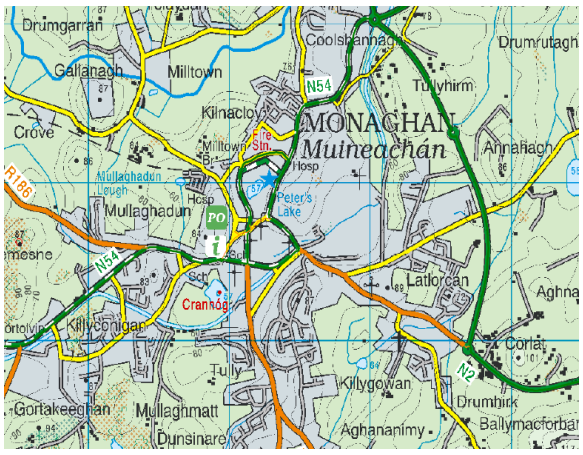
Monaghan
Land Use and Transportation Study



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1 INTRODUCTION

The Monaghan Land Use and Transportation Study (MLUTS) is a study that examines the transport and land use proposals for the town from now up to 2035.

The overall purpose of the study is to identify detailed transportation and land use proposals for the future sustainable growth of Monaghan, in all contexts of transportation including road network, public transport, car parking, walking and cycling. The study provides recommendations to inform the draft Monaghan County Development Plan 2019-2025.

1.1 BACKGROUND TO STUDY

Monaghan town is the administrative centre of County Monaghan and an important employment, services and shopping centre for the region. Results of the 2016 census show that Monaghan town has a population of 7,678 representing approximately 12% of the overall population of the County.

The Monaghan County Development Plan 2013-2019 identifies Monaghan Town as a Tier 1 settlement. This level in the hierarchy of settlements means that Monaghan Town will be a particular focus for new development in the form of housing, employment, services, retail and leisure development.

The town is strategically located at the intersection of three national routes. The N2 National Primary road from Dublin to Derry, the N12 National Primary road to Armagh/Craigavon/Belfast and theN54 National Secondary road to Cavan. These national roads are linked by an extensive network of regional roads (R186, R189, R188, R162 and R937) to Tyrone border, Cootehill, Cavan and Navan. The R867 in the centre of Monaghan town connects Market Square with the Diamond.

There are a limited number of route options available for traffic travelling to or through Monaghan town. Traffic capacity is limited, particularly within the town where a number of roads converge at significant junctions. These routes through the town are busy and carry a high number of heavy goods vehicles. There are large areas of undeveloped lands along the arterial routes where access to and unlocking of these lands has become a significant planning issue. The MLUTS study area is shown below in Figure 1.1.

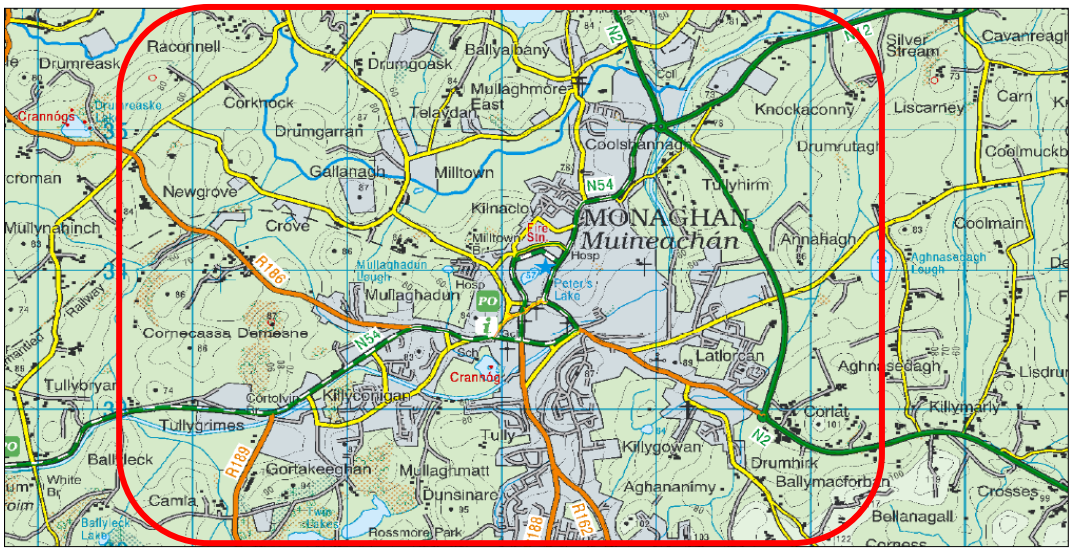


Figure 1.1 Monaghan LUTS Study Area

1.1.1 PLANNING AND POLICY DOCUMENTS

The MLUTS was developed in line with the objectives and zonings set out in the Monaghan County Development Plan 2013-2019 with the specific purpose of informing the Draft Monaghan County Development Plan 2019-2025. The current development plan was reviewed along with various national and regional and local policy documents which are listed in the references section of this LUTS document. The planning documents listed below were reviewed with regard to references to Monaghan Town and Transport Infrastructure and this is summarised in this chapter.

- Monaghan County Development Plan 2013-2019
- Project Ireland 2040 which includes the National Planning Framework and the National Development Plan 2018-2027
- Smarter Travel Policy- A Sustainable Transport Future, Feb 2009
- Regional Planning Guidelines for the Border Region 2010-2022
- Spatial Planning and National Roads, Guidelines for Planning Authorities, Jan 2012

1.1.2 MONAGHAN COUNTY DEVELOPMENT PLAN

The Monaghan County Development Plan 2013–2019 (incorporating the Development Plans for the towns of Monaghan, Carrickmacross, Castleblayney, Clones and Ballybay) sets out an overall strategy for the proper planning and sustainable development of County Monaghan.

A number of the Chapters in the plan are significant for the MLUTS. The relevant objectives from Chapter 6 -Infrastructure and Services, Chapter 7-Development of Community Infrastructure, Chapter 8-Strategic Objectives for Settlements and Chapter 9 -Monaghan Town Development Plan 2013-2019 are outlined below:

Chapter 6- Infrastructure and Services

The relevant **Objectives for Transportation** extracted from the County Development Plan are:

- [1]*Ensure that all plans and projects relating to the development of transportation are subject to the policies AAP1-AAP5*[2]*contained within Chapter 4, Environment and Heritage, of the Monaghan County Development Plan 2013-2019.*
- *Promote the integration of land use and transport, by encouraging and consolidating development in the existing network of towns and villages.*
- *Promote development that reduces dependence on private vehicle transport in accordance with the principles set out in the Department of Transport's Smarter Travel.*
- *Promote high quality, flexible and responsive local transport services in urban and rural communities.*
- *Promote and facilitate the use of cycling and walking as alternative sustainable modes of transport in accordance with the provisions of the National Cycle Policy Framework 2009-2020.*
- *Prepare a Land Use Transportation Plan for the County.*
- *Where resources permit, develop a transportation implementation plan during the lifetime of the Development Plan, which highlights priority schemes for development and improvement, and facilitates an integrated and planned approach to the improvement and development of new transportation infrastructure.*

The relevant **Objectives for Public Transportation** extracted from the County Development Plan are:

- *Promote the creation of new transport routes by public and private operators throughout the county*

[1]All texts in italics is taken directly from the Monaghan County Development Plan 2013- 2019
[2] Appropriate Assessment Objectives

The relevant Objectives for **Roads Network** extracted from the County Development Plan are:

- *Provide for the safe and efficient movement of vehicles and pedestrians within the county.*
- *Protect emerging or preferred routes in relation to future road schemes and land requirements for future road upgrades.*
- *Improve junction standards where necessary and appropriate.*
- *Provide for cycle lanes and footpaths along the roads network where appropriate*

The relevant Objectives for **National Roads** extracted from the County Development Plan are:

- *Facilitate the improvement and development of the strategic routes through County Monaghan as indicated in the Border Regional Authority Planning Guidelines 2010-2022.*
- *Prohibit the intensification of use or creation of any new access onto the national road network outside where a reduced speed limit applies, particularly onto any portion of realigned national road where the original national road has been reclassified or downgraded, and to strictly limit the number of accesses or the intensification of use of existing accesses onto national roads where speed limits of 60kph or less apply*

The relevant Objectives for **Urban & Development Roads** extracted from the County Development Plan are:

- *Relieve traffic congestion and facilitate the development of new roads, in partnership with benefiting landowners and developers, to improve traffic management and access in and around urban centres.*
- *Maintain and develop the road networks in and adjacent to urban areas in accordance with the proposals indicated on the zoning maps attached to the development plans for the five towns, and as required during the life of this Plan.*
- *Develop, in partnership with benefiting landowners and developers, new, safe access points to serviceable lands.*
- *Identify and develop safe cycle lanes within the towns of Monaghan, Carrickmacross, Castleblayney, Clones and Ballybay where possible during the lifetime of the Plan.*

Chapter 7- Development of Community Infrastructure

The relevant Objectives for **Cycling and Walking** extracted from the County Development Plan are:

- *Support, promote and facilitate walking and cycling as alternative modes of transport in appropriate locations throughout the county.*
- *Support, promote and encourage the development and maintenance of looped walks, and long and medium distance walking and cycling routes (including long and medium distance trails) throughout the county in line with the Government's Smarter Travel Policy, particularly those which have cultural or historic association, which provide linkages with trails to existing established national, and local and cross border walking/cycling routes.*
- *Identify safe and convenient walking and cycle routes in urban areas and between the main towns and villages in the county, and provide signage and ancillary facilities at appropriate locations to promote their use, during the lifetime of the plan.*

Chapter 8-Strategic Objectives for Settlements

The relevant Strategic Objectives for the **Hub Town of Monaghan** extracted from the County Development Plan are:

- *Develop the town and its immediate environs as a hub in accordance with the policies of the National Spatial Strategy and the Regional Planning Guidelines, with the aim of achieving a population of 9,000 by 2020, by co-operating with the region's gateway and adjoining development centres, and by servicing the county.*

- *Develop the town's infrastructure, economic, employment and cultural base to support the anticipated population growth identified in the National Spatial Strategy and the Regional Planning Guidelines.*
- *Protect and enhance the unique heritage, character and streetscape of the town.*

The relevant Objectives for **Roads & Parking** extracted from the County Development Plan are:

- *Reduce traffic congestion and improve access and traffic flow throughout the towns.*
- *Construct and maintain pedestrian and traffic safety measures, and implement traffic control measures, where required, throughout the towns.*
- *Regulate and manage car-parking facilities throughout the towns in accordance with Chapter 15, Development Management Guidelines, Monaghan County Development Plan 2013–2019, and ensure that adequate off street car parking and servicing space is provided in all new developments.*

Chapter 9 - Monaghan Town Development Plan 2013-2019

The following extracts from Chapter 9 gives a description of **Monaghan Town** centre, its industries and infrastructure.

> *The Monaghan Town Development Plan 2013-2019 sets out the Council's vision for the development of Monaghan Town and contains objectives which it seeks to implement over the period of the plan. These objectives relate to a range of topics including road and traffic, provision of services, preservation and conservation of buildings and protection of sites of scientific, historic or cultural importance. The plan also addresses current and future proposals for the development of Monaghan Town through the provision of zoning of appropriate areas of land for residential, commercial, industrial, open space and recreational areas, etc.*
>
> *The town's large rural hinterland and role as county town will continue to strengthen its function as a business and administrative centre. Whilst North County Monaghan is noted for its extensive village and dispersed settlement structure, increasing urbanisation and population growth will expand residential and commercial development in the town, and will contribute towards the creation of the concept of critical mass which attracts inward investment in employment and enterprise activities.*
>
> *Monaghan Town today retains the Diamond and an open space at Church Square. Whilst the main arteries through town remain busy, the completion of the town by-pass has diverted north/south bound traffic from the town centre.*
>
> *Monaghan Town has a large number of traditional industries which have provided on-going employment, notably in the engineering, furniture and agri-food industries. Employers in the town include Kingspan Century Homes and IJM Timber Engineering Ltd., both manufacturers of pre-fabricated timber homes and the furniture manufacturers, Rossmore Furniture by McNally and Finlay, Monaghan Mushrooms and Combi Lift Ltd. These industries provide employment for a substantial proportion of the working population of Monaghan Town. The Industrial Development Authority (IDA) has a serviced estate at Knockaconny, including small cluster units, which are occupied by a mix of tenants. Monaghan County Enterprise Board constructed two new Information Technology Buildings at Knockaconny in 2007.*
>
> *The construction of a large scale residential and retail development to the rear of Glaslough Street has intensified economic activity in the town centre and has helped stimulate further development. However, Monaghan Town struggles to accumulate a critical mass and urban*

population that will ensure that existing services are retained in the town and new industries, retail and services will be attracted to the town.

The opening of the Monaghan Town (N2) by-pass removed most north-south bound through traffic from the town centre, particularly Glaslough Street, the Diamond, Church Square and Dawson Street. While east-west (N54) traffic will continue to pass through the town, the reduced traffic flows have improved the town centre environment and pedestrian safety and has created a positive impact on commercial activity. A key objective of this plan is to relieve traffic congestion and divert through traffic, particularly commercial traffic and heavy goods vehicles, from residential areas and the town centre by providing alternative routes around the town.

The construction of the N2 Clontibret-Castleblayney Bypass and the N2 Monaghan Bypass completed the upgrading of the Derry-Dublin National Route from north of Monaghan Town to the capital. The improved access has enhanced the attractiveness of Monaghan as a place in which to live, work and invest.

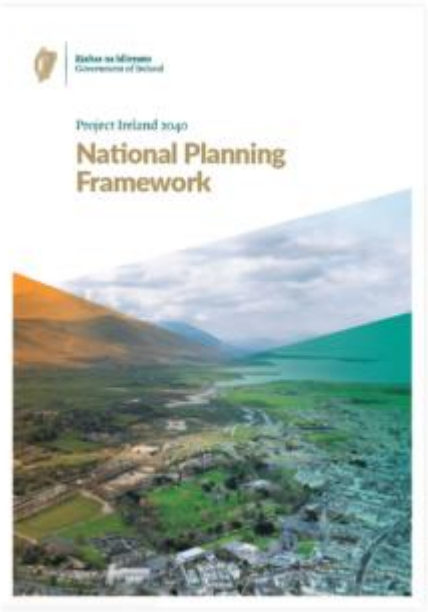
The provision of sufficient zoned industry, enterprise and employment lands will provide certainty and clarity for all potential developers and encourage the location of new industries in the town. New roads proposals and improved roads network will ensure that Monaghan Town is accessible and attractive to new businesses as journey times to Dublin, Drogheda, Dundalk and cities like Armagh in Northern Ireland are shortened.

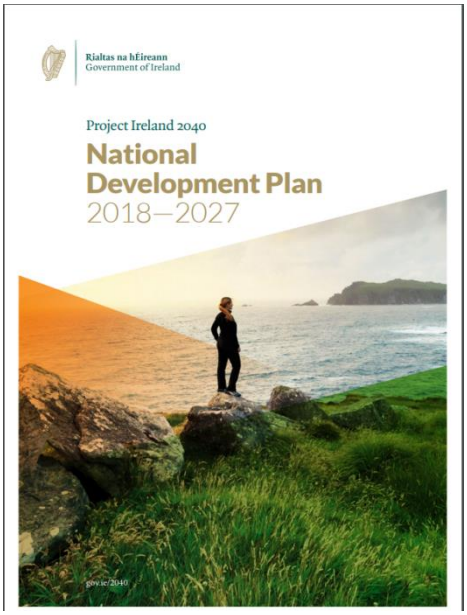
1.1.3 PROJECT IRELAND 2040

On 16th February, 2018 the Government launched Project Ireland 2040. This is a €116 billion plan which aims to build the Ireland of tomorrow, and prepare for a future society which will have an extra one million people and 660,000 more people at work. It aims to provide balanced regional development, in order to reduce Dublin's growing economic domination, and to improve the State's infrastructure. It takes a different approach to future planning by focusing on social, economic and cultural development and it links planning and investment. It consists of two plans. The National Planning Framework (NPF) and the National Development Plan (NDP).

The National Planning Framework (NPF) 2040

The National Planning Framework (NPF) is the Government's high-level strategic plan for shaping the future growth and development of the country to the year 2040. It is a framework to guide public and private investment, to create and promote opportunities for our people, and to protect and enhance the environment. The NPF aims to achieve balanced regional development and prioritises growth in the major cities of Dublin, Cork, Galway, Limerick and Waterford.





The National Development Plan (NDP)2018-2027

The second strand is the National Development Plan (NDP). This is a 10-year, €116 billion programme to upgrade State infrastructure in anticipation of the population increase.
There will be four development funds worth €4 billion over the 10-year period of the NDP*:*

- A Rural Regeneration and Development Fund of €1 billion to promote rural renewal.
- An Urban Regeneration and Development Fund worth €2 billion will support the development of the NPF in Dublin, Cork, Galway, Limerick and Waterford.
- A Disruptive Technologies Innovation Fund (€500 million) and
- A Climate Action Fund (€500 million)

The plan outlines the provision of investment in Housing, Education, Cultural, Climate Change, Health and Public Transport and Roads projects.The significant projects listed for Monaghan include:

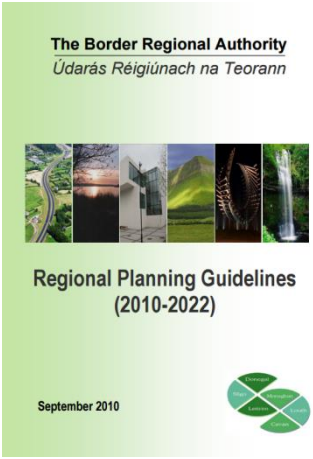
- The upgrade of the N2 from Ardee to Castleblayney
- The development of the N2 Clontibret to the Border road.[3]
- Redevelopment of the campus at St Davnet'sHospital[4]in Monaghan
- The restoration of the Ulster Canal in Co. Monaghan[5].

[3]N2 Clontibret to the Border Scheme is described in more detail in Chapter 7 (section 7.1)
4 St. Davnet'sHospital is described in more detail in Chapter 3 (section 3.2.9).
[5]The Ulster Canal is described in Chapter 4 (section 4.1)

1.1.4 REGIONAL PLANNING GUIDELINES 2010-2022, THE BORDER REGIONAL AUTHORITY

The Regional Planning Guidelines (RPG) were published by the Border Regional Authority in September 2010.The guidelines is a long term strategic planning document which aims to direct the future growth of the Border Region, and seeks to implement the planning framework set out in the National Spatial Strategy (NSS) published in 2002.The Border Regional Authority includes the geographical area of Counties Cavan, Donegal, Leitrim, Louth, Monaghan and Sligo. The Planning and Development Act, 2000 (as amended) requires Regional Authorities to provide a long-term strategic planning framework for the sustainable development of the Region for a 12 year period up to 2022.

The Regional Authority comprises three sub-regions. Monaghan Town sits in Sub Region 3 called Border East: This includes Cavan, Monaghan, Louth and the Northern Ireland hinterland.



The population growth and targets for towns in the region were outlined in the RPG. The RPG population growth and targets for Monaghan Town are set out in table 1.1 below.

	Census Population			Population Targets		
Monaghan Settlement	1996	2002	2006	2010	2016	2022
	5,628	5,717	6,221	7,600	8,400	9,300

Table 1.1 RPG Population growth and targets for Monaghan

Chapter 5 of the RPG sets out the key physical infrastructure needs of the Border Region which are required to ensure the successful delivery and implementation of the Settlement and Economic Strategies. The infrastructure identified is required to ensure that the RPGs provide a deliverable framework for the full integration of land use and national investment in infrastructure.

The North western Radial Route (N2, A5) Links Dublin with Letterkenny/Derry via Ardee, Monaghan, Omagh and Strabane. It is the primary access route to the Northwest of the Region and forms a significant part of the Northern Cross. This route is also included as a Key Transport Corridor in the RDSNI (Roads Division Services Northern Ireland). This route has seen significant investment in recent years. The priorities for this route are:-

- N2 Monaghan to the border with Northern Ireland;
- The N14 from Letterkenny to the border with Northern Ireland;
- The A5 in Northern Ireland

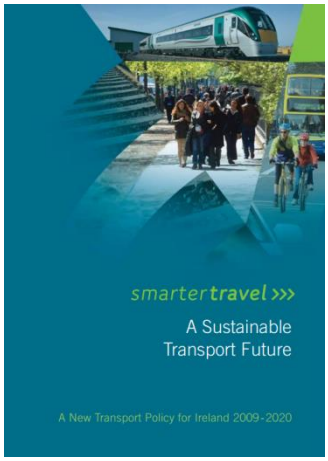
The A5 provides essential access to the Letterkenny/Derry Gateway. A decision to proceed with the upgrading of this route to a dual carriageway was made in 2017, however a legal challenge to this decision is ongoing. The Irish Government remains committed to its financial contribution to the development of the A5 corridor in Northern Ireland

An implementation and monitoring plan has been incorporated into the Regional Planning Guidelines, and is detailed in Chapter 9 of the RPG. The table 1.2 below lists the targets and indicators that will be used to monitor the RPG Transport – Infrastructure Strategy.

Infrastructure Strategy	*Objective*	*Target*	*Indicator*
Transport	*Enhance the capacity for the movement of people, goods, energy, services & information within, and outside the region.*	*Increase modal shift from private car to public transport*	*Number of persons using private and public transport*
		Develop 'smarter-travel' aims and objectives	*New developments in public transport services*
		Develop land-use and transportation planning	*Number of ILUTS carried out for settlements*
		Develop strategic radial corridors and strategic links	*Investment and improvements on key transport corridors*
		Reduce travel times	*Travel time between settlements*

Table 1.2 Border Regional Planning Guidelines: Transport – Infrastructure Strategy -Targets and indicators

1.1.5 SMARTER TRAVEL



Smarter Travel, A Sustainable Transport Future, is the transport policy for Ireland introduced in 2009. The policy recognises the vital importance of continued investment in transport to ensure an efficient economy and continued social development. It also sets out the necessary steps to ensure that people choose more sustainable transport modes such as walking, cycling and public transport. The policy is a response to the fact that continued growth in demand for road transport is not sustainable from a number of angles; it will lead to further congestion, further local air pollution, contribute to global warming, and result in negative impacts to health through promoting increasingly sedentary lifestyles.

The five key goals which form the basis of the policy are;

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

Smarter Travel policies for Monaghan Town are implemented through the 'Go Monaghan' Project. The 'Go Monaghan' website has information about the various activities and programmes in Monaghan County which promote the idea of sustainable travel. Further information on 'Go Monaghan' is outlined in section 4.2.2. of this document.

The 'Smarter Travel' document aims to increase the popularity of cycling in Ireland. The government wants to create a strong cycling culture and ensure that all cities, towns, villages, and rural areas will be cycle friendly. It wants cycling to be a normal way to get about, especially for short trips. After walking, cycling could be the most popular way to get to school and universities. Cycling could become a transport mode of choice for all ages. The document envisages that by 2020 160,000 people will cycle for their daily commute up from 35,000 in 2006. In order to achieve these aims the National Cycle Policy Framework intends to:

- Create a number of traffic free urban centres to facilitate cycling;
- Invest in a national cycle network with urban networks given priority;
- Give cycle Training for school children; and
- Integrate cycling with other modes of transport.

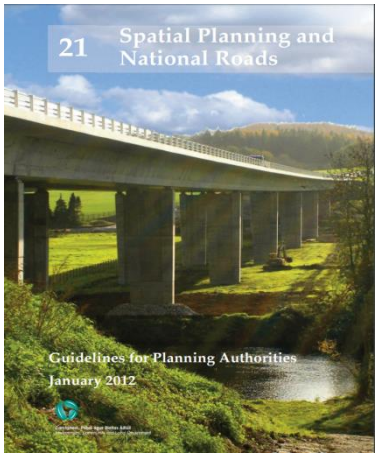
The document also shows the Government's commitment to the creation of a culture of walking in Ireland. The government aims to strengthen urban walking networks by increasing opportunities for walking and removing constraints as part of planning more attractive public realms including:

- Providing safe pedestrian routes
- Providing routes which serve employment and educational trips and that link with public transport
- Prioritising traffic signals to favour pedestrians instead of vehicles
- Creating level grade crossings for pedestrians at junctions
- Unless it is inappropriate ensuring 30km/h speed limits are introduced in all urban areas
- Widening footpaths where there is high pedestrian flow
- Signposting pedestrian routes
- Enforcing the law with regard to encroachment on pedestrian spaces

It is evident from this that any transport plans and traffic management arrangements developed for Monaghan Town must pay particular attention to cycle and pedestrian traffic and not just concentrate on vehicular traffic.

1.1.6 SPATIAL PLANNING AND NATIONAL ROADS, GUIDELINES FOR PLANNING AUTHORITIES

The 'Spatial Planning and National Road' guidelines set out planning policy considerations relating to development affecting national primary and secondary roads, including motorways and associated junctions, outside the 50-60 kph speed limit zones for cities, towns and villages. The Guidelines are aimed at ensuring that local authorities, in their planning and transport roles work proactively with Transport Infrastructure Ireland ensuring that transport and land use planning considerations are taken into account at the early stages of both development plan and development management processes. This is to ensure that future development in the vicinity of national roads is guided to the most suitable location and that development on the national roads network is planned for and managed in a complementary and integrated manner.



The guidelines encourage a collaborative approach between planning authorities and Transport Infrastructure Ireland with the aim of ensuring that the national roads network is planned for and managed in an integrated manner enabling economic development while encouraging a shift towards more sustainable forms of travel and transport.

The guidelines have been developed by following a number of key principles and aims to facilitate a well-informed, integrated and consistent approach that affords maximum support for the goal of

achieving and maintaining a safe and efficient network of national roads in the broader context of sustainable development strategies, thereby facilitating continued economic growth and development throughout the country.

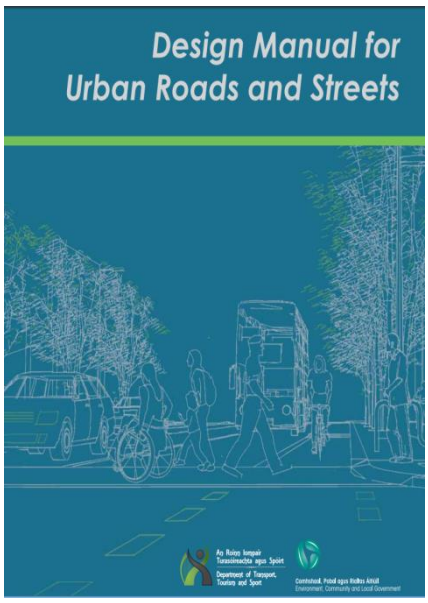
The key principles of the guidelines are:

- Integrated development and implementation of planning and land-use policies to minimise the need for travel, and where such need for travel arises, encouragement of the usage of public transport, walking and cycling, while maintaining the efficiency and intended strategic transport function of national roads.
- The restriction of the proliferation of roadside developments accessing national roads to which speed limits greater than 50-60 kph apply leading to the creation of new accesses to and intensification of existing accesses to national roads and giving rise to the generation of additional turning movements that introduce additional safety risks to road users.
- Plan-led development with consideration given to the trip generation aspects of any land use zoning objectives and how it is to be catered for in preparing development and local area plans, promoting the use of sustainable modes, and protecting the strategic function of the national roads network.
- Future development guided by development plans and local area plans prepared with high standards in relation to traffic management and design quality.
- Planning authorities, the National Roads Authority and other statutory bodies with responsibility for transport services and road infrastructure provision working closely together to ensure that future development is guided to suitable locations.

The Monaghan Town LUTS Study area comprises of 14.3km of National Primary (N2) and National secondary roads (N54 and N12) and 4.7km of these are in speed limit zones outside 50-60kph.It is important that the LUTS gives these sections of roads particular consideration in the context of developing lands and access to these lands.

1.1.7 DESIGN MANUAL FOR URBAN ROADS AND STREETS

The Department of Transport, Tourism and Sport, together with the Department of the Environment, Community and Local Government sponsored the preparation of a **Design Manual for Urban Roads and Streets**. The Manual seeks to address street design within urban areas (i.e. cities, towns and villages). It sets out an integrated design approach. The design must be influenced by the type of place in which the street is located and balance the needs of all users. A further aim of the Manual is to put well designed streets at the heart of sustainable communities. Well designed streets can create connected physical, social and transport networks that promote real alternatives to car journeys, namely walking, cycling or public transport.



1.2 APPROACH

This study includes a detailed review of the traffic and transportation conditions in Monaghan Town. It gives an outline of how the transport model for the town was developed. It describes the analysis of the various proposals for improving the traffic and transportation issues taking into consideration the Monaghan County Development Plan. Finally, it identifies and recommends the optimum land use and road proposals.[6]

This report is laid out as follows:

- Chapter 1 describes the study area, gives an overview of Local, Regional and National policy documents, overview of the approach to MLUTS and the structure of the report.
- Chapter 2 gives an overview of the Stakeholder Consultation and the data that was gathered for the MLUTS.
- Chapter 3 covers a description of the existing land use conditions and potential future land use in Monaghan Town.
- Chapter 4 covers an extensive examination of the existing road network and transportation conditions in Monaghan Town under such headings as road and street network, junction arrangements, pedestrian & cycling facilities, public transport and parking.
- Chapter 5 outlines the development of a micro-simulation traffic model[7], which is essential to the MLUTS process.
- Chapter 6 examines scenarios for future land use and road proposals. It also describes the outcome of the analysis of the integrated land and road use modelling using the Monaghan Traffic Model.
- Chapter 7 provides further appraisal of the road proposals.
- Chapter 8 outlines the urban renewal and sustainable transport proposals for Monaghan specifically the plans for improving the public realm and also pedestrian, cycling and public transport facilities.
- Chapter 9 examines the traffic management in Monaghan Town specifically in relation to junction improvements, the management of heavy goods vehicles and parking.
- Chapter 10 summarises the MLUTS recommendations.
- Chapter 11 describes an implementation plan.

[6]The road proposals are based on the findings of the Traffic Modelling for the MLUTS. These road proposals are recommended to be incorporated within the draft Monaghan County Development Plan for the period 2019-2025 which went on public display from 15th March to 25thMay 2018.

[7]The development of the Monaghan Traffic Model and the modelling of various scenarios was carried out by Aecom between 2016 and 2018.

2 STAKEHOLDER CONSULTATION & DATA GATHERING

2.1 STAKEHOLDER CONSULTATION

At the outset of the study an extensive public and stakeholder consultation was undertaken as it is an important part in the development of a LUTS. Local residents have an in-depth understanding of local traffic issues as they experience these conditions on a daily basis. It is important to gain an understanding of these issues at an early stage in the study, so that they can be considered. Public representatives and local community groups are well placed to relay the views of local residents.

Traffic congestion affects public transport operations as it reduces operating speeds and makes it difficult to operate a reliable service. A poor service encourages greater car usage which further increases the level of traffic congestion. Consultation with public transport operators facilitates an understanding of operating conditions in the study area and identifies measures to improve services. Local businesses are also impacted by traffic congestion as it affects deliveries and access by customers. Traffic associated with school drop-off and pick-up can contribute significantly to general traffic congestion. It was important that schools were consulted so that issues associated with access arrangements to schools were understood.

The Stakeholder engagement was carried out by means of consultation letters with questionnaires, online surveys, presentations, meetings, phone calls and site visits. Notices were placed in local papers and Monaghan County Council website. A sample of the consultation letter and questionnaire is in Appendix A.

2.1.1 CONSULTATION LETTERS/ QUESTIONNAIRE

A consultation letter/questionnaire was sent to:

- 11 Schools (Response Rate: 46%)
- 96 Businesses (Response rate: 8%)
- 45 community Groups (Response rate: 27%)

A freepost envelope was included for the return of the questionnaire. The response rate was good from the community and schools groups, but the rate from business groups was low.

Schools Consultation

The main issues highlighted from the schools sector are listed below:

- Lack of cycling and walking facilities to schools
- Lack of a town by pass from N54 to N2
- Increased journey times to access schools, particularly for students travelling on the N54
- Traffic management at pick-up and drop off needs to be improved
- Lack of affordable public transport from town centre to the Education Campus put those without a car at a disadvantage, especially in bad weather.
- Traffic warning signs on approach to school regularly not working
- Lack of accessible parking and drop-off areas on Rowantree Road.
- Park Road can get very congested in the morning and evening at pick-up and drop off times.
- Cars from Mullaghmatt going the wrong way up the one way system to access free public parking.
- Lack of adequate traffic management on Park Street
- The delays on the western edge of town impedes students accessing the schools there.

Business Consultation

As the response rate from the businesses was low a number of them were visited and the Questionnaire was completed with the traders. The main issues highlighted from the business sector are listed below:

- The need for a bypass, linking the N54 Clones road to the N2 and N12
- School start times adding to congestion
- Traffic behaviour at MTEK roundabout, particularly on the approach from Armagh side.
- Traffic congestion at the Margaret Skinnider (N54) roundabout.
- Traffic at the Diamond bad at evening peak time
- Lack of cycle lanes
- Requesting a ban on HGV ban on Park Street

Community Groups Consultations

The concerns received from the various community groups are summarised below:

- Better walking and cycling facilities required, particularly connecting St. Davnet's directly into the Greenway
- More public seating and rest stops to accommodate older people
- Better access to schools via cycling and walking, to relieve congestion at peak times
- Traffic Management at the Diamond is poor
- Suggest replacing traffic lights on Market Road/Macartan Road/Dawson Street/Glen Road with a roundabout
- Suggest a roundabout or Traffic Lights at Castle Road/Macartan Road/Mall Road junction
- The pedestrian crossing at the Poc Fada (public house) is not in a good place and is dangerous
- School drop off at St. Louis National School and Model School is dangerous
- Old Cross Square traffic management needs to be improved
- Need for a local bus service
- Concern about volumes on N54 at peak times
- High volume of traffic diverting through Milltown area in the morning to avoid the Clones Road congestion.
- Need for bypass
- Lack of pedestrian and cycling facilities in the Blackwater Vale/Gallinagh areas.
- Suggestion for mini-roundabout at leisure centre junction
- HGV restrictions on Blackwater Vale road required
- Lack of clarity at Church Square for pedestrians and vehicles
- High traffic speeds and volumes exiting from Mullach Glas
- Improved cycling facilities required around the town
- Difficulty exiting from St. Davnet's entrance
- Traffic Calming required in the area of St Davnet's entrance
- Better visibility and upkeep of road signs required.

Transport Companies Consultation

Bus Eireann and Local Link were contacted individually and their concerns are listed below:

- Congestion in the town is caused by car traffic
- There is a need for a town based public transport service for bus. However the congestion in the town lessens the attractiveness for this.
- Lack of public transport linking to Monaghan Institute
- Suggestion of N54 park and ride, in co-operation with the Retail Park
- Traffic volumes in the town.
- A lack of high quality bus stops within the town
- The town could benefit from a central transport hub

2.1.2 ONLINE SURVEYS

An online business survey and an online public survey were carried out as part of the MLUTS study. Advertisements were placed in the local paper requesting the public and local businesses to complete the survey through the Monaghan County Council website. There was a low participation rate for these surveys as only 34 responses were received. The responses indicated that there is a general satisfaction with the traffic and transport in Monaghan town as 69% rated the current traffic conditions as Adequate, Good or Very Good.

Cycle facilities are perceived to be substandard, with 81% of respondents rating the cycle facilities in the town as poor or very poor.

Pedestrian Facilities are seen to be adequate with only 25% of respondents rating them as poor or very poor. A summary of both on-line surveys are summarised in Appendix B.

2.1.3 CONSULTATION WITH PUBLIC REPRESENTATIVES

A presentation was made to the Monaghan Council members on 7 July 2017. A Workshop was held with the Monaghan Municipal District members on 20 November 2017 and a meeting was held with the Municipal District members on 29 November, 2017. The concerns of the Councillors are summarised below:

- Need for a By Pass of the town
- Need for access to lands at Tullygrimes
- Review of the traffic at the Coolshannagh Road / N54 junction
- Review of the traffic required at the Macartan Road/ Castle Road / Mall Road junction
- Action required to remove HGVs from the town

2.1.4 CONSULTATION WITH TRANSPORT INFRASTRUCTURE IRELAND

Following formulation of a draft Land Use Transportation Study, representatives from Monaghan County Council Roads and Planning Departments met with Transport Infrastructure Ireland, Strategic Planning Unit on 4thJuly, 2018. Their comments and feedback have been incorporated into the finalised version this study.

2.1.5 SUMMARY OF CONSULTATIONS

The results of the consultations reveal that the major concerns of the community are traffic congestion in the town, particularly at school drop off time, the lack of cycling facilities and the need for a bypass from N54 to N2.

A recurring theme is the congestion on the N54 Clones Road and the R188 Glen Road during morning rush hour. However the current traffic conditions are not seen to impact greatly on the lives of business or the general public.

2.2 DATA GATHERING

To further understand the traffic conditions in Monaghan Town and to provide data for the development of the Monaghan Transport Model, traffic surveys were carried out and information on travel patterns and transport data in Monaghan Town was also extracted from Census data.

2.2.1 TRAFFIC SURVEYS

A comprehensive set of traffic surveys were undertaken during March, April and September 2015[8] and further Automatic Number Plate Recognition (ANPR) and traffic count surveys were carried out in October 2018to provide up to date data and to verify that the data collated in 2015 was still relevant.

This 2015 survey data was used to inform the development of the Monaghan Transport Model and to provide information on the current traffic conditions within the Town.

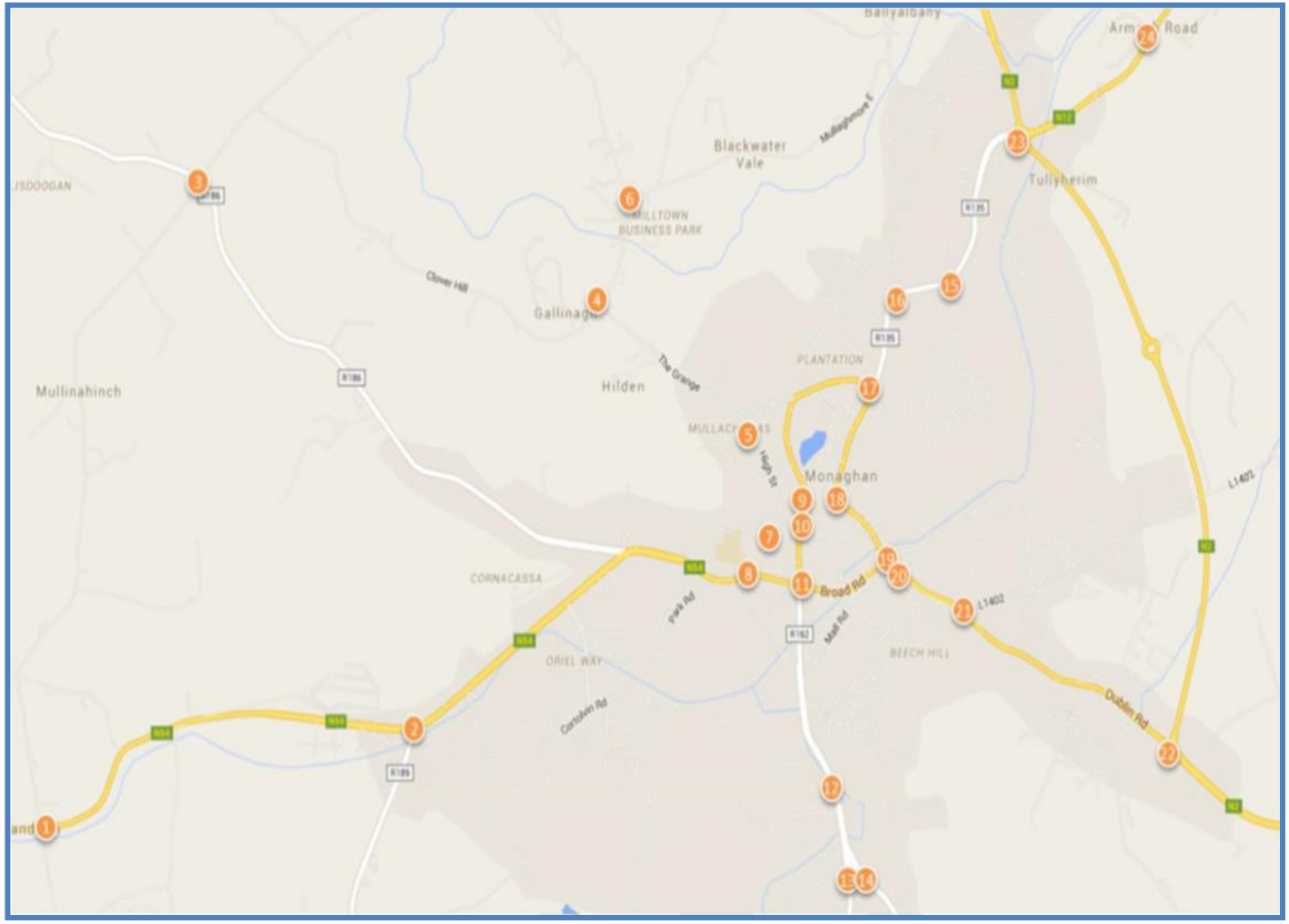
The following surveys were carried out in 2015:

- Junction Turning Counts (24 no. Locations);
- Automatic Traffic Counts (ATC)(12 no. Locations);
- Automatic Number Plate Recognition Origin Destination Survey (ANPR)(9 locations);
- Roadside Interviews Surveys (RSI) (2 no. Locations);

Junction Turning Counts

Junction turning count surveys were carried out at 24 locations on 22nd and 23rd September 2015 between 07:00 - 10:00 and 14:30 - 19:00. The locations of these surveys are illustrated in Figure 2.1.

[8]As the traffic counts were carried out in 2015, TII growth factors are applied to show counts for 2016 to 2017 (refer to table 2.1)



1 N54 - Tullybryan
2 N54/ R189 Tullygrimes
3 R186- Local Road
4 Gallanagh(N) / Gallanagh(S) / Mullaghdun
5 High St / The Grange
6 Drumgoask / Gallanagh / Telaydan
7 Park St/ Hill Street / Market St
8 Margaret Skinnider Roundabout
9 Hill Street / Mill Street
10 Market St/ Car park/ Church Square
11 Market Road/ Dawson Street
12 R188 Cootehill Road at Glenview Drive
13 R188 Cootehill Road
14 R162 Ballybay Road
15 N54 at Rooskey
16 N54/ Coolshannagh Road (Derry Road)
17 North Road/ Glaslough Street
18 Glaslough St/ Dublin St/ The Diamond
19 Old Cross Square/ Rooskey Vale
20 Dublin Road/ Pound Hill
21 Dublin Road/ Old Armagh
22 Dublin Road at Corlat Roundabout
23 Cooshannagh Roundabout
24 N12 Armagh Road

Figure 2.1 Junction Turning Count (JTC) Locations

Automatic Traffic Counts

Automatic traffic counts (ATCs) were collected at 12 locations for a one week period in May 2015. The traffic counts recorded or Average Annual Daily Traffic (AADT) at these sites are outlined in tables 2.1 and 2.2. The AADT figure is an estimate of the mean daily traffic volume over the course of a year. An exact computation of AADT involves dividing the total traffic volume in the year by the number of days in the year. The Monaghan traffic counts were carried out over a week and are thus divided by seven to achieve the AADT for a seven day count (Monday to Sunday). (Figure 2.2.)

As these counts were carried out in 2015, a growth factor was applied to estimate the 2016 and 2017 traffic flows. Transport Infrastructure Ireland (TII) Traffic Data website presents data collected from the TII traffic counters located on the National Road Network. The nearest TII Traffic counters to Monaghan town are at on the N2 at Clontibret, the N12 Armagh Road and the N2 between Emyvale and the Northern Ireland Border. These traffic counts from these counters were used to calculate a growth factor of 1.085% from 2015 to 2016 and a growth factor of 1.035% for the 2016 to 2017.

Location of Traffic Counter	AADT (2015)	Estimated AADT (2016) with Growth Factor	Estimated AADT (2017) with Growth Factor
N54 at Four Seasons Hotel	11731	12728	13174
R937 Dublin Road	9937	10782	11159
N54 Clones Road	6778	7354	7612
R188 Cootehill Road	5394	5852	6057
N12 at Knockaconny	5205	5647	5845
R186 Scotstown Road	4038	4381	4535
R162 Ballybay Road	3257	3534	3658
Blackwater Vale, Milltown	2823	3063	3170
Glaslough St/ The Diamond travelling to Dublin St	2613	2835	2934
R189 Threemilehouse Road	2217	2405	2490
Coolshannagh Road	1438	1560	1615
Old Armagh Road	1078	1170	1211

Table 2.1 2015 Traffic counts and estimates for 2016 & 2017 with adjustment for growth factor.

Table 2.2 shows a percentage of the traffic counts that are comprised of Heavy Goods Vehicles and Light Good Vehicles.

LGV (Light Goods Vehicles) include the following:

- All goods vehicles up to 3.5 tonnes gross vehicle weight (goods vehicles over 3.5 tonnes have sideguards fitted between axles),
- Those vehicles towing a trailer or caravan.
- All small delivery vans and those of the next larger carrying capacity such as transit vans.
- Larger ambulances, tractors (without trailers), road rollers for tarmac pressing, box vans and similar large vans.
- Small pickup vans, three-wheeled goods vehicles, milk floats and pedestrian controlled motor vehicles. Most of this group are delivery vans of one type or another.

HGV (Heavy Goods Vehicles) include the following:

- All rigid vehicles over 3.5 tonnes gross vehicle weight with two, three, four or more axles.
- Buses and vehicles pulling trailers do not fall under this category.

The term GV signifies 'Goods Vehicles' and includes LGV (Light Goods Vehicles) and HGV (Heavy Good Vehicles).

Figure 2.2 shows a representation of the average traffic counts for a seven day count (Monday to Sunday) and the % of Goods Vehicles recorded at these locations.
Figure 2.3 is included to show a representation of the average traffic counts for the 5 weekday counts (Monday to Friday) to illustrate how the traffic volumes are much higher during the weekdays

Location of Traffic Counter	AADT (2015)	HGV's	% HGV's	LGV's	% LGV's
N54 at Four Seasons Hotel	11,731	250	2.1%	684	5.8%
R937 Dublin Road	9,937	420	4.2%	738	7.4%
N54 Clones Road	6,778	429	6.3%	494	7.3%
R188 Cootehill Road	5,394	157	2.9%	363	6.7%
N12 at Knockaconny	5,205	189	3.6%	304	5.8%
R186 Scotstown Road	4,038	77	1.9%	264	6.5%
R162 Ballybay Road	3,257	133	4.1%	201	6.2%
Blackwater Vale, Milltown	2,823	24	0.9%	215	7.6%
Glaslough St/ The Diamond travelling to Dublin St	2,613	128	4.9%	294	11.2%
R189 Threemilehouse Road	2,217	22	1.0%	120	5.4%
Coolshannagh Road	1,438	7	0.5%	61	4.2%
Old Armagh Road	1,078	10	0.9%	55	5.1%

Table 2.2 2015 Traffic Counts and number of HGVs and LGVs

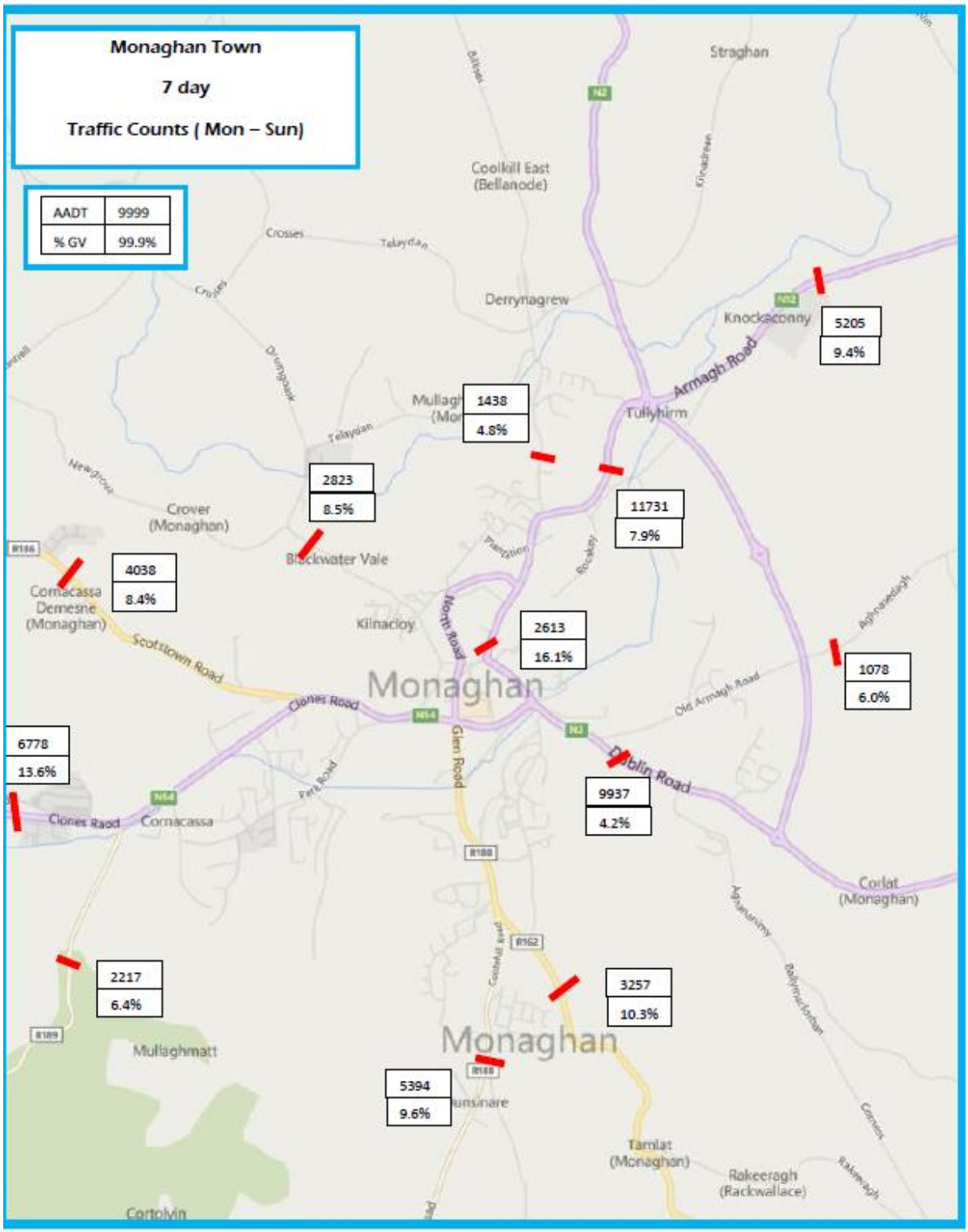


Figure 2.2 Monaghan Traffic Counts 2015 (7 day)

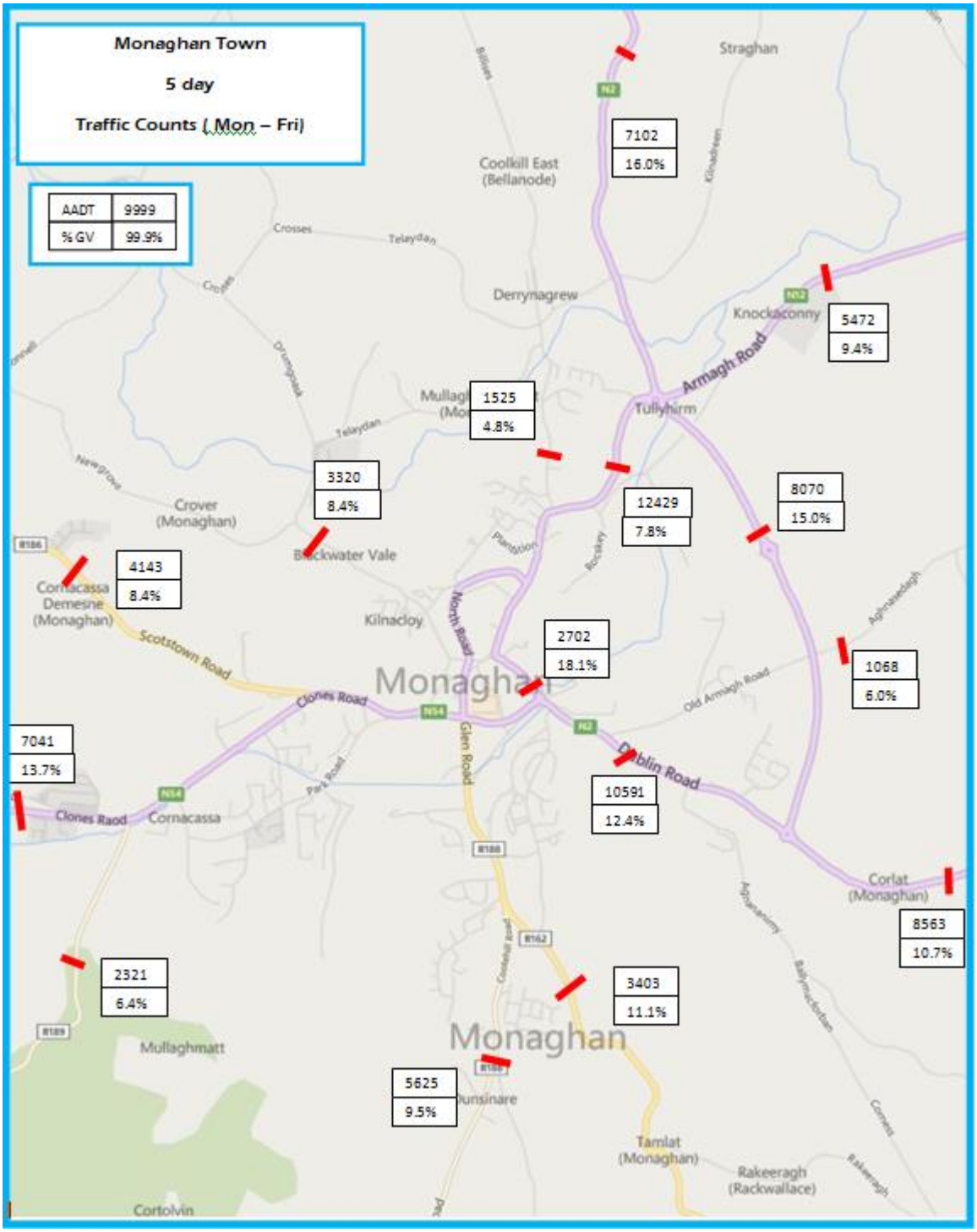


Figure 2.3 Monaghan Traffic Counts 2015 (5 day)

Automatic Number Plate Recognition Surveys

In order to provide information on movements and trip lengths of journeys made through and around Monaghan Town, Automatic Number Plate Recognition (ANPR) Surveys were undertaken on 24th September 2015. The surveys were carried out at the sites shown on Fig 2.4. Telescopically mounted cameras videoed the registration plates of cars between 06.00 and 20.00. Micromatch software was used to match the registration plates of journeys across the town. The summary of journey time across Monaghan Town is summarised on Table 2.3

It can be seen that journeys across Monaghan tend to increase by between 6 and 7 minutes during the AM Peak, between 8 and 9am. This delay is an average across the hour, and delays are slightly longer, 8-9 minutes, during the morning peak time of time 8:45 – 9:00am.

The location of most public concern is the N54 inbound, close to St. Louis National School and cluster of schools. The delays in this small area are approximately 6 minutes, and this can be attributed to congestion due to high demand and school drop off traffic.

Roadside Interviews Surveys

Roadside Interview Surveys were undertaken at two sites:

- The N54, Clones Road on 22nd September 2015 and
- The N54 at the Four Seasons Hotel on 23rd September 2015.

These surveys also provided information on the actual origin and destination of vehicles and were useful in validating full trip patterns. As part of these surveys face to face interviews were undertaken at each of the sites between the hours of 07:00 to 19:00. Sample rate at the N54 site was 25.1% and 28.5% at the N2.

The layout of the existing road network, driver behaviour characteristics and traffic congestion issues in the study area were recorded on a site visit undertaken on the 4th April 2016. The area was recorded on high quality video, for use in the calibration of critical elements of the models such as traffic signal operation, average speeds and driver behaviour such as lane changing.

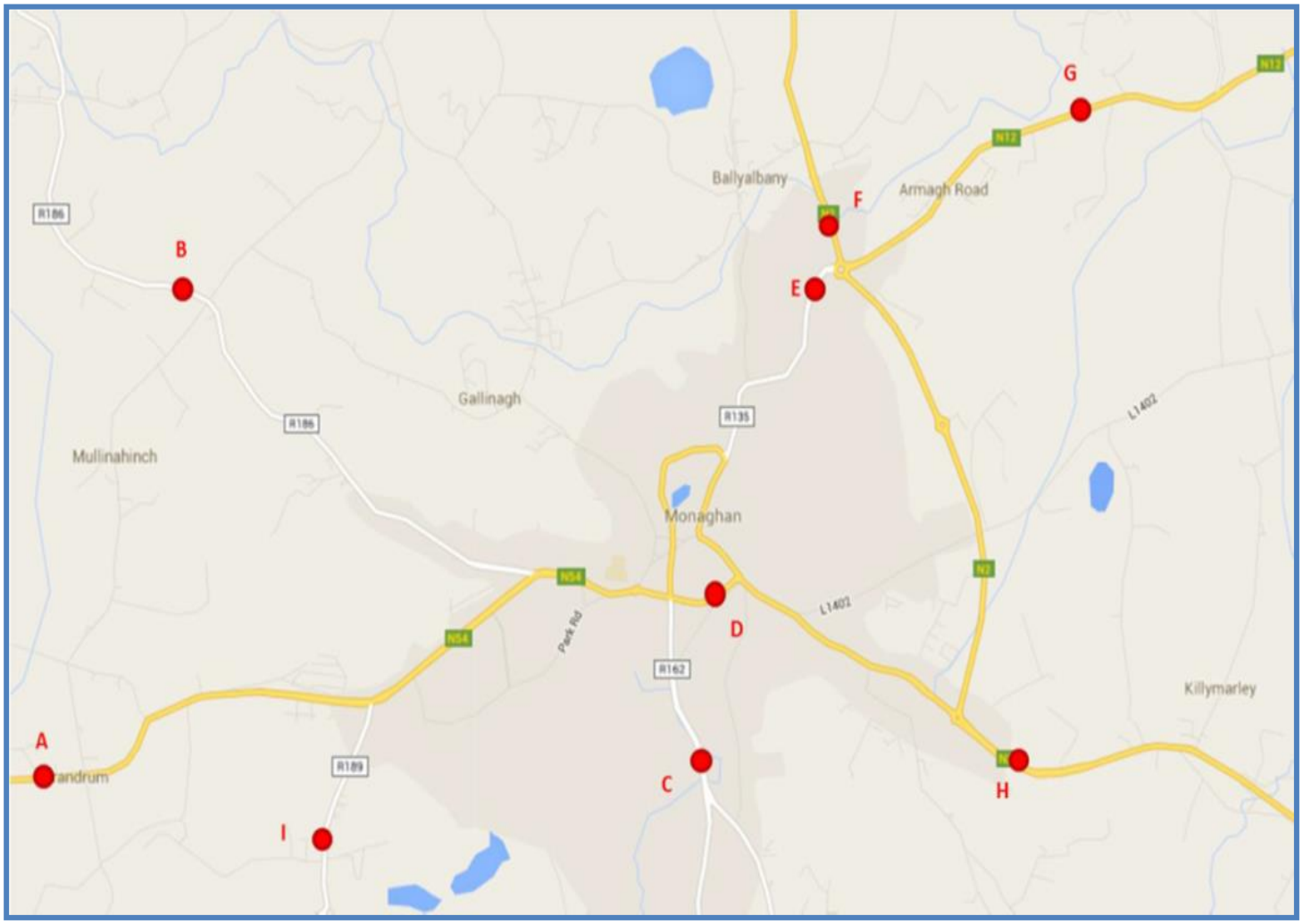


Figure 2.4 Location of 2015 ANPR Surveys

A	**N54 Clones Road at Whitebridge Cross Roads**
B	**R186 Scotstown Road**
C	**Glen Road at Cootehill Rd/ Ballybay Rd Junction**
D	**Macartan Road/ Castle Road/ Mall Road Junction**
E	**N54 at Four Seasons Hotel**
F	**N2 Emyvale Road at Lac Patrick Creamery**
G	**N12 Armagh Road at Knockaconny Roundabout**
H	**N2 Dublin Road at Monaghan Collegiate**
I	**R189 Threemilehouse Road**

				Destination					
				A	F	G	H	D	C
				N54 Clones Road at Whitebridge Cross Roads	N2 Road at Lac Patrick Creamery	N12 Armagh Road at Knockaconny Roundabout	N2 Dublin Road at entrance to Monaghan Collegiate	Castle Road/ Macartan Road/Mall Road junction	Glen Road at Cootehill Road/ Ballybay Road Junction
Origin	A	N54 Clones Road at Whitebridge Cross Roads	Off Peak		7'07"	8'00"	7'57"	4'29"	4'15"
			AM Peak		13'11"	13'30"	14'51"	9'10"	9'38"
			AM Peak Delay		***6'04"***	***6'30"***	***6'54"***	***4'41"***	***5'23"***
	F	N2 at Lac Patrick Creamery	Off Peak	8'52"		1'10"	3'21"	4'22"	3'56"
			AM Peak	11'44"		3'53"	4'28"	7'33"	8'58"
			AM Peak Delay	***2'52"***		***2'43"***	***1'07"***	***3'11"***	***5'2"***
	G	N12 Armagh Road at Knockaconny Roundabout	Off Peak	8'15"	1'30"		3'30"	3'31"	6'21"
			AM Peak	12'48"	5'10"		10'16"	10'59"	10'48"
			AM Peak Delay	***4'33"***	***3'40"***		***6'46"***	***7'28"***	***4'27"***
	H	N2 Dublin Road at Monaghan Collegiate	Off Peak	7'22"	4'27"	9'48"		4'57"	5'05"
			AM Peak	14'49"	5'02"	11'35"		5'14"	11'49"
			AM Peak Delay	***7'27"***	***0'35"***	***1'47"***		***0'17"***	***6'44"***
	D	Castle Road/ Macartan Road/ Mall Road junction	Off Peak	4'42"		7'41"	2'55"	0	1'39"
			AM Peak	9'53"		12'32"	5'10"	0	4'19"
			AM Peak Delay	***5'08"***		***4'51"***	***2'15"***	***0***	***0'40"***
	C	Glen Road at Cootehill Road/ Ballybay Road Junction	Off Peak	7'03"	4'37"	4'26"	6'42"	3'07"	
			AM Peak	9'42"	10'31"	12'24"	9'01"	6'41"	
			AM Peak Delay	***2'39"***	***5'54"***	***7'58"***	***2'19"***	***3'34"***	

Table 2.3 Travel Times on main routes through Monaghan Town

2.2.2 CENSUS DATA

The National Census is undertaken under the direction of the Central Statistics Office every five years. The 2011 Census was taken on the 10 April 2011 and the 2016 Census took place on 24 April 2016. For census purposes Monaghan Town comprises the area as set out in the Small Area Population Statistics (SAPS MAPS) defined by the Central Statistics Office (CSO). The SAPS MAPS identify different geographic boundary layers. The settlement boundary is established at each Census for the purpose of establishing the size of the settlement. The Monaghan Town settlement was defined as having a population of 7,678 in the 2016 Census, although the environs of the town contain a significantly larger population. (refer to Figure 2.5 for CSO Monaghan settlement boundary)

The SAP MAPS also define the Electoral Divisions (EDs) and Monaghan Town is spread over four Electoral Divisions (EDs). Monaghan Urban with a population of 2,410, part of Monaghan Rural, part of Bellanode and part of Enagh.

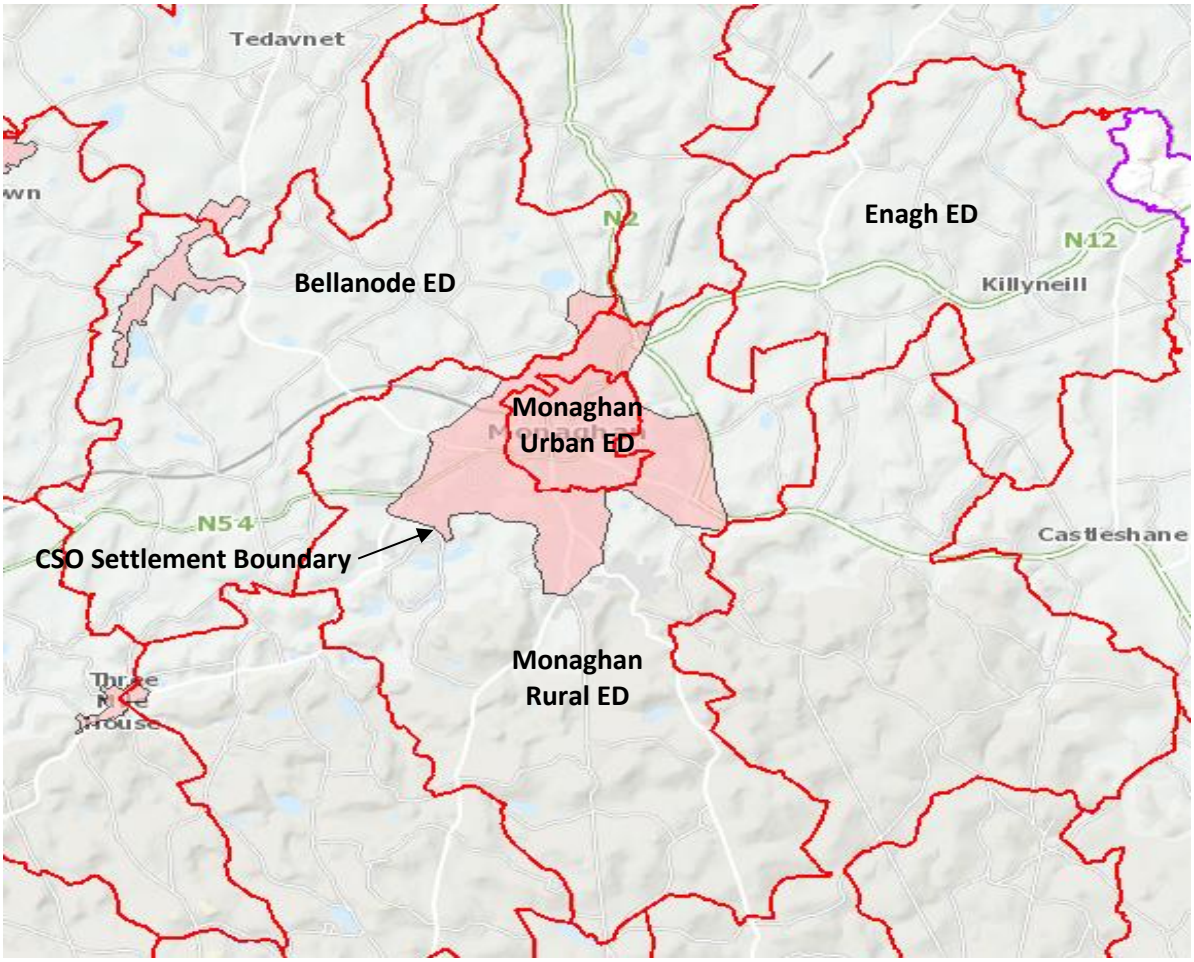


Figure 2.5 Monaghan Electoral Divisions (CSO SAPS MAPS)

From Figure 2.5 above it can be seen that only a small area of Bellanode ED and Enagh ED (approximately 40 dwellings) are located within the Monaghan settlement boundary and there is an

area of Monaghan Rural ED that lies outside settlement boundary. However to illustrate the travel patterns of those living outside the settlement boundary but within the environs of Monaghan Town it was decided to use the data from the Monaghan Urban and Monaghan Rural EDs.

The Census provides a valuable source of information on travel patterns and transport data. There were three questions in the 2011 and 2016 Censuses relating to travel to work, school or college:

1. Means of Travel
2. Journey Time to Work and Education
3. Car Ownership

The data (responses to these questions) from the Monaghan Urban ED and Monaghan Rural ED were extracted from the SAP MAPS statistics and these are summarised in the following pages.

Means of Travel

The Table 2.4 below presents the number of persons and their main mode of transport to work, school or college for those aged 5 years and over in Monaghan Urban and Rural electoral divisions for the Censuses 2011 and 2016.

The means of travel to work, school or college of Monaghan persons aged 5 and over in 2011 and 2016 Censuses	2011		2016	
	URBAN	RURAL	URBAN	RURAL
On foot	408	694	409	624
Bicycle	3	17	16	33
Bus, minibus or coach	36	192	36	206
Train[9]	2	6	1	3
Motorcycle or scooter	2	2	2	3
Car driver	375	1,570	463	1,663
Car passenger	236	899	346	1,004
Van	35	182	34	165
Other	27	78	3	20
Work mainly at or from home	Not asked	Not asked	21	59
Not stated	26	92	102	130
Total	1,150	3,732	1,433	3,910

Table 2.4 Means of Travel in Monaghan

Table 2.5 shows the same information on travel means for 2016 as percentages and compared to the national means of travel.

[9]Commuters possibly travelling by train from Dundalk Station.

Population aged 5 years and over by means of travel to work, school or college	2016			
	Monaghan Urban	Monaghan Rural	Monaghan Avg Urban & Rural	Ireland
On foot	29%	16%	22%	14%
Bicycle	1%	1%	1%	3%
Bus, minibus or coach	3%	5%	4%	10%
Train	0%	0%	0%	3%
Motorcycle or scooter	0%	0%	0%	0%
Car driver	32%	43%	37%	39%
Car passenger	24%	26%	25%	19%
Van	2%	4%	3%	4%
Other	0%	1%	0%	0%
Work mainly at or from home	1%	2%	1%	3%
Not stated	7%	3%	5%	4%

Table 2.5 Means of Travel in Monaghan and Ireland in 2016

The figures show that there is a heavy reliance in car transport in Monaghan Town with approximately 65% of Monaghan Town commuters relying on a private car or van for transport.

It can be seen that a large percentage of Monaghan commuters 22% walk as their main mode of transport. This is a very important finding and demonstrates the importance of providing a high quality pedestrian network with facilities to match, in the Monaghan area.

Furthermore, the level of walking to work and education within Monaghan Town Centre reflects the compact layout of the town and is a very positive indication of the level of accessibility and transport sustainability within the town.

The mode share for bus would largely be attributed to trips carried by the school bus network.Similarly a significant proportion of the car passengers would comprise school children being given a lift to school.

Journey Time to Work and Education

The Census 2011 and 2016 data provides information on the normal journey time to work. It is worth bearing in mind that the values for journey time are those stated by respondents, and are, therefore, the perceived journey times. Table 2.6 provides details of the stated journey time for Monaghan Town Centre and Monaghan Rural.

Population aged 5 years and over by journey time to work, school or college	2011		2016	
	URBAN	RURAL	URBAN	RURAL
Under 15 mins	575	1,703	635	1,742
1/4 hour - under 1/2 hour	332	1,128	402	1,222
1/2 hour - under 3/4 hour	93	301	100	310
3/4 hour - under 1 hour	33	134	35	104
1 hour - under 1 1/2 hours	18	87	27	123
1 1/2 hours and over	19	75	27	99
Not stated	58	243	186	251
Total	1,128	3,671	1,412	3,851

Table 2.6 Numbers of persons and their travel time commute in Monaghan Town

Population aged 5 years and over by journey time to work, school or college	2011	2016
Under 15 mins	47%	45%
1/4 hour - under 1/2 hour	30%	31%
1/2 hour - under 3/4 hour	8%	8%
3/4 hour - under 1 hour	3%	3%
1 hour - under 1 1/2 hours	2%	3%
1 1/2 hours and over	2%	2%
Not stated	6%	8%

Table 2.7 Percentage of persons and their travel time commute in Monaghan Town

The Table 2.7 shows that there is a high number of short duration commutes originate in the Monaghan urban area. A number of these commutes could possibly be carried out by bicycle instead of car if the facilities were there.

Journey times to work and education in the town are very short; roughly 78% of all journeys to work and education are under 30 minutes. Journey times are relatively consistent between the urban area and environs. This indicates that the network is not extremely congested, as people travelling from

surrounding areas can complete their journey within 30 minutes. It also shows that there hasn't been an increase in commuting time between 2011 and 2016. See Table 2.8 and 2.9.

Car Ownership

Car ownership is a key factor in travel pattern behaviour. The availability of a car is a critical input into deciding where to travel and how to travel. Car use is directly related to car ownership unless significant restrictions are enforced. For those who do not have access to a car, accessibility to education, employment and public facilities is restricted to walking, cycling or the public transport network.

The level of car ownership in Monaghan Town is relatively high. The table 2.8 below shows the car ownership recorded in the 2011 and 2016 Censuses. In the 2016 census23% of households had no car and 75% had one car or more. This is primarily due to the rural nature of the population and lack of public transport alternatives.

	2011	2016	2011	2016
No car	660	668	23%	23%
One car	1,441	1,457	51%	50%
Two cars	627	643	22%	22%
Three cars	88	67	3%	2%
Four or more cars	15	15	1%	1%
Not stated	0	67	0%	2%
Total	2,831	2,917		

Table 2.8 Monaghan Car Ownership

The rate of car ownership in Monaghan demonstrates the reliance on private car transport as the dominant transport mode in the county. The need for a car is greater in rural areas where development is more dispersed and facilities are not within walking or cycling distance. Dispersed populations are also difficult to serve by public transport in a cost-efficient way. It is important to ensure that suitable infrastructure provides adequate access from rural areas to Monaghan by car.

Within the Monaghan urban area there is a much lower car dependency rate. The lower rate of car ownership extends into the areas surrounding the town centre wherein over 30% of household have no car and there are less than 20% of households with two cars or more. Within the urban area, there is greater opportunity to access employment and education by walking and cycling. Therefore, the need for a car is greatly reduced and it is sometimes more cost efficient not to own a car. Car-parking within the urban area is also more restricted.

3 LAND USE CONDITIONS

3.1 INTRODUCTION

Monaghan town is the principal town of County Monaghan and serves a valuable functional role both for its population and surrounding hinterland, as well at a wider county and regional level. The town contains a wide variety of different land uses including, residential, educational, health, industry/employment and retail. The majority of residential developments in the study area are located outside of the town centre and are largely comprised of medium density developments with a cul de sac type road network. Some local amenities such as churches, schools, sport grounds and local retail are located within the residential areas, shortening travelling distances and providing the potential for walking and cycling. Figure 3.1 on the following page shows land use plan for Monaghan Town, under the current development plan

3.1.1 POPULATION GROWTH

The Regional Planning Guidelines (RPGs) provide population projections based on the National Spatial Strategy 2002, where the aim was to achieve a critical mass population of at least 15,000 for Monaghan Town by 2020. In 2009 the Department for Environment Heritage and Local Government published specific population targets for Gateways and Hubs to ensure that these settlements would be afforded priority in the RPGs. Monaghan town, as a Hub town, was allocated a population target of 9,300 up to 2022 as set out in the RPGs. It is now recognised that whilst trends at regional level and within the defined urban centres that support the RPG goals are moving toward their respective targets, issues remain in some areas regarding the rate of this growth.

For census purposes Monaghan town comprises the area as set out in the Small Area Population Statistics (SAPS MAPS) defined by the Central Statistics Office (CSO). Monaghan town and its environs experienced a significant increase in population between 2002 and 2006, which mirrored a period of marked economic growth. Over the period 2006 to 2011 which experienced strong economic growth in the first two years, the population of Monaghan Town increased by an average annual rate of growth of almost 4%. By contrast, after 2011 the rate of increase in population significantly declined, which was a trend experienced nationally due to very limited economic growth, and the population of Monaghan Town increased by an average annual rate of growth of just 0.6%over the period 2011 to 2016. The 2016 census indicates that the population of Monaghan town stands at 7,678 persons, which is a 3% increase over the recorded population in 2011.

Census Year	% Population Change from Previous Census (National)	% Population Change from Previous Census (Monaghan Town)
1996	2.8	0.04
2002	8	1.6
2006	8.2	13.2
2011	8.1	10.9
2016	3.6	3

Table 3.1 Population Change 1996 – 2016

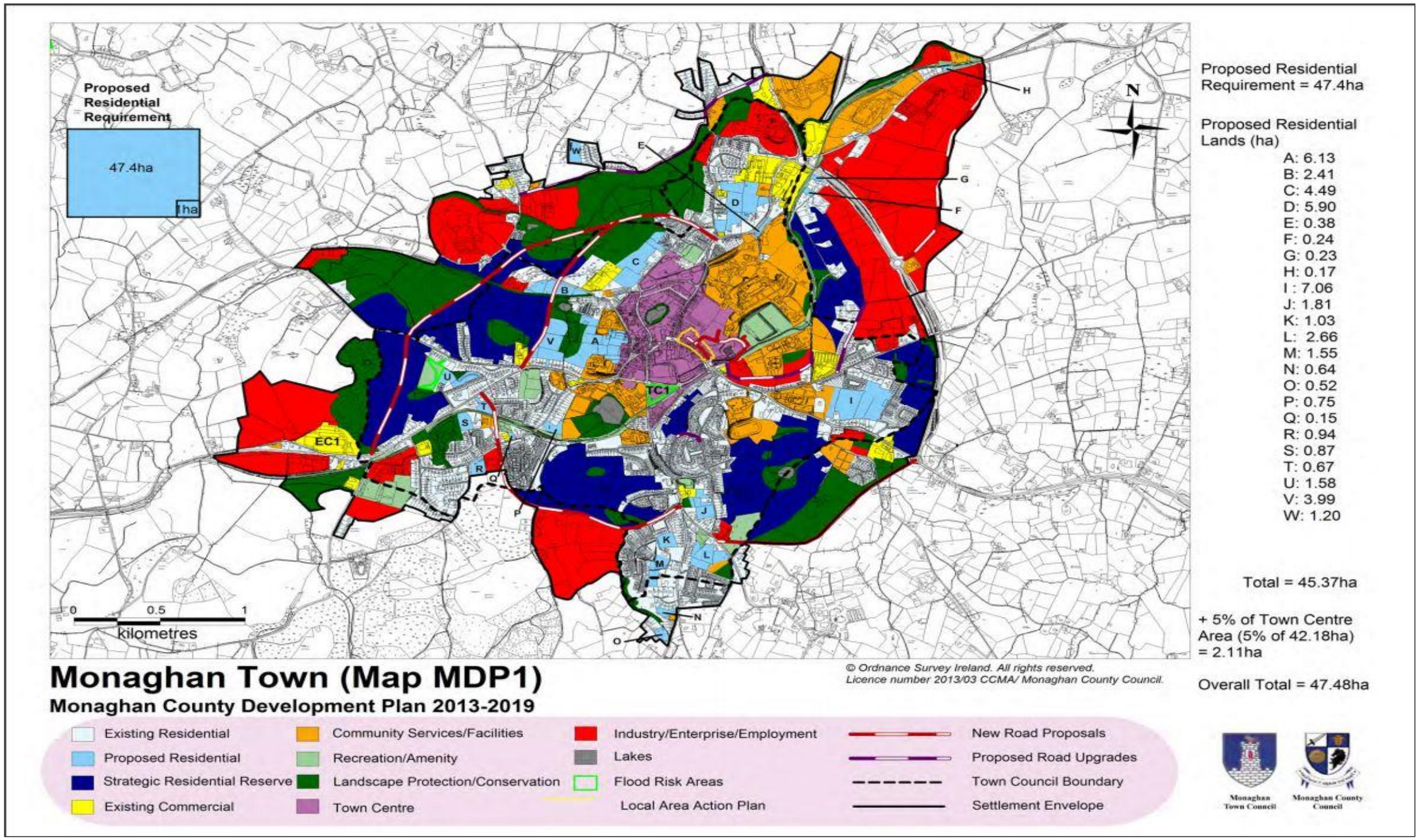
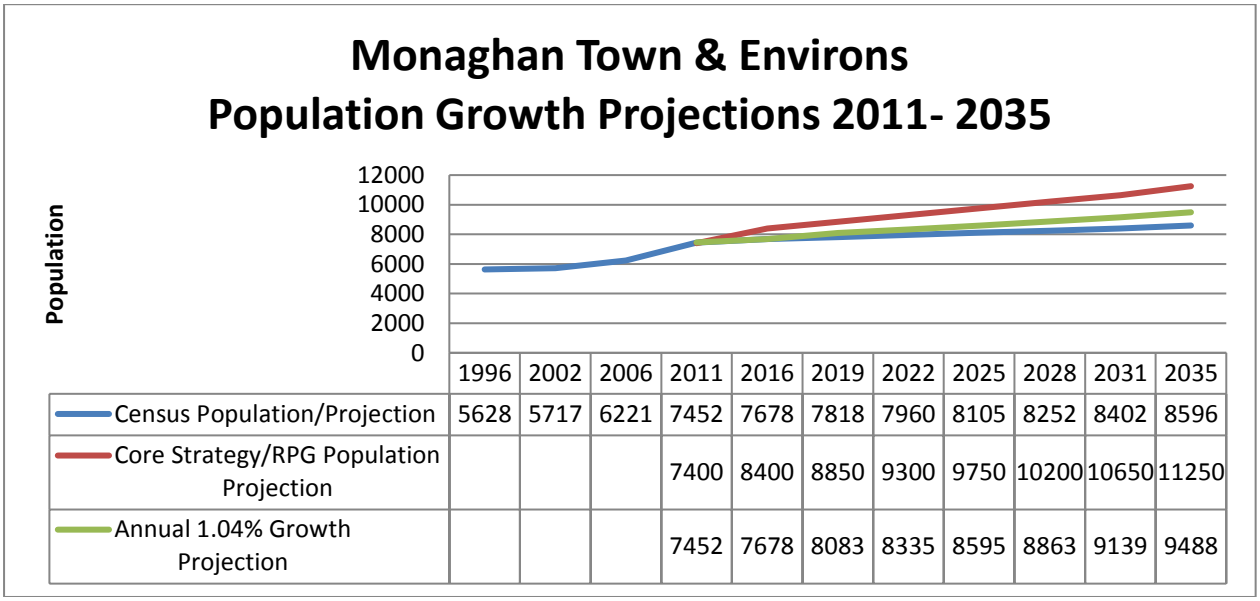


Figure 3.1 Monaghan County Development Plan 2013-2019 Zoning

Comparison of actual population growth for Monaghan town and its environs using figures from the 2011 and 2016 Census, compared with the projections set out in the RPGs (and the Core Strategy, Monaghan County Development Plan 2013-2019) highlight that the population growth within Monaghan town has not evolved as fast as that predicted. The most recent figures available from the 2016 census indicate that while population figures did rise during the inter-census period 2011-2016, the growth was not as significant as the previous two census periods. Therefore, a reasonable assumption is that an average annual rate of population growth of 1.04% (almost double that experienced annually over the period 2011-2016) should be applied for the period up to 2035. This will derive realistic population projections to ensure that Monaghan town, as the primary growth centre for industrial development, retail and services within the County, will experience increased growth patterns both demographically and economically in the coming years. Population projections for Monaghan town and its environs are set out in the Monaghan County Development Plan 2013-2019[10]. These projections are based on the overall population projections set out in the Regional Planning Guidelines (2010-2022). Figure 3.2 outlines the predicted population growth trends, based on recent censuses.[11]



	1996	2002	2006	2011	2016	2019	2022	2025	2028	2031	2035
Census Population/Projection	5628	5717	6221	7452	7678	7818	7960	8105	8252	8402	8596
Core Strategy/RPG Population Projection				7400	8400	8850	9300	9750	10200	10650	11250
Annual 1.04% Growth Projection				7452	7678	8083	8335	8595	8863	9139	9488

Figure 3.2 Monaghan Town & Environs Population Growth Projections 2011 – 2035

[10]The draft Monaghan County Development Plan 2019-2025 which was placed on public display in March 2018 incorporates the 2016 Census population figures and does not significantly deviate from the land use zonings of the current plan. The findings of the LUTS Traffic Modelling have influenced this draft plan.

[11]The population projections were calculated on the assumption that Monaghan town will maintain its percentage share of the total County Monaghan population. Subsequent to the modelling carried out to inform this study, the population target for Monaghan Town in the published draft Monaghan County Development Plan 2019-2025 was revised upwards from a share of 12.5% to 14% to reflect the emphasis on strengthening urban areas in the recently published National Planning Framework. This upward revision in the population target will not have a significant bearing on the results obtained from the modelling, given that it was based on existing land uses and the zonings in the current Monaghan County Development Plan 2013-2019, with the exception that thresholds would be reached earlier if population grows in line with these revised targets.

3.2 LAND USE PRINCIPLES

One of the main aims of the Monaghan County Development Plan is to provide a sufficient quantum of mixed use development in Monaghan town to ensure that there will be a successful vibrant town whereby a growing population can live, work and engage in recreation in a sustainable manner. In conjunction with this, the Local Authority will strive to ensure that the people of Monaghan have an improved quality of life with an efficient sustainable transport network and improved access to the public realm, recreation, open space and community facilities. Monaghan town operates as a fully functional service centre for the County's population and is positioned at the top of the settlement and retail hierarchy for the County. Key land use principles for the town are as follows:-

- Future development shall be co-ordinated, integrated and connected in accordance with the overall development plans and urban design principles for Monaghan Town.
- The vibrancy and vitality of Monaghan to be improved by facilitating sustainable mixed use development in the town and providing for more sustainable living patterns.
- Future development shall promote and support sustainable travel.
- Pedestrian/cyclist connectivity from existing residential areas to the town centre shall be promoted, improved and enhanced.
- Circulation and movement of vehicular traffic around and to Monaghan town centre shall be improved.
- Significant weight shall be given to any master plan area or specific development briefs for strategic backland/ brownfield sites where different uses and densities could be accommodated as well as providing high quality connectivity for pedestrians and cyclists.
- There will be a focus on the development potential of strategic greenfield sites and consolidation of existing residential areas close to the town centre in a sustainable manner.
- Existing recreation and open space land shall be protected and enhanced, improved accessibility to the use of this land shall be provided to all residents where possible, and increased community facilities to meet the needs of the existing and future population shall be provided.
- All new retail development shall be in accordance with the provisions of the Retail Planning Guidelines and the County Monaghan Retail Strategy.
- The role of the Town Team[12] to assist in the co-ordination and implementation of proposals for Monaghan town centre shall be facilitated using projects such as town vitality, promotion, branding, streetscape, town centre safety and vacancy/dereliction.

[12]Town Team was set up to drive the revitalisation of Monaghan Town. It was initiated by Monaghan County Council. The Town Team concept enables stakeholders (local authority, businesses, landlords, community groups) to work collaboratively to design and implement a plan for reinvigorating town centres, re-engaging with citizens and customers alike.

3.3 EXISTING AND FUTURE LAND USE PATTERNS

Monaghan Town contains a wide variety of different land uses including, residential, educational, commercial, retail, health, industry/employment and retail. This chapter examines the particular characteristics of land use within the study area.

3.3.1 EXISTING TOWN CENTRE

This area comprises the principal commercial and civic heart of Monaghan. It is defined by a radial road network, which operates in part as a one way system through the core of the town. The urban structure and form of Monaghan Town Centre (its shape and the character of the streets) has a number of striking landmarks which are linked by long narrow streets off the central Diamond and Church Square. Buildings within the town centre range in height from two storeys to four storeys and include numerous prominent historic buildings and protected structures which frame the urban experience for people as they move through the town centre. The designation of 'town centre' under the County Development Plan means there is no difference in policy terms between the area around 'The Diamond' and the newer retail area around the shopping centre.

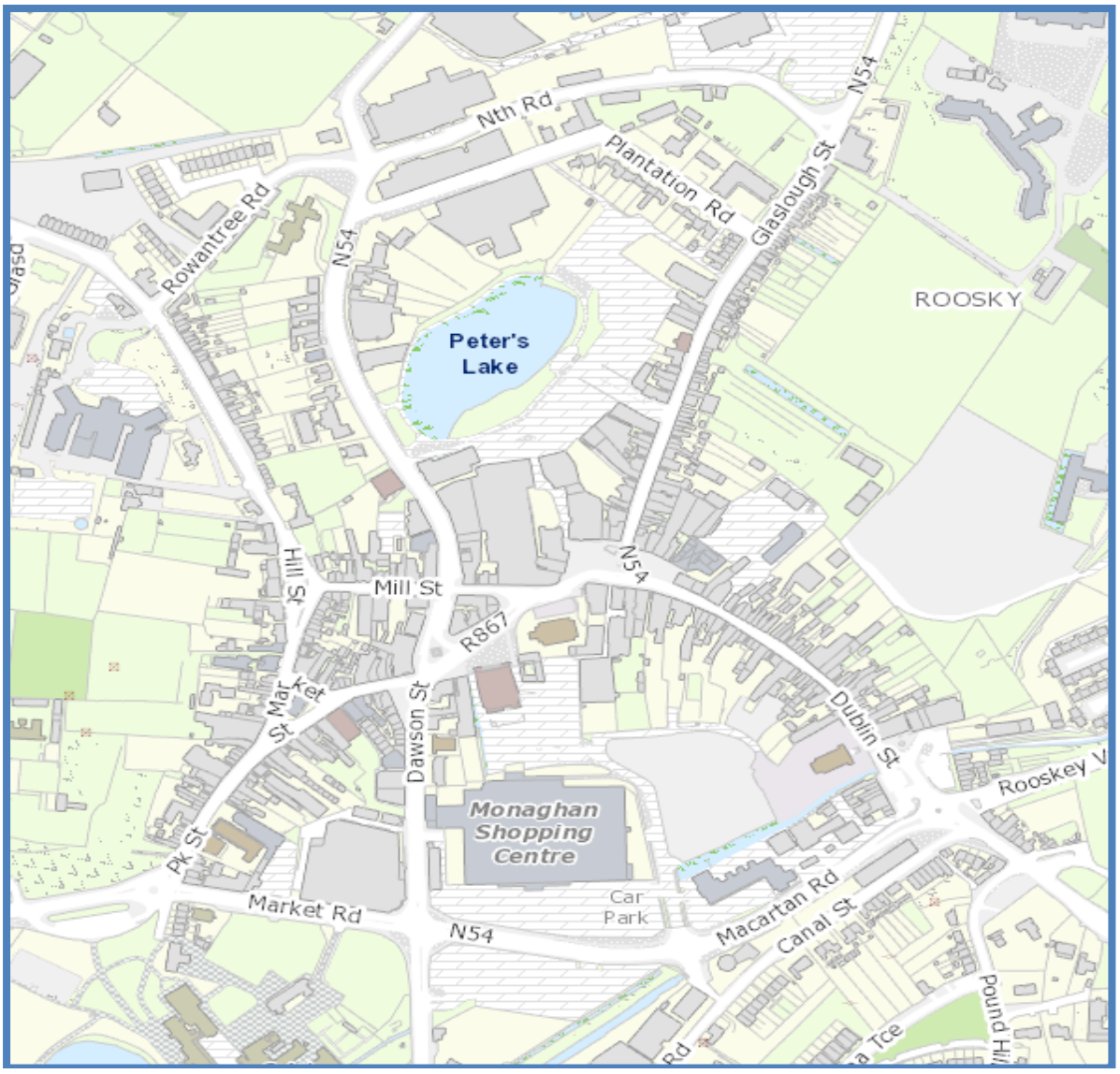


Figure 3.3 Monaghan Town Centre

The presence of the main convenience stores of Super Valu, Lidl, Tesco and Dunnes Stores within this area along with comparison and independent retailers ensures that this area is a constant focus of activity. Trips to the main convenience stores are generally car based which is supported by adjoining car parks that have been incorporated into their overall development. Pedestrian permeability is particularly good around the shopping centre which has three entrances, two from the adjoining car park and one from Dawson Street. Whilst there are a number of controlled crossings in this area, there is significant footfall between Dunnes Stores and Monaghan Shopping Centre which does not have the benefit of a controlled crossing.

Both Glaslough Street and Dublin Street are narrow one way streets and are heavily dominated by vehicular traffic, a large portion of which includes heavy goods vehicles given their status as part of the N54 national route. Although significant pedestrian improvements have been provided recently, there remains a conflict associated with the national route passing along these shopping streets, which infers greater priority to traffic over pedestrians.

There are loading and service bays located throughout this area but not all premises have access to them, which in turn contributes to congestion.

The Westenra Hotel and a number of long established bars, restaurants and cafes are also located in the town centre. Public realm within this area is limited, comprising two pedestrian areas at the Diamond and the Courthouse. There have been recent upgrades to the footpath network here but further enhancements particularly in Dublin St, Dawson St and Park St areas would allow for greater pedestrian flows.

The N54 Market Rd /Dawson St/Glen Rd/Macartan Rd junction is a major junction for the entire town and is a focal point for traffic congestion in morning and afternoon peak times. Currently all traffic travelling east to west and north to south (or vice versa) must travel through this signalled junction. Planning permission has been recently sought for a large retail store at this junction.

Whilst there is a high occupation level within the shopping centre, there are a number of vacant properties, particularly along Dublin Street. There are undeveloped backlands on both sides of Dublin Street. A strategic brownfield site is located between the North Road, Plantation Road and Glaslough Street which has significant development potential.

There are approximately four hectares of town centre land dedicated to off street parking, both public and private. Recent car park surveys indicate that approximately 60% of car spaces are occupied. Monaghan Bus Station is located on the North Road at a remove from the centre of town and thus there is merit in considering a specific town centre public transport hub for both public and private operators. A central public transport hub could assist in relieving the town centre from traffic congestion. It is noted that there is poor connectivity for cyclists throughout the town centre and there is no direct pedestrian or cyclist connection between the bus depot and the town centre.

3.3.2 FUTURE TOWN CENTRE DEVELOPMENT

Dublin Street

There are 4.9 hectares of land in the town centre in the vicinity of Dublin Street which is planned to be developed. If developed it would complement other land uses in the town centre but it is dependent on certain traffic infrastructure improvements and economic considerations. Two Local Area Action Plans have been developed for this area which are described in more detail in Chapter 8.

These plans envisage a mixed use pattern, in keeping with the existing town centre land use. Assuming there is a 50/50 mix of residential and retail, the development should lead to the creation of 245 jobs and housing for 294 people. This development would also provide strong permeability to the St Davnet's HSE complex located at Rooskey at the north of the town centre. The Monaghan Traffic Model was used to assess the potential impacts of the Dublin Street developments and the findings are outlined in Chapters 8.

Peace Campus Site

The brownfield site located between the North Road, Plantation Road and Glaslough Street is a large corner site. It is a 6,600 sqm former council depot and represents a significant opportunity to redevelop and enhance this entire area on approach from the north into the town centre. Initial works began in 2017 to develop this site as a community facility 'Peace Campus', incorporating youth services, the County Library, the County Museum and additional car parking. It is planned to develop this site in its entirety as a single proposal to ensure proper sustainable planning and development rather than a piecemeal approach.

Public Realm

The development of a public realm plan to encourage coherence in development style and standard around Monaghan Town Centre would be extremely beneficial to the overall sense of place.

A public realm assessment for Monaghan town should:

- Include an assessment of the main approaches and junctions into the town centre and identify pinch points where restricted access and/or permeability are available.
- Identify constraints and desire lines within and around the town centre whereby permeability between identified points of interest can be the focus of improvements.
- A streetscape assessment of the principle streets within the town to audit the appearance will provide for a review of the condition and size of footpaths, the presence and condition of street furniture, trees and vegetation, the use of space between buildings and the provision of car parking and public transport facilities.
- It should also make recommendations on interventions to improve the attractiveness of the town centre, such as public art work and landscaping.

It is important within any urban area to identify deficiencies in the streetscape which can be remedied though best practice urban design interventions and methodology. With the successful implementation of MLUTS recommendations, opportunities will present themselves where streets and junctions can be visually and physically improved and pedestrian movement can be prioritised

County Monaghan Retail Strategy 2016-2022

The Monaghan County Retail Strategy 2016-2022 notes that Monaghan town is the key employment, retail and service centre in the County of Monaghan. It has the highest proportion of convenience and comparison floor space compared to other Monaghan towns. Convenience floor space are premises that sell mainly food and grocery goods. Comparison floor space are premises that sell mainly clothing, footwear, furniture and household goods.

The Strategy lays out six policies in relation to future retail development of the town.

> *Policy 1 Support the vitality and viability of existing town and village centres and facilitate a competitive and healthy retail environment by ensuring that future growth in retail floor space responds to the identified retail hierarchy.*

Policy 2 *Assess all retail planning applications against the criteria set down in the Retail Strategy for County Monaghan and the Retail Planning Guidelines for Planning Authorities, 2012 and the accompanying Retail Design Manual.*

Policy 3 *Support the development of, and to reinforce the role and function of the core retail areas and to direct retail development to serviced areas.*

Policy 4 *The preferred location for large scale retail developments is in town centres, with an explicit presumption against large out of town retail centres, in particular, those located adjacent or close to existing, new or planned national roads/motorways, and alternative locations may only be considered in accordance with the Sequential Test, as required under the Retail Planning Guidelines for Planning Authorities, 2012 (DECLG).*

Policy 5 *Promote and encourage the enhancement of retail floor spaces and town centre functions in order to reduce retail expenditure leakage out of the County and to sustain competitiveness of retail centres in the County.*

Policy 6 *Encourage reuse of vacant town centre commercial premises for alternative uses and adapt a flexible approach to reoccupation, particularly where this can complement the existing service base.*

Retail activity is currently compactly located in the town centre which is highlighted by the under utilisation of the retail park on the N54 Clones Road. As it is expected that the majority of retail development will occur in the town centre through the application of these policies a highly accessible and attractive town centre will be necessary going forward.

3.3.3 EXISTING RESIDENTIAL DEVELOPMENT

There are currently just over 226 hectares of land in residential use in Monaghan Town. The majority of this is located outside of the town centre and is largely comprised of medium density developments with a cul-de-sac type road network.
Some local amenities such as churches, schools, sport grounds and local retail are located close to the residential areas, shortening travelling distances and providing the potential for walking and cycling.

Existing residential development patterns can be seen in Figure 3.4. There are four main residential areas which have been grouped together based on their location relative to the main arterial routes into the town centre. These residential areas are mainly connected to schools, large centres of employment and to each other by roadways which pass through the town centre. This has created a significant demand for commuter traffic to go through the town centre and results in significant delays in the AM peak.

Residential Area 1

This area encompasses the mainly residential locations around Belgium Park, Coolshannagh, Riverside, Rowantree Road and Mullach Glas. It is a mix of older and relatively new developments with a primarily cul-de-sac based layout.

Although there is limited connectivity with other residential areas, there is good connectivity between these estates within this area. These areas mainly access the town centre and all other routes via the N54 (Glaslough Street) and Hill Street.

Some limited services such as commercial and retail outlets are located at the intersection of the N54 (North Road), N12 (Armagh Road) and the N2 (Dublin Road) and at Milltown. Except for St Macartan's

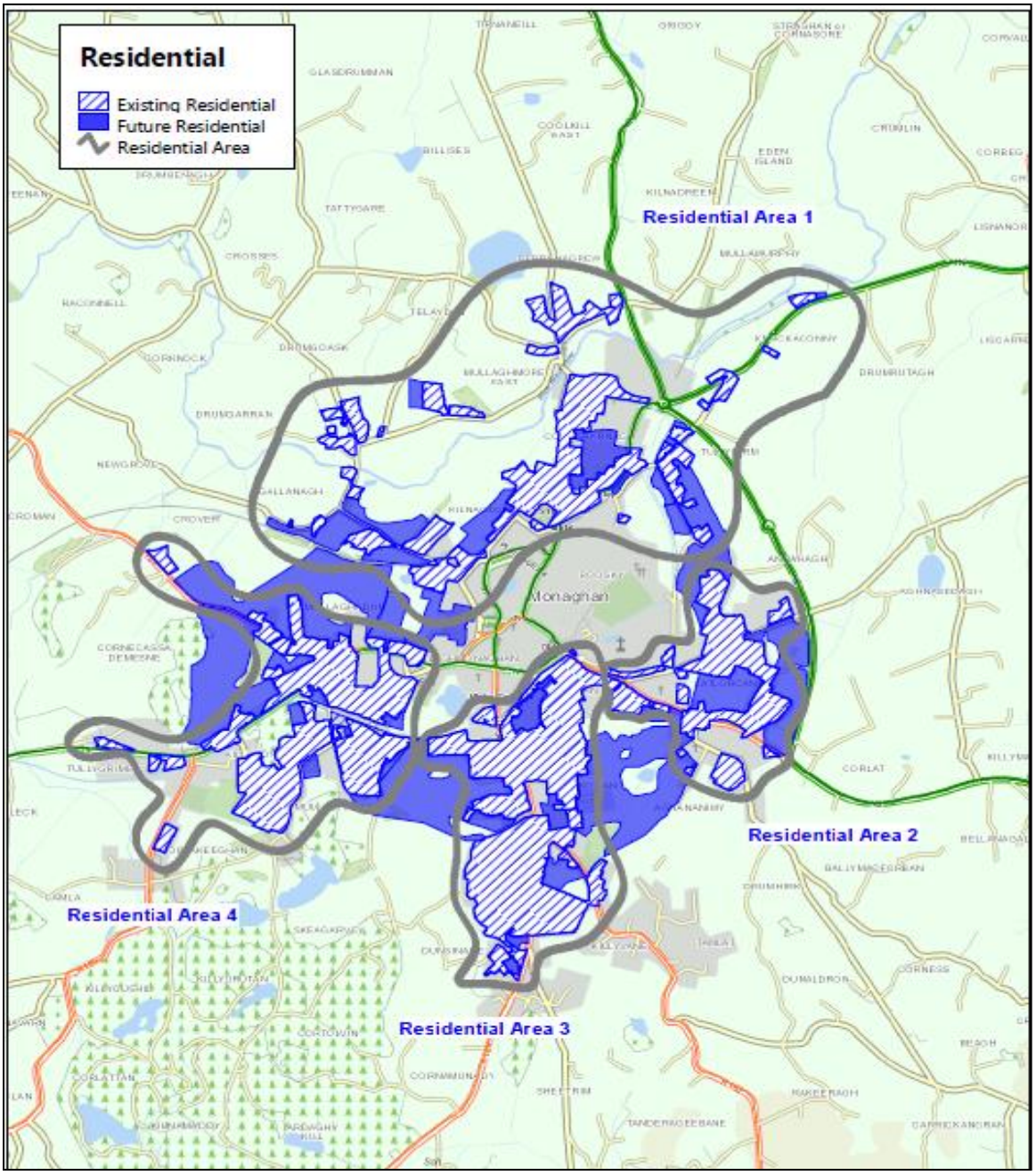


Figure 3.4 Existing Residential Areas with Proposed Residential Lands

College and Monaghan Institute which are readily accessible via the N54, residents in this area wishing to access schools must travel through the centre of town.

The Ulster Canal Greenway has limitedconnectivity to Residential Area 1 but there is some potential to improve this linkage in the form of a greenway extension along the line of the former Great Northern Railway and River Blackwater.

Residential Area 2

This area is mainly based along the R937 (Dublin Road) and Old Armagh Road.

Connectivity with other residential areas is limited. Although some services such as commercial and retail outlets are located at the intersection of the R937 (Dublin Road) and the N2, and secondary level

education in the form of the Beech Hill College is located within this area, the majority of journeys from the residential area must go through the Town Centre.

Although the Ulster Canal Greenway bounds this area, connectivity with it is very limited.
There are no primary schools within this area. This leads to movements of traffic out of, and back into, this area during the AM peak.

The majority of residents in this area have to cross the busy R937 (Dublin Road) to access Beech Hill College, which has been improved by the provision of a high quality crossing point.

Residential Area 3

This area is primarily based along the Cootehill and Ballybay roads.

Although a significant residential area, it is very isolated from the other residential areas and all traffic must travel through the Glen Road / Market Road/ Dawson Street / Macartan Road Junction to access services such as schools and employment. This junction suffers from congestion and queuing on a regular basis as all residents in this area must travel through the busy N54 junction to access schools and other facilities in the town. This further adds to congestion in the area.

This residential area is also isolated from any enterprise land and as such commuting to work via private car out of and into this area is high at peak times.

The Ulster Canal greenway bounds this area to the north.

Residential Area 4

This area is mainly based along the N54 on the West of the town. Large residential areas such as Mullaghmatt, Cortolvin and the Scotstown Road are in this area.

Linkages to other residential areas, town centre and schools are exclusively via the N54 and Ulster Canal Greenway. This can create significant congestion at the N54 Margaret Skinnader roundabout at peak times.

There is enterprise and industrial development in this area in the form of Kingspan Century Homes and the retail and business park on the N54 (Clones Road), and at Killyconnigan and along the Threemilehouse Road.

There are two primary schools in this area and also St. Louis Girls Secondary School. Any boys resident in this area must travel through the town centre to access secondary schools on the east and north side of town.

This residential area has good access to the Ulster Canal Greenway.

3.3.4 FUTURE RESIDENTIAL DEVELOPMENT

The following areas of land are zoned for residential use:

- Proposed Residential (47.4 Hectares)
- Strategic Residential Reserve (143 Hectares)

The zoning map outlined in the Monaghan County Council County Development Plan 2013-2019 (Figure 2.2) has large areas of land zoned for Proposed Residential (phase one) development and a significant Strategic Residential Reserve (phase two). These lands were zoned on the basis of their varying proximity to the town centre and other residential areas. However the development of these

areas is reliant upon the development of various road infrastructural proposals. Chapter 6 analyses these proposals and makes recommendations on future land use.

The current development plan outlines the future development of residential land in the town. It can be seen that a large number of in-fill sites are proposed in existing residential areas. (Figure 3.4)

There are also larger areas zoned for Proposed Residential development in the north of the town in Residential Area 1, in Residential Area 2, and between Residential Areas 1 & 4. However, access to a significant proportion of these lands is currently constrained.

There is currently approximately 47Hectares of land zoned for Proposed Residential development which would cater for approximately 850 new homes and an increased population of approximately 2200.

Following an assessment of the probability of development of the current Proposed Residential zoning and Strategic Residential Reserve, the following residential development pattern was considered likely to occur in 2025 and 2035:

Development to 2025

It is estimated that approximately 50% of the 47 hectares of undeveloped zoned Proposed Residential lands is considered likely to be developed up to 2025 giving an increase of 425 housing units. The bulk of the proposed development is expected in Residential Area 1 and Residential Area 2 with relatively small infill developments expected elsewhere in the town. This level of development is expected to comfortably cater for the increasing population as a result of natural increase and migrants to the town.

Development to 2035

Based on the population projections it is estimated that 37 hectares of residential development is required up to 2035 resulting in 670 additional housing units. This growth may involve the release/rezoning of some lands currently zoned as Strategic Residential Reserve given their proximity to the town centre and the possible unavailability of lands currently zoned as Proposed Residential. A large portion of this land (18.7ha) straddles Residential Areas 3&4 in an area known locally as 'Tully'. Another large portion of this land (12ha) is in Residential Area 2 and is a further expansion of the 'Latlorcan' development.

3.3.5 EXISTING COMMERCIAL

Under the Monaghan County Council Development Plan, the designation 'Existing Commercial' is applied to established retail or service businesses outside of the Town Centre. In Monaghan this type of development is primarily made up of motor service stations, three large hotels, businesses such as Agrihealth and Grahams garden centre/hardware shop and the N54 Retail Park.

This zoning, which is restricted to existing established commercial uses outside the town centre signifies that the dominant location for retail and services is still within the town centre, which under current Retail Planning Guidelines 2012 and the County Monaghan Retail Strategy 2016-2022, is the preferred situation.

Existing commercial activities can be seen in Figure 3.5. There are three main commercial areas which have been grouped together based on their location relative to the main arterial routes into the town centre.

3.3.6 FUTURE COMMERCIAL

As noted earlier, in the context of Monaghan County Development Plan 2013-2019, 'Existing Commercial' land refers to lands with established retail or service use, which are outside the Town Centre. Future commercial developments should be planned in consideration of the policies outlined in the Retail Development Strategy and County Development Plan. Some expansion of the existing activities on these lands may take place over the period up to 2035.

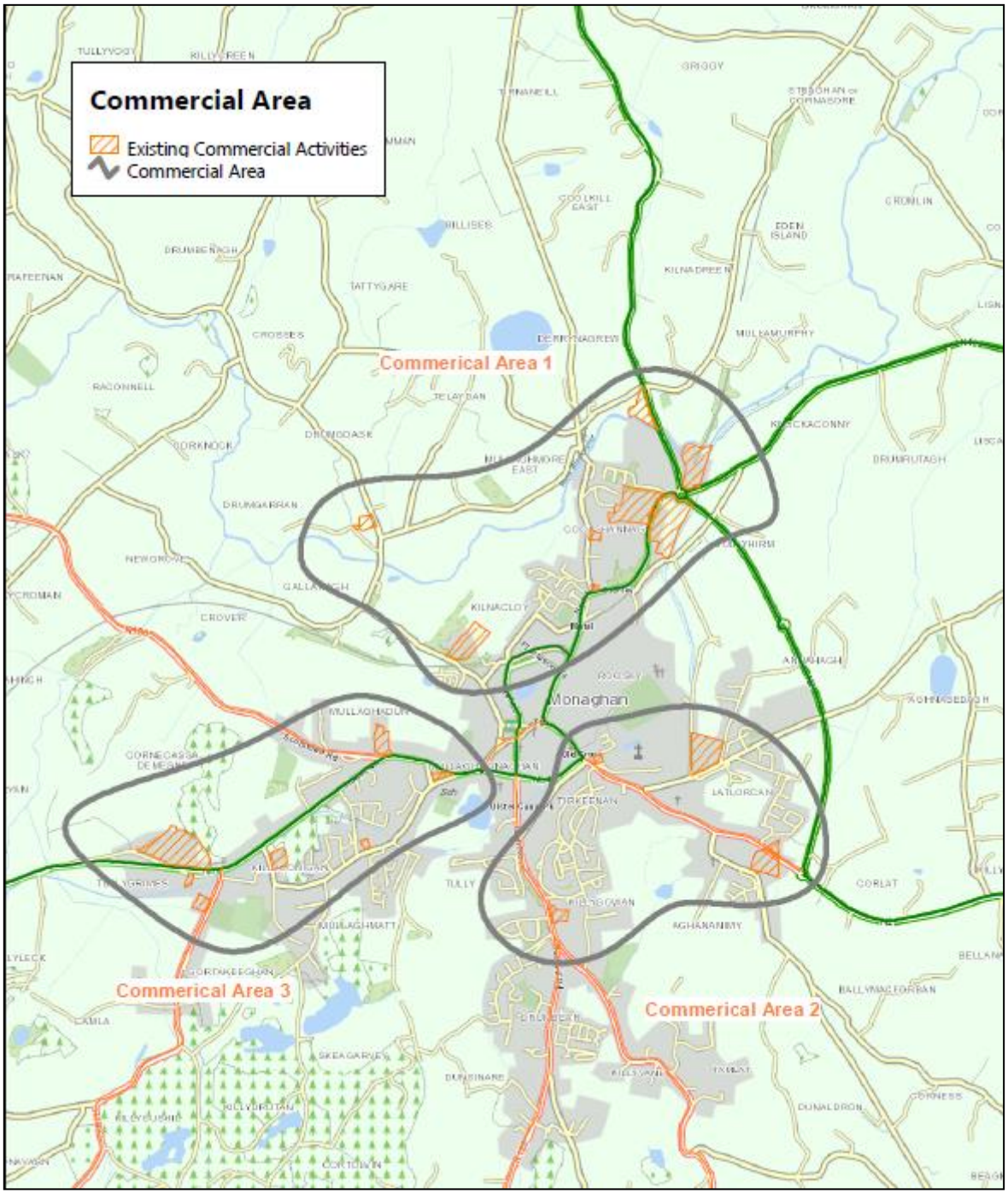


Figure 3.5Existing Commercial Zonings and Areas

3.3.7 EXISTING INDUSTRY, ENTERPRISE AND EMPLOYMENT

In total there are approximately 210 hectares, of lands zoned for Industry, Enterprise and Employment in the Monaghan County Development Plan 2013-2019 (called Enterprise hereafter). Of this, there are 62 hectares of enterprise land already in use at Tullyhirim/Knockaconny/Annahagh to the northeast of the town, Tirkeenan/Latlorcan to the east of the town centre, Gortakeegan and Tullygimes/ Cornecassa Demense to the west of the town and Milltown to the northwest of the town (refer to Figure 3.6 below). Of these Tirkeenan/Latlorcan has limited land availability, Milltown has limited capacity due to flood risk and inadequate road network, and Gortakeegan is restricted by flood risk and Rossmore Park. Five areas containing existing and undeveloped Industry, Enterprise and Employment lands have been grouped together based on their location relative to the main arterial routes into the town centre. (refer to figure 3.6 below).

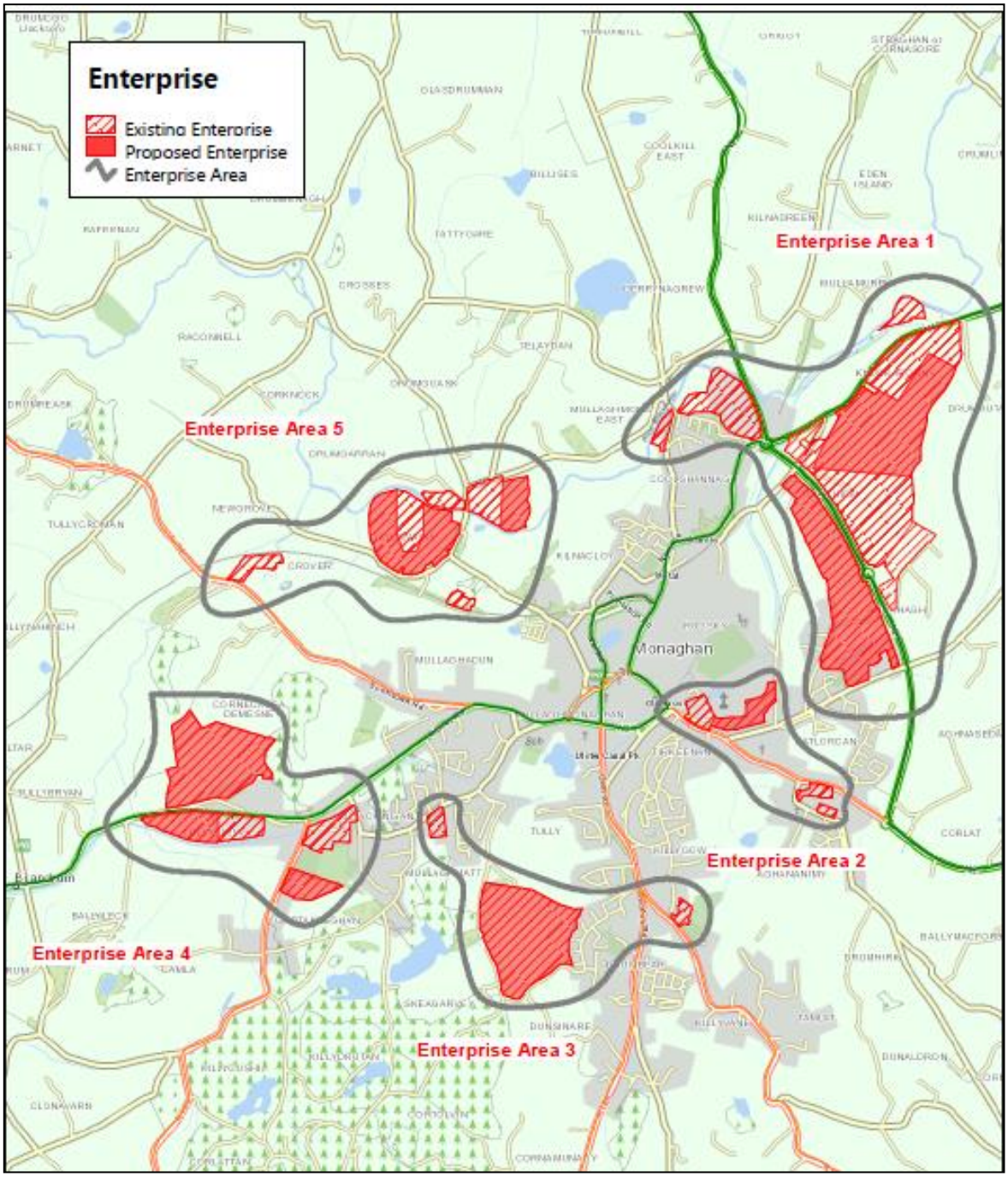


Figure 3.6 Existing Enterprise Areas with Existing and Proposed Enterprise Lands

As previously stated there are approximately 62 hectares of Enterprise land currently developed (Figure 4.7 Enterprise Areas) and are considered to beof strategic economic importance for the town and the county. Long establishedbusinesses such as LacPatrick, Kingspan, CombiLift, IJM, and Mallons provide employment to a substanial proportion of the working population of Monaghan town. There are also a number of areas of zoned Industry, Enterprise and Employment lands that are undeveloped which are detailed below.

Enterprise Area 1: The lands at Tullyhirm, Coolshannagh, Annahagh and Knockaconny are currently well served by the N2 Monaghan bypass. The Ulster Canal Greenway has good connectivity to this Area with the main point of access is at the N12 close to the Coolshannagh Roundabout.

Enterprise Area 2: There are 5.5 hectares of undeveloped land areas at Tirkeenan. This land is very close to the town centre and currently has a very substandard access off the R937 Dublin Road. This area also contains a separate parcel off the R937, consisting of 1 hectare of developed Enterprise zoned land.

Enterprise Area 3: There are 23 hectares of enterprise land zoned at Dunsinare. These lands are greenfield and there is no access to the existing road network.

Enterprise Area 4: Approximately 27 hectares of undeveloped land exists along the N54 (Clones Road). This has not been developed due to access difficulties as access to this site is via the N54 and is constrained by its frontage onto the general speed limit sections of the N54. Development of these lands is pending the implementation of an access strategy developed in 2014.

Enterprise Area 5: There are 27 hectares of enterprise land in the Milltown area. It is extensively developed with only minor scope for further development. Access to this area is constrained by a low speed, narrow road network, which does not easily connect to the National Road network. This area is distant from the Greenway and is not well served by walking and cycling infrastructures.

3.3.8 FUTURE INDUSTRY, ENTERPRISE AND EMPLOYMENT DEVELOPMENT

Monaghan town as the principal town in the county performs a significant functional role at both a county and wider regional level. The town having the largest population in the county, is a driver for economic activity and will continue to perform that role. However, historically the town has underperformed in terms of achieving the population growth allocated to it in national, regional and local strategic planning frameworks, and therefore it is vital that planning policy and objectives create the conditions to assist it in achieving a critical mass that will sustain and enhance its current role.

Monaghan town has a number of constraints to its growth which must be counter balanced to assist it in fulfilling its sustainable growth. The location of the town close to the border with Northern Ireland has truncated the extent of its hinterland and thus has restricted its catchment potential and growth. Although the advent of Peace Process in Northern Ireland has improved the flow of people, goods and services across the border, thereby extending the influence of the town, the exit of the UK from the European Union will have consequences which will impinge on that flow of business and social interaction, which will undoubtedly affect the growth of the town. Therefore it is important that a stronger economic focus is developed to counteract any adverse impacts arising from the exit of the UK from the European Union. This requires the identification of suitable and sufficient lands for both housing and economic development to reinforce and strengthen the function of the town. Part of the approach to addressing the adverse impacts of the exit of the UK from the European Union will be to

capitalise on the potential for UK businesses to relocate to or have premises in the Republic of Ireland to maintain a presence in the European Union.

The identification of residential lands for population growth has been and will continue to be determined by the core strategy set out in the county development plan which is directed by factors such as census data, availability of services, sequentially suitable locations and proximity to existing residential locations. However, the identification of suitable and sufficient lands for economic development is determined by factors such as availability of land that is serviced or planned to be serviced, lands that can physically accommodate large economic developments, lands that are readily accessible to the national road network, and lands within sustainable travelling distances of residential areas within the town.

County Monaghan has a history of small indigenous entrepreneurial businesses such as CombiLift and Monaghan Mushrooms that have grown to become national and global players in their respective fields. Existing growing industries and new industrial/enterprise entrants to the towns require a ready supply of zoned suitable land for Industry, Enterprise and Employment use. Given that Monaghan town has topographical challenges that reduce the extent of choice of lands suitable for economic development proposals, there are a limited locations that would be considered suitable for large scale economic development proposals such as the recently constructed CombiLift Premises at Tullyhirim. These locations are at Tullyhirim/Knockaconny/Annahagh to the northeast of the town and Gortakeegan and Tullygimes/Cornecassa Demense to the west of the town (refer to Figure 3.6 above). Consequently, these lands offer the best scope in terms of consolidation and expansion of existing large scale economic development to serve the demands of this regional town.

As previously stated there are approximately 62 hectares of Enterprise land currently developed (Figure 4.7 Enterprise Areas) and are considered to be of strategic economic importance for the town and the county. Long established businesses such as LacPatrick, Kingspan, CombiLift, IJM, and Mallons provide employment to a substantial proportion of the working population of Monaghan town.

If all of the undeveloped zoned Enterprise land within the study area were fully utilised this would allow for the creation of 4,418 jobs. This is based on assumptions on development intensity (outlined in Chapter 5, Table 5.3) and also assuming 50% Warehousing / 50% Industrial development. This level of job creation would result in very significant levels of commuting into the town for employment. This would result in extreme levels of congestion on the existing network.

In mid-2016 an exercise was carried out by the Planning Section of Monaghan County Council to estimate the most probable development pattern for zoned enterprise lands. The pattern of development of these lands is set out below.

Enterprise Area 1 Predicted Development

The current use of this area is primarily agriculture with a number of one off dwellings on dispersed locations on the westernside. Access to this area is via the Old Armagh Rd or the N2 roundabout at Annahagh. The topography of the land rises on the east and on the west of the N2 by pass. There is a Metropolitan Area Network (MAN)communications cable laid along the N2 by pass.

Significant industrial development has recently taken place in the area. A large engineering and manufacturing operation, CombiLift has developed in the past 12 months. It is anticipated that this development will expand and will attract ancillary development over the coming years. Therefore, this area of town is considered to be of strategic economic importance for the future development of industry and enterprise in Monaghan Town.The proposed developments may possibly affect the operation of the N2 bypass and the N12. It is proposed to construct a link road through these lands, giving them access to both the N2 and the N12 and bypassing the Coolshannagh roundabout.

Enterprise Area 2 Predicted Development

Major development within Enterprise Area 2 is not predicted over the coming years given the current level of Industry, Enterprise and Employment zonings in the current Monaghan County Development Plan. It is considered that more suitable lands elsewhere may be developed first.

A large proportion of this land, west of the Hillgrove Hotel is very close to the town centreand bounded by the Ulster Canal Greenway. The topography of these lands will make large scale industrial development difficult and the existing road network does not suit this use. This land may be more suited to development for recreational uses given its proximity to the town centre, Ulster Canal Greenway, St Davnet's Grounds and the Monaghan Harps GAA grounds

Enterprise Area 3 Predicted Development

Enterprise Area three primarily comprises of lands which are not currently accessible and where topography is extremely difficult. In the absence of a Southern link road, connecting this area to the N54 and N2, it is unlikely that this area of land will be developed for industrial use in the foreseeable future.

However, should a suitable link road be developed, this will be a significant addition to the Southern area of the town along the Cootehill and Ballybay roads. There are very little employment opportunities in this area.

Enterprise Area 4 Predicted Development

This area is strategically located along the N54 Clones Road adjacent to existing industry, enterprise and employment uses. It is also close to residential areas and the proposed extension to the Ulster Canal Greenway, making multi-modal access very achievable.

Enterprise Area 5 Predicted Development

Further development in the Milltown area is extremely restricted by topography, road infrastructure and the Blackwater floodplain. In the absence of an improved road infrastructure in the vicinity, further development in this location will result in increased levels of through traffic in the town centre and along rural roads with limited carrying capacity.

Consequently, having regard to the above the lands at Tullyhirim/Knockaconny/Annahagh to the northeast of the town and Gortakeegan and Tullygimes/Cornecassa Demense to the west of the town (refer to Figure 3.6 above) offer the best scope in terms of consolidation and expansion of existing large scale economic development to serve the demands of this regional town.

3.3.9 EXISTING COMMUNITY DEVELOPMENT

Education

There is a significant cluster of schools in the vicinity of the Park Road accommodating over 850 primary school pupils and approximately 500 secondary school pupils. This cluster consists of St Mary's Boys Primary School, St Louis' Infants, St Louis' Girls Primary and St Louis' Girls Secondary Schools. Beech Hill College is located on the Dublin Road with the main entrance adjacent the Old Armagh Road junction. The school caters for almost 1000 pupils.

The development of the Monaghan Institute campus on the Old Armagh Road has created a major education cluster at the north end of the canal greenway. This site also accommodates the Gaelscoil Ultain primary school and the secondary Colaiste Oiriall with almost 250 pupils each. The third level Monaghan Institute facility can accommodate up to 500 students. St Macartan's College secondary school is located to the north of this campus on the N2 Derry Road with almost 700 male pupils attending this school.

Name	No. of Pupils
St. Louis Girls National School	269
St Louis Infant School	316
St Marys Boys National School	290
St. Macartan's College	682
Coláiste Oiriall	231
Gaelscoil Ultain	244
Monaghan Institute	436
Monaghan Education Centre[13]	270
Monaghan Collegiate School	242
St. Louis Secondary School	498
Beech Hill College	962
Monaghan Model School	124

Table 3.2 Monaghan Schools and no. of pupils

Health

St. Davnet's Campus is a base for a number of health services including Enable Ireland's Monaghan office. It is also a significant part of the Cavan Monaghan Mental Health Service and provides a comprehensive community based service delivered by specialist mental health teams. Project Ireland 2040 will deliver a redevelopment of St Davnet's to provide a Primary Care Centre (PPC), a mental health unit and a 20- bed residential unit for older people.

Monaghan Hospital is located close to the town centre at Hill Street and its primary role includes the continuing care for medically discharged patients requiring inpatient stepdown and rehabilitation care. The Hospital site provides extensive outpatient, theatre and day services with a Minor Injuries Unit.

Recreational & Social

There are several sports and social facilities within Monaghan town catering for children and adults, which are spread throughout the town. Some examples are described below.

[13] Monaghan Education Campus provides teacher training facilities with lecture halls and training rooms to accommodate 270 pupils.

Teach na nDaoine Family Resource Centre originates from a small group of local volunteers who set up an informal local residents association to provide various community activities and to tackle environmental issues in the area. In total Teach na nDaoine maintains 37 employed positions in the centre and 32 volunteer positions.

St. Peters Lake is situated just north of the town centre and along the N54 heading North. It covers less than 1 hectare with depths to 3metres. This lake is surrounded by a small public park and is sometimes used for angling.
Coral Leisure Centre on the N54 close to St. Louis Infant School is home to a25metrepublic swimming pool, gym and tennis courts. Two of the hotels (Four Seasons and Hillgrove) have leisure facilities also.

There are GAA and soccer clubs in the town also. Monaghan Harps GAA grounds is located at Roosky, near Old Cross Square, while Monaghan United Soccer Club facilities are situated on the Threemilehouse Road.

Other social attractions also exist in the town such as the Garage Theatre on the Armagh Road, and the Cinema on the Clones Road.

The St Joseph's Pastoral Care Centre provides community halls and catering rooms with a narthex that links to St Joseph's Church.

3.3.10 CONNECTIVITY

The industrial, commercial and retail sectors are linked to residential areas and to each other, by reasonable road links, there is a poor network of walkways and no cycle network. This results in a perceived dependence on cars. Most vehicular traffic must go through the centre of town to access work, shopping or community facilities. This dependence on cars, coupled with the restricted road network results in a congested town centre.

3.3.11 FUTURE COMMUNITY DEVELOPMENT

Education

No new schools are planned. This is unsurprising given the recent development of the extensive site at Monaghan Institute.

Health

There are no immediate proposals for any large scale health related developments.

Recreation and Social

The current public park at Rossmore is not readily accessible by foot and not illuminated at night, and Monaghan would benefit greatly from the development of another public park closer to the town centre. In the absence of the development of a new public park, improved accessibility to Rossmore Park should be considered.

The public park at Peter's Lake is small and exposed to significant traffic noise and pollution. It has no large open space for recreation and frequently suffers from anti-social behaviour.

The Peace Campus at Plantation Road will be a positive social addition to the town and the access strategy for this development should complement the Monaghan Town LUTS and the Walking and Cycling Strategy.

3.4 CONCLUSION

Possible constraints on the future development of the town are identified below.

Environmental

There are no Natura 2000 sites within the Study area but a significant floodplain exists to the North of the Town. Rossmore Park to the South-West of Monaghan restricts development in this direction. There are also several lakes with associated floodplains within the study area. The general topography around Monaghan is of rolling drumlin hills, which presents some difficulties when planning new infrastructure and transport links

Traffic Conditions

At present, traffic travelling from east to west (i.e. from the N2 and N12 to N54), or vice versa must travel through the town of Monaghan and in doing so, adds to congestion in the town. For this reason a number of by-passes have been identified for the town to reduce the impact on the Town centre.

Preserve the Function of the National Road Network

It is the aim of Monaghan County Council to develop residential, industrial and commercial lands at strategic locations around Monaghan Town. This must be done without an adverse impact on the existing national road network. In order to open up further lands for development an infrastructure plan must be put in place. The first step for this is the examination of the land and road proposals. These are described further in Chapter 6 - 'Integrated Land & Road Use Scenario Testing' & 'Chapter 7 – Road Network Proposals' of this document.

Emerging Issues

The list below summarises the emerging issues with regard to the land use in Monaghan Town:

- Busy junction on N54 (Market Road/Dawson Street/Glen Road/Macartan Road) dictates traffic flows within and around the town during peak times.
- The shopping centre and supermarkets are centrally located and provide key focus points for shoppers and visitors.
- Potential to develop brownfield and backland sites which will provide regeneration to Dublin Street and the North Road and direct connectivity from the town centre to the HSE lands at Roosky.
- Heavy HGV traffic and car priority along the prinicpal streets, particularly Dublin Street, with associated poor pedestrian safety.
- Poor cyclist access and poor cycling facilities.
- Potential for development of a new public transport hub to enhance accessibility to the town centre.

The land use analysis of the study area in Monaghan in terms of residential, employment lands, and retail and community facilities has highlighted a number of issues that require attention:

- Monaghan town has the largest convenience and comparison floor space compared to other towns in the County. (County Monaghan Retail Strategy 2016-2022, Chapter 3)
- Existing community and recreational facilities are not easily accessed due to traffic congestion in the town centre and there is need to improve the connectivity between them.
- There are sufficient lands available and suitably zoned to provide for projected growth in population within the town over next twenty years but improved infrastructure is necessary in order to ensure that this expansion of the town occurs in a sustainable manner.
- There is potential for further development of lands zoned for employment uses but improvement to the road network is necessary to facilitate this.

The established development pattern of a tight central retail, hospitality and service business locations, surrounded by a mixture of Residential and Community based land uses with Enterprise land uses on the town outskirts lends itself to a healthy sustainable town. Monaghan currently suffers due to a lack of adequate high quality linkages between these areas, with traffic regularly having to enter the town centre to travel back-out to the destination location.
However, most journeys within the town should be relatively short and may in the right circumstances be made by walking or cycling.

Policy must ensure better urban design and a layout of new housing to encourage 'walkable' environments as opposed to traditional cul-de-sac developments which reinforce reliance on the private car. In addition consideration is required on how the large amount of ribbon development and clusters of one off housing just outside the town boundary impacts on all routes leading into the town.

The undeveloped zoned lands for Industry, Enterprise and Employment use offer an important landbank to Monaghan town and a number of the sites have potential for very good access to the national road network. The future development potential of these lands is critical to the economic function of County Monaghan and will provide security for employment, housing and services within the town. These undeveloped zoned lands offer huge potential to existing industries and it is imperative that these operators can be provided for if expansion or intensification requirements are necessary. However, it must again be noted that the lands to the west and the south are somewhat constrained in their attractiveness to increased economic activity by the already congested town centre. It is clearly evident that there is a void in infrastructural links between the different Enterprise Areas within Monaghan Town.

4 ROAD NETWORK & TRANSPORTATION CONDITIONS

4.1 EXISTING ROAD AND STREET NETWORK

Monaghan town has three national roads in its environs. The N2 (Dublin – Derry Road), the N12 (Armagh Road) and the N54 (Clones, Cavan) road. It has five regional roads, the R186 (Scotstown Road), R189 (Threemilehouse Road), R188 (Cootehill Road), R162 (Ballybay Road) and the R937 (Old Dublin Road). The map on Figure 4.1 indicates these roads and they are described in more detail in 4.1.1 and 4.1.2.

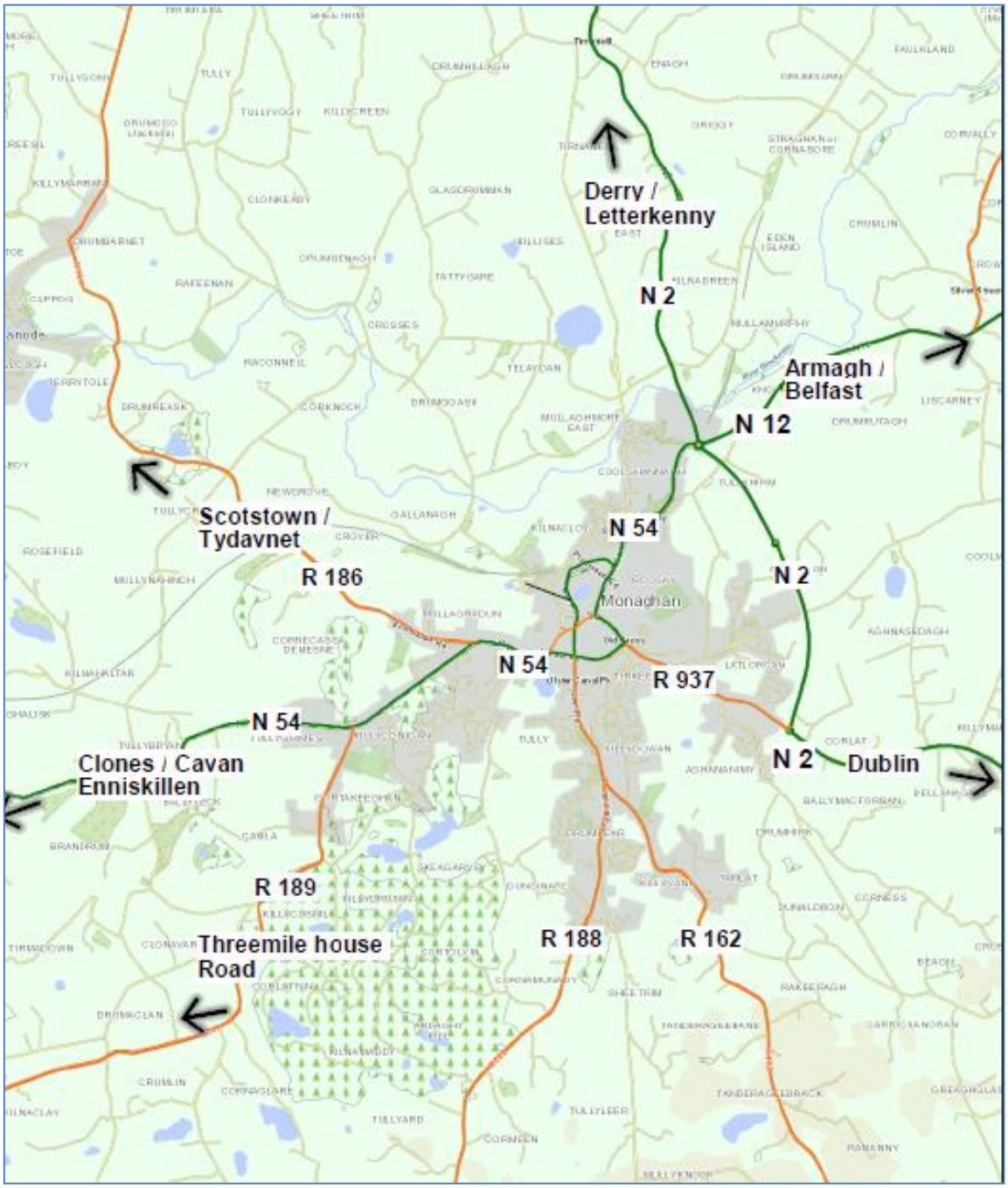


Figure 4.1 Major Roads in Monaghan

4.1.1 NATIONAL ROADS

N2 (AADT 8,000[14])

The N2 is a national primary route between Dublin and the Northern Ireland border north of Monaghan. The N2 enters the LUTS study area from the southeast and is the main road into the town from Dublin, Carrickmacross, Castleblayney and Dundalk. The N2 bypasses Monaghan Town on the eastern side and then travels north to Emyvale and Augnacloy. At the border it joins the A5 which connects to Derry and Donegal. Traffic counts show that the N2 by pass carries an Annual Average Daily Traffic (AADT) of 8,000 vehicles every day. Within the Study area the N2 is a wide single carriageway with hard-shoulders and a 100km/hr speed limit apart from two short 50km/hr sections on the approaches to either end of the bypass. The N2 Monaghan by pass was opened in 2006 and is the last major road scheme constructed in Monaghan town.

N12 (AADT 5,000)

The N12 is a national primary road, which connects Belfast, Armagh and the eastern part of Northern Ireland with Monaghan Town. Traffic counts show that the N12 carries an Annual Average Daily Traffic (AADT) of 5,000 vehicles every day. Within the study area this road is a narrow single carriageway without hard shoulders, it falls from 100km/hr down to 60km/hr and then 50km/hr as it enters the town.

N54 (AADT 12,000→7,400[15])

The N54 is a national secondary road that starts on the north-eastern side of the town where it is linked to the N2 and N12 at Coolshannagh roundabout. It travels right through centre of Monaghan Town and exits on the western side of the town where it then travels towards the towns of Clones and Cavan. The N54 on the north eastern side to town is the busiest road in the study area with an AADT of over 12,000 vehicles with approximately 5% of them Heavy Goods Vehicles (HGV's). The N54 on the western side of Monaghan town has less traffic with an AADT of 7,400 vehicles. It experiences significant congestion at morning and evening peak travel times.

4.1.2 REGIONAL ROADS

R186 (AADT 4,200)

The R186 Scotstown Road connects Monaghan Town with the town of Tedavnet and continues north to the Northern Ireland border with Co. Tyrone. This road mainly carries traffic to and from the towns of Scotstown, Bellanode and Monaghan Town.

R189 (AADT 3,700)

The R189 Threemilehouse road connects the village of Threemilehouse and its hinterland to Monaghan Town.This road mainly carries traffic which has a destination or origin in Monaghan Town.

R188 (AADT 5,500→8,800)

The R188 Cootehill Road carries a large number of vehicles with an AADT of 5,500 vehicles per day.

R162 (AADT 3,300→10,000)

The R162 Ballybay road joins the R188 at the Glen Road. The R162 (Glen Road) carries the combined traffic from R188 (Cootehill) and the R162 (Ballybay) Roads with a total of 10,000 AADT. Significant

[14] AADT 8,000 is for Monaghan Town only (N2 ranges from 10,442 at Aclint to 6,366 at Moybridge)

[15] AADT 12,000 is for Monaghan Town at Four Seasons & 7,400 at Clones Road

traffic congestion occurs inbound on this road during the morning peak . This appears to be generated by capacity issues at the Glen Road /Dawson Street junction and also the poor school drop off facilities for St. Louis Secondary School.

R937 (AADT 13,000)

This is known as the Dublin Road and was previously a part of the N2, prior to the construction of the N2 bypass. It still serves as the main entry point for vehicles from the N2 south and south east of the town wishing to access the town and to pass through the town to access the N54.

4.1.3 JUNCTIONS

An intersection is a junction is where two or more roads meet or cross. An intersection can be classified by number of road segments, traffic controls, and/or lane design. The Monaghan town junctions are mostly simple T junctions. There is one signalised cross roads and five roundabouts. The main junctions in Monaghan Town are listed below in table 4.1.

1	Glen Rd/Dawson St/ Market Rd/Macartan Road	Crossroads with traffic signals
2	Coolshannagh Roundabout	Roundabout (Multi Lane)
3	Corlat Roundabout	Roundabout (Multi Lane)
4	Annahagh Roundabout	Roundabout (Multi Lane)
5	Old Cross Sq / Dublin Road/ Macartan Rd Roundabout	Roundabout (Single Lane)
6	Margaret Skinnider Roundabout (N54 Clones Road/ Market Road/Park Street)	Roundabout (Single Lane)
7	Coolshannagh Road/ N54	Simple T Junction
8	North Road/ Glaslough Street	Simple T Junction
9	Plantation Road/ Glaslough Street	Simple T Junction
10	Glaslough Street Car-park Entrance	Simple T Junction
11	The Diamond/ Dublin Street	Simple T Junction
12	The Diamond Car-park Entrance	Simple T Junction
13	Plantation Road / North Road	Simple T Junction
14	Rowntree Hill/ North Road	Simple T Junction
15	Hospital Entrance / Rowntree Hill	Simple T Junction
16	Castle Road / Macartan Road/ Mall Road	Crossroads
17	Shopping Centre Court House Car-park / Church Square	Simple T Junction
18	Park Road / N54	Simple T Junction
19	N54 at Leisure Centre	Simple T Junction
20	Market Street/ Dawson Street	Simple T Junction
21	Hill Street / Mill Street	Simple T Junction
22	Cluain Ard / N2	Simple T Junction

Table 4.1 List of Monaghan Town junctions

Junctions represent the major point of conflict between road users, with intra modal (e.g. general traffic to general traffic) and inter modal (e.g. general traffic/ pedestrian/ cyclist) conflict occurring. In terms of the efficient operation of an urban traffic management system, the layout and operation/ management of junctions is essential to ensure that a fair balance is achieved between the competing needs of each transport mode. Given the conflict between road users that exists at junctions, the traffic management arrangements in place determine how well the junction will perform from a safety perspective.

The junctions listed below were considered to have operational or capacity issues and were assessed using the Monaghan Traffic Model. The results of which are summarised in Chapter 9.

1. Coolshannagh Road/ N54
2. Margaret Skinnider (N54 Clones Road / Park Street / Market Road) Roundabout.
3. Park Road / N54
4. Glen Road/Dawson Street/ Road / Macartan Road
5. Macartan Road/Castle Street/Mall Road Junction
6. Old Cross Square

4.2 CAR PARKING

Monaghan Town currently has 1,922 no. of available parking spaces. There is a mix of long & short term, public & private and pay & non-pay parking, all available within easy walking distance of the main retail, education and work centres. A large proportion of employees/ business owners who are based in the town centre make use of these long term or private car-parks, for day time parking. The majority of large employers outside of town centre provide free on-site parking to their employees.

In 2016 Atkins were appointed to complete a parking strategy for the town on behalf of Monaghan County Council. As part of this process significant car parking surveys were undertaken. The results show that the parking demand within the town is variable. The peak demand for parking on the weekday is between 11:00 and 12:30. On the weekend the peak demand is less than the weekday but extends from about 11:00 to 16:30. The peak demand on the weekday was 1,143 with occupancy of 60% and the peak demand on the weekend was approximately 970 with 50% of spaces occupied. Glaslough Street (short & long stay), the Lower Courthouse and the Convent car parks are operating at or close to capacity in the weekday. The overall occupancy in the six short stay public car parks is 63% on weekdays.

The location of the parking spaces, the numbers of spaces and the occupancy in each of the car parks is given in Tables 4.2 and 4.3. The map on Figure 4.3 also shows the Car Parking in Monaghan.

Long Stay Car Parks		**Weekday**		**Weekend**	
	Available Spaces	Peak Demand(No. of spaces occupied)	Occupancy	Peak Demand (No. of spaces occupied)	Occupancy
Glaslough St	140	137	98%	77	55%
The Convent	37	32	86%	11	30%
Lower Courthouse	127	118	93%	75	59%
McNally's Yard	169	56	33%	55	33%
Roosky Vale	36	20	56%	5	14%
Total	503	363	72%	223	44%

Table 4.2 Parking Spaces and Occupancy Rates in Long Stay Car Parks

Short Stay Car Parks		**Weekday**		**Weekend**	
Glaslough St	156	138	86%	141	88%
Old Cross Square	30	24	80%	16	53%
McNally's Yard	85	12	14%	4	5%
Lower Court House	112	50	45%	37	33%
Courthouse	145	88	61%	90	62%
The Diamond	60	50	83%	35	58%
Total	575	362	63%	323	56%

Table 4.3 Parking Spaces and Occupancy Rates in Short Stay Car Parks

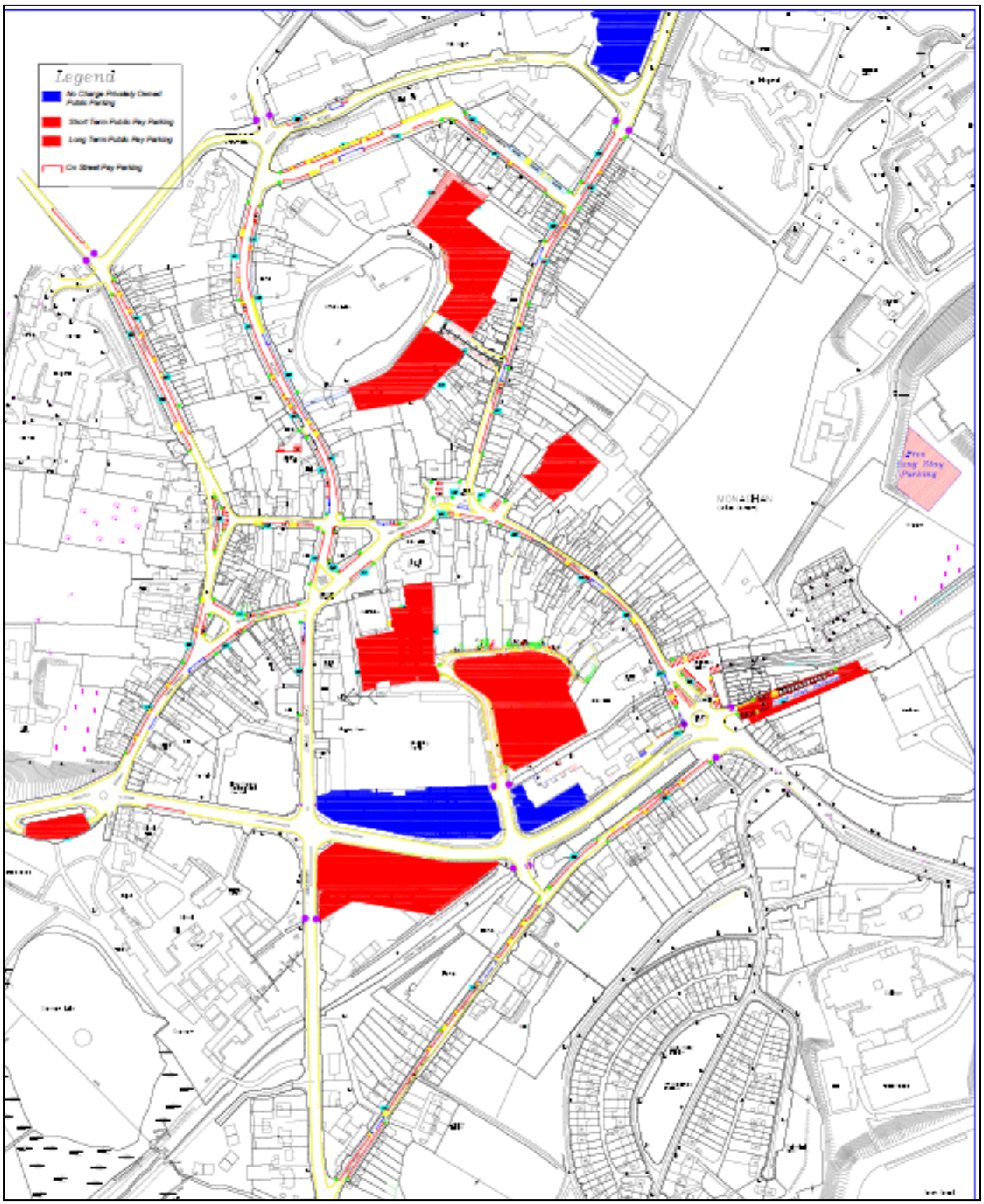


Figure 4.2 Car-parking Provision in Monaghan Town

4.2.1 PUBLIC CAR PARKS - DURATION OF STAY

The surveys were carried out by Atkins in 2016 show the profile of occupancy durations in the public carparks. On the weekday 31% of parking events were less than 30 minutes in duration, approximately 28% were between 30 minutes and up to 2 hours in duration, with the remaining (41 %) being long stay at 2 hrs+ duration.

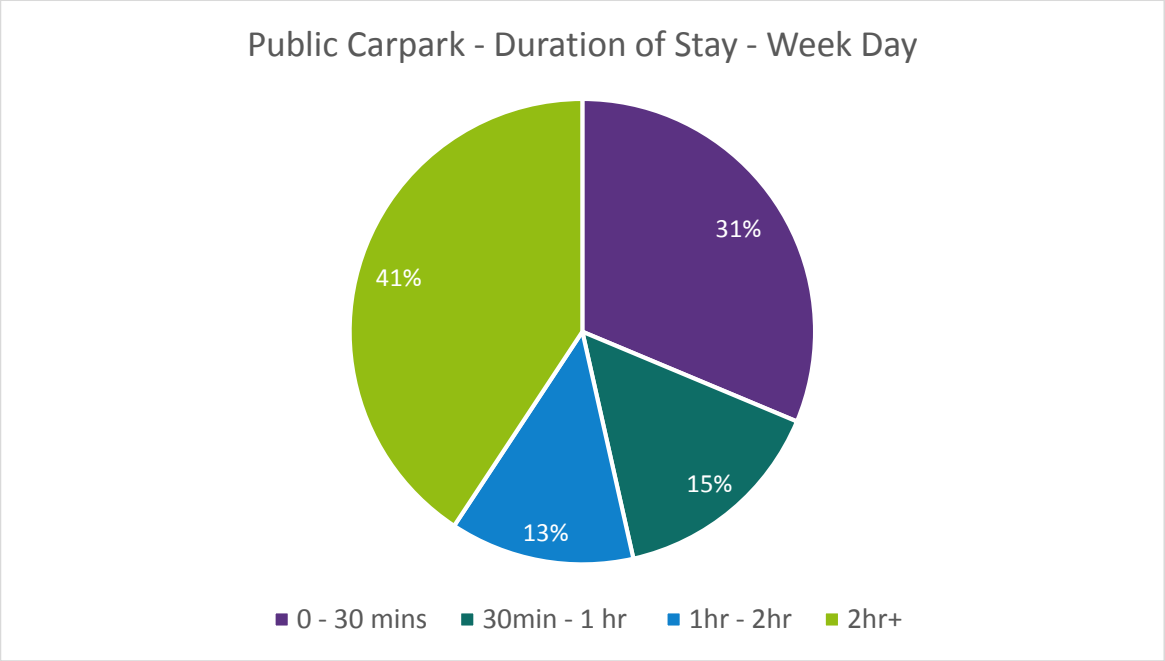


Figure 4.3 Duration of Stay for Public Parking (Week day)

The significant use of the long term car-parks, which provide parking for a fixed daily rate, facilitates people who work in the town to use their private motor car to commute to work. Glaslough Street car-park has the highest occupancy rates, with the long term car-parking area fully utilised. The Courthouse car-park also experiences high demand for long term spaces. However, McNally's car-park is under utilised. Overall weekday occupancy for long terms spaces is 71%.

4.2.2 ON-STREET PARKING- DURATION OF STAY

Surveys shows that paid on-street parking has nearly 45% occupancy rate in the town centre during working hours. However this varies greatly across streets depending on distance from the town centre. On-street parking charges are the same rate as the off-street short term parking.

The duration of stay for the weekday parking events is shown in the figure below. With reference to this figure, almost 45% of the weekday events were less than 30 minutes in duration, approximately 26% were between 30 minutes and 1 hour in duration, approximately 12% were between 1hr – 2hr and 17% were over the 2hr limit.

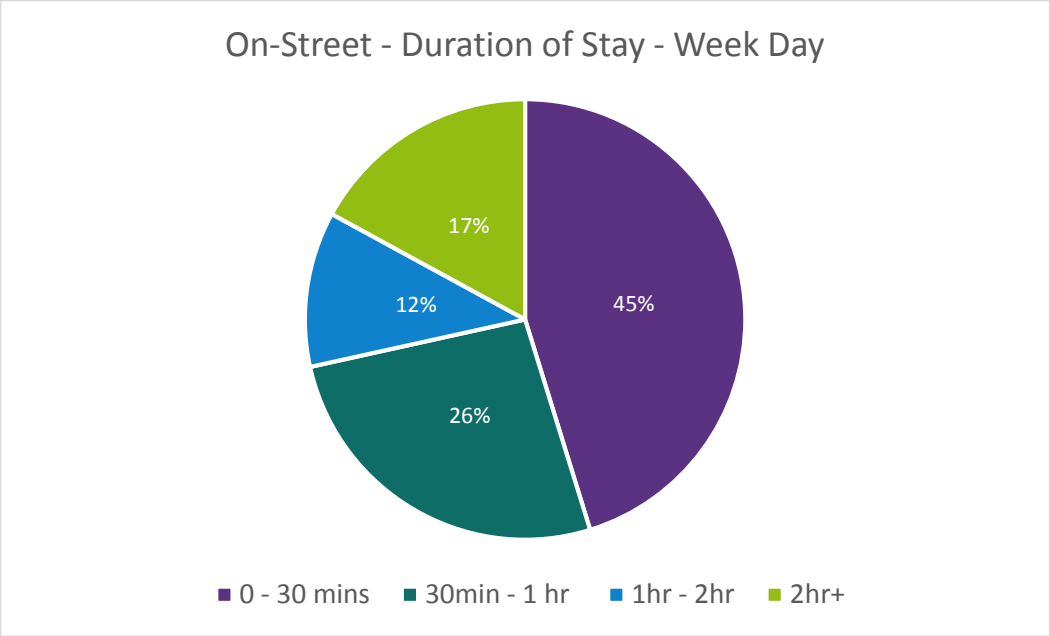


Figure 4.4 Duration of On Street Parking (Week days)

The demand management inherent in pay-parking is evident by the fact that 75% of weekday on-street parking duration is less than 1 hour.

As part of the study Atkins carried out stakeholder interviews and the following is a list of the observations on the existing situation and issues that stakeholders noted.

- Meter Feeding: People parking for the full day in the on-street parking spaces.
- Residential Permit parking: Residential parking takes up the majority of the spaces on certain Streets as they are exempt from parking time restrictions and are there all-day.
- Insufficient number of parking machines.
- There is insufficient parking for long stay spaces in Glaslough and in Lower Courthouse car parks.
- The current long stay parking fee is insufficient to encourage people to use the free car park at Monaghan Harps GAA grounds.
- Double parking at the Convent car park means users cannot exit from parking spaces.
- Parking is occurring in the hard shoulder along Clones Road.
- Pop-up Car Parks – Pop-up car parks are operating within the town.
- The 10 minute grace period is regularly abused and is difficult to enforce.
- People have security concerns walking to Roosky Vale and Monaghan Harps GAA grounds car parks.
- The potential loss of parking at McNally's Yard is a threat to the town parking.
- Parking at late night takeaways can cause some traffic issues.
- Loading provision within the town operates well and is appropriate to meet the demand.
- The current 2 hour on-street parking limit works well.
- Some spaces at the bottom of Lower Courthouse should be amended to long stay
- There is a need for additional spaces to the east of the town – maybe Library area.
- Preference should be for Council to have ownership of town centre parking.
- Could Bye-Laws be amended to allow customers to unload.
- The free long stay parking should be promoted.

- Parking within the town centre should be prioritised for short term shoppers

A survey of the public was carried out on attitudes and opinions on parking in Monaghan. The main issues of concern for people parking in Monaghan are listed below

- Insufficient parent/child parking
- Limited on-street parking spaces
- Finding a parking space
- Safety and security in car park
- Insufficient disabled parking

A parking strategy was developed with recommendations for improvements which are outlined in Chapter 9.

4.3 PEDESTRIAN AND CYCLING FACILITIES

The Design Manual for Urban Roads & Streets (DMURS) recommends that the minimum footway width is based on the minimum space needed for two wheelchairs to pass each other i.e 1.8m. However in densely populated areas and along busier streets, additional width must be provided to allow people to pass. In areas of moderate pedestrian activity the desirable width is 2.5m and with higher pedestrian activity the desirable width is 3.0m.

Footpaths in Monaghan Town vary in width and condition. Many footpaths are two metres in width with only a few areas in the town centre where they are narrower. The areas that exhibit highest pedestrian flow within the town are around Church Square, Mill Street and The Diamond. The pedestrian areas of concern in Monaghan Town are the main traffic pinch-points where carriageway width is also restricted. Pedestrian counts carried out in 2015 show that the junctions with the highest pedestrian activity are those listed on table 4.4.

1	Market St/ Church Square/ Courthouse Car Park
2	Hill Street / Mill Street
3	Glaslough St/ Dublin St/ The Diamond
4	Margaret Skinnider Roundabout
5	Market Road/ Dawson Street
6	Park St/ Hill Street / Market St
7	Dublin Road/ Pound Hill
8	Old Cross Square/ Rooskey Vale
9	North Road/ Glaslough Street
10	N54 Derry Road/Coolshannagh Road

Table 4.4 List of Locations of High Pedestrian activity

One of the most vulnerable groups of pedestrians are school children. As well as distance, the safety of the pedestrian environment is a key factor that determines the number of children that walk to school. Children are less inclined to walk when there are high traffic volumes or excessive traffic speeds along their route.

The table 2.2 in Chapter 2 showed that Monaghan Town has a very high percentage (22%) of people that walk to work or school compared to the national figure of 14 %[16].
It is therefore very important to provide a good pedestrian network to facilitate the journeys on foot from home to school and work.

4.3.1 CYCLING FACILITIES

Apart from the Monaghan Greenway there is very little in the way of cycle lanes
in Monaghan town. There is 0.6km of a shared cycle lane/ footpath from the Monaghan Institute to the Coolshannagh Roundabout that connects with the Greenway and a 0.5km laneway (Dummy's Lane) recently resurfaced. Fig 4.5 sets out the existing walking / cycling routes around Monaghan Town.

[16]It should be noted that the national figure would include rural schools.

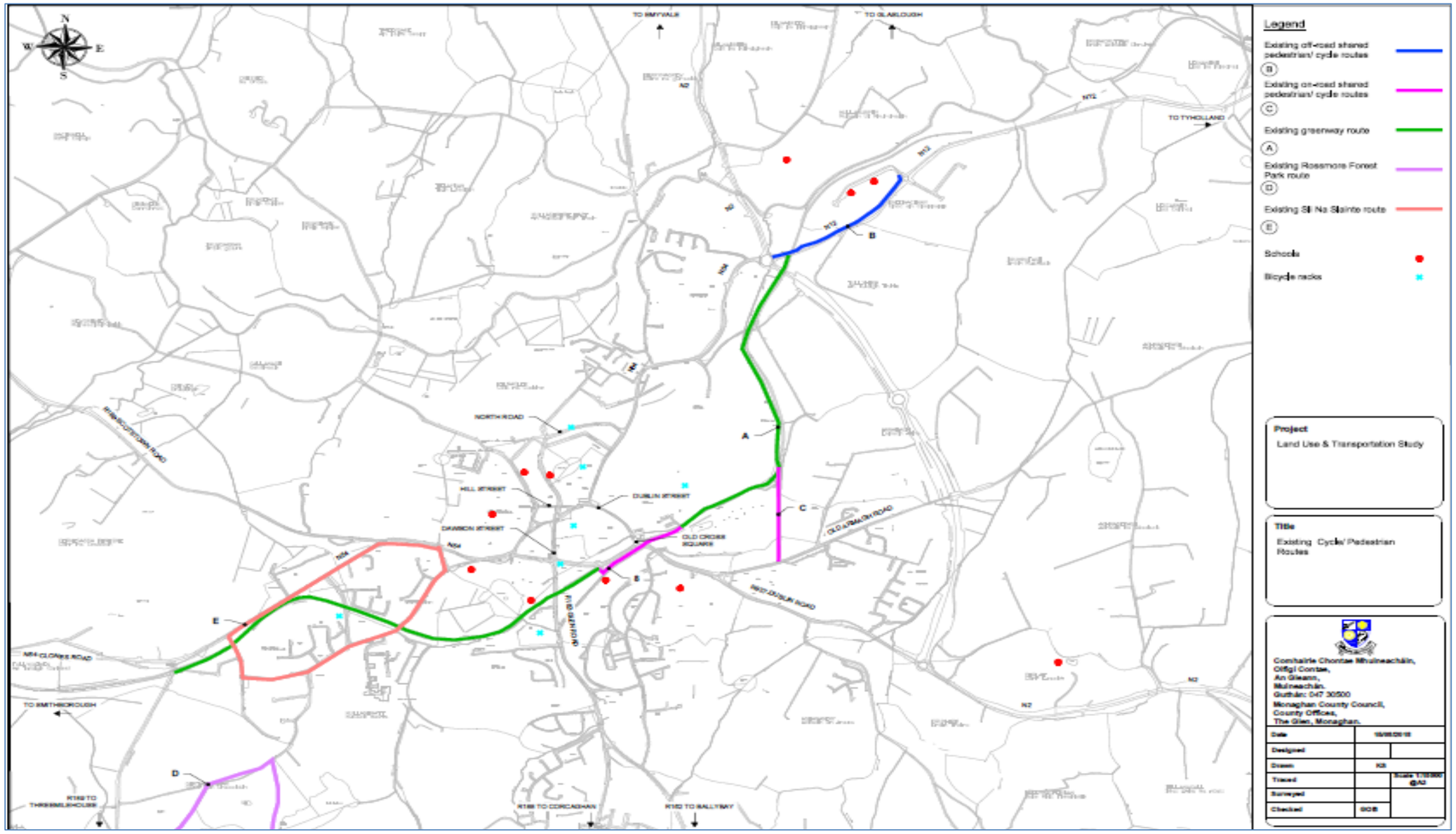


Figure 4.5 Existing Walking & Cycle Routes Monaghan Town

4.3.2 THE ULSTER CANAL GREENWAY

The Ulster Canal through Monaghan links the River Blackwater at Moy and with the Erne near Clones. It was built between 1825 and 1842 and it opened in 1891. It is 93 Km in length and links Lough Neagh to Lough Erne and the Shannon-Erne Waterway. By the time it was completed, competition in the form of the Ulster Railway from Belfast to Clones was already under construction. The canal was never a commercial success and was formally abandoned in 1931.The re-opening of the Ulster Canal would constitute a large engineering project which would provide significant direct and indirect benefits in the areas of tourism, heritage and economic development. With careful relocation of existing premises, a canal basin could be formed very close to the town centre, thus providing a vital source of recreation and economic spin-off to the town, and generating new development opportunities in the town centre.

The Ulster Canal Greenway (Figure 4.6) was opened in Monaghan Town in 2013. It is a 4.2 km path that skirts the town from the north east to the south west along the towpath of the disused Ulster Canal. It is graded as an 'easy' route, suitable for the moderately fit, and is accessible to wheelchair users. The Greenway is available to all non motorised forms of traffic including cyclists, joggers, strollers and casual walkers.

In partnership with Waterways Ireland, Armagh City, Banbridge and Craigavon Borough Council and East Border Region Ltd., Monaghan County Council launched Phase 2 of the Ulster Canal Greenway Project on the 11th of September 2017. More details of the Greenway Phase 2 is outlined in section 8.6.1 - Proposed Cycle routes.

The impact of Greenway projects in other towns has been transformative and very impressive. It has been seen that providing a safe, segregated space for cycling and walking will bring people out to cycle and walk for leisure or commute to work. Greenways can be fantastic resources for local communities (including school children), recreationalists looking for an off-road experience and tourists. Tourism, in particular, has the potential for substantial economic impact in rural areas.

The Greenway project is also investigating the potential development of car parks on the route of the Greenway on the south east and north west of the town.

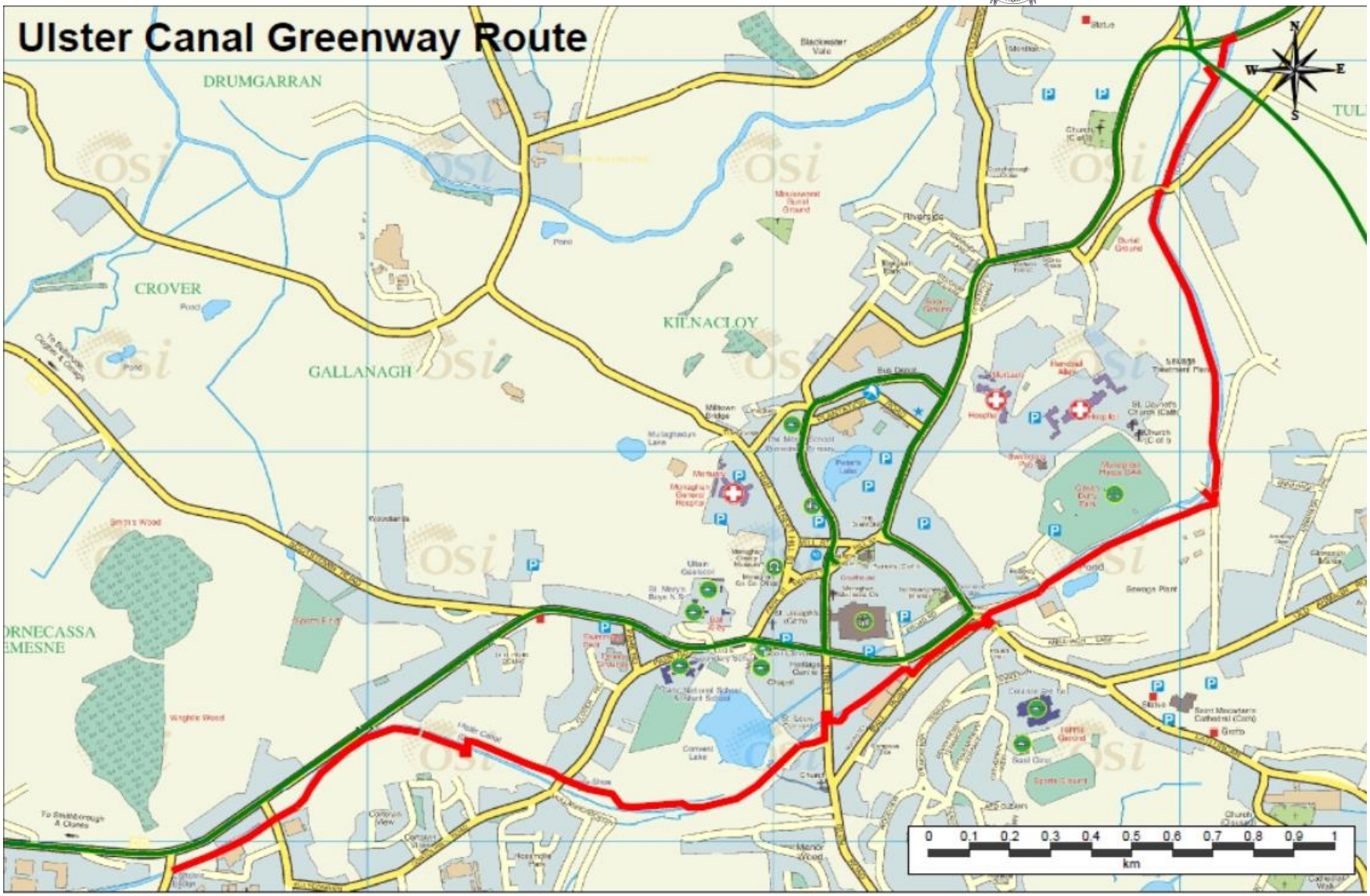


Figure 4.6 The Ulster Canal Greenway Route

4.3.3 COUNCIL PROMOTION OF WALKING & CYCLING

The County Development Plan 2013-2019 includes the following objective under Transportation:

> "Promote and facilitate the use of cycling and walking as alternative sustainable modes of transport in accordance with the provisions of the National Cycle Policy Framework 2009-2020."

Monaghan County Council supports walking and cycling activity, and commuting by foot and bike presently by:

- Participating in National Bike Week each year. It co-ordinates community-run cycling-themed events around the county.
- Monaghan County Council has appointed a Cycling Officer, who acts as a point of contact for all cycling matters within the Council
- Walking and cycling form an important part of the programme of Monaghan Sports Partnership, which is housed under the umbrella of the Council.
- It insures and maintains a number of community-initiated trails, such as the Monaghan Way
- It funds a number of events, such as the Blackwater 10k, which takes place annually in Rossmore Forest Park
- It has leased Rossmore Forest Park from Coillte and upgraded all walks within the park. Further improvements to the amenity are planned
- It has worked with local communities to provide footpaths and lighting in rural areas which are being used regularly as local walking 'loops'
- Cycle parking is provided in town centre
-

4.3.4 WALKING & CYCLING STRATEGIES

Monaghan Town: Active Travel Town Walking and Cycling Strategy, 2012

A walking and cycling strategy was commissioned by Monaghan County Council in 2012 to identify a network of walking and cycling routes that would link with the Ulster Canal Greenway and also provide for improved access throughout the town and its environs. The strategy document was produced by Kieran Boyle Consulting Ltd in November 2012. The Strategy made a number of recommendations for improving walking and pedestrian facilities. However, a number of these have not been carried out. As part of this LUTS a detailed review of the recommendations was carried out. The conclusions of this review are outlined in Chapter 8 (section 8.4 and 8.5) and summarised in Appendix A.

Draft Walking & Cycling Strategy for the County, 2017

Monaghan County Council developed a draft Walking & Cycling Strategy for the County in 2017 and comments are currently being sought from the public. This draft Strategy was developed by Monaghan County Council to bring together ongoing works by the Council's Roads, Planning, Tourism and Community Sections. It is also a response to the increasing demand from the public and the community sector for more walking and cycling infrastructure and amenities which will facilitate leisure activity and commuting.

It will reinforce the work commenced in 2012 with the Walking & Cycling Strategies for the towns of Castleblayney and Monaghan and the success of the Ulster Canal Greenway Phase I project. The Strategy includes a list of high level actions under the headings of Road Safety, Recreation & Tourism,

Road Design, Accessibility and Sustainable Transport. The following actions are relevant to Monaghan Town:

Road Safety

- Deter the public from walking on public roads where there has been no footpath provided for this purpose.
- Support communities which wish to provide safe, off-road walking amenities in their area

Recreation & Amenity

- Commit to creating as many public recreational spaces as possible throughout the county, and ensuring that they are suitable for walking and cycling

Tourism

- Seek to develop infrastructure of significant scale, so as to act as trip attractors to the county
    - Develop the following Greenways, in collaboration with our neighbouring Councils and other partners:
        - Ulster Canal Greenway (Clones-Smithborough-Monaghan-Middletown)
- Work with clubs & tourism providers to develop a programme of walking and cycling festivals throughout the year, to showcase our infrastructure

Road Design

- Seek to incorporate walking and cycling-friendly design into all new road design projects
- Where road width does not allow for segregation of cyclists from other traffic, Monaghan County Council will seek to either:
    - lower the general speed limit, or
    - restrict the number and/or size of vehicles using a street at any one time, so that cyclists and traffic may safely share the same space

Accessibility

- Ensure that walking and cycling infrastructure is age friendly
- Design walking and cycling infrastructure with the needs of people with disabilities in mind at all times

Sustainable Transport

- Promote the Smarter Travel message and work to encourage more commuters to limit use of the motor car and complete at least the last part of their journey by bike or on foot
- Develop Walking & Cycling Plans for each town and implement as funding allows
- Develop car parks on the edge of the larger towns to facilitate commuters to park and cycle/ walk, and encourage schools to develop walking bus systems from these locations
- Maintain the 'GoMonaghan' brand and website to promote sustainable transport around the county
- Work with schools and businesses to put Active Travel Plans in place to assist them to achieve behavioural change.

The draft strategy can be viewed on the 'Go Monaghan' website.
https://gomonaghan.ie/latest-news/

'Go Monaghan'

'Go Monaghan' is a Monaghan County Council website with information about the various activities and programmes which are going on in Monaghan county which promote the idea of sustainable travel. The concept comes from the Department of Transport's 'Smarter Travel' strategy, which aims

to create a shift in travel patterns away from the private motor car and onto more sustainable transportation, such as public transport, bicycles and walking. The Go Monaghan website has up to date information on, public transport routes, rural transport routes, local link, bike trails, bike week, cycle to work scheme, hospital buses, rural hackney scheme, walking and running clubs.

4.4 PUBLIC TRANSPORT

4.4.1 BUS SERVICES

With the lack of a passenger rail service to Monaghan, bus services have traditionally been the sole method of long distance commuter public transport provision available in the town. There are two main companies operating services in Monaghan and its environs; Bus Éireann and Ulster Bus, with Local Link providing local rural transport services. McConnons and McGinleys provide daily early morning services to Dublin.

Bus Éireann

Bus Éireann is the primary public bus transport provider to the local population of Monaghan. The company has sevenservices that currently run through Monaghan town at various frequencies.

Expressway -One Core Route

Letterkenny – Monaghan – Dublin (Route 32)

Public Service Routes

65: Galway - Athlone – Cavan- Monaghan - Belfast
162: Dundalk – Monaghan – Clones – Cavan
175: Monaghan – Cootehill- Cavan
182: Monaghan – Ardee – Drogheda

Schools Operations

- 172 Daily School trips operate in Monaghan
- 47 operated by Bus Éireann
- 125 operated by private contractors
- 3,700 Children travel by bus to school daily in Monaghan

Ulster Bus/ Translink

Ulster Bus operated by Translink has four services that currently run through Monaghan town.
270 & 271: Belfast - Armagh - Monaghan – Clones - Cavan
278: Monaghan – Armagh - Portrush
X3: Derry/ Londonderry – Monaghan- Dublin

McConnons Bus

McConnons Bus has two early morning departures to Dublin, which cater mainly for commuters.

Mc Ginleys Bus Service

Mc Ginleys Bus Service has a number of services from Donegal to Dublin that pick up and drop off passengers at Sam's Diner/Maxol Garage (N2). The number of services range between two and five depending on the day of the week.

Local Link

Local Link is the voluntary organisation founded in 2003 and based in rural mid Monaghan which is responsible for co-ordinating the Rural Transport Programme in Co. Monaghan. It operates as a sub-committee of Latton Social Services and Development Ltd. The programme currently provides 46 weekly services throughout the county. Local Link, in consultation with the National Transport Authority has started a number of services (5 to 6 times daily) from local towns and villages to Monaghan. These are described in more detail in Chapter 8, section 8.6.2.

Monaghan Bus Station

The Monaghan Bus Station is located on the North road and has no direct pedestrian or cyclist connections to the town centre. A walk from the Bus Station to the Diamond at the centre of Monaghan town takes about 10 minutes. All bus journeys currently travel through the town centre and those using the bus station have limited facilities and services available to them. There is merit for both public and private users, including tour buses in considering a specific town centre public transport interchange or bus hub closer to the main retailing hub of this area. The new bus hub could also include facilities for taxis, park & ride and provide pedestrian and cyclist connections to the town centre.

4.4.2 TAXI SERVICES

The National Transport Authority (NTA) provides statistics on the number of taxi and hackney vehicle licences by County. As of December 2017 Monaghan has only 12 vehicles carrying taxi licences and 41 vehicles with hackney licences in the entire county. This is the lowest number of taxi licences for any county in the country. This clearly demonstrates that people are dependent on private car for primary transport needs.

Hackney	Limousine	Local Area Hackney	Taxi	Wheelchair Accessible Hackney	Wheelchair Accessible Taxi	Total
41	15	1	12	3	9	81

4.4.3 RAILWAY

County Monaghan was served by an extensive rail network from the 1860's until the 1950's. Initially, the Ulster Railway linked Monaghan to Armagh in 1858 followed by a link to the Dundalk and Enniskillen Railway at Clones in 1863. In 1876 both railway companies merged with the Northern Railway of Ireland to form the Great Northern Railway of Ireland (GNRI). The creation of the border in 1921 following partition and the subsequent change in economic activity combined with increasing road competition affected the GNRI's prosperity resulting in its joint nationalisation by the Irish and NI governments in 1953. The two governments ran the railway jointly under the Great Northern Railway Board (GNRB) which closed the line between Portadown and the border in 1957, resulting in the withdrawal of passenger services from Clones to Northern Ireland. CIÉ took over the remaining section of line between Clones, Monaghan and Glaslough in 1958 following the dissolution of the GNRB but withdrew goods services between Monaghan and Glaslough in 1959 and between Clones and Monaghan in 1960, leaving Monaghan with no rail service.

Today the nearest operating train station is Clarke Station, Dundalk, County Louth, 52km south east of Monaghan Town. The absence of a rail network has lead to a sole reliance on road transport for private, commercial and freight vehicles to service Monaghan's economic and community activities. There are no proposals contained in either the new National Planning Framework (Project Ireland 2040) or the new National Development Plan (NDP 2018-2027) to introduce a rail line to the Northwest of the country. Consequently, road transport will remain the dominate mode of transport for Monaghan well into the future.

4.5 CONCLUSION

Traffic conditions in Monaghan Town are not currently at unacceptable levels, however, several junctions perform badly at peak times, and cause a relatively high level of congestion. This problem will significantly increase as population, economic activity and retail intensification takes place in Monaghan Town. Some of the most notable issues which need to be addressed are listed below.

Road Network

- There is a significant need for an east west link road bypassing the town. This would primarily serve the national road traffic which does not need to access the town.
- The level of HGVs and through traffic is high and undesirable, particularly in the town centre
- The Margaret SkinniderN54/ Park St roundabout is a major pinch point for traffic at peak times.
- The Glen Road/Market Road/Dawson Street/Macartan Road junction is also a source of significant delays in traffic movements.
- The Diamond and Church Square layouts cause difficulties for both motorists and pedestrians

Parking

- Parking provisions in the town are adequate at current levels. However long term car parking provision is reaching capacity in the Court House Car park and Glaslough Street Car park, while free public parking at Monaghan Harps GAA grounds goes underutilised.
- On-street short term parking is at nearly full occupancy in Dublin Street and Glaslough Street, but much lower in other areas.
- A revised parking strategy would benefit the town.

Pedestrian

- Walking infrastructure throughout the town is poor, particularly around junctions.
- The pelican crossing at 'An Poc Fada' creates confusion for both pedestrians and motorists.

Cycling

- There is a demand for cycling, but it is perceived as 'not safe'
- Cycling infrastructure throughout the town is poor.

Public Transport

- There is a requirement for a bus hub in the town centre for accessibility.

5 MONAGHAN TRAFFIC MODEL

Following on from the findings in relation consultation, data gathering, existing and proposed land uses and existing network and transportation conditions in Chapters Two, Three and Four, a transport model was developed to carry out scenario testing for different land use / transport proposals.

In 2016 AECOM Ltd were contracted by Monaghan County Council for the purpose of developing a micro-simulation traffic model for Monaghan Town. The purpose of this Chapter is to describe the development and subsequent calibration and validation of micro-simulation Traffic Models for Monaghan Town. The purpose of the models is to test a number of transport scenarios in Monaghan.

Model Software

The modelling assessment has been undertaken using the micro simulation software package Q-Paramics V6.9.3 by Quadstone. Q-Paramics allows the complex behaviour of congested urban networks to be analysed in detail as individual driver decisions such as lane changing decisions, gap acceptance characteristics are simulated.

Guidelines

The Transport Infrastructure Ireland (TII) Project Appraisal Guidelines (PAG) for National Roads Unit 5.1- Construction of Transport Models, 2016 provides guidance on the development, calibration and validation of traffic models. The PAG guidelines show the transport model structure (Fig 5.1 below) that is necessary to assign transport projections and inform a transport appraisal. The process begins with the development of a 'reference case' (Do-Nothing scenario) by factoring the base year demand to each future year required.

A 'without intervention' (Do-Minimum scenario) is then developed off the Do-Nothing scenario, which includes planned or committed transport network changes within the study area, anticipated to be completed within the appraisal period. The Do Minimum scenario provides the platform which will enable the assessment of any transport interventions or policies proposed.

In certain circumstances, it is accepted that the Do-Minimum may actually be a Do-Nothing scenario. 'With intervention' (Do-Something) scenarios are then developed in which the impact of various schemes and policies can be tested and compared against the Do-Minimum scenario

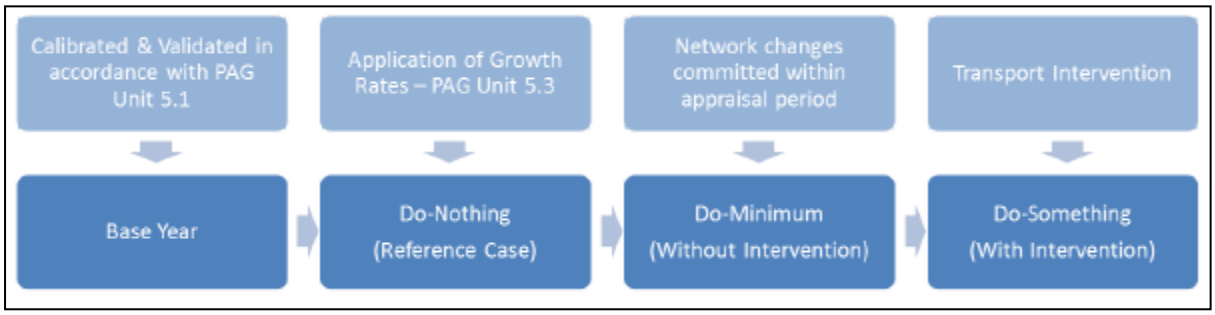


Figure 5.1 Transport Model Structure for Transport Demand Forecasting

Data Collection

A significant amount of data was collected by Monaghan County Council (MCC) through traffic count surveys to ensure that the model could replicate the existing traffic patterns and volumes. Section 2.2 describes the traffic surveys carried out in order to collect data for the construction of the Monaghan Model.

5.1 MODEL DEVELOPMENT

The first stage in the development of the 2015 base year Monaghan Model was the network coding checks using aerial photos available from Q-Paramics software.

The Automatic Traffic Count (ATC) surveys were used to identify the morning and evening peak hours for traffic volumes in the study area. During the evening peak hour the peak is not as significant as during the morning peak, with a reasonably even profile throughout the evening. The models were developed representing a morning peak hour of 08:15 – 09:15 and an evening peak hour of 17:00 – 18:00.

The prior trip matrices were extracted from TII's National Transport Model (NTpM)[17]. The Monaghan study area was extracted from the morning peak VISUM[18] model. This provided a starting point for the model with a representation of strategic traffic movements within Monaghan. Due to the strategic nature of the National Transport Model the extracted Monaghan model consisted of five zones. The NTM zones were refined using the Geo Directory which provides a geographical representation of all places of residence and employment.

The morning peak period figures were extracted from the TII models representing Light (Car & Light Good Vehicles) and Heavy vehicles. Following the refinement process, morning peak matrices[19] were inputted into the refined VISUM Model to undertake the initial stages of the calibration process using the VISUM package. The evening (PM) peak matrices were developed based on transposed morning peak matrices. In addition, 15 minute 'warm up' periods were included to account for the impacts of residual traffic congestion immediately prior to the beginning of each peak hour.

Calibration & Validation

The model was calibrated and validated in accordance with the requirements of TII PAG Unit 5.1: Construction of Traffic Models. This was done to ensure that the assignments reflected existing traffic conditions on the modelled network. Calibration is an iterative process, whereby the model is continually revised to ensure that the most accurate replications of the base year conditions are represented. The comparison of modelled and observed flows for the morning and evening peak period showed that the models matched the vehicle count for that class of vehicle. Model flow validation comprised the comparison of model outputs against the 2015 traffic counts at key locations. Model validation was undertaken by comparing actual and modelled turning count volumes at junctions and the assessment of journey times.

[17]The NTpM is the strategic multi-modal variable demand model used by the TII to assess the impact of infrastructure changes at national, regional and local level.

[18]VISUM is the transportation modelling software used to develop the TII National Transport Model

[19]Morning Peak Matrix is a table of vehicular trips during the morning period when transport demand is greatest

5.2 BASE YEAR (2015)

The number of vehicle types recorded for the morning and evening periods are shown in the table below:

Vehicle Type	Morning Peak	Evening Peak
Light Vehicle Type (Cars, Motorcycles, Vans etc)	6,008	6,018
HGV's, Buses	154	124
Total	6162	6,142

Table 5.1 Base year (2015) Morning & Evening Peak Matrix Totals

The overall operation of the modelled networks is outlined below

KPI	Unit	Morning Peak	Evening Peak
Average Speed	kph	36.7	41.6
Total Travel Time	hrs	370.6	291.6
Total Travel Distance	km	19,043	16,536

Table 5.2 Base year (2015) Network Performance Statistics

5.3 DO NOTHING – REFERENCE CASE

The 'Do Nothing' model was developed using the road network in the base model with traffic demand based on two forecast years, 2025 and 2035. This gives the basis for which the impacts of developments or interventions can be assessed.

The future year land use for Monaghan Town and assumptions on development intensity based on information from the Planning Department are outlined in the Table 5.3 below:

Site Coverage	
Industrial / Enterprise	0.3
Warehousing	0.3
Office	0.7
Retail	0.5
Occupancy Rates	
Industrial / Enterprise	1 no. employees per 100 m^2
Warehousing	1 no. employees per 100 m^2
Office	1 no. employees per 32.5 m^2
Retail	1 no. employees per 50 m^2
Residential development (2.4 persons per unit)	
Low Density	20 Units per hectare
Medium Density	35 Units per hectare
High density	50 Units per hectare

Table 5.3 Assumptions on development intensity

The planning data is included in Appendix C (Fig C -Local Model Zone Plan and Table C – Future Land Use Projections).

The population growth projections for Monaghan Town indicate an increase of up to 1000 persons between 2016 and 2025 and up to 1900 persons between 2016 and 2035 (Annual 1.04% Growth Projection in Figure 3.2, Chapter 3).

This information was converted to vehicular trips using trip generation rates extracted from TRICS (Trip Rate Information Computer System) and other sources. This planning data was then capped to the TII growth expectations for the study area based on the forecasts contained within the National Transport Model. This was done so that the model can be used to inform the planning process for schemes which may involve Transport Infrastructure Ireland (TII). It should be noted that the differences in the MCC and TII forecasts were limited and the distribution of this growth was based on the MCC planning data.

The 'Do Nothing' model is the reference case i.e. the current road network is retained and only the suitable lands are developed. The Do Nothing network Key Performance Indicators (KPIs) presented below are for the whole simulation network. Tables 5.4 and 5.5 show the figures for both vehicle types, for the morning and evening periods and for the forecast years of 2025 and 2035.

	Morning 2025	Morning 2035	Evening 2025	Evening 2035
Vehicles (excl HGVs)	6,693	7,131	6,712	7,151
HGVs	186	231	154	193
Total	6,879	7,362	6,866	7,344

Table 5.4 Do Nothing 2025 and 2035 Morning and evening Peak Matrix Totals

The overall operation of the modelled networks is outlined below in Table 5.5.

Indicator	Unit	Morning 2025	Morning 2035	Evening 2025	Evening 2035
Average Speed	kph	35.0	32.6	39.5	36.0
Total Travel Time	hrs	823.9	967.2	593.8	718.7
Total Travel Distance	km	24,989	26,276	21,983	23,192
Ave Veh Travel Time	min	5.6	6.3	4.1	4.7
Unreleased Veh	veh	0	12	10	0

Table 5.5 Do Nothing Network Performance Statistics

The tables show that:

- vehicle demand in the morning and evening peak periods are similar
- delays incurred are 30-40% higher in the morning peak than in the evening peak. This is due to varying traffic patterns.
- a comparison to the 2015 figures shows that speed decreases by 5% in 2025 and 12-13% by 2035 in both the morning and evening peaks.
- travel time per vehicle increases by 155% and 144% for the morning and evening peaks respectively by 2025.

The following summary represents the conditions for the future year of 2035. The morning peak period in Monaghan has been identified as 8.15am to 9.15 am.

- *N54 Clones Rd* experiences major delays with vehicles involved in the school drop off, with the queue extending for almost 1.5 km along the N54. As a result of the queuing on the N54 Clones Road the number of vehicles reaching the Clones Rd / Park Street Margaret Skinnider roundabout from the west (via N54) is only 750 vehicles.
- *N2 / N12/ N54Coolshannagh roundabout* also experiences traffic queues. The highest volume of traffic approx. 1,574 vehicles is recorded at this roundabout with the highest volume approaching the roundabout from the N2 bypass representing approximately 720 vehicles.

- *Glen Road* experiences extensive queuing. Queues are observed on each arm of the signalised junction at Macartan Road / Dawson Street/ Glen Road / Market Road due to the operation of the signals, however they tend to disperse after each cycle.
- *Margaret Skinnider Roundabout* experiences significant congestion. Vehicles travelling from the town centre or from the north are using both the Dawson Street and Park Street links. All traffic between the town Centre, northern, eastern and southern areas travelling to the west or southwest area of Monaghan, including any cross town through traffic between N2/N12 and N54, is going through Margaret Skinnider (Park Street / N54 Clones Road / Market Road) roundabout. The significant congestion at this junction is causing a bottleneck for traffic travelling in both directions.
- *Market Road /MacartanRoad/ Dawson Street / Glen Road Junction* also experiences delays which impacts on the Monaghan Town Centre car park exit at Castle Road causing delays for right turning traffic at this location.
- Queuing is seen on other junctions within the town centre however they also tend to disperse after each cycle.
- *Dublin Road / Old Armagh Road* extensive queuing is developing.

The evening peak period in Monaghan was identified as 5pm to 6pm.

- *Market Road / Macartan Road/ Dawson Street / Glen Road Junction* experiences congestion issues.
- *Old Cross Square Roundabout* is likely to experience delays as the volume of traffic at this location and occasional right turning traffic from Dublin Road onto Pound Hill is causing delays and impacts on both Dublin Street and Macartan Road approaching the roundabout.
- *N2 / N12/N54Coolshannagh roundabout* experiences the highest link flow with approximately 1,210 vehicles, however no delays are recorded at this location as these roads provide sufficient capacity.

The Monaghan Traffic Model was used to test various 'Do Something' scenarios. A series of scenarios were developed of possible land and road developments in Monaghan Town, these were then tested to assess the impacts. The full list of the scenarios modelled and their analysis are described in more detail in Chapter 6.

6 INTEGRATED LAND AND ROAD USE SCENARIO TESTING

The purpose of developing the Monaghan Traffic Model was to test various scenarios and predict outcomes for future town developments. A number of scenarios were developed with regards to potential developments and transport proposals in Monaghan Town and these were then tested to assess their impacts. The approach taken was to assess the impacts of different scenarios which could have significant influence on land use planning and transport proposals within the town.

Table 6.1 lists all the models that were tested for developing land in different combinations with the proposed roads infrastructure improvements.
Figure 6.1 shows a map of the Enterprise areas and the road proposal routes
Figure 6.2 shows a map of the existing Residential areas and the road proposal routes
Figure 6.3 shows a map of the Existing Commercial areas and the road proposal routes.

All models were assessed based on key performance indicators (Travel Time, Travel Distance, Average Vehicle Travel Time, Average Speed and number of unreleased Vehicles) and journey times on key routes. The various combinations of models tested are summarised under the following seven scenarios.

- Scenario 1: Do Minimum/ Do Nothing
- Scenario 2: Develop lands at Tullyhirm, Knockaconny and Annahagh&N2/N12 Link Road
- Scenario 3: Mid Town Link Road
- Scenario 4: Southern Link Road
- Scenario 5: Inner Northern Link Road
- Scenario 6: Outer Northern Link Road
- Scenario 7: Develop lands at Tullygrimes and Cornecassa

Model No.	Road Network Changes	Zoned Land Analysed
1	No Changes. No major infrastructural works are carried out to the road network i.e. Do Minimum (Do Nothing)	Land developed in accordance with MCC Planning future year growth projections
2	**N2/N12 Link road with no connection to N12** Single Carriageway 60kph	**Development of commercial land in Area A –Knockaconny & Tullyhirim(Lands East of N2only) (46ha)**
3	**N2/N12 Link road with no connection to N12** Single Carriageway 60kph	**Development of commercial land in Areas A & B – Knockaconny & Tullyhirm (67ha)**
4	**N2/N12 Link road with no connection to N12** Single Carriageway 60kph	**Development of commercial land in Areas A, B& C – Knockaconny, Tullyhirm & Annahagh (87ha) and Area D – Tullygrimes & Cornecassa Demensa (27ha)**
5	**N2/N12 Link road with no connection to N12 + local road/junction improvements** • Signalisation of Old Cross Square roundabout • Signalisation of Derry Road/ R135 • Signalisation of the Northern arm of the Coolshannagh Roundabout	**Development of commercial land in Areas A, B& C – Knockaconny, Tullyhirm & Annahagh (87ha) and Area D – Tullygrimes & Cornecassa Demensa (27ha)**
6	**Link Road between N2 and the N12 (with connection to the N12)**. Single Carriageway 60kph.	**Development of commercial land in Area A –Knockaconny & Tullyhirim (Lands East of N2only) (46ha)**
7	**Link Road between N2 and the N12 (with connection to the N12)**. Single Carriageway 60kph.	**Development of commercial land in Areas A & B – Knockaconny & Tullyhirm (67ha)**
8	**Link Road between N2 and the N12 (with connection to the N12)**. Single Carriageway 60kph. With Signalisation of Old Cross Square roundabout	**Development of commercial land in Areas A, B & C – Knockaconny, Tullyhirm & Annahagh (87ha) and Area D – Tullygrimes & Cornecassa Demensa (27ha)**
9	**Link Road between N2 and the N12 (with connection to the N12)** + **Mid Town Link (between N2 & Old Cross Square)** With Signalisation of Old Cross Square roundabout	**Development of commercial land in Areas A, B & C – Knockaconny, Tullyhirm & Annahagh (87ha) and Area D – Tullygrimes & Cornecassa Demensa (27ha)**
10	No Changes. No major infrastructural works are carried out to the road network	**Development of area of land at Dublin Street (LAAP)**
11	**Mid Town Link (between N2 by pass and Old Cross Square)**	No additional land developed
12	Mid Town Link between N2 by pass and old Cross Square and + signalisation of Old Cross Square	**Dublin St LAAP Development.**
13	**Southern Link Route (N54/N2)** N54 Clones Rd to R188 CootehillRdandR162 Ballybay Road to N2 Dublin Rd:	No additional land developed
14	**Inner Northern Link Road**Route X: N54 Clones Road R186/Scotstown Road Junction to N54/R135 at Kilnacloy Route X1: N54/ R189 to N54/ R135 at Rooskey Vale	No additional land developed
15	**Outer Northern Link Route (N54 Clones Rd / N2 Emyvale Rd). S**ingle carriageway 100kph.	No additional land developed
16	No Changes. No major infrastructural works are carried out to the road network	**Development of commercial land in Area D -Tullygrimes & Cornecassa Demense**
17	N2/N12 Link road + N54/N2 Northern Link	Area A, Area B, Area C and Area D
18	N2/N12 Link road + Mid Town Link + N54/N2 Northern Link	Area A, Area B, Area C and Area D
19	N2/N12 Link road +N54 Clones Rd to R188 Cootehill Rd	Area A, Area B, Area C and Area D
20	N2/N12 Link road + Mid Town Link + N54 Clones Rd to R188 Cootehill Rd	Area A, Area B, Area C and Area D
21	N2/N12 Link road R162 Ballybay Road to N2 Dublin Rd	Area A, Area B, Area C and Area D
22	N2/N12 Link road + Mid Town Link + R162 Ballybay Road to N2 Dublin Rd	Area A, Area B, Area C and Area D
23	N2/N12 Link road + Full Southern Link By Pass N54/N2	Area A, Area B, Area C and Area D
24	N2/N12 Link road + Mid Town Link + Full Southern Link By Pass N54/N2	Area A, Area B, Area C and Area D
25	N2/N12 Link road +N54/N2 Northern Link + N54 Clones Rd to R188 Cootehill Rd Only Southern Link	Area A, Area B, Area C and Area D
26	N2/N12 Link road + Mid Town Link+ N54/N2 Northern Link + N54 Clones Rd to R188 Cootehill Rd	Area A, Area B, Area C and Area D
27	N2/N12 Link road + N54/N2 Northern Link + R162 Ballybay Road to N2 Dublin Rd	Area A, Area B, Area C and Area D
28	N2/N12 Link road + Mid Town Link +N54/N2 Northern Link + R162 Ballybay Road to N2 Dublin Rd	Area A, Area B, Area C and Area D
29	N2/N12 Link road + N54/N2 Northern Link + N54 Clones Rd to R188 Cootehill Rd + R162 Ballybay Road to N2 Dublin Rd	Area A, Area B, Area C and Area D

Table 6.1 Scenarios Tested for Land Use and Road Proposals

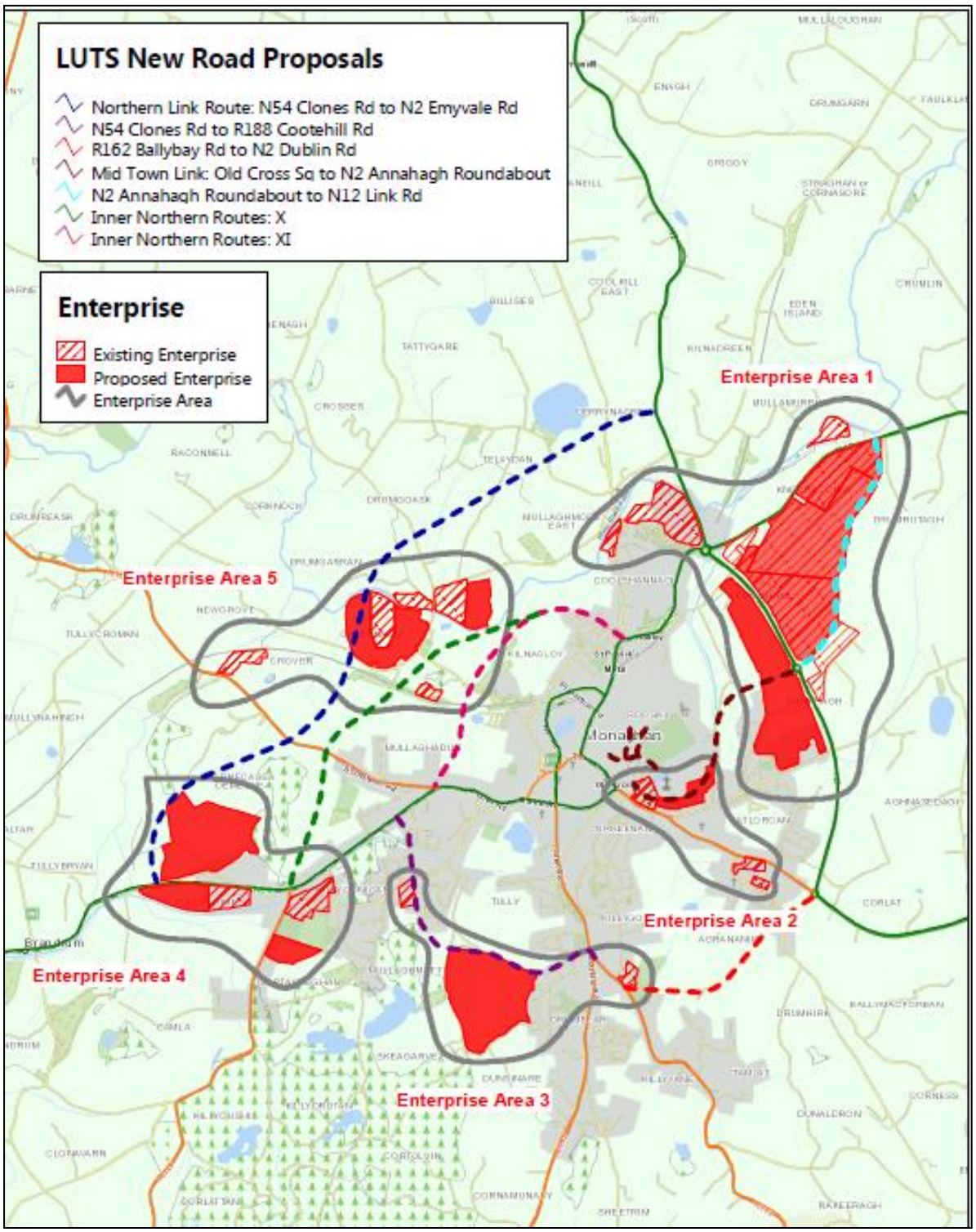


Figure 6.1 Enterprise Areas& Road Proposals Routes

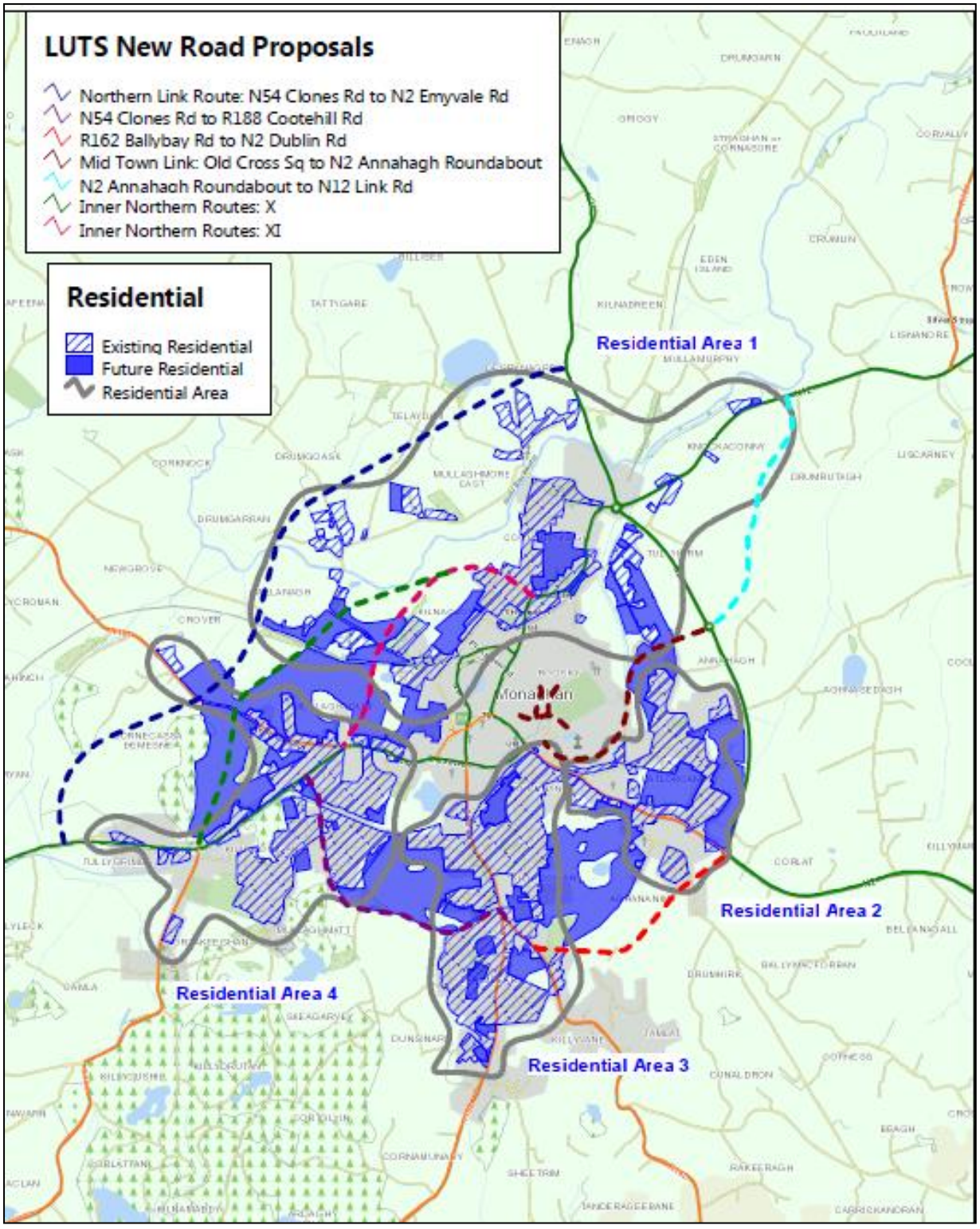


Figure 6.2 Existing Residential Areas & Road Proposal Routes

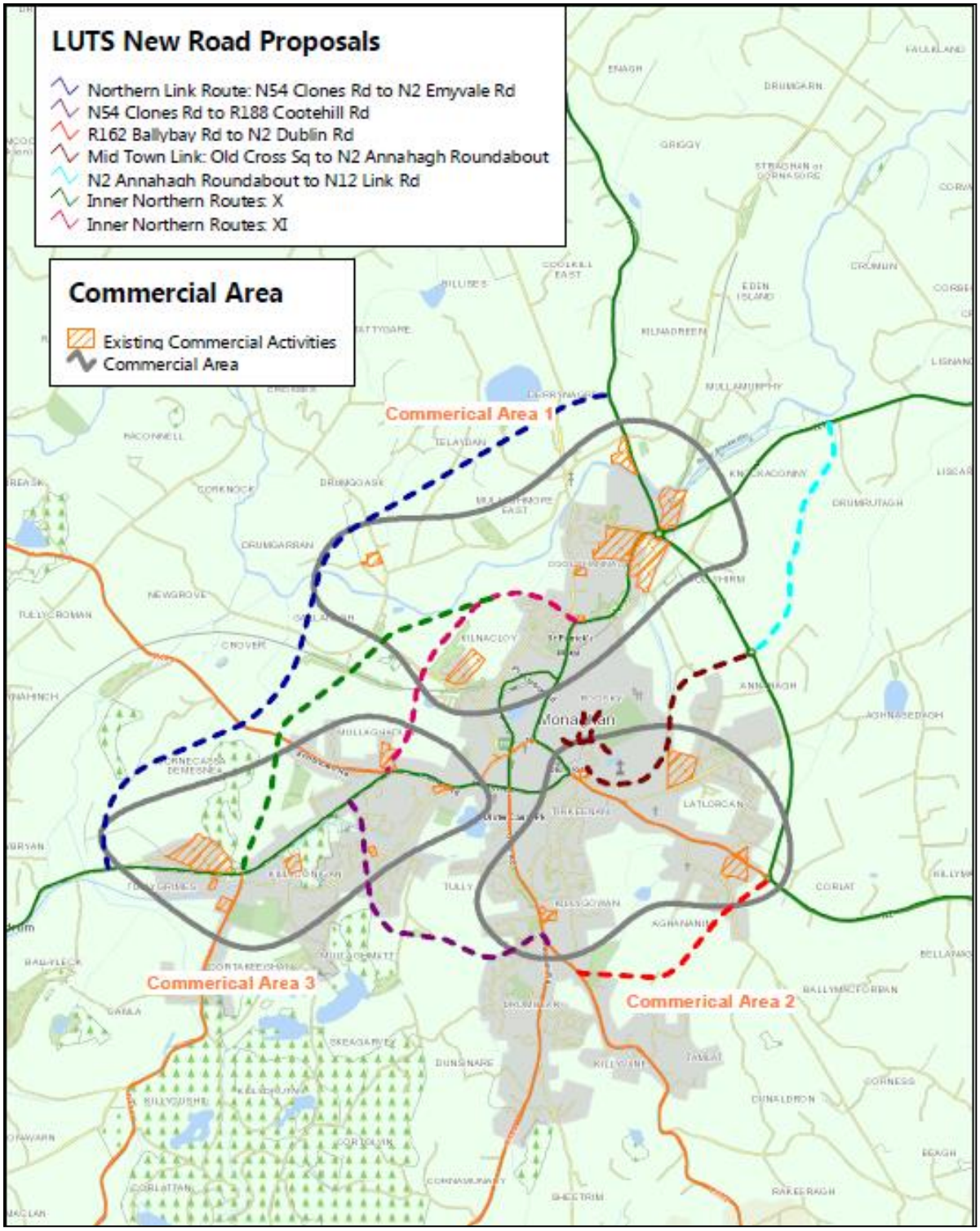


Figure 6.3 Existing Commercial Areas & Road Proposal Routes

6.1 SCENARIO 1 DO MINIMUM / DO NOTHING

6.1.1 SCENARIO DESCRIPTION

In the Monaghan Transport model the 'Do Minimum' scenario is the same as the 'Do Nothing' model (discussed in Chapter 5) as there are no planned or committed transport network changes.

6.1.2 MODEL SIMULATIONS

The 'Do Minimum' model was developed using the road network in the base model with traffic demand based on two forecast years, 2025 and 2035. This gives the basis for which the impacts of developments or interventions can be assessed.

6.1.3 MODEL OBSERVATIONS

The outcome of the modelling is described in Section 5.3.

6.1.4 CONCLUSION

The effect on the land use of the 'Do Minimum' scenario is described below under the different headings of Enterprise, Community and Residential.

Enterprise

- Enterprise Area 1 is the area likely to be developed first. Development would cause an impact upon the N12 and the N2 bypass and result in additional cross town (west to east N54 traffic).
- Enterprise Area 2 would become less attractive to develop as congestion in the town centre would be likely to increase making access more difficult.
- Enterprise Area 5 would become increasingly isolated, as traffic congestion would make it less attractive to locate and transact business. The lack of a major relief or link road to connect the east to the west of the town would necessitate a significant constraint on development of enterprise type developments as envisaged in the County Development Plan.

Community

- The increase in traffic congestion will result in more time commuting. In the absence of cycling and pedestrian infrastructure it will make walking and cycling less attractive and there will be further isolation of residential areas.

Residential

- Developing the access to lands zoned 'Proposed Residential' in residential area 1 close to Saint Mary's School would be extremely difficult and the impact on the N54 national road would be significant. Development of this land in the absence of an east-west link would not be desirable. An alternative access through the existing Mullach Glas Estate would result in further traffic problems on Rowantree Road and Hill Street during peak hours. Lands zoned Proposed Residential to the rear and west of Belgium Park would need to be accessed through Kilnacloy. This would involve significant impact on the existing road network in the immediate area. Development of lands zoned Proposed Residential to the east of Coolshannagh, south of the Four Seasons Hotel would have a significant adverse impact on the Coolshannagh Road junction with the N54 if accessed via this road and create further loading on the busiest section of road in the town.
- The development of lands zoned Proposed Residential in Residential Area 2 would create an additional crosstown loading on the network and add to congestion. Although the existing access strategy for undeveloped lands would suffice for further development, a number of junction and road improvements in the immediate area would be necessary to accommodate the increase in traffic.

- Residential Area 3 consists of a large number of houses. These residents must travel through the Glen Road/Macartan Road /Market Road / Dawson Street junction to access workplaces, shopping and community amenities. Significant delays are already experienced at this junction in both the morning and evening peak times. Further development on this road would exacerbate the problem.
- Residential Area 4 contains a large number of houses, the residents of which must go through the Margaret Skinnider roundabout to access workplaces, shopping and community amenities. Significant delays are already experienced at this junction in both the morning and evening peak. Further development on this road would exacerbate the problem.

6.1.5 RECOMMENDATION

The observations noted above show that the future growth of Monaghan Town will be greatly hampered if the current transport infrastructure is not enhanced. Therefore the 'Do Minimum' scenario is not a desirable one.

6.2 SCENARIO 2 - DEVELOPMENT OF LAND AT TULLYHIRM/KNOCKACONNY/ANNAHAGH & N2/N12 LINK ROAD

6.2.1 SCENARIO DESCRIPTION

Monaghan County Council has zoned the lands at Tullyhirm and Knockaconny for Industry, Enterprise and Employment. There is also the potential to zone further adjacent lands for Industry, Enterprise and Employment at Annahagh. (refer to Figure 6.4)It is expected that this 87ha of land will be developed in three phases as follows:

- Phase 1– 46ha of Land (A) on the eastern side of the N2 bypass. The full development of this area is predicted to result in approximately 1,400 jobs;
- Phase 2– 21ha of Land (B) on the western side of the N2 bypass, the full development of this area is predicted to result in approximately 600 jobs;
- Phase 3– 20ha of Land (C) on the eastern side of the N2 bypass, the full development of this area is predicted to result in approximately 600 jobs

Monaghan County Council envisages that the construction of a new link road would facilitate the development of these lands. This road would be a link road from the N2 Annahagh Roundabout to the N12 east of the Coolshannagh roundabout, thereby providing an alternative to use of the Annahagh and Coolshannagh Roundabouts by traffic travelling towards/from Armagh/Craigavon/Belfast, or towards/from the planned N2 Clontibret to Border Road. It would be a 1.5km two way single carriageway with a speed limit of 60kph. Pedestrian footpaths and cycle lanes will also be provided along this route.

The Monaghan Traffic model was used to assess the extent of land that could be developed on an incremental basis and to determine the impacts on the development on the surrounding road network in 2025 and 2035.

6.2.2 MODEL SIMULATIONS

A number of models were run for the development of the lands A, B and C with the N2-N12 Link roadway in place. Another area of land D (27ha) at Tullygrimes and Cornecassa Demense on the western side of Monaghan Town was also included in these models on the basis that it is also of strategic economic importance. It is critical for the future development of industry and enterprise in Monaghan Town that these land parcels be developed in the future. (Refer to section 7.2 for more details of land D). The model was run under the following situations:

- With and without a connection to the N12.
- Incremental growth (10% and then 5%) was applied to the proposed development sites in the following order: Land A, then C, and finally Band D simultaneously.
- With and without a mid town link route (from Old Cross Square to the Annahagh Roundabout)
- with and without a northern and southern link road.
- With improvement to a number of existing junctions that showed constraints, i.e.

    - Signalisation of Old Cross Square roundabout, (N54)
    - Signalisation of the Coolshannagh Road (L-5182)/ N54 junction
    - Signalisation of the Northern arm of the Coolshannagh Roundabout (N54/N12/ N2)[20].

Figure 6.4 Lands at Tullyhirm, Knockaconny, Annahagh & Tullygrimes, Cornecassa & N2/ N12 Link

6.2.3 MODEL OBSERVATIONS

The following was observed from the model:

- Based on the Highway Capacity Manual table B4 for Arterials, the N2 is currently operating with Level of Service[21] (LOS) Bin both directions. In future years the N2 southbound is forecast

[20]The replacement of the Margaret Skinnider roundabout (at Clones Rd, Park Street and Market Road junction) was also tested in the model; however there was little or no benefit due to the restricted capacity of Market Road and the adjacent signalised junction. This improvement was not considered beneficial and was not included in the improvements list.

[21]The Highway Capacity Manual (HCM) Table B4 defines the Level of Service for an arterial as based on manoeuvrability, delays and speeds. As the volume increases, speeds drop and LOS decreases (LOS A represents free flow speeds, LOS B represents reasonably unimpeded operations with slightly restricted manoeuvrability. LOS is Stable flow, LOD D is approaching unstable flow. LOS E is unstable flow and LOS F represents conditions with extremely low speeds and high delays).

to operate with a LOS of C and the N2 northbound with a LOS of B. A LOS of C represents stable operations with lower speeds than LOS of B, however road conditions are still reasonable.

- During peak hours it is expected that approximately 200 vehicles will re-direct to the new link road, to travel from the N2 to N12 and the opposite direction.
- The Annahagh Roundabout has ample capacity to deal with the proposed development.
- In 2025 and 2035, the morning peak journey time on the N2 in the southbound and northbound direction was approximately 4.1 min and 3.7 min respectively. This represents a 28% increase on the base 2015southbound journey times whilst the northbound journey times are similar to the base year.
- There was no significant knock on impact in the town centre, where the predicted average speed and average delay did not vary significantly with or without this development.
- However in both future years tested, excessive queuing was recorded at the Clones Road inbound direction, due to school traffic and morning peak journey times on routes across town were increased incrementally.
- Initially 72ha of land can be developed by 2025 (i.e. 100% of Land A and 100% of Land B) with minimal impact on the surrounding network.
- If development is slower and with the influence of background traffic growth 64ha can be developed by 2035.
- If additional land in excess of the 72ha in 2025 ha (or 64ha in 2035) is proposed to be developed then improvements to a number of junctions will be required, as set out below:-
  - **Signalisation of Old Cross Square roundabout**, **(N54)**
    This mini roundabout was identified as a constraint point in the south east section of the Monaghan Town. It is presently a low capacity junction and under future year traffic conditions experiences significant congestion and local queuing. The assessment found that replacing it with a higher capacity signalised junction would lead to improved average speed and reduce the local queuing.
  - **Signalisation of the Coolshannagh Road (L-5182)/ N54 junction**
    Due to the increasing volume of traffic along the N54, Coolshannagh Road vehicles travelling southbound on L-5182 will have difficulties turning right to access Monaghan Town. The assessment found that signalising the junction would reduce the waiting time on L-5182.
  - **Signalisation of the Northern arm of the Coolshannagh Roundabout (N54/N12/ N2).**
    Under future year conditions (both 2025 and 2035) long queues are predicted to form on the N2 southbound approach from the north in the morning peak period. High level option testing found that signalising the northern arm of the Coolshannagh roundabout would improve congestion and reduce the length of the queue on this approach. As the maximum flows on any one arm at the Coolshannagh roundabout are approximately 700 vehicles in the future years it is expected that the performance of the roundabout would be significantly improved through the construction of a full signalised junction with additional right turning lanes as required. Given the plans for development in this area, a signalised junction with pedestrian/cyclist facilities, would significantly improve safety and accessibility for vulnerable users.
- The inclusion of a link road from the Old Cross square roundabout to the N2 Annahagh roundabout (mid town link road) would have a positive impact on the performance of the road network (discussed further in Scenario 6.3)
- Both a northern and southern by pass around Monaghan town would further support the development of the lands A, B, C & D. (discussed further in scenarios 6.4 and 6.6)

6.2.4 CONCLUSION

The extension of the existing road from Annahagh Roundabout on the N2 to the existing road accessing onto the N12 at Knockaconny will have the following impacts:

- If additional land in excess of the 72ha in2025 ha (or 64ha in2035) is proposed to be developed then improvements to a number of junctions will be required, i.e
  - Signalisation of Old Cross Square roundabout, (N54)
  - Signalisation of the Coolshannagh Road (L-5182)/ N54 junction
  - Signalisation of the Northern arm of the Coolshannagh Roundabout (N54/N12/N2).
- The N2-N12 link road will facilitate the development of the full 87ha of land at Tullyhirm and Knockaconny
- It will open uplands of strategic economic importance critical for the future development of industry and enterprise in Monaghan Town.
- It will provide an alternative to traversal of the Annahagh Roundabout and the Coolshannagh Roundabout (which has limited future capacity) by traffic travelling towards/from Armagh/Craigavon/Belfast, or towards/from the planned N2 Clontibret to Border Road.
- It creates a corridor connecting a significant tract of zoned enterprise lands which is located in a strategic location close to the intersection of the N2, N12 and N54.
- It gives scope for future zoning of lands for industrial purposes to the east of the town
- It will redirect additional traffic generated by new industrial development away from the Coolshannagh Roundabout which has limited future capacity.
- There will be less traffic at Coolshannagh Roundabout and also a reduction of traffic on the N12 at Monaghan Institute.
- There are no consequences for residential areas of the town.
- There are no consequences for the town centre.
- The projected AADT for the N2 to N12 Link Route (no connection to N12) for the year 2035 is 1555.
- The projected AADT for the N2 to N12 Link Route (with connection to N12) for the year 2035 is 4195.

6.2.5 RECOMMENDATION

It is recommended that Monaghan County Council facilitates and promotes the sustainable development of these strategically important enterprise lands which will provide a high quality industrial and employment hub of approximately 2,600 jobs. It is further recommended that Monaghan County Council makes provision for the zoning of these lands for Industry, Enterprise and Employment and includes the development of this link road within the Monaghan County Development Plan 2019-2025.

It is recommended to ensure the co-ordinated and orderly development of these lands, that an overall strategic master plan for phased development of these lands including density, types of uses, access strategy and rationale for N2/N12 link is formulated. The strategic master plan should be prepared by the local authority in consultation with Transport Infrastructure Ireland and other relevant bodies and should be based on the following principles:-

- 46ha of Land (A) on the eastern side of the N2 bypass. The full development of this area is predicted to result in approximately 1,400 jobs and will take place over the next 5-10 years. It is anticipated that this development will take the form of significant economic development proposals such as premises for large employers which will be comprehensively developed as part of a master plan for the development of these lands. Development of a significant proportion of these lands will be dependent on the progression of the N2-N12 link road to provide alternative access options given the limited future capacity of the Coolshannagh Roundabout to cater for traffic movements to these lands from the N12 and N54 routes.

- 20ha of Land (C) on the western side of the N2 bypass, the full development of this area is predicted to result in approximately 600 jobs and will take place over the next 5-10 years. It is anticipated that this development will take the form of mixed economic development proposals such as premises for large employers and incubator units which will be comprehensively developed as part of a master plan for the development of these lands. Development of a significant proportion of these lands will be dependent on the progression of the Mid Town link road to provide alternative access options given the limited future capacity of the Coolshannagh Roundabout to cater for traffic movements to these lands from the N54 route.
- 21ha of Land (B) on the eastern side of the N2 bypass, the full development of this area is predicted to result in approximately 600 jobs and will take place over the next 10 years. It is anticipated that this development will take the form of significant economic development proposals such as premises for large employers which will be comprehensively developed as part of a master plan for the development of these lands. Although access to these lands can be provided directly onto the Old Armagh Road development of these lands is interlinked with land (A) above and therefore may be dependent on the progression of the N2-N12 link road to provide alternative access options given the limited future capacity of the Coolshannagh Roundabout to cater for traffic movements to these lands from the N12 and N54 routes.

In addition, it is recommended that Monaghan County Council develops in consultation with the TII, the access options and junction design options onto the N12 Armagh Road. This road should be protected against any private entrances directly on to it, except for accommodation works for existing land owners or comprehensive junction arrangements to facilitate access to zoned lands.

6.3 SCENARIO 3 - MID TOWN LINK ROUTE & DEVELOPMENT OF LANDS AT DUBLIN STREET

6.3.1 SCENARIO DESCRIPTION

A new mid town link road is proposed that would connect the N54 Old Cross Square mini roundabout with the Annahagh roundabout on the N2 Bypass (refer to Figure 6.5). It would be 1.5km two way single carriageway with a speed limit of 50kph and incorporate pedestrian footpaths and cycle lanes connecting to the Ulster Canal Greenway. Also there are regeneration plans for the development and of lands in the vicinity of Dublin Street. This redevelopment assumes provision of an additional 286 parking spaces. Section 8.2 outlines the details and the current status of the plans. The new mid town link road would complement this development.

6.3.2 MODEL SIMULATIONS

The Monaghan traffic model was used to test the impact of this new mid town link route, the Dublin Street redevelopment and also to assess their impact on the capacity of the Old Cross Square roundabout. A combination of a number of simulations of the model were run:

- Midtown link route (N54 Old Cross Square mini roundabout to the Annahagh roundabout on the N2 Bypass)
- With the development of the Dublin Street LAAP, the Dublin Street Regeneration Plan and the St Davnet's Lands.
- With the replacement of the roundabout at Old Cross Square with traffic signals
- With N2 – N12 link route in place
- With Northern and Southern by pass routes

6.3.3 MODEL OBSERVATIONS

The following observations were noted from the model:

- The mid town link showed a decrease in traffic on Glaslough Street, Dublin St, North Road and the Old Dublin Road entering Monaghan town in the morning and evening peak times. This would also lead to a reduction the number of HGV's on these routes.
- The mid town link showed an increase in traffic on the N2 as the link enabled traffic travelling to/from the north from/to the N54 to bypass the current one way system within the town centre, which operates over restricted carriageways.
- It encourages more traffic through the town from the west, along the southern retail / parking area of the town and increases the congestion on the N54 Clones Road.
- It showed additional traffic traversing the Old Cross Square roundabout. However, the congestion would be alleviated with the replacement of the roundabout with traffic signals and traffic signal optimisation software such as MOVA would be recommended.
- In all scenarios and in both peak periods the proposal reduces the average network speed and increases the average journey time. It is an attractive route, however it increases the congestion in the town centre in the vicinity of Old Cross Square/Macartan Road, particularly in the evening peak. The maximum number of vehicles attracted to this link is 500 and 350 vehicles in AM and PM peak respectively.

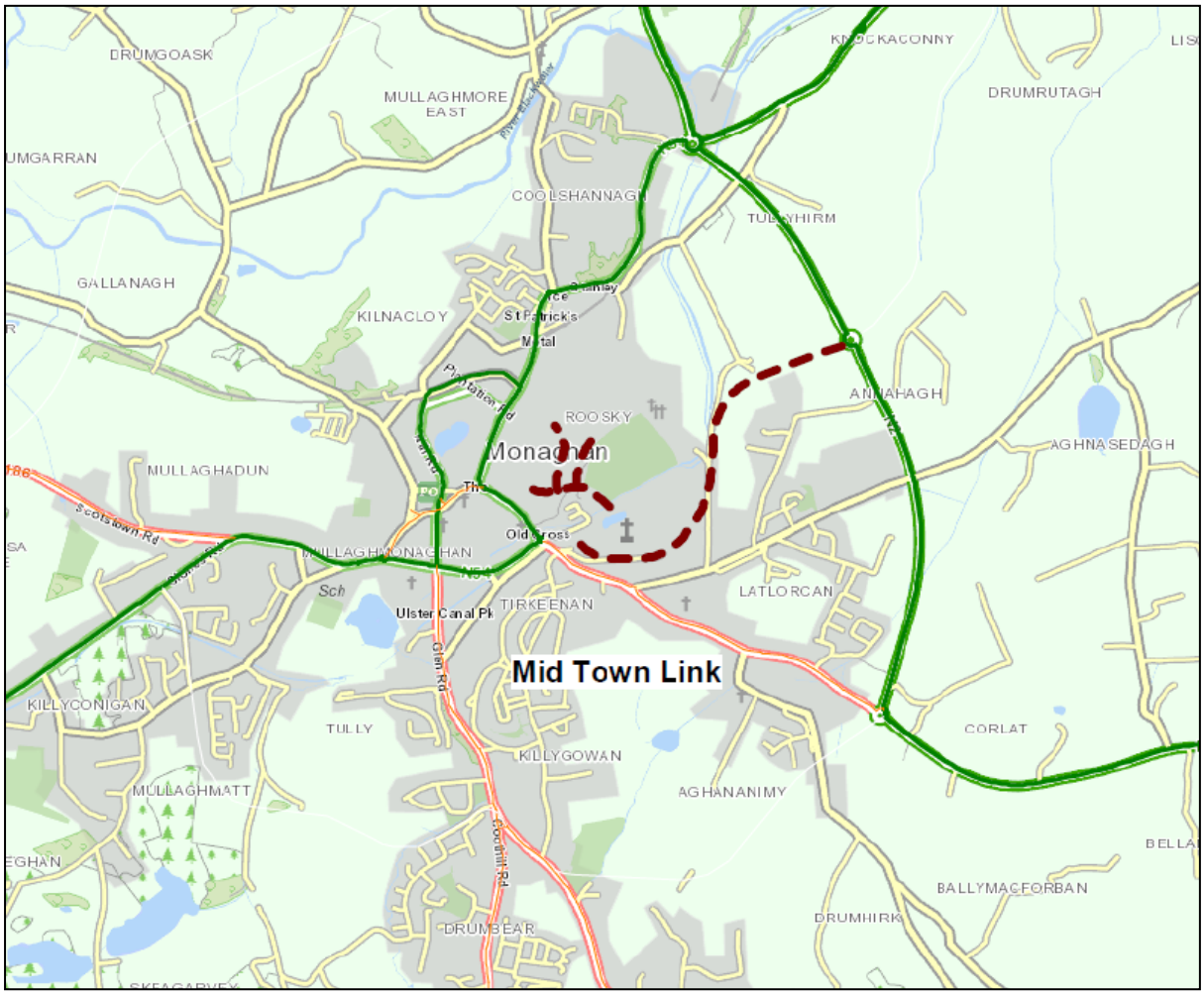


Figure 6.5 Proposed route of the Mid town link from Old Cross Square to N2 Annahagh roundabout

6.3.4 CONCLUSION

The development of the mid town link route will have the following generally positive impacts:

- It provides an access road to undeveloped lands and improves east-west connectivity in the town.
- It will reduce traffic volumes and remove HGV's from the heavy pedestrian / shopping areas of Dublin Street and Glaslough street.
- It will open up development of strategic town centre lands to the rear of Dublin St and Glaslough St.
- It will improve the connectivity to a significant area of enterprise lands along the N2.
- It creates a corridor connecting the town centre with Enterprise Area 1creating potential for greater business to business interaction.
- The Enterprise Areas 2, 3, 4 and 5 are unlikely to benefit from this link road, although it will improve connectivity between Enterprise Area 1 and Enterprise Areas 2 and 4.
- It will allow access to a significant area of zoned Strategic Residential Reserve lands, which would become suitable for development after the construction of this road.
- The inclusion of both the new N2/N12 link road and the mid town link would provide alternatives routes which will allow for the upgrading of town centre junctions and create a safer, more sustainable town centre.
- The proximity of this link to the Ulster Canal requires detailed consideration as the Canal is a protected structure in the Monaghan County Development Plan. In addition, the area near the canal could include a proposed Natural Heritage Area. (pNHA). A NHA is an area that is considered important for the habitats present or which holds species of plants and animals whose habitat needs protection.
- The projected AADT for the Mid Town Link for the year 2035 is 8520.

6.3.5 RECOMMENDATION

It is recommended that Monaghan County Council facilitates and promotes the development of the mid town link. It will provide significant benefits to the town centre in terms of development and accessibility. The route should be developed in light of development plans for lands at Tullyhirm /Knockaconny /Annahagh, Dublin Street LAAP, Dublin St Regeneration Plan and the HSE/ St Davnet's lands. The route corridor should be agreed and protected under the Monaghan County Council Development Plan for the period 2019-2025. This route should be progressed as a low speed development road, whose main function is to improve access and connectivity around Monaghan Town and to provide high quality access for zoned lands for industrial, residential and social uses. This route should be protected against any private entrances directly on to it, except for accommodation works for existing land owners or comprehensive junction arrangements to facilitate access to zoned lands. The resultant traffic impacts of the route should be taken into consideration as a result of altered east – west traffic patterns.

6.4 SCENARIO 4 - SOUTHERN LINK ROUTE

6.4.1 SCENARIO DESCRIPTION

A Southern Link Route would facilitate an east-west link and allow traffic to access the N54 from the N2/N12 without going through the town centre. This route has been split into two sections. (refer to Figure 6.6)

- N54 Clones Road (Orel Way) to R188 Cootehill Road (Beechgrove) link would be a1.82kmtwo way single carriageway with a speed limit of 50kph. Pedestrian footpaths and cycle lanes will also be provided along this route. 0.4km of this route is already built at Oriel way.
- R162 Ballybay Road to the N2 Corlat Roundabout link would be a 1.3kmtwo way single carriageway with a speed limit of 50kph.Pedestrian footpaths and cycle lanes will also be provided along this route.

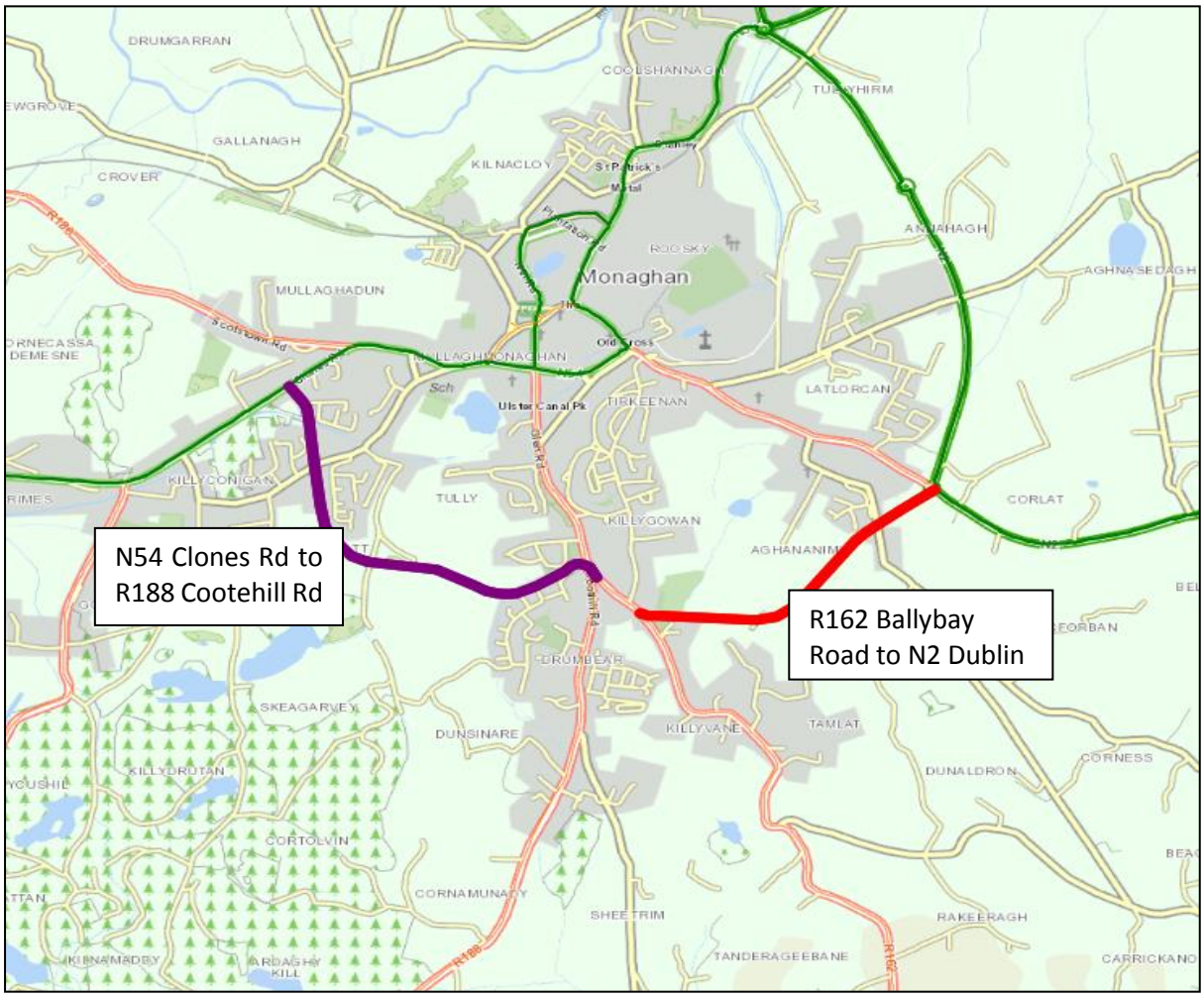


Figure 6.6 Southern Link Routes

6.4.2 MODEL SIMULATIONS

A number of models were run for the development of the Southern Link Route

- N54 Clones Rd to R188 Cootehill Rd only
- R162 Ballybay Road to N2 Dublin Rd only
- N54 Clones Rd to R188 Cootehill Rd & R162 Ballybay Road to N2 Dublin Rd together
- with and without the N2-N12 link road and the mid town link route

- All the models above with and without the Northern route N54 to N2 in place
- All the models above with and without development A, B, C & D in place

6.4.3 MODEL OBSERVATIONS

The following observations were noted from the model:

- The N54 Clones Rd to R188 Cootehill Rd link creates an attractive alternative route to town centre bound trips between the southern part of the town and the western part of the town and vice versa. This Link helps reduce congestion in the south west region of the model, however significant queuing and school traffic congestion along Clones Road is still evident in the morning peak model. Introduction of this link brings the average speed above base year speeds in the morning peak and below base year speeds in the evening peak. The highest flow on this link is approximately 400-500 vehicles per hour during the morning and evening peak periods. Without the R162 Ballybay Road to N2 Dublin Rd link present the highest flow on the N54 Clones Rd to R188 Cootehill Rd link was recorded as 400 – 350 vehicles per hour.

- The R162 Ballybay Road to N2 Dublin Rd creates an attractive alternative route to town centre bound trips between the southern part of the town and the eastern part of the town and vice versa, and also between the northern part of the town and the southern part of the town and vice versa due to improved connectivity with the existing N2 bypass. It helps reduce congestion in the south east region of the model. This link results in the average speed increasing above base year speeds in the morning peak and below, but close to, base year speeds in the evening peak. The R162 Ballybay Road to N2 Dublin Rd link provides more benefits than the N54 Clones Rd to R188 Cootehill Rd link, speeds are higher and journey times are lower across the simulation area. The highest flow on the R162 Ballybay Road to N2 Dublin Rd link is approximately 500-450 vehicles per hour in morning and evening peak periods. Without the N54 Clones Rd to R188 Cootehill Rd link present the highest flow on the R162 Ballybay Road to N2 Dublin Rd link was recorded as 400 – 300 vehicles per hour.

- The computer modelling has shown that the both phases separately provide benefits to Monaghan Town; however the R162 Ballybay Road to N2 Dublin Rd link provides higher speeds and lower journey times. Therefore if a phased approach is to be adopted then R162 Ballybay Road to N2 Dublin Rd should be implemented first.

- The full Southern route will provide a reduction in congestion and travel times on cross town routes and for traffic travelling between the N54 and the N2/N12.

- The link flow maps show that approximately 504 and 391 vehicles would travel in the morning and evening peak times along the new Southern route.

- An example of some of the journey times on two cross town routes are compared under different scenarios in the Table 6.2 below:

Route / Journey times morning peak (mins)	N54 Clones Road to N12 at Knockaconny	N54 Clones Road to N2 South
Current Journey time -Base Year 2015	16.2	15.6
Predicted (modelled) journey time 2035 With no Infrastructure improvements	28	30
Predicted (modelled) journey time 2035 N54 Clones Rd to R188 Cootehill Rd Only	15	14
Predicted (modelled) journey time 2035 R162 Ballybay Road to N2 Dublin Rd Only	18.9	18.1
Predicted (modelled) journey time 2035 N54 Clones Rd to R188 Cootehill Rd & R162 Ballybay Road to N2 Dublin Rd	13.2	13.2

Table 6.2 Comparison of Crosstown Journey times for proposed Southern Route

6.4.4 CONCLUSION

The development of a Southern Link would have the following impacts on Monaghan town

- It will create a corridor connecting Enterprise Areas 1, 2, 3 & 4.
- Enterprise Area 5 is unlikely to benefit from this link road. However, as approximately two thirds of enterprise Area 5 is already developed and the River Blackwater floodplain and the limited capacity of the road network in the vicinity limits scope for future development in this area, this is not a significant aspect.
- The linking of four of the five major Enterprise Areas in the town creates potential for business-to-business interaction; while placing employment centres close to residential areas.
- It will allow for the development of lands zoned for Industry, Enterprise and Employment and also for Strategic Residential Reserve to the south west of the town, off the new link road between the N54 Clones Road and Ballybay road. However, topography in this area of the town may present difficulties for the accommodation of large scale developments.
- The 27hectares of lands in enterprise Area 3 would now be accessible for future development which should allow for over 600 jobs to be created.
- The development of enterprise lands at Tullyhirm /Knockaconny /Annahagh and Tullygrimes /Cornecassa Demense would be achievable without detrimental impact on the National Road network. Development of these lands is desirable for the future growth of Monaghan Town.
- It would open up development lands at Tully and Dunsinaire. The connectivity created between the N54, R188, R162 and N2 would be hugely beneficial to traffic
- It would be an excellent artery connecting residential Areas 2, 3& 4.
- It would allow access to a significant 18.7 hectares of zoned Strategic Residential Reserve land in Residential Areas. This area in the south of the town is known locally as 'Tully'. This area would become suitable for development after the construction of this road. This would allow for the development of 336 housing units, which would cater for population increases over the life of the plan. Consideration should be given to zoning additional land here as residential and mixed use.
- The route would take a large amount of through traffic out of the town centre, making it a much more attractive place to visit and conduct business.
- The route would result in an improved environment for the town centre through a reduction of noise and air pollutants arising from the redirection of through traffic away from the town centre.
- The route will be a 50km/hr road and therefore will not achieve inter-urban LOS C speed of 80km/hour required for national road network.

- The routes are not considered the optimum solution for the national road network due to the speed limit of 50km/hr and the number of junctions required. The routes should therefore be progressed as urban link roads.
- The route would impact on existing and proposed residential areas due to its proximity to a number of well established residential areas.
- The route would involve the construction of a number of signalised junctions due to its interaction with the existing road network. This would reduce travel times at peak hours.
- The projected AADT for the Southern Route (N54 Clones Rd to R188 Cootehill Rd) for the year 2035 is 6009.
- The projected AADT for the Southern Route (R162 Ballybay Rd to N2) for the year 2035 is 6625.
- The projected AADT for the entire Southern Route for the year 2035 is 8163.

6.4.5 RECOMMENDATION

A southern link route should be prioritised as an essential enabler of development in Monaghan Town and a mixture of zoned land should be designated which accesses this new link road at a small number of key intersections. This route is well positioned in the town to connect residential, community and commercial areas without adversely impacting on town traffic. The route should be protected against any private entrances directly on to it, except for accommodation works for existing land owners or comprehensive junction arrangements to facilitate access to zoned lands.

6.5 SCENARIO 5 - INNER NORTHERN LINK ROUTES

6.5.1 SCENARIO DESCRIPTION

Two routes were proposed in the Monaghan County Development Plan 2013-2019 for an Inner Northern Route. Designs have been completed for these routes.

- Route X: N54 Clones Road R186/ Scotstown Road Junction to N54/R135 at Kilnacloy
- Route X1: N54 Clones Road at the R189/Threemilehouse Road junction to N54/R135 at Kilnacloy

6.5.2 MODEL SIMULATIONS

Modelling was carried out on the route X1 only as it was identified as the preferred route in previous analysis and it was considered that the outcome of traffic modelling of route X would provide similar information as the modelling of route X1. This route X1 would be 1.9km two way single carriageway with a speed limit of 50kph. (Refer to Figure 6.7)

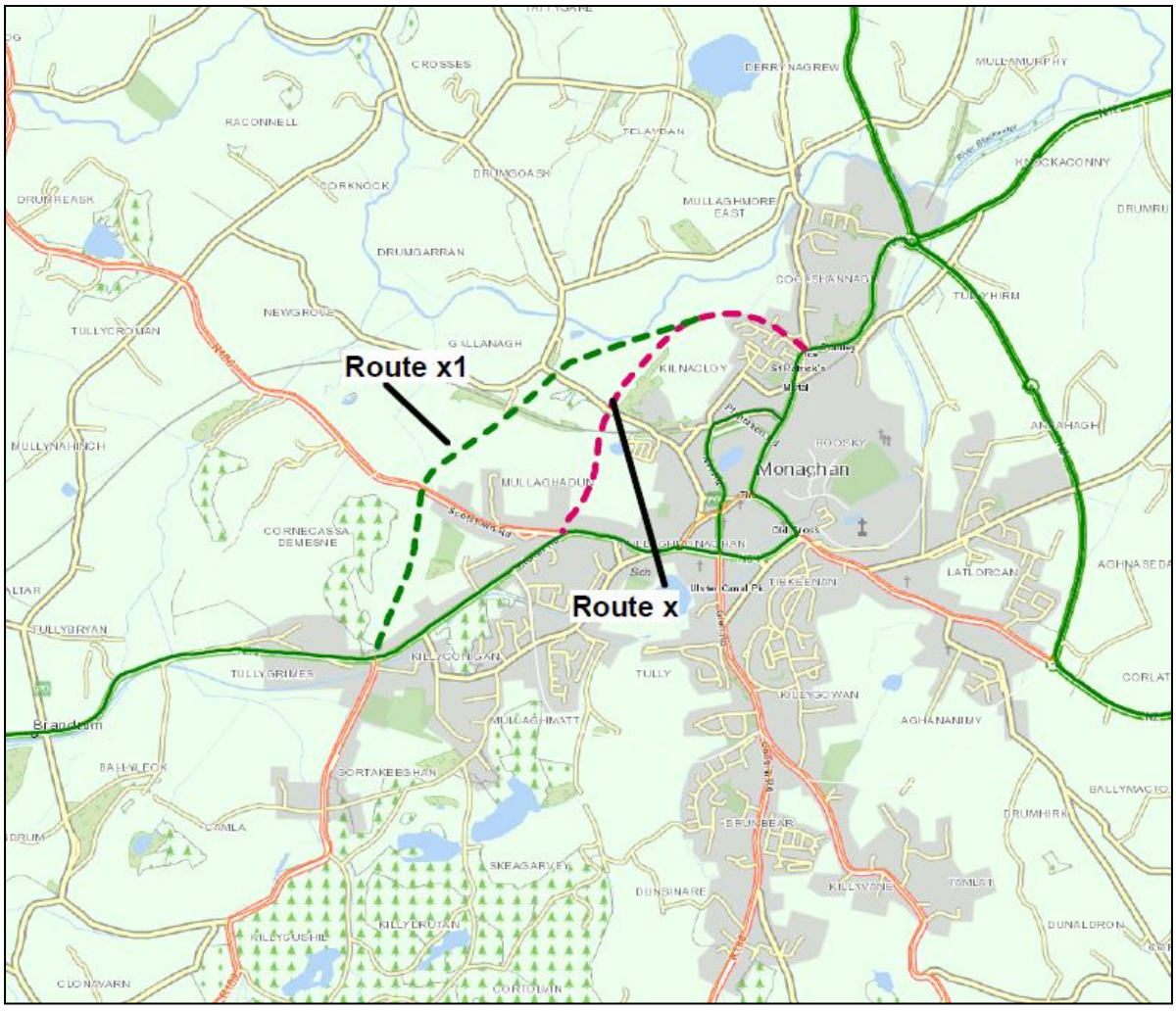


Figure 6.7 Inner Northern Routes (X and X1)

6.5.3 MODEL OBSERVATIONS

The following observations were noted:

- The Inner northern route (X1) showed a 5% increase in average network speed and a 3% reduction in total travel time.
- The proposed route provided an alternative route for some movements, resulting in travel time savings but an associated increase in total network travel distance (+1%).
- It provides a more direct route for North-West movements away from the Town Centre but does not connect directly to the existing Monaghan Bypass
- Traffic flows decrease on the North Road. However they remain largely unchanged on the Dublin Road, Macartan Road and Glen Road.

6.5.4 CONCLUSION

- Better east/ west connectivity would be created but is limited to the north and west of the town and the N54.
- It will not address congestion issues on the Ballybay and Cootehill roads and will not enhance the development potential of lands in the area of Tully and Dunsinaire.
- It will require a full signalised junction on the Coolshannagh Road (L5182) / N54 junction.
- It will link Enterprise Areas 1, 4 & 5.
- Enterprise Area 5 is already extensively developed and the future expansion in this area is constrained by the presence of the Blackwater floodplain.
- The Enterprise Area 3 would not be facilitated by this route which would further isolate it and deter it from future development.
- Traffic from Enterprise Area 2 is unlikely to benefit from this route and traffic accessing this Area from the West of the town would continue to traverse the town centre.
- It improves connectivity between Residential Areas 1 and Residential Area 4. However Residential Areas 3 & 4 will remain isolated and traffic generated in these areas will have to continue to pass through town centre for most journeys.
- The route would travel in very close proximity to the existing Riverside housing estate.
- This route is not very accessible to the Ulster Canal Greenway, which is an essential walking and cycling artery for people accessing the town centre and community facilities. Linkages to the Ulster Canal Greenway could be created by including a cycle path with this road and utilising existing roads and the line of the former Great Northern Railway.
- It opens up 6.2 hectares of zoned Strategic Residential Reserve land for development. However after development of this land, the route has limited potential to open up further lands for residential development, due to constraints from the Blackwater floodplain.
- A significant part of the route passes through the flood plain of the River Blackwater which would complicate construction and increase costs.
- The link to the north of the town would take through traffic out of the town centre, making it a much more attractive place to visit and conduct business.
- It would result in an improved environment for the town centre through a reduction of noise and air pollutants arising from the redirection of through traffic away from the town centre.

6.5.5 RECOMMENDATION

It is recommended that the Inner Northern route should no longer be considered as a proposal given the issues arising around the proximity to existing residential properties, the River Blackwater flood plain and particularly in light of the identification of the Outer Northern link road which is outside the established footprint of the town. The Outer Northern link is described in more detail in section 6.6. Consideration should be given to no longer protecting this route under future development plans.

6.6 SCENARIO 6 OUTER NORTHERN LINK ROAD

6.6.1 SCENARIO DESCRIPTION

The N54–N2/N12 Outer Northern Link Road would be a 4.5km two way single carriageway with a speed limit of 100kph to facilitate national road traffic. This route will improve east-west connectivity and divert through traffic away from the town centre (refer to Figure 6.8). A junction should be provided for access to the Scotstown Road and consideration should be given to providing a junction on the local primary road L1630 to serve the enterprise lands at Milltown, given the poor road network in this area. No pedestrian footpaths or cycle lanes are planned to be provided along this route in keeping with its status as a national road. The route will provide an alternative route for through traffic travelling east–west and west-east.

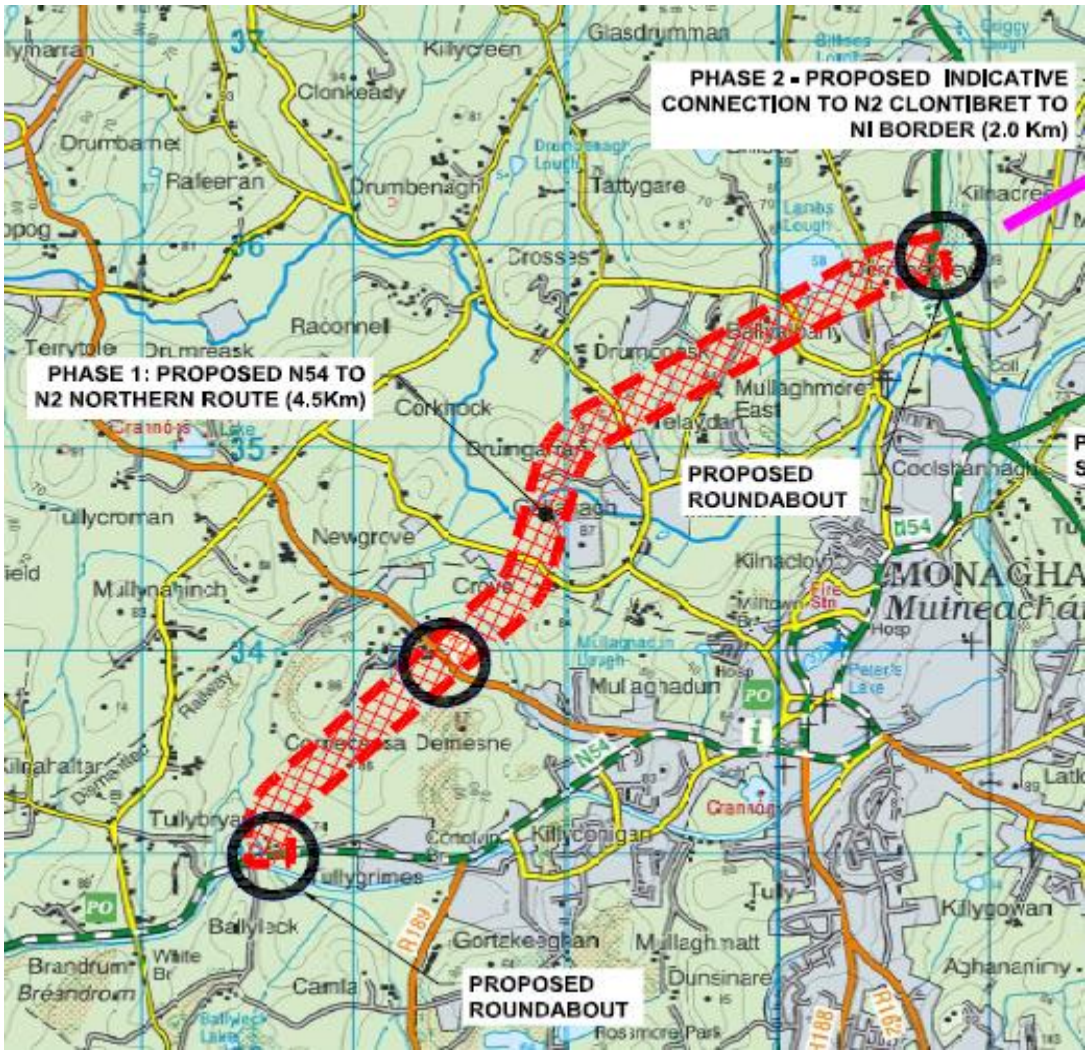


Figure 6.8 N54 to N2 Outer Northern Route

6.6.2 MODEL SIMULATIONS

A number of models were run for the development of the Outer N4/N2 Northern Link Route:

- N54/N2 Northern link with no Land developed
- N54/N2 Northern link with Lands developed at A,B,C & D

- N54/N2 Northern Link & N2/N12 Link road with Lands developed
- N54/N2 Northern Link & N2/N12 Link road & Mid Town Link Route with Lands developed
- N54/ N2Northern link and Southern Route (N54 Clones Rd to R188 Cootehill Rd) with Lands developed
- N54/N2 Northern link and Southern Route (R162 Ballybay Road to N2 Dublin Rd) with Lands developed
- N54/N2 Northern link and the full Southern link route (N54 Clones Rd to R188 Cootehill Rd & R162 Ballybay Road to N2 Dublin Rd) with Lands developed

6.6.3 MODEL OBSERVATIONS

Observations of the Monaghan traffic modelling of the Outer Northern route showed that:

- It increases the average speeds in the morning peak and evening peak times. However the average journey time increases as vehicles are travelling longer distances.
- The maximum number of vehicles using the northern link road was recorded at 550 and 350 vehicles during the morning and evening peak hour.
- With the Southern Link R162 Ballybay Road to N2 Dublin Rd in place there were 550 – 300 vehicles recorded on the Northern Link.
- The introduction of Southern Link N54 Clones Rd to R188 Cootehill Rd or the full Southern Link reduces the flow on the Northern Link road to 450-250 and 350 -200 in the morning and evening peak respectively.
- Significant travel time savings for the cross town routes as shown on table 6.3
- The fastest network wide speeds and shortest journey times in the morning and evening peak periods were observed with both the Northern and Southern Links in place
- An example of some of the journey times on two cross town routes are compared under different scenarios in the table 6.3 below:

Route / Journey times morning peak (mins)	N54 Clones Road to N12 at Knockaconny	N54 Clones Road to N2 South
Current Journey time -Base Year 2015	16.2	15.6
Predicted (modelled) journey time 2035 With no Infrastructure improvements	28	30
Predicted (modelled) journey time 2035 Outer Northern route Only	13.1	12.8
Predicted (modelled) journey time 2035 Outer Northern route + Southern N54 Clones Rd to R188 Cootehill Rd Only	11.8	13.4
Predicted (modelled) journey time 2035 Outer Northern route + Southern R162 Ballybay Road to N2 Dublin Rd Only	13.4	13.5
Predicted (modelled) journey time 2035 Outer Northern route + Southern N54 Clones Rd to R188 Cootehill Rd &R162 Ballybay Road to N2 Dublin Rd	10.5	11.7

Table 6.3 Comparison of Cross town Journey times for proposed Outer Northern Route

Following investigation of several permutations the modelling suggests that the Northern link road results in slightly more travel time but it provides higher network speeds, reduced through traffic and associated congestion. The optimal solution for the future of the road network for Monaghan Town is the development of both the Northern and Southern links. The recommended phasing of development of the links should be the Northern link to be developed first, then the Southern linkR162

Ballybay Road to N2 Dublin Rd and then followed by the Southern link N54 Clones Rd to R188 Cootehill Road.

6.6.4 CONCLUSION

The development of a Northern Link road identified the following impacts to the town which are outlined below:

- It provides a high speed National road link around Monaghan Town and completes the outer orbital National road network.
- It will deliver significant benefits to Monaghan Town and further benefits when built in conjunction with the N2 /A5 Clontibret to the Northern Ireland Border Scheme[22] which has recently been reactivated. This will provide improved travel time and conditions for all national road traffic in the region for the foreseeable future. Its role as a national road will be preserved as local traffic is unlikely to divert to this new roadway for short duration trips within the town boundary.
- It creates an attractive route for cross town trips, and because of the extensive congestion on the Clones Road in the morning it is also an attractive alternative route for town traffic travelling from the south west and the north.
- It will connect major areas of lands zoned for employment creation as it creates a corridor connecting Enterprise Areas 1, 4 and 5 thus creating potential for greater business-to-business interaction.
- Enterprise Areas 2 and 3 are unlikely to benefit from this link road.
- It would not address congestion on the Glen Road
- It will result in an improved environment for the town centre through a reduction of noise and air pollutants arising from the redirection of through traffic away from the town centre.
- It will remove large numbers of HGVs from Town Centre and should also reduce the risk of fatalities involving pedestrians and heavy goods vehicles at crossing points
- The reduction of traffic in the town will allow more cycling routes and pedestrian facilities to be developed.
- It will have a little Impact on town centre and on the National road network during construction.
- It will enable further environmental/public realm improvements to take place in the town centre
- The projected AADT for the Outer Northern Link Route for the year 2035 is 8876.

6.6.5 RECOMMENDATION

Monaghan County Council should take the following actions in relation to the Northern Link road.

- This Route should be considered of strategic importance to the development of Monaghan town and county and should be protected under future County Development Plans
- The route should be protected against any private entrances directly on to it, except for accommodation works for existing land owners or comprehensive junction arrangements to facilitate access to zoned lands.
- This road should be developed in parallel with the development of the N2 Clontibret to the Border Scheme.
- Appendix G Outlines further information to support the recommendation for the Northern Link Route.

[22] In 2017 Monaghan County Council was given approval from Transport Infrastructure Ireland to reactivate the N2-A5 Clontibret to NI Border scheme. It should be noted that this scheme is not included in the Monaghan Traffic Model.The N2/A5 Clontibret to NI Border scheme is described in section 7.1

6.7 SCENARIO 7- DEVELOP LANDS AT TULLYGRIMES & CORNECASSA DEMENSE

6.7.1 SCENARIO DESCRIPTION

The Tullygrimes & Cornecassa Demense area comprises of approximately 27 hectares of zoned land in Enterprise Area 4 (refer to Land D in figure 6.9). This land at the south-western end of Monaghan Town is currently used for agricultural purposes but is considered to be of strategic economic importance to the development of the town. The lands are currently divided with 22 hectares to the north and 5 hectares to the south of the N54. Although the lands to the north of the N54 could possibly be accessed within the 60km/h area via a redundant by passed section of the N54, the lands to the south of the N54 can only be accessed via direct access onto the N54 where the speed limit of 100km/h currently applies.

Figure 6.9 Enterprise Area Land D (Tullygrimes & Cornecassa Demense)

An Access Strategy was developed by Monaghan County Council Roads Department in 2014 to provide solutions to access the zoned Industry, Enterprise and Employment lands at Tullygrimes & Cornecassa Demense where four options were proposed. As part of the LUTS study these four options were reviewed in terms of implementation. The outcome of the review is included in Appendix D1.

It was ascertained through swept path analysis using Autotrack software that the first two of the options were not practical to implement due to physical restraints that restrict the turning of heavy goods vehicles accessing the lands, particularly when travelling to or from the lands along the N54 from the westerly direction. The third option was previously ruled out because of the adverse impacts on the Ulster Canal and the practicalities of providing this circuitous access. The fourth option has been identified as the only feasible option.

An updated Access Strategy for the preferred Option is detailed in Appendix D2 and Figure 6.10.

The rationale for this Access Strategy is as follows:

- New junctions would be designed to provide direct access to the lands on the southern side of the N54 and also to the northern side of the N54 if appropriate.
- It would provide a permanent and properly designed solution to access all the zoned Industry, Enterprise and Employment lands (approx 22Ha north and 5Ha south of the N54) at this location.
- This proposal would not affect any other developed sites or require agreement from other developers.
- This proposal would not require new roadways to be built.
- It would present a possible traffic calming measure for traffic entering Monaghan Town.
- This new access would be ultimately located off line from the National Road Network following development of the Outer Northern Link route.
- This option requires the 60kph speed limit to be relocated approximately 440m westwards.
- The topography of the land north of the N54 requires a detailed survey. There are significant level differences between the existing N54 and the zoned lands which could influence the design and layout of this junction.

6.7.2 MODEL SIMULATIONS

The development of this 27 ha of land D at Tullygrimes /Cornecassa Demense was assessed using the Monaghan Traffic Model. The model assumed that the land would be used for Warehousing and Industry and as a result would generate approximately 800[23] jobs. The land use for this area was included in the Do Minimum scenario. A number of models with and without the proposed development were tested using the Monaghan Traffic model.

- Do Minimum Model with land developed at A, B, C &D
- Do Minimum Model without land developed at D
- N2/N12 Link road & Lands developed at A, B, C & D
- Mid Town Link & Lands developed at A, B, C & D
- N54/N2 Outer Northern Link & Lands developed at A, B, C & D
- N54 Clones Rd to R188 Cootehill Rd & Lands developed at A, B, C & D
- R162 Ballybay Road to N2 Dublin Rd& Lands developed at A, B, C & D

[23]As per Table 5.3 Assumptions on development intensity

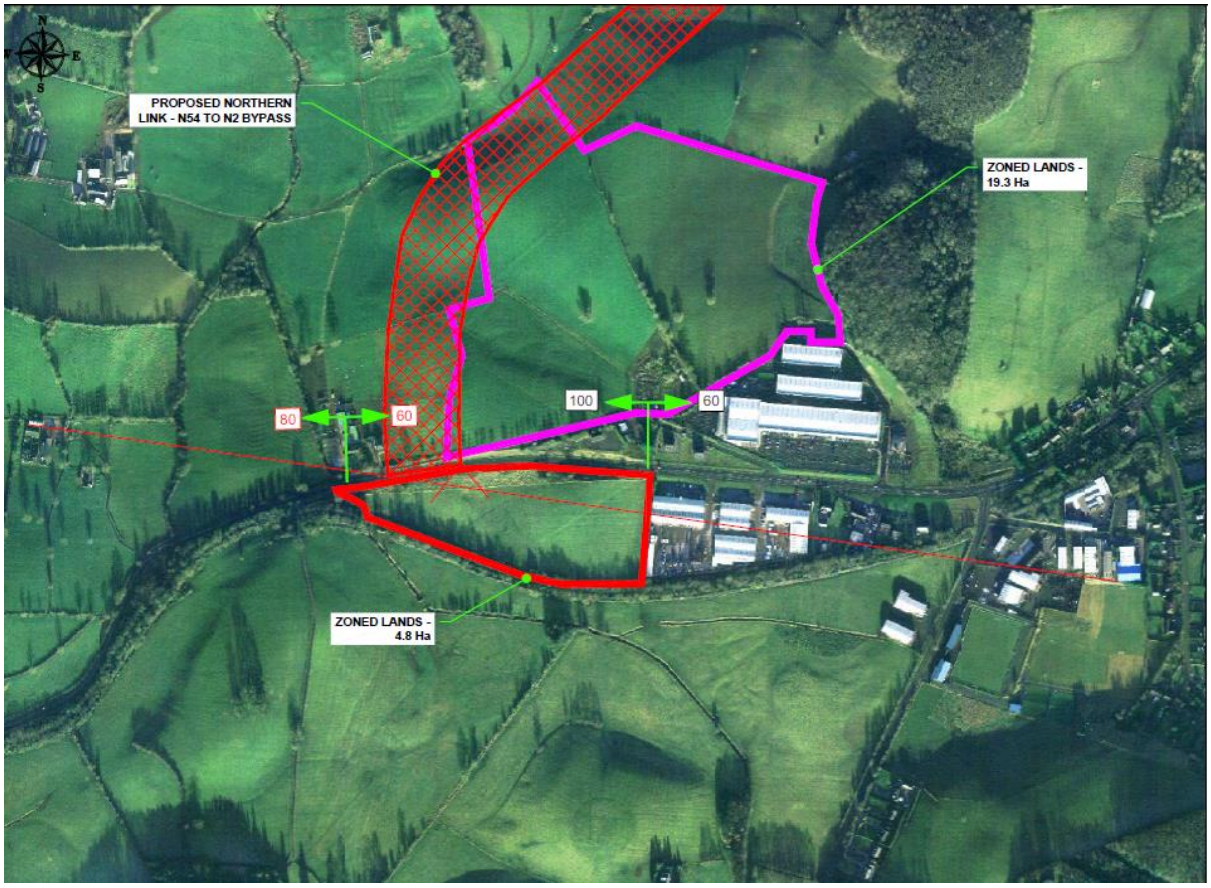


Figure 6.10 Proposed Access to Developments lands at the N54 Tullygrimes & Cornecassa Demense

6.7.3 MODEL OBSERVATIONS

Observations of the Monaghan traffic modelling of developing the land at Tullygrimes & Cornecassa Demense showed that:

- In the morning and afternoon peaks, the impact of the proposed development was considered low. Journey time comparisons were undertaken and no significant impact from the proposed development was identified. Average cross town journey times increased very only slightly with the development in place.
- The impact of this proposed development is seen to be minimal, with morning and evening peak congestion remaining largely unchanged. Figure 6.11 shows the origin of trips going to the proposed development at Tully grimes & Cornecassa Demense on the N54.
- The network cross town journey times were recorded in 5minute intervals between points HA and CA and compared with and without the development (refer to Figure 6.11). This was also done for traffic travelling in the reverse direction. The impact on journey times was not significant.
- The development can be accommodated regardless of which access arrangement is in place.
- Junction analysis would need to be carried out on the type of access proposal e.g. Arcady for roundabout and Picady for priority junctions. This will allow ranking based on impact (delays) on N54.

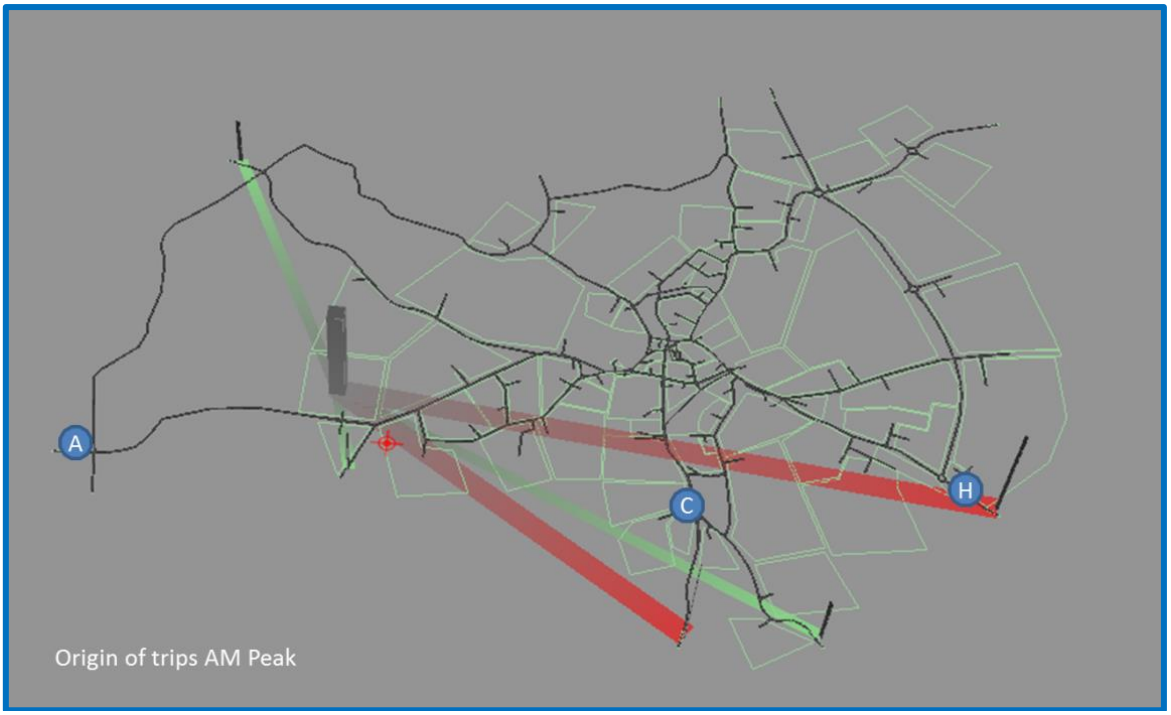


Figure 6.11 Morning Peak 2035 – Origin of trips going to N54 (Tullygrimes & Cornecassa Demense)

6.7.4 CONCLUSION

The traffic models show that the development can be accommodated regardless of which access arrangement is in place. However, the proposed access Options 1 and 2 are not feasible without issues relating to free flow of traffic movement, and traffic safety issues. Option 3 is not acceptable as it is contravenes the policies of Monaghan County Development Plan due to its impact on the Ulster Canal.

Option 4 is only option remaining to provide access to these lands. Due to the location of these zoned lands the only road in close proximity is the N54. Based on Origin-Destination information it will have very little impact on the N2 and the impact on N54 was assessed as not significant. Appendix D1 outlines how this option is an exceptional case for relocating the speed limit and complies with the Spatial Planning on National Roads.

Previous scenario modelling recommended a route for an Outer Northern link road beyond the established footprint of the urban area to ensure traffic travelling between the N54 and N2/N12 can avail of a link with a general speed limit rather than an inner urban area speed limit.

The connection of the Outer Northern Link to the N54 beyond the established footprint of the urban area at Tullygrimes by way of roundabout or managed junction would precipitate the relocation of 60 kph speed limit section westwards by approximately 440 metres to this location and the downgrading of that part of the Clones Road within the urban footprint to regional or local road status. This would ultimately result in this proposed access junction under Option 4 being no longer located on the National Road network. Therefore Option 4 is considered the only viable option (refer to figure 6.10). In the absence of the development of the Outer Northern Link, Option 4 involves relocation of the 60 kph speed limit section approximately 440moutwards and the creation of a new junction on the Clones Road to serve both the lands to the north and the lands to the south.

6.7.5 RECOMMENDATION

It is recommended that in the event of a planning application to develop the lands at Tullygrimes or Cornecassa the proposal must take into consideration the implementation and impact of the new access. The planning application should be accompanied by a Road Safety Audit, Traffic and Transport Assessment Report and a Road Safety Impact Assessment. This should take into consideration the impact on the national road network and the type of access proposed and identify any appropriate measures required to maintain safety standards. The access type will depend on the status of the N54/ N2 Outer Northern route. In the absence of theN54/N2 Outer Northern route the access will require the relocation of the speed limit and provision of necessary traffic calming at the new transition zone.

Monaghan County Council should take the following actions in relation to the lands at Tullygrimes and Cornecassa Demense

- These lands are considered to be of strategic importance to the development of Monaghan town and county and should be continued to be zoned under future County Development Plans
- A comprehensive junction arrangement to facilitate access to zoned lands should be developed.
- This access should be developed in parallel with the development of the Outer Northern route.

7 TRANSPORT NETWORK PROPOSALS

Monaghan Town has a very busy road network and there is particular congestion at peak times with the extensive school related traffic. There are also a high proportion of HGV movements within the town centre. This will intensify with future developments. Monaghan is bypassed on the east by the N2 which facilitates north /south traffic. However the primary route for traffic travelling from north/east to south/west and vice versa has no choice but to pass right through the town centre. In addition, the development of lands on the east and north east of the town is restricted with the lack of link roads. The objective of this chapter is to assess the options for internal relief roads, link roads and bypasses in order to achieve the optimum result for future economic and social development of Monaghan Town.

7.1 N2 / A5 - CLONTIBRET TO NORTHERN IRELAND BORDER

The N2/ A5 scheme will involve the development of new route for the N2 National Road north of Clontibret Village to the border with Northern Ireland in the vicinity of Aughnacloy, a distance of approximately 28Kms. This scheme is part of a strategic link servicing Derry and the Northwest and the need to improve it was identified in the Transport 21 document and the National Development Plan 2007-2013. Previous work was undertaken on this scheme with a Preferred Route identified and a Route Selection report published in July 2012.However due to lack of funding the project was suspended and did not progress to detail design and planning stages. The scheme extent is shown on Figure 7.1.

In 2017 Monaghan County Council was given approval from Transport Infrastructure Ireland to reactivate the N2/A5 Clontibret to NI Border road scheme. The proposed scheme has been further reinforced by its specific mention in the National Planning Framework and the National Development Plan.

It will be necessary to fully re-appraise this project. As part of this appraisal the consulting engineers will have to review the previous Route Selection report and all of the work carried out to date. This will enable decisions to be made on how the project can proceed and determine the preferred route

Various junction options for access to the town centre from N2 Clontibret to Border route will be analysed through traffic modelling at route selection phase. The outcome of this analysis will facilitate the selection of the optimum locations. The Outer Northern route will supplement the traffic flows to and from the N2 Clontibret to Border route[24].

[24] In December 2018 Monaghan County Council appointed engineering consultancy services to deliver the proposed scheme through Phases 0/1 to 4 of the TII Project Management Guidelines. The project brief includes, developing the Concept, Feasibility, Options Selection, Design, Environmental Evaluation and Statutory Processes.

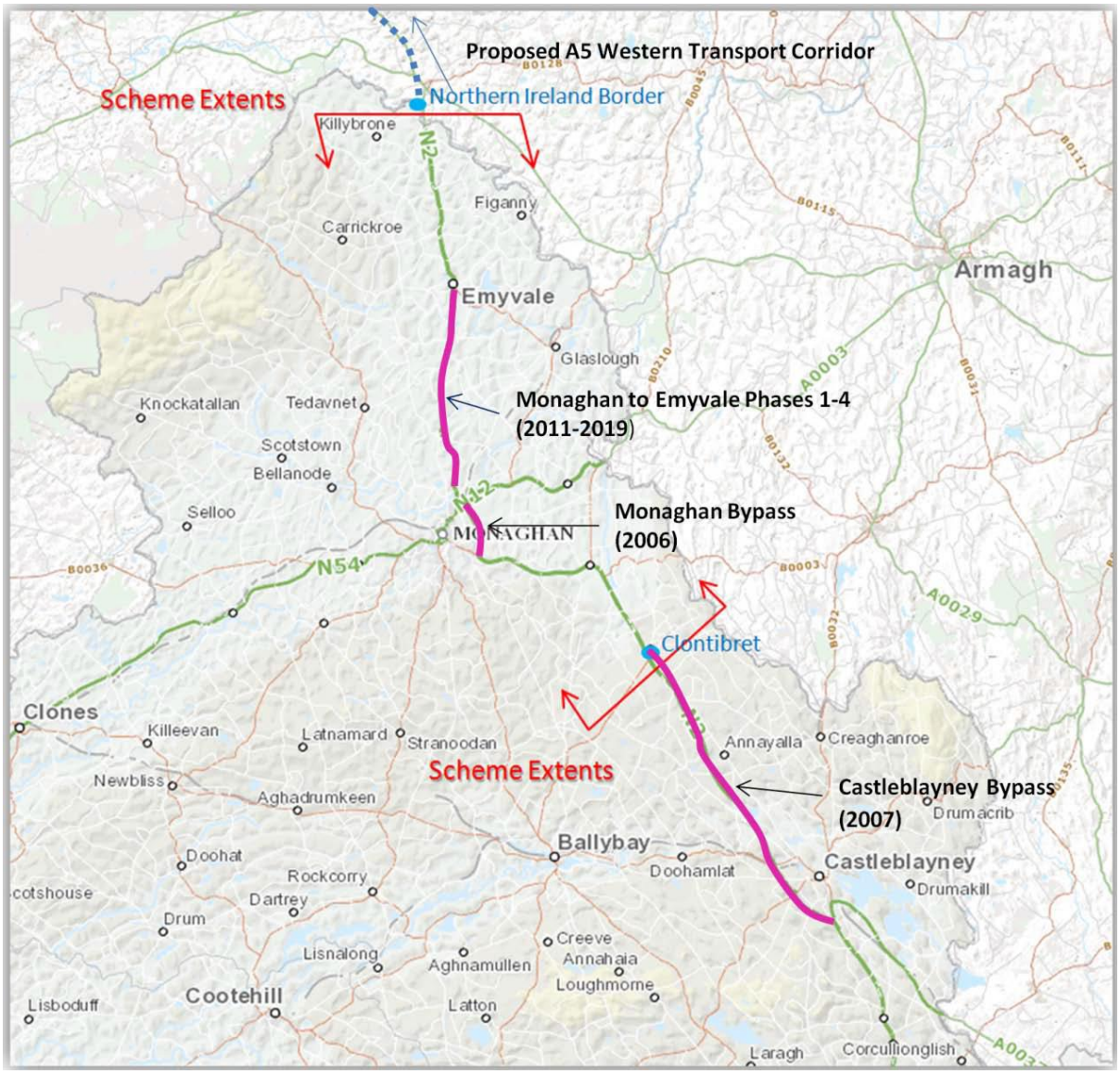


Figure 7.1 N2/ A5 Clontibret to NI Border Scheme Extent

7.2 LUTS ROAD PROPOSALS FOR MONAGHAN TOWN

The future scenario modelling set out in Chapter 6 examined the effect on traffic and land use of developing various identified road schemes. These road proposals shown in Figure 7.2 are further appraised in this Chapter. Cost estimates for design and construction of each scheme were calculated based on the NRA National Roads Needs Study (2011) cost estimation methodology. An environmental assessment was also carried out on each scheme. Table 7.3 provides a table summarising all this information for each road scheme proposal to give an overall appraisal of the cost/ implications and benefits.

7.2.1 COST ESTIMATES

The cost of the new scheme depends on a number of factors, such as the type of carriageway. The cost estimates for each carriageway type are based on the particular standard cross-section layouts with assumed typical earthworks, drainage, pavement, general roadworks and structural requirements.

- Type 1 Single Carriageway – 7.3m wide Single Carriageway (2 x 3.5m lanes) , with Hard Shoulder (2.5m), verge (3.0). Design Year Traffic Flows below 11,600 AADT. The Design Speed is 100kph.

- Type 2 Single Carriageway – 7.0m wide Single Carriageway (2 x 3.5m lanes) , with Hard Strips (0.5m), verge (2.5), two way Cyclepath (3.0m) and Seperation distance between road and cycletrack (2.0m). Design Year Traffic Flows below 8,600 AADT. The Design Speed is 100kph.

- Type 3 Single Carriageway – A 6.0m wide Single Carriageway (2 x 3.0m lane), with Hard Strips (0.5m), verge (1.5m), two way Cyclepath (3.0m) and Seperation distance between road and cycletrack (2.0m). Design Year Traffic Flows below 5,000 AADT. The Design Speed is 85kph.

The principal variables that were used to provide the cost estimation are listed below:

- Standard of upgrade proposed
- Percentage on-line and percentage off-line
- Land acquisition costs.
- Archaeology
- Planning, design and procurement costs
- Exceptional costs

The outline of the road proposals are shown in Figure 7.1 and the costs of each of the road proposals including for two way cycle paths are outlined on table 7.1.

Transport Proposal	Length (km)	Speed Limit (kph)	Carriageway type	Estimated Cost Lower band	Estimated Cost Upper band
N2 to N12 Link Road	1.5	60	Type 2	€4,905,750	€6,337,500
Mid-town link	1.5	50	Type 3	€4,119,000	€5,145,000
Southern Link Route (N54 Clones Rd to R188 Cootehill Rd only)	1.42	50	Type 3	€4,997,720	€6,242,600
Southern Link Route (R162 Ballybay Road to N2 Dublin Rd only)	1.3	50	Type 3	€3,569,800	€4,459,000
Full Southern Link Route	3.12	50	Type 3	€8,567,520	€10,701,600
Inner Northern Link Route	1.9	50	Type 3	€5,217,400	€6,517,000
[25]Outer Northern Link Route	4.5	100	Type 1	€16,050,000	€19,464,000

Table 7.1 Cost estimates of Monaghan Road proposals

Funding for the type 2 and type 3 road schemes will be sought from the Department of Transport, Tourism & Sport through specific road improvement programmes and also through development contributions. Monaghan County Council will seek funding from Transport Infrastructure Ireland and other sources for the Outer Northern link route.

[25] Cost Estimate for Outer Northern does not include cycle path.

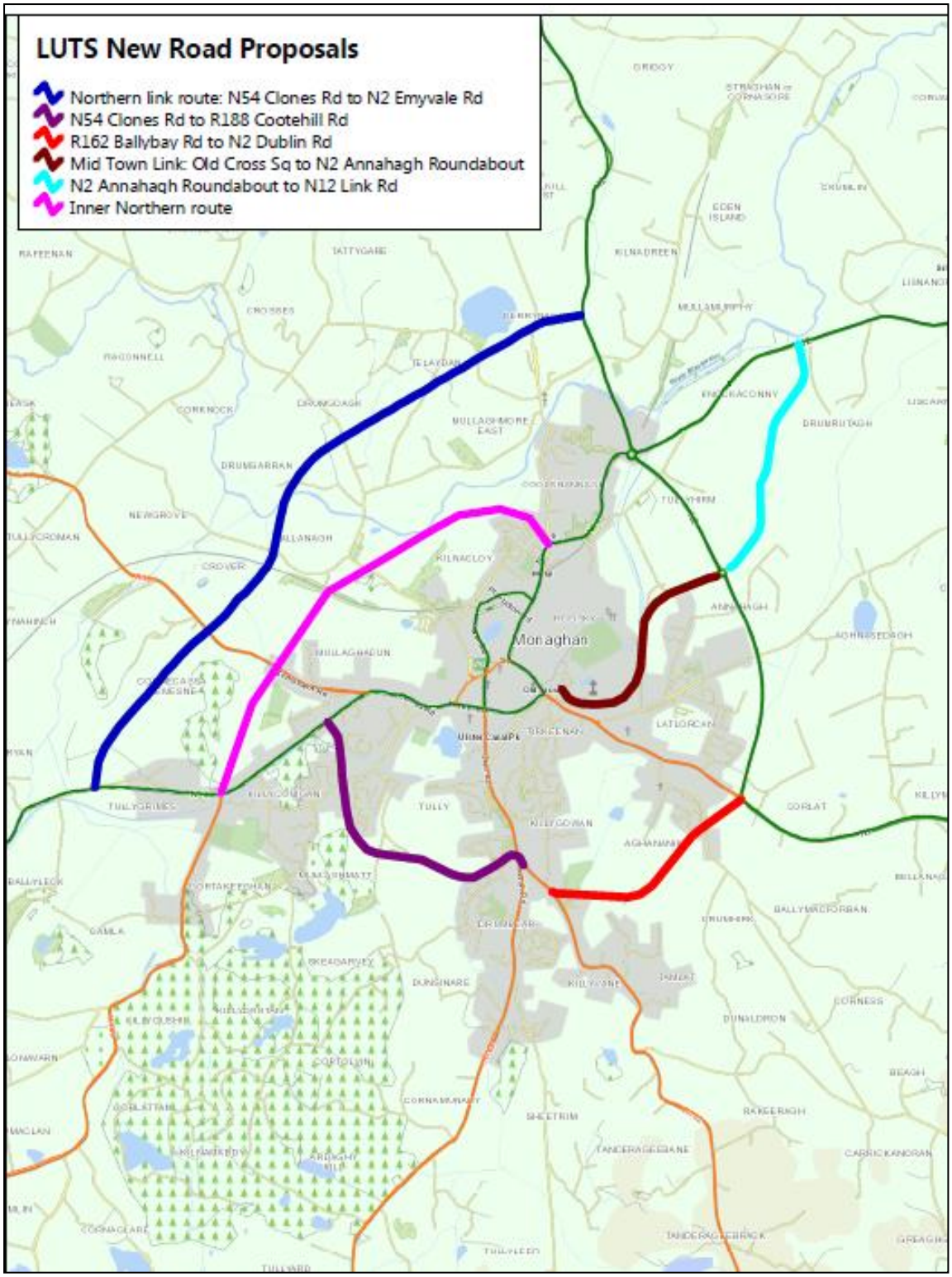


Figure 7.2 Road Proposals for Monaghan Town

7.3 ENVIRONMENTAL ASSESSMENT

A high level environmental assessment based on a desktop review was carried out on each of the road schemes identified. In particular the following categories were reviewed:

- Heritage & Historic Resources
- Biodiversity
- Landscape/ Townscape Issues
- Water Environment

As can be seen from summary in table 7.2 none of the proposed road schemes have environmental impacts which would make the projects unviable.

As each of these schemes (with the exception of the Outer Northern Link) are included in the Monaghan County Council County Development Plan 2013-2019, their impacts have been assessed under the development plan Strategic Environmental Assessment. Any proposals to incorporate the Outer Northern Link within the Monaghan County Development Plan will be assessed under the Strategic Environment Assessment associated with that development plan.

The screening for Appropriate Assessment and inclusion of appropriate Natura Impact Statement when designing any of the proposed large infrastructural projects will mitigate against any adverse environmental impacts.

A separate SEA process for the LUTS is not required at this time as the purpose of this document is to inform the Monaghan County Development Plan 2019-2025. All recommendations arising from MLUTS will be assessed through the SEA for the County Development Plan before inclusion and will also be assessed in detail through the planning process. Should one of the proposed large scale roads infrastructural projects be progressed, it will warrant an Environmental Impact Assessment at the planning process.

7.3.1 SUMMARY OF OPTIONS OF ROAD PROPOSALS

All the analysis and information from the traffic modelling, land use implications, cost estimates and environmental assessment of all the options for improving the Road Infrastructure in Monaghan are summarised in table 7.3.

Options	Heritage and Historic Resources	Biodiversity	Landscape/ Townscape Issues	Water Environment	SEA Required?
Do-Nothing	A large volume of HGVs pass by the Market House and Church Square each day, which may affect the protected structures there.	No effect on current biodiversity would be expected.	The volume of HGVs passing through the town centre is high and adversely impacts on the amenity value of the town centre streets.	The main through road, the N54, becomes impassable when flooding occurs. This can happen on a yearly basis.	No
N2 - N12 Link Road	Link Road is in close proximity to Bessmount House and Bessmount Park. Road enters onto the N12 via an existing road. The Ulster Canal route is in close proximity to the N12 at this location.	There are no SACs, SPAs or NHAs affected by this proposal.	The entire Study Area is in Monaghan Drumlin Uplands. Most of the proposed development runs through green fields, however the start and end of this proposed link road runs by Industrial developments.	Contour mapping shows that Fluvial Flooding occurs in certain locations. The access onto the N12 is located in Flood Area A&B. No water sources are directly impacted by this proposal. The link road is parallel to a small stream.	No – County Development Plan SEA covers this development
Mid Town Link	The Link Road is in close proximity to a protected gasworks structure.	There are no SACs, SPAs or NHAs affected by this proposal.	The entire Study Area is in Monaghan Drumlin Uplands. Most of the proposed development runs through green fields, however the start and end of this proposed link road runs by Industrial developments.	The link runs parallel to the Ulster Canal for a short distance which is also home to a number of recommended structures to be protected	No – County Development Plan SEA covers this development
Southern Link Road	Passes Close to Will Ville House in Aghananimy. This route crosses the Ulster Canal which is no longer in use.	There are no SACs, SPAs or NHAs affected by this proposal.	The entire Study Area is in Monaghan Drumlin Uplands. Most of the proposed development runs through green fields, however the start and end of this proposed link road runs by Industrial developments.	Contour mapping shows that fluvial flooding may occur in certain locations. No water sources are directly impacted by this proposal.	No – County Development Plan SEA covers this development
Inner Northern Link Road	Passes near Mousewood Burial Ground Junction with N54 at eastern end may adversely impact on Stanley Terrace and Westenra Terrace	There are no SACs, SPAs or NHAs affected by this proposal.	The entire Study Area is in Monaghan Drumlin Uplands. Most of the proposed development runs through green fields, however the start and end of this proposed link road runs by Industrial developments.	A significant portion of this route lies in the Blackwater Floodplain. No water sources are directly impacted by this proposal	No – County Development Plan SEA covers this development
Northern Link Road	Passes through Mousewood Burial Ground Junction with N54 at eastern end. May adversely impact on Stanley Terrance and Westenra Terrace	There are no SACs, SPAs or NHAs affected by this proposal.	The entire Study Area is in Monaghan Drumlin Uplands. Most of the proposed development runs through green fields, however the start and end of this proposed link road runs by Industrial developments.	A significant portion of this route lies in the Blackwater Floodplain. No water sources are directly impacted by this proposal	No – County Development Plan SEA covers this development

Table 7.2Summary of Strategic Environmental Assessment of the Proposed Routes in Monaghan LUTS

Options Considered	Option Detail	Benefits	Cost/ Implications
1.0 Do Nothing	• Maintain Current road network and traffic management arrangements. • No improvement is made to the road network.	• No financial cost outlay	• The average travel time per vehicle within the study area increases by 155% and 144% for the morning and evening peaks respectively by 2025. • In the absence of link roads connecting the N2 to N54, the ability to access zoned lands along these corridors will be severely restricted. • This level of development coupled with an absence of infrastructural improvement will result in severe traffic congestion and delay around Monaghan Town. • This will have knock on impacts for the attractiveness of walking and cycling. • Growth projections for Monaghan Town indicate an increase in population of between 500 and 1900 up to 2035. • Increase in congestion and the volume of HGVs going through the town centre.
2.0 Develop the N2 to N12 link Road	• The N2 – N12 link road would connect the Annahagh Roundabout to N12 north of Coolshannagh roundabout. • It would be a 1.5km two way single carriageway with a speed limit of 60kph. • Pedestrian footpaths and cycle lanes will also be provided along this route.	• Allows for the development of land at Tullyhirm, Knockaconny and Annahagh. Land A (46ha) on eastern side of N2 + B (21ha) on the western side of the N2 by pass + C (20ha) on the south side of the new link road (1,600+ 600+ 600 jobs)	• Cost Estimate €4.9/€6.3million – Based on NRA National Secondary Roads Needs Study Cost Estimation method. • With the land developed the Monaghan model shows some slight impact on the traffic on the N2 northbound & N2 southbound. Also queuing was evident on the N54 Clones Road inbound morning peak time and there was an increase in travel time by 3 minutes on the Cross town routes. • Old Cross square roundabout would have to be replaced with traffic signals. • Possible signalisation of Derry Road/ R135 and the N2 Northern arm of the Coolshannagh Roundabout
3.0 Develop the Midtown link road	• The midtown link road would connect Old Cross Square with the N2 Bypass. • It would be 1.5km two way single carriageway with a speed limit of 50kph. • Pedestrian footpaths and cycle lanes will also be provided along this route.	• The mid town link road has a positive impact in the AM peak on the town centre with traffic reductions on key links. • Traffic from the North wishing to bypass the town will divert to this new roadway • Opens up land for industrial development • This route offsets slightly the impact of the traffic resulting from the development of the Dublin Street LAAP and Regeneration Plan. • Route could be used to divert HGVs from the North from travelling through the town centre.	• Cost Estimate €4.1/€5.1million – Based on NRA National Secondary Roads Needs Study Cost Estimation method. • The Monaghan traffic model shows increased journey times in the PM peak. This may be due to the extra arm off the Old Cross square roundabout. • Old cross square roundabout may have to be replaced with a signalised junction. • Proximity to Ulster Canal may lead to objections by An Taisce or Waterways Ireland. • The location of this route encourages more traffic through the town from the west and increases the congestion on the N54 Clones Road.

Table 7.3 Summary of Options for Monaghan Road Proposals

Options Considered	Option Detail	Benefits	Cost/ Implications
4.0 Develop the Southern Link Road (N54 Clones Rd to R188 Cootehill Rd only)	• The Southern Link Road (Phase1) would connect the N54 (Clones Road) at Oriel Way to the Cootehill Road (R188). It would be a 1.82km two way single carriageway with a speed limit of 50kph. • Monaghan Traffic model shows highest traffic flows on N54 Clones Rd to R188 Cootehill Rd in 2035 to be 400 (AM) and 350(PM) vehicles per hour. • Pedestrian footpaths and cycle lanes will also be provided along this route.	• 0.4km of this route is already built. • Creates an attractive alternative route to town centre bound trips between west and the south of the town. • Reduces congestion in the southwest region of the model; • The development of a southern link route would be an excellent artery connecting residential areas • The N54Clones Rd to R188 Cootehill Road link gives scope for access and future development of lands zoned for housing and industrial purposes to the south west of the town	• Cost Estimate €5.0./6.2 million – Based on NRA National Secondary Roads Needs Study Cost Estimation method. • There would be technical difficulty in constructing this phase due to topography. • Significant queuing and congestion along Clones Road is still present in the morning peak model • Local opposition due to impacts both during and after construction
5.0 Develop the Southern Link Road (R162 Ballybay Road to N2 Dublin Rd only)	• The Southern Link Road (R162 Ballybay Road to N2 Dublin Rd) would connect the N2 at the Corlat Roundabout to Ballybay Road (R162). It would be a 1.3km two way single carriageway with a speed limit of 50kph. • Monaghan Traffic model shows highest traffic flow on R162 Ballybay Road to N2 Dublin Rd in 2035 recorded at 400 (AM) and 300(PM) vehicles per hour. • Pedestrian footpaths and cycle lanes will also be provided along this route.	• R162 Ballybay Road to N2 Dublin Rd link provides higher speeds and lower journey times than N54 Clones Rd to R188 Cootehill Rd link. • The development of a southern link route would be an excellent artery connecting residential areas. • The R162 Ballybay Road to N2 Dublin Rd link gives scope for future zoning of lands for industrial purposes to the south east of the town	• Cost Estimate €3.5/4.4 million – Based on NRA National Secondary Roads Needs Study Cost Estimation method. • Local opposition due to impacts both during and after construction

Options Considered	Option Detail	Benefits	Cost/ Implications
6.0 Develop the Full Southern by pass Road	• The full Southern By Pass would connect the N54 (Clones Road) to the R188 (Cootehill Road) and also the R162 (Ballybay Road) to N2 at the Corlat Roundabout. It would be 3.12km of two way single carriageway with a speed limit of 50kph. • Monaghan Traffic model shows highest traffic flow on the full southern by pass recorded at 500 (AM) and 400 (PM) vehicles per hour. • Pedestrian footpaths and cycle lanes will also be provided along this route.	• Without the land developed the traffic model outputs show a 21% improved average speed and average travel time reduction of 14%. • With the land developed and forecast population growth in 2035 there is a 13% improved average speed and average travel time increase of 28%. • Would have the effect of taking a large amount of through traffic out of the town centre making it a much more attractive place to visit and conduct business. • The development of a southern link route would be an excellent artery connecting residential areas 2,3 & 4.	• Cost Estimate €.8.5/€10.7 million – Based on NRA National Secondary Roads Needs Study Cost Estimation method. • Local opposition due to impacts both during and after construction • The likelihood of HGVs diverting onto this road may have a negative impact on some residential areas.
7.0 Develop the Inner Northern Link Road	• Two routes have been identified – Route X1: N54/ R189 to N54 (Derry Road) at Coolshannagh Road – Route X: R186/ N54 (Scotstown Road Jct) to N54 (Derry Road) at Coolshannagh Road • This route X1/X would be 1.9km two way single carriageway with a speed limit of 50kph.	• Route opens up significant residentially zoned lands for development • Could be developer lead • Design and planning work completed, reducing the overall cost.	• Cost Estimate €5.2/ €6.5 million – Based on NRA National Secondary Roads Needs Study Cost Estimation method. • The Monaghan Traffic model shows only marginal improvement in traffic diverting from the Town Centre • The route would cross the Blackwater Floodplain • The route would cross the Riverside estate • There could be local objections due to severance of residential areas.

Options Considered	Option Detail	Benefits	Cost/ Implications
8.0 Develop the Outer Northern Link Road	• The N54/N2/N12 Outer Northern Link road would be a 4.5km two way single carriageway with a speed limit of 100kph. • The Monaghan Traffic model shows the maximum number of vehicles using the northern bypass was recorded at 550 and 350 vehicles during the morning and evening peak hour. • Pedestrian footpaths and cycle lanes will also be provided along this route.	• Route provides an attractive alternative route for through traffic travelling east-west and west-east as well as north–south and south-north. • The modelling shows that by 2035 if the route is developed there will be a 13% improved average speed across the network and a reduction in travel times of 54% between N54 and the N2 North. • The scheme results in significant travel time savings for the town. Queue lengths on the Clones Road N54 reduce significantly with only the school traffic using this road. • This route would be a major asset to the national road network if constructed as part of the N2/A5 project • This road would encourage industrial and employment development due to improved access to the national road network. • Low Impact on Town Centre and National Road Network during Construction • Will remove large numbers of HGVs from the Town Centre • Connects major areas of lands zoned for employment creation	• Cost Estimate €16/ €19.5million – Based on NRA National Secondary Roads Needs Study Cost Estimation method. • It does not fully address congestion on the Glen Road • There is still a considerable amount of traffic that will continue to travel into the town centre.

7.4 CONCLUSIONS

1. **The N2 to N12 link Route is recommended for development.** It provides for the development of the 87ha of land at Knockaconny, Tullyhirmand Annahagh. An initial 72ha of land can be developed by 2025 (i.e 100% of land A and 100% of land C) with minimal impact on the surrounding network. If development is slower, 64ha can be developed by 2035 with minimal impact on the surrounding network. If additional area in excess of this is proposed to be developed then improvements to a number of junctions will be required. i.e. signalisation of Old Cross Square roundabout, signalisation of Derry Road/ R135 and signalisation of the Northern arm of the Coolshannagh Roundabout.

2. **The Mid Town Link Route is recommended for development.** It provides a positive impact on the town centre. It will facilitate the development of the Dublin Street LAAP and Regeneration Plan but its impact on the surrounding network is significant due to the low capacity of Old Cross Square roundabout. Themid town link will encourage more traffic across town from the N54.However these issues will be mitigated if the development of this road is carried out in conjunction with the upgrading of the Old Cross Square roundabout with a signalised junction.

3. **The Southern Link Route is recommended for development.**This roadway will deliver significant benefits to Monaghan Town both in terms of connectivity and future development patterns. However the R162 Ballybay Road to N2 Dublin Rd provides more benefits than N54 Clones Rd to R188 Cootehill Rd and should be developed first.

4. **The Inner Northern Route is not recommended for development.** This scheme does not provide the optimum benefits when compared to the Outer Northern route.

5. **The Outer Northern Route is recommended for development**. The Outer Northern Link road will deliver significant benefits to Monaghan Town. It will deliver maximum benefit when built in conjunction with the N2 /A5 Clontibret to the Northern Ireland Border Scheme. This will provide improved travel time and conditions for all national road traffic in the region for the foreseeable future. There will be significant additional benefit for the town in terms of reduced through traffic and associated congestion.
   The provision of this high quality link road will lead to the diversion of large numbers of HGVs away from Monaghan Town Centre. The reduction of traffic in the town will allow more cycling routes and pedestrian facilities to be developed and free up capacity within the existing network.
   Following investigation of several permutations, the modelling suggests that the Outer Northern link road results in slightly more travel time but it provides higher network speeds, and reduced through traffic and associated congestion. The optimal solution for the future of the road network for Monaghan Town is the development of both the Northern and Southern links. The recommended phasing of development of the links should be the Northern Link road to be developed first, then the Southern Link road (R162 Ballybay Road to N2 Dublin Rd) and then followed by the Southern Link road (N54 Clones Rd to R188 Cootehill Rd).

8 URBAN RENEWAL & SUSTAINABLE TRANSPORT

8.1 URBAN RENEWAL

The Monaghan County Development Plan recognises the need to develop the town centre so that it is as an attractive place to visit and by linking of the older parts of Monaghan through a series of connecting walkways and newly built courtyard sit will create a safe and pleasant environment for pedestrians. It identifies the need for redeveloping of the backland areas of Dublin Street as it will renew a declining urban environment and provide connections with the town centre.

8.1.1 DUBLIN STREET & LANDS TO THE NORTH EAST REGENENERATION PLANS

Dublin Street was once a thriving hub of economic and social activity but suffered major decline in the past 20-30 years. Monaghan County Council acknowledged the complex issues facing Dublin Street and started a targeted regeneration intervention and engaged with the property owners. A Local Area Action Plan was prepared for the northern side in 2011 and the Dublin Street Regeneration Plan was prepared in 2017. Both plans involved extensive landowner, public and statutory consultations and have been adopted as variations to the Development Plan. Both plans offer regeneration options for the future development and create a sustainable/integrated approach to consolidate the town centre, and increase its attractiveness as a place to live, work and visit.

LOCAL AREA ACTION PLAN

A local area action plan for the regeneration of 2.3 hectares of lands to the North East of Dublin Street was developed as framework to allow for the redevelopment of an under developed area in a comprehensive fashion rather than in a piecemeal manner. It is proposed in the plan to provide a new link road from Roosky Vale to the lands to the north east of Dublin Street. It is also proposed to rejuvenate a series of pedestrian links to encourage pedestrian circulation around the town and improve public realm through the provision of a new public spaces.

DUBLIN STREET REGENERATION PLAN

The Regeneration Plan for the southern side of Dublin Street and its backlands extends to the Lower Courthouse car park and the Monaghan Shopping Centre. This Plan proposes to transform this under-developed area to accommodate up to 16,000 square metres of floor area. Envisaged in the Plan is the development of high street stores, a hotel, offices, health care, restaurants/cafes, residential developments and leisure facilities.

The map in figure 8.1 details the plans for infrastructure - including demolition, roads, junction alignment, public squares, car parking, public realm, new urban spaces - Charles Gavin Duffy Place, Church Walk, Court House Square, The Mall, Farney Road, Roosky Square, Roosky Street and a new junction at Old Cross Square.[26]

[26] As part of the Project Ireland 2040 launch the Government announced €2 billion in Urban Regeneration Funds. These funds were open to applications from local authorities, state agencies, business educational institutions etc. In September 2018 Monaghan County Council submitted an application for early €12million in funds for the Dublin Street Urban Regeneration Scheme. This scheme consolidated the previous work carried out in the Dublin Street LAAP and Regeneration Plan.

The realisation of the Dublin Street Regeneration with mixed use development in an attractive setting will increase opportunities to live and work nearby, thereby reducing the need for travel. The project includes provision for enhanced connectivity within the town.

The Dublin Street area is connected to the Ulster Canal greenway, generating increased potential for walking and cycling trips, both locally and regionally with the planned regional route greenway connectivity. Provision has been included in the project for electric vehicle charging points, reducing the carbon footprint of car-based travel.

The Dublin Street Regeneration plan includes the provision of a car park with 286 additional car spaces. Section 6.3 of this document outlines how the Monaghan Traffic model was used to assess the impact of this development. It concluded that the development would cause in increase in traffic at Old Cross Square. Ideally the Dublin Street project should be developed in conjunction with the development of a new mid town link road with cycle paths that would connect Old Cross Square to the N2 Annahagh Roundabout. As well at the new road, the roundabout at Old Cross Square will be replaced as a signalised junction. In the absence of the mid town link road the roundabout at Old Cross Square would still require to be replaced with a signalised junction.

Figure 8.1 Dublin Street & Lands to the North East Regeneration Plan

8.1.2 ONE WAY SYSTEMS

Monaghan town has a system of one way streets and this system pre-dates the opening of the N2 by-pass. They were implemented in 1987 and given the changes in the intervening 30 years it is timely to review their operation. The Market Street and North Road one way systems were also reviewed as part of this study. These roads were examined using the Monaghan model to see the effect of changing the direction of their traffic flows.

MARKET STREET

Market Street is one way from the Market House to Heaton's Corner (Church Square). This narrow street carries a large number of HGVs which are travelling from the N54, east bound thorough the town. The following scenarios were examined for this street:

- Reversing the direction of the one way system, to discourage through traffic
- Fully pedestrianising this street, and forcing all through traffic to the left turn onto Dawson Streetat Dunnes Stores.

Computer modelling of these two options, indicate that both of these interventions would have a negative impact on traffic movements in the morning and evening peak.

The proposed changes are predicted to have a negative impact during the morning peak due to congestion on Hill Street and High Street. This congestion is largely due to traffic diverting onto Hill Street and High Street and rejoining North Road at the junction with Rowantree Road. Journey times in that period show improvements due to the reduction in traffic through the town, however congestion around the town has negative impacts on other areas of town signified by the increase in unreleased vehicles. The evening peak shows a reduction of traffic on North Road between the proposed scheme and Rowantree Road, where the re-assigned traffic joins the North Road to travel northbound. The proposed scenarios have a negative impact on Monaghan Town overall although they do reduce the quantum of vehicles in the Market Street area. It is recommended that an alternative approach be taken to discourage HGVs from travelling through these streets.

NORTH ROAD

The North Road is a two lane, one way system which is part of the N54 north bound route. The Monaghan Transport Plan Computer Model was used to investigate the effects of the following:

- making the road single lane, with parking/ cycling/footpath along its length
- making this road two way

Computer modelling of the reduction of the North Road to a single lane or two way was carried out to understand the effect on traffic junctions within the town centre particularly at Rowantree Road and to identify the level of associated delays (if any) generated by the interventions. The modelling showed that the demand on the North Road in its current layout is considerable and there is no good alternative route for through traffic. Reducing the North Road to single lane or making it two way will have a negative impact in the overall network performance. The efficiency of the North Road/Glaslough St junction would reduce due to the reduction of the number of lanes. The model was examined in conjugation with the Northern By pass and it showed that traffic demand reduced by 850 vehicles. Therefore it is recommended that this proposal be considered again in future after implementation of the Outer Northern by pass.

8.2 SUSTAINABLE TRANSPORT

Walking and cycling lead to improved health and greater use of public transport reduces congestion and is better for the environment. As noted in Chapter 2 a large percentage (22%) of the population in Monaghan town walk to work or school as their main mode of transport. However only 1% cycle and 4 % travel by bus. It is important to provide a high quality pedestrian, cycling and public transport network with appropriate facilities in the Monaghan area to encourage modal shift. Greater pedestrian areas and cycling facilities will help promote Monaghan Town as an enjoyable place to walk/cycle and to improve the general amenity of the town centre. A significant shift to more sustainable modes of transport would help to address the traffic congestion and the town would reap benefits from the improved efficiency in goods movements.

8.3 WALKING AND CYCLING

8.3.1 WALKING & CYCLING STRATEGY (2012)

A walking and cycling strategy for Monaghan Town was published in November 2012. It was compiled by Kieran Boyle Consulting on behalf of Monaghan County Council. It created a vision to develop the town with a network of safe and convenient walking and cycling routes that will improve the quality of life for everybody in the community by prioritising walking and cycling for travel to work, education, shopping and day to day business in the town whilst also providing high quality routes for leisure and fitness activities.

The main objectives of the Walking and Cycling Strategy are:

- Enhance local walking and cycling facilities to facilitate more short trips by walking and cycling.
- Promote walking and cycling as the primary means of travel for shorter trips.
- Improve safety on roads for cycling
- Promote walking and cycling access to public transport
- Promote walking and cycling as the main forms of travel for education
- Sustain and enhance local retail vitality
- Sustain and enhance local tourism
- Provide improved facilities for recreational walking and cycling
- Promote behavioural change to more sustainable modes of travel than the private car

The 2012 Strategy and 2016 census figures show that car dependency in Monaghan is extremely high. Walking to work or education is significant but there is almost no demand for cycling. The consultation process carried out as part of the Monaghan LUTS revealed that people do not feel the infrastructure is in place to make cycling attractive or safe in Monaghan.

The Cycle Routes and infrastructural interventions proposed in the Kieran Boyle Walking & Cycling strategy have been reviewed as part of the LUTS.

Appendix E includes tables of the current status of the recommendations from the Strategy for Pedestrian, Cycling and Junction Improvements. It is noted that a number of the pedestrian improvements have been implemented but a large number of cycling and junction recommendations are still to be carried out. The provision of cycle paths in the town is challenging with the narrowness of the streets and the heavy traffic passing through the town. There are difficulties in retrofitting cycle

lanes on roads that have insufficient widths and the removal of right turning lanes on roadways can cause traffic to build up.

The walking and cycling strategy for Monaghan Town also recommended a speed limit zone of 30kph. Monaghan Town currently has a speed limit of 50kph. A lower 30kph speed restriction on certain streets in the town would reduce the dominance of vehicles and make it safer for pedestrians and cyclists to move around. Reducing speeds decreases the risk of accidents and the severity of accidents. It would also provide environmental benefits by reducing traffic noise.

8.3.2 WALKING & CYCLING NETWORK (2018)

A team from Monaghan County Council comprising of the Cycling Officer, the Greenway Officer, the Monaghan Municipal District Co Ordinator, Planner and Roads Engineer reviewed the cycle routes proposed in the 2012 Strategy and considered all other walking and cycling route proposals. They agreed on a new network of cycle routes for the town which comprises of the Greenway Routes, the Boyle cycle routes, cycle route along new link roads and other possible cycle routes along the disused Great Northern Railway line and along laneways. These are summarised on table 8.1 and figure 8.2

The Greenway Routes

The Phase 2 Greenway Route is a €4.95m INTERREG funded project which will extend the existing Greenway by 22km. The completed Greenway will run from Smithborough in County Monaghan to Middletown in County Armagh and is due to open in 2020. This Greenway will be a major asset to surrounding areas, as it will brings the old towpaths of the disused Ulster Canal back into use and expands the Ulster Canal Greenway into a cross-border project. The 2.6km Cycle Route along the N2 Monaghan By pass and a route along the old railway line at Coolshannagh to Glaslough will also be completed as part of the Greenway extension project. The DTTAS has provided €540,000 to the project, with the Council finding a further €180,000.

Phase 1 Cycle Routes

The 2012 Kieran Boyle Walking & Cycling Strategy also recommended a number of cycling routes which are still valid:

1. R162 / R188 (Cootehill Road/Glen Road) MCC Offices to The Corran (0.8km)
2. N2 to N54 Derry Road (St Macartans College to North Road/Glaslough St junction (1.0km)
3. R937 Dublin Road to N2 (Old Cross Square Roundabout to Collegiate School) (1.2km)
4. Cross Town (North/South route) Macartan Road/CastleRoad/Mall Road junction to North Road via the Diamond (0.8km)

In 2014 the first three of these routes were selected for implementation when they were included in an application for a Smarter Travel Initiative. These routes were selected because of proximity to the Greenway, schools and residential areas. They were assessed at a nominal level by Kieran Boyle Consulting in 2014 which indicated that the cycle paths would not cause significant delays at the junctions. However as the implementation of these cycle lanes and removal of right turn lanes could cause a build up of traffic on these routes, they were analysed. As part of the LUTS study these cycle routes were reviewed and assessed again using the Monaghan Traffic model and local Picady junction modelling tools. Appendix F outlines the analysis carried out.

No.	Category	Route	Timeframe
1	Proposed Greenway Routes	Greenway route (Coolshannagh Roundabout northwards to Tyholland/Middletown)	By 2020
2		Greenway route (N54 at Threemilehouse Road southwards to Smithborough)	
3		Greenway route (N54 at Coolshannagh Roundabout northwards to Glaslough)	
4		N2 By Pass route (Coolshannagh Roundabout to N2 Dublin Road/Latlorcan estate)	
5	Proposed cycle paths in 2012 Walking & Cycling Strategy	R162 / R188 (Cootehill Road/Glen Road) MCC Offices to The Corran	By 2021
6		N2 to N54 Derry Road (St Macartans College to North Road/Glaslough St junction	
7		R937 Dublin Road to N2 (Old Cross Square Roundabout to Collegiate School)	
8		Cross Town (North/South route) Macartan Road/Castle Road/Mall Road junction to North Road via the Diamond	
9	Cycle paths along Proposed Link roads	N2 to N12 Link Road (Annahagh Roundabout to N12 at Knockaconny)	By 2027
10		Mid town link road (Old Cross Square to Annahagh Roundabout)	
11		Southern Link Route (N54 Clones Rd to R188 Cootehill Rd)	
12		Southern Link Route (R162 Ballybay Road to N2 Dublin Rd)	
13	Other proposed Cycle Routes	Amenity route from Scotstown Road to North Road (Old railway line)	Ongoing
14		Amenity route from N54 to St Davnet's (Old railway line)	
15		Milltown to Amenity Route (at Gallanagh)	
16		Old Armagh Road (from N2 to junction with Dublin Rd R937)	
17		Cortolvin Road to Rossmore Park &Sli na Slainte Route via Horseshoe Bridge to N54 Monaghan Leisure Centre	
18		Latlorcan Estate (Dublin Rd to N2)	
19		Along the N2 (St Macartan's College) northwards to the N2 Cycle Path on Emyvale Road outside Monaghan Town.	
20		St Davnet's(HSE) lands from N54 to Glaslough Street.	
21		Greenway to entrance to St Davnet's at N54/ Four Seasons	
22		North Road to Glaslough St	
23		Rope Walk & Plantation Road	
24		Annahagh roundabout along N2 southbound verge to connect with the underpass at Coolshanagh Roundabout	
25		Monaghan Fire Station along N2 south bound verge and under the N2 to connect with Old Armagh road	

Table 8.1 Monaghan Town – Proposed Network of Cycle Routes

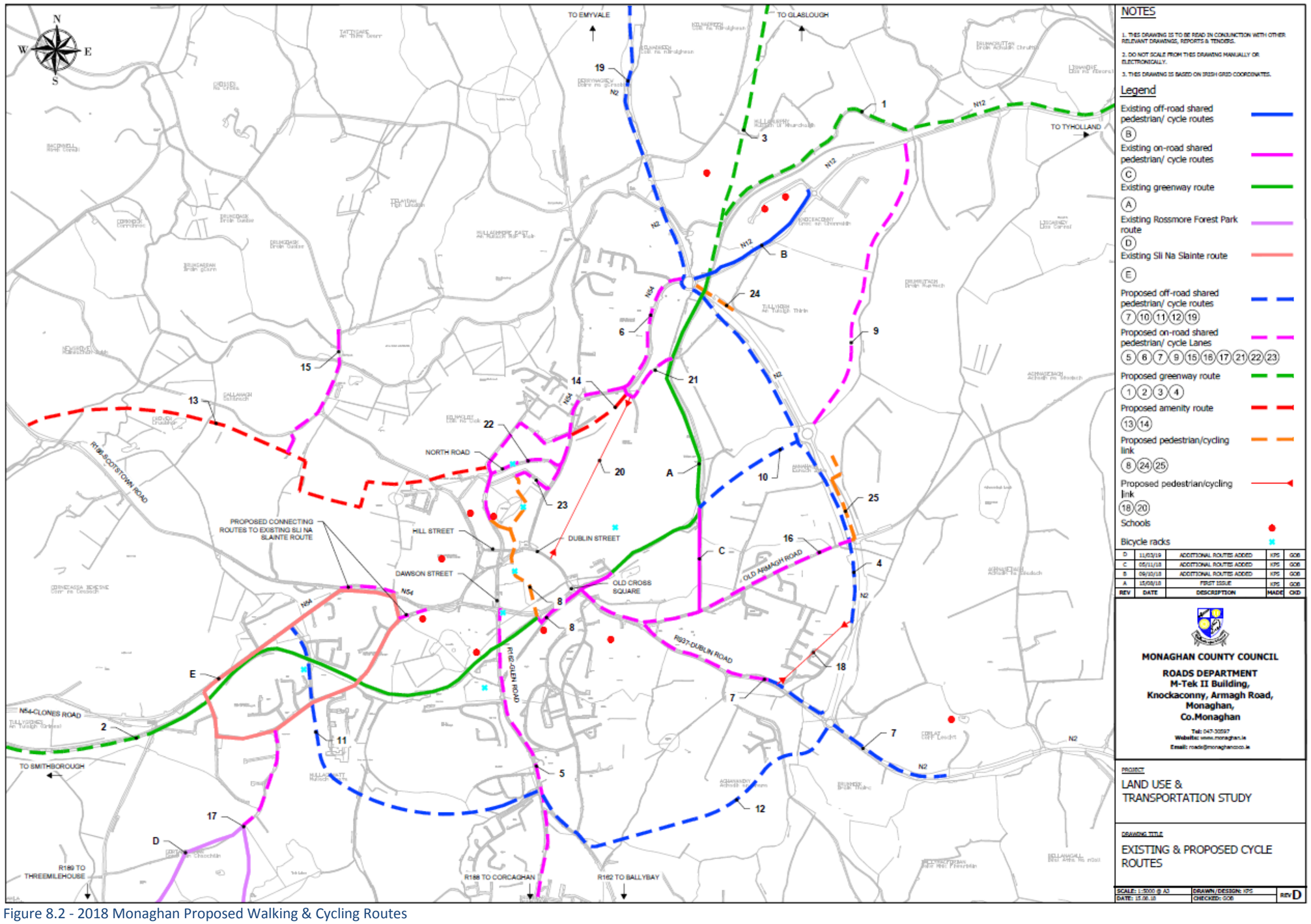


Figure 8.2 - 2018 Monaghan Proposed Walking & Cycling Routes

In summary the removal of right turning lanes at the junctions show minimal impact on queuing, delays and capacity. It is therefore recommended that the implementation of the three cycle routes below should be progressed.

1. R162 Glen Road to R188 Cootehill Road (Monaghan County Council Offices to The Corran)
2. N2 to N54 Derry Road (St Macartan's College to North Road/Glaslough Street Junction)
3. R937 Dublin Road to N2 (Old Cross Square Roundabout to Collegiate School)

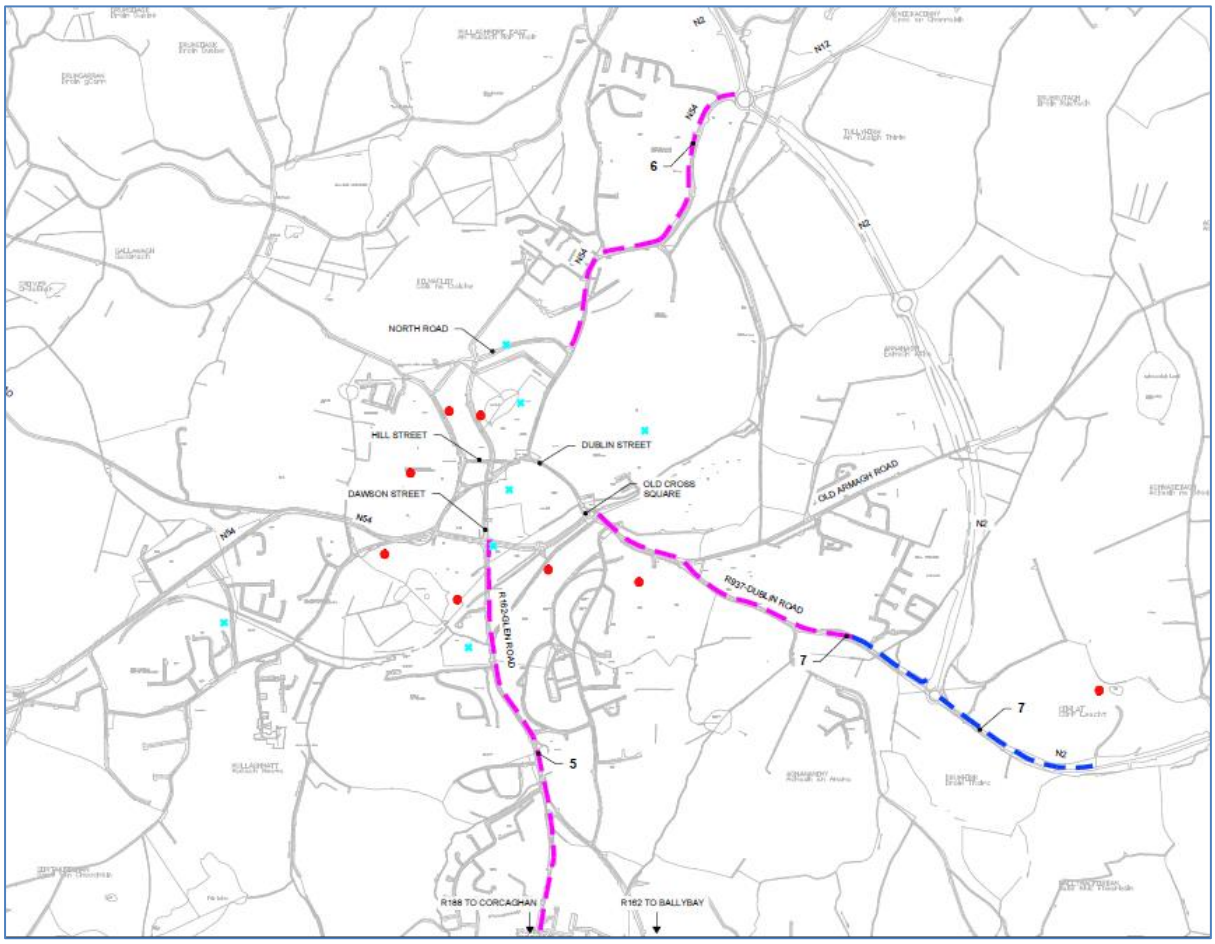


Figure 8.3 Monaghan Town Proposed Phase 1 Cycle Routes

Cycle paths along the proposed Link Roads

Chapter 7 of the MLUTS outlines a number of proposed link roads in Monaghan and it is intended that there would be cycle lanes constructed as part of these roads. These link roads will open up enterprise development areas and the cycle routes will provide alternative travel modes to these employment centres. Funding for these roads/ cycle paths will be provided through Specific Grants and developer contributions.

Cycle paths along Old Railway lines (amenity routes).

The old railway line which was part of the Great Northern Railway connecting Glaslough to Clones was closed between 1951 and 1957. Sections of this disused railway in Monaghan Town have the potential to be developed as a walking/cycle amenity route in the future. Funding for these routes could be sought through tourism amenity grants.

Other Cycle paths along local roads and laneways

A number of other routes along local roads, laneways and less trafficked roads have been identified to provide linkages to the cycle routes, connection to the Bus Station and to employment areas. Furthermore, Monaghan County Council is investigating the development of formal cycling routes within Rossmore Park.

There is a strong desire for amenity cycling and trails that are accessible and linked to the Greenway and the N2 bypass route. These would form an extensive network of off road facilities in the town and environs. The implementation of the walking and cycling routes throughout the town and through the town centre, coupled with the development of the Greenway and development of cycling route along the N2 bypass will result in a major improvement to walking and cycling infrastructure in Monaghan.

Cycle Parking Facilities

The lack of cycle parking facilities is seen as a major deterrent to cyclists. Provision of secure freely available parking in popular locations such as workplaces, retail centres, schools and leisure areas can provide an excellent stimulus for people to cycle instead of using the car. They also improve the visual amenity of the area as bicycles chained against fences, shop fronts and lampposts can take away from the appearance of a location. Monaghan County Council is working with the Monaghan Tidy Towns to provide cycle wall brackets at key locations around the town.

Summary

Investment in cycle path infrastructure is expensive and retrofitting cycle paths can be very difficult to implement. They should be implemented only after careful consideration. The focus should be on the densest residential areas and connecting these areas to the schools. Particular emphasis should be on areas where there are clusters of schools and large secondary schools.

Monaghan County Council should initially carry out surveys in the schools and large employers (e.g Combi Lift and Monaghan County Council) to find out what the needs are in terms of cycle paths.

The National Transport Authority[27] give support to Green Schools projects (e.g Park & Stride) and Smarter Travel Projects.

[27] In October, 2018 Monaghan County Council submitted a request to the National Transport Authority (NTA) for funding for cycling and they have indicated support for a pilot project with a school.

8.4 PUBLIC TRANSPORT

The public transport network within Monaghan Town is limited to buses and taxis. Their operations have been described in Chapter 4 of this report.

8.4.1 PUBLIC TRANSPORT HUB

Monaghan bus station which is situated on the North Road is relatively isolated from the town centre. Throughout the consultation phase and subsequent research it has become apparent that Monaghan Town lacks a focal point for transport and inter-modal transfers. This results in a lack a visibility and awareness of the public transport offerings in the town. It is proposed that the pedestrian and cycle linkages to the Monaghan Bus Station be upgraded. The development of the Plantation Road Peace Campus offers an opportunity to achieve this.

Chapter 4 noted the longer term need for a specific town centre public transport hub for both public and private users, including tour buses closer to the main retailing hub of this area. The location of the public transport hub has to be carefully considered as it could result in the removal of a lot of car parking spaces or build up of traffic. It is recommended that a public transport hub should be considered in conjunction with the Dublin Street regeneration projects and further studies should be undertaken in this regard.

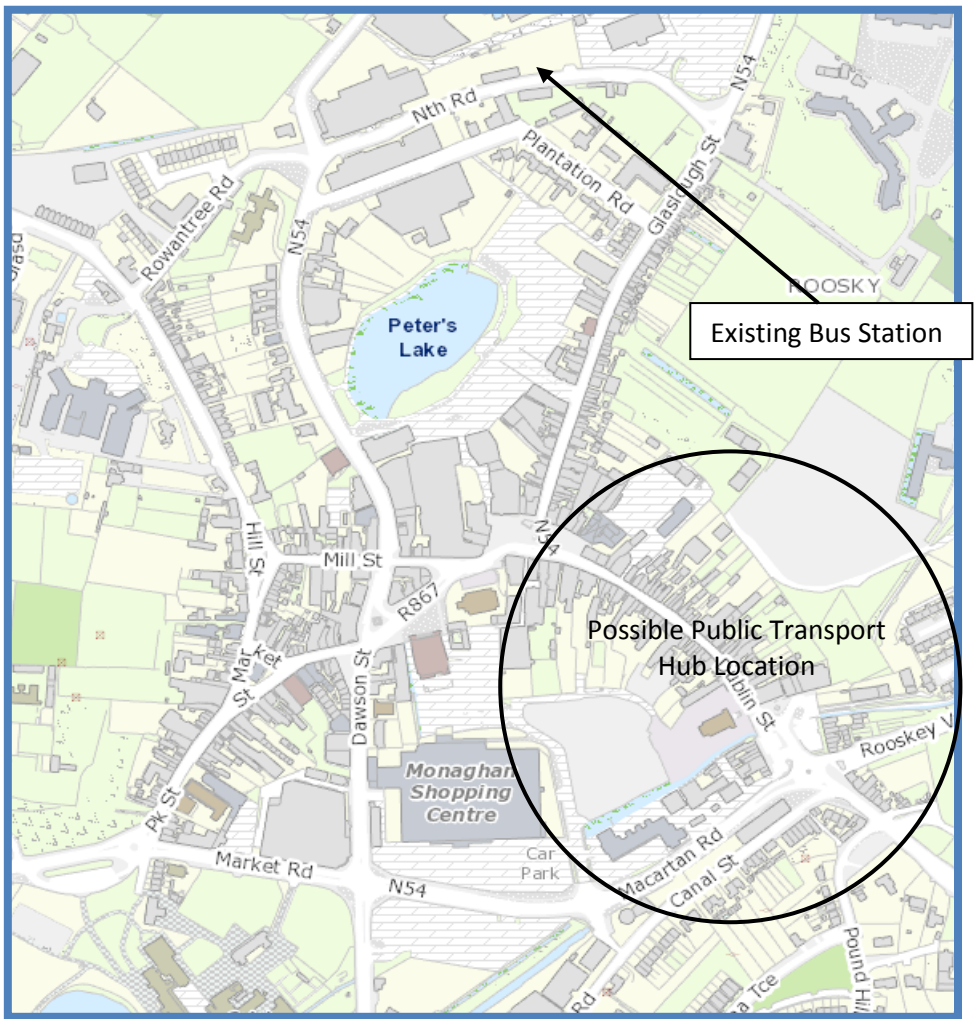


Figure 8.4 Location of Bus Station and Potential Public Transport Hub

8.4.2 LOCAL LINK

The Local Link Cavan Monaghan Group has an agreement with the National Transport Agency (NTA) for the management of the 'Rural Transport Programme' in the counties of Cavan and Monaghan. The programme provides access to services in areas where public transport is not readily available. The service is funded by the Department of Transport through the NTA.

The Local link bus service[28] has introduced a new public transport service in Monaghan. The service caters for passengers that wish to travel from the towns of Ballybay, Tydavnet, Scotstown and Ballinode into the town of Monaghan. The two services (M1 and M2) were introduced in January 2018 on a trial basis six days a week, six times daily from these towns. In co-operation with Monaghan County Council Local Link bus stops will be placed at the following locations around the town:

- Woodlands, Scotstown Road (2 Stops)
- Dawson Street
- Town Library, North Road
- Monaghan General Hospital
- Coolshannagh Road, N54 Derry Road
- Rooskey, N54 Derry Road (2 stops)
- Combi Lift/ Fire Station, Annahagh Roundabout, N2 (2 stops)
- Monaghan Education Campus
- Beechgrove/Tully (2 stops)
- Glen Road (2 stops)

An effective public transport system needs stopping locations that are convenient for passengers, both in terms of journey origins and journey destinations. The selection of bus stop locations that reduce walking times from origins and to final destination should improve the attractiveness of public transport and contribute to the achievement of national, regional and local transport policy objectives. Locating stops in positions that do not provide an appropriate level of proximity for passengers may mean that some potential passengers will not use the service.

[28] The new Cavan/Monaghan route which services the Threemilehouse /Newbliss /Clones /Scotshouse /Ballyhaise areas started on the 3rd of September, 201`8 and is proving successful with up to 500 passengers per week. It is popular with students attending both the Cavan Institute and the Monaghan Institute.
The M1 Tydavent/ Scotsown/ Ballinode route has passenger numbers of circa 220 users per week.
The M2 Ballybay route is gradually increasing in passenger numbers with circa 200 users per week and it has recently added new stops at Ardaghy and Tullycorbett.

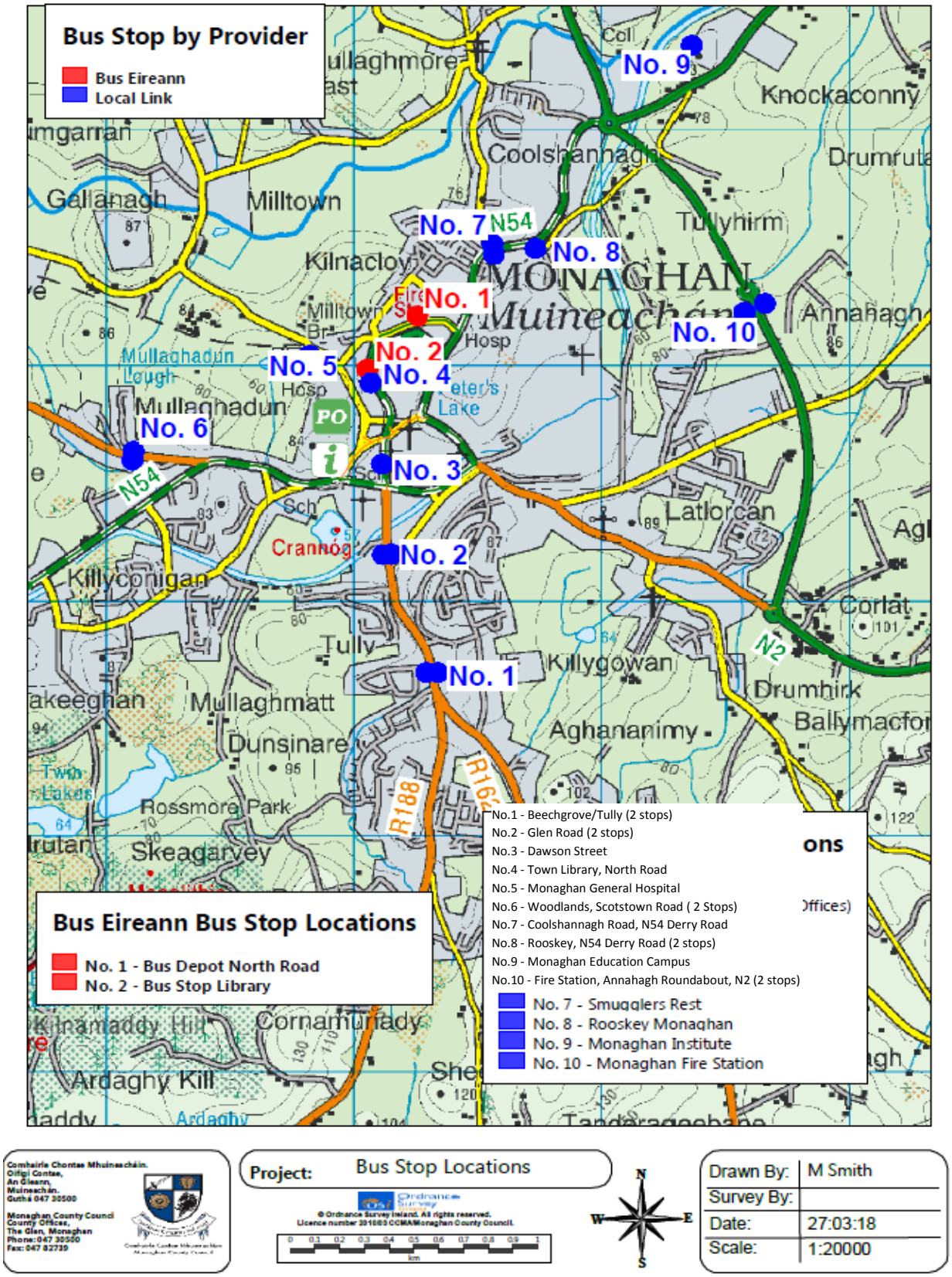


Figure 8.5 Monaghan Town Centre – Location of Bus Station and Bus Stops

8.5 CONCLUSIONS

1. Dublin Street Local Area Action Plan and Dublin Street Regeneration Plans are recommended to be implemented with regard to connectivity with all forms of transport throughout the town.

2. Changes to the Market Street one way system is not recommended at present. However a restriction on HGVs on Market Street is considered further in Chapter 9.

3. Changing the current North Road One Way System is not recommended at present but the proposal should be reviewed again when either the Northern or Southern Monaghan town by pass is developed.

4. Surveys to be carried out in the schools and large employers (e.g Combi Lift and Monaghan County Council) to find out what the needs are in terms of Sustainable Transport (Walking & Cycling). Identify a school and a large employer for a NTA funded pilot Project.

5. The recommendations in the Walking & Cycling Strategy to be reviewed and an implementation plan put in place to proceed with the actions.

6. Implementation of all the routes identified in the Walking & Cycling Network.

7. The proposals for the new Local link transport routes should be supported and facilitated.

8. Further detailed assessment should be given to the relocation of the bus station to a new public transport hub close to the town centre to facilitate greater public transport usage, and greater integration of pedestrian and cycling transport modes with public transport.

9 TRAFFIC MANAGEMENT

9.1 ANALYSIS OF JUNCTIONS

This section outlines the analysis of a number of junctions in the town using the Monaghan Traffic model. The junctions in Figure 9.1 below were examined.

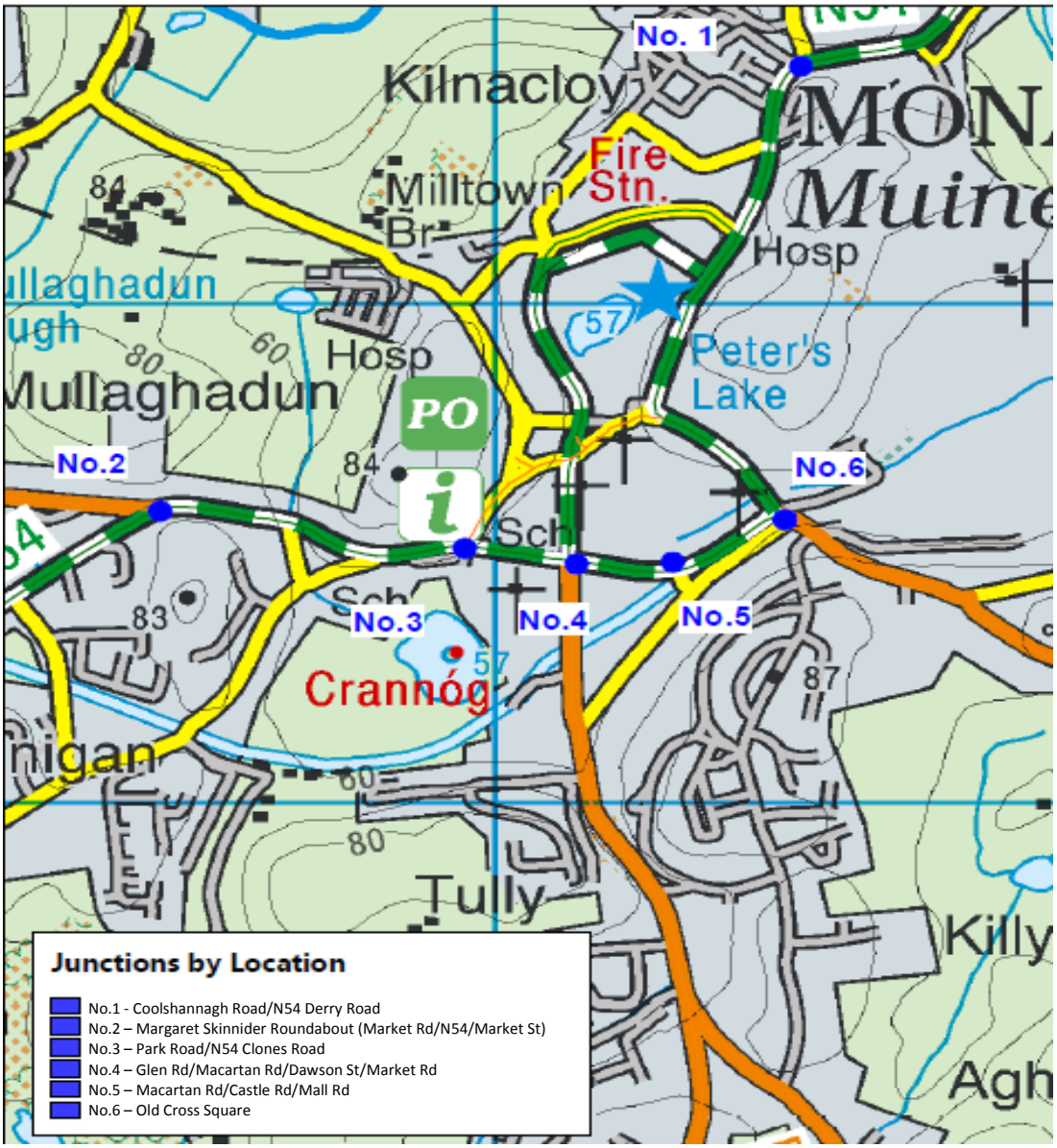


Figure 9.1 Junctions assessed for Monaghan LUTS

9.1.1 COOLSHANNAGH ROAD / N54 DERRY ROAD JUNCTION

The Coolshannagh Road [L-5182] / N54 Derry Road junction is very busy junction. It has a dedicated right turning lane from the N54 which means that traffic exiting this side road has to cross two lanes of traffic and there are quite high traffic speeds on the N54. There are poor pedestrian facilities at this

junction and no cycle facilities. The Monaghan Traffic model was run to see the effect of installing traffic signals at this junction. Two signalised junction layouts were considered, one with the flare for the right turning traffic and one without the flare (as it is one of the routes of a proposed cycle lane). They were tested under both base year (2015) flow conditions and 2025 forecast flow conditions. LinSig models were used to optimise the junction signal timings and were then tested in the Monaghan Traffic Model.

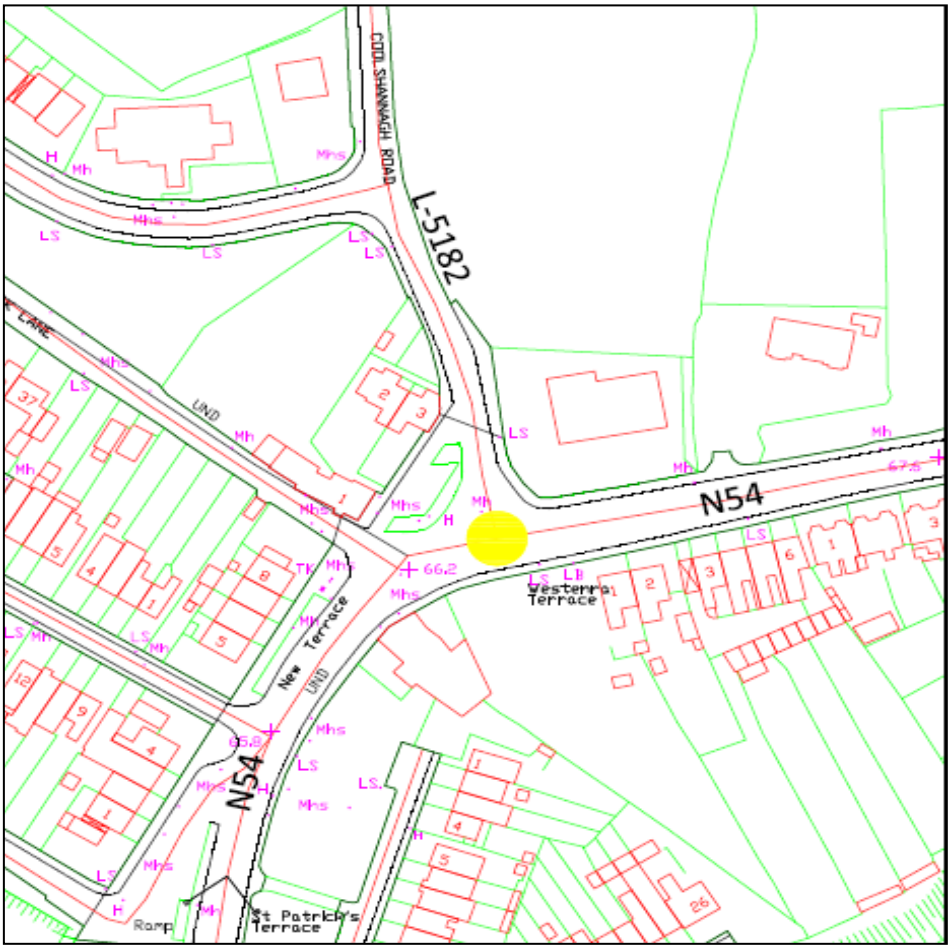


Figure 9.2 Coolshannagh Road/ N54 Derry Road Junction

The modelling found that the number of N54 southbound right-turning vehicles into Coolshannagh Road was not high and is not expected to grow substantially in the future. Therefore based on the LinSig results it is proposed that separation of northbound and southbound phases is not required and that both arms may run at the same time. Right turning traffic would therefore be expected to give way to northbound traffic on the N54. Two phases were assumed in the LinSig analysis, Phase 1- northbound and southbound traffic and Phase 2 - Coolshannagh Road traffic.

The results of the analysis indicate that if traffic signals were implemented at the junction at present it would have no impact on traffic speeds and travel time in the morning peak time and it would have a slightly negative impact in the evening peak. It would therefore currently not provide any improvements to traffic flow. However analysis of signalising the junction in the future year of 2025 did provide benefits to the traffic flows.

9.1.2 MARGARET SKINNIDER ROUNDABOUT

The N54 Clones Road/ Park Street (Margaret Skinnider) roundabout is a major pinch point for traffic at peak times. The main source of congestion at this roundabout is at school drop-off and pick-up times. Poor parking behaviour coupled with large volumes of traffic create problems for road users in the area.

The roundabout has been identified by the TII as a high collision site and funding is available to carry out a safety improvement scheme. Due to the high number of pedestrian injuries at this location, the improvement to pedestrian safety will be the main priority.

It is recommended that Monaghan County Council appoint consultants to assess and re-design the junction. This brief for the consultants should include an assessment of the various options for the junction and recommend improvements that will minimise delay for vehicles whilst maintaining the safe passage of all road users through the junction.

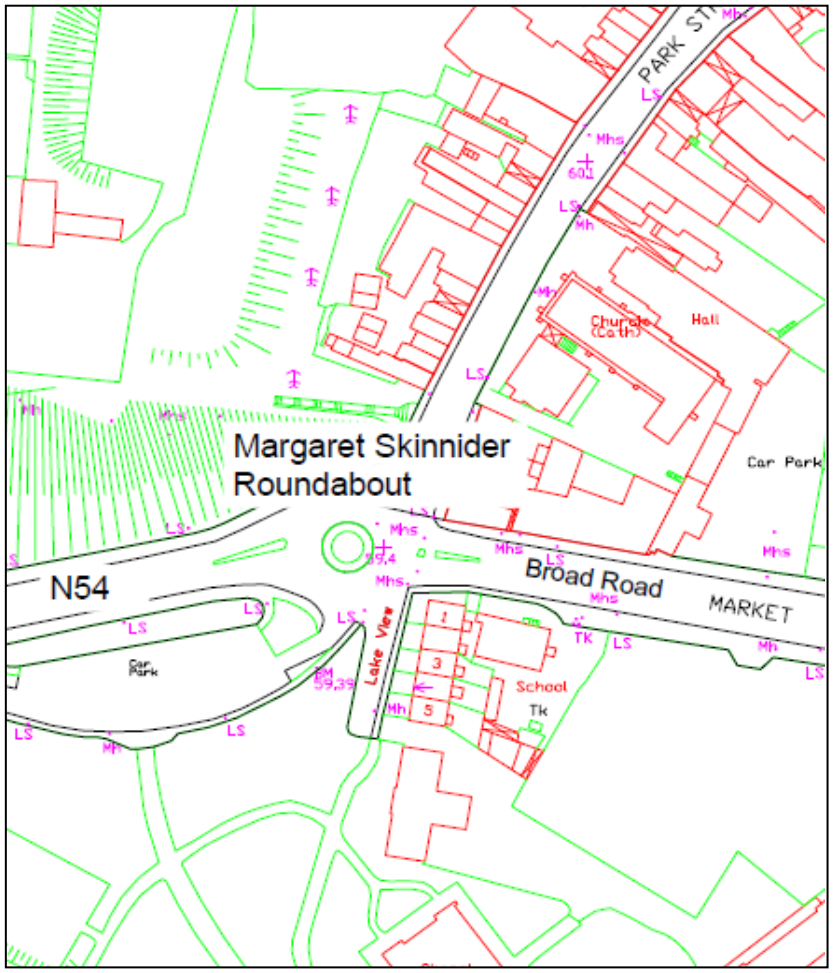


Figure 9.3 Margaret Skinnider Roundabout

9.1.3 N54 CLONES ROAD / PARK ROAD JUNCTION

The Leisure Centre roadway is a one-way link connecting Park Road to the N54 Clones Road. Congestion issues have been noticed in this area at school drop off and pick up time, particularly on the N54 at Park Road entrance. A proposal to close Park Road to traffic exiting the N54 and to change

the Leisure Centre road from one way to two-way link was modelled to understand the impact on the surrounding network.

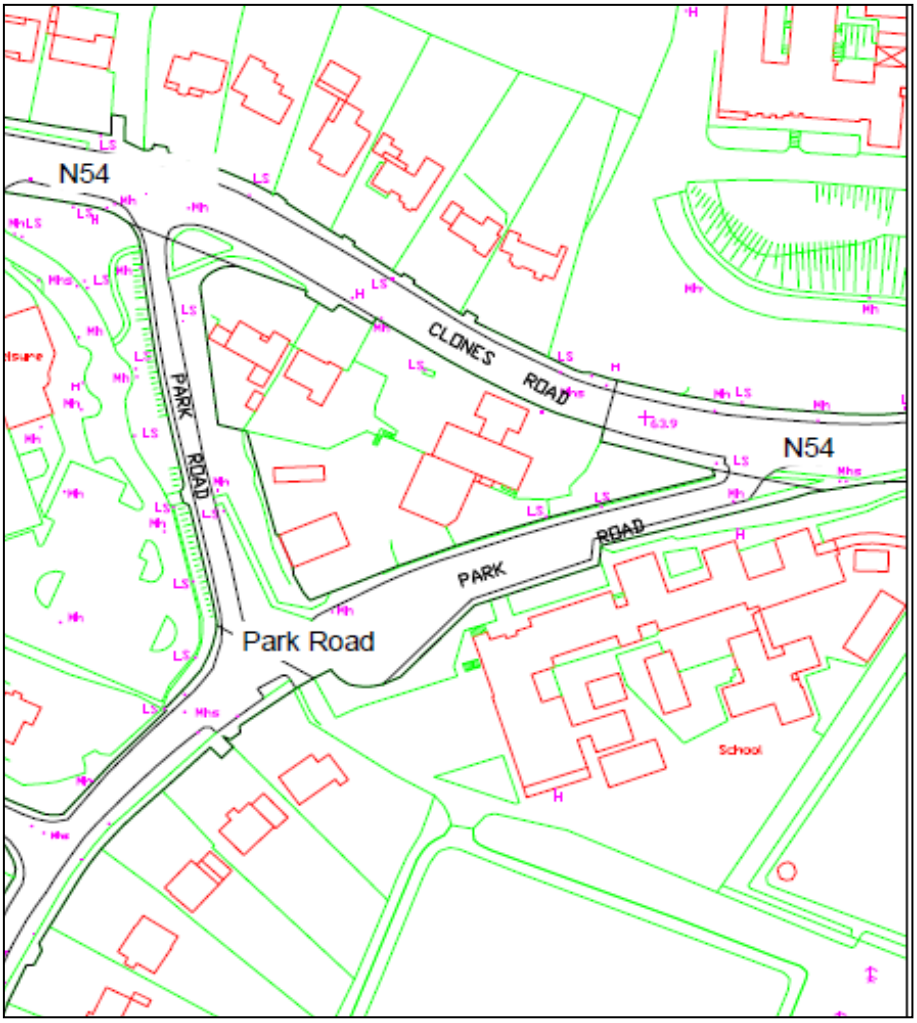


Figure 9.4 N54/ Park Road junction

The results of this analysis show that the average journey time in the westbound (N2 Roundabout to N54 retail park) direction is currently 9 minutes whilst with the above interventions this increases to 14minutes (55% increase). This may be due to the fact that westbound traffic is now impacted by congestion at the N54/Leisure Centre junction whilst before it accessed Park Road prior to this junction.

During the school drop off period the journey time increases from 12 to 36 minutes with the interventions. As a result of increased congestion on the Leisure Centre roadway and N54 junction, the number of vehicles on Clones Road in the morning peak hour increases which exacerbates existing congestion issues.
The recommendation is to leave traffic flow regime as it currently is and to improve enforcement of good traffic behaviour around school drop-off.

9.1.4 GLEN ROAD/MACARTAN ROAD/DAWSON STREET/ MARKET ROAD JUNCTION

The junction at Dawson Street, Market Road, Glen Road and Macartan Road is an urban junction with shopping to the north and various uses to the south, east and west. Each approach is single lane flaring to two at the junction. The flares are over 100m on the south and east approaches, and about half that on the other two. There does not appear to be a parking issue on any of the approaches. However there are entrances and exits and other hazards.

An analysis of this junction was undertaken by Transport Research Laboratory (TRL) Consultancy Ltd in July 2016. They compared the junction efficiency under the existing fixed traffic signal timings to a new proposed MOVA system. This was done for the morning and evening peak.

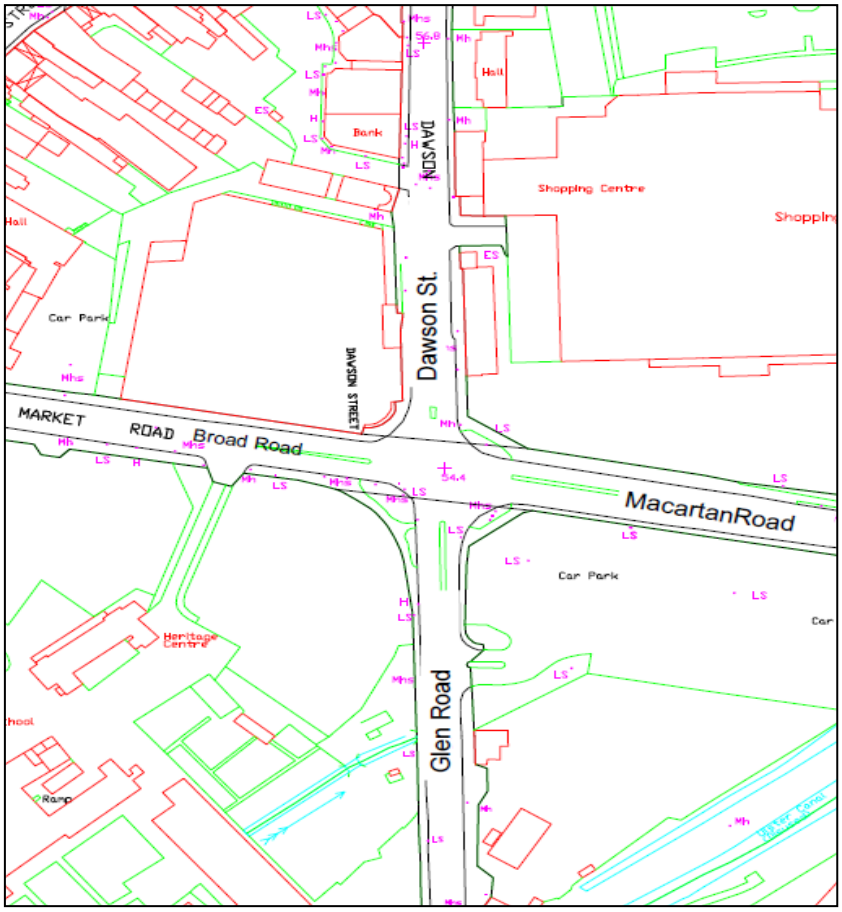


Figure 9.5Glen Road/Macartan Road/Dawson Street/Market Road junction

MOVA (Microprocessor Optimised Vehicle Actuation)

MOVA is a method for the control of traffic light signals at isolated junctions. It is more responsive to traffic conditions and often leads to a significant increase in capacity at a junction. Unlike other traffic control strategies MOVA continually adjusts the green time required for each approach by assessing the number of vehicles approaching the signals, whilst at the same time determining the impact that queuing vehicles would have on the overall operation of the junction. Consequently, MOVA sites have less queuing and incur less delay to all users.

The analysis by TRL suggested at 59% reduction in average traffic delay for the AM peak and a 25% reduction in average traffic delay for the PM peak. This level of improvement would be of great benefit to traffic flow in the town, given the pivotal nature of this junction.

9.1.5 MALL ROAD/CASTLE ROAD/MACARTAN ROAD JUNCTION

Traffic delays are evident at the Mall Road/Castle Road/Macartan Road junction, particularly for traffic exiting from the Shopping Centre car park/Castle Road turning right onto Macartan Road. Measures for improving the traffic at this junction were examined.

The proposal of installing a roundabout at this junction was considered and the following was noted.

- The installation of a roundabout would require the removal of the right turning flare for the traffic travelling from Old Cross Square roundabout on the N54 turning onto Castle Road and the shopping centre. This proposal would have a negative effect on the traffic flows as all this traffic would now be reduced to a single lane which would back up to Old Cross Square roundabout.
- There would be more priority to vehicles exiting the Castle Road (Shopping Centre) exit than is currently the case which would cause delays for traffic travelling along the N54 from Old Cross Square Roundabout.
- A roundabout would be less safe for vulnerable road users.

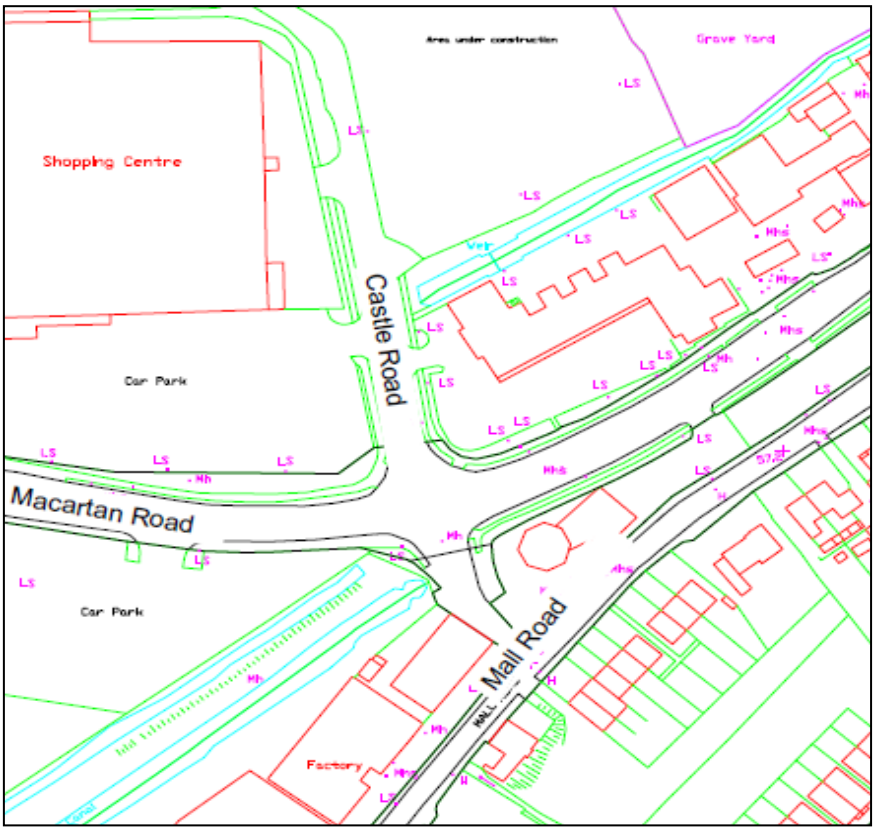


Figure 9.6 Mall Road/ Castle Road/ Macartan Road Junction

The proposal of installing traffic signals at this junction was also examined. Computer modelling was carried out to investigate the impacts of signalising the junction.

Paramics was used to model the junction and LINSIG was used to optimise the traffic lights. The results of these investigations show the traffic signals at the junction works reasonably well with spare capacity. The signals would have to be phased such that there is adequate space on Macartan Road for traffic exiting from Castle Road (shopping centre) turning right. If traffic signals were installed at

present it would provide some minor improvement and safer pedestrian crossing facilities. The cost of the traffic signals are estimated to be between €200k and €500k. However if they can be linked to the existing traffic signal controller at the adjacent traffic signalised junction at Macartan Road/Dawson Street/Glen Road/Market Road junction the cost could be reduced to between €150k and €200K.

The modelling carried out for the future years of 2025 and 2035 shows that overall the traffic signals have a negative impact. There would be a reduction in overall average network speeds and increases in travel times.

- In 2035 the Margaret Skinnider roundabout will be operating above capacity. As a result traffic tail backs will develop westbound between the roundabout and the shopping centre exit.
- There will be an increase in traffic delays exiting from the shopping centre.
- Another knock on effect is that some vehicles travelling from the N54 Clones Road will reroute via Park Street, Church Square and Dublin St to avoid the two sets of traffic lights. i.e. the Market Road/Glen Road/Dawson Street/Macartan Road junction and the new traffic lights at Mall Road/Castle Road/ Macartan Road junction. This has a negative impact on the traffic travelling on Dublin Street.

Overall the introduction of traffic signals at this junction at present would have a significant negative impact on the traffic flows in the future. Considering the time and the cost of implementing these signals and the future negative impact of their implementation on traffic flows, it would be prudent to postpone their implementation.

The traffic signals at this junction are therefore not recommended to be implemented at present.

9.1.6 OLD CROSS SQUARE ROUNDABOUT

Several routes converge on Old Cross Square, Dublin Street(N54), Dublin Road(R937), and Roosky Vale Lane. Although it is a low capacity one lane roundabout the pedestrian facilities are reasonably good and traffic generally flows quite well. At peak times it can be difficult for vehicles to exit from the Roosky Vale Lane exit which is the access for the Monaghan Harps GAA grounds. Any congestion in short proximity to the roundabout results in it being blocked and congestion develops quickly on all approaches. However it is not recommended that any major interventions are required at Old Cross Square at the present.

There are three future developments and infrastructure proposals which will affect the capacity of the roundabout:

1. The Dublin Street LAAP (refer to section 8.2). This proposal includes the development of commercial and residential areas to the rear of Dublin Street. This additional traffic will exit out via the Roosky Vale Lane arm of the roundabout
2. The development of land at Tullyhirm/ Knockaconny/ Annahagh and the N2/N12 link route (refer to section 6.2)
3. The mid town link route (refer to section 6.3)

The initial computer modelling was carried out to assess the impact on the junction of the Dublin St LAAP and to establish the possible interventions required. The modelling showed that in 2035 during the morning and evening peak new congestion/queuing develops on all approaches. The queue on the south approach, Dublin Road extends approximately 150m beyond the junction with the Old Armagh Road.

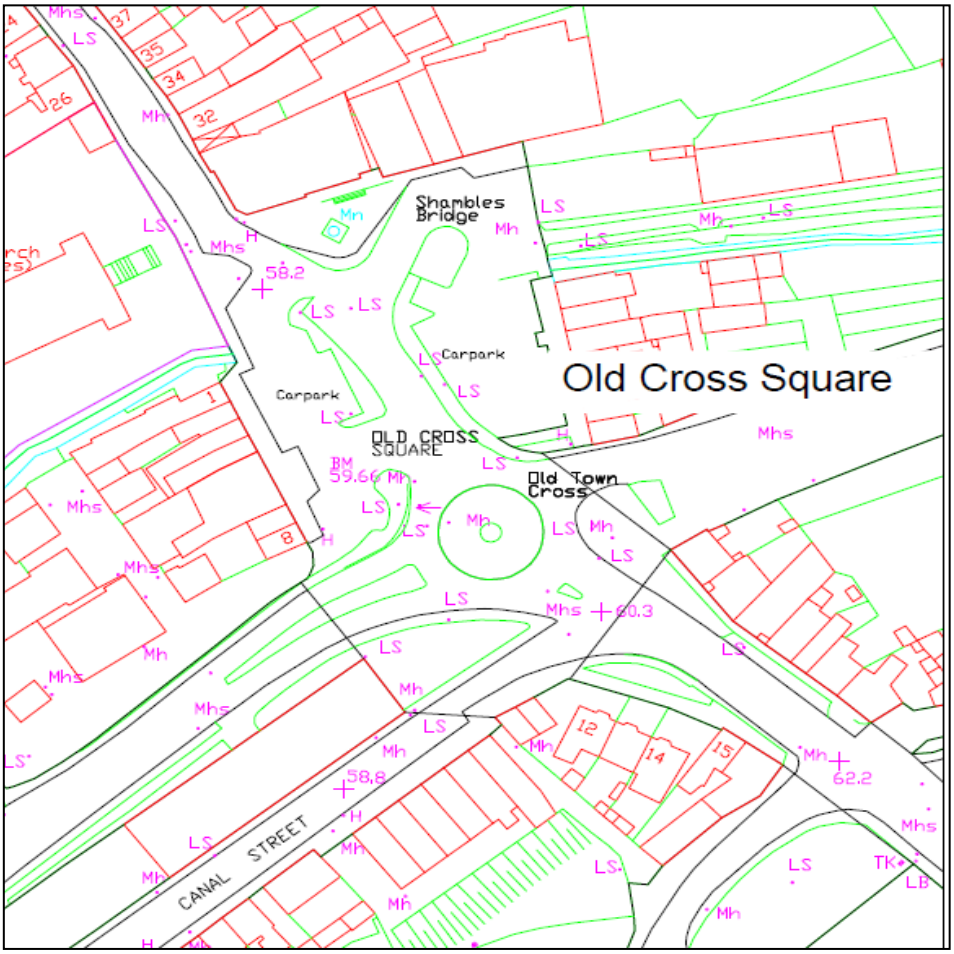


Figure 9.7 Old Cross Square Roundabout

During the morning peak the additional traffic exiting from the new car park via the Roosky Vale Lane access would cause new congestion issues in this part of the network. The impact of the proposed Dublin Street LAAP on the surrounding road network would be significant due to the low capacity of the roundabout. If this development progressed, the installation of traffic signals would improve the traffic flows at the junction.

Also as outlined in section 6.3, if the mid town link route proposal is progressed the roundabout will be required to be modified and signalised. Furthermore as outlined in section 6.2, if more than 72ha of the land at Tullyhirm /Knockaconny/ Annahagh are developed and the N2/N12 link route is progressed then roundabout requires to be modified and signalised. Therefore if any of the three future developments /proposals listed are carried out then changes need to be made to the Old Cross Square roundabout.

9.1.7 OTHER JUNCTION RECOMMENDATIONS

Throughout the town there are many junctions where pedestrian and cycling facilities could be improved and this forms an essential part of any treatment. A number of junction recommendations are addressed in the Monaghan Town Walking and Cycling Strategy (refer to Appendix A). Where a junction does not currently suffer from persistent congestion, minimal intervention is required.

9.2 HEAVY GOODS VEHICLE MANAGEMENT

9.2.1 INTRODUCTION

There are a limited number of route options available for traffic wishing to travel to or through Monaghan Town. At present, traffic travelling from east to west (i.e. from the N2/N12 to N54), or vice versa must travel though the town of Monaghan and in doing so adds to congestion in the town.

Monaghan Town requires frequent access by Heavy Goods Vehicles (HGVs) to service leisure, shopping, business and commercial needs. Some roads are very narrow and buildings are close to the edge of the road. The road layout and servicing arrangements in many areas are not designed to cope adequately with the size and number of HGVs now requiring access.

The result is that conflicts with other road users can occur. HGVs loading and unloading can cause congestion. HGVs often park partially on the footway to reduce their effects on motor traffic but this then causes problems for pedestrians, and may result in damage to footways.

The Monaghan Traffic model was used to see the effect on the morning and evening peak traffic for the base year (2015) of a ban on the access of all HGVs on Glaslough Street, Dublin Street and Market Street. The HGVs include all vehicles (trucks and buses) of 3 axles and greater. In the model all HGV types were restricted from travelling on Glaslough Street (southbound), Dublin Street (southbound) and Market Street (northbound).

In general the main impact of a HGV ban is the diversion of HGV's off their preferred (unrestricted) route. The model results showed which routes the HGV's are most attracted to which will allow decisions to be made on any further restrictions which may be required to these routes.

The 2015 Traffic counts showed that 12 HGVs were travelling southbound on Glaslough Street in the morning peak and 9 HGVs in the evening peak. These are the number of HGVs that would be affected by the potential southbound HGV restrictions. In the northbound direction 8 and 10 HGVs will be affected by the restrictions on Market Street during the morning and evening peak hours respectively. (Figure 9.8). The 2015 traffic counts show that the N2 bypass is catering for the highest number of HGVs with a two way flow of 58 in the morning peak and 53 in the evening peak.

The modelling found that with the HGV restrictions in place, the majority of HGV traffic travelling in the southbound and northbound directions will reassign to the N2 bypass. (blue route Figure 9.9).
A small number will divert to Hill Street and to residential streets such as Pound Hill, St Macartans Terrace, Fairview Drive and Glenview Heights, which are not suitable for HGV traffic (purple route Figure 9.9). The modelling also suggests that Plantation Road may be a potential diversion route and should be assessed in terms of suitability for HGVs.

Whilst no major congestion issues above the congestion already experienced in the town, were identified in the modelling, the model outputs suggests that journey times along the above routes will increase by an average of 1% during the peak hours as the HGVs will have a slightly longer route around the N2.

The findings, based on model results, show that the HGV restrictions would have minimal impact on the town due to the limited volume of HGV vehicles currently using town centre roads during the peak periods and the good availability of alternative HGV routes.

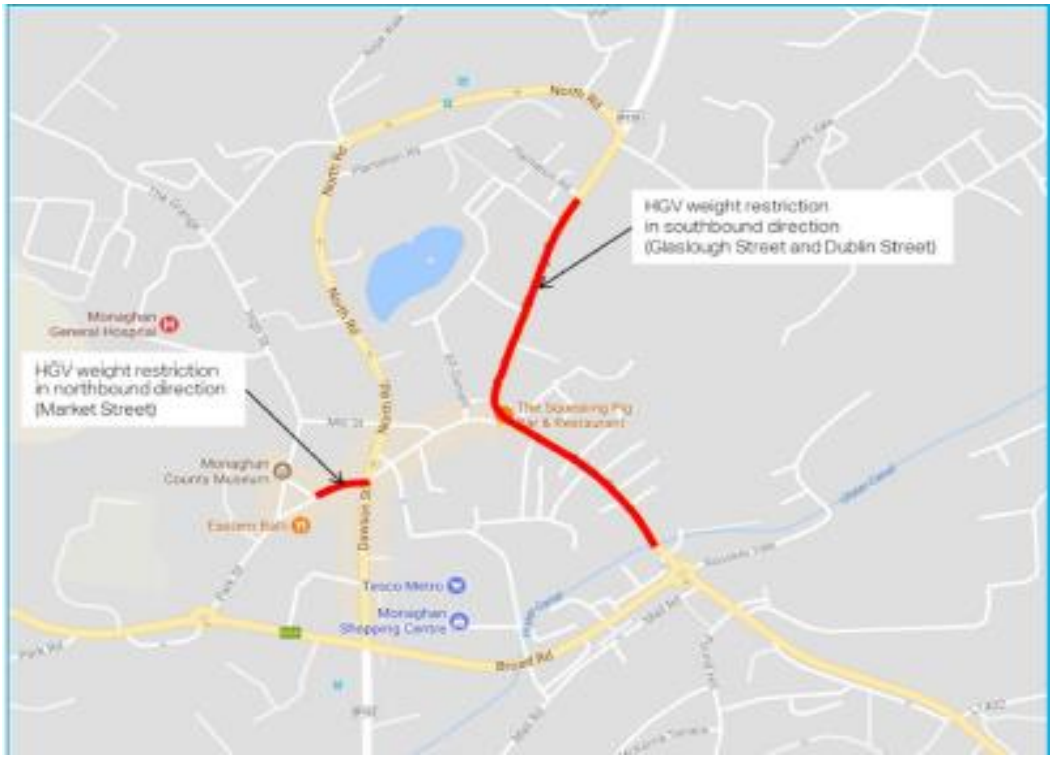


Figure 9.8 Proposed HGVRestrictions at Glaslough St & Dublin St and Market St

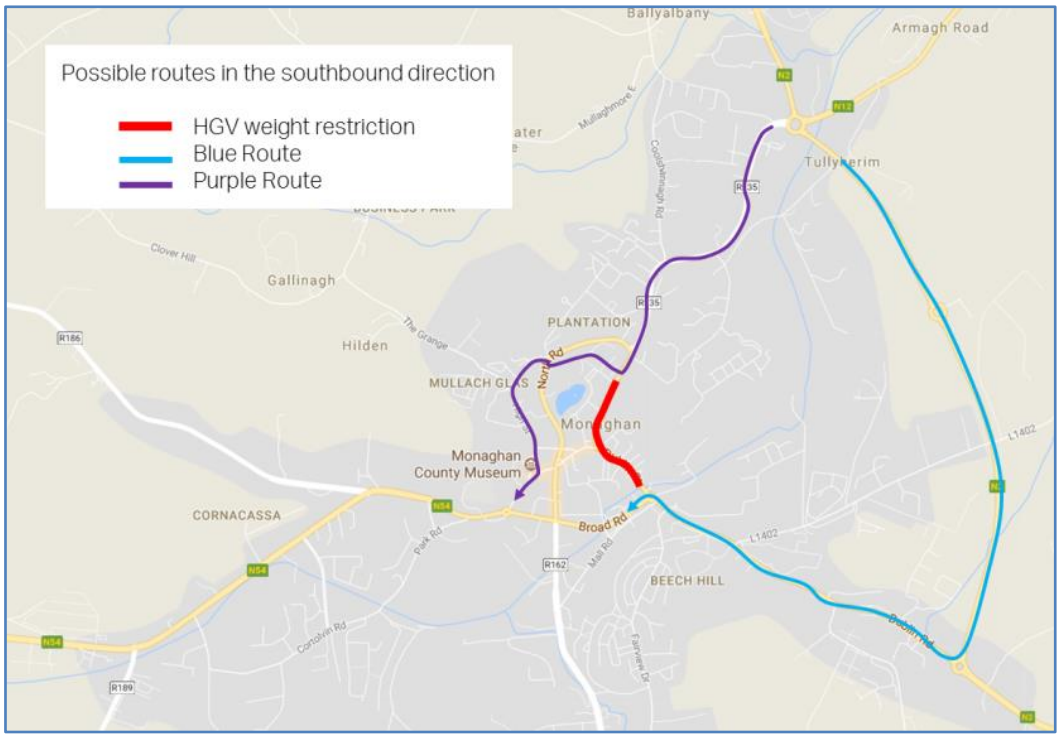


Figure 9.9 Alternative Routes for Vehicles travelling with HGV restriction

9.2.2 SHORT TERM HGV MANAGEMENT

To minimise the detrimental impacts of HGV use on the road network the signing of specific routes for HGVs should be introduced. Advisory routes have the advantage that they do not rely upon high levels of enforcement to operate. For large numbers of vehicles heading to one destination it is possible for specific advisory routes to be devised. This relies on the presence of a convenient suitable route. Conflict can however arise when the best available route takes HGVs along roads with significant numbers of residential properties and pedestrian or cycle movements. In practice, "unofficial" truck routes are often created when area wide restrictions on HGV access are implemented, as this often forces displaced vehicles onto adjacent major roads.

Signing is also an important element in any truck management proposal. The first step should be to identify the main destinations on an area wide or route basis and provide special signs to guide trucks along suitable designated routes. The signing should be updated regularly to ensure that it covers new developments. The designation of specific routes and a significant investment in better and consistent signing can help to ease problems.

	**The Traffic Signs Manual** Advisory Sign (number W 117) would indicate the prohibited Number of Axles (for Goods or Other Non-Passenger Vehicles).
	**The Traffic Signs Manual** **Sign W114: Maximum Gross Weight (Traffic Management)** shall show one of the following gross vehicle weights: 3.5t, 7.5t, 10t, 12.5t, 18t, 26t and 32t
	**Sign F 510: Heavy Vehicle Advance Direction Sign (ADS) Straight Ahead** When W114 sign for a vehicle weight restriction for traffic management is provided, it may be necessary to erect signs indicating an alternative route for heavy vehicles. The Signs F 510, F511L and F 511R, and Heavy Vehicle Direction signs, Signs F 512L and F 512R, may be used to direct these vehicles.

In order to have an enforceable HGV restriction within the town centre, reasonable and practical alternative routes should be provided and fully signposted.

If problems persist, it may be necessary to consider some form of access restriction.

9.2.3 LONG TERM HGV MANAGEMENT

Significant benefit will be derived from the delivery of a Monaghan Town by pass. This infrastructure will afford the opportunity to remove HGV traffic from the town centre.

Monaghan County Council has power to introduce the Maximum Gross Weight Sign or the Prohibited no. of Axles Signs under the Roads Traffic Act and the Road Traffic (Control of Traffic) Regulations 2006. As these are Regulatory signs Monaghan County Council will need to consult with An Garda Síochána.

 **The Prohibited no. of Axles Sign, RU 046**	**The Traffic Signs Manual** prohibited number of axles sign, RUS 046, indicates that vehicles designed for goods, or other non-passenger vehicles, with a number of axles equal to or exceeding that indicated are prohibited, except for access to premises within the restricted area.
 **The Maximum Gross Weight Sign, RUS 015**	**The Traffic Signs Manual** **RU 015** indicates that vehicles whose gross weight exceeds that specified on the sign are prohibited. Gross weight means the "Design Gross Vehicle Weight" as defined by the current Road Traffic (Construction and Use of Vehicles) Regulations. The restriction applies irrespective of whether the vehicle is carrying a load. This sign is used where the weight restriction is for traffic management reasons: for example, to prohibit heavy vehicles from using residential roads. Since the exemptions allowing for access are enshrined in the Regulations, there is no need for a supplementary plate.

Both signs allow access to premises by trucks for deliveries. However it is slightly easier to clearly identify vehicles by reference to the number of axles rather than to gross weight plates,
Monaghan Municipal District can choose whichever sign best suits the situation.

In order to achieve effective management of HGVs the movement of them will need to be planned for and regulated. It is recommended that a restriction on HGVs of a certain axle or weight loading be put in place from using Glaslough Street, Dublin Street and Market Street in order to reduce the usage of these vehicles in the town and to encourage through traffic to utilise other available routes.

The restriction could be applied to vehicles of greater than 3, 4 or 5 axles or to vehicles of gross weight of 3.4t, 5t, 10t, 12.5t, 18t, 26t and 32t.

As Glaslough Street and Dublin Street are part of the N54 national road network, the implementation of a HGV restriction on these streets must be co-ordinated with Transport Infrastructure Ireland so that they are satisfied that the alternative route can accommodate the traffic.

9.3 PARKING STRATEGY

In mid-2016 Monaghan County Council appointed ATKINS Ltd for the provision of a parking strategy for Monaghan Town. This was done in response to the An Bord Pleanála judgment (PL18.CH3233) which indicated that a parking strategy was required for the town.

The Study Brief for the Parking Strategy was to "*address the overall requirement for car parking in Monaghan Town taking account of Monaghan Town's 'hub' status under the National Spatial Strategy 2000-2020, its function as a county town, performing important employment, retailing and administrative functions servicing the needs of a large rural hinterland population.*"

The main elements of the Parking Strategy were as follows:

- Undertake an assessment and evaluation of the existing traffic management and car parking provision in Monaghan Town both on and off street, including the private provision of parking.
- Provide details of turnover of short stay, long stay and on-street car parking spaces, identifying peak periods of demand and taking cognisance of events/festivals that take place in the town throughout the year and the resultant impact these events have on car parking provision.
- The assessment of current and future parking demand.
- Assess the demand for additional car parking and to identify suitable locations for additional car parking having regard to parking demand and how the redevelopment of the particular identified locations may impact positively on the regeneration of the town.
- Forecasts for parking demand to be for the next 5 and 10 years

Given the dominance of the private motor vehicle to the transport mix in Monaghan Town parking facilities cannot be ignored when planning future infrastructure. The provision of adequate access and parking is essential in creating a sustainable and vibrant town centre for Monaghan into the future.

The parking provision and demand within the town is in flux and could change significantly within a short period of time. The following points should be noted:

- McNally's Yard is currently subject to a planning application for a supermarket. There is a potential risk to 165 long term and 85 short term parking spaces.
- The Diamond Car Park – there is a one year rolling lease on this parking provision.
- A Peace Link facility which includes a library and a cultural hub is proposed at the north east of the town. There is an opportunity here to incorporate a number of parking spaces with this development.
- The Dublin Street LAAP and the Regeneration projects should provide additional parking spaces.
- There are close to 200 free parking spaces available at Monaghan Harps GAA grounds which is available on a 5 year lease.
- Traders feel that there is a deficit in parking towards the South West of the town.
- There are 2.4 full time equivalent traffic wardens employed in the town.
- There is general satisfaction with the location and provision of loading bays.

- The Car Parks surveys indicate an 80% occupancy at peak times. This indicates that car parking availability is getting close to its limit.

9.3.1 PARKING STRATEGY OVERALL RECOMMENDATIONS

The recommendations for the implementation of the strategy are divided into Do-Minimum, Short Term Strategy Actions, and Long Term Strategy Actions.

Do Minimum Recommendations

A. Increase the minimum payment fee from 10c to 20c
B. Increase the non-return period from 1hr to 2hr
C. Provide better parking directional signage on entry routes into the town
D. Review Feasibility of introducing Pay on Foot / Exit for short stay parking locations
E. Review Feasibility of introducing Park by Phone
F. Increase the number of motorcycle parking spaces within the Town
G. Increase the number of Parent and Toddler spaces within the off-street short stay car parks.
H. Increase the number of cycle parking spaces

Short Term Strategy Actions

A. Introduce Pay on Foot / Exit (if feasible)
B. Introduce Park by Phone (if feasible)
C. Allocate some on-street parking as long stay – for example Plantation Road. This could have a higher rate than off-street long stay
D. Promote the usage of Monaghan Harps GAA grounds long stay car park. Maintain it as a free long stay
E. Increase the long stay parking rate from €1 per day to €2 per day. This will encourage usage of Monaghan Harps GAA grounds car park
F. Provide for improvements to the pedestrian route to Monaghan Harps GAA grounds
G. Introduce longer term parking tickets – 1 week / 1 month
H. Provide for Bus Parking facility within Lower Courthouse car park

Long Term Strategy Actions

Provide for the additional parking spaces as per the Local Area Action Plan: Lands to North East of Dublin Street, Monaghan. If the lands for the additional parking for the lands to north east of Dublin Street are not available, then other locations should be examined.

9.4 CONCLUSIONS

1. The Coolshannagh Road/ N54 Derry Road junction is not recommended to be upgraded as a signalised junction at present, but should be monitored and considered again if the lands at Knockaconny, Tullyhirmand Annahagh are developed.

2. Plans are in place to assess in detail the Margaret Skinnider (N54 Clones Road/Park Street/Market Road) Roundabout. Recommendations for improvements should be made that will minimise delay for vehicles through the roundabout whilst maintaining the safe passage of all road users through the junction.

3. Park Road / N54 Clones Road junction is not recommended for an alternative traffic flow.

4. Traffic Signals at Glen Road/Macartan Road/Dawson Street/ Market Road are recommended to be upgraded to MOVA intelligent traffic signals with radar, ground loops and pedestrian monitoring in order to speed up the flow of traffic through the junction.

5. Castle Road/Macartan Road/Mall Road Junction is not recommended for upgrade to a signalised junction as it would only provide minimal improvements to the current traffic flow and would have a negative impact on the traffic flows in the future.

6. Old Cross Square Roundabout is not recommended for upgrade now but signalisation would be required if the proposed infrastructure proposals proceed.

7. The recommendations for junction improvements outlined in Appendix C of the Walking & Cycling Strategy to be implemented.

8. A HGV management plan is recommended to be implemented by the use of a series of advisory signs at strategic routes around the town. Heavy Goods Vehicles to be restricted from Glaslough Street, Dublin Street and Market Street by the use of axle or weight restriction signage.

9. The recommendations in the Monaghan Car Parking Strategy to be implemented.

10 KEY RECOMMENDATIONS

The Monaghan Land Use and Transportation Study (MLUTS) is a long term plan that sets out the transport and land use study for the town to inform the County Development Plan for the period 2019-2025 and beyond based on the zonings within the current Development Plan period 2013-2019 and the findings of travel surveys within the town. This Chapter provides a summary of the recommendations coming out of the MLUTS project.

1. **Develop lands at Tullyhirm, Knockaconny and Annahagh**
   To facilitate and promote the sustainable development of a strategically important parcel of Industry, Enterprise and Employment lands at Tullyhirm, Knockaconny and Annahagh in order to provide for a high quality industrial and employment hub that has the potential to attract sustainable employment opportunities from Ireland and abroad to County Monaghan.

2. **Develop lands at Tullygrimes and CornecassaDemense**
   To facilitate and promote the sustainable development of a strategically important parcel of Industry, Enterprise and Employment lands at Tullygrimes and Cornecassa Demense in order to consolidate, expand and complement existing significant enterprise activities at this location. To discuss the LUTS review of the previous (2014) access proposals with TII and agree the most reasonable and viable access proposal for the future of these lands.

3. **Develop the N2 to N12 Link Road**
   The N2 to N12 link road is recommended for development as it will facilitate the development of strategically important parcel of Industry, Enterprise and Employment land at Tullyhirm,Knockaconny and Annahagh. An initial 72ha of land at Tullyhirm and Knockaconny can be developed by 2025 (or 64 ha by 2035) with minimal impact on the surrounding network. If thisarea, including all of lands at Annahagh,is to be developed to its full potential then improvements to a number of junctions will be required. i.e.Signalisation of Old Cross Square roundabout, signalisation of N54 / Coolshannagh Road L5182 junction. Significantly in the absence of the N2/N12 link, signalisation of the N2 Northern arm of the Coolshannagh Roundabout will be required, which will add delays to travel times along the N2 and cause congestion along routes interacting with the Coolshannagh Roundabout.

   Funding for the N2 to N12 road schemes will be sought from the Department of Transport, Tourism & Sport through specific road improvement programmes and also through development contributions. It is envisaged that feasibility studies and route selection for the road scheme could commence in 2019.

4. **Develop the Mid Town Link Road**
   The Mid Town link road should be considered in light of development plans for Industry, Enterprise and Employment lands at Tullyhirm, Knockaconny and Annahagh, as well as the Dublin Street LAAP and Regeneration Plans, and the following is recommended:-
   - The exact corridor should be agreed and protected under the next Monaghan County Development Plan
   - This road should be a developer led low speed road, which main function is to improve access and connectivity around Monaghan Town and to open up high quality access for zoned lands for industrial, residential and social uses.

- The design should be accompanied by very high quality off road walking and cycling facilities, linking to the Ulster Canal Greenway.

Funding for the Mid Town Link road schemes will be sought from the Department of Transport, Tourism & Sport through specific road improvement programmes and also through development contributions. It is envisaged that feasibility studies and route selection for the road scheme would commence in 2021.

5. <u>Develop the Southern Link Routes</u>

Monaghan County Council should pursue an integrated approach to the development of a southern relief road that will facilitate improved permeability and provide access to a strategic employmentand residential land bank to the south of the town. Monaghan County Council should take the following actions:-

- The routes should be considered the priority link road development for Monaghan Town.
- The routes should continue to be protected under future development plans
- This road should be completed in two phases.
  - N54 Clones Road to R188 Cootehill Road
  - R162 Ballybay Road to N2 Dublin Road
- R162 Ballybay Road to N2 Dublin Road should be prioritised ahead of N54 Clones Road to R188 Cootehill Road. It gives better connectivity and also better congestion relief at the junction of Glen Road / Macartan Road/ Market Street / Dawson Street.
- The design should be accompanied by very high quality off road walking and cycling facilities, linking to the Ulster Canal Greenway.

Funding for the Southern Link road schemes will be sought from the Department of Transport, Tourism & Sport through specific road improvement programmes and also through development contributions. It is envisaged that feasibility studies and route selection for the R162 Ballybay Road to N2 Dublin Road link road would commence in 2021.

6. <u>Develop the Outer Northern Link Road</u>

Monaghan County Council should take the following actions in relation to the Northern Link road:-

- The Route should be protected under future County Development Plans
- The Road should be considered of strategic importance to the development of Monaghan Town, the County and the region.
- This road should be developed as an integral part of planning for the N2 Clontibret to the Border route.

Monaghan County Council will seek funding from Transport Infrastructure Ireland and other sources for the Outer Northern link route. It is envisaged that feasibility studies and route selection for the road would commence in 2020.

7. <u>Implement Dublin Street Local Area Action Plan and Dublin Street Regeneration Plan</u>

The Dublin Street Local Area Action Plan and Dublin Street Regeneration Plan are recommended to be implemented. These developments would provide a new public realm area in the town and connectivity with all forms of transport throughout the town. These developments should ideally be made in conjunction with the development of the Mid Town link road from Old Cross

Square to the N2 Annahagh Roundabout with signalisation of the roundabout at Old Cross Square. If the lands are developed in isolation of the Mid Town link road, the roundabout at Old Cross Square would still require to be signalised.

Funding for development of the Dublin Street and lands to the north east has been sought through the Urban Regeneration Fund. It is proposed to commence detailed design, planning and acquisition of properties in 2019.

8. **Implement Walking & Cycling Network Proposals**
   The Phase 2 of the Monaghan Greenway Project to be progressed. The Cycle routes identified in the 2012 Walking & Cycling Strategy and other routes identified along railway amenity route and along local roads & laneways to be implemented to provide connectivity to the Greenway. The link road proposals to include cycle paths and to provide a complete network of Cycle paths around the town. The other recommendations in the Walking & Cycling Strategy are recommended to be reviewed and an implementation plan put in place to proceed with the actions. Surveys to be carried out in the schools and large employers (e.g Combi Lift and Monaghan County Council) to find out what the needs are in terms of Sustainable Transport (Walking & Cycling). Identify a school and a large employer for a NTA funded pilot Project.

9. **Public Transport**
   The proposals for the new Local link transport routes should be supported and facilitated. A bus hub should be developed in conjunction with the Dublin Street Local Area Action Plan and Regeneration Plan.

10. **Upgrade of Junctions**
    The immediate upgrade of Glen Road/Macartan Road/ Dawson Street/ Market Road junction to MOVA traffic signals is recommended. The following upgrades are recommended in the future and are dependent on implementation of infrastructure proposals:-
    - Coolshannagh Road/ N54 Derry Road Junction
    - Coolshannagh Roundabout
    - Margaret Skinnider (N54 Clones Road/Park Street/Market Road) Roundabout.
    - Mall Road/Castle Road/Macartan Road Junction
    - Old Cross Square Roundabout

11. **Implement HGV Management Plan**
    A HGV management plan to be implemented with a series of advisory signs on strategic routes around the town. Heavy goods vehicles to be restricted from Glaslough Street, Dublin Street and Market Street by the use of axle or weight restriction signage.

12. **Implement the 2017 Monaghan Parking Strategy**
    The 2017 Monaghan Parking Strategy should be implemented.

The Monaghan Town LUTS recommendations are of utmost importance in the strategic context of Monaghan. Located along the Border, Monaghan failed to realise its growth potential as a 'hub' town under the National Spatial Strategy and has been slow to recover from economic recession.

The decision of the UK government to exit the EU has made investors, particularly those along the Border, reluctant to commit to significant developments. The opportunity of the implementation of the Monaghan LUTS actions and consequential investment comes at a critical time to react to the scenarios that BREXIT may present, in terms of cross-border trade and relocation.

The implementation of the Monaghan Town Land Use and Transportation recommendations will free the town from traffic congestion and provide a much more pleasant place to live, to commute to work or school, and to visit, and it will assist in generating much needed investment for the town.

11 MONAGHAN LUTS IMPLEMENTATION PLAN

Category	Recommendation	Short term 2018-2023						Medium Term 2024- 2029						Long term 2030- 2035					
		2018	2019	2020	2021	2022	2023	2024	2025	2026	2027	2028	2029	2030	2031	2032	2033	2034	2035
Land Use	Develop lands at Knockaconny (60ha)																		
Land Use	Develop lands at Tullyhirm (20ha)																		
Land Use	Develop lands at Tullygrimes and Cornecassa Demense (25ha)																		
Land Use	Develop lands at Annahagh (20ha)																		
Road Proposal	N2 to N12 Link Road (Annahagh Roundabout to N12)																		
Road Proposal	Outer Northern Link Route (N54 Clones Road to N2 Emyvale Road)																		
Road Proposal	Southern Link Route (R162 Ballybay Rd to N2 Dublin Rd)																		
Road Proposal	Mid-town link (Old Cross Square to N2 Annahagh Roundabout)																		
Road Proposal	Southern Link Route (N54 Clones Rd to R188 Cootehill Rd)																		
Urban Renewal & Sustainable Transport	Local Link Public Transport Bus service																		
Urban Renewal & Sustainable Transport	Develop Public Transport Bus Hub																		
Urban Renewal & Sustainable Transport	Dublin Street Local Area Action Plan and Dublin Street Regeneration Plans																		
Urban Renewal & Sustainable Transport (Walking & Cycling)	Recommendations for Pedestrian/ Junction Improvements in Walking & Cycling Strategy																		
Urban Renewal & Sustainable Transport (Walking & Cycling)	Greenway Cycle Paths																		
Urban Renewal & Sustainable Transport (Walking & Cycling)	Cycle Path R937 Dublin Road / N2 (Old Cross Square Roundabout to Collegiate School)																		
Urban Renewal & Sustainable Transport (Walking & Cycling)	Cycle Path N2 to N54 Derry Road (St Macartans College to North Road/ Glaslough St junction)																		
Urban Renewal & Sustainable Transport (Walking & Cycling	Cycle Path R162 / R188 (Cootehill Road/ Glen Road) MCC Offices to The Corran																		
Urban Renewal & Sustainable Transport (Walking & Cycling)	Cycle Path Cross Town (North/ South route) Macartan Road/ Castle Road jct to North Road via the Diamond																		
Urban Renewal & Sustainable Transport (Walking & Cycling)	Amenity route from Scotstown Road to North Road (Old railway line)																		
Urban Renewal & Sustainable Transport (Walking & Cycling)	Amenity route from N54 to St Davnet's (Old railway line)																		
Urban Renewal & Sustainable Transport (Walking & Cycling)	Other Cyclepaths along laneways & local Roads																		
Traffic Management	2017 Monaghan Parking Strategy																		
Traffic Management	HGV Management Plan																		
Traffic Management	Junction Upgrade : Glen Rd/Dawson St/ Market Road / Macartan Road Completion of Mova Upgrade																		
Traffic Management	Junction Upgrade: Margaret Skinnider (N54/ Park Street, Market Road) Roundabout Upgrade																		
Traffic Management	Junction Upgrade: Coolshannagh Road/ N54 *(dependent on development of lands at Knockaconny/ Tullyhirm)*																		
Traffic Management	Junction Upgrade: Signalisation of Old Cross Square roundabout *(dependent on development of Dublin St LAAP & Mid Town Link route)*																		

12 LAND USE AND TRANSPORTATION PLANNING CHECKLIST

Monaghan LUTS Compliance with DECLG Land Use and Transport Checklist		
Checklist Guideline	**Achieved by MLUTS**	**Explanation**
1. Will the plan encourage sustainable land use and transport infrastructure development while also allowing the transport network to function as effectively as possible?	✓	The Monaghan LUTS model has thoroughly assessed the development of land and road proposals for Monaghan town for base year of 2015 and future years of 2025 and 2035.
2. Is the plan consistent with the National Spatial Strategy, Smarter Travel, Regional Planning Guidelines and other relevant official policy documents?	✓	The LUTS was developed with consideration of the relevant guidelines and policies.
3. Will the plan protect existing and any proposed national roads and the wider transport network from adverse direct and indirect effects of development provided for by the plan?	✓	The existing Monaghan town road network was examined using the Monaghan LUTS model. Extensive modelling scenarios were run of various combinations of infrastructure proposals. The direct and indirect effect of these proposals were carefully assessed and considered and compared.
4. Does the plan provide for future transport infrastructure development, including upgrades to existing routes and junctions and the cumulative impact of existing and permitted development?	✓	This MLUTS examined improvements to road infrastructure with proposals for various link routes. It also examined junctions with recommendation to upgrade.
Modal Shift		
5. Will implementation of the plan reduce car dependency and encourage a shift towards use of other transport options including measures to support the achievement of the Government's targets for modal split under the Smarter Travel strategy?	✓	The implementation of the extension of the Monaghan Greenway and the Walking and Cycling strategy, along with the local link bus routes will reduce the Car dependencies.
6. Does the plan make provision for integration of transport networks? Has provision for public transport networks needed now or in the future (e.g. rail extensions) been considered?	✓	The Cycle lane from the Greenway/ via the Coolshannagh Roundabout/N54 North Road will provide better access to the Monaghan Bus Station on the North Road.

Access		
7. Will the plan ensure the provision of suitable non-national roads to provide access to areas of land where new development is proposed and to connect development generated traffic to the non-national road network and public transport system?	✓	This can be achieved through the Recommendations to develop the road proposals.
8. Are the policies and methods for managing access included in the planning document consistent with maintaining high levels of safety and road function?		The MLUTS proposals are consistent with maintaining high levels of safety and road function. Also a Road Safety Impact Assessment and Road Safety Audits would be carried out at the appropriate Stages and the recommended measures put in place.
Environmental Effects		
9. Have environmental sensitivity issues (noise, air pollution, greenhouse gases, congestion, etc.) been adequately addressed so that the future operation of the transport system can be sustained and amenities protected?	✓	A basic Strategic Environmental Assessment (SEA) for included in the LUTS. It examines the proposed routes under the following headings: Heritage & Historic Resources Biodiversity Landscape/ Townscape Issues Water Environment.
10. Are there appropriate objectives concerning impact mitigation measures, such as noise barriers, set back landscaping and/or buffer zones between areas of land where development is proposed and existing and proposed national roads, the cost of which should be borne by the developer?	✓	Along the proposed routes measures would be put in place to deal with noise.
Funding and Delivery Mechanisms		
11. Are there appropriate phasing and funding policies and mechanisms in place to ensure that developers pay for mitigation of the adverse effects of their developments on transport infrastructure	✓	MLUTS recommends that developers undertake appropriate Traffic and Transport Assessments. The developers would be conditioned at planning to pay for any mitigation of any adverse effects of the developments on transport infrastructure.

13 GLOSSARY OF TERMS

Abbreviation	Meaning
3.5T	3.5 Tonne Weight Restriction
AADT	Annual Average Daily Traffic
AM Peak	Morning Peak
ANPR	Automatic Number Plate Recognition
ATC	Automatic Traffic Counts
Brownfield site	Previously developed, now abandoned or underused lands available within towns for re-development.
DEHLG	Department of Environment, Housing& Local Government
DMURS	Design Manual for Urban Roads & Streets
Do Min	Do Minimum Model – A transport scenario where only existing and committed (funded and approved) transport schemes and policies are in place. Based on the existing road network with no changes or improvements and traffic counts grow naturally.
FTE	Full Time Equivalent
GNRB	Great Northern Railway Board
Ha	Hectares
HGV	Heavy Goods Vehicles, i.e. trucks and lorries
JTC	Junction Turning Count
KPI	Key Performance Indicator
LA	Local Authority
LAAP	Local Area Action Plan
LECP	Local Economic & Community Plan
LGV	Light Goods Vehicles
LINSIG	Software tool to model traffic signals and their effect on traffic capacities and queuing. As well as modelling the effects of traffic signals LinSig also optimises signal timings to reduce delay or increase capacity at a junction or group of interlinked junctions.
Local Link	Local Bus Service (Cavan Monaghan Transport Coordination Unit Ltd)
MCC	Monaghan County Council
MI	Monaghan Institute
MLUTS	Monaghan Land Use & Transportation Study
MOVA	Microprocessor Optimised Vehicle Actuation (Traffic Signal Software)
MTEK	Monaghan (Technology, Education, Knowledge) Building, Armagh Road, Monaghan
NDP	The National Development Plan (NDP) 2018-2027
NHA	Natural Heritage Area
NPF	The National Planning Framework (NPF) 2020
NRA	National Roads Authority
NTA	National Transport Authority
NTM	National Transport Model
PAG	Project Appraisal Guidelines (TII)
PM Peak	Evening Peak

POWCAR	Place of Work Census Anonymised Records (from Census data)
RDS	Northern Ireland Regional Development Strategy 2035
RSI	Roadside Interview Survey
RSTN	Regional Strategic Transport Network Plans
SAC	Special Area of Conservation
SEA	Strategic Environmental Assessment
SPPS	Strategic Planning Policy Statement for Northern Ireland
SRTP	Sub Regional Transport Plans
TII	Transport Infrastructure Ireland
TRICS	Trip Rate Information Computer System- Standard system of trip generation and analysis for Transport Planning
TRL	Transport Research Laboratory (Consultants) Ltd
TSM	Traffic Signs Manual

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33. Traffic Signs Manual, Department of Transport

APPENDIX A CONSULTATION LETTER & QUESTIONNAIRE

Comhairle Contae Mhuineacháin
Monaghan County Council

Acmhainní Daonna
Human Resources
047 30586

Airgeadas
Finance
047 30589

Na Bóithre
Roads
047 30597

Clár na dToghthóirí
Register of Electors
047 30551

Comhshaol
Environment
042 9661240

Na hEalaíona
Arts
047 38162

Iasachtaí /Deontais Tithíochta
Housing Loans/Grants
047 30527

Leabharlann an Chontae
County Library
047 74700

Mótarcháin
Motor Tax
047 81175

Músaem an Chontae
County Museum
047 82928

Pleanáil
Planning
047 30532

Pobal
Community
047 73719

Rialú Dóiteáin/Foirgnimh
Fire/Building Control
047 30521

Oifig Fiontair Áitiúil
Local Enterprise Office
047 71818

Seirbhísí Uisce
Water Services
047 30504/30571

«AddressBlock»

01 September 2015

«GreetingLine»

As you may be aware, Monaghan County Council recently decided to undertake a Land Use and Transportation Study (LUTS) for Monaghan Town, this project is called the 'Monaghan Transport Plan'. The vision for the project is to secure a successful vibrant urban centre with a more efficient transport network for Monaghan Town that provides an improved public realm, reduces congestion, makes Monaghan a better place to do business, encourages greater levels of walking & cycling, and improves the quality of life for the community, thereby enabling sustainable future growth.

The study will make recommendations on the short, medium and long term interventions required to improve the environment for businesses, general traffic, cyclists, pedestrians and transport vehicles. In undertaking this study, we are consulting with a range of local stakeholder groups. In this respect, we would like to ascertain your views as a local business and employer.

While we are aware of the more obvious traffic issues around the town, the purpose of this consultation is to get more information on individual and highly localised issues.

A short questionnaire is included for your convenience. Your responses will inform later stages of the study.

When all of the information from stakeholders and transport surveys is gathered and analysed, a series of Transport Strategies will be developed and stakeholder opinions will be sought again.

I have enclosed a short form/questionnaire and a stamped return envelope for your response. Should you wish to add additional pages please feel free to do so. Also, if you wish to make a submission by email, please write to Transport@monaghancoco.ie.

As you will appreciate, this is an important study for the future development of Monaghan Town and I would urge all interested parties to use this opportunity to have their say..

Regards,

Dave Hanratty
Senior Executive Engineer
Roads Dept.
Monaghan County Council

Fáiltíonn an tÚdarás Áitiúil roimh chomhfhreagras i nGaeilge.
Comhairle Contae Mhuineacháin, Oifigí an Chontae, An Gleann, Muineachán, Éire.
Monaghan County Council, Council Offices, The Glen, Monaghan, Ireland.
00353 47 30500 00353 47 82739 www.monaghan.ie
eolas@monaghancoco.ie info@monaghancoco.ie

«AddressBlock»

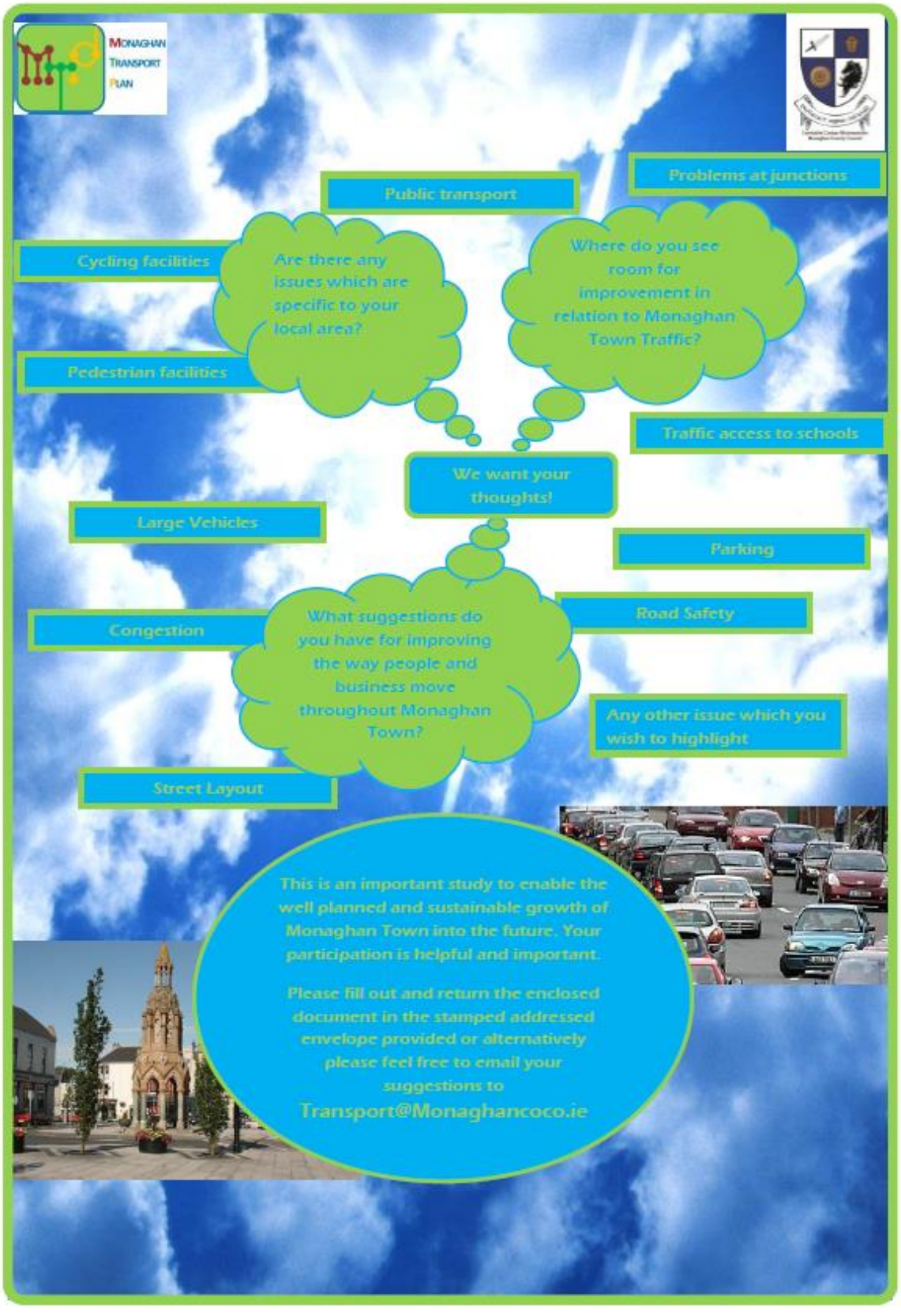
Where do you see room for improvement in relation to traffic in Monaghan Town?

Are there any traffic issues which are specific to your business?

What suggestions do you have for improving the way people and business move throughout Monaghan Town?

Is the current traffic situation in Monaghan Town limiting your ability to grow your business? If so, could you give a brief description.

If you wish to add more information, please feel free to add additional sheets or respond by email to: Transport@monaghancoco.ie – Please reply by 1st October 2015


Monaghan Transport Plan
Public transport
Problems at junctions
Cycling facilities
Are there any issues which are specific to your local area?
Where do you see room for improvement in relation to Monaghan Town Traffic?
Pedestrian facilities
Traffic access to schools
We want your thoughts!
Large Vehicles
Parking
Congestion
What suggestions do you have for improving the way people and business move throughout Monaghan Town?
Road Safety
Any other issue which you wish to highlight
Street Layout
This is an important study to enable the well planned and sustainable growth of Monaghan Town into the future. Your participation is helpful and important.
Please fill out and return the enclosed document in the stamped addressed envelope provided or alternatively please feel free to email your suggestions to
Transport@Monaghancoco.ie

APPENDIX B RESULTS OF ONLINE SURVEYS

Monaghan LUTS - Public Survey

Q 1	**Gender**	Male	Female								
		66%	34%								
Q 2	**Age**	Under 25	25-34	35-44	45-55	Over 55					
		20%	**23%**	40%	14%	3%					
Q 3	**Do you drive**	**Yes**	No								
		97%	**3%**								
Q 4	**How often do you travel within Monaghan Town?**	Every day	3- 4 days per week	1-2 days per week	About once every two weeks	Rarely.					
		66%	**20%**	**6%**	**9%**	**0%**					
Q 5	**Why do you travel within Monaghan Town?**	Going to Work in the Town	School Run	Shopping	Passing Through on the way to a different destination	Going out in the evening	Other (please specify)				
		32%	**7%**	**28%**	**16%**	**15%**	**1%**				
Q 6	**Do you have a mobility impairment?**	Yes	No								
		0%	100%								
Q 7	**Which one of these options best describes you?**	Working full-time Outside the home	Working part-time Outside the home	Working full-time within the home	Full-time student	Part-time student	Seeking emlpoyment	Unable to work due to illness/ disability	Retired	Other (please specify)	
		80%	**3%**	**0%**	**9%**	**0%**	**3%**	**0%**	**6%**	**0%**	
Q 8	**What mode of Transport do you use most often for travel in Monaghan Town?**	Walk	Car	Bicycle	Taxi	Bus	Motorbike				
		0%	**97%**	**3%**	**0%**	**0%**	**0%**				

Q 9	**What mode of Transport might you occasionally use instead?**	Walk	Car	Bicycle	Taxi	Bus	Motorbike	Never really use and alternative mode	Other (please specify)		
		35%	**3%**	**9%**	**9%**	**3%**	**0%**	**38%**	**3%**		
Q 10	**Where do you usually park when travelling in Monaghan Town?**	Paid on-street parking	Paid public car park	paid private carpark	free private carpark	Staff car park	Other (please specify)				
		29%	**35%**	**0%**	**6%**	**29%**	**0%**				
Q 11	**Why do you use the car? please choose up to three answers**	Car is essential to perform job	Dropping off/collecting children at school	Dropping off/collecting family member of friend	Health reasons	Lack of alternative	Reliability	Comfort	Personal Safety	Quicker than alternatives	Other (please specify)
		30%	**9%**	**2%**	**0%**	**24%**	**5%**	**9%**	**4%**	**13%**	**4%**
Q 12	**Which is the most important reason to you?**	Car is essential to perform job	Dropping off/collecting children at school	Dropping off/collecting family member of friend	Health reasons	Lack of alternative	Reliability	Comfort	Personal Safety	Quicker than alternatives	Other (please specify)
		47%	**9%**	**0%**	**3%**	**29%**	**0%**	**0%**	**3%**	**3%**	**6%**
Q 13	**Which of the following improvements would encourage you to cycle more? (please choose up to three answers)**	Improved cycle lanes	Improved cycle parking	Changing facilities at your destination e.g. at work	Improved public lighting	Reduced traffic numbers in the town centre	Other (please specify)				
		35%	**7%**	**16%**	**15%**	**16%**	**10%**				
Q 14	**Which is most important to you?**	Improved cycle lanes	Improved cycle parking	Changing facilities at your destination e.g. at work	Improved public lighting	Reduced traffic numbers in the town centre	Other (please specify)				
		52%	**3%**	**6%**	**6%**	**16%**	**16%**				

Q 15	**Which of the following improvements would encourage you to walk more?(please choose up to three answers)**	Improved footpaths	Increased pedestrian areas in town centre	Improved road crossing facilities	Improved public lighting	More public benches to sit and rest	Reduced traffic numbers in the town centre	Other (please specify)			
		23%	**16%**	**17%**	**17%**	**6%**	**13%**	**7%**			
Q 16	**Which is most important to you?**	Improved footpaths	Increased pedestrian areas in town centre	Improved road crossing facilities	Improved public lighting	More public benches to sit and rest	Reduced traffic numbers in the town centre	Other (please specify)			
		13%	**10%**	**29%**	**16%**	**3%**	**13%**	**16%**			
Q 17	**How would you rate the general traffic conditions in Monaghan Town?**	Very Good	Good	Adequate	Poor	Very Poor					
		6%	**18%**	**45%**	**15%**	**15%**					
Q 18	**How would you rate Pedestrian facilities in Monaghan Town?**	Very Good	Good	Adequate	Poor	Very Poor					
		6%	**33%**	**37%**	**15%**	**9%**					
Q 19	**How would you rate the cycle infratructure in Monaghan Town?**	Very Good	Good	Adequate	Poor	Very Poor					
		3%	**0%**	**15%**	**46%**	**36%**					
Q 20	**How would you rate the car parking provision in Monaghan Town?**	Very Good	Good	Adequate	Poor	Very Poor					
		15%	**33%**	**43%**	**6%**	**3%**					

Monaghan LUTS - Business Survey

Q 1	Types of Business	Convenience	Shopping	Speciality	Manufacturing	Other				
		5%	62%	33%	0%	0%				
Q 2	How many staff work in your Business?	1-5	5-10	10-30	30+					
		86%	9%	0%	5%					
Q 3	What portion of staff use a private car to get to work?	0%	1-25%	25-50%	50-75%	75-100%				
		5%	0	14%	14%	67%				
Q 4	What portion of staff walk to get to work?	0%	1-25%	25-50%	50-75%	75-100%				
		52%	28%	14%	0	5%				
Q 5	What portion of staff cycle to get to work?	0%	1-25%	25-50%	50-75%	75-100%				
		90%	10%	0%	0%	0%				
Q 6	What portion of staff use public transport to get to work?	0%	1-25%	25-50%	50-75%	75-100%				
		100%	0%	0%	0%	0%				
Q 7	Do you provide staff parking facilities?	Yes	No	For some staff only						
		24%	76%	0%						
Q 8	If not, where do staff primarily park their vehicles during working hours?	On Street Paid Parking	On Street Free Parking	Off Street Paid Parking	Off Street Free Parking					
		7%	0%	80%	13%					
Q 9	How do your customers travel into town?	Private Car	Public Transport	Walk Cycle	Mix					
		81%	0%	5%	0%	14%				
Q 10	Do you believe that Customers decision to access your business is influenced by traffic conditions?	Yes	No	Don't Know						

		81%	14%	5%						
Q 11	What affects their decision most, in your opinion?	Lack of available Parking	Cost of Parking	Inadequate Pedestrian facilities	Inadequate cycling facilities	Streetscape	Lack of Public Transport	Large Volume of traffic on street, causing delays & noise	Other	
		81%	0%	0%	0%	0%	0%	5%	14%	
Q 12	What time do you tend to take deliveries to your business?	Early morning	Mid morning	Early afternoon	Late afternoon	Throughout the day (no fixed time)	Other			
		10%	19%	10%	0	57%	5%			
Q 13	Do the delivery vehicles have trouble accessing your business at certain times?	Yes - Always	Yes Sometimes	No Never						
		19%	52%	29%						
Q 14	Do you have delivery vehicles operating out of your business?	Yes	No							
		29%	71%							
Q 15	Does traffic conditions in the town affect the effectiveness of your delivery service?	Yes	No	N/A	Other					
		10%	14%	71%	5%					
Q 16	Which of these is most important to the growth of Monaghan?	More off Street Parking	More Cycle Lanes	more Pedestrianised Areas	More Pedestrian Crossing Points	A Lower Speed Limit within the Town Centre	A Bypass, linking Dublin Road to Clones Road	A Local Bus Service	More Taxis	Other
		57%	0	5%	0	0	24%	5%	0	10%
Q 17	How would you rate the general traffic conditions in Monaghan Town?	Very Good	Good	Adequate	Poor	Very Poor				
		0	24%	38%	33%	5%				

Q 18	How would you rate Pedestrian facilities in Monaghan Town?	Very Good	Good	Adequate	Poor	Very Poor				
		0	33%	52%	14%	0				
Q 19	How would you rate the cycle infratructure in Monaghan Town?	Very Good	Good	Adequate	Poor	Very Poor				
		0	0	10%	14%	76%				
Q 20	How would you rate the car parking provision in Monaghan Town?	Very Good	Good	Adequate	Poor	Very Poor				
		0	29%	52%	19%	0				
Q 21	Do you believe that traffic conditions within Monaghan Town are limiting your businesses ability to grow?	Yes	No	Don't Know						
		50%	40%	10%						

APPENDIX C LAND USE PROJECTIONS- INTENSIFICATION OF USE

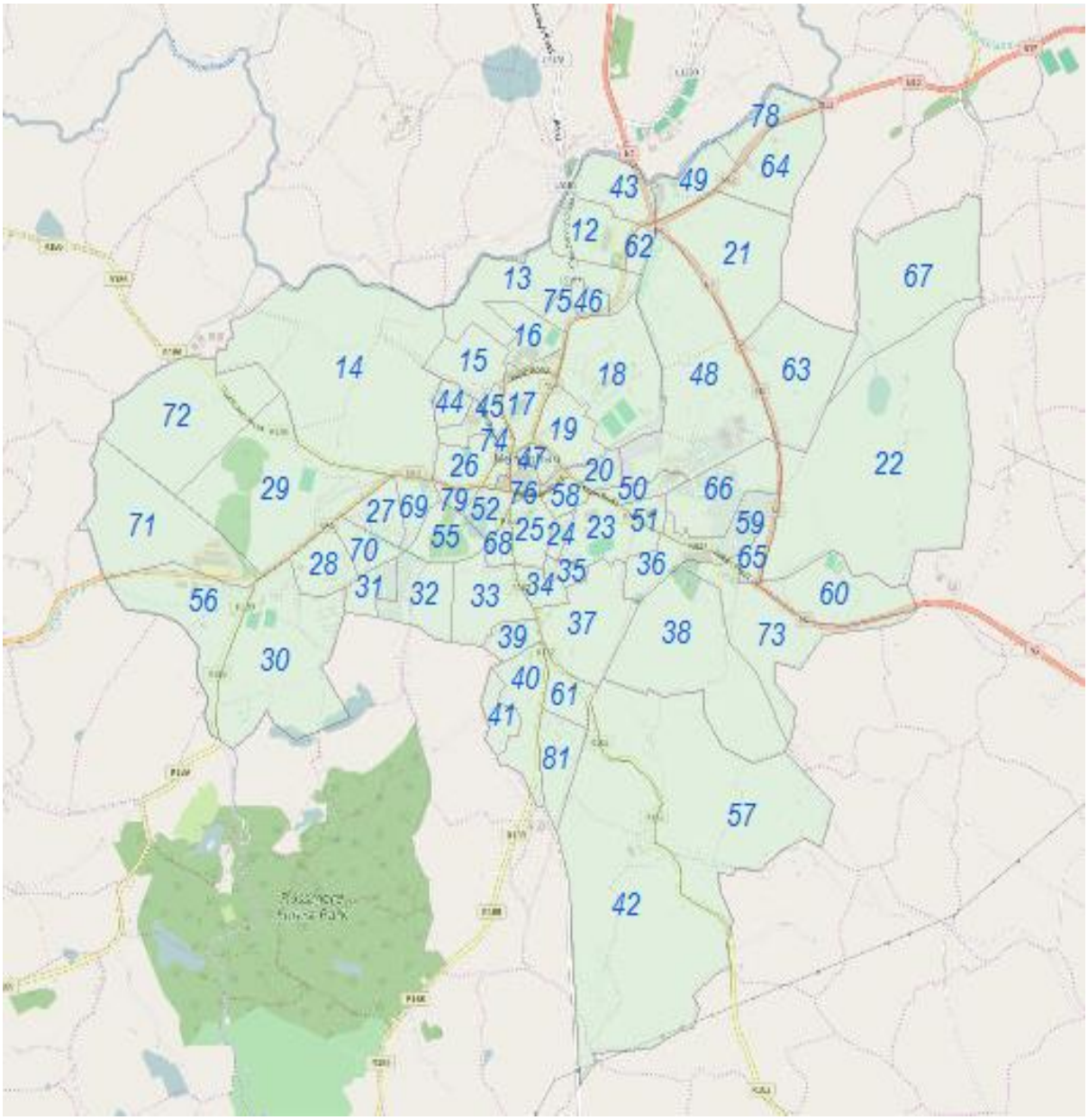


Figure C.1 Local Model Zone Plan

Future																	
National Traffic Model Zone No.	Local Area Model Zone No.	Residential		Primary	Secondary	Office**	Industrial and Warehousing		Retail		Enterprise and Employment		Community		Hotel	
		No. of Units	Population (2.39 av. Household)	No. of Units	No. of Units	GFA m²	Site Area (ha)	GFA m²	Site Area (ha)	GFA m²	Site Area (ha)	GFA m²	Site Area	GFA m²	Site Area	Beds
144	12	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	13	38	90.82	0	0	0	0	0	0	0	0	0	0	0	0	0
	14	38	90.82	0	0	0	16.1	48300	0	0	0	0	0	0	0	0
	15	26	62.14	0	0	0	0	0	0	0	0	0	0	0	0	0
	16	25	59.75	0	0	0	0	0	0	0	0	0	0	0	0	0
	17	0	0	0	0	0	0	0	0	0	0	0	0.5	5800	0	0
	18	105	250.95	0	0	0	0	0	0	0	0	0	0	0	0	0
	19	0	0	0	0	0	0	0	0.81	9500	0	0	0	0	0	0
	20	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	21	0	0	0	0	0	45.9	137700	0	0	0	0	0	0	0	0
	22	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	23	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	24	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	25	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	26	64	152.96	0	0	0	0	0	0	0	0	0	0	0	0	0
	27	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	28	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	29	28	66.92	0	0	0	0	0	0	0	0	0	0	0	0	0
	30	0	0	0	0	0	3.36	10080	0	0	0	0	0	0	0	0
	31	185	442.15	0	0	0	0	0	0	0	0	0	0	0	0	0
	32	168	401.52	0	0	0	0	0	0	0	0	0	0	0	0	0
	33	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	34	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	35	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	36	0	0	0	0	0	8.69	26070	0	0	0	0	0	0	0	0
	37	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	38	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	39	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	40	19	45.41	0	0	0	0	0	0	0	0	0	0	0	0	0
	41	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	42	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	43	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	44	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	45	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	46	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	47	0	0	0	0	0	0	0	0.84	9800	0	0	0	0	0	0
	48	0	0	0	0	0	20.95	62850	0	0	0	0	0	0	0	0
	49	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	50	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	51	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	52	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	53	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	54	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	55	14	33.46	0	0	0	0	0	0	0	0	0	0	0	0	0
	56	0	0	0	0	0	7	21000	0	0	0	0	0	0	0	0
	57	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	58	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	59	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	60	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	61	37	88.43	0	0	0	0	0	0	0	0	0	0	0	0	0
	62	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	63	0	0	0	0	0	25.36	76080	0	0	0	0	0	0	0	0
	64	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	65	216	516.24	0	0	0	0	0	0	0	0	0	0	0	0	0
	66	127	303.53	0	0	0	0	0	0	0	0	0	0	0	0	0
	67	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	68	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	69	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	70	3	7.17	0	0	0	0	0	0	0	0	0	0	0	0	0
	71	0	0	0	0	0	19.89	59670	0	0	0	0	0	0	0	0
	72	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	73	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	74	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	75	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	76	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	77	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	78	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	79	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	80	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	81	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
		1,093	2,612	0	0	0	147	441,750	2	19,300	0	0	1	5,800	0	0

Table C Future Land Use Projections

APPENDIX D1 LUTS REVIEW OF THE N54 ACCESS STRATEGY-FEB 2014

The report '***Options for Proposed Co-ordinated Access Strategy to Zoned Industry, Enterprise & Employment Lands along the N54 in Monaghan Town, Feb 2014'***outlined the various options for access to zoned development lands along the N54 National secondary route on the periphery of Monaghan Town. It was prepared by Monaghan County Council in February 2014. The lands are currently divided with 22 hectares to the north and 5 hectares to the south of the N54.

The Options Report proposed four possible approaches for accessing these zoned lands. These four 'Options' were examined in more detail as part of the LUTS and the following observations are noted for each 'Option'.

OPTION 1: SHARED ACCESS & NEW ROUNDABOUT

This option would require a shared access between Kingspan Century Homes and the developers of the 5ha site. A new roundabout junction on the N54 would facilitate entry/exit to the lands to the south of the N54 and to the existing access to Monaghan Retail Park (Figure D1.1 below)

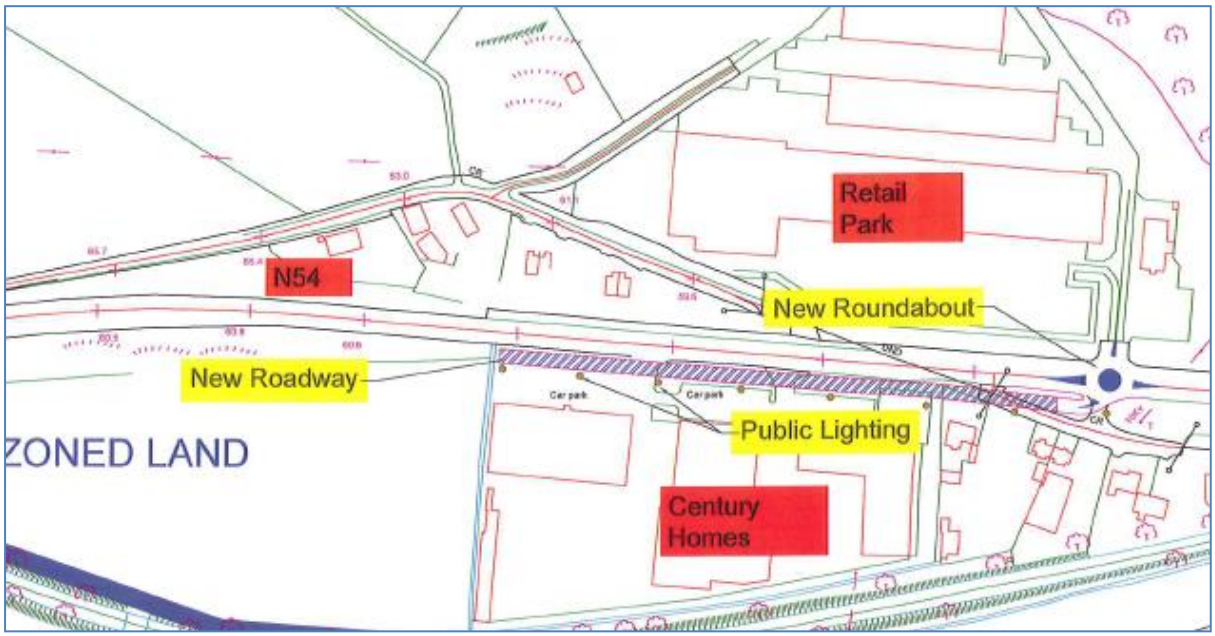


Figure D1.1 N54 Access Strategy (Option 1)

1. This proposal would require the construction of a new link roadway of approximately 320m length that would run parallel to the existing N54 National road. To construct this link road would require the procurement strip of land (of a minimum of 10m width) from the site of Kingspan Century Homes.

2. This link road would involve two way traffic travelling in the opposite direction to existing N54 traffic. This would result in glare which would affect drivers vision and performance.

3. Legal agreements/procurement of land would be required for the construction of the link road as the link road would pass through commercial and residential properties. A number of objections would be expected from the stakeholders concerned.

4. The affected lands are commercial land and are estimated to be of substantial value.

5. The car park layout at Kingspan Century Homes would be adversely affected as there would be loss of parking where there is already a scarcity of car parking to service the use.

6. The proposal indicates the construction of a new roundabout. The turning movements of Heavy Goods Vehicles entering and exiting this roundabout onto the new link road were plotted and were determined to be unworkable. (refer to Figure D1.2 below)

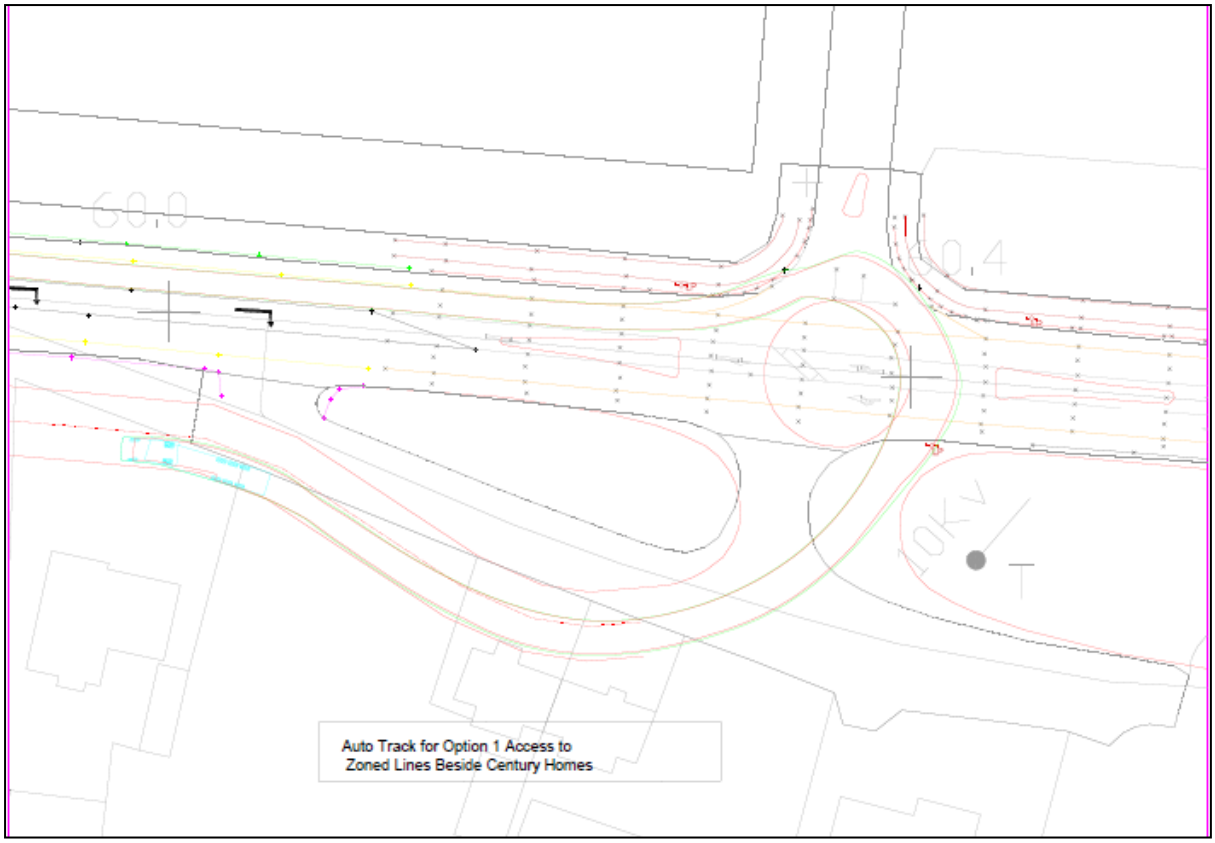


Figure. D1.2 Auto track analysis for HGVs turning from N54 to shared access (Option 1)

7. The proposal indicates a shared and merged access between the new link road and the existing residential properties access onto the southern arm of the new roundabout. This would be an unsafe and confusing arrangement and could lead to collisions.

8. The roundabout and access onto it would be a risk for vulnerable road users.

9. The proposal also indicates access onto the northern arm of the roundabout from the existing retail park. This access would provide more priority to the users of the retail park than currently exists in respect of traffic travelling west on the N54 which would diminish the priority of road users on the N54.

BASED ON THE POINTS NOTED ABOVE THIS OPTION IS NOT FEASIBLE AND THEREFORE NOT RECOMMENDED.

OPTION 2: SHARED ACCESS & UPGRADE TO ROAD

This option would require a shared access with Kingspan Century Homes and the developers of the 5ha site. It would require an upgrade to the existing roadway to the 20ha lands to the North. (Figure D1.3 below)

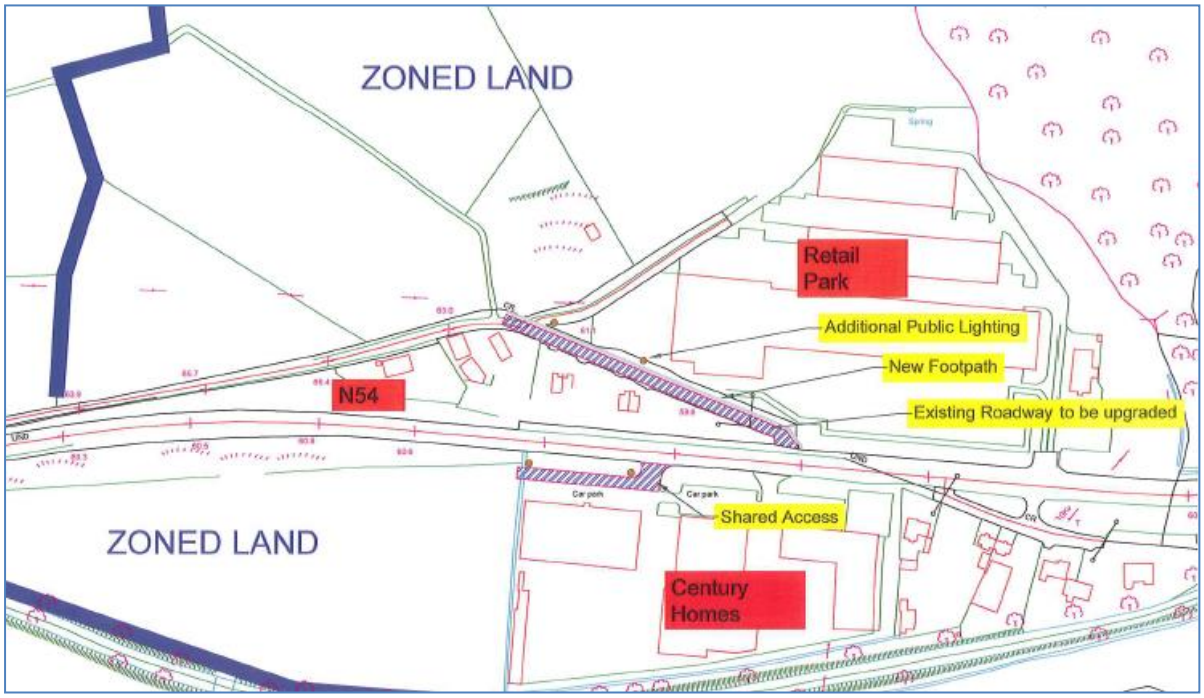


Figure. D1.3 N54 Access Strategy (Option 2)

1. It proposes the construction of a new link roadway of approximately 80m length that would run parallel to the existing N54 National road. Although the length of land required to be procured is less than in Option 1, the same issues listed 1, 2, 3, 4 and 5 under Option 1 also apply in respect of Option 2.

2. The access to the five hectares site is proposed to be shared between Kingspan Century Homes and the developers of the 5ha site. The new link roadway would make a section of car parking to the front of the main Kingspan building redundant.

3. Traffic would pass by close to the front of this building which may cause safety issues. There would be increase in the traffic noise levels in this building.

4. The owner of Kingspan may not consent to the loss of land and construction of this proposal.

5. An auto track analysis was carried out to ascertain whether Heavy Goods Vehicles would be capable of making the required turning movements to this shared access and it was determined that there was insufficient road width. (refer to Figure D1.4)

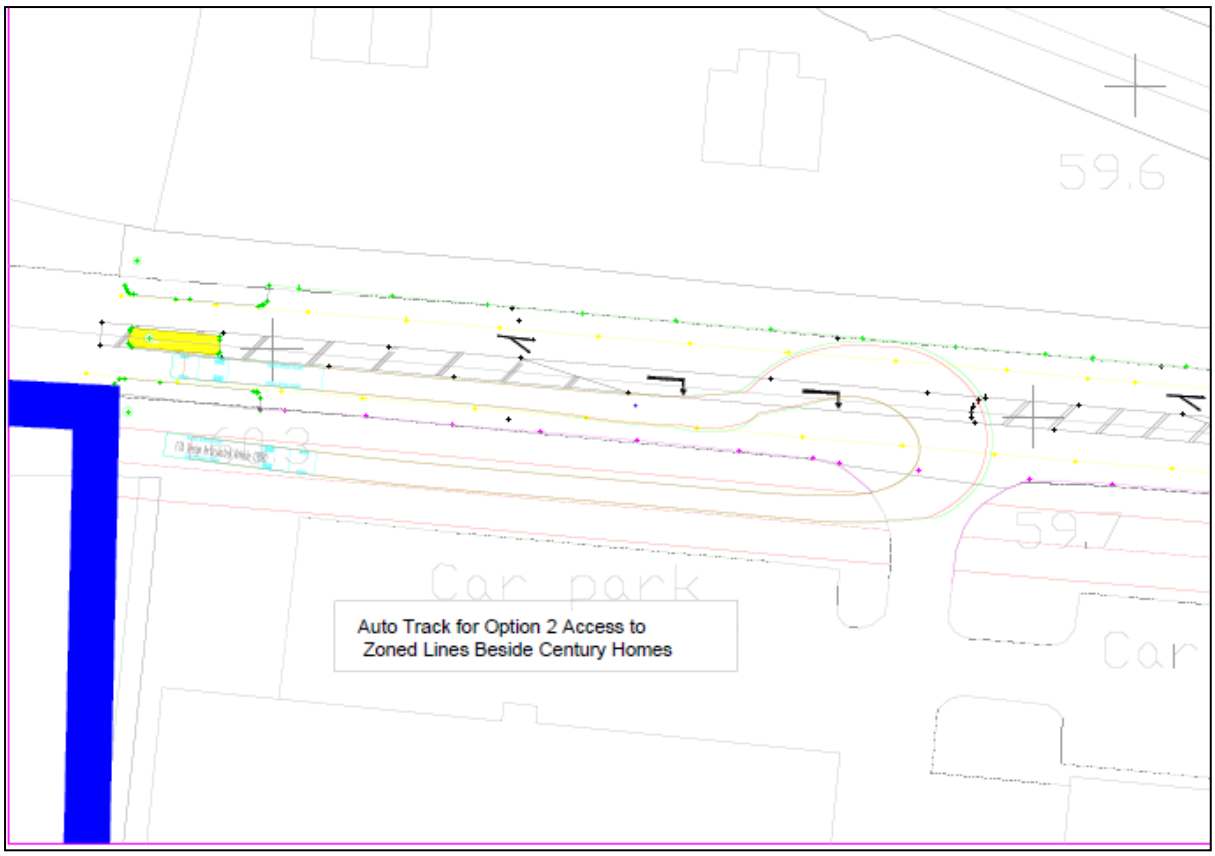


Figure. D1.4 Auto track analysis for HGVs turning from N54 to shared access (Option 2)

6. An auto track analysis was also carried out to ascertain whether Heavy Goods Vehicles would be capable of making the required turning movements into an upgraded roadway, particularly when approaching from or exiting towards the west. It was determined that there was insufficient room to provide adequate road width for turning movements for HGVs.

7. The owner of the lands required to upgrade the roadway may not consent to the loss of these lands.

BASED ON THE POINTS NOTED ABOVE THIS OPTION IS NOT FEASIBLE AND THEREFORE NOT RECOMMENDED.

OPTION 3 NEW ACCESS ROADWAY TO R189

This option would require a new access roadway onto R189 and upgrade to the existing roadway to zoned lands to the North. (Figure D1.5.)

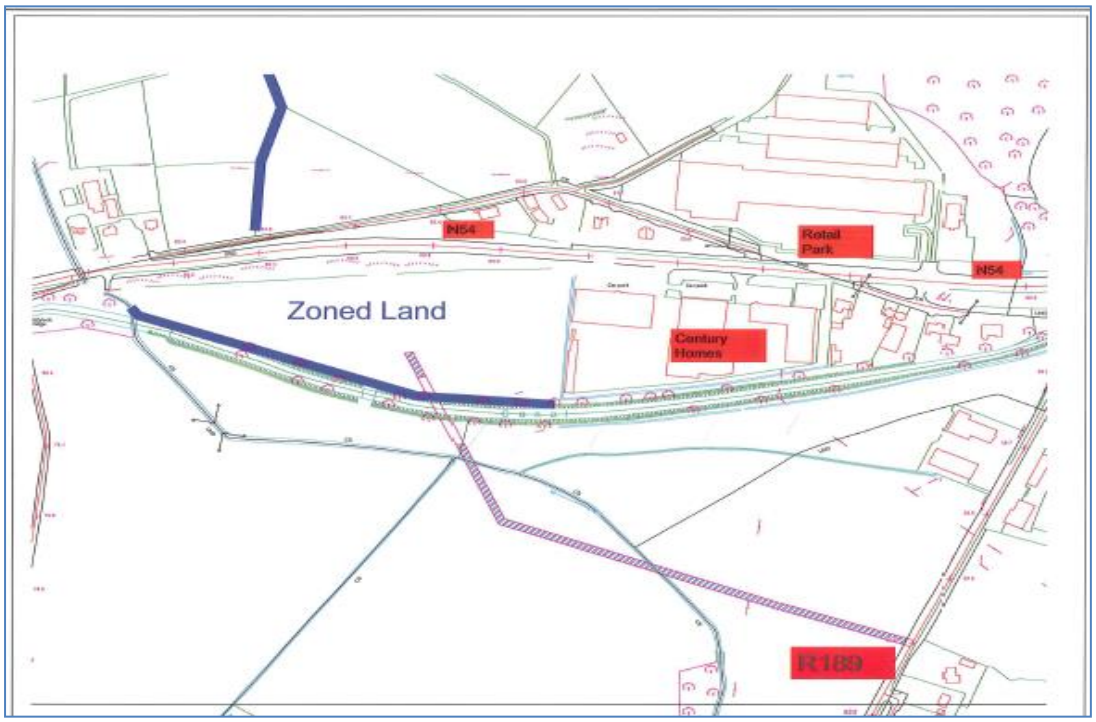


Figure D1.5. N54 Access Strategy (Option 3)

1. This option requires the construction of a new roadway of approximately 670m and access on to the Regional road R189 through third party lands that are zoned as Landscape Protection/Conservation in the Monaghan County Development Plan and are at risk of flooding.

2. This new road would cross the Ulster Canal which is designated as an Area of Secondary Amenity in the Monaghan County Development Plan 2013-2019. It is also contains protected structures and there are objectives within the development plan to protect the canal and encourage its re-opening. Waterways Ireland is charged with taking forward studies into re-opening the Ulster Canal and develop a greenway along its route. Waterways Ireland would require the canal to be crossed with a bridge that would facilitate appropriate navigation of the canal. The re-opening of the canal is included in the projects listed in the National Development Plan 2018-2025.

3. The proposed roadway passes through lands that are at risk of flooding.

4. The owners of the lands required to provide the roadway may not consent to the loss of these lands.

5. The same issue listed 6 under Option 3 also applies in respect of Option 3.

BASED ON THE POINTS NOTED ABOVE THIS OPTION IS NOT FEASIBLE AND THEREFORE NOT RECOMMENDED.

OPTION 4: RELOCATION OF 60KPH SPEED LIMIT WESTWARDS

This Option would require the relocation of the 60kph speed Limit zone 440m west of its existing location.It would require a new junction design on the N54 (Figure D1.6)

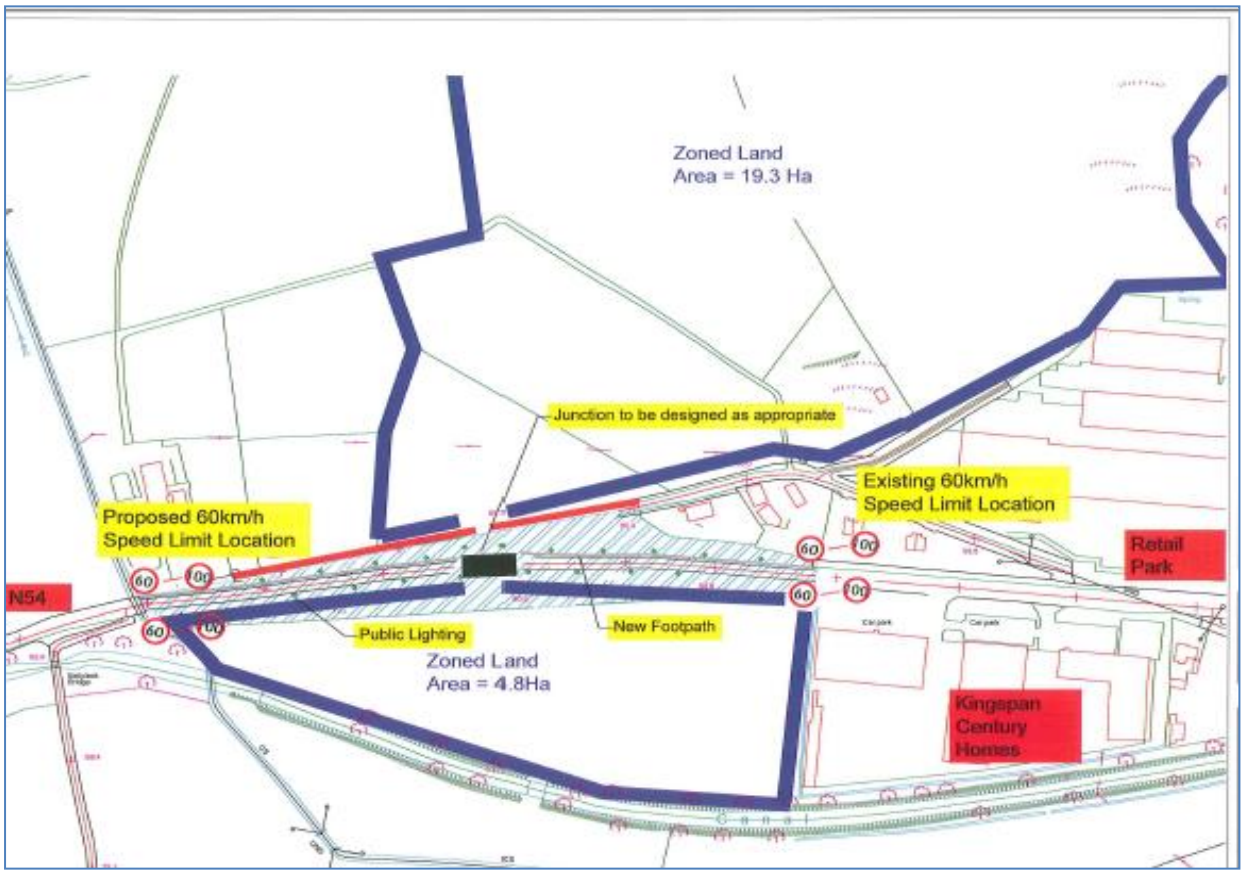


Figure D1.6 N54 Access Strategy (Option 4)

1. The proposed junction will require the relocation of the 60km Speed limit sign 440m westwards. This would extend the 60km speed limit zone. This proposal has been included in the Monaghan County Council National Speed limit review.

2. It will require a new junction design to allow traffic to access the lands north and south of the N54.

3. It would present a possible traffic calming measure for traffic entering Monaghan Town.

4. It would provide a permanent solution to access all the zoned lands, (approx 20Ha north and 5Ha south of the N54).

5. This new access would be ultimately located off line from the National Road Network following development of the Outer Northern Link (N54-N2 Link).

BASED ON THE POINTS NOTED THIS IS THE PREFERRED OPTION AND IS THEREFORE RECOMMENDED.

APPENDIX D2 – N54 ACCESS STRATEGY – 2018 (TULLYGRIMES / CORNECASSA DEMENSE)

Location Description

The Tullygrimes & Cornecassa Demense area comprises of approximately 27 hectares of zoned land in Enterprise Area 4 (refer to Land D in Fig. D2.1). This land at the south-western end of Monaghan Town is currently used for agricultural purposes but is considered to be of strategic economic importance to the development of the town. The lands are currently divided with 22 hectares to the north and 5 hectares to the south of the N54.

Constraints

The lands to the south of the N54 can only be accessed via direct access onto the N54 where the speed limit of 100km/h currently applies.

Figure D2.1-Land D – N54 Tullygrimes / Cornecassa Demense

Access Strategy

In the event of an application for a new development the following measures to facilitate access to the development lands are proposed:

- The relocation of the 60kph speed limit sign 440m outbound (from Co-ordinates (265034, 332999) to Co-ordinates (264599, 332991). (Fig D2.2, D2.3 and D2.4)
- A new gateway to the west of Monaghan town would be constructed at this location. The Gateway shall be constructed as per CC-SCD – 05007. (Fig D2.3)
- The roadway will be traffic calmed in accordance with TII standards.

Figure D2.2 Drone footage of the N54 Clones Road indicating relocation of Gateway

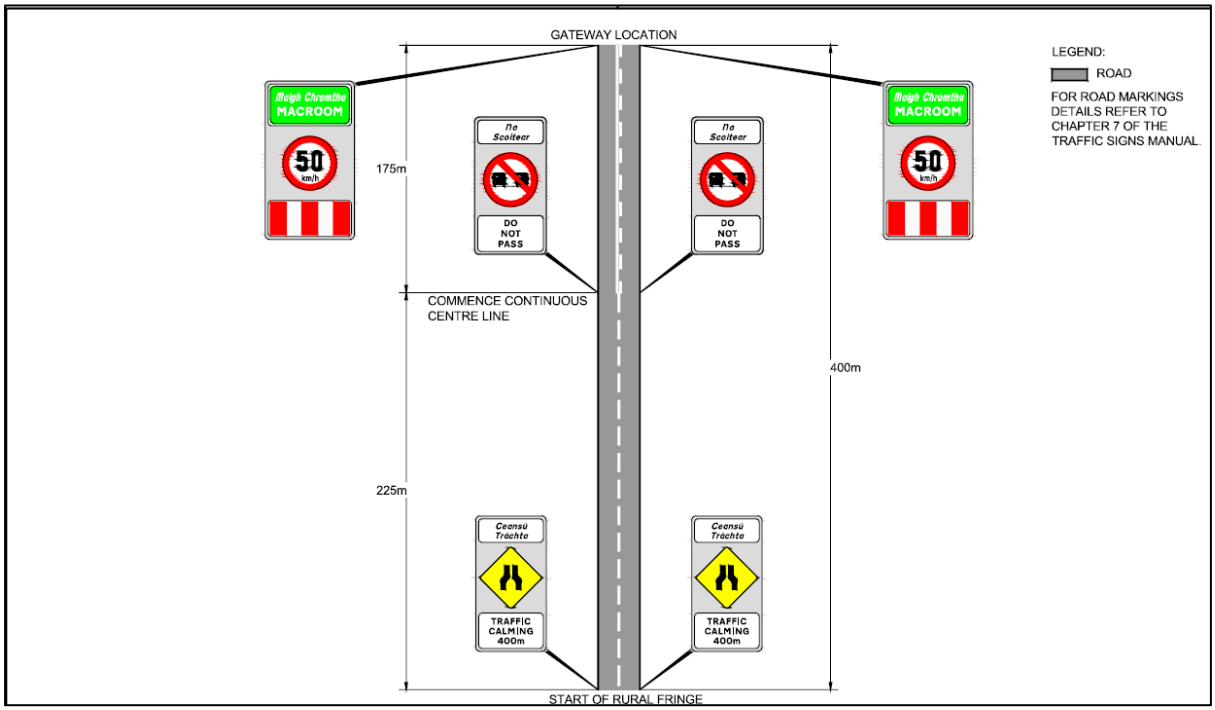


Figure D2.3 Rural Fringe Signs

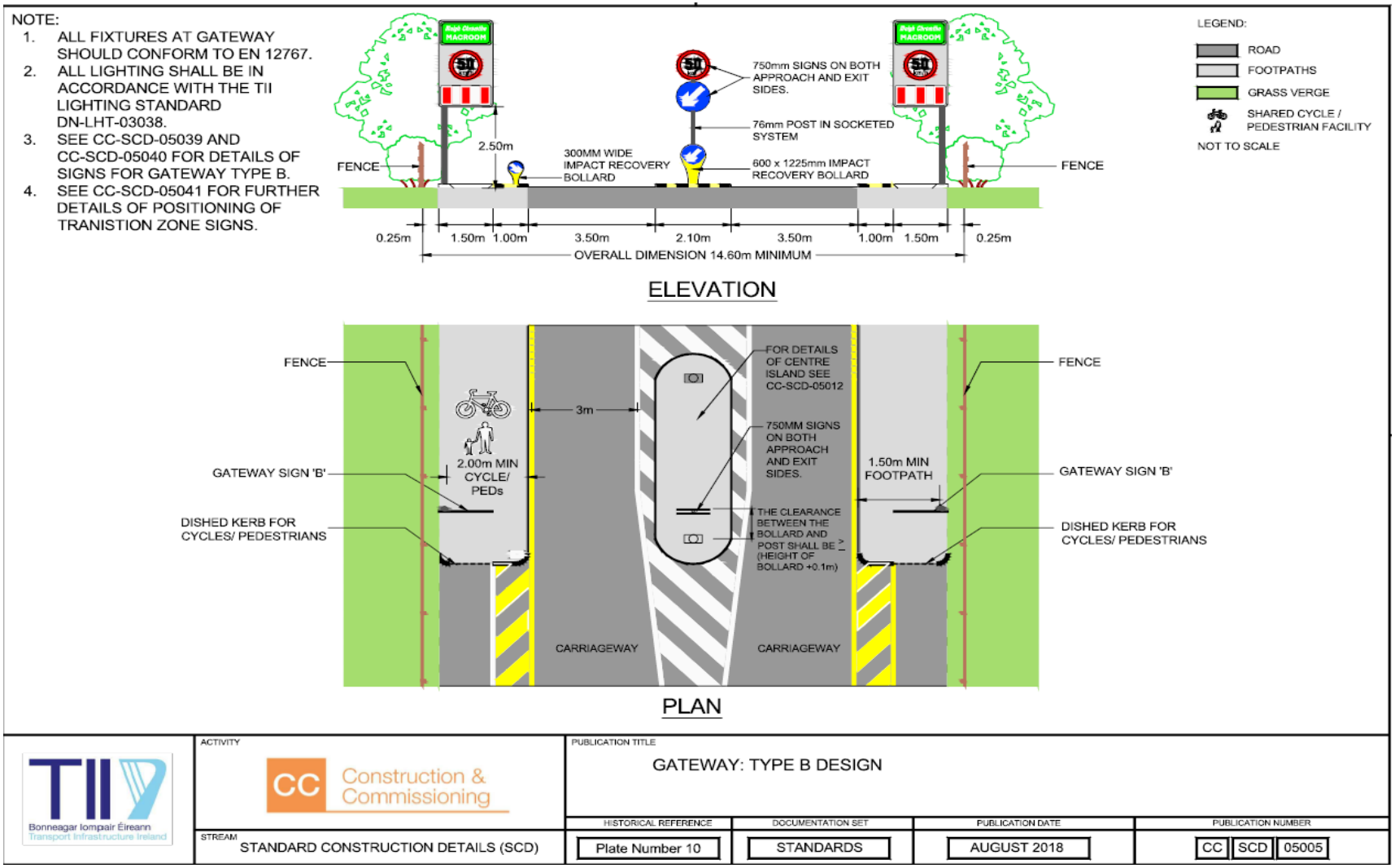


Figure D2.4 Detail of Gateway Type B

Figure D2.5 Map of N54 Transition Zone & Junction Access Locations

- The road surface to be coloured at the gateway to improve the conspicuousness of the speed reduced zone ahead (Refer to CC-SCD05003). All road signing and marking will be carried out in accordance with the Traffic Signs Manual and Series 1200 of TII Publications.

- A ghost island arrangement will facilitate access to the new junction for this development. As the lands on the southside of the N54 are expected to be developed first, the first junction/ ghost island to be constructed will be for accessing these lands. For the lands on the northside of the N54 a second junction /ghost island will be constructed. So that the final layout will be a right/ left staggered junction arrangement as detailed in Fig. D2.5 and D2.6

- These access junctions will be designed in accordance with the Geometric Design of Junctions (priority junctions, direct accesses, roundabouts, grade separated and compact grade separated junctions) and the ghost islands road markings designed in compliance with the Traffic Signs Manual.

- Swept path analysis will be carried out on all the junction access designs to ensure the sufficient widths are provided for a 16.5 long articulated lorry heavy.

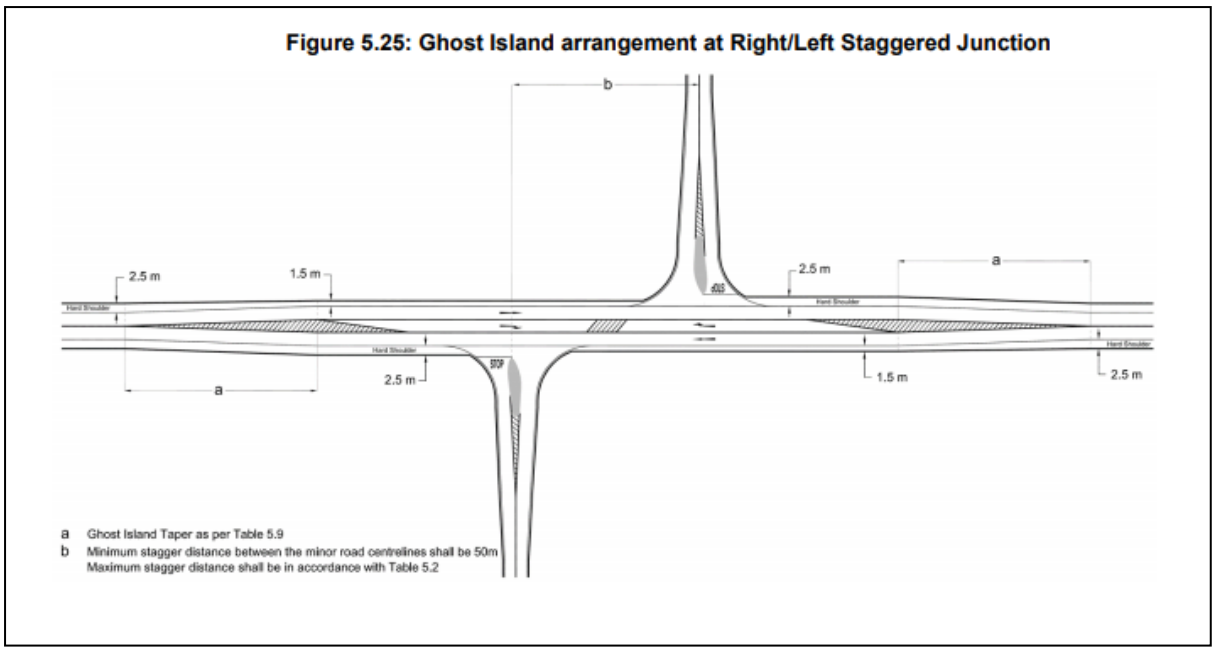


Figure D2.6 Sample Right/ Left Staggered Junction and ghost islands

- The development of the lands on the southside should allow connectivity to the future planned Greenway (at rear of site) to provide employees alternative modes of transport for commuting to work.

- The Local Link bus Cavan/Monaghan route which services the Threemilehouse /Newbliss /Clones /Scotshouse /Ballyhaise should provide public transport options.

- The new transition zone would also tie into the future realigned road at Tullybryan west of Monaghan Town. The proposed Tullybryan Road realignment scheme which will widen the existing road to 18.3m is currently at Part 8 Planning stage is expected to start construction in 2019 with an eighteen month construction timeframe.

- This new access would be ultimately located off line from the National Road Network following development of the Outer Northern Link (N54-N2 Link).

This new access arrangement would be in compliance with the TII National Spatial Planning Guidelines as outlined in Table D2.1.

The relevance and appropriateness of proposed development in supporting the aims and objectives of the National Spatial Strategy and Regional Planning Guidelines;	The guidelines will be complied with if the speed limit is relocated or the Outer Northern link road is constructed and the N54 declassified.
The requirements of other planning guidelines issued under section 28 of the Planning & Development Act including the Retail Planning Guidelines (2005), which include a general presumption against large retail centres being located adjacent or close to existing, new or planned national roads, including motorways;	The development lands are zoned for enterprise and employment therefore retail would not be permitted.
The nature of proposed development and the volume of traffic to be generated by it;	The Monaghan Traffic model assumed that the future land use would be for warehousing and industry and as a result will generate an additional 800 jobs. Traffic modelling showed that the development would lead to only minimal increase in travel times and a slight reduction in speeds in 2025 and 2035.
Any implications for the safety, capacity and efficient operation of national roads;	Other access options were considered and Option 4 was considered the safest and most efficient. The planning application for the development will require the submission of a Road Safety Audit and a Road Safety Impact Assessment that will address any safety issues.
Any plans for future upgrades of national roads and other transport infrastructure/services	It is proposed to develop an Outer Northern route (National road) by pass to the west of the development lands.
The suitability of the location compared to alternative locations;	All other areas in Monaghan Town have been considered and this location adjoins existing similar enterprise developments.
The pattern of existing development in the area	The zoned area is to be developed for warehousing and industry only.
Satisfactory details of the proposed demand management measures;	The Planning applications for developments will require a Traffic and Transport Assessment which will provide a comprehensive review of all the potential transport impacts of the proposed development with an agreed plan to mitigate any adverse consequences.
Acceptable funding and delivery proposals for any road improvements required;	Funding contributions would be sought from developers.
The precedent that could be created for cumulative development	There are no other lands zoned for development in the area.

Table D2.1 Justification for relocation of speed limit on N54 Clones Road

APPENDIX E - WALKING & CYCLING STRATEGY RECOMMENDATIONS

PEDESTRIAN IMPROVEMENT RECOMMENDATIONS

Road Id	Road No.	Road Name	Section	Pedestrian Improvements	LUTS Comments/ Recommendations
A	R188	COOTEHILL ROAD	Corran Estate entrance to R162-Ballybay Road Junction	Raise crossing and reduce junction radii on minor side road junctions to provide improved pedestrian facilities	Two of the junctions to estates have steep gradients. Therefore not practical build a raised crossing at these locations.
B	R188	GLEN ROAD	Junction R162-Ballybay Road up to Macartan Road / Market Road Junction	Raise crossing and reduce junction radii on minor side road junctions to provide improved pedestrian facilities. Pedestrian Linkage to be provided from Greenway Route adjacent to St. Louis Convent.	Ballybay road junction should be assessed to improve pedestrian facilities. Pedestrian lights were upgraded at the crossing at Tully in 2016. Traffic calming should be considered at this location due to complaints of speeding.
C	N2	DUBLIN ROAD	Latlorcan Glen estate to Old Cross Square	Footpath improvements at the approach of Old Cross Junction. Pedestrian Linkage to be provided from Greenway Route adjacent to Old Cross Junction.	Pedestrian Linkage in place between Greenway and Old Cross Square. A pedestrian crossing has been installed at Beech Hill. Traffic calming should be considered at this location due to complaints of speeding.
F	N54	DERRY ROAD	Coolshannagh Roundabout to Junction to North Road	Footpath improved at Coolshannagh Road Junction.	Recommend improvements to footpaths and closing the slip road.
I	N54	CLONES ROAD	Monaghan Retail Park to Monaghan Leisure Centre	Raise crossing and reduce junction radii on minor side road junctions to provide improved pedestrian facilities	Pedestrian facilities were improved in Nov 2017 with new footpaths.
		MARKET ROAD / MACARTAN ROAD	Park Road Junction to Old Cross Square	Intervention in accordance with Ulster Canal Greenway project	Footpaths in place. No further improvements proposed at present.
M		CORTOLVIN ROAD AND KILLYCONNIGAN RESIDENTIAL ROADS	Cortolvin Road, Killyconnigan, Avondale, AnCorrán	Provide access to Greenway	Access at Horseshoe Bridge, Oriel Way and Killyconnigan in place
R		LIMEGROVE	North road to High road junction	Continue footpath on northern side to North Road junction	Footpath improvements have been completed at this location.
S		All Town Centre Streets	Town Centre Streets and approach routes	Pedestrian crossing improvements at Church Square	One pedestrian crossing in place.

CYCLING RECOMMENDATIONS

Road Id	Road No.	Road Name	Section	Proposed Cycling Improvements	LUTS Comments/ Recommendations
A	R188	COOTEHILL ROAD	Corran Estate entrance to R162-Ballybay Road Junction	Provision of On Road Cycle lanes. Mandatory Cycle lanes where sufficient width is available. Removal of right turn lanes and central ghost islands.	Recommended to be implemented
B	R188	GLEN ROAD	Junction R162-Ballybay Road up to Macartan Road Junction	Provision of On Road Cycle lanes. Mandatory Cycle lanes when sufficient width permits. Removal of right turn lanes and central ghost islands. Cycle Linkage to be provided from Greenway Route adjacent to St. Louis Convent Greenway	Recommended to be implemented
C	N2	DUBLIN ROAD	Latlorcan Glen estate to Old Cross Square	Provision of On Road Cycle lanes. Mandatory Cycle where sufficient width is available. Removal of right turn lanes and central ghost islands. Cycle Linkage to be provided from Greenway Route adjacent to Old Cross Junction.	Recommended to be implemented Off-road cycle paths recommended as they will connect directly to the greenway at Old Cross Square and from Latlorcan Glen. Adequate width to widen the footpath from the cathedral to Corlat Roundabout to be checked.
D		OLD ARMAGH ROAD	Industrial Estate to Dublin Road Junction	See junction no. 4	Walk/cycle path along bypass from N2 Dublin road to N2 Emyvale Road via Old Armagh Rd is provided for in extension of Ulster Canal Greenway.
E	N2	N2 / Derry Road	St. Macartan's College to Rooskey	Provision of a shared cycleway and footway along the western side of N2 with Toucan Crossing to School Grounds	Extension of greenway removes need for toucan crossing, as greenway will cross under Armagh Road, bringing cycleway to same side of road as school.
F	N54	DERRY ROAD	Rooskey Junction to North Road	Provision of On Road Cycle lanes. Mandatory Cycle lanes where sufficient width is available. Removal of right turn lanes at Coolshannagh Road Junction. See junction no.6	Recommended to be implemented
G	N12	ARMAGH ROAD	Education Campus to Coolshannagh Roundabout	Cycle Linkage to be provided from Greenway Route.	A proposal for a direct connection to the greenway from the MIFET education campus and the business campus at MTEK should be supported and progressed.
H		Coolshannagh Road	Old Tannery to N2 junction	No on road intervention, See junction no. 6 for specific improvements	Recommended to be implemented
I	N54	CLONES ROAD	Monaghan Retail Park to Monaghan Leisure Centre	Provision of On Road Cycle lanes. Mandatory Cycle lanes where sufficient width is available. Removal of right turn lanes and central ghost islands.	This would involve removal of traffic islands. Recommend to be reviewed again.
J	N55	CLONES ROAD	Monaghan Leisure Centre to Park Road Junction	Provision of outbound On Road Cycle lane	As above
K		MARKET ROAD / MACARTAN ROAD	Park Road Junction to Old Cross Square	Intervention in accordance with Ulster Canal Greenway project from Old Cross Square to car park entrance. Cycle lanes from car park entrance to Park Road Roundabout. See junction's no. 1, 2 and 3.	As part of Greenway a contra flow cycle lane was installed in Canal Street and along the linear park. No cycle lane provided from Park Rd to traffic lights junction.

L		PARK ROAD	Clones Road Junction to Horseshoe Bridge	No intervention required.	
M		CORTOLVIN &KILLYCONNIGAN ROADS	Cortolvin Road, Killyconnigan, Avondale, An Corrán	Provision of appropriate Traffic Speed Calming on these roads that provide access to the Greenway and Rossmore Park.	A number of ramps are already in place. An assessment should be carried out to verify if more ramps are necessary.
N			Access Road to Rossmore Forest Park	Provide formal cycle route leading to formal cycling routes within the Park	Improvements should be made to the linkages between Greenway and Park.
O		ORIEL ROAD	Clones Road Junction to Cortolvin Road	Provision of On Road Cycle lanes. Mandatory Cycle lanes where sufficient width is available. Removal of central ghost islands.	To be reviewed again. May be possible to install table top ramps to facilitate greenway. Road widths appear to be checked.
P	N2	N2-BYPASS	Coolshannagh Roundabout to Dublin Road Roundabout	Provision of a shared cycleway and footway along the western side of N2 bypass	Partial greenway has been installed from Old Armagh Rd to Annahagh Road. Funding secured under Ulster Canal Greenway Phase II. This will be completed by end 2019. It will provide an off-road greenway parallel to the bypass along the western fence line.
Q	N2	DUBLIN ROAD	N2 Dublin Road Roundabout to Latlorcan Glen Estate	Provision of a shared cycleway and footway along the northern side of Dublin Road	This should be implemented under the Ulster Canal Greenway extension. This Cycle Route was part of a submission under the Smarter Travel Initiative in 2014. To be assessed using the Monaghan Traffic model and considered again.
R		LIMEGROVE	North road to High road junction	Provision of appropriate Traffic Speed Calming.	This would be very difficult to implement. To be re assessed.
S		All Town Centre Streets	Town Centre Streets and approach routes	Town Centre Street to be 30 kph zone. Mixed-street cycling regime with appropriate road markings. Provide cycle parking at Market Square, Church Square, The Diamond, Library, Peter's Lake Park and Bus Station.	Recommended to implement
T			Pedestrian and Cycle link from Greenway at Macartan Road	Longer term Pedestrian/Cycle link from Greenway at Macartan Road northwards through Church Square, The Diamond and Peter's Lake to Plantation Road and North Road	Signage should be provided under the Greenway Phase II to promote commuting into town centre using the greenway. Car parks are to be provided at the eastern and western edges of the town, to facilitate commuters who wish to 'park and stride' or cycle the rest of the way into work or school

JUNCTION & OTHER SPECIFIC RECOMMENDATIONS

Id	Location	Road Name	Proposed Improvements	LUTS Comments/ Recommendations
1	Park Road Roundabout	Clones Road / Market Road/ Park Street	Reduce entry lane width from Clones Road; increase deflection by building out northern kerb line and provide Central island markings.	This junction has been identified as a HD15 site by TII as requiring safety measures. An assessment to be carried out by Consultants to propose and design an engineering solution
2	Traffic signals junction at Market Road / Macartan Road / Glen Road / Dawson Street	Market Road / Macartan Road / Glen Road / Dawson Street	Provision of Cycle Advanced Stacking Locations	Recommend a design be prepared and Road Safety Audit be carried out on the design.
3	Old Cross Junction	Old Cross Square / Dublin Road	Section to be developed as part as the Greenway Route. Improve footpath at approach of Dublin Road to the junction.	Footpath improvements have been carried out at this location.
4	Priority Junction at Dublin Road	Dublin Road - Old Armagh Road	Improve approach to the junction by providing short length of cycle lane.	This will be very difficult to implement due to constricted width of the roadway. New Pedestrian crossing has been installed at Beech Hill.
5	Pinch Point on Hill Street / High Street	Hill Street / High Street	Provision of footpaths both sides and vehicular give way at pinch point due north of Hill Street. Currently limited footpath on west side and no footpath on east side.	This will be very difficult to implement due to constricted width of the roadway.
6	Priority Junction at Coolshannagh Road	Coolshannagh Road / Derry Road	Improvement of junction legibility for pedestrian and cyclists including the removal of right turn pocket and build out kerb lines on both sides with cycle lanes on Derry Road. Close of slip road entry to Coolshannagh Road.	This junction to be assessed for installation of traffic signals. Recommend improvements to footpaths and review of closing the slip road.
7	Horseshoe Bridge	Park Road	Provision of footbridge adjacent to narrow bridge over canal with pedestrian and cyclists link down to Greenway Route.	Recommended for review.
8	Access Road to Mullaghmatt	Park Road / Cortolvin Road	Provision of short length of footpaths and lighting from Horseshoe Bridge to Estate entrance	Some footpaths have been installed here.
9	Crossing at Cootehill Road	Cootehill Road	Provision of pedestrian crossing to mitigate the lack of footpath at western side or provide footpath at western side. Land acquisition may be required for the latter option.	Provision of a Pedestrian crossing to be reviewed and possibly locating it at Drumbear woods estate.
10	Crossing at North Road	North Road	Provision of pedestrian crossing across North Road at Glaslough Street junction.	There is a zebra crossing at this location. Should be reviewed when the Peace Campus is opened.
11	Crossing at North Road	North Road	Provision of pedestrian crossing from Library to the Peter's Lake Park.	A pedestrian crossing has been installed at Peter's lake.

12	Crossing at Church Square	Church Square	Provision of pedestrian crossing with central median and southern footpath improvements	One pedestrian crossing in place.

APPENDIX F - ANALYSIS OF REMOVING RIGHT TURN LANES FOR CYCLE ROUTES

A number of Cycle Routes in the Monaghan Walking and Cycling Strategy recommended the removal of right turn lanes at several junctions within Monaghan Town. These proposals were tested using the Monaghan Traffic Model base and future year models. The right turn lanes were removed at the following locations to see the impact on the traffic flows:

- N54 Derry Road at Four Seasons Hotel
- N54 Derry Road at Roosky/Saint Davnet's
- N54 Derry Road at Coolshannagh Road
- Dublin Road at Beech Hill School /Old Armagh Road
- Dublin Road at Local Rd to Cathedral Walk/Cemetery
- Dublin Road at Latlorcan Estate / Bogue's Garage
- Glen Road at entrance to Monaghan County Council offices
- Glen Road atManor Wood
- Glen Road atKillygoan (Fairview Drive)
- Cootehill Road / Ballybay Road
- Cootehill Road atDrumbear Estate

A set of 'cycle models' were created with the interventions at the locations listed above in place. The models with and without changes were run and compared. No differences were observed in queue lengths or travel time.

Also previous surveys and analysis in 2012 by Boyle Consulting on removing the right turn lanes at five junctions was reviewed and verified.

Picady analysis was carried out on the junctions with the highest right turning flow (Site 1). The junctions analysed are listed below:

- Site 1 - Glen Road/Fairview Drive
- Site 2 - Glen Road/Cootehill Road/Ballybay Road
- Site 3 - Dublin Road/Old Armagh Road/Beech Hill School Entrance
- Site 4 - Dublin Road/Local Road to Cemetery/Cathedral Walk
- Site 5 - Dublin Road/Latlorcan

Traffic counts at two of those locations were also collected as part of the Monaghan LUTS study development. A comparison of traffic flow between Boyle Consulting surveys and Monaghan County Council surveys from 2015 is presented below in Table F1:

Site Location.	No. Right turn Veh/hr Boyle survey 2012	No. Right turn Veh/hr MCC Survey 2014	% growth
Glen Road / Fairview Drive (AM)	99	127	+28%
Glen Road / Fairview Drive (PM)	35	41	+17%

Glen Road / Cootehill Rd / Ballybay Rd (AM)	23	38	+65%
Glen Road / Fairview Drive (PM)	13	24	+84%

Table F1-Traffic Flows at Glen Road junctions Comparison (% growth)

The highest number of right turning vehicles from all five sites was at Site 1 (Glen Road/ Fairview Drive AM) where 127 vehicles per hour turn right in the morning peak. Picady analysis was carried out at this location with Base year flows from the 2015 surveys.

The outputs of a PICADY assessment are a Ratio of Flow to Capacity (RFC) and a Queue value for each intersection arm. The RFC (Ratio of Flow to Capacity) value indicates the extent to which traffic flows on an intersection arm approach capacity (an intersection arm operating at capacity would have an RFC value of 1.0). Typically a priority intersection is said to be operating satisfactorily if all arms of the intersection operate with RFC values below 0.85. The Table F2 below shows the summary of the Junction performance at the Glen Road/ Fairview Drive. The queue value relates to queue lengths (quoted in numbers of vehicles) on the intersection arm.

Junction Arm	**AM**			**PM**		
	Queue (PCU)	**Delay(s)**	**RFC**	**Queue (PCU)**	**Delay(s)**	**RFC**
Fairview Drive	0.2	10.7	0.2	0.3	12.4	0.2
Glen Road South Arm	1.4	6.9	0.4	0.4	5.7	0.1

Table F.2 Analysis of Glen Road/ Fairview Drive junction

Picady results show that the RFC on the Glen Road arm in 2015 was approximately 40%. None of the right turns are expected to grow significantly in the future and therefore it is expected that the removal of right turn pockets will have minimal impact on the junction delays and queuing.

In summary the removal of right turning flares at junctions was proposed as part of the walking and cycling strategy for the Town. The proposals were tested using both Monaghan Traffic and local Picady junction modelling tools. Both show minimal impact on queuing, delays and capacity. It is therefore recommended that the implementation of these cycle routes below should be progressed.

1. R162 Glen Road to R188 CootehillRoad(Monaghan County Council Offices to The Corran - 0.8km)

2. N2 to N54 Derry Road (St Macartan's College to North Road/Glaslough Street junction - 1.0km)
3. R937 Dublin Road to N2 (Old Cross Square Roundabout to Collegiate School - 1.2km)

APPENDIX G1 – 2018 TRAFFIC COUNTS

2018 Automatic Number Plate Recognition Surveys

In order to provide up to date information on the origins-destinations (O-Ds) of journeys made through and around Monaghan Town further Automatic Number Plate Recognition (ANPR) Surveys were undertaken on Wednesday 24th October, 2018. A number of different locations for the ANPR were identified for the camera sites to give a better understanding on the number of trips that were destined for the town of Monaghan(local) versus the number that were passing through the town.

The surveys were carried out at the sites shown on Fig G.1. Telescopically mounted cameras at eleven sites videoed the registration plates of cars between 07.00 and 19.00. Software was used to match the registration plates of journeys across the town. The summary of the percentage of cars travelling to other sites outside Monaghan and to Monaghan Town is summarised on Table G1.1

Site no.	Site	Total count matched on other sites outside the town within 60mins period	Total count over 12hr	% of Vehicles travelling to other sites outside the town	% of Vehicles travelling to the town
1	N54 Hassan's Bridge	586	2264	26%	74%
2	R187 Roslea Road	371	809	46%	54%
3	N54 west of Brandrum	Validation Site			
4	R189 Three milehouse Road	627	1436	44%	56%
5	R186 Scotstown Road	628	1909	33%	67%
6	N2 Coolkill East	1915	3601	53%	47%
7	N12 Knockaconny	1797	3705	49%	51%
8	Cluain Ard/ Ballyalbanny	511			
9	N2 Corlat	2417	5359	45%	55%
10	R162 Glen Road	1849	4531	41%	59%
11	N54 at Mullaghcroghery/Mullaghadun (near Scotstown Rd jct)	Validation Site			

Table G1.1 Summary of 2018 ANPR Surveys

2018 Traffic Count Surveys

Automatic Traffic Count Surveys were carried out at eleven locations around Monaghan Town for seven consecutive days from Tuesday 23rd October to Monday 29th October, 2018.Fig 2.5 shows the locations of the traffic counters. The counts of all vehicle types travelling inbound and outbound at these sites from 07.00 to 19.00 were recorded. Table G1.2 outlines the AADT of the Traffic Counts. These counts compared to the 2015 show a substantial increase in traffic volumes around the town.

Location / Site	Total	Total LGV's	Total HGV's	%LGV	% HGV
1. N54 at Hasan's Bridge	5548	636	714	11%	13%
2. R187 (Roslea Road) near N54 junction	1911	261	181	14%	9%
3. N54 West of Brandrum	7402	913	923	12%	12%
4. R189 (Threemilehouse Road) near junction with N54	3683	471	89	13%	2%
5. R186 (Scotstown Road) near Tullycroman (Heasty's Cross)	4206	517	219	12%	5%
6. N2 (Nth of Monaghan) Coolkill East	8645	1136	1143	6%	6%
7. N12 at Knockaconny	8659	907	447	10%	5%
8. L-T16302 at Ballyalbany near junction with N2	2373	455	131	19%	6%
9. N2 south of Monaghan at Corlat	13036	1636	1482	13%	11%
10. R162 Glen Road	10326	1267	701	12%	7%
11. N54 (Leisure Centre) near junction with R186 (Scotstown Rd)	17071	2021	1227	12%	7%

Table G1.2 AADT of 2018 Traffic Counts

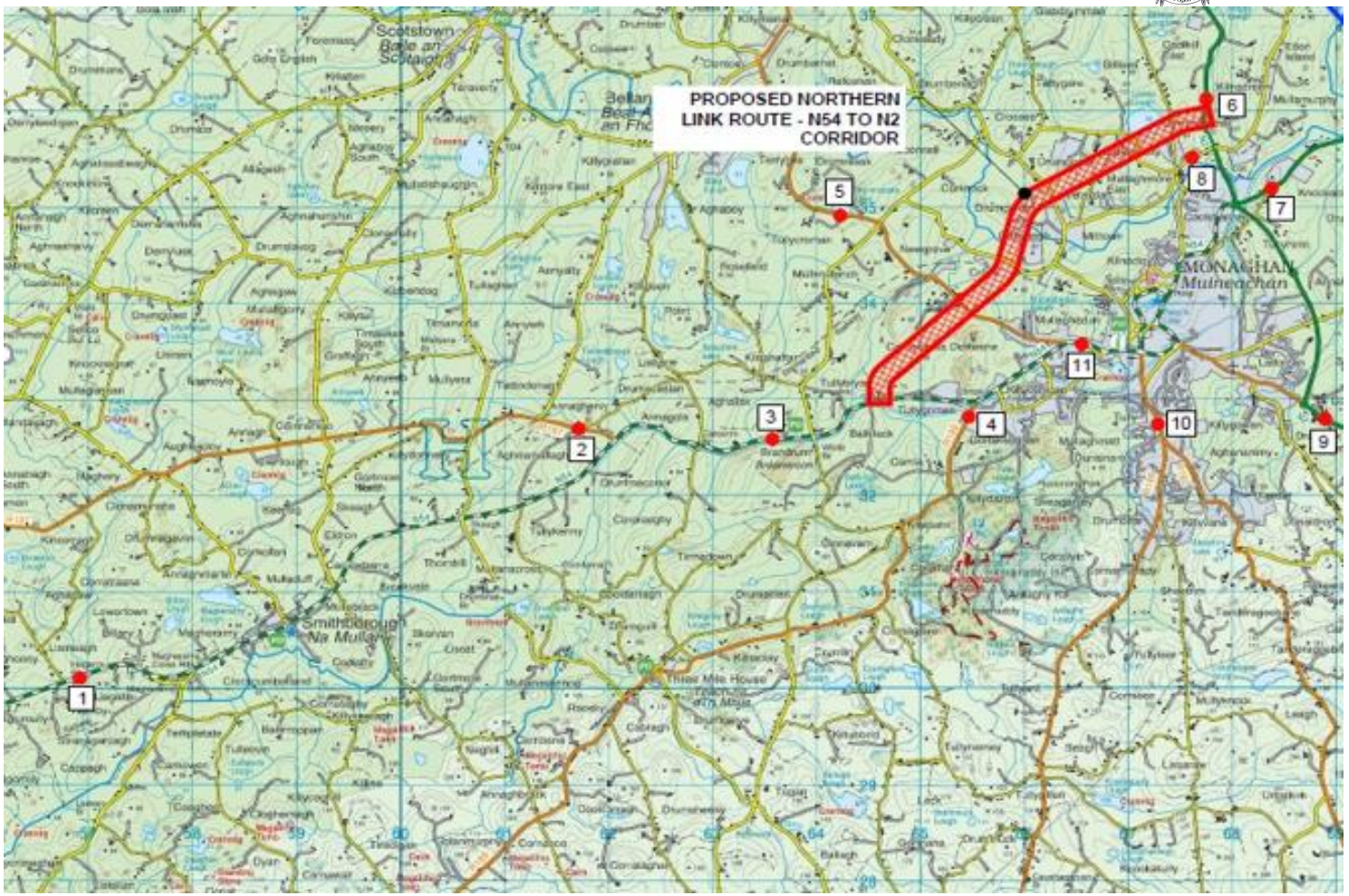


Figure G1.1 Location of 2018 ANPR & Traffic Count Surveys

APPENDIX G2 - LUTS SUPPORTING INFORMATION FOR N54 – N2 NORTHERN ROUTE

PROJECT TYPE

Green field construction of a 4.5km Type 1[29] carriageway providing economic advantage by improving through traffic connectivity on the East West N54 Link Monaghan

€ 19.5M (incl VAT)

2.0 General Scheme Details

Proposed name of project	**N54/ N2 Outer Northern Road**
Location of Project	See attached extent of works plan.
Terminal points/co-ordinates	**Start Point**: E 265422.843, N 333962.885 **End Point:** E 267740.007, N 335936.705
Road Classification and Number	**N54**

2.1 Brief Description of Proposed Project:

- The proposed project will realise the construction of 4.5 km of Type 1 completely off-line carriageway from the N54 Clones Road to the N2 North of Monaghan Town. This Outer Northern route (Phase 1) is illustrated in Figure G2.1.
- This Phase 1 route will involve the construction of three new roundabouts. On the N54 Clones Road, on the R186 Scotstown Road and north of Monaghan town on the N2 at Milltown.
- The N54 Clones Road roundabout will be connected to the new realigned N54 west of Monaghan Town (at Tullybryan) and the existing N54 access to the town centre which will have a new Gateway and traffic calming measures for the transition zone leading into Monaghan Town.
- Phase 2 will be 2 km of Type 1 carriageway connecting to a grade separated junction on the proposed Clontibret to the Border N2 / A5 link and Phase 3 will be a 3.2km Type 1 carriageway connecting to the N12/ R1213 road as illustrated in Figure G2.1.
- This N54 Northern Outer Route will by pass the town centre and improve journey times and provide significant benefits to the road user.
- The traffic modelling showed that the inclusion of the N54/N2 route by 2035 would
  - Increase average speed across the network by 13.5% (from 36.7kph to 41.6kph)
  - Reduce the morning peak travel time between N54 and the N2 North by 54 % (if using the new route) and 24% (if travelling through the town).

[29] **Type 1 carriageway proposed assuming whole life economic advantage*

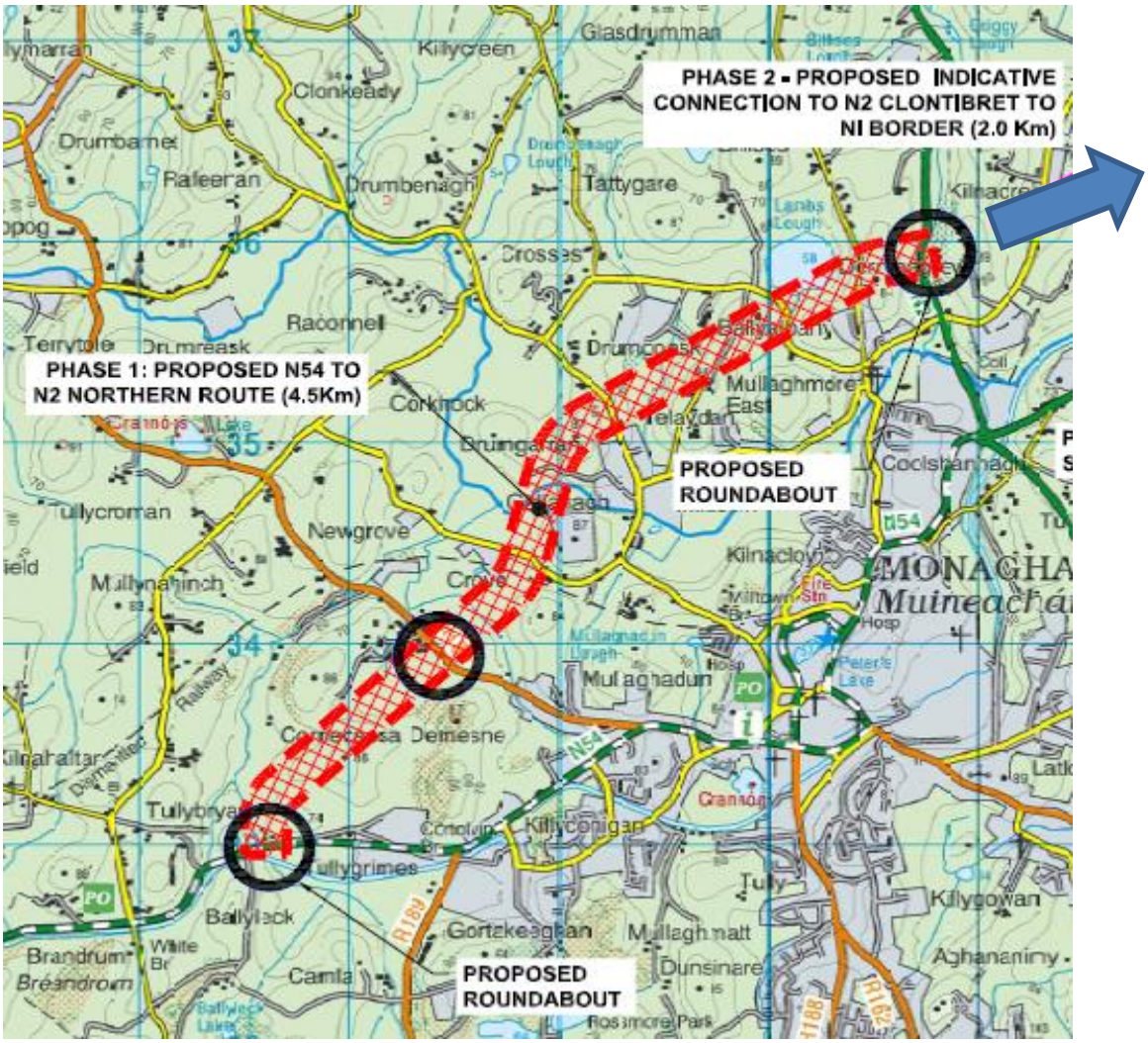


Figure G2.1 N54 to N2 Outer Northern Route & Indicative Connection to N2 Clontibret to NI Border

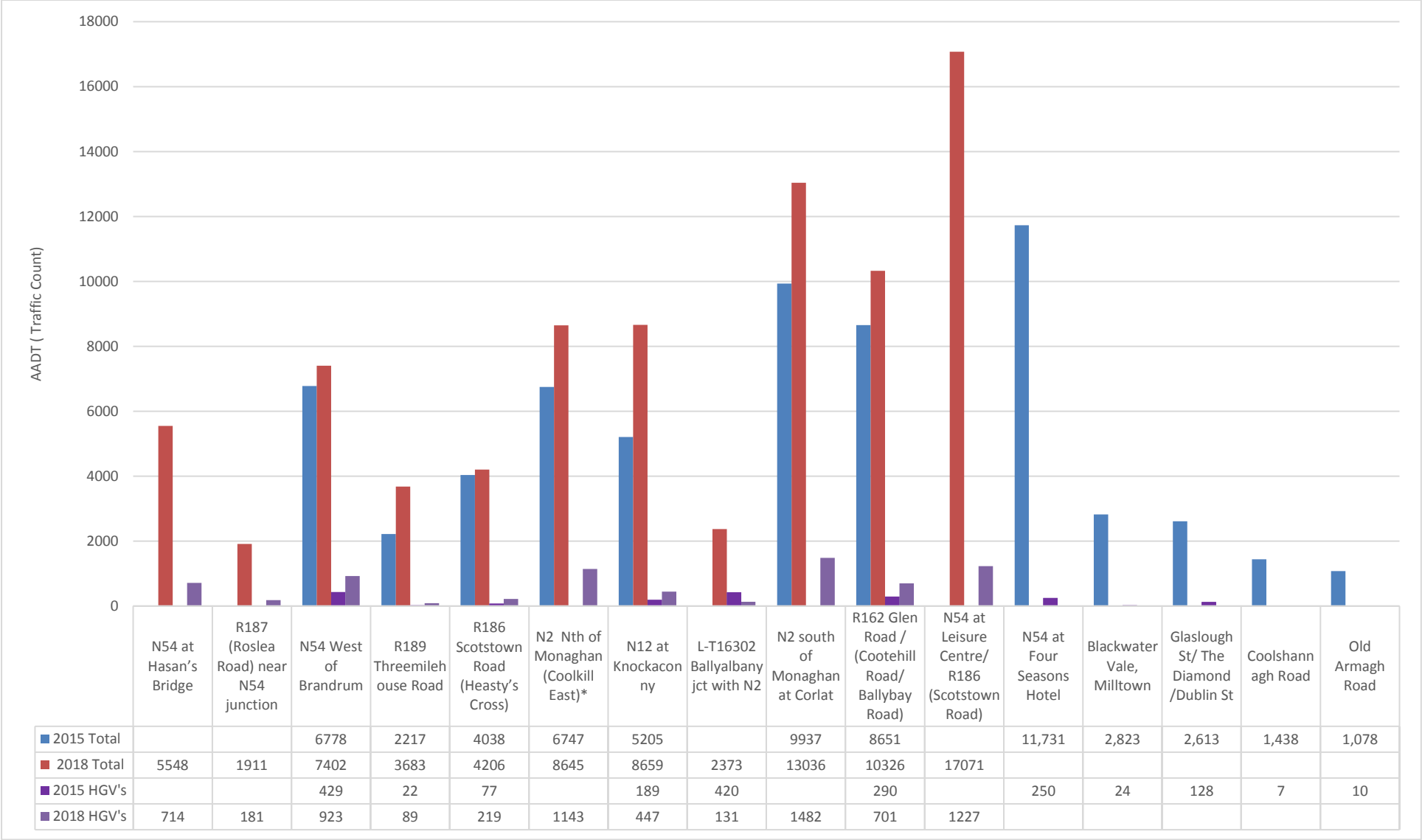
The project when completed will provide a more direct route for road users on both the East West interconnection and the North South interconnection providing direct access linkage to Ports, Airports and major cities. The Projected (AADT) for the year 2035 is 8876.

2.2 Problems identified During LUTS Modelling

2.2.1 Capacity

- The N54 in its present form links Monaghan town centre to national primary routes serving the North East and the Eastern national road and motorway corridors.

- Monaghan Town experiences significant traffic congestion particularly at the morning and evening peak times. Traffic Counts taken in 2015 and 2018 show an increase of up to 66% on some routes. Figure G2.2 shows a chart of 2015 and 2018 Traffic Counts.



	N54 at Hasan's Bridge	R187 (Roslea Road) near N54 junction	N54 West of Brandrum	R189 Threemileh ouse Road	R186 Scotstown Road (Heasty's Cross)	N2 Nth of Monaghan (Coolkill East)*	N12 at Knockacon ny	L-T16302 Ballyalbany jct with N2	N2 south of Monaghan at Corlat	R162 Glen Road / (Cootehill Road/ Ballybay Road)	N54 at Leisure Centre/ R186 (Scotstown Road)	N54 at Four Seasons Hotel	Blackwater Vale, Milltown	Glaslough St/ The Diamond /Dublin St	Coolshann agh Road	Old Armagh Road
2015 Total			6778	2217	4038	6747	5205		9937	8651		11,731	2,823	2,613	1,438	1,078
2018 Total	5548	1911	7402	3683	4206	8645	8659	2373	13036	10326	17071					
2015 HGV's			429	22	77		189	420		290		250	24	128	7	10
2018 HGV's	714	181	923	89	219	1143	447	131	1482	701	1227					

Figure G2.2 Comparison of 2015 v 2018 Traffic Counts

2.2 Problems identified During LUTS Modelling

- Presently 74% of traffic from N54 is travelling into the town centre and 26% travelling to other destinations outside the town. Refer to Table G2.1 for details of October 2018 traffic survey.

From	To	Total no. of matched number plates over 60mins	Percentage of Total %
N54 Hassan's Bridge	N2 Coolkill East (North Monaghan)	81	4%
	N12 Knockaconny (Armagh Road)	162	7%
	N2 Corlat (South Monaghan)	142	6%
	Town Centre & environs	1678	74%
	Other locations outside Town	201	9%
TOTAL		**2264**	**100%**

Table G2.1 Summary of ANPR (Origin – Destination) Surveys Monaghan Town (October 2018)

- The AADT Traffic counts on the N54 at the Four Seasons are over 11,000 and on the N54 at the Leisure Centre are over 17,000. The N54 through the town is a historical road built before 1834 and was not designed for this quantum of traffic. In order to keep pace with current growth and expansion rates an upgrade of the proposed section is urgently required.

- In summary, the route in its current form is unsuitable for the road user, it presents many risks to the driver, the cyclist and the pedestrian. Intervention is necessary to ensure the through traffic on the East West link is provided so that its economic benefit is fully realised.

- Figures G2.3 and G2.4 taken from the Monaghan Town Traffic model illustrate the morning peak queuing in 2035 on N54 and N2 (North) if no infrastructure was put in place.

Figure G2.3– 2035 Do Minimum Morning Peak Queuing on N54

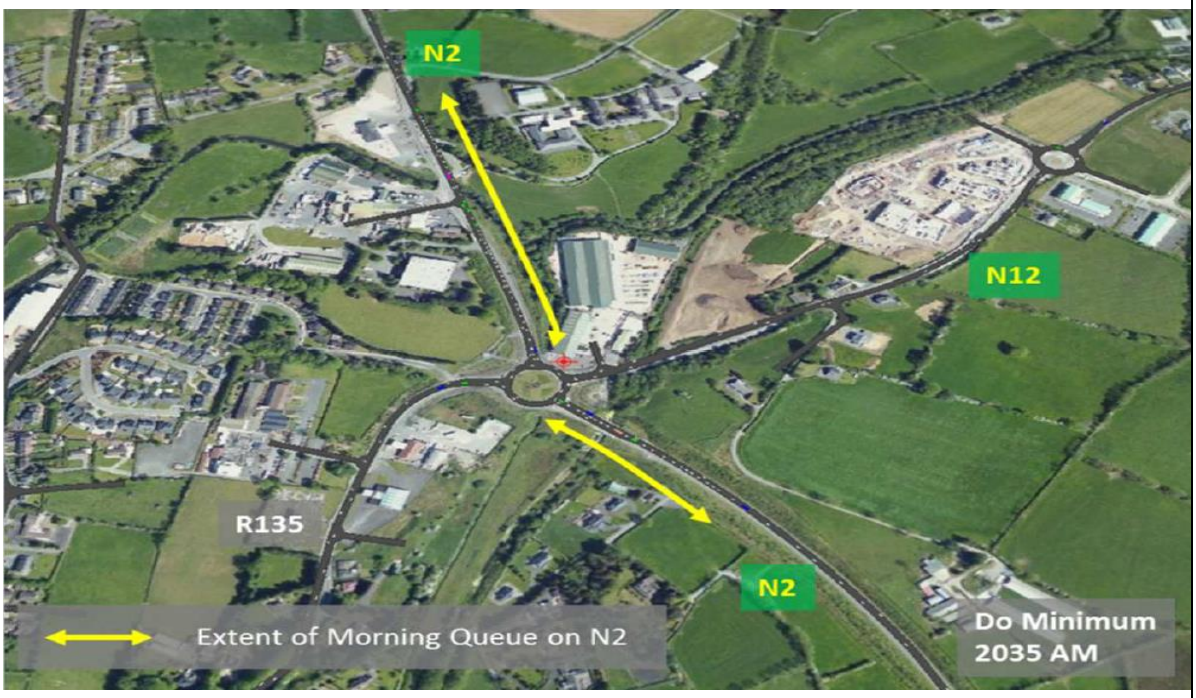


Figure G2.4– 2035 Do Minimum Morning Peak Queuing on N2 (Coolshannagh Roundabout)

As such, an upgrade of the existing 6.5 km section of national road would improve road safety, travel times, increase east west connectivity in the region and sustain current and future growth within this region which is directly impacted by BREXIT and the lack of railway infrastructure.
The proposed upgrade would accommodate the growing traffic demands, provide a safe environment for road users and improved linkages which will foster the economic and social development of the region.

- The new N54 – N2 route would eliminate the Heavy Goods Vehicles from the town and make the town a much safer and enjoyable place to conduct business. Furthermore the

road user will travel on an uncongested route with unrestricted movements at roundabouts instead of delays at controlled traffic signals.

- Given the current capacity situation the benefit for the through traffic user and local users will be significantly increased giving a better quality experience for pedestrians and cyclist in the town environs.

2.2.2 Safety

- The accident statistics between 1996 and 2016 between the proposed scheme start and end points are summarised in below with more details in Table G2.2 (Appendix A)

Fatalities	3
Serious	16
Minor	104
Material Damage	258

- The average road width varies along the N54 section within the town. From kerb to kerb the width is 7.7m on the route via St. Davnet's Hospital and 13m on the Clones Road at Century Homes. Heavy Goods Vehicles have difficulty passing safely at certain locations in the town centre without coming to a standstill. The inadequate road widths along the route particularly where cars are parked for town centre shopping is hazardous for cyclists. Poor vertical and horizontal alignment in such sections presents inadequate stopping and forward visibility splays at existing junctions and access points.

- As outlined above the insufficient cross-sectional area across the route means there is no accommodation for vulnerable road users. This presents a risk to both cyclists and pedestrians which is counter to the objectives of improving accessibility and smarter travel. This is particularly evident at the Margaret Skinnider Roundabout, at the N54 junction of Glaslough Street/ North Road and other the town centre intersections. See pictures G2.5 to G2.11. The provision of a safe and well designed network will facilitate the implementation of policy on sustainable living and a better balance between all modes of transport and road users.

Figure G2.5– N54/ Park Road (Margaret Skinnider Roundabout)

Figure G2.6– N54/ Park Road (Margaret Skinnider Roundabout)

Figure G2.7 Junction of N54 Glaslough Street/ North Road (Flacks Garage)

Figure G2.8 N54/ Glen Road/ Macartan Road/ Dawson Street

Figure G2.9 N54/ Glen Road/ Macartan Road/ Dawson Street

Figure G2.10 Dublin Street

Figure G2.11 N54/ N2 Old Cross square junction (Major Town Centre Intersection)

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2.3.1 Objectives for The Outer Link Road

The principle objective of this project is to provide a suitable piece of East West road infrastructure that:

1. Improves interconnective and reliable journey times that will meet the objectives of the National Development Plan 2040, the Monaghan County Council Local Economic & Community Plan (2015-2021) and other commercial key performance indicators within the region. It will support national economic growth, local businesses and the employment in the region as it will indirectly enable the development and linking of Enterprise Area 1, 4 &5 opening up 6.2 hectares of zoned strategic residential reserves.
2. Provides a carriageway with an appropriate cross section that will serve current and projected traffic figures. It will provide a design that's suitable for all vehicle types taking into consideration all road users.
3. Removes Heavy Goods Vehicles and other traffic from the Town Centre allowing for the development of more sustainable public spaces and enterprise initiatives within the town environs.
4. Upgrades the national road network that will compliment the vision and strategies of the N2/ A5 Clontibret to the Northern Ireland Border scheme which is currently progressing to Stage 2.

2.3.2 Future Capacity

1. Monaghan is a rural County with greater than 70% of the population living outside urban areas compared with the national figure of 28%.
2. There is no rail link or park & ride facility in County Monaghan. Due to lack of alternative transport modes, the primary mode of transport is private car and heavy goods vehicles

3. Traffic counts taken from Transport Infrastructure Ireland Traffic Counters through the County are summarised on the table below:

TRANSPORT INFRASTRUCTURE IRELAND - TRAFFIC COUNTERES (AADT)					
Location	**2018**	**2017**	**2016**	**2015**	**% Change 2015 - 2018**
N2 Moybridge	6366	6215	6129	5721	+11%
N2 Clontibret	10356	10023	9719	8767	+18%
N2 Donaghmoyne	*9688*	*10410*	*10295*	*10019*	*-3% **
N2 Aclint	10442	10195	9973	9534	+10%
N54 Smithborough	4804	4718	4796	4690	+2%
N53 Castleblayney	5194	5255	5105	4473	+16%

*** 2018 Traffic counts pit of order due to Roadworks.*

4. The table summary above shows the increases in traffic counts and the capacity requirements on the network. Investment in infrastructure is needed in order to meet these needs. Furthermore it will improve the safety, reliability and efficiency on the interconnection between the N54/ N2, the N2 Clontibret to the Border and the wider links to the M1 and the A5. It will also benefit the businesses and communities in the region on which all national network upgrades are dependent.

2.3.3 Road User Safety

5. Provision of a suitably designed east west connectivity link to other strategic national road network infrastructure will increase safety for vulnerable road users such as cyclists and pedestrians. A scheme design for this purpose will accommodate two-way traffic especially heavy goods vehicles and will reduce the likelihood of head on collisions.
6. Within the town environs accessibility will be greatly improved because of the proposed scheme with the redirection of through traffic onto a suitability designed road network.
7. The provision of the new 4.5 km N54 /N2 route adopting best design practise and standards will improve East West connectivity and align with the Ulster Canal Greenway Project. It complements the Smarter Travel and Monaghan County Council strategies for pedestrians and cyclists

2.4 **Options Appraisal**.

2.4.1 Funding Options

Option	**Option Detail**	**Why suitable/not suitable**
Incremental Investment Option	Incremental investment through development led contributions from the development of lands at Enterprise Area No. 5.	Incremental investment would not improve the overall capacity issue and would thus not improve the overall safety on this section of carriageway. The best long-term investment would be achieved by a once off significant investment.

Funding from TII for Safety Schemes / Traffic Management Improvements	Traffic management alternatives considered along the existing route include: • Traffic Lights at a number of junctions • Priority Traffic at narrow sections • Alternative route for HGVs • One Way systems	Traffic management alternatives have been considered and implemented at some locations in accordance with TII standards. If further traffic management was introduced it would lead to greater traffic congestion, driver frustration and would further increase journey times for drivers.

2.4.2 **Road Options Current/Short Term/Long Term**

Options Considered	**Option details**	**Why suitable/not suitable**
Current **Do-Nothing**	The N54 route remains in its current format through the town	There are inadequate road widths and multiple road hazards within town. Through traffic driver frustration will be increased by the additional town centre journey times and the presence of pedestrian, cyclists and other vulnerable users. **Therefore this option is not suitable.**
Short Term **Do-Minimum**	Implement piecemeal upgrades /investment by through low cost safety schemes	This option would only address minimal safety and sight distance concerns at local points. Safety and capacity concerns would remain on the route. **Therefore this Option not suitable.**
Long Term **Preferred Option**	Carry out route alignment taking due consideration of interconnections, Enterprise areas, proximity to current and proposed residential developments, ground conditions and future infrastructural links.	Suitable for the following reasons: • Alignment safety concerns addressed • Poor road width safety concerns addressed • Road capacity greatly improved • Upgraded intersections will meet the needs of community and sustain and grow local economy • Connectivity between National Roads and major urban centres are greatly improved for both employment and educational opportunities.

2.5 Project Justification & Conclusion

- By providing the N54 Outer Northern Route, traffic movements in the town are reduced by over 26%. Vulnerable road users are no longer exposed to this through traffic and the risks associated within the narrow street scape of the urban town centre.

- Based on the 2035 traffic modelling on the existing N54 / N2 interconnection, the travel time savings by providing the Outer Route are evaluated at 7.4mins (from N54 to N2 North and 2.6 mins travelling from N2 North to N54.

- With the development of 27 hectares of enterprise lands at N54 Tullybryan, the travel time savings will provide significant economic benefit to businesses and strengthens the business case for the Outer Route construction completion by 2026.

- This N54 Outer Route upgrade will also provide complementary connectivity to the regions western corridors presenting the traffic user with a safe, timely and uniform highway experience with standardised intersection infrastructure.

- A comparison of Traffic Counts (AADT) carried out in 2015 and 2018 show an increase of 9 % on the N54, 28% N2 (North) and 31% on the N2 (South).

- The provision of suitable road infrastructure is of key importance taking into account the regions economic sensitivities and is very relevant for the interconnection between the strategically important cross border North South N2/A5 national road network.

2.5.1 Proposed Route & Carriageway

The proposed N54 to N2 Outer Northern Link road would be a 4.5km two-way Type 1* Single Carriageway connecting the N54 Clones Road west of Monaghan Town with the N2 North of Monaghan town. The proposed design speed limit for the scheme is 100kph to match existing road network. The scheme affects the townlands of Cornecassa Demense, Gallanagh, Drumgarran, Drumgoarsk, Telaydan, Mullamore East, Derrynagrew and Killnadreen.

2.5.2 Proposed Programme

Stage/ Activity	Start	Completion
Approval in Principle to Proceed	Q1 2020	Q3 2020
Design	Q3 2020	Q3 2021
Planning	Q3 2021	Q3 2022
CPO	Q3 2022	Q1 2023
Tender	Q1 2023	Q3 2023
Construction	Q3 2023	Q3 2025

2.5.3 Scheme Budget Estimate

The Total Scheme Budget Estimate is €19,470,000 and this is detailed on the table below:

Base Cost Expenditure Heading	Base Cost (incl VAT)	Contingency	Budget €
Main Contract Construction	12,350,000	1,300,000	12,643,750
Main Contract Supervision	1,000,000	100,000	1,100,000
Archaeology	250,000	50,000	300,000
Advance Works & Other Contracts	150,000		150,000
Residual network	170,000		170,000
Land & Property	4,000,000	400,000	4,400,000
Planning & Design (incl GI & Topo)	600,000	100,000	700,000
TOTAL	**€16,520,000**	**€1,950,000**	**€19,470,000**

Funding for the project will be sought from Transport Infrastructure Ireland (TII) and other sources.

APPENDIX A

Type	Year	Location	Details	
Fatal	2008	Dawson St (N54)	Pedestrian	1
Fatal	2007	Glaslough St (N54)	Pedestrian	1
Fatal	2009	Old Cross Sq (N54)	Pedestrian	1
TOTAL FATAL				**3**
Serious	1996	N54 W of R189	Single Vehicle	1
Serious	2005	R189 Junction	Pedestrian	1
Serious	2002	Killyconnigan Junction	Pedestrian	1
Serious	1996	Killyconnigan Junction	Right Turn	1
Serious	2012	R186 Junciton	Rear End	1
Serious	1996	Opposite Swimming Pool	Single Vehicle	1
Serious	1996	N54 RoB	Single Vehicle	1
Serious	1996	N54 RoB	Pedestrian	1
Serious	1998	Old Cross Square	Head On	1
Serious	1997	North Road	Head On	1
Serious	1998	Dawson Street	Right Turn	1
Serious	2000	Glaslough Street	Unknown	1
Serious	2003	Glaslough Street	Pedestrian	1
Serious	1998	Glaslough Street	Rear End	1
Serious	2014	N54 RoB	Pedestrian	1
Serious	2015	N54 RoB	Pedestrian	1
TOTAL SERIOUS				**16**
Minor	1996 - 2013	N54 Clones Approach	Various	29
Minor	1997 - 2013	Monaghan Town Centre	Various	42
Minor	1998 - 2013	N54 Emyvale Approach	Various	15
Minor	1999 - 2013	N2 Approach to Monaghan	Various	5
Minor	2014-2016	HD15 Site Town Centre	Various	8
Minor	2014-2016	HD15 Clones Approach	Various	5
TOTAL MINOR COLLISION				**104**
Material	2003-2011	N54 Clones Approach	Various	32
Material	2003-2011	Monaghan Town Centre	Various	121
Material	2003-2011 & 2014	N54 Emyvale Approach	Various	27
Material	2003-2011 & 2014	N2 Approach to Monaghan	Various	15
Material	2014-2016	HD15 Site Town Centre	Various	50
Material	2014-2016	HD15 Clones Approach	Various	13
TOTAL MATERIAL DAMAGE				**258**

Table G2.2 Summary of Collisions in Monaghan Town 1996 – 2016