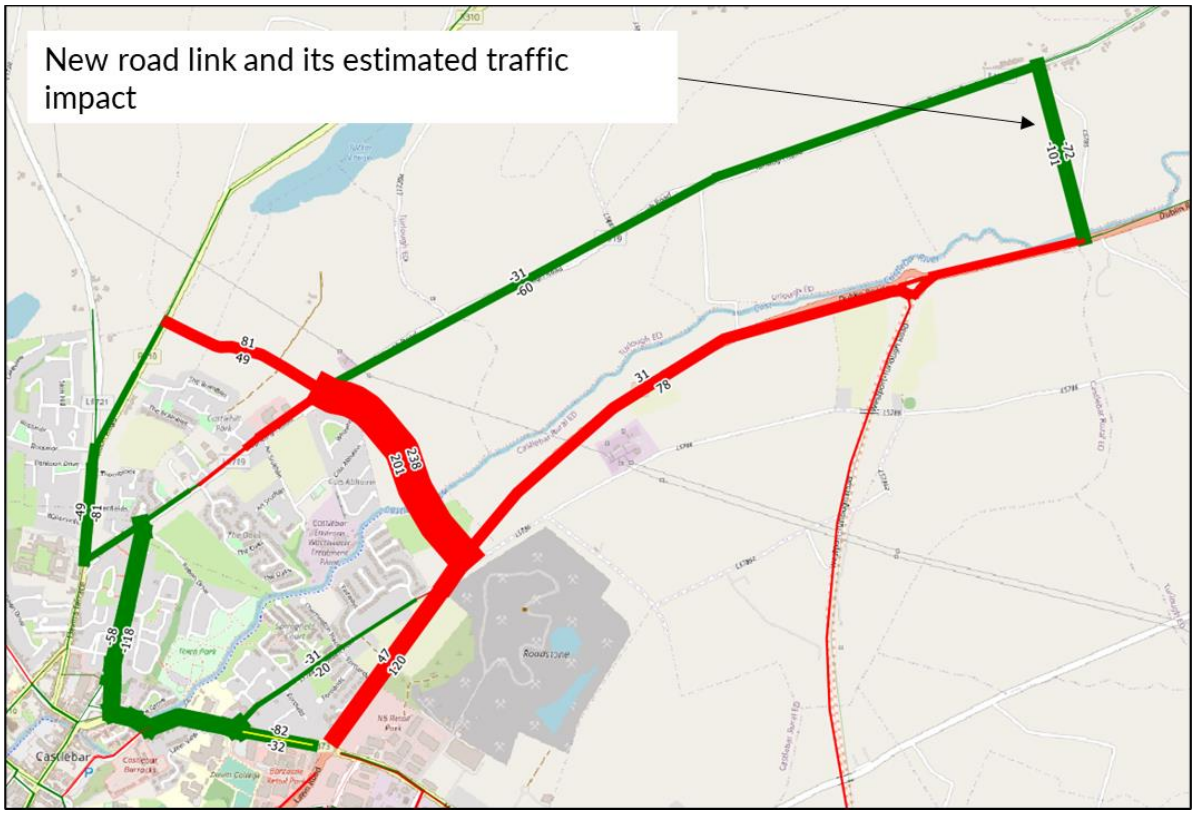


Figure 7-18: Traffic impact of new Northern Link Road – Proposal 4

The area around Thomas Street, Rush Street, Lucan Street and Davitts Terrace, located to the northeast of the town centre, is recognised to have long delays and traffic congestion. The current road layout is shown in the adjacent figure.

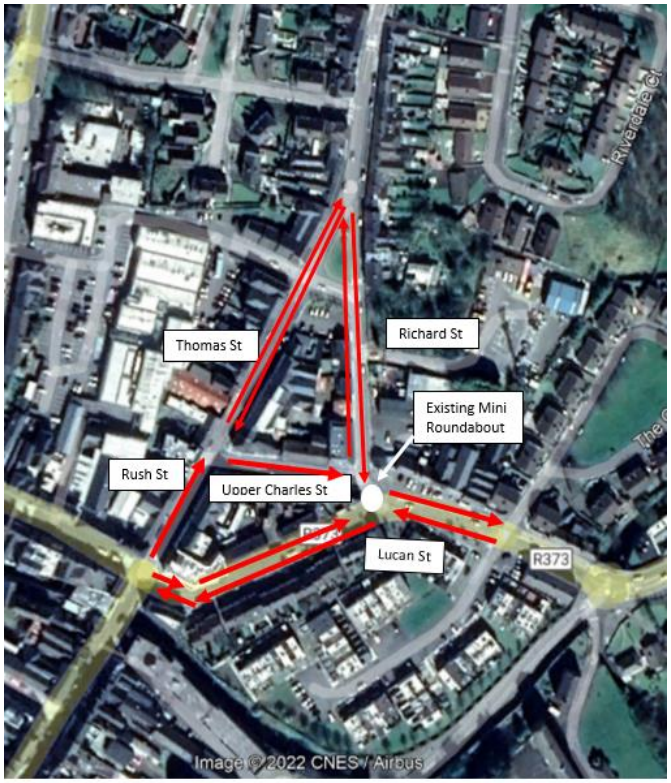


Figure 7-19 Existing Road Layout at Thomas Street/ Rush Street /Lucan Street

The proposed link road will result in a reduction in the traffic on these links. For better traffic management and to provide active travel infrastructure in the area, Thomas Street and Richard Street are proposed to be converted into one-way streets for vehicular traffic (Figure 7-20). The sub-standard mini-roundabout at the conjunction of Lucan Street and Upper Charles Street is proposed to be converted into priority based junction with dedicated crossings for pedestrians and cyclists. Other junctions under Proposal 4 are proposed to have added cycle and pedestrian crossings to facilitate safe movement across all arms.

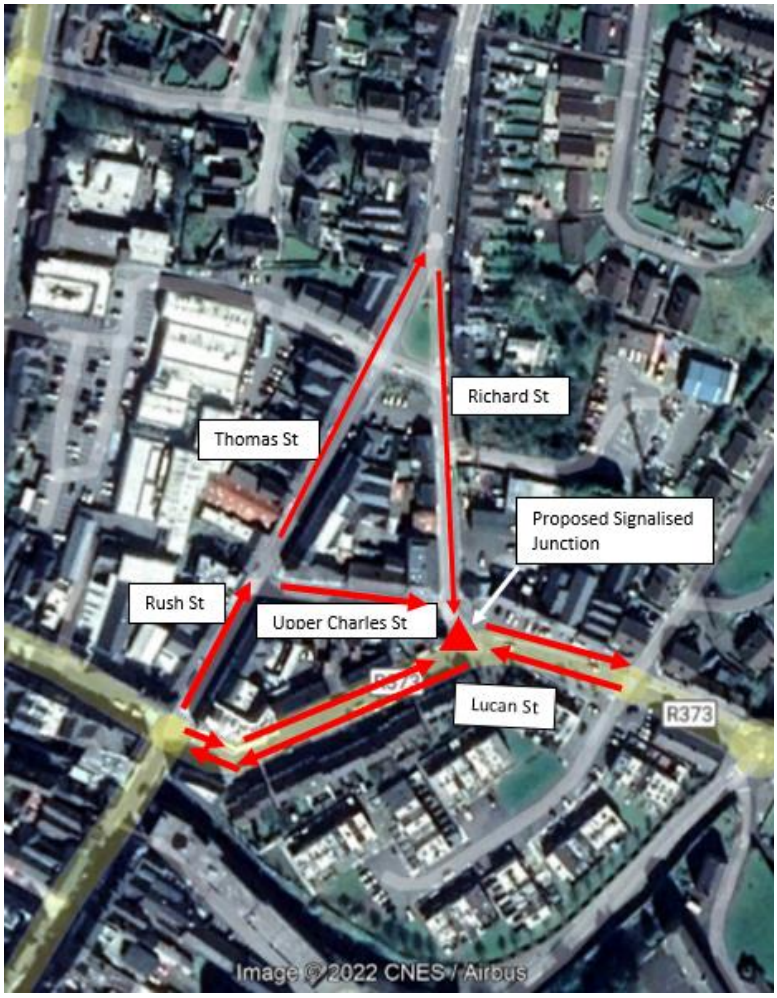


Figure 7-20 Proposed Road Layout at Thomas Street/ Rush Street /Lucan Street

This layout will allow for the maximum uptake of active travel modes as the increased space available for active travel infrastructure will allow for the encouragement of maximum modal shift. This is particularly true for Thomas Street as it will allow to the provision of segregated cycle facilities along a steep uphill gradient.

7.7.2 Objectives Achieved

Proposal 4 of the LTP for Castlebar has been developed to meet several objectives pertaining to safe and efficient travel using the pedestrian network, cycle network, public transport, and road network.

The objectives achieved, as per Section 6, are outlined in Appendix 8.

7.8 Proposal 5

Table 7-6 shows the schedule for Proposal 5 with the proposals shown in Figure 7-21.

Table 7-6 Proposal 5 Schedule

Infrastructure	Targets	Locations	Timeline	Reference to Appendices					
				NMU Audit	Options Development	Sifting	MCA	EPO	Objectives Achieved
Proposed Active Travel Bridge	1	Rowan Drive to Springfield Court	Medium Term	3	4.5	5.5	6.5	7.5	8.5
Proposed Permeability Link	11	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 Anthonys Special School	Medium Term	3	4.5	5.5	6.5	7.5	8.5
Existing Permeability Links to be Upgraded	8	4x Mill Lane Car Park 2x Dunnes Car Parl 1x Castle Street Car Park 1x Supervalu Car Park	Medium Term	3	4.5	5.5	6.5	7.5	8.5

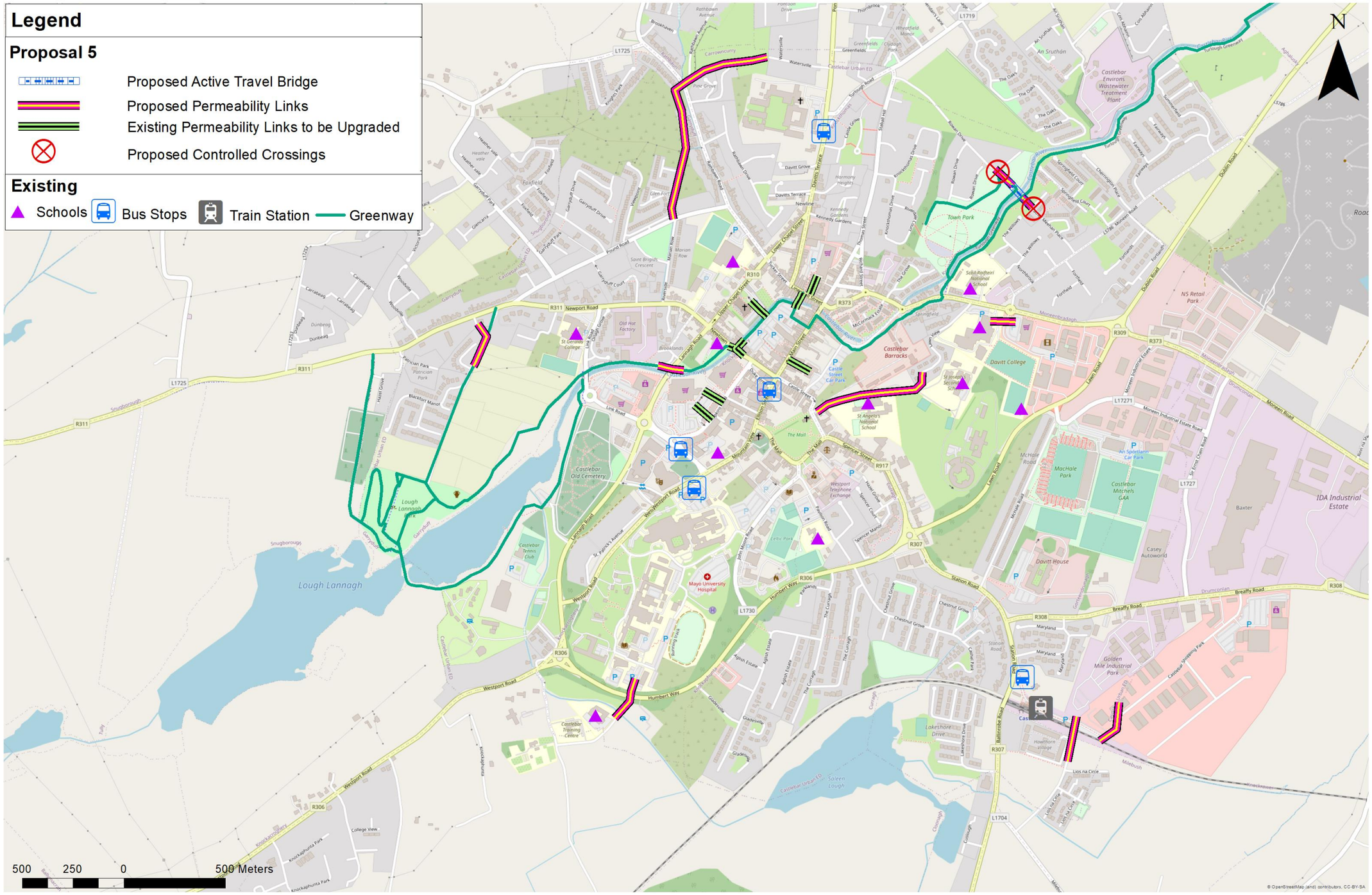


Figure 7-21:Proposal 5

7.8.1 Proposal Overview

Proposal 5 proposes numerous active travel and sustainable transport measure focused on increasing permeability within the town using active travel modes. Figure 7-21 shows the map of Proposal 5 highlighting all the proposals. These proposals can be implemented on a phased basis in parallel with Schemes 1-4.

Existing facilities for active travel in the north of Castlebar area includes a greenway along the east side of the Castlebar River. The Castlebar River is currently causing severance within this area of the town. The current route for pedestrians and cyclists from the west side of the river to the town centre is circuitous for residents as they have no direct access to the greenway facilities that connect to the Town Park. Currently, the distance to the town centre (Main Street/Rush Street/Linenhall Street/Lucan Street junction) is 1600m along trafficked roads with poor cycle facilities and steep gradients at Davitts Terrace. This is acting as a deterrent for active travel users from vulnerable population cohorts.

7.8.1.1 Active Travel Bridges

Proposal 5 proposes a new active travel bridge across the Castlebar River to be located to the northeast of the study area.

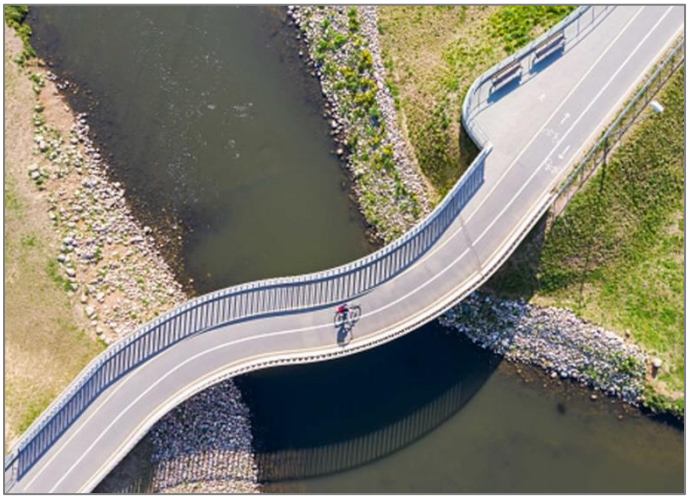


Figure 7-22: An example of a layout of an active travel bridge

7.8.1.2 Permeability Links

Several new permeability links are proposed which would increase the accessibility of the town via active travel modes. These links would provide improved permeability from around train station, car parks, residential areas, schools, and greenways. The scheme also includes upgradation of existing laneways from car parks. These links will be upgraded to highly visible paved pedestrian and cyclist links with safe crossings for pedestrians and cyclists. The adjacent figure shows the existing condition of the areas where permeability links are proposed. Figure 7-23 presents some examples of standard permeability links and laneways.

Currently, the distance to the town centre (Main Street/Rush Street/Linenhall Street/Lucan Street junction) is 1600m along trafficked roads with poor cycle facilities and steep gradients at Davitts Terrace. This is acting as a deterrent for active travel users from vulnerable population cohorts.

Improved linkages across the river to the north of the town would provide a more direct connection from the west side, a primarily residential area, to the industrial hub along Moneen Road to the east. The distance from the west side to the N5/Moneen Road roundabout will reduce from 2,200m to 720m and will be of benefit to any area northwest of Sacred Heart Hospital (Pontoon Road and Turlough Road). Overall, the introduction of a link would increase connectivity within the area and provide a level of filtered permeability that will encourage mode shift to active travel modes.

In line with the Mayo County Development Plan 2022-2028, there is a new road link proposed from Rathbawn Road (R310) and Pontoon Road (R311). The proposed l ink connects Pound Road to Rathbawn Avenue and acros to Watersville. The toatl distance of the new link is approximately 700m. This link should be desinged to maixmise filtered permeability and encourage an unptake in active modes from both the existing cathcment and the proposed development cathcemnt through which it passes.

Figure 7-23: Examples of enhanced permeability links

7.8.2 Objectives Achieved

Proposal 5 of the LTP for Castlebar has been developed to meet several objectives pertaining to safe and efficient travel using the pedestrian network, cycle network, public transport, and road network.

The objectives achieved, as per Section 6, are outlined in Appendix 8.

7.9 Proposal 6

Table 7-7 shows the schedule for Proposal 6 with the proposals shown in Figure 7-24.

Table 7-7 Proposal 6 Schedule

Infrastructure	Targets	Locations	Timeline	Reference to Appendices					
				NMU Audit	Options Development	Sifting	MCA	EPO	Objectives Achieved
Proposed/Upgraded Cycle Facilities (2-way length)	4.3	Rathbawn Road Pontoon Road L5786/Fortville Estate Sir Ernst Chain Road	Medium Term	3	4.6		5.6	6.6	7.6
Upgraded Pedestrian Facilities (2-way length)	4.3	Rathbawn Road Pontoon Road L5786/Fortville Estate Sir Ernst Chain Road	Medium Term	3	4.6		5.6	6.6	7.6
Proposed Shared Streets	5.5	Pound Road Rathbawn Road Upper Chapel Street Main Street Thomas Street Old Wesptort Road Spencer Street Pavillon Road Moneen Road Industrial Estate	Medium Term	3	4.6		5.6	6.6	7.6
Proposed Junction Upgrades	1	Turlough Road and Pontoon Road	Medium Term	3	4.6		5.6	6.6	7.6

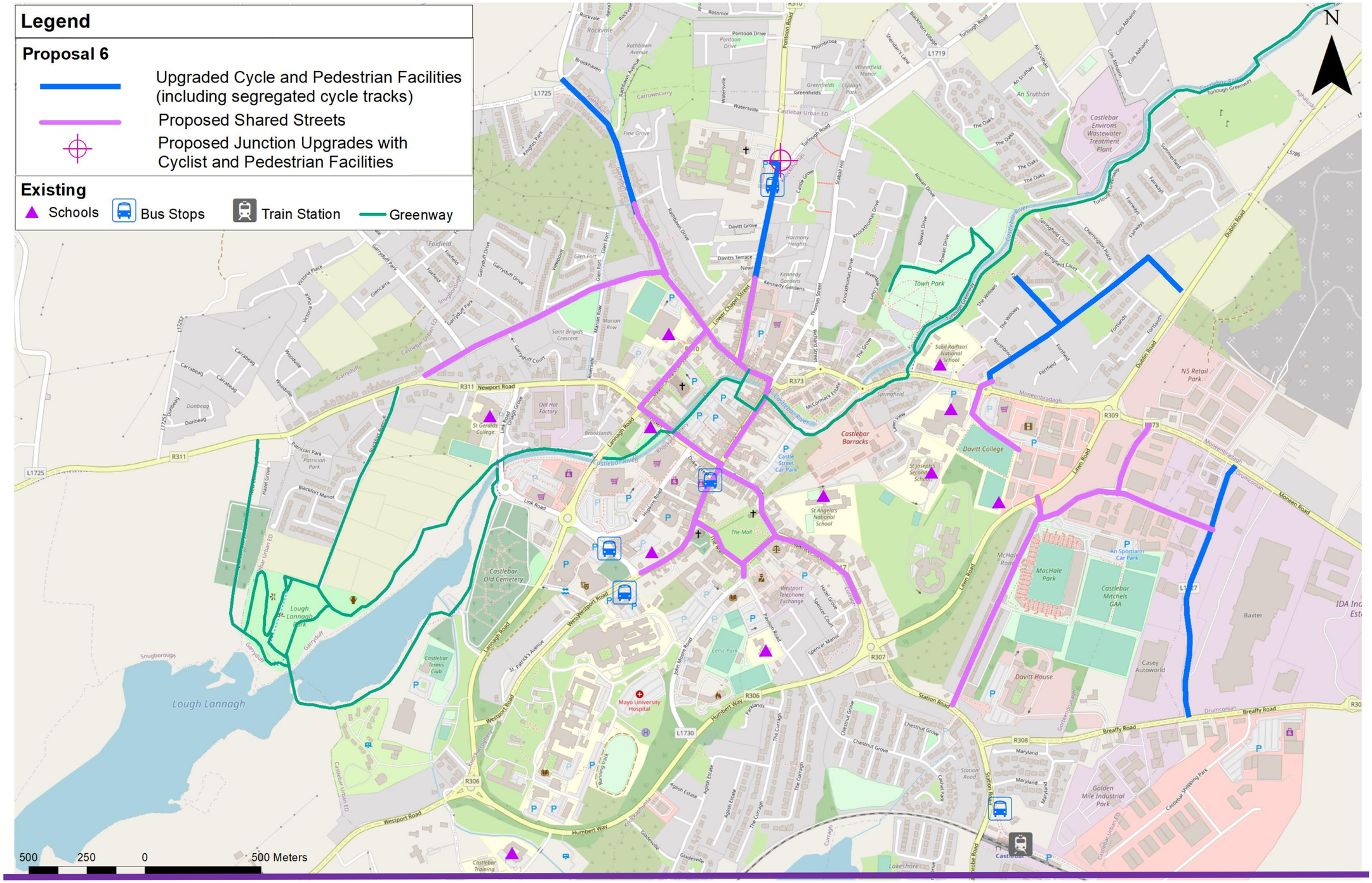


Figure 7-24: Proposal 6

7.9.1 Overview

Proposal 6 for the LTP comprises supporting proposals for Proposal 1 to 5 which would help in developing a more comprehensive and well-connected active travel network for the town of Castlebar. Figure 7-24 shows these proposals.

Existing active travel facilities along the routes shown in map 9-10 include footpaths that become discontinuous in certain stretches and on approach to junctions. A number of areas with existing footpaths have sub-standard pavements, making it unsafe for general use.

The proposal includes new segregated cycle tracks for two-way cyclist traffic. Footpaths will be upgraded to DMURS standards along these routes. New footpaths will be added where footpaths are missing along either side of the roads. In special cases where it is not possible to add a new footpath, safe crossings will be provided. The upgraded pedestrian facilities will be designed to meet standards for safe accessibility by the mobility impaired. A junction upgrade is also proposed under this scheme. The upgraded junction will have added cycle and pedestrian crossings to facilitate safe movement across all arms.

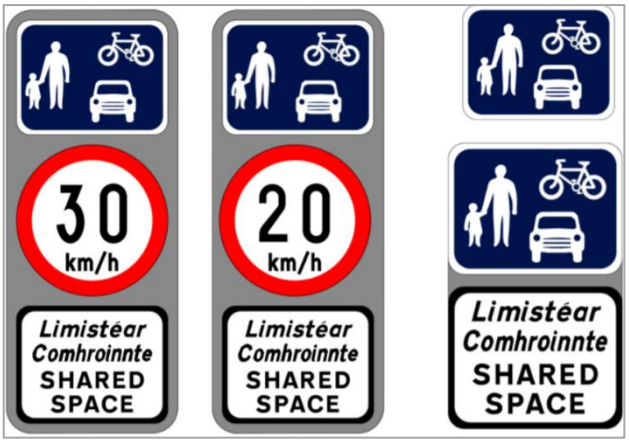


Figure 7-25: Signs for indicating shared streets

The proposals also focus on the provision of shared streets between cyclists and cars, with continuous and segregated wide footpaths up to DMURS standards on either side of the roads. The design of shared streets within the town centre shall be done by keeping in focus the quality of the public realm, and the priority of pedestrians, cyclists, public transport, and people with disability. Footpaths would be at least 1.8 m wide, and the road width would be made adequate with tighter corner radii at the junctions to regulate the speed of turning vehicles. Speed Limit would range between 20-30 kmph with proper signs indicating the start of shared streets. Two-way streets shall have provisions for two-way cyclists. One-way streets could be open for one-way cyclists, contra-flow cyclists, or two-way cyclists. In all the streets, priority shall be given to pedestrians. The width of the streets and traffic volume would determine the design speed on the road and the function of the streets. Speed calming measures such as proper signs, speed ramps/speed tables, raised crossings and curb extensions shall be implemented. The surface of shared streets shall be designed such that they are distinguishable, and the tactile pavements make the streets accessible to

visually impaired cohorts as well. Figure 7-26 presents some examples of shared streets.

Safe crossings for pedestrians and cyclists at junctions and near key destinations such as parking, schools, and commercial spaces shall be added. There shall be designated space for bicycle parking and several charging points for e-bikes shall be installed. The schemes are public realm schemes with the potential to contribute positively to the public realm of the area through improved landscaping, land use integration, and visual cohesion of the area.

Figure 7-26: Examples of shared streets

7.9.2 Public Realm

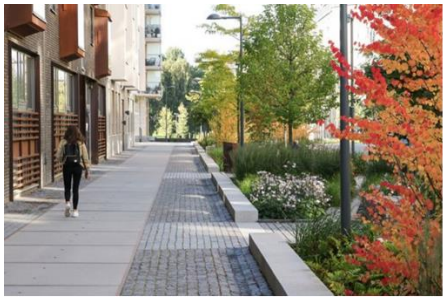
The schemes collectively cover the majority of the Castlebar Town Area. Although they are primarily sustainable transport schemes, they will also incorporate public realm design.

This will be achieved through the implementation of best practice guidelines as set out in the DMURS. The public realm will be designed to include:

- Simple street structures with active edges and high permeability that is easy to navigate to reduce travel distances;

- High quality street environments to attract pedestrians and cyclists;
- A balance between segregation and integration to have multi-functional streets to enhance connectivity;
- A transport network that maximises efficiency and improves accessibility;
- Facilitate a modal shift away from private car by increased access to retailing by public transport, cycling and walking;
- A sustainable transport network through walking, cycling and public transport use to reduce reliance on fossil fuels and transport related emissions.

Due to the enhanced connectivity, it is envisaged that the town centre will see high levels of pedestrians and cyclists from not only trips to the area itself but from trips that make use of the area as a transit route. Where there are shared spaces proposed in the town centre, priority will be designated to pedestrians/cyclists. This will improve public realm and provide a respite from vehicular traffic in the town. Figure 7-27 shows examples of public realm space designs which could be implemented in Castlebar.



Indicative Layout-
Market Street

Indicative Layout-Upper Chapel Street

Indicative Layout-Market Square

Indicative Layout-New Antrim Street

Indicative Layout-Tucker Street

Indicative Layout-Castle Street

Figure 7-27: Proposed (Indicative) layout for streets in Castlebar (Market Street, Upper Charles Street, Market Square, New Antrim Street, Tucker Street and Castle Street)

7.9.3 Objectives Achieved

Proposal 6 of the LTP for Castlebar have been developed to meet several objectives pertaining to safe and efficient travel using the pedestrian network, cycle network, public transport, and road network.

The objectives achieved, as per Section 6, are outlined in Appendix 8.

7.10 Supporting Measures

There are a number of supporting measures arising from local and government incentives available to MCC to contribute to the development of a sustainable transport network. Some of these measures are already underway, others due to commence within the coming months whilst others are yet to begin.

These complementary measures support the objectives of the LTP schemes proposed in Section 7 and will underpin the sustainable development of the transport network. These measures have the advantage of being quick to implement with little required infrastructure and readily available funding through the relevant government bodies. The principal of these policies is to incite behavioural change by providing the necessary groundwork to demonstrate the benefits of sustainable modes of travel.

The successful implementation of these measures will significantly contribute to a positive public opinion of the development of a sustainable transport network. This will be achieved through a visible and tangible impact such as reduced congestion in the town centre.

7.10.1 Proposed Schemes

There is a strong existing awareness of the local, regional and national policies and strategies within Castlebar. The challenge arises with choosing the most impactful strategies, resolving the disparities between strategies, economic viability and planning constraints.

The supporting strategies to be implemented must be chosen to encourage mode shift to reduce traffic congestion, reduce greenhouse gas emissions, improve the general health of the community, enhance active travel and Public Realm in conjunction with compact development.

Additional policies that are recommended to be implemented alongside the LTP delivery include:

- Rapid build schemes
    - Installation of controlled crossings along the N5;
    - Existing cycle lane protection with bollards along the N5 (Humbert Way) and Newport Road;
    - Pedestrianised streets such as Tucker Street; and
    - Opening of cul-de-sacs for pedestrian and cycle access.
- E-Cargo Bike Pilot Initiative;
- Lime Bike Sharing Scheme;
- Cycle without Age;
- Cycle parking provision throughout the town;
- Public Information campaigns;
- Smarter Travel Plans with existing employment and education centres to include promotion of ‘Bike to Work’ and ‘Mobility Management Plans’;
- GoCar Car Sharing;
- Development of a Castlebar Town Active Travel Delivery Strategy;
- Development of a Castlebar Town Parking Strategy;
- Sustainable development that promotes active travel in line with the Mayo County Development Plan 2022 – 2028.

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8 Public Transport

The proposed improvements to public transport can be divided into bus and rail improvements.

8.1 Rail

The rail network improvements focus primarily on service connections from the train station to the Town Centre for sustainable modes (Proposal 5) and on increased frequency of rail services (to be determined with Irish Rail).

8.2 Bus

The bus network improvements similarly incorporate increased frequency of the existing Local Link service (to be determined with the NTA) but also incorporate infrastructural changes to facilitate the delivery of 2 high frequency linear bus routes to service the town.

The routes have been designed to connect the main residential areas to the town centre, employment areas, schools, ATU Castlebar, Mayo University Hospital, Castlebar Train Station and the greenspaces. The proposed bus routes are shown in Figure 9-27 with the 300m catchment shown in Figure 8-2.

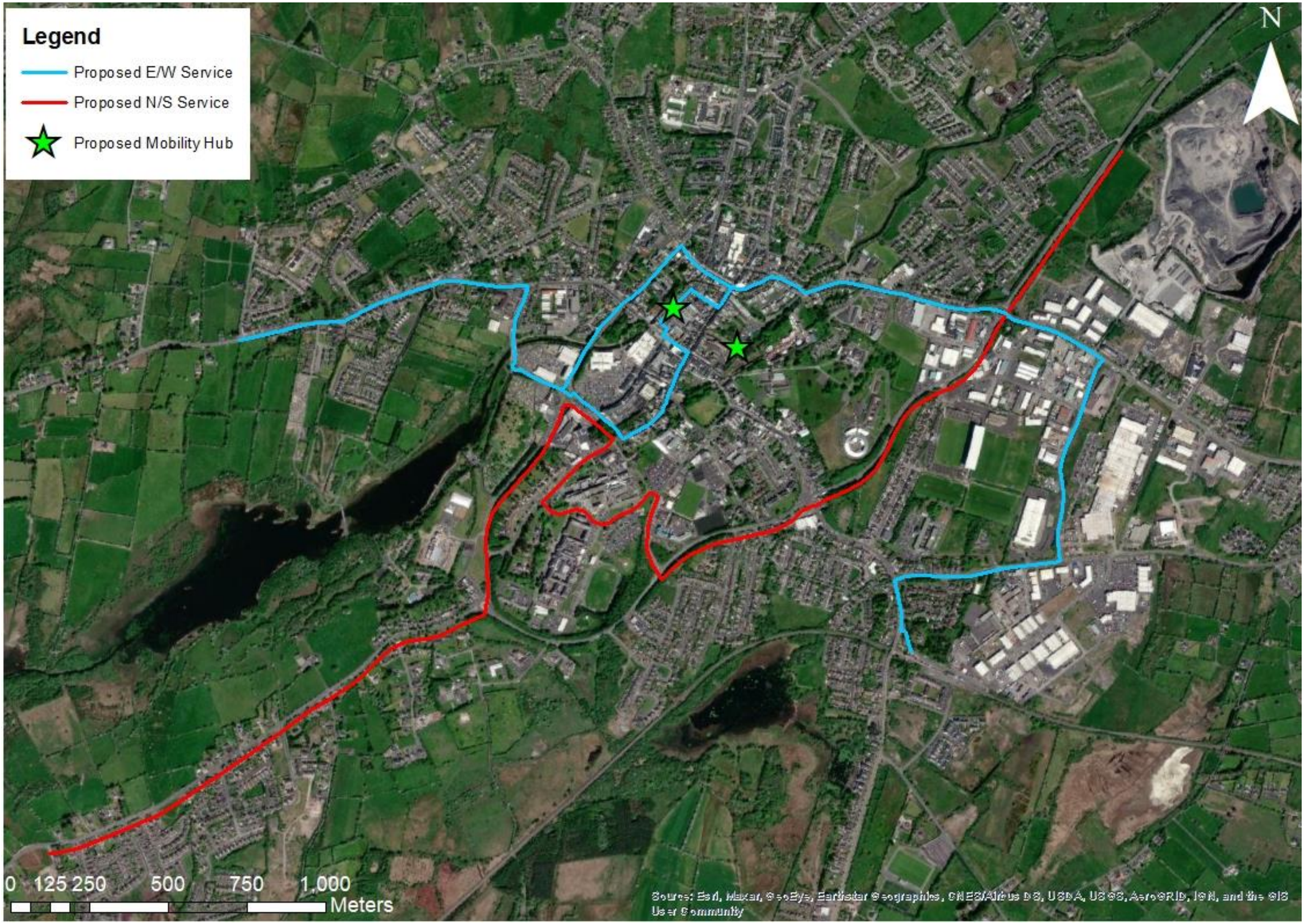

Figure 8-1: Proposed Bus

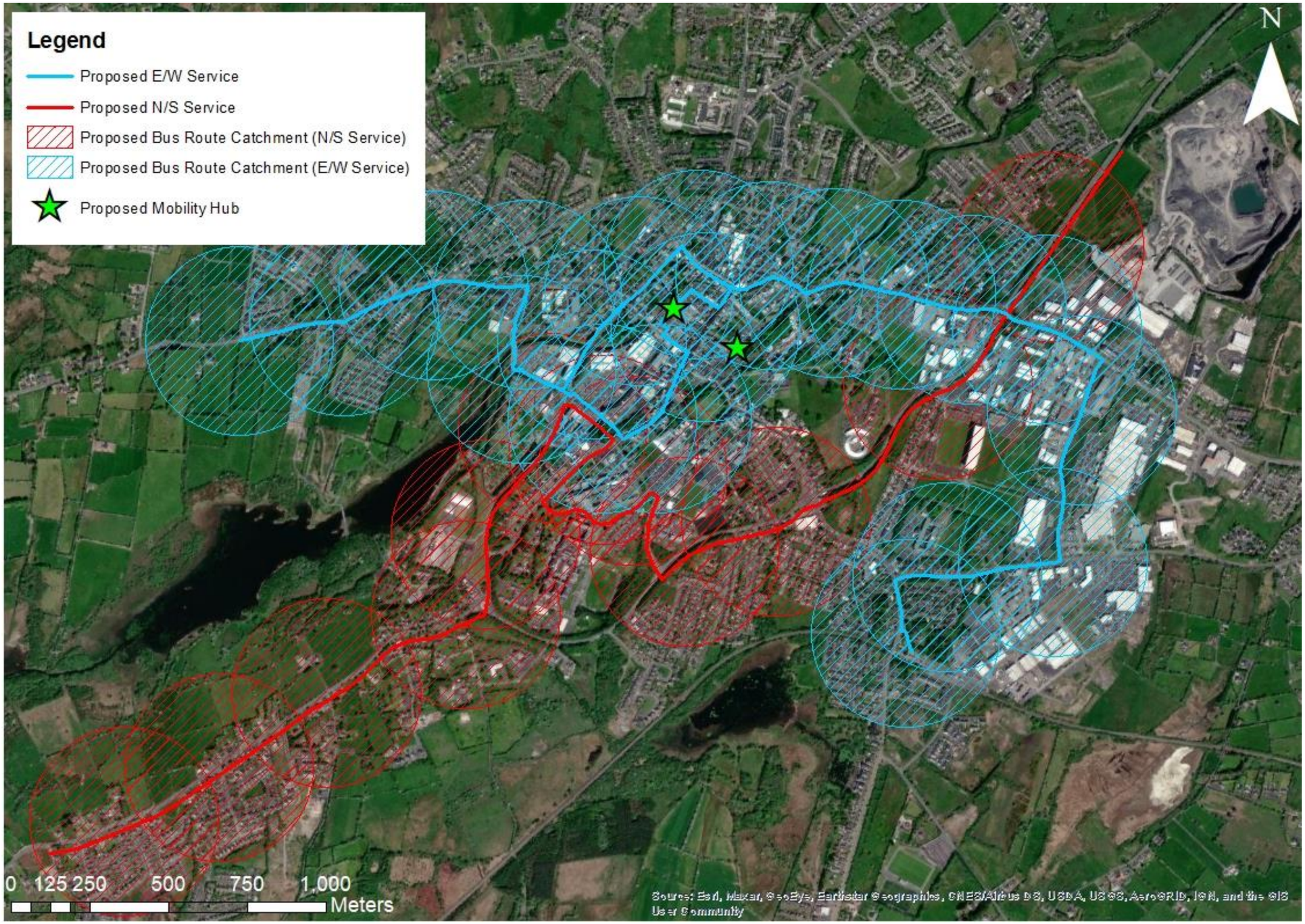

Figure 8-2 Proposed Bus Routes - 300m Catchment

The proposed N/S and E/W linear bus routes will also incorporate two bus interchange stops at Stephen Garvey Way and Old Westport Road (Mayo University Hospital) to facilitate inbound and outbound interchange. A proposed Mobility Hub in Mill Lane Car Park will also be encompassed as part of the proposed bus network

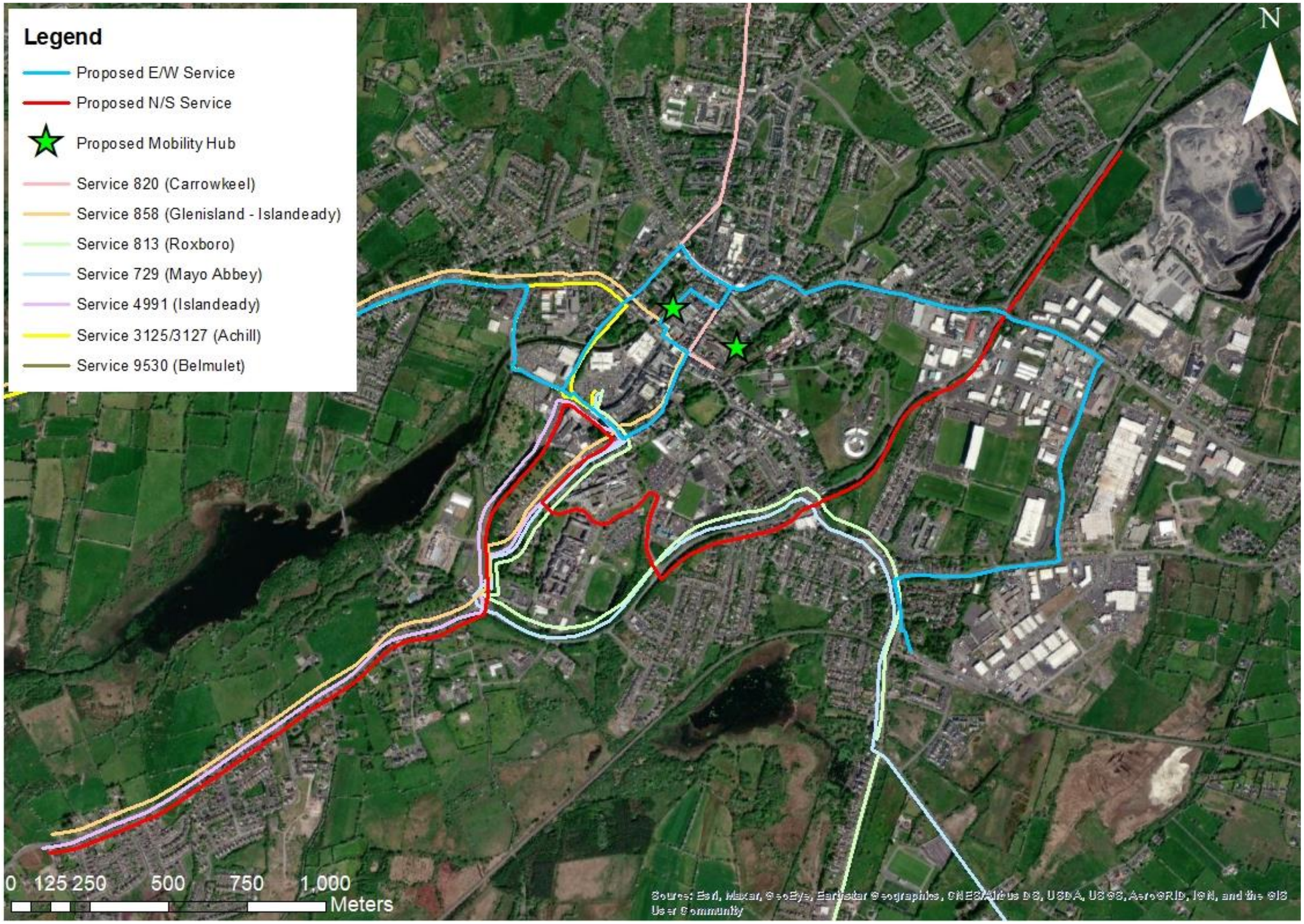

Figure 8-3 Proposed Bus Service

8.3 Proposal Overview

The 2 linear bus routes proposed run in a north/south direction and an east/west direction and covers a distance of 1.9km.

The routes are bi-directional and include 50 stops (i.e.; approximately 12 stops for each route in each direction). The general distribution of bus stops is indicative and is considered to be sensible as it offers good coverage for general access to bus services for residents.

The proposed frequency is 1 bus every 30minutes with timetables generated to facilitate interchange between the two routes in the Town Centre (to be determined with the NTA).

The proposed bus routes will expand local bus facilities to all members of the population. The infrastructure needed to deliver these routes include:

- Sheltered bus stops that are universally accessible;
- Development of a bus interchange stop (Stephen Garvey Way/Mayo University Hospital) to facilitate north/south- east/west trips (Figure 9-30 presents an indicative layout of the bus interchange);
- Cycle parking at the main trip attractor stops (town centre, train station etc);
- Public Information / Tourist boards; and
- Wayfinding information.

Figure 8-4: Indicative Layout of Bus Interchange

Provision of a local bus service within the town offers a new mode for residents to utilise. Therefore, the delivery of this scheme has the highest potential to encourage mode shift to sustainable modes. A campaign to promote a public transport through increased visibility and advertising will be needed to inspire uptake. This will encourage a net reduction in greenhouse gas emissions through modal shift by encouraging public transport as a meaningful mode of transport.

Funding for this project may potentially be available from the NTA through the Connecting Ireland Rural Mobility Plan but there remains a challenge to generate a fare structure that makes the service affordable to the user and economically viable for the operator.

Further analysis and consideration should be given to how Castlebar's hinterland could be served by demand-responsive or "community" travel initiatives, as these locations are essentially car-dependent at present and there would be clear benefits in seeking to open up sustainable travel options for those who have less or no access to car travel.

9 . Mode Shift Impact

The Castlebar LTP will support the CAP23 and contribute to reducing Ireland's transport related emissions. The promotion of active travel schemes will be crucial to encourage the mode shift needed to meet the target of a 51% reduction by 2030 as well as a 20% reduction in vehicle kilometres travelled.

The potential impact of the measures proposed in the various Schemes has been assessed by considering the existing car trips local to the area of influence of the individual schemes that could be attracted to active modes as a result of the provision of the infrastructure.

The catchment area per Proposal is defined as Local Area Model zones within 200m of the proposed scheme. The travel demand has been extracted from the NTA WRM for a 2016 calibrated base year. The daily demand includes trips of all purposes.

The percentage of existing car trips that will be attracted to move to active modes is difficult to accurately predict because there are many variables in addition to new active travel infrastructure that influence behavioural change, including incentive schemes, safe routes to school programmes, fuel price, willingness to change for climate action reasons etc. For this reason, the potential impact has been calculated assuming that 20% and 30% of car trips with origins and destinations local to the infrastructure route can be encouraged to change to active modes. Table 9-1 shows the mode shift impact per proposal.

Table 9-1 Mode Shift Impact per Proposal

Proposal	Trips in Catchment (2016 Base Year)		Private Car Trips Remaining with		Increase in Sustainable Mode Trips with	
	All Modes	Private Car	30% Mode Shift to Sustainable Modes	20% Mode Shift to Sustainable Modes	30% Mode Shift to Sustainable Modes	20% Mode Shift to Sustainable Modes
1	5124	3331	2331	2664	999	666
2	2896	1696	1188	1357	509	339
3	2046	1084	759	868	325	217
4	1603	946	662	757	284	189
5	62	52	36	42	16	10
6	9653	5423	3796	4339	1627	1085
Total	**21384**	**12533**	**8773**	**10026**	**3760**	**2507**

Of the trips that were reassigned from private car to sustainable modes, it was assumed that 60% of these trips would become walking trips and 40% would become cycling trips. The larger percentage increase in cycle trips over and above the current is due to the fact that the proposals provide a greater increase in the level of service offered to cyclists and hence a greater uptake is expected. Table 9-2 and Table 9-3 show the mode shift increase and the potential carbon reduction.

Table 9-2 Mode Shift Impact per Mode (Carbon Emissions are calculated as per Project Appraisal Guidelines for National Roads Unit 5.3 - Travel Demand Projections)

	30% Mode Shift to Sustainable Modes	20% Mode Shift to Sustainable Modes
Increase in Cycle Mode Share	1504	1003
Increase in Walking Mode Share	2256	1504
Decrease in Private Car Mode Share	3760	2507
Carbon Reduction	**621 t per annum**	**330 t per annum**

Table 9-3 Potential Mode Share

	Mode Share		
	2016 Census	30% shift from car for local trips influenced by schemes	20% shift from car for local trips influenced by schemes
Private Car	66%	44%	50%
Cycle	3%	10%	8%
Walk	29%	40%	36%
Public Transport	3%	6%	6%

10 . Monitoring and Review

As part of the implementation of the LTP, a comprehensive monitoring and evaluation framework should be established.

The review process shall be iterative and be carried out upon the completion of each scheme or deployment of each strategy. Method can include, but not limited to:

- NTA Household Travel Surveys;
- Census Data;
- Surveys;
- Quality/Accessibility Audits;
- Automatic Counters; and
- Consultation with schools and businesses to encourage the reporting of progress with their Mobility Management plans.

The performance of the LTP will be measured in relation to the progress made towards the LTP objectives, evidence of increased use of sustainable modes of transport, evidence of reduced reliance on private car travel and scheme appraisals.

The review findings shall be used to adapt the LTP implementation and refocus investment where necessary to ensure the mode split targets are met.

The LTP should be noted as being subject to change from these review findings and any notable changes in national or regional policy.

Therefore, the LTP can be considered as the output of an iterative process to ensure the delivery of a sustainable transport network that best suits the needs of the ever-changing community it is designed to serve. As such, it should be under consistent review and updated according, with a proposed 2-year review period for short term proposals, 3-5 year review for medium term proposals and 10 year review for long term proposals.

The monitoring results should facilitate adjustments to the plan delivery as appropriate. Whether the plan is yielding value for money should also be assessed, bearing in mind the difficulty of achieving significant growth in active travel numbers at an early stage of network development.

Given the urgent need for change and the political challenges often facing implementation, the use of trials and temporary interventions can be effective, quick, and provide crucial early data on what works and what needs to be adapted in a given context.