APPENDIX IV: NAVAN LOCAL TRANSPORT PLAN

Navan Transport Plan

2014 - 2019

Sustainable

Strategic

Supporting Growth

Navan

Town Council

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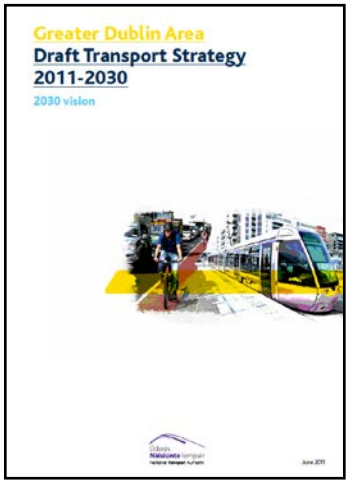
1.0 Introduction

This Local Transport Plan (LTP) for Navan is a short to medium term plan that sets out the transport strategy for the town to cover the period 2014 to 2019. Our vision for transport in the future is: "**Providing a safe and sustainable transport network within Navan Town & Environs**" where **safe** means a transport network that people feel safe and secure using and **sustainable** means a transport network that is both environmentally and financially sustainable. Everybody relies on there being a safe and sustainable transport system. Businesses use the transport system to bring their raw materials then deliver their products to the customer. People use the transport system to get to work, shops, schools and colleges, or healthcare facilities.

At the time of developing this strategy, the country is in a period of unprecedented change. Global economic challenges highlight the need for greater efficiencies and employment. At the same time, in order to reduce non-renewable energy consumption and carbon emissions the transport system must play its part in achieving a low carbon future.

1.1. Background

The draft National Transport Authority (NTA) Transport Strategy for the Greater Dublin Area 2011-2030 (2030 Vision) is a strategic transport plan for the Dublin & Mid East regions with a horizon year of 2030. The NTA strategy is not to be interpreted as a standalone document or blueprint to instantly address all transport issues within the GDA. Its purpose is to represent the top level within the hierarchy of transport plans for the region that will include an Implementation Plan and a Strategic Management Plan.



Within the strategy, there is a hierarchy of settlements identified based on the current RPG[1] settlement hierarchy. In developing the NTA strategy, the RPG settlement hierarchy was further developed in order to more closely reflect the varying transport needs of different sized settlements in the Greater Dublin Area. Three levels of settlement centre were identified, namely Dublin City, Designated Towns and Designated Districts.

Navan being a Large Growth Town I within the Greater Dublin Area (as per the RPG's) is listed as a 'Designated Town' within the NTA strategy. This places Navan on the same hierarchy level as Naas and Wicklow town in the Mid-East region.

This Local Transport Plan for Navan Town & Environs has been developed following the requirement for a detailed Local Transport

[1] Regional Planning Guidelines for the Greater Dublin Area 2010 - 2022

Plan to be prepared for all Development Plans and Local Area Plans for Designated Towns and Designated Districts identified in the National Transport Authority's (NTA) Draft Transport Strategy for the Greater Dublin Area 2011 – 2030 (Chapter 8, Measure LU3). Planning Objective TRAN SO1 of the Meath County Development Plan 2013-2019 also requires a Transport Plan to be prepared for Navan in consultation with the NTA. The aim of the LTP is to draw from and be consistent with the guidance provided in the draft NTA Strategy and to develop a transport plan at a local level which identifies the specific strengths and challenges relevant to the local transport system and to provide a framework for the sustainable growth of Navan up to the year 2019 and beyond.

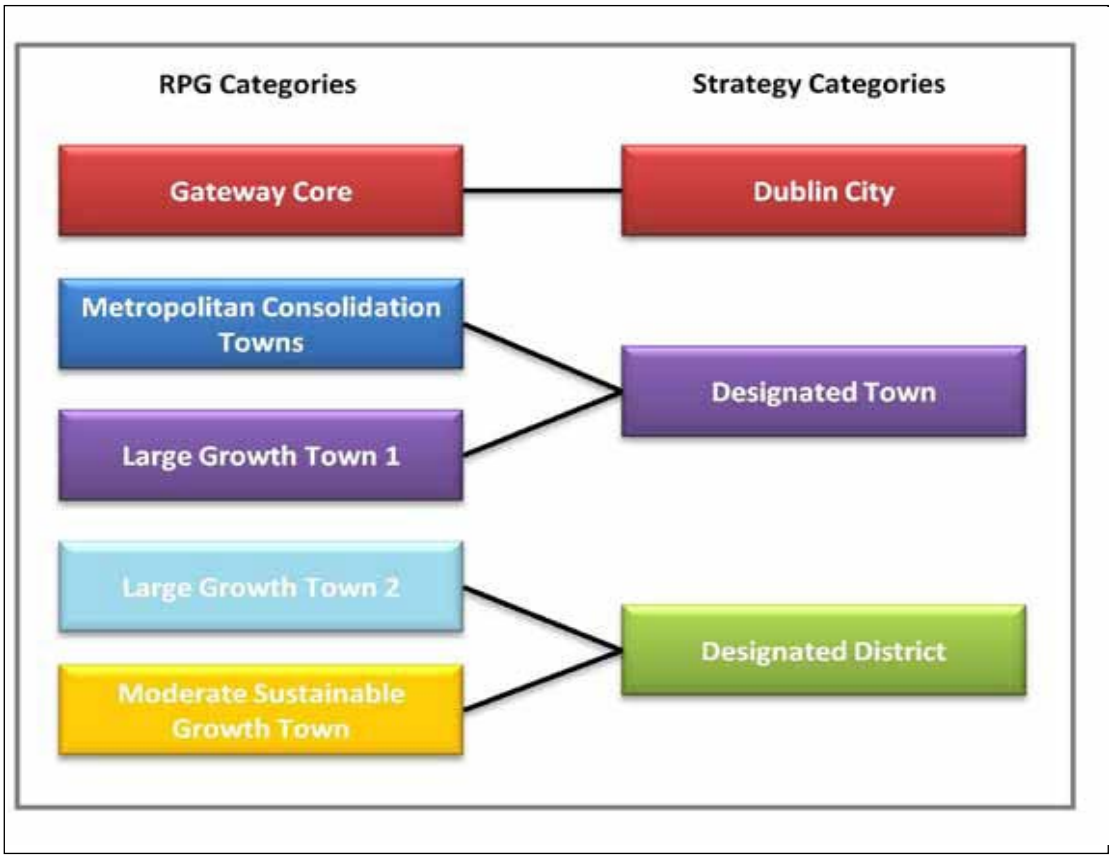


Figure 1: Draft NTA Settlement Hierarchy

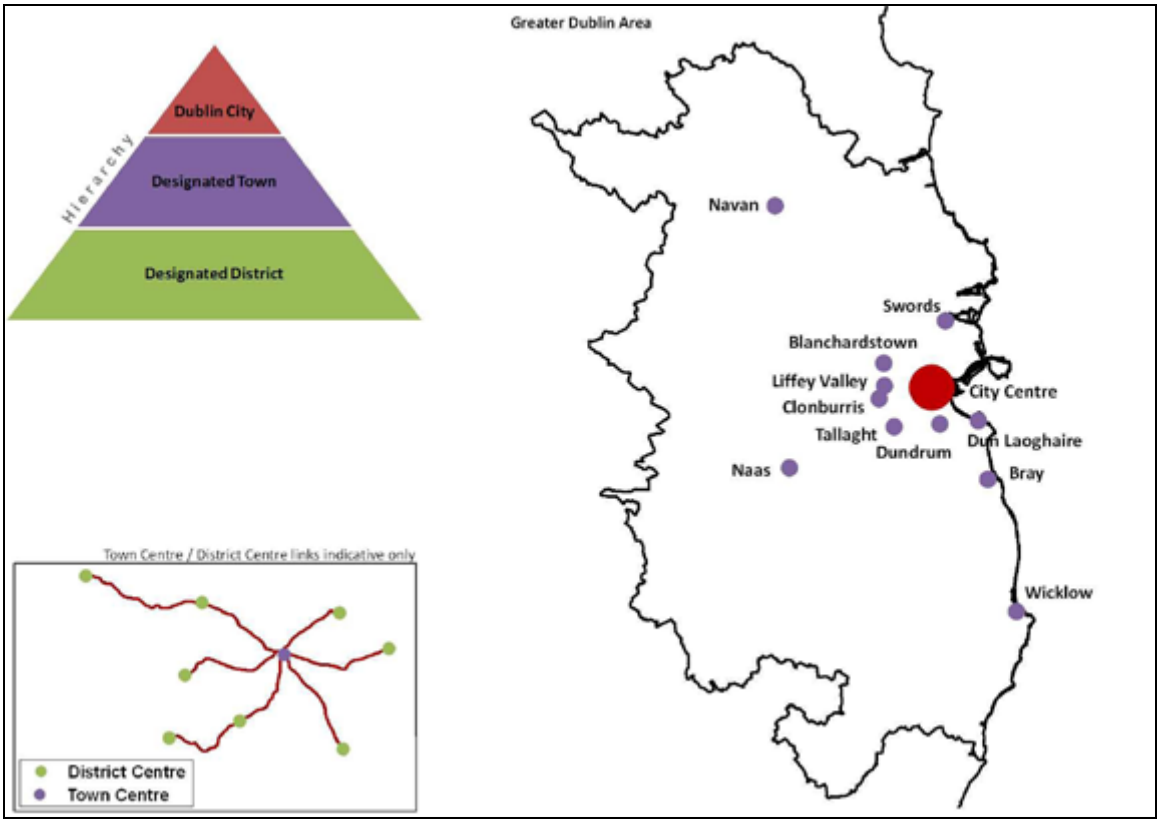


Figure 2: Designated Town Locations in the GDA

1.1.1. Local Context

Navan Town is the administrative centre of County Meath with a population of 28,559 persons recorded in the most recent 2011 census. This represents approximately 16% of the overall population of the county. From a regional planning perspective, Navan is identified as a Large Growth Town 1 in the Regional Planning Guidelines (2010-2022) on a par with Drogheda in the Greater Dublin Area. It has a high level status in the County Retail Strategy being a Level 2 – Major Town Centre. In addition, Navan is identified as a Primary Economic Growth Town in the Meath County Development Plan 2013 – 2019. This will result in Navan being promoted as the primary centre of employment in the county so that the significant residential population will have access to opportunities for employment within easy walking distance from their homes, thereby reducing levels of commuting as a whole. Having regard to these designations, Navan will be a particular focus for new development in the form of housing, employment, retail and leisure development. Clearly this will mean a significant increase in demand for travel. On census night 2011, there were 9,907 households recorded in Navan with an average household size of 2.87 persons. In terms of future growth planning, the Meath County Development Plan 2013-2019 indicates that there are extant planning permissions in place for 877 households in the town, in addition to a future household allocation of 3,984 in the Core Strategy. These household allocations are part of the overall housing strategy to ensure that County Meath can meet its regional growth forecast as outlined in the Regional Planning Guidelines. In the event that all of the housing allocation was built and occupied, this would provide for a population in Navan of 42,510 persons in the horizon year 2019[2]. A central component of this Local Transport Plan will be to ensure that the travel demand of both the existing population of Navan and its potential future growth can be developed in a planned and sustainable manner. Land Use and Transportation planning will be central to the Core Strategy of the Navan Development Plan 2009 to 2015 (as varied).

[2] Based on an average household size of 2.87 as per the 2011 Census.

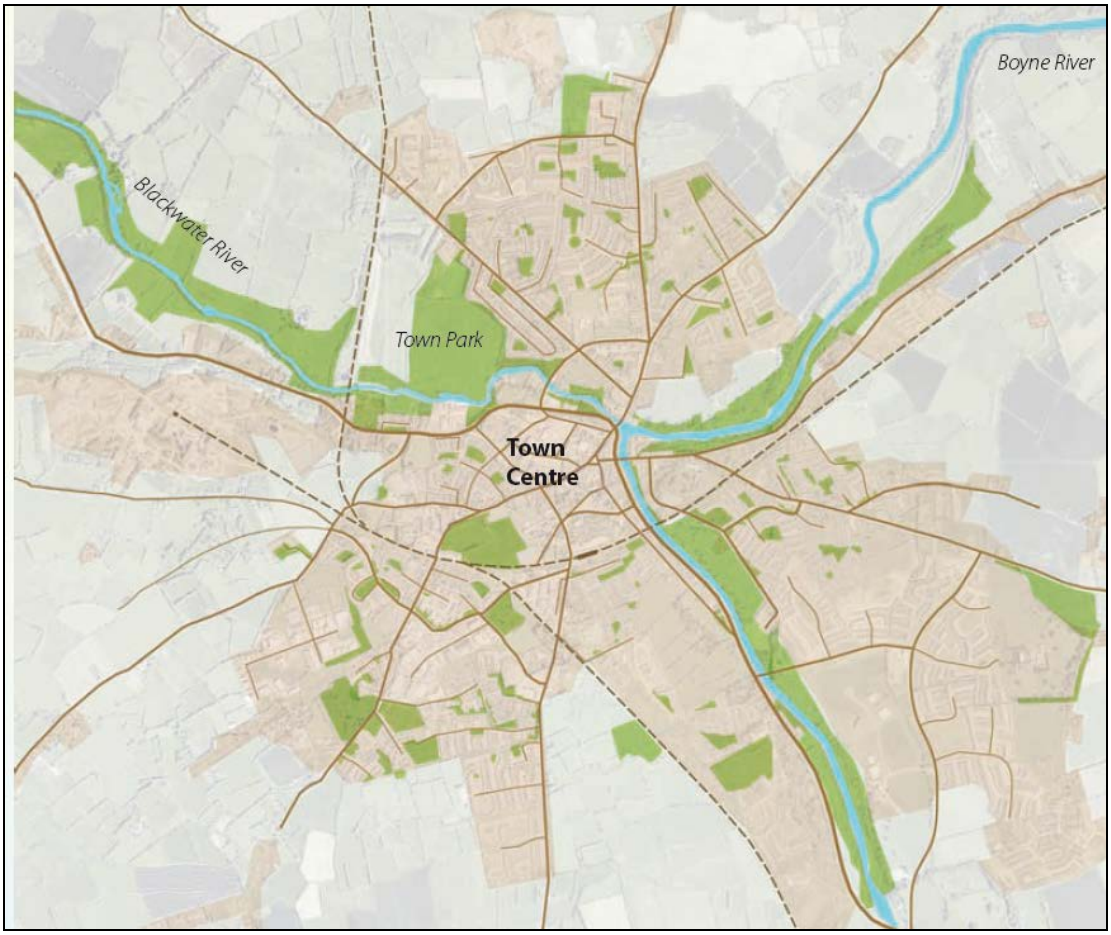


Figure 3: Navan Built Area and Green Spaces

1.1.2. Existing Transport Characteristics

Some of the main points about the existing transport characteristics of Navan are as follows:

- There is a dispersed range of trip generators within the Town Centre with a large number of education facilities as well as significant employment, retail and social infrastructure;

- Traffic volumes in Navan are not particularly high throughout most of the day, however the road network experiences peaks in traffic flow associated with trips to or from work and in particular the significant trips associated with the 6,000 students attending primary and secondary school in the town. Saturdays are also busy in the town with many people driving to the area to avail of shopping and leisure facilities, as well as the large non-office employment component of the town economy;

- There is a high concentration of schools within Navan Town and school transport is a significant generator of demand. Whilst the development strategy provides for future schools to be provided as part of residential and mixed use communities, it is likely that the existing schools located in the town centre will continue to perform an important function in meeting the overall demand;

- A number of national and regional roads converge on the Town Centre which generates through traffic and over-capacity demand at some junctions;

- Central Statistics Office data for 2011 shows that a significant number of trips to work and education by all modes takes less than 15 minutes (32.6%), with a further 27.1% taking between 15 and 30 minutes;

- The numbers of people walking to work within the urban area of Navan is high, at about 20%; this is very supportive of the need to improve the quality and quantity of footpath facilities and areas of pedestrian priority. Nonetheless, further improvements to the levels achieved in Navan are still possible;

- Many junctions within the study area have been identified as having capacity or safety issues; these junctions are recommended for short term upgrading / signal optimisation in order to mitigate delay or address safety issues. This needs to be augmented by further additional Local Distributor Roads to further complete the orbital road network of Navan. This will require additional bridge crossings;

- Taxis are the dominant mode of local public transport and currently many taxis regularly queue up along Kennedy Road backing up / double parking onto the near carriageway towards the shopping centre multi storey car park exit and also on Market Square / Trimgate Street. Evening / late night activity attracts taxis activity towards the latter and also onto Ludlow Street / Bridge St, which may at times become congested causing illegal taxi parking and having consequences for public safety;

- The Local Bus Éireann service is the only local bus service augmented by Flexibus operating in the town. The service provides a vital and important link for those who rely on its services and it should continue to be supported. The services are infrequent, with a lack of public awareness regarding routing and timetables but provide the greatest catchment for the local public who may at times not have the option of other travel modes, and;

- The existing parking stock is sufficient to meet present and future parking demands.

1.2. Integrated Land Use & Transportation Strategy

Navan must strive to better integrate land use and transportation to minimise the potential growth in private transport demand and to increase the use and efficiency of public transport rather than facilitate the private car. This will be achieved by implementing a number of complementary land use policies, as follows;

- Reduce need for travel, especially by car by integrating land use and transportation planning. This multi faceted measure will consolidate development in areas which are served by public transport and a good road network and lead to more compact development with mixed use areas;

- Implement a school travel initiative which can be broken down into two complementary strategies. The preparation of personalised travel plans for students / staff supported by physical improvements / traffic calming.

- The overall development strategy seeks to reinforce and strengthen the town centre as the focus of commerce expanded towards the multi modal public transport interchange over time. The town centre is supported by a series of existing and proposed neighbourhood centres. This would dispense with the traditional model of development which seeks to separate residential use from employment, shopping, educational and recreational uses, with the resultant reliance on private transport.

1.3. Travel Data & Analysis

The 2011 Census of Population results outline that Navan Town & Environs had a population of 28,559 persons resident. This is a 14.9% increase on the 2006 census and a 47% increase since the 2002 census. The Meath County Development Plan 2013-2019 provides for an increase of potentially 3,984 additional residential units over the plan period. This figure is in addition to the 877 residential units with extant planning permissions in place. The total potential new households to be accommodated are therefore 4,861 units.

The 2011 Census data demonstrates a number of interesting facts about the resident population and their travel patterns. A comparison between these and the 2006 census data is available below. Appendix A also provides a graphical analysis of current travel patterns in Navan.

Table 1: 2011 Census Modes of Travel to Work, School & College

	Walking	Cycling	Bus	Train	Motorcycle / Scooter	Car Driver	Car Passenger	Van	Total Survey
Navan	19.8% 3,465	1.2% 217	7.5% 1,317	0.2% 38	0.2% 29	42.6% 7,491	20.5% 3,589	3.8% 656	17,481 persons
County Meath Average	13% 15,152	0.9% 1,017	10.5% 12,236	1.4% 1,631	0.3% 330	44.6% 51,710	18.2% 21,097	5% 5,829	116,189 persons

Table 2: 2006 Census Modes of Travel to Work, School & College

	Walking	Cycling	Bus	Train	Motorcycle / Scooter	Car Driver	Car Passenger	Van	Total Survey
Navan	18.0% 3,048	1.2% 201	9.1% 1,537	0.1% 16	0.4% 62	44.7% 7,567	17.8% 3,018	No stats in '06	16,942 persons
County Meath Average	11.7% 13,057	0.7% 799	12.1% 13,532	1.6% 1,789	0.4% 488	45.6% 51,009	16.6% 18,616	No stats in '06	112,056 persons

The trends evident in the tables above highlight a significant yet consistent pattern where private car usage is by far the predominant mode of travel choice for the local population with 42.6% of trips to work, school or college being by private car drivers. This statistic increases to 63.1% when car passenger trips are included. Although not surprising given the historic road based layout of Navan being the crossing point of a number of strategic national & regional roads (N51, R147 former N3, etc), the car based statistics flag a significant imbalance towards motorised private car transport to cater for regular transport trips.

Walking at 19.8% is the second most popular mode of transport choice to work, school or college. This figure which represents 1 in 5 trips is a respectable percentage achieved will not be easily increased upon by international standards. The main aim for walking in the transport plan will be provisions to improve & ease pedestrian movement and safety.

Cycling represented approximately 1.2% of trips categorised and is a poor figure replicated right across the county. One of the major challenges of this Transport Plan will be to identify the barriers resulting in such a low figures for cycling in the town and to put in place measures which address this declining trend.

Bus transport represents 7.5% of the trips categorised in the 2011 Census data. Interestingly, the share of persons using bus transport to travel to work, school or college has reduced in the intervening 5 year period by approximately 1.6% which is of concern.

1.3.1. Modal Share Targets

The Navan Smarter Travel document prepared in 2010 included a number of modal share targets to be achieved for each of the above categories through the measures to be introduced through the Smarter Travel initiative. These targets are listed in the table below;

Table 3: Smarter Travel Modal Share Targets

Means of Travel	On foot	Bicycle	Bus	Train	Motorcycle or Scooter	Car Driver	Car Passenger	Other
Modal Share 2010	20.7%	1.3%	6.7%	0%	0.3%	45.3%	20.7%	5.1%
Modal Share 2015	23.2%	5.2%	6.9%	0%	0.3%	39.9%	19.4%	5.1%

The Smarter Travel targets for 2015 were primarily aimed at reducing the modal share of private car drivers to 39.9% (down 5.4%) being displaced by an increase in the modal share for walking to 23.2% (up 2.5%) and and cycling to 5.2% (up 3.9%).

Whilst only limited measures have been implemented to date which were contained in the Smarter Travel bid document (such as the Johnstown Quarter Cycle Network), it is considered that the above modal share targets are a good starting point for modal share targets for this Local Transport Plan for the 5 year period up to 2019.

1.4. POWSCAR DATA 2011

It is possible to extract POWSCAR[3] data from the 2011 Census of Population under licence from the CSO for various towns within County Meath including Navan. Some of the data collated includes information on local commuting patterns, employment, education and mode of transport.

Working Population

The census results indicate that there are **10,972** workers residing within Navan. The table below provides a breakdown of their actual work locations.

Table 4: Navan Residents Work Locations

	Real Figure	Percentage
Working in Navan	3,985	36%
Working elsewhere in Meath	1,858	17%
Blank & Mobile	1,727	16%
Commuting out of Meath	3,402	31%

Commuting into Navan

There are 3,555 workers who commute into Navan for work from other areas of County Meath. In addition, 1,486 workers commute into Navan for work from outside of the county.

[3] Census of Population 2011 – Place of Work, School or College – Census of Anonymised Records (POWSCAR)

There was a total of 9,026 jobs in Navan during the Census, with the net loss in the working population (i.e. commuters out of -219). Navan based jobs represent circa 23% of all job based in the county.

The main statistic to be extracted from the above is that there is a significant leakage of the working population from Navan for work purposes, primarily to outside the county (31%). It can be reasonably assumed that this represents long distance commuting patterns, with the proximity of Dublin City Centre (approx. 52km) being a significant draw for jobs.

Age of Workers

The average age of workers in Navan is relatively young, with 30-34 years being the highest average age profile. The vast majority of workers fall between the ages of 25 and 44. (See table below)

Table 5: Average age of workers in Navan

Age Profile		
Age Group	**Jobs**	**Percentage**
15-19	72	0.8%
20-24	675	7.5%
25-29	1223	13.5%
30-34	1379	15.3%
35-39	1340	14.8%
40-44	1221	13.5%
45-49	1055	11.7%
50-54	935	10.4%
55-59	655	7.3%
60-64	339	3.8%
65-69	93	1.0%
70-74	29	0.3%
75+	10	0.1%

1.5. Transport Infrastructure

Navan being the County Town of Meath is the largest population & administrative centre in the county. Given its central location, the existing transport infrastructure is significant, although primarily road based.

Navan has good road links, with the N3 and the N51 national routes formerly converging just north of the town centre. The opening of the M3 'Clonee to North of Kells' motorway scheme in 2010 is the most significant infrastructural project to be completed in County Meath in recent memory and provides for a bypass of strategic through traffic from entering the town centre. This has resulted in a significant reduction in traffic volumes using the former N3 route (now reclassified as a regional R147 road).

The N51 route through Navan was upgraded in 2009 with the opening of Phase 2B of the N51 Navan Inner Relief Road to traffic. This route provides a direct link between the N3/M3 Kells Road and the N51 Athboy Road. On the same day a further 3.9 kilometers of the realigned N51 which has been constructed as part of the M3 motorway scheme was opened to traffic, 2.5 kilometers of which is Type 1 dual carriageway.

In addition, a number of important and busy regional routes also connect Navan to surrounding towns. These include the R161 (Trim Road), R162 (Kingscourt Road) and R153 (Kentstown Road).

The road network that converged on Navan historically resulted in significant traffic congestion in the town particularly at peak morning and afternoon periods.

From a public transport perspective, Navan is not served by a passenger rail service. A Freight service line is still in operation between Tara Mines and Drogheda. This service transports mineral ore from the Tara Mines site (the largest lead and zinc mine in Europe) 4 times daily, 5 days a week from Navan to Dublin Port via Drogheda.

Public bus transport is the predominant mode of public transport available with Bus Éireann services being the primary mode of public transport available in the town. The 109 bus service between Cavan Town and Dublin (Bus Áras) has a number of stops in Navan which offer regular services throughout the day (usually 30 minute intervals). Other bus services include the 109A connecting Cavan, via Navan, to Dublin Airport, and the 190/190A bus service connecting Navan to Trim and Slane, Drogheda & Laytown. A number of new bus stops (sheltered and unsheltered) have also been developed in Navan in recent years.

In addition, the private bus operator 'Sillan Tours' provides a regular daily bus service serving Navan with regional connections to Dublin City and Cavan. Other private bus operators promote access to the various third level educational facilities in the wider region including Dundalk Institute of Technology (DKIT), Institute of Technology Blanchardstown (ITB) and NUI Maynooth.

Bus Éireann also provide a local bus service for Navan town with three separate routes linking the outer residential areas of the town with the town centre.

The NTA is responsible for the licensing and regulation of small public service vehicles in Ireland. This collectively refers to taxis, wheelchair accessible taxis, hackneys, wheelchair accessible hackneys and limousines. There are no specific figures for the precise number of licensed taxis/hackney's operating in Navan as such figures are only available at the county wide level. Visual observations would however indicate that there is a significant level of taxi activity in the Navan area. There are two main taxi rank locations in the town, one being outside the Navan Shopping Centre on Kennedy Road which is busiest during normal business/shopping hours, and Market Square/Ludlow Street which is busiest during night time hours, particularly at weekends where there is a cluster of popular bars and night clubs in the town centre. One of the main issues with taxis in Navan is the lack of apparent control on taxi parking activity with double parking a regular occurrence on Kennedy Road with subsequent risks to public safety. Regularising taxi rank locations and controls against double parking should be an aim of this Local Transport Plan.

2.0 Aims of the Transport Plan

This Transport Plan aims to address the key issues outlined above and meet the Local Transport Plan [LTP] objectives.

Vision	▪ The development of an integrated transport network for the existing residents of Navan town & environs and to provide for its sustainable transport needs & planned growth as a Large Growth Town in the Greater Dublin Area. ▪ The development of an enhanced town centre environment to support the economic vitality of Navan prioritising the needs of pedestrians, cyclists and people with disabilities.

In order to provide for the conditions to successfully achieve the above sustainable transport vision of Navan town, this Local Transport Plan has six fundamental objectives set out as follows:

1. To promote sustainable transport and make travel safer by ensuring that pedestrians and cyclists are afforded higher priority than motorised vehicles.
2. To develop integrated transport and to promote public transport, walking, cycling and other sustainable forms of transport.
3. To maintain or improve the reliability of journey times on key routes.
4. To create a transport system that is accessible to all.
5. To provide a transport system that supports the economy and the growing population of the town and wider environs.
6. To protect and enhance the built and natural environment.

Transport Objective	Theme	Plan Objectives
1. To promote sustainable transport and make travel safer by ensuring that pedestrians and cyclists are afforded higher priority than motorised vehicles.	• Reduce road accidents and improve personal safety for all transport users in Navan.	• Implement safety improvements to benefit all travel modes. This includes safer routes to schools.
2. To develop integrated transport and to promote public transport, walking, cycling and other sustainable forms of transport.	• To ease interchange between modes of transport. • Help improve the health and well being of people across the whole community. • Reduce the adverse impacts of traffic in the town.	• Implement schemes that provide for easy interchange between and encourage use of sustainable modes of transport. • Upgrade and implement new walking and cycling routes linking residential areas with the town centre, educational campus, sports facilities and clusters of employment. • Public transport improvements. • Install cycle parking facilities at agreed locations.
3. To maintain or improve the reliability of journey times on key routes.	• Improve path, cycle and road conditions. • Reduce congestion and unnecessary delays on strategically important roads.	• Upgrade road conditions to include provision for cyclists. • Agree footpath improvements program. • Traffic Management Improvements. • Car Park Management Strategy.
4. To create a transport system that is accessible to all.	• Maximise accessibility to jobs and services.	• Walking and cycling route improvements. • Public transport infrastructure improvements.
5. To provide a transport system that supports the economy and the growing population of the town and wider environs.	• Support and enhance the economy of the town. • Increase accessibility to and from, and within the town.	• Promotion and implementation of walking and cycling routes. • Public transport improvements to reduce journey times. • Implement a traffic management system for the town centre which eases congestion and provides for a more pleasant town centre experience.
6. To protect and enhance the built and natural environment	• Reduce impact of transport systems on the environment.	• Promotion and implementation of walking, cycling and other sustainable forms of transport. • Increase cycle parking availability at town centre locations and work places.

3.0 Traffic Management Strategy

The Navan Traffic Management Strategy is made up of 4 distinct components which have been developed in an integrated manner to complement each other. These elements comprise;

1. Public Transport Strategy which includes
(i) Bus Strategy
(ii) Rail Strategy
2. Pedestrian & Cycling Strategy
3. Road Network Strategy
4. Parking Strategy

3.1. Public Transport Strategy

The development of this public transport strategy is focused on achieving the study objectives by improving public transport provision in Navan. The overall objective of a future public transport service for Navan is to provide a viable public transport service linking the existing and future significant residential and employment zones to each other and to the town centre. The service would work with the other transportation initiatives to form part of an integrated public transport service. The service will assist in achieving a modal split with less dependency on the use of the private car and will be an important element in achieving the sustainable development of Navan.

The strategy consists of the following strands which seek to minimise the use of the private car for short trips and to maximise the modal share of walking, cycling and the local bus service in Navan. The bus networks will form the motorised public transport system for Navan for the short to medium term with the provision of rail service to Dublin a longer term objective. The degree to which these services integrate and complement each other will be critical to the overall success of public transport in Navan.

The Navan Transport Plan is designed to support and encourage sustainable transport to school. Through the implementation of a strategy for school transport, support will be given to more sustainable transport options and car dependency will be reduced in the short, medium and longer term.

The main proposals are:

- The protect the future provision of the Navan – Dublin rail line;
- To identify and develop a multi modal interchange, catering for bus (local and regional), taxis, pedestrians and cyclists in the town centre;
- Ensure proper integration of cycling and walking with the existing bus service (both local and regional) and the future central and northern train stations; and;
- Encourage all major employers in Navan to prepare and implement Smarter Travel Workplaces scheme for their employees.

3.2. 1 (i) Bus Strategy

The layout of the bus network and the frequency of service are extremely important to the achievement of the Navan Transport Plan strategy. All new developments will be designed to cater for public transport from the outset. There will be a demand for both internal and external bus trips, with Dublin being the most important external destination as evident from the POWSCAR data. The Navan Development Plan seeks to develop a multi modal transportation interchange catering for bus (local and regional), car parking and bicycle facilities at an agreed central location in the town centre. The existing regional bus service will be provided for along the 'R147 Public Transport Corridor' and enter and exit the town from same along agreed prioritised routes. The provision of an inter urban bus priority route,

assisted by the synchronisation of the traffic signals, will allow buses to move efficiently and effectively through the centre of Navan. Navan Town Council will seek to promote and secure, in conjunction with Bus Éireann and the NTA, the development of a bus interchange / hub within the town centre within 2014.

The local bus service has the potential to carry a significant number of passengers on a daily basis, addressing a number of the major barriers to sustainable travel in Navan and connecting to the regional bus service. Meath Local Authorities will assist the NTA and Bus Éireann in the review of the routes of the existing local bus service to identify bus priority measures which will reduce congestion and improve journey time and to increase greatly the number of people who use the service. The structure of Navan results in most attractors being located in or close to the town centre with most residential development occurring at more suburban locations. An orbital route connecting each of the wedges (or quarters) of development is should be considered.

Bus Network Principles

- Optimised walking accessibility from bus stops to catchments;
- Reliable and repeatable bus journey times;
- Passenger and driver comfort (including drive time directive, passenger standing vs. sitting; continuous progress, driver layover / changeover facilities, etc;
- Service frequency appropriate to demand;
- Optimised revenue stream, and;
- Minimised negative impact of public transport on locality.

Bus Interchange Design Principles

As with all aspects of public transport planning, a balance must be achieved between the requirements / expectations of users and operators whilst ensuring that land use considerations which give rise to the need for transport are to the fore. In relation to the provision of a public bus interchange, such considerations are summarised as follows:

(i) Users

- Meets needs of all users;
- Maximises the quality of consumer experience;
- Is safe (day & night) for waiting, meeting etc., and;
- Provides community focal point.

(ii) Operators

- Operates efficiently;
- Functions for the intended modes (bus, taxi, cycle parking, pedestrian, drop off / pick up, etc.);
- Is logically linked to surrounding catchment by attractive routes, and;
- Addresses ownership, maintenance, co-dependence issues.

(iii) Land Use

- Is scale-appropriate to its importance;
- Aesthetically attractive and appealing, and;
- Is optimally located with regard to land use scale, density, character and mix.

Bus Interchange Potential Facilities

- Main bus waiting area in town centre for all local and regional bus services;
- High quality sheltered facilities for bus waiting passengers, possibly incorporating small kiosk;
- Incorporate RTPI (Real Time Information), ticketing machines, accessible bus platforms, taxi rank, loading area and tourism information;
- Priority for bus movements;
- Facilitate 20 total bus movements in peak hour, and;
- Interchange with bicycle network, taxi, drop-off etc.

3.3. 1 (ii) Rail Strategy

Navan is the only Large Growth Town in the Greater Dublin Area which is not presently served by a passenger rail service. The nearest passenger rail line is located at the M3 Parkway which opened to passengers in September 2010 and was Phase I of planned two phase re-opening of the Dublin-Navan railway line.

Phase 2 of the Navan Railway line involves the extension of the Dunboyne (M3) commuter rail project from Pace onwards to the north side of Navan. This will involve the provision of approximately 34km of double track, including other infrastructure such as signalling and bridge works. Four Stations are proposed as part of the project at Dunshaughlin, Kilmessan, Navan Town Centre, and a terminus station at the north edge of Navan. The preparation of the Railway Order application for Phase II of the Navan Rail project was substantially completed including the preparation of the Environmental Impact Statement and Natura 2000 Appropriate Assessment. Extensive consultations had taken place over the previous 2 years with officials of Meath County Council including the preparatory work for a variation to the Navan Development Plan 2009-2015 and amendment to the Dunshaughlin Local Area Plan 2009 – 2015 to facilitate the detailed design of the route. The project, along with other rail projects in the Greater Dublin Area, has been deferred for consideration until 2015 ('Infrastructure and Capital Investment Programme 2012-2016: Medium Term Exchequer Framework').

The Planning Authorities consider that the provision of a heavy rail link to Dublin together with a central and northern rail station is critical for Navan to achieve its objective as a Large Growth Town I in the Regional Planning Guidelines for the Greater Dublin Area 2010-2022. The Navan Integrated Development Framework Plan was developed on the premise of a rail based solution to complement the development of the M3 Motorway and local distributor road network. The masterplan provides for more intensive redevelopment focused around a proposed new central rail station. Meath County Council and Navan Town Council are strongly committed to its delivery. Therefore, a strong policy stance is set out in the Navan Development Plan to ensure that the detailed designed alignment is protected from further development, and that this protection also extends to potential stations and park and ride sites along the route. The Development Plan will ensure, through the designation of a specific zoning objective R1 Rail Corridor which seeks 'to provide for a strategic rail corridor and associated physical infrastructure' that the design route of Phase II of the Navan Rail Line (as confirmed by the NTA) will be reserved free from development.

Navan is fortunate that it can develop a central rail station close to the town centre by the reinstatement of a disbanded rail line and the creation of a new central rail station surrounded by high density development to the south-west of the existing town centre. This will enable a substantial increase in town centre development to occur and enable an enlarged town centre to be developed to meet the future requirements of Navan. The new rail line with a central station will make Navan almost unique in Irish terms, that of having a rail station located in the heart of the town centre, with a direct link to Dublin City Centre, Dublin Port and Dublin Airport through an interchange with the proposed Metro West at Blanchardstown. A station is also purposed to the north of the town which will serve the large population catchments in this area.

The rail link will significantly strengthen the attractiveness of Navan as an investment and employment centre by allowing firms to benefit from the reduced costs of setting up in the town while still benefitting from the vast skills pool available in the Dublin City catchment. It will also provide a quality commuter service for those who choose to live in Navan and commute to Dublin. As Navan develops its own employment base and diversity of retailing and service facilities, the objective is for Navan to become more self-sufficient over time. The presence of a rail link to Dublin would see many commuters transfer from car to rail, as it will be faster and more reliable. Economic and retail leakage from the region will also be reduced.

3.4. 2. Pedestrian & Cycle Strategy

The removal of traffic from the town centre through the development of the M3 motorway and the Orbital Local Distributor Road Network offers the potential to substantially improve the cycling and pedestrian networks within the town centre. The provision of safer, attractive and convenient network for cyclists and pedestrians alike will encourage the uptake of environmental sustainable modes of transport with quick access to the existing town centre, proposed multi modal public transport interchange and employment centres from all of the outlying residential areas. It is a strategic aim of the Local Transport Plan to maximise the percentage of those whose trips internally within Navan to work and education are by walking, cycling and other forms of sustainable transport such as the local bus service whilst also encouraging car pooling. Pedestrian and cyclist networks have been prepared and will form the basis for funding applications to the National Transport Authority under their 5 year investment programme. The works in Johnstown in 2013 are an example of the level of commitment from the NTA in this regard.

Johnstown: Pedestrian & Cyclist Network

Design and construct two major pedestrian and cycle links within the Johnstown area, together with re-configuring of the principal junction within Johnstown to facilitate cyclists and pedestrians;

This scheme will enhance cyclist and pedestrian accessibility to the new school at Johnstown Wood;

The provision of traffic calming in the vicinity of the new school at Johnstown Wood will also be included.

Figure 4: Current Capital Investment Programme by NTA in Johnstown, Navan.

The main elements of the Pedestrian & Cycle Strategy are;

- Introduction of pedestrianisation on a phased basis with the objective of making part of Navan town centre car free.
- This should preferably include Trimgate Street developed as the flagship project, followed by Market Square, Ludlow Street, Bakery Lane & the Old Cornmarket.
- To develop an integrated pedestrian and cycle path network for Navan.
- Make the radial routes leading to the town centre cycle friendly.
- Provide missing links in the cycle and pedestrian networks, which includes the forging of linkages between cul de sacs, new non motorised bridges across the river and new routes through the green wedges;.
- Provide Trim – Navan – Drogheda rural cycle route linking with the cycle friendly town of Navan, allowing Navan to develop as a tourist base for the wider Boyne Valley.
- Provide cycle parking facilities at all important destinations and the main streets of the town centre.

3.5. 3. Road Network Strategy

Currently, key approaches to the town are heavily trafficked at peak times particularly the a.m and p.m peak. Taking existing travel patterns and future growth into account, a number of key measures are proposed to reduce the impact of car use on Navan town and to create a more pedestrian and cyclist friendly environment. The main proposals seek to;

- Further complete the Orbital Local Distributor Road to segregate local and regional traffic;
- Create a 30 km / hour speed limit within the defined town centre;
- Develop a Heavy Goods Vehicle Management & Delivery Management Strategy for Navan Town Centre;
- Continue to review and modify one way system in town and existing traffic calming measures and interventions to ensure that traffic can flow through the town on designated routes, and;
- Introduce junction improvement / signal optimisation.

The creation of a 30 km / hour speed limit within the defined town centre will significantly enhance safety for vulnerable road users, promote modal shift to walking and cycling particularly for short journeys and create a safer, more pleasant shopping and business environment. The new speed limit will reduce speeding between junctions, facilitate smoother traffic flow and help reduce congestion.

3.6. 4. Parking Strategy

The key issues to be resolved by the Parking Strategy relate to excessive car access / congestion and the extent of dedicated on street parking. The Parking Strategy seeks to maximise the turnover of town centre parking spaces for short stay visitors to maximise the benefits to retailers and businesses. It is however critical to develop a signage strategy to direct users to underutilised off street car parks on the approach to Navan town centre to include VMS signs giving real time information in the Navan Shopping Centre multi storey and other large surface car parks in the town centre such as Kennedy Plaza. No priority is given to vulnerable users across this space and its present parking layout gives no thought to the desire lines for pedestrians from Trimgate Street to the Shopping Centre.

The main elements of the Parking Strategy are;

- Pedestrianisation of Trimgate Street which will result in elimination of all on street car parking with road space rededicated to public transport corridors;
- Provision of contra cycle lane on Timmons Hill and Watergate Street will result in the removal of some existing on street car parking spaces;
- Medium term objective is to remove all on street parking in most streets in the town centre – target is 150 no. spaces (overall reduction of 35%);
- Rededication of Kennedy Plaza as civic space (all 108 parking spaces removed over time), 10 no. spaces will be removed initially with the area dedicated to cycle parking facilities / review of pedestrian / cyclist priority measures through space;
- Develop additional long stay car parking off Academy Street.
- Acquire lands to provide additional long stay car parking north of the Blackwater River and the Athlumney Road / Boyne Road area;
- Increase the rate of car parking charges within the defined town centre area;
- Prohibition on the provision of further off street car parking facilities within the defined town centre area;
- Allow reduced car parking provision to be applied in the consideration of development proposals adjoining public transport corridors;
- Facilitate and manage the development of a park and ride facility off the R147 which would also serve the Regional Park;
- Review existing policing strategy of car parking bye laws / paid parking in Navan;
- To promote the further use of telematics.

4.0 Public Transport Services

4.1. Bus Services

With the lack of a passenger rail service to Navan, 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 Navan and its environs.

Bus Eireann (Public)

Sillan Bus (private)

Bus Éireann is the primary public bus transport provider to the local population of Navan. The company has 11 no. services that currently run through Navan town at various frequencies. There is also a local town service consisting of 3 routes which is operated by Bus Éireann serving the north, west and south east areas of the town.

The main bus route is the No. 109 bus service connecting Navan to Dublin City Centre in addition to connections to other towns along the route such as Dunshaughlin, Kells and Cavan. The current 109 schedule provides a total of 111 bus services a week in-bound [to Dublin] and 113 bus services outbound. The frequency of service is good, being typically every 20-30mins during main business hours on weekdays.

The No. 109A bus service provides 19 buses daily in both directions from Navan to Dublin Airport with one service each direction hourly from 5.00am each morning. This service also connects Navan to Dunshaughlin, Ratoath, Ashbourne and Dublin City University (DCU).

The other main commuter bus service serving Navan is the No. 190/190A bus service to Drogheda/Laytown and Trim which has 14 buses available on weekdays in both directions with an hour between services being the frequency. During weekends there are 7 services in each direction with 2 hour intervals.

A comprehensive list of the Bus Éireann services to and from Navan is provided in Appendix B.

In addition to the commuter bus services, Bus Éireann also provides a local town bus services in Navan that's consists of 3 routes (A, B & C) serving Clonmagadden, Beechmount and Johnstown areas of the town. The frequency of these bus services is relatively modest, with 8, 4 and 9 services available on the respective routes daily. The local bus services operate in a loop route system with the main destination/pick up point being along Paddy O'Brien Street opposite the Navan Shopping Centre.

In addition, the main private bus operator that offers a realistic alternative to the Bus Éireann service is 'Sillan Bus Tours' who operate a Cavan to Dublin service that passes through Navan 4 times a day each way. The timetables are focused towards early morning and late evening commuter services to and from Dublin City Centre and there are a number of stops across Navan.

4.2. Flexibus

There is an existing service called Flexibus which is funded through the Rural Transport Program to address the shortfall in available public transport in rural areas. There may be an opportunity to build upon the Flexibus service and look at ways that it could be co-ordinated with the above proposals. Any proposals would require close co-operation between Flexibus and Bus Éireann and also input from local communities to maximise the potential of the scheme.

4.3. Public Transport Interchange

It is an objective of the Navan Development Plan (2009) to develop a Central Bus Station in the town. The plan highlights the necessity for a central bus station for Navan in addition to park and ride facilities. Navan is a large town and it has a central location in Meath acting as a hub for the surrounding towns; Kells, Trim, Slane, Dunshaughlin and Duleek.

It is likely that the only public transport alternative for the population of Navan in the short to medium term will be the bus. Navan is in the fortunate position of having a high quality and high frequency regional bus service terminating at Dublin City Centre in addition to a local bus route service serving the town and its environs. The National Transport Authority has indicated their support for the development of a public transport interchange (or hub) in Navan which would service as a central focal point for public transport services in the town. This will encompass a single location where the majority of public transport services operating in the area can be accessed and where an appropriate environment for the comfortable and convenient accessing of those services will be developed. It will provide readily accessible information on public transport services, enabling customers to conveniently determine the public transport options available to them in planning a journey. The development of a hub is also intended as a means of promoting public transport.

A suitable alternative location for a bus station should be determined and it should be a high-end facility with all modern conveniences for the comfort of passengers, including ample park and ride facilities. Full and proper consideration will be given to determining the location of this bus stop in due course.

4.4. Rail

At present there are no passenger trains serving Navan, the last passenger service on the Navan line was in 1947. There is a freight only service between Drogheda and Tara Mines operating up to 4 trains per day in each direction. An extensive network of rail lines and rail infrastructure still exists in the town of Navan which is in varying states of disrepair however the only line that is actually operational at present is the Tara Mines to Drogheda line. (Tara Mines have one of the few freight lines still operating on Irish railways today for the transportation of zinc ore from Tara Mines to Dublin). It is estimated that each train removes the equivalent of 40 HGVs from the road network.

The nearest passenger rail line is located at the M3 Parkway which opened to passengers in September 2010. This 7.5km line from the M3 Interchange at Pace through to Clonsilla Station (linking to the city centre at the new Docklands Station) provides a new service for commuters along the route. The new twin track railway line between the M3 Interchange and Clonsilla follows the route of the old Navan Branch. Three new stations were constructed, at Hansfield, Dunboyne and Pace which also comprised a major Park and Ride facility of 1,200 free car parking spaces. There are a total of 33 trains serving the M3 Parkway every week day (17 from Dublin to the M3 parkway & 16 from the M3 Parkway to Dublin). Saturdays have 21 trains arriving & departing the M3 Parkway (11 outbound & 10 inbound) while there are 5 trains each way on Sundays.

Iarnród Éireann had proposed extending the existing line from M3 Parkway Station to Navan. However, this project has been deferred due to the reduction in the Exchequer capital investment programme.

The proposed extension will consist of 34km of railway line with stations located at Dunshaughlin, Kilmessan, Navan town centre and a further station on the northern part of Navan.

4.5. Pedestrian Facilities

There are approximately 3,222 persons who both live and work in Navan town. Similarly, approximately 30% of school trips for 5-12 year olds are by foot. These pedestrians are currently being served by the existing extensive network of paths throughout the town. A number of recent measures, such as the redevelopment of Market Square and Kennedy Place have further encouraged pedestrian activity.

It should be noted that the modal share of pedestrian/walking activity as means of travel is close to Smarter Travel target levels in the Navan area by 2015 (circa 23%). There is a good level of pedestrian provision in Navan and together with additional crossing points and removal of some of the physical blockages on selected routes (walls in housing estates etc.) the pedestrian provision in Navan will be of a high standard.

The importance of increasing the number of trips made by walking cannot be overstated. Not alone is it a very green and sustainable form of transport but it is available to those from a very young age to those in advanced years. Prudent land use planning and the provision of direct, safe well-lit connections have the potential to double the number of walking trips. It is considered that the level of internal trips made on foot could be increased to 35% with the implementation of appropriate actions.

In addition, with the ongoing development of the new Town Park (Blackwater Park) in north Navan, it is an objective of this Local Transport Plan to provide for a new pedestrian and cycle bridge over the River Blackwater from the R147 opposite Scoil Mhuire. This bridge would link the town centre to this impressive public open space (green infrastructure) and provide for an area of the town where pedestrians & cyclists can make trips to and from the town centre in a tranquil setting away from noise and safety issues associated with motorised traffic. A graphic of the proposed location of the new bridge is shown on Figure 5.

Figure 5: Proposed Location of the New Pedestrian Bridge over the River Blackwater linking the town centre to the new town park.

4.6. Cycling Facilities

Navan town is relatively compact with a maximum distance of 4 kilometres to travel from the furthest outskirts to the town centre but despite this it is a highly car-oriented town where cycle use is currently very low. The road network is not especially cycle friendly and there are very few dedicated cycle ways or cycling facilities within the town. On-street parking and through traffic are also discouraging to the cyclist. The size of Navan means that all trips within the town are of a distance which could be made by bicycle, therefore there is significant potential to substantially increase the number of trips being made by this mode of transport.

The topography of the town is such that parts of the town centre and parts near the rivers are hilly but essentially the town is quite level. However, the rivers (Blackwater and Boyne) form a considerable severance in the area as do large parts of undeveloped and green lands throughout the town. There are also many cul-de-sacs in the residential areas around the town which cause cyclists to make long unnecessary detours thus discouraging this mode of transport. The suburban residential streets are mostly cycle friendly (traffic calming measures are in place at some locations) but connectivity is poor.
At this time there are 3 cycleways in the town as follows:

- Navan Inner Relief Road – Phase 2B
- N51 – Rathholdron Road
- Clonmagadden Road – Link Road between Abbeylands and Proudstown Road

It is a target of Navan Smarter Travel that 10% of all trips in the town are to be made by bicycle by 2020. In order to increase the number of cycling trips in the Navan area the existing network will need to be significantly upgraded. The structure of Navan (with most

trip generators in the town centre and the population extending out in a number of zones) means that the most important cycle routes at the outset would be from the outlying areas to the town centre.

4.7. Car Parking

There are a total of 3600 car parking spaces in Navan between public and private provision, the locations of which are highlighted on the car parking drawing in Appendix D. The car parking is made up of the following:

- 937 public car parking spaces
- 511 off street
- 426 on street
- Over 1700 privately owned (1500 in Navan Shopping Centre)
- 941 spaces in long term car parks around Navan

It is considered that there are sufficient public and private car parking spaces available within the town to cater for the short to medium terms needs of the local population and business.

4.8. Road Safety

Road Safety goes beyond reducing the number of casualties, important though this is. Safer roads encourage people to use other more sustainable forms of transport than the car for appropriate journeys and contribute towards making the town more attractive to all those needing to travel to or through it.

To help achieve the Local Transport Plan objectives, there is a need for a comprehensive range of road safety measures. Information has been gathered from Garda road accident reports in Navan town between the period 2005 and 2010 in order to identify the most problematic areas requiring specific road safety improvements, particularly for vulnerable road users such as pedestrians and pedal cyclists. The analysis of Garda Accident Reports in Navan (2005-2010) indicates that there were 132 no. minor injuries, 8 no. serious injuries and 4 no. fatal accidents recorded. Appendix C accompanying this Local Transport Plan outlines the location of each accident type inside the development boundary of the town. Arising from the accident data, the five junctions that stand out as being more prone to accidents are;

- The N51/R147 junction opposite the Fire Station,
- The R147/Sion Road/Springfield Glen junction,
- Kennedy Road,
- The Kentstown Road (R153) junction with Old Athlumney Road, and
- The crossroads junction at Old Johnstown village.

The measures set out below have been chosen because, taken collectively, they will have a greater impact in reducing accidents and will complement other initiatives that promote sustainable transport and safer communities.

<u>Traffic Management Measures</u>

1. To examine and re-configure where appropriate the junctions of the N51/R147 opposite the fire station, the R147/Sion Road/Springfield Glen junction, Kennedy Road, the Kentstown Road/Old Athlumney Road, and the crossroads at Old Johnstown village to make more pedestrian and cycle friendly and overall for all road users
2. To implement traffic management measures in the town centre to include a review of the existing one way system, car parking both on street and off street, loading / unloading, location and extent of taxi ranks, etc

3. To develop a Heavy Goods Vehicle Management & Delivery Management Strategy for Navan town centre.

4. To establish a 30kph speed limit in the town centre area to reduce the risk and severity of accidents especially for vulnerable road users and to provide environmental benefits such as reduced noise levels.

5. To examine road safety issues arising along Kennedy Road particularly the stretch between the junction with Paddy O'Brien street to the car park entrance at Kennedy Plaza. Improvement of pedestrian and cyclist safety environment will be paramount in any review of the road layout to be implemented.

6. To provide pedestrian crossings at locations where recurring accidents occur involving pedestrians.

7. Following determination of a new pubic transport bus interchange location within the town centre, expected to be completed by Q1 2014, to examine the one way system in place and reconfigure if necessary. This may include the pedestrianisation of Trimgate Street. The provision of a safe and convenient town centre environment which places the movement and safety of pedestrians and cyclists as higher priority over private motor vehicles will be paramount in any new reconfiguration of traffic flows.

4.9. Schools

Trips to schools and educational facilities are a high traffic generator particularly during the AM and PM peak school drop off and pick up times. The table below provides a summary of the pupil numbers attending the various primary and post primary schools located within the town of Navan. The location of schools in Navan are also identified on the Local Transport Plan strategy map.

School	No of pupils (2009/2010)	No of pupils (2011/2012)	Source
Beaufort College	**505**	**552**	**www.schooldays.ie**
St Patricks Classical College	**847**	**879**	**www.schooldays.ie**
St Michaels Loreto Convent	**767**	**774**	**www.schooldays.ie**
St Joseph's Secondary School	**525**	**596**	**www.schooldays.ie**
St Oliver Plunkett Primary School	**521**	**497**	**www.schooldays.ie**
St Paul's Primary School	**613**	**664**	**www.schooldays.ie**
St Anne's Primary School	**324**	**334**	**www.schooldays.ie**
St Joseph's Primary School	**461**	**479**	**www.schooldays.ie**
Scoil Mhuire Primary School	**303**	**283**	**www.schooldays.ie**
Flowerfield Primary School	**63**	**65**	**www.schooldays.ie**
St Ultan's National School Special School	**97**	**97**	**www.schooldays.ie**
Scoil Eanna Primary School	**234**	**244**	**www.schooldays.ie**
St Stephen's Primary School	**441**	**548**	**www.schooldays.ie**
Educate Together Primary School	**125**	**133**	**www.schooldays.ie**
St Mary's Special	**67**	**67**	**www.schooldays.ie**

School			
Scoil Naomh Eoin	**340**	**370**	**www.schooldays.ie**
Ard Ri community and national school (established 2010)	**90 (approx)**	**57**	**Meath Educational Development Project www.cns.ie**
TOTAL	**6,323**	**6,582**	

It would appear that within the town centre, 3 of the 5 secondary schools and 3 of the primary schools form a cluster which account for nearly half of all pupils. This causes considerable car borne trips each morning. In addition, the location of two of the largest national schools in north Navan allied to the absence of a secondary school serving the 10,000 population resident causes considerable traffic congestion during the AM peak.

5.0 Distribution of Trips

An important part in understanding the transport needs of any town is to ascertain knowledge as to where people are moving both to and from, and to what level the town is generating both internal and external trips. The tables that follow provide trip information obtained from the CSO POWSCAR date from the 2011 Census of Population. The trip data summarise both trips generated for both education and employment reasons with Navan as an origin and also as a destination.

5.1. Navan as an Origin for Education Trips (CSO POWSCAR 2011)

From	To	POWSCAR Trips	Share of Trips
Navan	Navan (Internal Trips)	4,703	78%
Navan	Co. Dublin	342	6%
Navan	Co. Louth	132	2%
Navan	Co. Kildare	87	1%
Navan	Co. Cavan	55	1%
Navan	Rest of Co. Meath	622	10%
Total		**6,046**	

5.2. Navan as a Destination for Education Trips (CSO POWSCAR 2011)

From	To	POWSCAR Trips	Share of Trips
Navan	Navan (Internal Trips)	4,581	80%
Ardbraccan	Navan	105	2%
Donaghpatrick	Navan	89	2%
Kenstown	Navan	81	1%
Rest of Co. Meath	Navan	902	15%

These tables outline how Navan contains the vast majority of its education trips internally with 78% of trips originating in Navan being contained within the development envelope of the town. 6% of education trips originating in Navan go towards County Dublin which is highly likely to represent trips for third level education.

5.3. Employment

It is possible through the CSO Census 2011 POWSCAR data to gather information identifying the location of the biggest employers within the town boundary (where the number employed is 20 or greater). A map is included in Appendix E which outlines the above. A summary of the detail provided is that the primary employment zone within Navan remains the town centre where there are 3,116 persons employed. The Navan Shopping Centre complex is the

largest single employment location in the town centre with 993 persons employed. Our Lady's Hospital employs 670 persons, whilst Tara Mines is a significant employer to the west of the town with 614 persons employed. These are significant trip generators for trips to and from work during AM and PM peak travel times. It will be an aim of this Local Transport Plan to accommodate a safe and efficient travel environment to the town centre area in particular which is the primary employment zone within the town. Further discussion on the percentage of internal and external employment trips to and from Navan is provided in the following section.

5.4. Navan as an Origin for Employment Trips (CSO POWSCAR 2011)

From	To	POWSCAR Trips	Share of Trips
Navan	Navan (Internal Trips)	3,903	44%
Navan	Co. Dublin	2,485	28%
Navan	Co. Louth	219	2%
Navan	Co. Kildare	167	2%
Navan	Co. Wicklow	11	0.1%
Navan	Dublin City Council area	1,305	15%
Navan	Fingal County Council area	740	8.2%
Navan	South Dublin County Council area	347	4%
Navan	Dún Laoghaire–Rathdown County Council	121	1%
Navan	Drogheda	138	2%
Navan	Rest of Co. Meath	1,512	17%
Total		**8,959**	

This table details the statistics for Navan as an origin for employment related trips within the town. The figures are concerning in that Navan only contains 44% of all employment related trips. Nearly a third of all trips for employment reasons which begin in Navan have a destination in County Dublin (28%) which validates the perception that there is a significant commuter population who reside in Navan but whose place of employment is in Co. Dublin, the majority of which (15%) are in the Dublin City Council area but with a considerable proportion also working in Fingal.

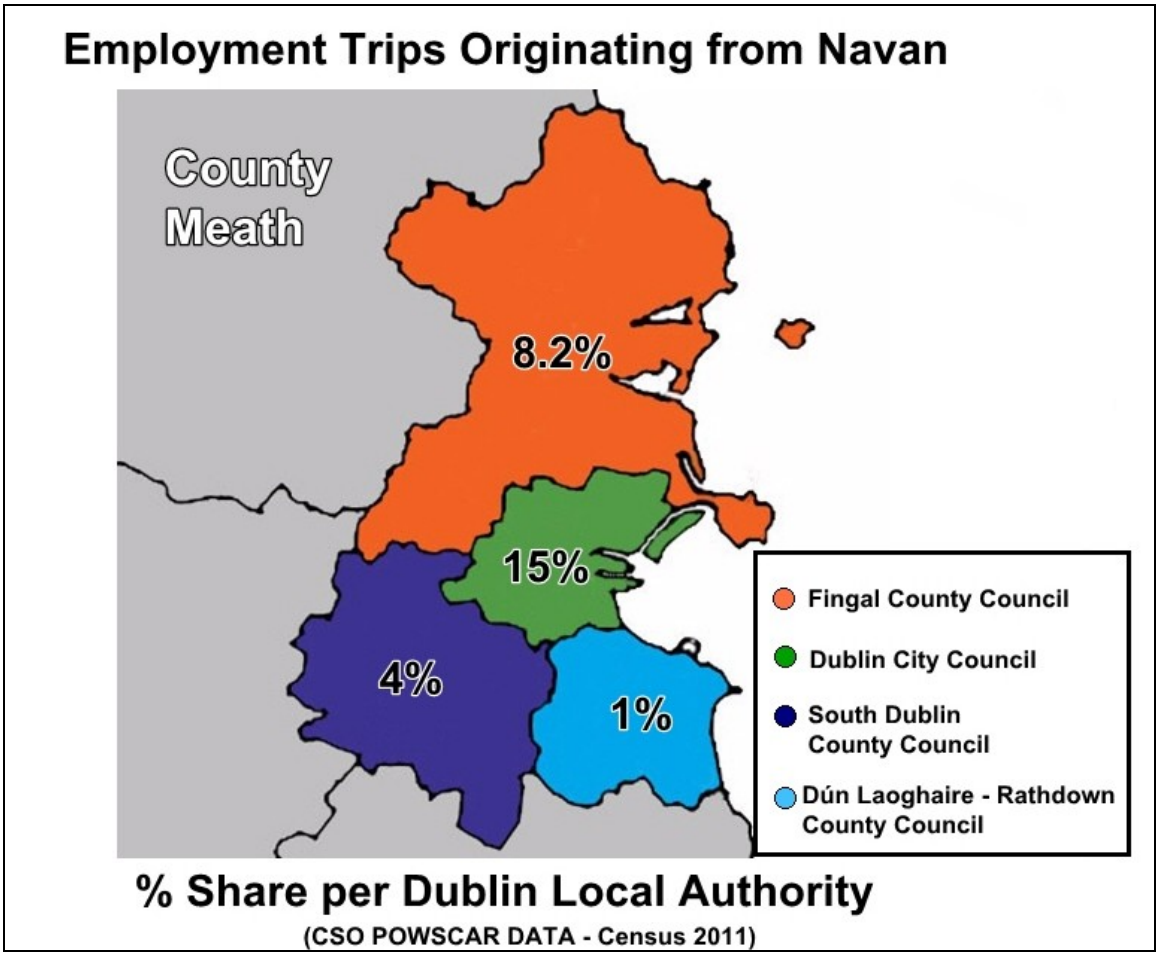


Figure 6: Navan as an Origin for Employment Trips (CSO POWSCAR 2011)

5.5. Navan as a Destination for Employment Trips (CSO POWSCAR 2011)

From	To	POWSCAR Trips	Share of Trips
Navan	Navan (Internal Trips)	3,867	44%
Co. Cavan	Navan	694	7%
Co. Louth	Navan	333	4%
Co. Dublin	Navan	327	4%
Co. Kildare	Navan	81	1%
Co. Wicklow	Navan	5	0.05%
Kells	Navan	311	4%
Trim	Navan	286	3%
Drogheda	Navan	185	2%
Rest of Co. Meath	Navan	2,815	32%
Total		**8,754**	

In terms of the opposite analysis, 44% of all trips to Navan are internal trips (similar to the previous table), however there is no significant inflow of trips to Navan from other counties. 32% of employment trips to Navan are from the remainder of Co. Meath.

6.0 Navan Traffic Model (2012 – 2022)

Jacobs Engineering Group Limited was appointed by the National Transport Authority (NTA) to construct a Transport Model of the Navan area on behalf of Meath County Council (MCC). The model will test the potential traffic impact of various considered new development growth areas in Navan and any requirements for supporting infrastructure up to the year 2022. The project involved the creation of a base year model representing the current AM Peak and a single future year scenario. The latter assumes that all developments considered are likely to be taken forward within the next nine years. This scenario is therefore expected to represent the potential transport conditions within year 2022. The purpose of the modelling work is to ascertain where potential future transport problems are most likely to occur, and therefore where development in Navan should be prioritised and what minimum level of new transport infrastructure will be required to support the assumed development. The traffic model used was a review and update of the Navan 2003 SATURN Base Year traffic Model.

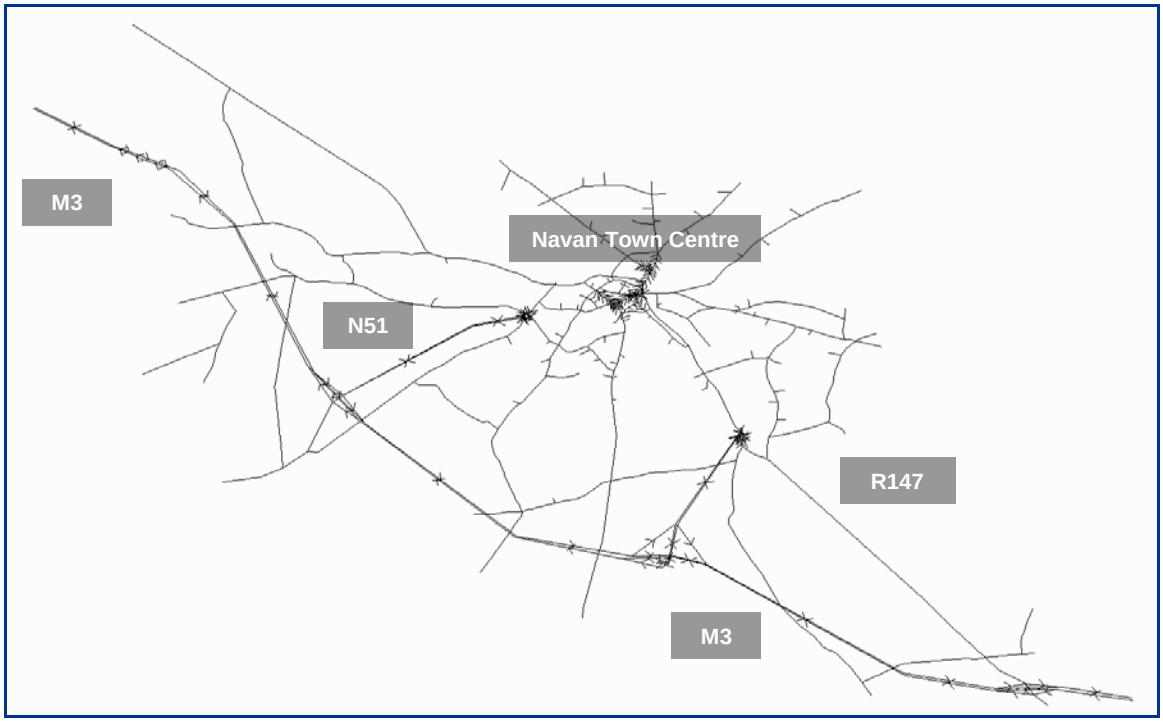


Figure 7: Navan Traffic Model Extent

The traffic model is split into a total of 138 zones overall representing each county, with 49 zones representing the town of Navan and its environs. In addition there are a total of 26 additional future year development zones (applicable to the forecast model only).

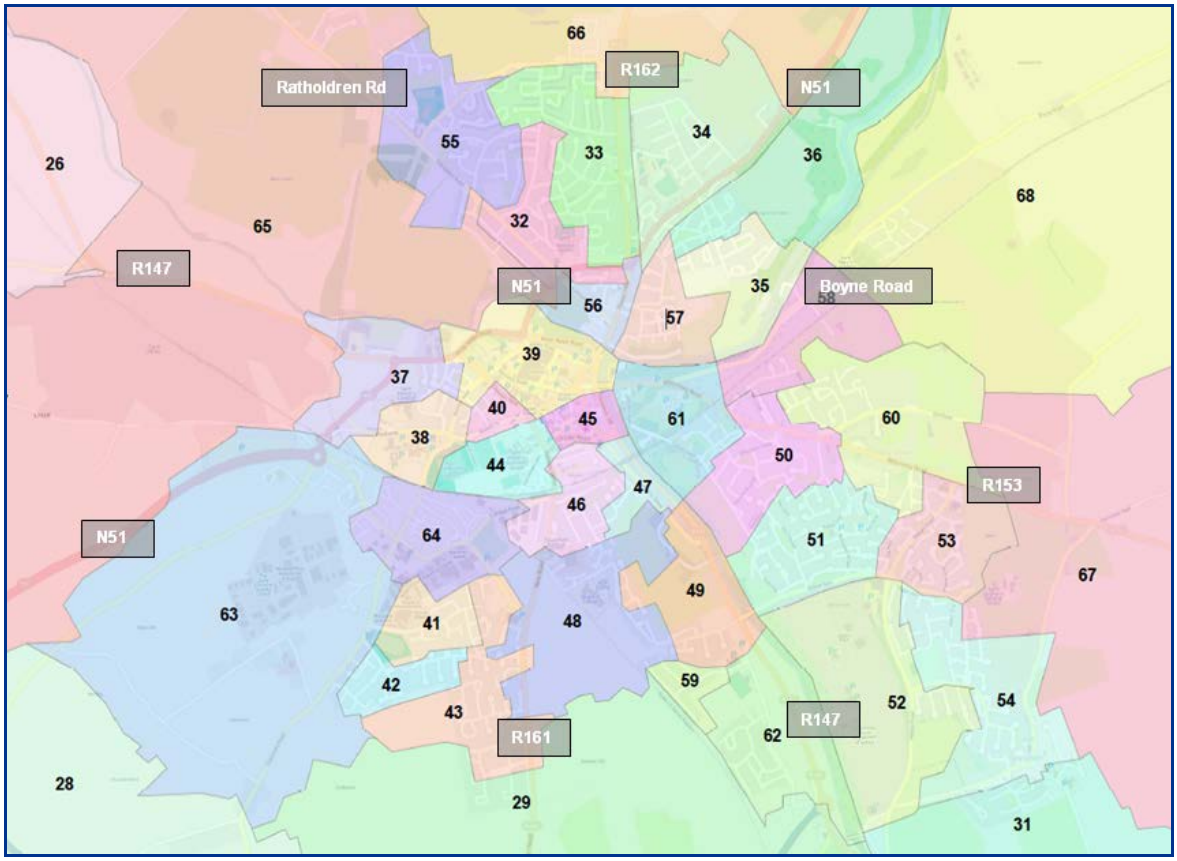


Figure 8: Navan 2012 Base Model Zone System

The peak hour flow for the morning time (AM) was determined as between 8.30am and 9.30am by traffic flow profiles and count data.

The most common trip length in Navan for both the base year and estimated year (2022) is 5 – 10km (4,000+ trips). The next most common trip length would be 1 – 3km (3,300+ trips).

6.1. Base Model Year Analysis (2012)

Data extracted from the Navan Traffic Model indicates the following traffic problems arising in the current road network in Navan. The data is based on the peak AM period (8.30am to 9.30am).

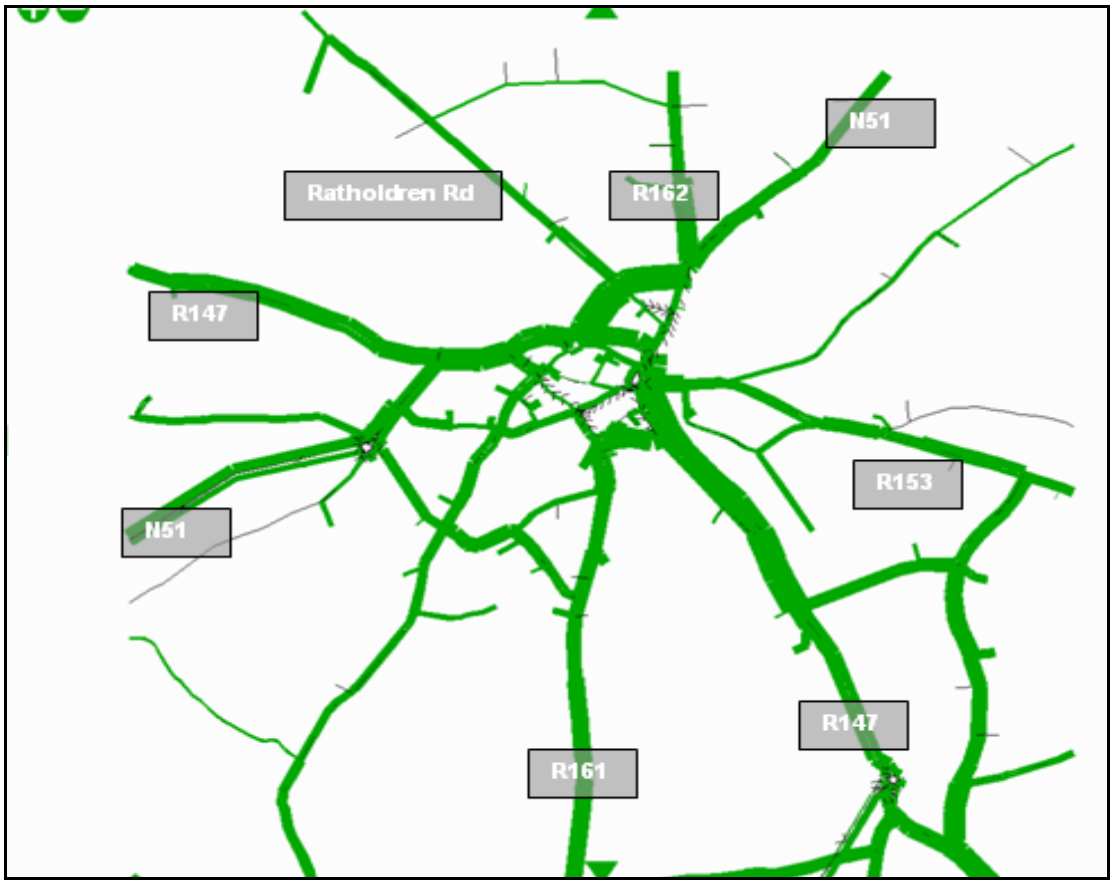


Figure 9: Actual Traffic Flows in the 2012 Base Year Model

The diagram above details the delays, average queuing and network capacity for the Base Model Year (2012). The main capacity constraints in the current road network are at the following two junctions;

- The N51/R147/Abbey Road signalised junction (opposite the Fire Station).
- The R147/Timmons Hill/R153 signalised junction (Kentstown Road/Kells Rd Junction)

The heaviest volumes of traffic are noted on the Navan Inner Relief Road Phase 2A stretching from the Round 'O' roundabout towards the fire station and the former N3 (R147) and from the Sion Road junction with the R147 towards Poolboy Bridge (Flowerhill).

Less prominent delays, queues and/or capacity issues are also observed at other junctions in the Base Model for the same AM peak

- The N51/Ratholdron Road signalised junction.
- The R147 Kells Road/R161 Circular Road signalised junction.
- The Canon Row/Trimgate Street/Railway Street/Brews Hill signalised junction.
- The Railway Street/Circular Road roundabout.
- The Commons Road/Dan Shaw Road signalised junction.
- The N51/R162/N51 Slane Road/Flower Hill roundabout (Round 'O' roundabout)
- The R147/Sion Road/Springfield Glen signalised junction.

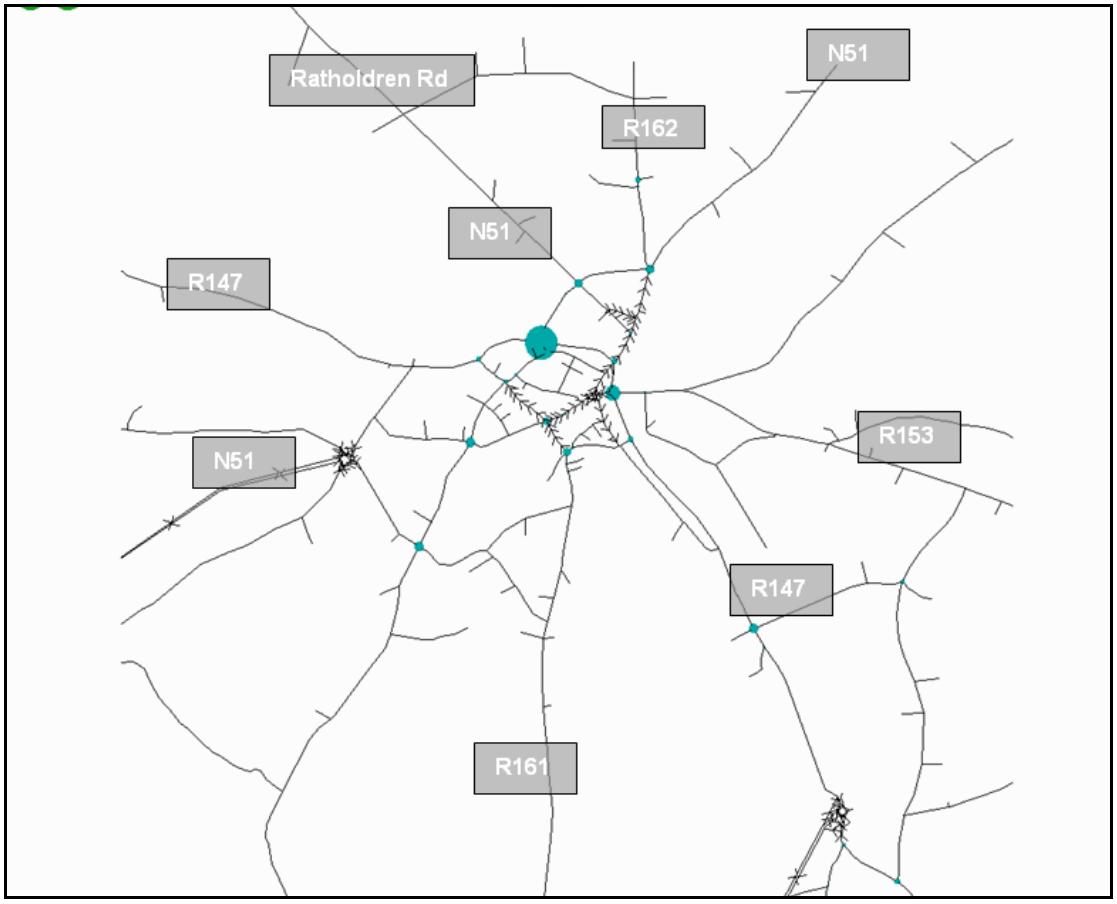


Figure 10: Average Delay (in seconds) at Junctions (2012)

The traffic model report highlights that anecdotal evidence suggests that there are problems with delays at the 'Esso Station' Junction along the R161 Trim Road with the Dan Shaw Road.

It is also flagged that the roundabout junction connecting Railway Street and Circular Road is also operating at its design capacity during the AM Peak hour. This is particularly the case for northbound traffic on the Trim Road, and thereafter at the junction of Canon Row/Trimgate Street/ Railway Street and Brews Hill. It is clear that without intervention, the existing road network/junction configuration cannot accommodate the projected growth in population, education and commercial activity earmarked for Navan.

6.2. Forecast Model Year Analysis (2022)

Having regard to the traffic model information collated as part of the base year traffic demands it is possible to create forecast demands. The forecast demands are simply the base year traffic demands plus the trips to and from the proposed development areas. Trips to and from all development areas have been incorporated into the forecast traffic demand matrices.

The TRICS[4] database was used to determine the future AM peaks for total vehicle trip rates by land use type to and from the development areas.

The traffic demand matrix has indicated that there would be approximately 29% additional car traffic within Navan during the AM Peak in 2022. There is a smaller increase in HGV traffic (3%).

[4] TRICS (Trip Rate Information Computer System) is the national system of trip generation analysis for the UK and Ireland, an essential method of measuring the likely transport generated by new developments.

The traffic model report indicates that with the new development areas in place, a 29% increase in additional car traffic on the road network can be predicted. There is a small increase (3%) in HGV traffic which is expected.

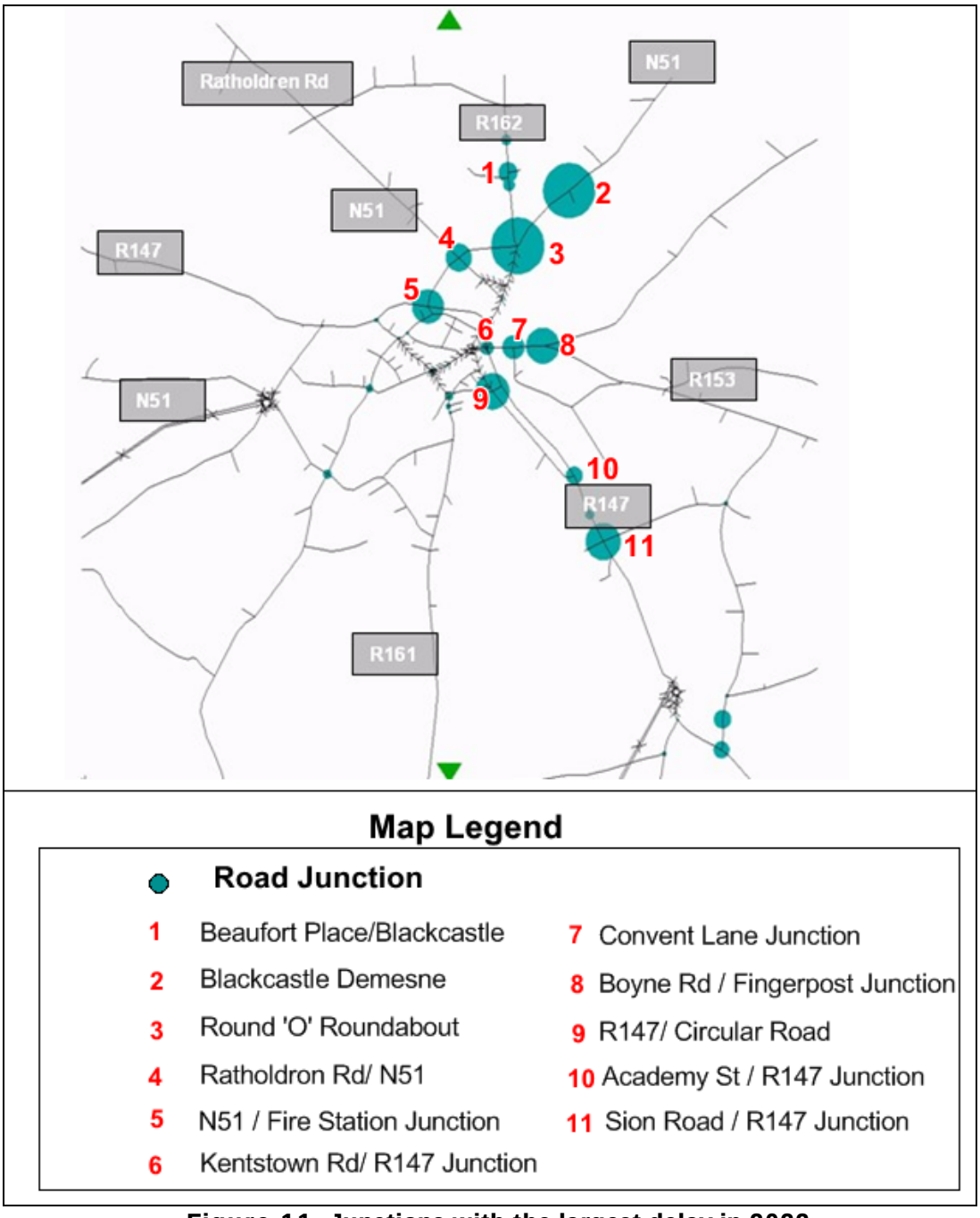


Figure 11: Junctions with the largest delay in 2022 (AM PEAK without Signal Optimisation)

The Navan Traffic Model has predicted that with all new developments in place the existing road network in the town would experience the greatest traffic delays at 1) the Blackcastle Demesne/Slane Road junction, 2) the Round 'O' Roundabout junction with Flower Hill & Proudstown Road, 3) the Boyne Road junction with the Kentstown road and 4) the Sion Road junction with the R147. Without intervention, it is clear that the existing road network in Navan would not be able to accommodate the planned level of growth in the town up to

2022. This is particularly the case for new development areas in north Navan and in east/southeast Navan.

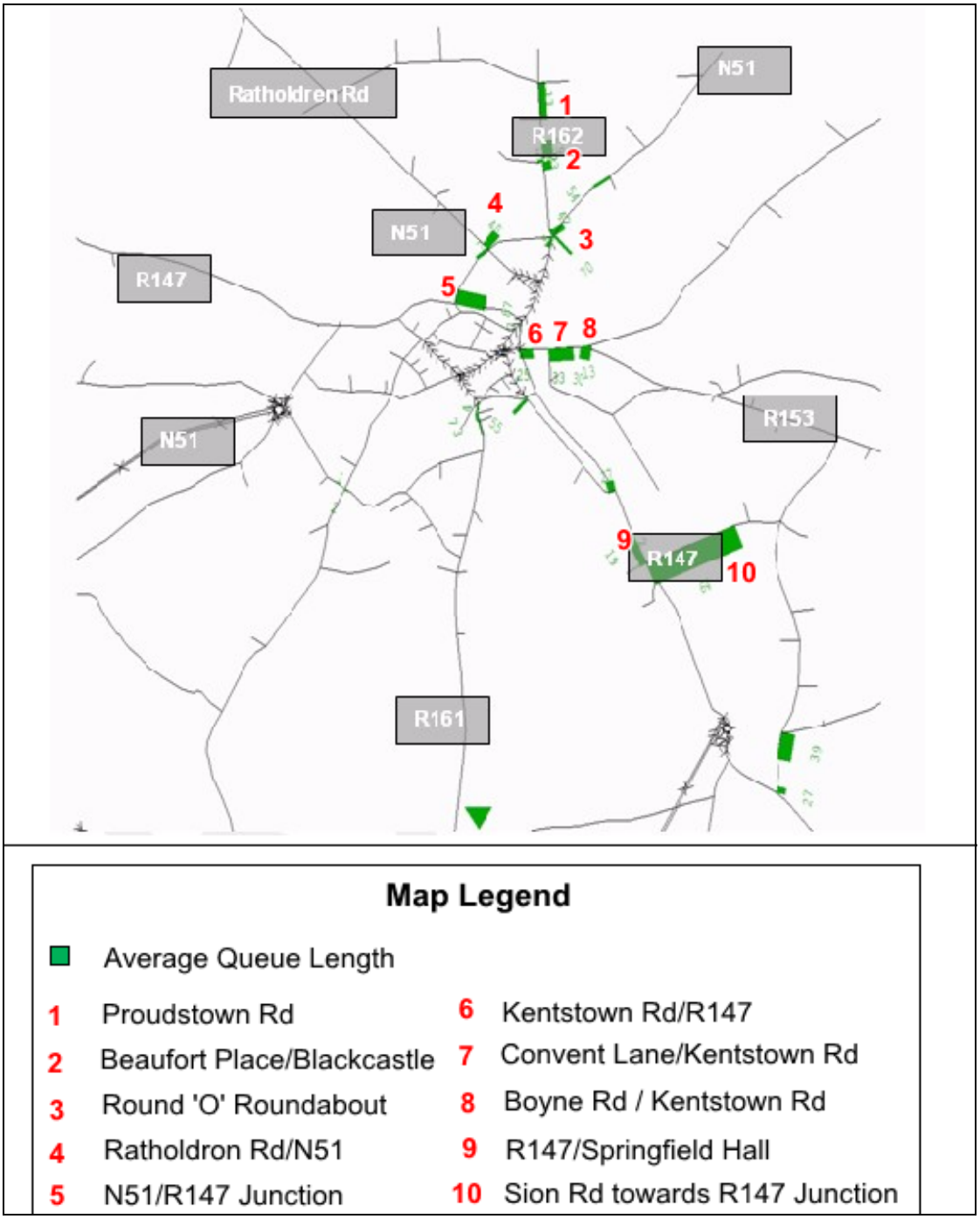


Figure 12: Junctions with the longest averaging queuing in 2022 (AM PEAK without Signal Optimisation)

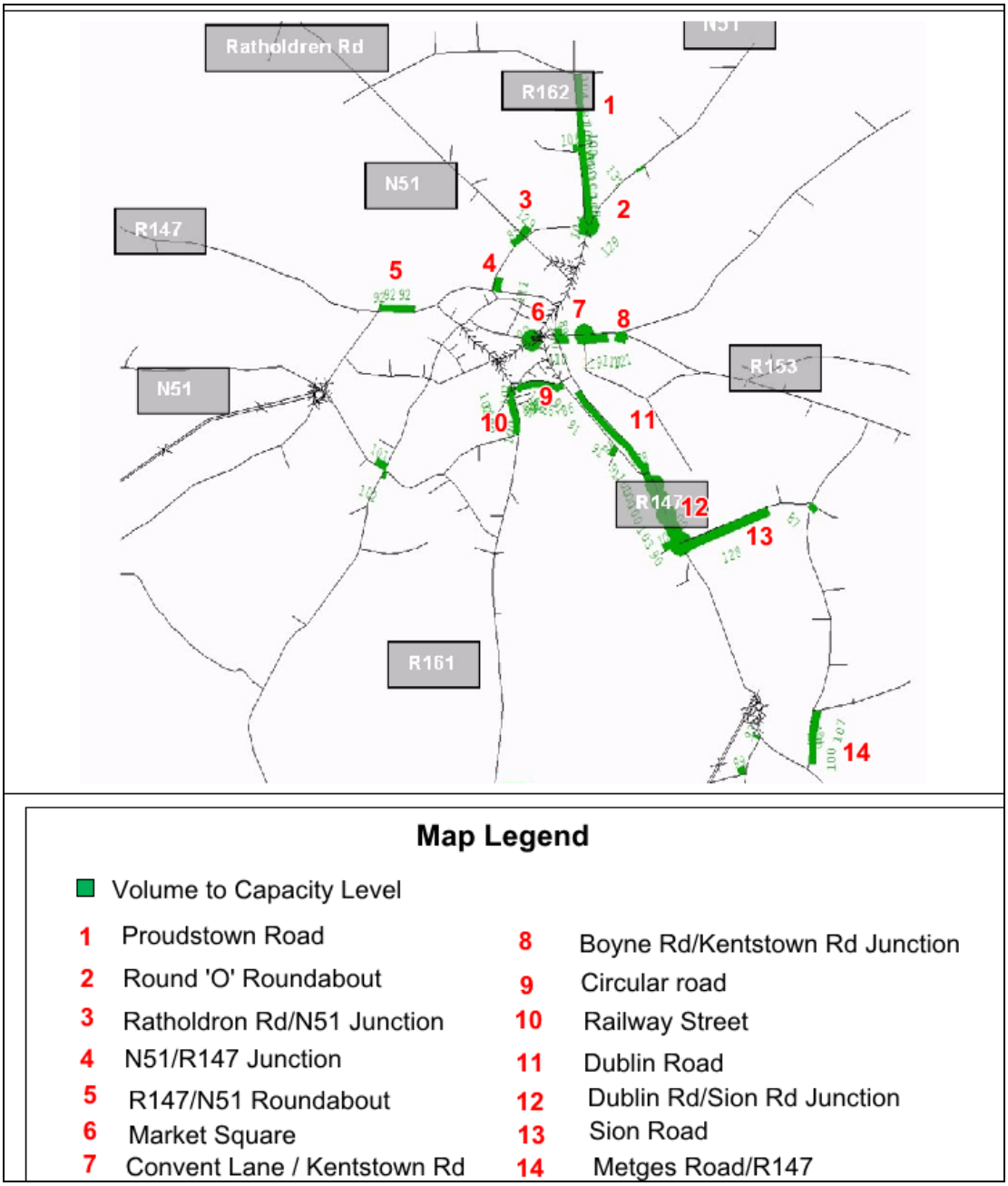
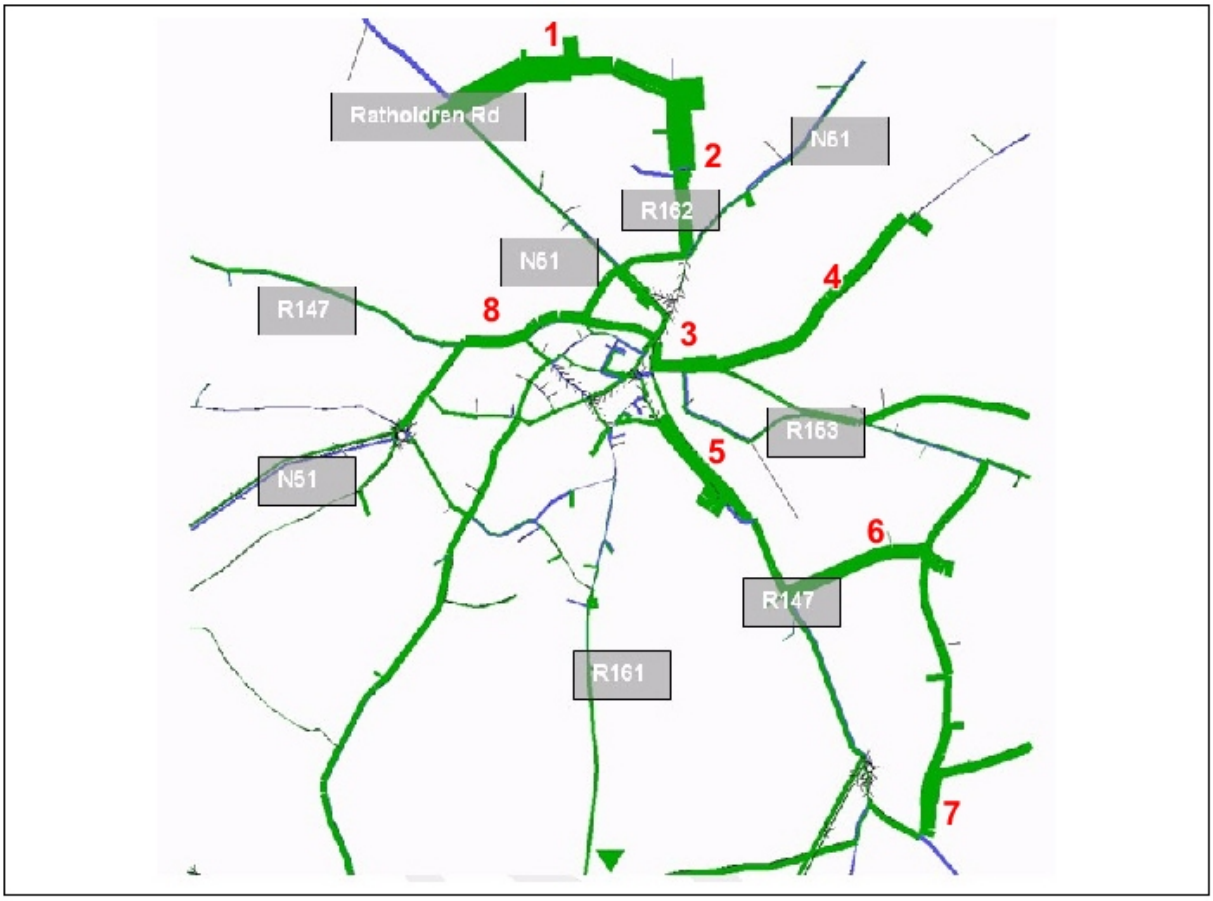


Figure 13: Volume to Capacity at Junctions in the Forecast Year (2022) (AM Peak without Signal Optimisation)

Figure 13 above indicates that there will be a significant number of junctions in Navan operating beyond capacity in the road network with the expectant level of new development planned up to the forecast year of 2022. The junctions with the more pronounced capacity issues include the Round 'O' Roundabout up to the junction with Blackcastle and the Clonmagadden Road, Railway Street, Circular Road, the Dublin Road (R147) up to the junction with the Sion Road, and from the Sion Road heading towards the Dublin (R147).



Map Legend

Actual flow difference between 2012 volumes and the year 2022 (Without signal optimisation)

1	Clonmaggaden Road	5	Dublin Road
2	Proudstown Road	6	Sion Road
3	Kentstown Road	7	Metges Road
4	Boyne Road	8	Kells Road

Figure 14: Actual Flow Difference Plot (Year 2012 vs Year 2022)

Figure 14 shows the difference in actual flows between the 2012 Base and the 2022 Forecast year. Under the assumed development scenario, the highest traffic growth in the future year is likely to be to the north of the River Blackwater on Clonmagadden Road which would provide access to Site B (see map in Appendix G), a new 800 pupil secondary school development, in 2022. The R162 is also expected to be busier in the Forecast year as a result of vehicles egressing from or accessing new developments in the North of Navan (Site B and Site D), in addition to traffic travelling to new development zones in the south. In the east of Navan, the Boyne Road would also be expected to experience high growth in traffic levels by 2022 as an access and egress point for Site F and Site G, as would Metges Road further south, largely influenced its connections to Site H and Site I.

6.2.1. Forecast Year (2022)

Some of the main findings of the AM Peak forecast model include the following;

North of the River Boyne/River Blackwater

Due to there being only one river crossing bridge for traffic originating from North Navan heading south or to the town centre, the N51 Navan Inner Relief road will come under increasing demand with the following junctions being the principle constraints in the network;

- N51/Ratholdron Road junction (see Figure 15 below)
- N51/R162/Flower Hill Roundabout (The Round 'O' roundabout) Figure 16
- N51/R147 Kells Road/ Abbey Road junction (opposite the Fire Station) Figure 17

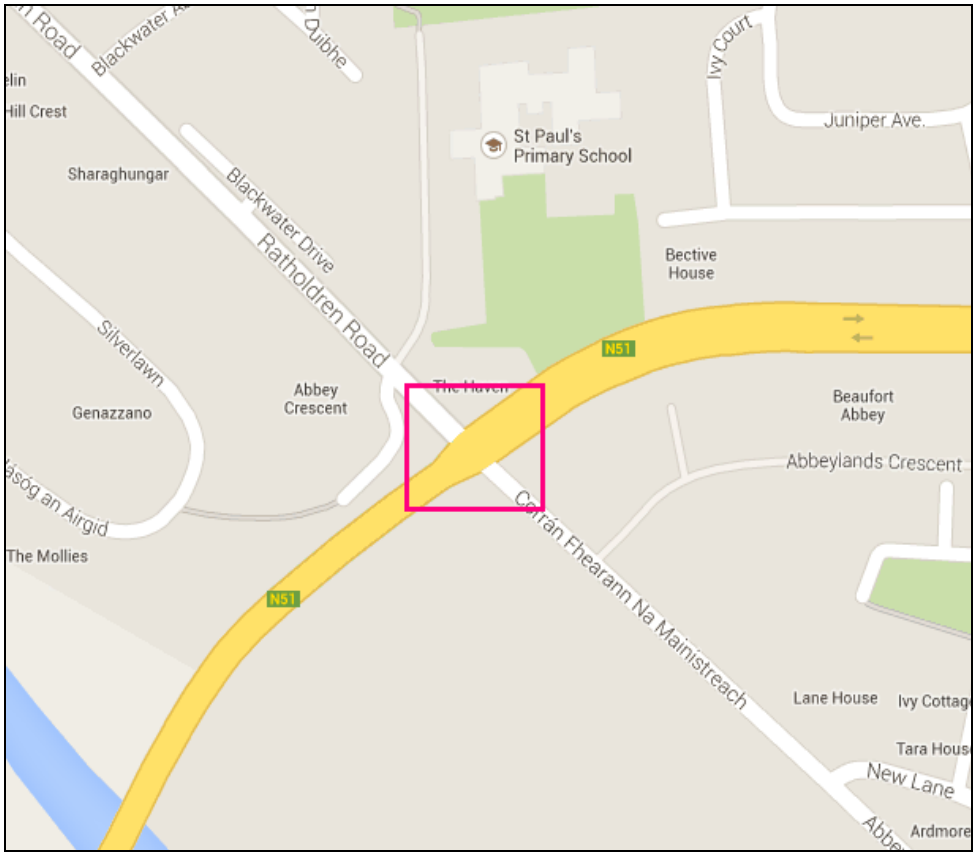


Figure 15: N51/Ratholdron Road Junction

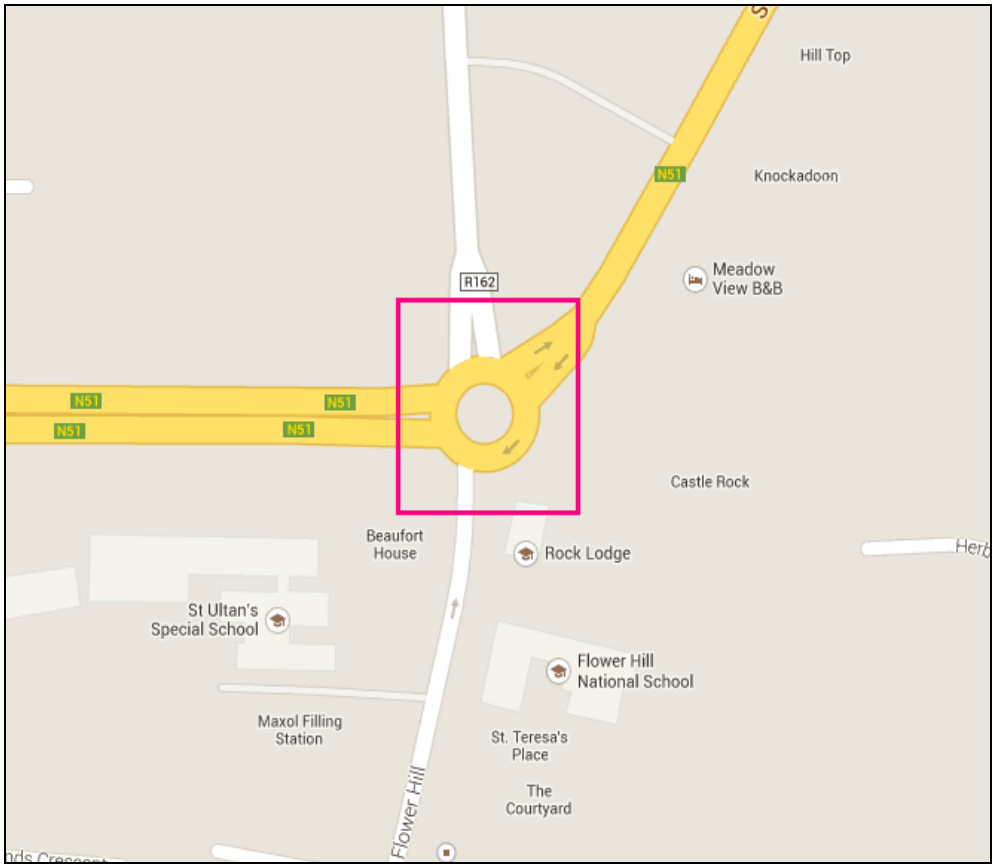


Figure 16: Round 'O' Pub Roundabout (Flower Hill & N51)

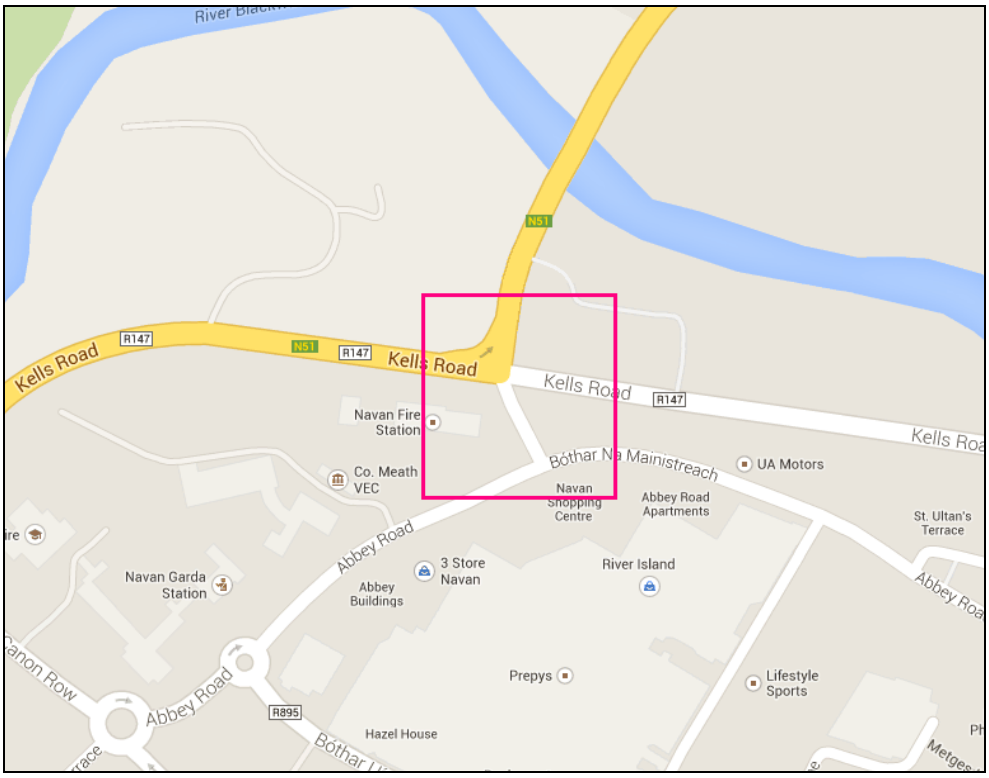
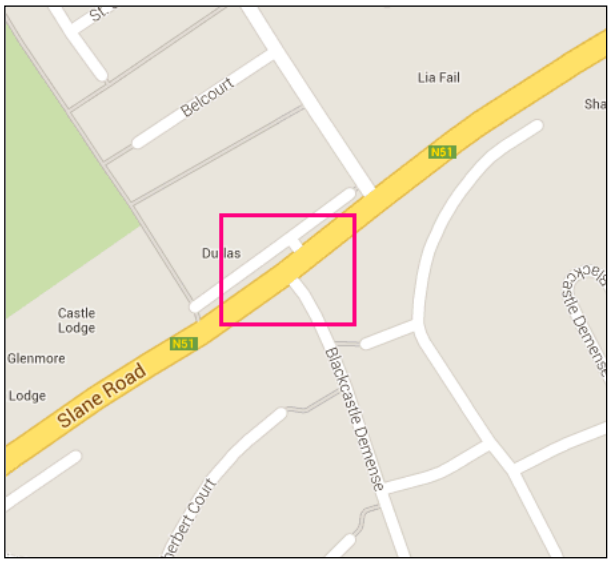


Figure 17: N51 (Inner Relief Rd) R147 & Abbey Road Junction

The study also highlights that *"capacity improvements at the three most constrained junctions on the N51 could possibly lead to further delays at downstream junctions, particularly junctions along the R147* (Dublin-Kells Road) *some of which are already constrained under the development scenario"*

The findings indicate that the largest delay north of the river is situated at the N51 Slane Road/ Blackcastle Demesne where two planned residential developments would access the network under the 2022 scenario (Site E and an extant planning permission).



Much of the delay at this location is created by traffic blocking back from the entry to the Round 'O' Pub Roundabout. Although not a problem observed in the base year (2012) it is likely that the model predicts such traffic constraints on the basis of planned new development areas in this part of Navan.

The Round 'O' Pub junction may benefit from signalisation in the future year if planned developments north of the river are given priority. The signalisation of this junction may have added benefits for junctions further downstream along the N51 and R147 routes.

South-East of the River Boyne

One of the principle constraints to the south of the River Blackwater is the N51/R147 Kells Road/Abbey Road signalised junction (Figure 17). As this was a principal constraint in the Base Model (2012) it is not surprising to find that the delays at this junction will be more acute in the Forecast Year (2022). It is the only access point for traffic travelling to the town centre from the north where there are presently 2 options for vehicles travelling northwards – the N51 and Flowerhill which is one way.

In addition to this, the Forecast Model predicts significant constraints at three other signalised junctions on the R147 (Kells – Dublin Road). The following junctions will come under considerable pressure in the development scenario;

- R147 Dublin Road / Springfield Glen/ Sion Road signalised junction.
- R147 / Kilcarn – Johnstown link road
- Boyne Road / R153 priority Junction (fingerpost junction)
- R153 / Somerville Apartments priority junction (convent hall)
- R147 / Timmons Hill / R153 signalised junction

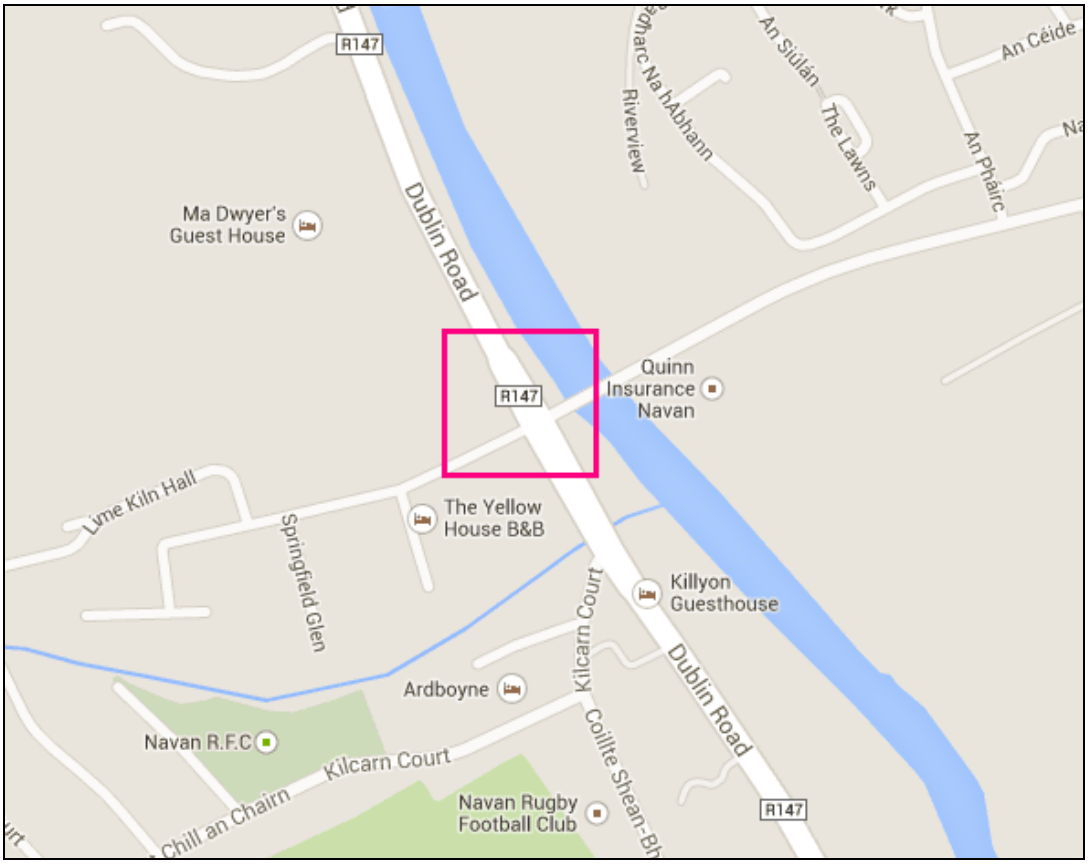


Figure 18: R147 / Sion Road / Springfield Glen Junction

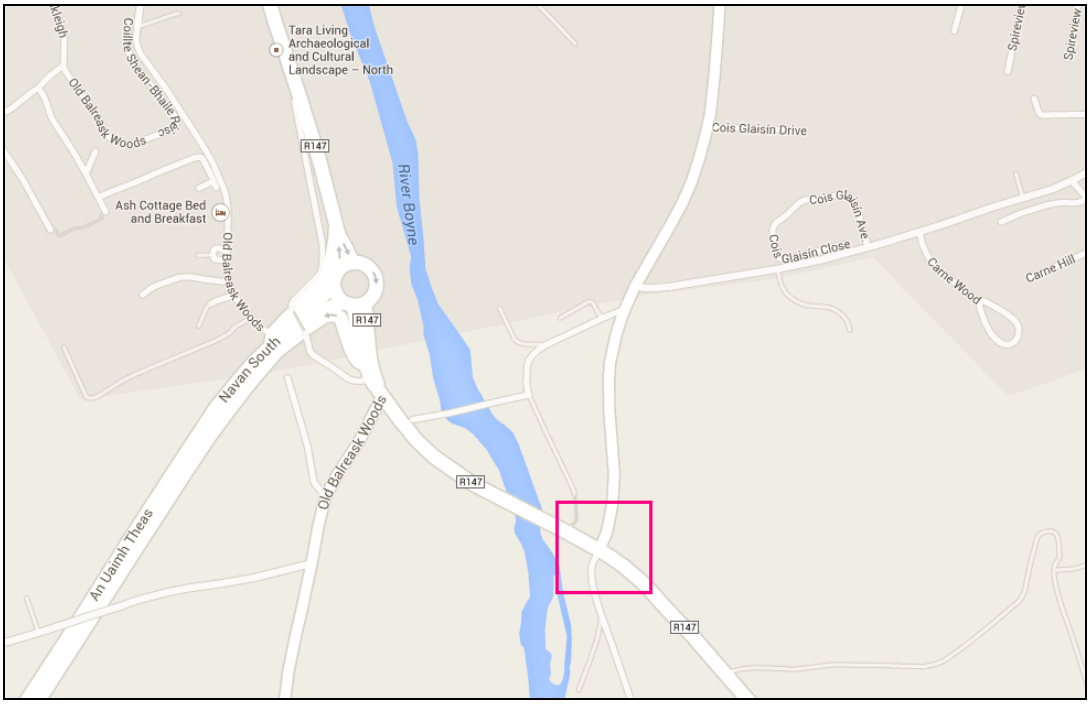


Figure 19: R147 / Kilcarn / Johnstown Link Road Junction

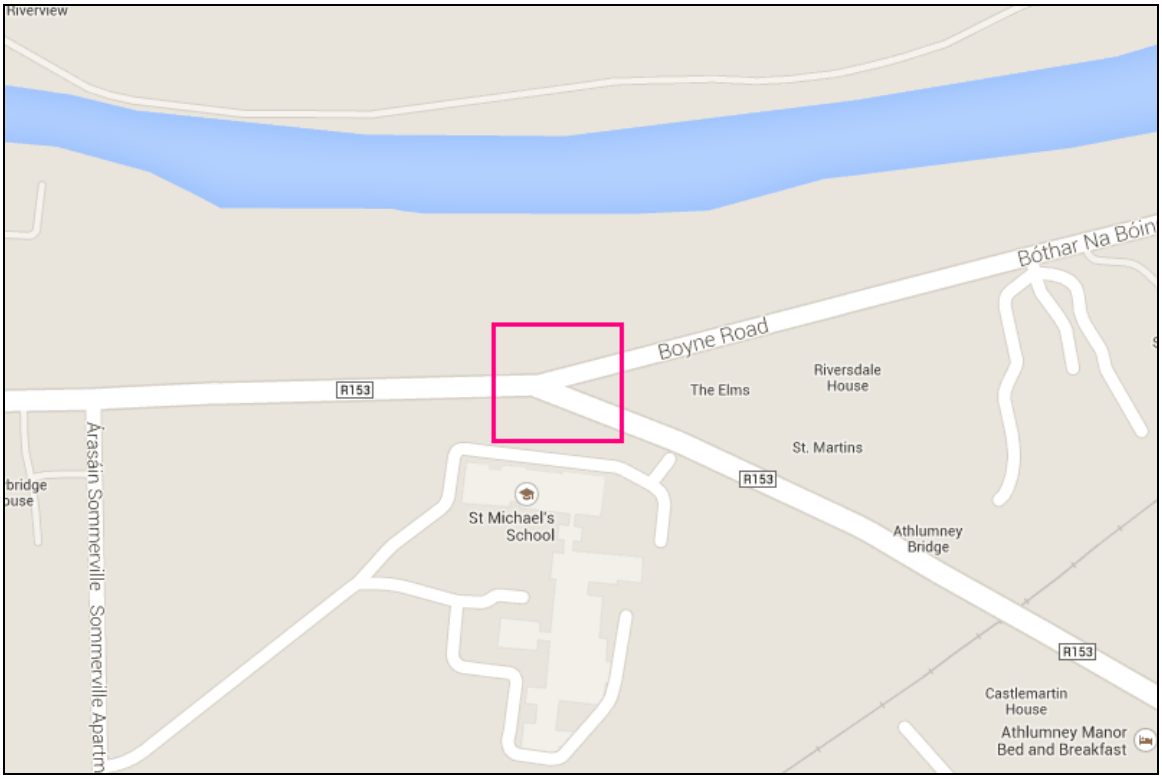


Figure 20: R153 (Kentstown Rd) / Boyne Road Priority Junction

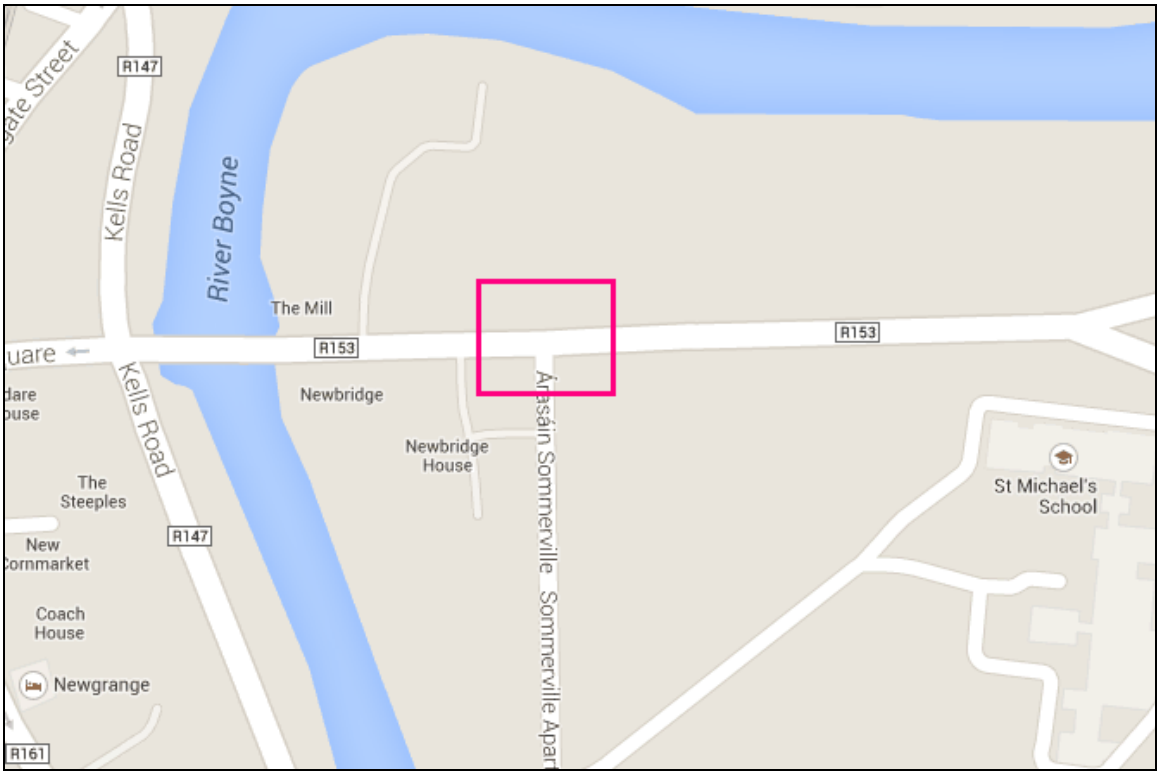


Figure 21: R153 (Kentstown Rd) / Somerville Apartments Priority Junction

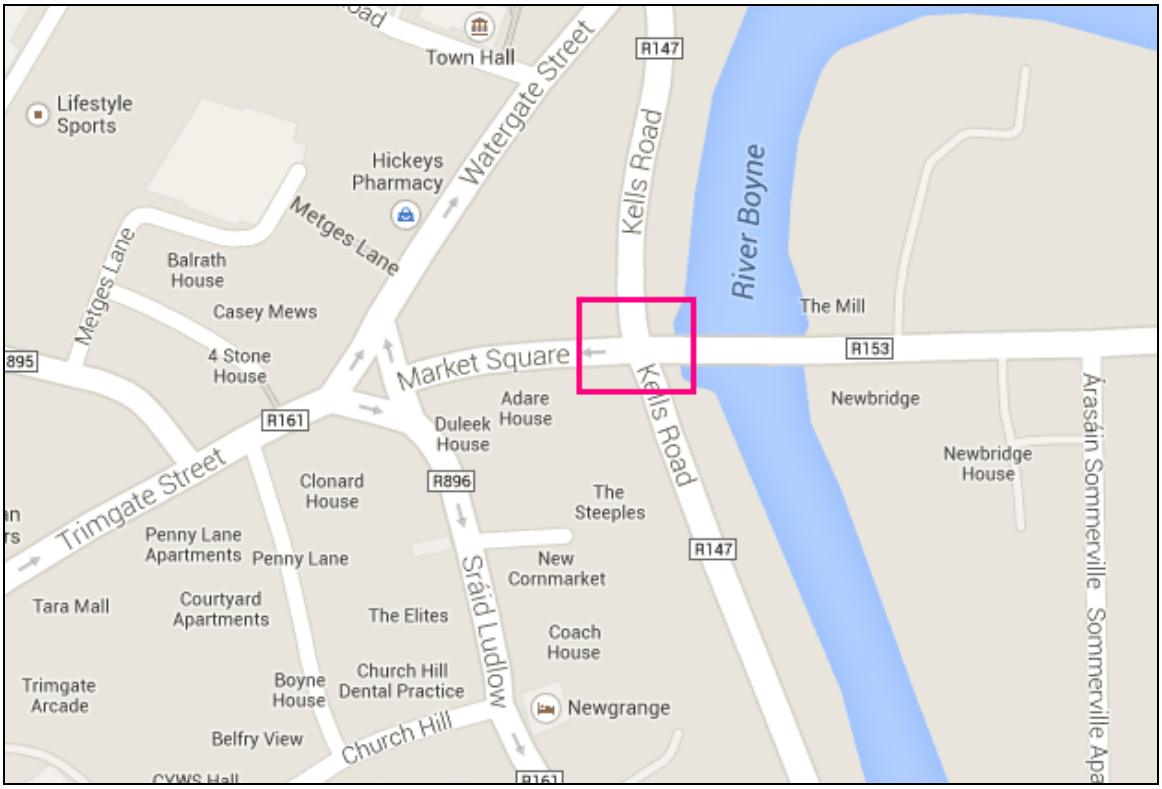


Figure 22: R147 / Timmons Hill / R153 Kentstown Road Signalised Junction

6.3. Main Findings & New River Crossings

Junctions acting as entry points into the town centre area for southbound traffic originating north of the River Blackwater are highlighted as a particular constraint under the 2022 development scenario. This is not surprising due to the fact that there is only one river crossing in the southbound direction, thereby forcing all southbound traffic to route through the same three junctions. If land is to be developed north of the river, the capacity of the N51 between Ratholdron Road and the R147 (Kells Road) will need to be addressed between now and when all development is in place. This is most likely to require an additional river crossing of the Blackwater River, or the creation of additional traffic lanes on the current N51 Inner Relief Road.

The R147 to the south-east of the River Boyne also presents significant constraints at signalised junctions connecting to zones in the east of Navan. Traffic travelling to the town centre (and beyond) from the east has to route through one of three signalised junctions which connect to the R147 across the river. Junctions between the R153 / R147 and Boyne Road were identified as a particular constraint along with long queues stretching back from the signalised junction with the R147. The forecast model suggests that the road capacity along the R153 may need to be addressed if all proposed developments are to be realised east of the river by 2022. Again, it is likely that the resulting traffic from the assumed level of development may require another river crossing.

Two new river crossings may therefore be required serving development in North & East Navan respectively to alleviate the existing and projected traffic levels within the Navan catchment.

7.0 Transport Plan Recommendations - Infrastructural Improvements

It is clear from the findings of the Navan Traffic model that there is a significant traffic delay issue during the peak morning period already existing in the base year for traffic travelling from North Navan having to access routes south of the River Boyne or River Blackwater. This occurs due to their being only one bridge option available to gain access to South Navan. These traffic delays will be even more pronounced particularly on the junctions along the Navan Inner Relief road in the projected year 2022 on foot of population increases in the area and the expectation for further new development to occur. Additional bridge crossings will be required as one of the measures to address this issue.

The following is a list of recommended Actions resulting from the information gathered on the future transport needs of Navan.

LTP Action 1
To agree a location in conjunction with the NTA of a bus hub / interchange in Navan Town Centre and to deliver the bus hub / interchange within 2014.

LTP Action 2
To implement feasible bus priority measures to the identified location for the bus hub / interchange in Navan town centre.

LTP Action 3
To implement traffic management measures in the town centre to include a review of the existing one way system, car parking both on street and off street, loading / unloading, location and extent of taxi ranks, etc. This traffic management plan shall be developed around the altered bus network and location of the proposed bus interchange.

LTP Action 4
To maximise the efficiency of the existing road network by re-examining and where necessary redesigning / remodelling existing junctions identified in the Navan Traffic Model as operating close to or beyond their designed ratio to flow capacity or which require to be reconfigured to cater for pedestrian / cycle facilities. This will include the consideration of revising existing options at constrained junctions such as along the R147 through the town and the pedestrianisation of Trimgate Street;

Short Term Junction Improvements are proposed for;

- The N51/R147/Abbey Road signalised junction (opposite the Fire Station).
- The R147/Timmons Hill/R153 signalised junction (Kentstown Road/Kells Rd Junction)
- The N51/Ratholdron Road signalised junction.
- The R147 / Circular Road signalised junction.
- The Canon Row/Trimgate Street/Railway Street/Brews Hill signalised junction.
- The Railway Street/Circular Road roundabout.
- The Commons Road/Dan Shaw Road signalised junction.
- The N51/R162/ Flower Hill roundabout (Round 'O' roundabout)
- The R147/Sion Road/Springfield Glen signalised junction.
- The R162 junction with the Clonmagadden Road.

LTP Action 5
To implement town centre measures to include;
- Improving pedestrians and cyclists environment into and within town centre;

- Enhanced cycle measures to improve the modal share, cycle safety and movement;
- Improving bus stop waiting facilities in the town;
- Delivering the proposed cycle network into the town centre area including cycle parking facilities at appropriate locations;
- Improving links between the residential areas to the south east, north and south west to the town centre (in the context of limited river crossings);
- Provide for consistent journey times and minimise delays for bus through the centre of Navan;
- Increase the public transport mode share for the town;
- Lower the impact of congestion on the town environment (while still providing good access to car parks); and
- Enhance loading/taxi facilities in the centre of town.

LTP Action 6
To establish a 30kph speed limit in the town centre area to reduce the risk and severity of accidents especially for vulnerable road users and to provide environmental benefits such as reduced noise levels.

LTP Action 7
To review and extend the integrated signalisation optimisation programme of existing junctions on the outer distributor road network.

LTP Action 8
The capacity of the N51 between the Rathaldron Road and the R147 (Kells Road) is identified as a key constraint to allowing development of north Navan to proceed. The delivery of LDR 4 would alleviate this constraint and is necessary to facilitate the planned growth of north Navan.

LTP Action 9
In tandem with the delivery of LDR 4, the construction of LDR 5 will allow for a greater segregation of strategic through traffic (N51) from locally generated traffic. LDR 5 and LDR 5 together will improve connectivity to the M3 / N51 link road.

LTP Action 10
The capacity of the R153 Kentstown Road, the Boyne Road and the junction of Sion Road with the R147 is identified as a key constraint in allowing the planned growth of east / south east Navan to proceed. The delivery of LDR 6 is considered necessary to alleviate such constraints. The Planning Authority shall consider the need to phase the delivery of this link and in particular the under bridge of the Navan – Drogheda rail line with the proper planning and sustainable development of the area. INF OBJ 11 also proposes the investigation of the need for an additional river crossing of the Boyne linking the Boyne and Slane Roads and this is supported by the conclusions of the Navan Traffic Model.

LTP Action 11
To further refine the Navan Traffic Model (2013) by carrying out additional traffic counts / junction analysis where required and appropriate and which may necessitate further junction and capacity improvements over the life of the Navan Development Plan.

LTP Action 12
To assist in alleviating local traffic congestion in the Trim Road area and reduce the use of the Borallion as a rat run, it is recommended to deliver LDR 1 (a) which links the Dublin and Trim Roads through Springfield Glen.

LTP Action 13
To reserve free from development the remaining strategic roads identified on the Development Objectives map of the Navan Development Plan 2009 – 2015. These are longer term road objectives which are not envisaged to be delivered during the lifetime of this Local Transport Plan. However, some of these strategic routes may be delivered in tandem with development such as the section of LDR 2 (a) between the Trim and Commons Road.

LTP Action 14
To carry out an assessment of the most appropriate locations for taxi ranks within Navan town and to put in place measures which prevent double and illegal parking of taxi vehicles with the overall aim of providing for public safety.

LTP Action 15
To examine and re-configure where appropriate the junctions of the N51/R147 opposite the fire station, the R147/Sion Road/Springfield Glen junction, Kennedy Road and the Kentstown Road/Old Athlumney Road to make more pedestrian and cycle friendly and overall for all road users.

LTP Action 16
To provide for a new pedestrian/cyclist bridge over the River Blackwater allowing for connectivity between the town centre and the new town park (Blackwater Park).

LTP Action 17
To develop a Heavy Goods Vehicle Management & Delivery Management Strategy for Navan town centre.

8.0 Transport Plan Recommendations – Soft Measures

LTP Action 18
Better enforcement of illegal parking particularly along Kennedy Road and Abbey Road;

LTP Action 19
To prepare, implement and maintain, in conjunction with the school authorities and An Garda Siochána, school travel plans for each school.

LTP Action 20
To investigate the provision of park and ride facilities to serve the Johnstown Area and the possibility of rerouting of the 109 bus service from the R147 along Bothar Sion / Metges Road.

8.1. Future Transport Context

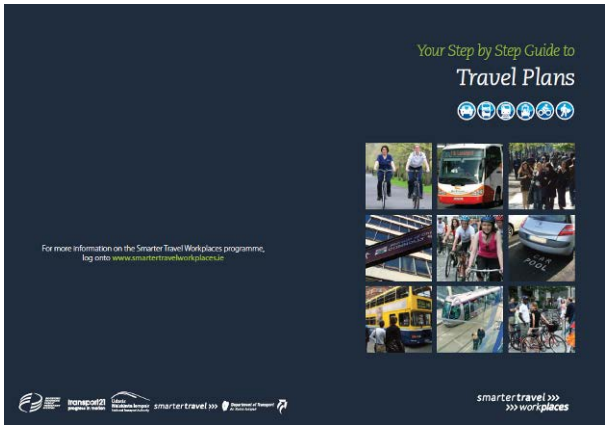
This review has highlighted the need to support social and economic sustainability by improving facilities for pedestrians, cyclists, and public transport. Smarter Travel was identified as being a key document going forward, setting national policy on sustainable travel in terms of land use planning and transport infrastructure provision. The Navan Local Transport Strategy has placed the key policies of Smarter Travel at its core. This will reduce existing private car based travel freeing up capacity within the existing road network and by also ensuring that all new developments are designed to maximise the available sustainable transport measures from the outset.

The tests undertaken on the Navan Traffic Model has considered implementing the various strategic roads infrastructure already planned for Navan. Some of these need to be prioritised in conjunction with future development having regard to the considerable constraints already identified in the base year (2012). This analysis has highlighted the need to maximise the efficiency of the existing road network and in particular junction design and optimisation of existing signals. The north Navan area which is presently served only by the N51 for southbound traffic requires additional capacity which is most likely to require a new bridge crossing of the Blackwater to alleviate existing and projected development (LDR 4). The analysis also indicates that the extent of development earmarked for the eastern area of Navan will continue to exacerbate pressure on the junctions of the Kentstown Road with the R147 including the Boyne Road and Convent Lane junctions with the Kentstown Road as well as on the Sion Road / R147 junction.

The analysis recommends the consideration of a further river crossing of the Boyne to link the Slane and Boyne Roads to alleviate such pressures. The analysis assumes that various sections of the orbital road network are in place before 2022 such as LDR 5 (Slane Road to Proudstown Road), LDR 4 (Rathaldron Road to Kells Road, LDR 6 (Kentstown Road to Boyne Road on a phased basis), and LDR 1(a) (Dublin Road to Trim Road). Other sections of the orbital road network are not required during the period up to 2022. Together these form an orbital road network that allows significant levels of through-traffic to be removed from the town centre. This future step-change to the available routing options in Navan has been recognised by the Navan Local Transport Plan, which aims to take full advantage of the opportunities provided in the town centre.

9.0 Mobility/Workplace Travel Plans

A workplace travel plan is an effective instrument used within the planning process to promote and support sustainable travel patterns to work at a site-specific level. It consists of a package of actions and measures to promote more sustainable and cost-effective travel habits among employees, clients and visitors. Workplace travel plans are applicable to all workplaces, colleges and hospitals as measures can be applied to staff, students and visitors.



Workplace travel plans can help to provide the impetus for modal change. They involve limited capital expenditure and concentrate on improving on-site facilities and incentivise more sustainable travel.

As a guideline threshold, a Standard Workplace Travel Plan will be required if an existing or proposed development has the potential to employ over ***100 persons***. This is generally in line with the thresholds indicated in government policy documents. Appropriate developments requiring such a plan may include office and commercial buildings, industrial, warehousing and wholesale, retail, leisure, medical or educational facilities.

The recommended contents of a Workplace Travel Plan should present a clear and reasonable plan to deliver defined transport modal shifts. It should set targets, outline the actions that could be reasonably expected to achieve those targets. It should also detail the manner of implementation, monitoring and reviewing of those actions and targets (e.g what will be done and by whom?)

The National Transport Authority (NTA) have published a step by step guidance document on the preparation of Workplace Travel Plans and these can be downloaded from www.smartertravelworkplaces.ie

A Workplace Travel Statement may also be required by the Planning Authority for developments which employ less than 100 persons.

The content of a Workplace Travel Statement are less onerous and should include basic detail such as the following:

- A clear statement setting out a commitment to actively encourage and promote sustainable transport
- Provision of suitable supporting physical measures, appropriate to the site and development proposal; and
- An Action Plan containing a package of measures and initiatives which will promote and support sustainable travel patterns.

9.1. Promoting Measures within the Strategy

As schemes within the Local Transport Plan are implemented, promotional material will be produced and distributed in the local area to ensure that local residents and visitors are aware of the improvements and their benefits.

9.2. Funding

The funding for the various measures proposed in this Local Transport Plan may come from a number of sources, but most funding is anticipated to arrive under the National Transport Authority (NTA) Sustainable Transport Measures Grants and from Local Authority own resources. The NTA is responsible for public transport investment in the Greater Dublin Area. In addition, the National Transport Authority also administers two grant programmes on behalf of the Department of Transport, Tourism and Sport, namely the Regional Cities Public Transport Programme and the Accessibility Programme.

In 2011 expenditure under these programmes was:

- Greater Dublin Area (GDA) Investment Programme €211 million;
- Regional Cities Investment Programme €10.6 million; and
- Accessibility Programme €10 million.

The overall GDA Investment Programme is subdivided into four sub-programmes. These are:

- Heavy Rail Sub-programme
- Light Rail/Metro Sub-programme;
- Bus/BRT Sub-programme; and
- Integration, Sustainable Transport Measures & Support Sub-programme.

The most relevant funding category applicable to Navan is the *"Integration, Sustainable Transport Measures & Support Sub-programme"* facilitates investment in the various cycling/walking, bus, safety and traffic management projects throughout the region. A total of €51.6 million was invested in 199 projects during 2011. The NTA funding scheme breakdown for 2011 is outlined in the table below.

Total	Bus	Walking / Cycling	Other	Traffic Management	Safety
€51.56M	€32.80M	€12.54M	€3.2M	€0.85M	€2.17M
100%	63.6%	24.3%	6.2%	1.7%	4.2%

Table 1 Breakdown by scheme type

Some of the notable Sustainable Transport projects that were funded by the NTA for Navan town in recent times include;

- The design, planning and build of the Johnstown Quarter walking & cycling network.

- The design & Part 8 planning consent process for a new cantilever footbridge over the River Boyne.

- The re-alignment and signalisation of the Dan Shaw Junction with the Trim Road with significant road safety benefits for pedestrians and cyclists.

- The provision of a new footpath and pedestrian crossing at Old Johnstown.

9.3. Delivery of Projects

The pace at which the actions contained in the Local Transport Plan can be delivered will depend upon the availability of funding. By providing a clear statement of the schemes for which there is public support in the town, the finalised strategy will aim to provide a clear platform for securing funding from a wide range of sources. The Local Transport Plan is a standalone document attached to the Navan Development Plan that will be updated as appropriate or required.

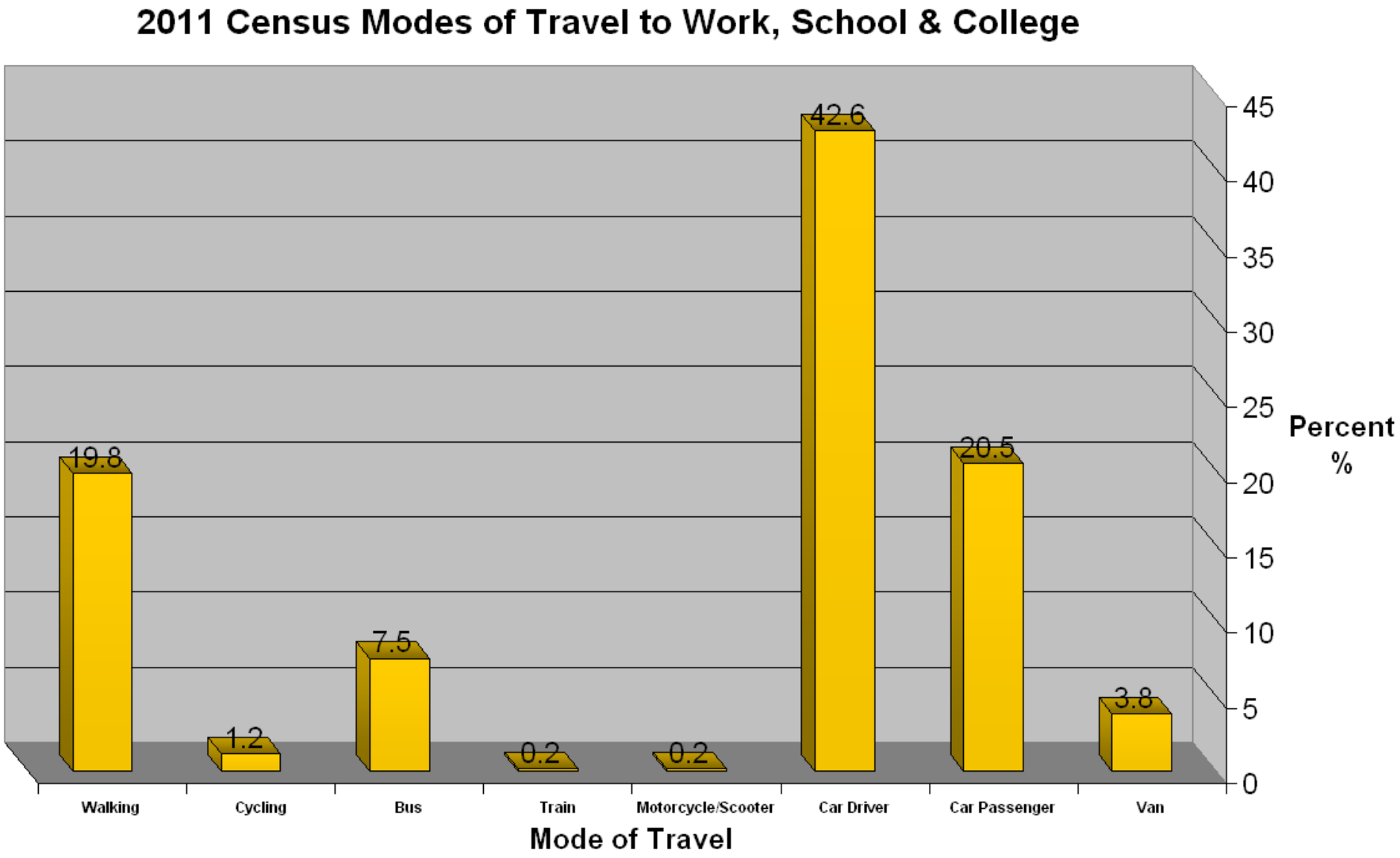
9.4. Conclusion

This Local Transport Plan for Navan will provide a number of benefits for the town which will include the following:

- A clear programme of transport enhancements for the town and surrounding hinterland;
- Improved accessibility by walking, cycling and bus;
- Significantly increase walking and cycling trips in the town, and;
- Safety measures that will reduce accidents.

This Local Transport Plan gives a clear indication of the evidence based transport measures to be implemented throughout Navan Town & Environs for the period 2014 – 2019. The measures will contribute to the economic and environmental well being of the local population thus ensuring that Navan becomes a pleasant place to live, work and visit.

Appendix A


2011 Census Modes of Travel to Work, School & College
19.8
1.2
7.5
0.2
0.2
42.6
20.5
3.8
0
5
10
15
20
25
30
35
40
45
Percent
%
Walking
Cycling
Bus
Train
Motorcycle/Scooter
Car Driver
Car Passenger
Van
Mode of Travel

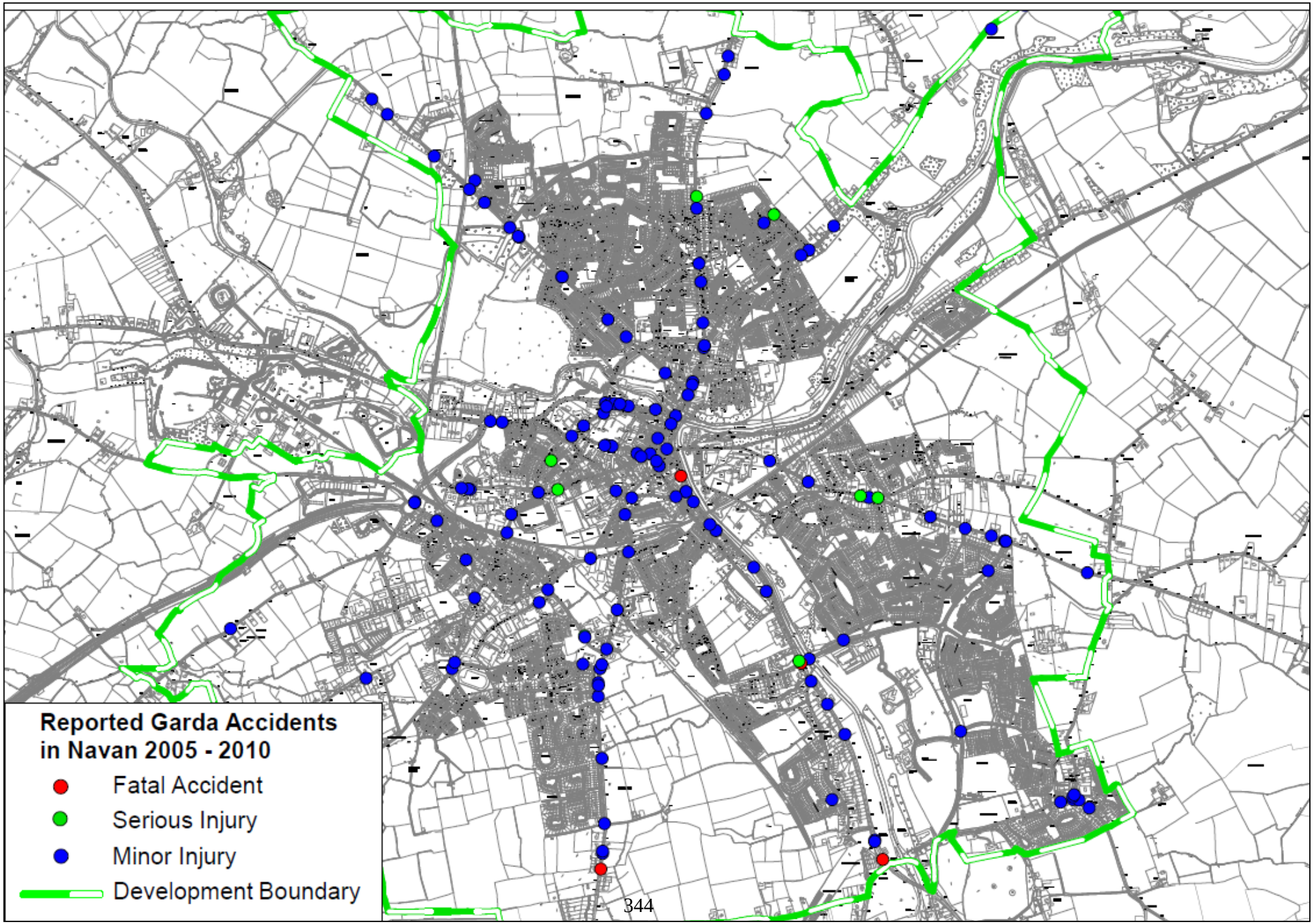
Appendix B

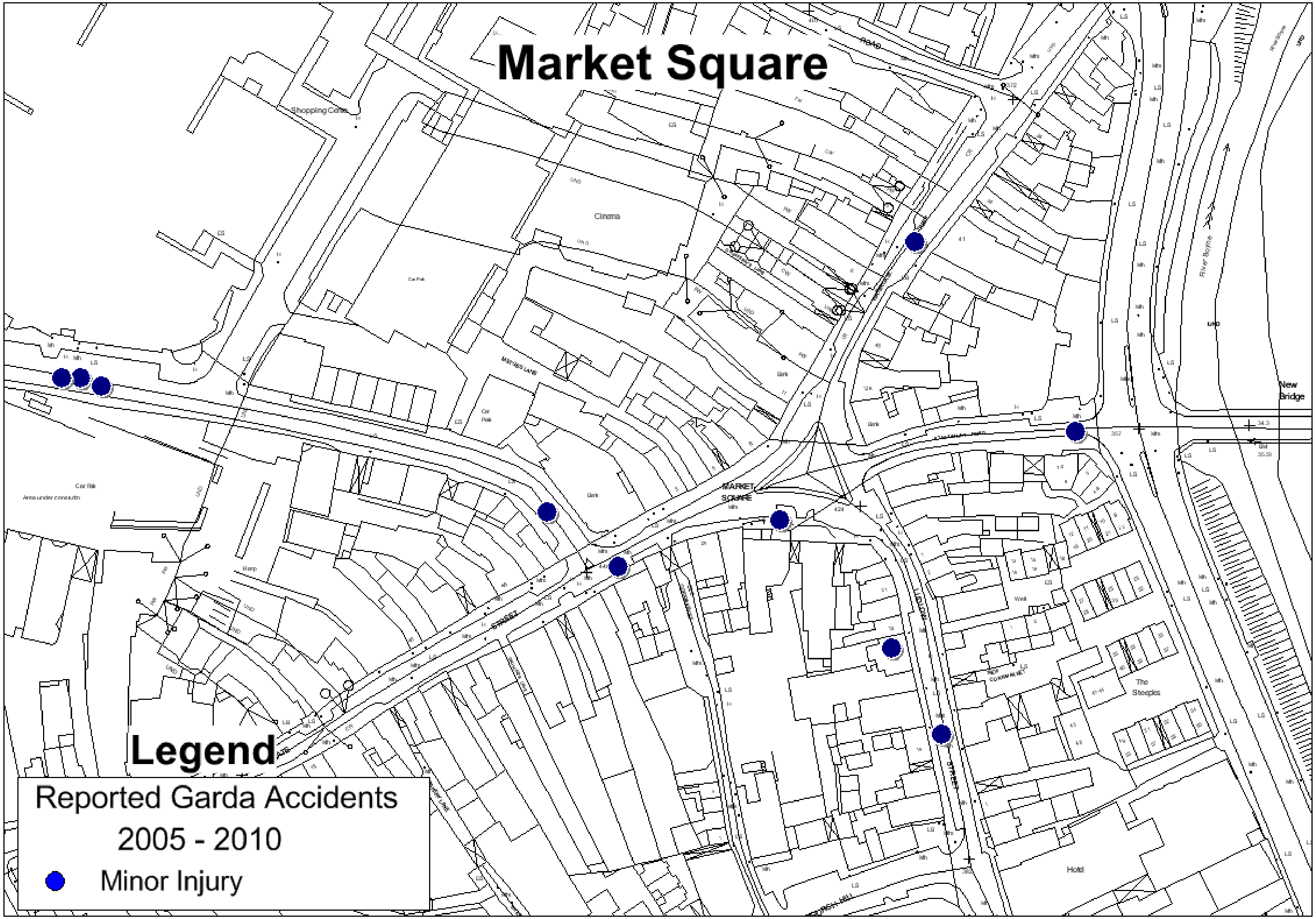
Public Bus Service Frequency

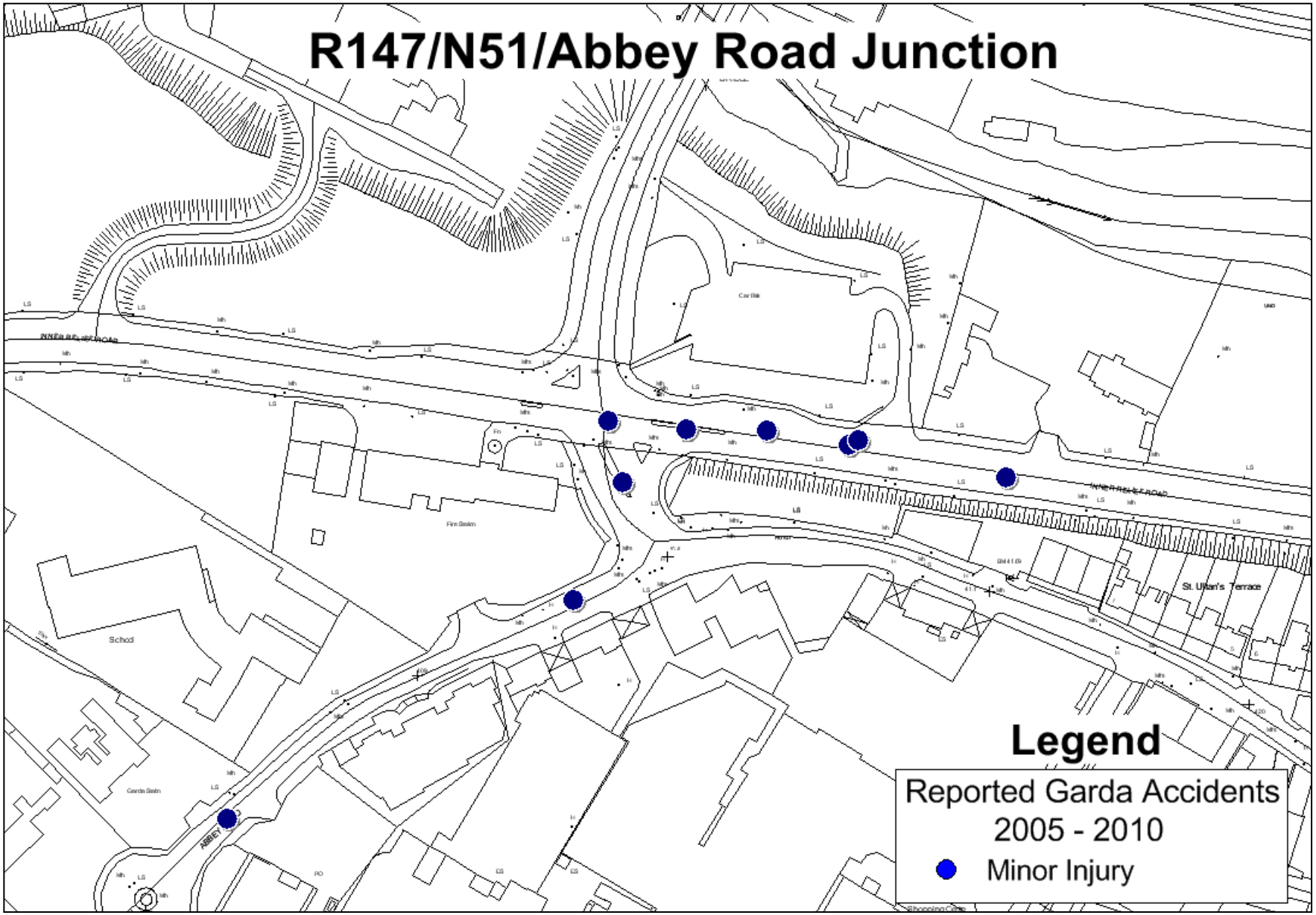
Bus Éireann Commuter Services to and from Navan

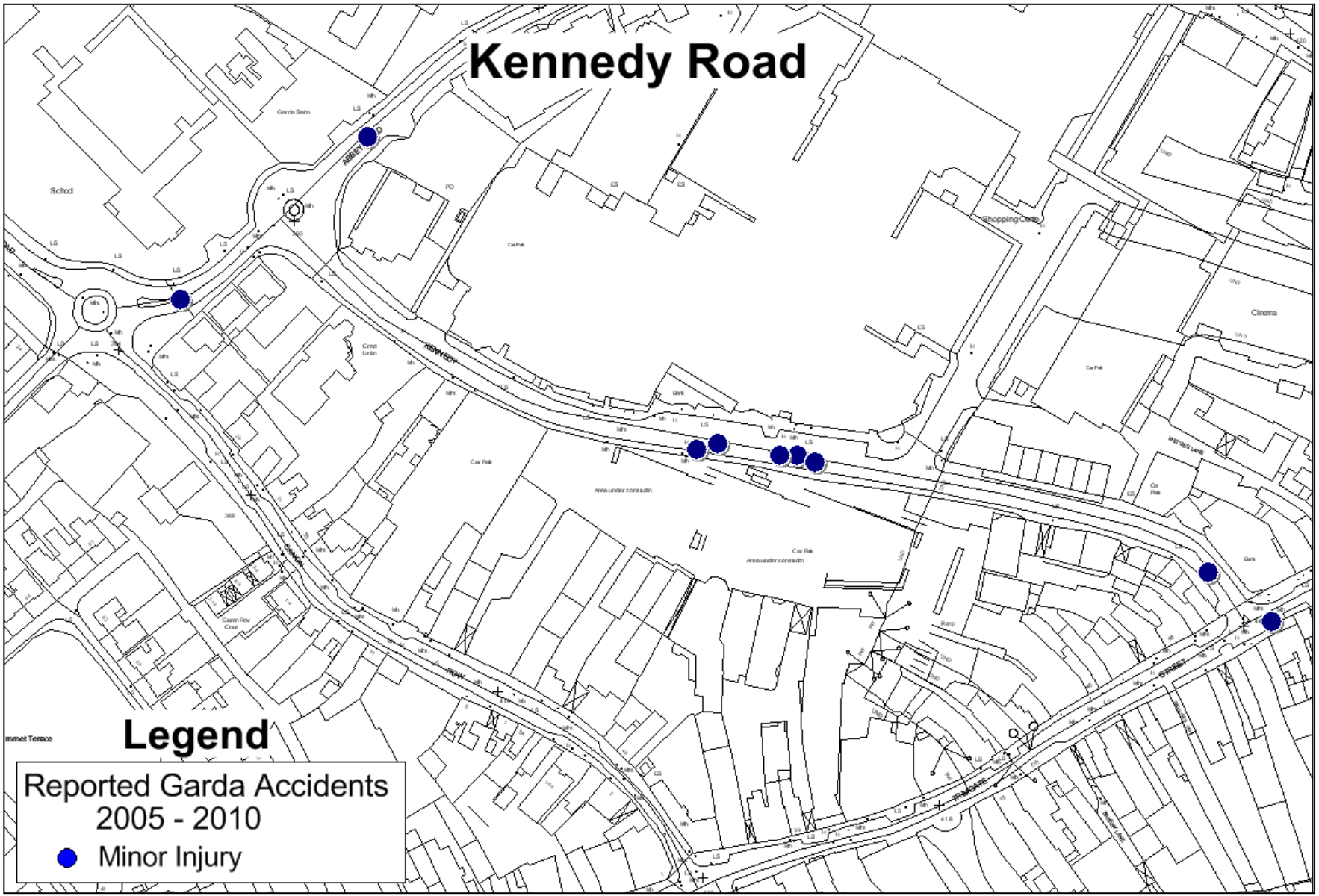
Bus Service	Journey	No. of Buses	Frequency
109	Dublin to Navan	52 (weekdays) 2 nightlink buses on Fridays 36 (Saturdays) and 2 nightlink buses. 25 (Sundays and Bank Holidays)	Typically every 20 – 30 mins **Total: 113 buses per week + 4 Late Night buses.**
109	Navan to Dublin	51 (weekdays) 2 nightlink buses on Fridays 35 (Saturdays) and 2 nightlink buses. 25 (Sundays and Bank Holidays)	Typically every 20 – 30 mins **Total: 111 buses per week + 4 Late Night buses.**
109A	Navan to Dublin Airport Dublin Airport to Navan	19 buses daily on both routes	Typically every hour
107	Navan to Kingscourt	4 buses weekdays (incl. Saturday) 1 bus on a Sunday	Typically every 3 – 4 hours.
107	Kingscourt to Navan	4 buses weekdays (incl. Saturday) 1 bus on a Sunday	Typically every 3 – 4 hours.
190/190A	Navan to Drogheda/Laytown	8 buses weekdays 4 on a Sunday	Typically every 2 hours
190/190A	Drogheda/Laytown to Navan	8 buses weekdays 4 on a Sunday	Typically every 2 hours
190/190A	Navan to Trim	14 buses on weekdays 7 on Weekends	Typically every hour on weekdays, and every 2 hours on weekends
190/190A	Trim to Navan	14 buses on weekdays 7 on weekends	Typically every hour on weekdays and every 2 hours on weekends

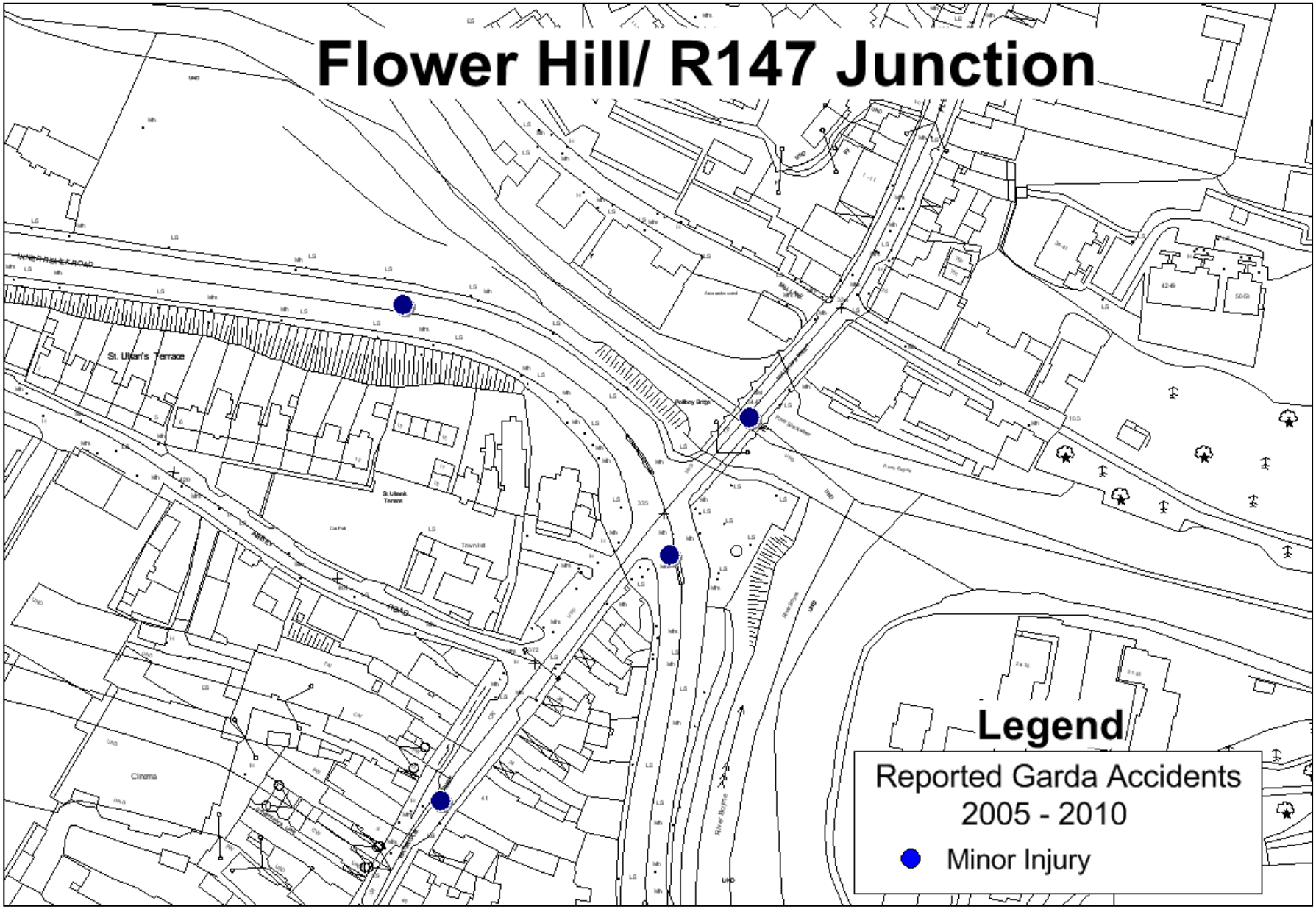
Appendix C

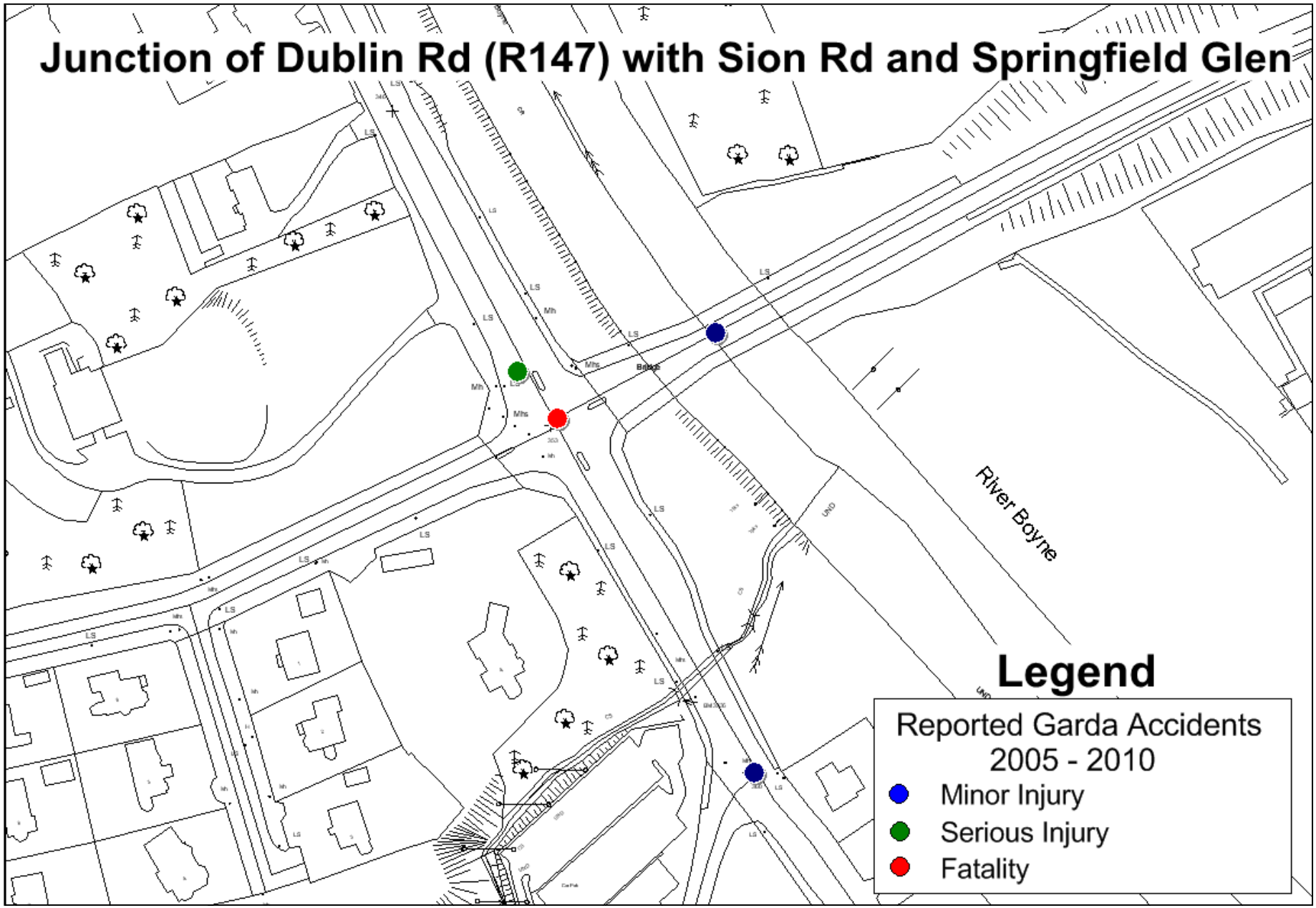

Reported Garda Accidents
in Navan 2005 - 2010
Fatal Accident
Serious Injury
Minor Injury
Development Boundary

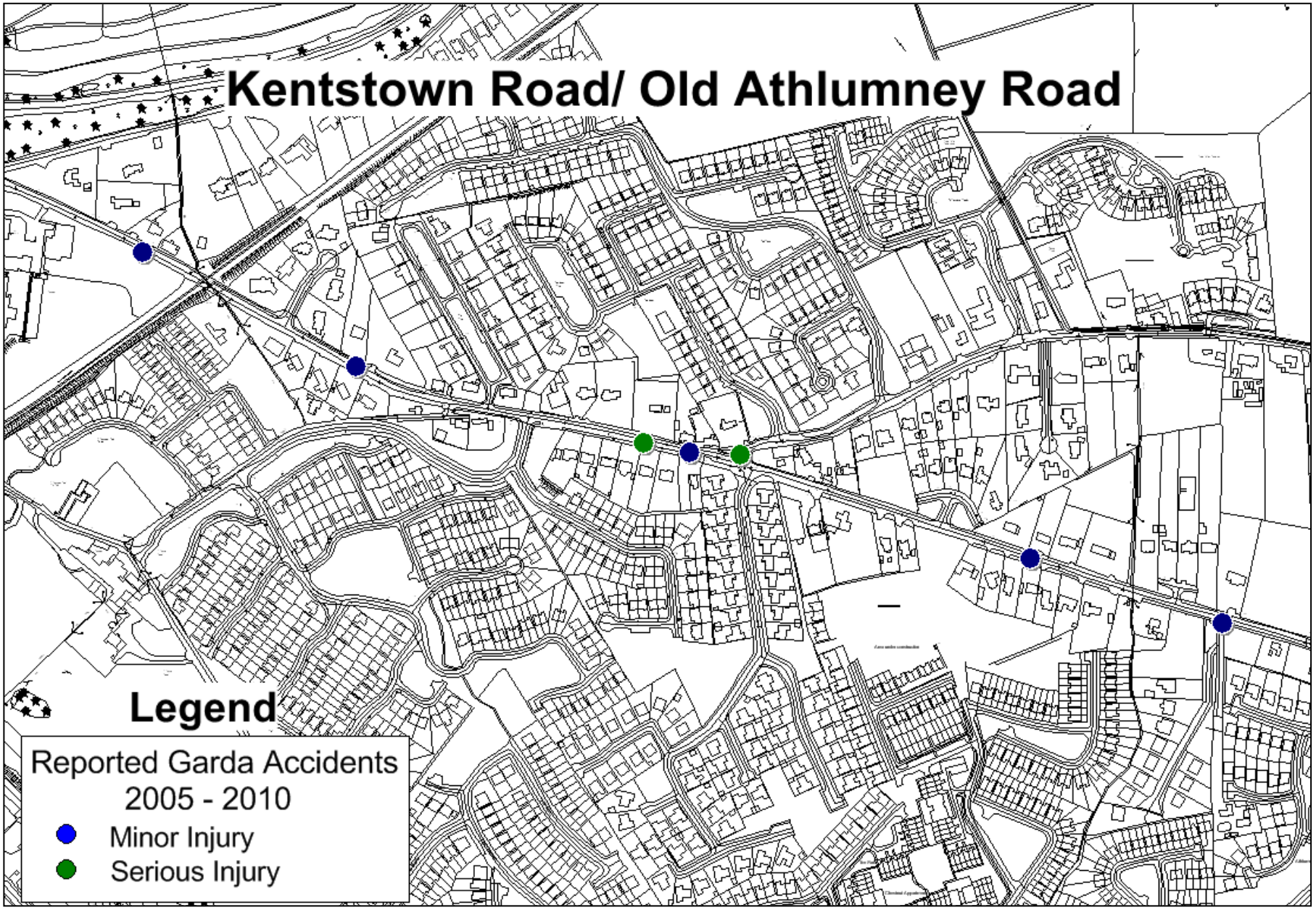

Market Square
Legend
Reported Garda Accidents
2005 - 2010
Minor Injury
Shopping Centre
Cinema
Car Park
MARKET SQUARE
New Bridge
River Boyne
The Steeples
Hotel
Bank
STREET


R147/N51/Abbey Road Junction
Legend
Reported Garda Accidents
2005 - 2010
Minor Injury
St. Ultan's Terrace
Schod


Kennedy Road
Legend
Reported Garda Accidents
2005 - 2010
Minor Injury


Flower Hill/ R147 Junction
St. Ultan's Terrace
Abbey
ROAD
Cinema
River Boyne
Legend
Reported Garda Accidents
2005 - 2010
Minor Injury

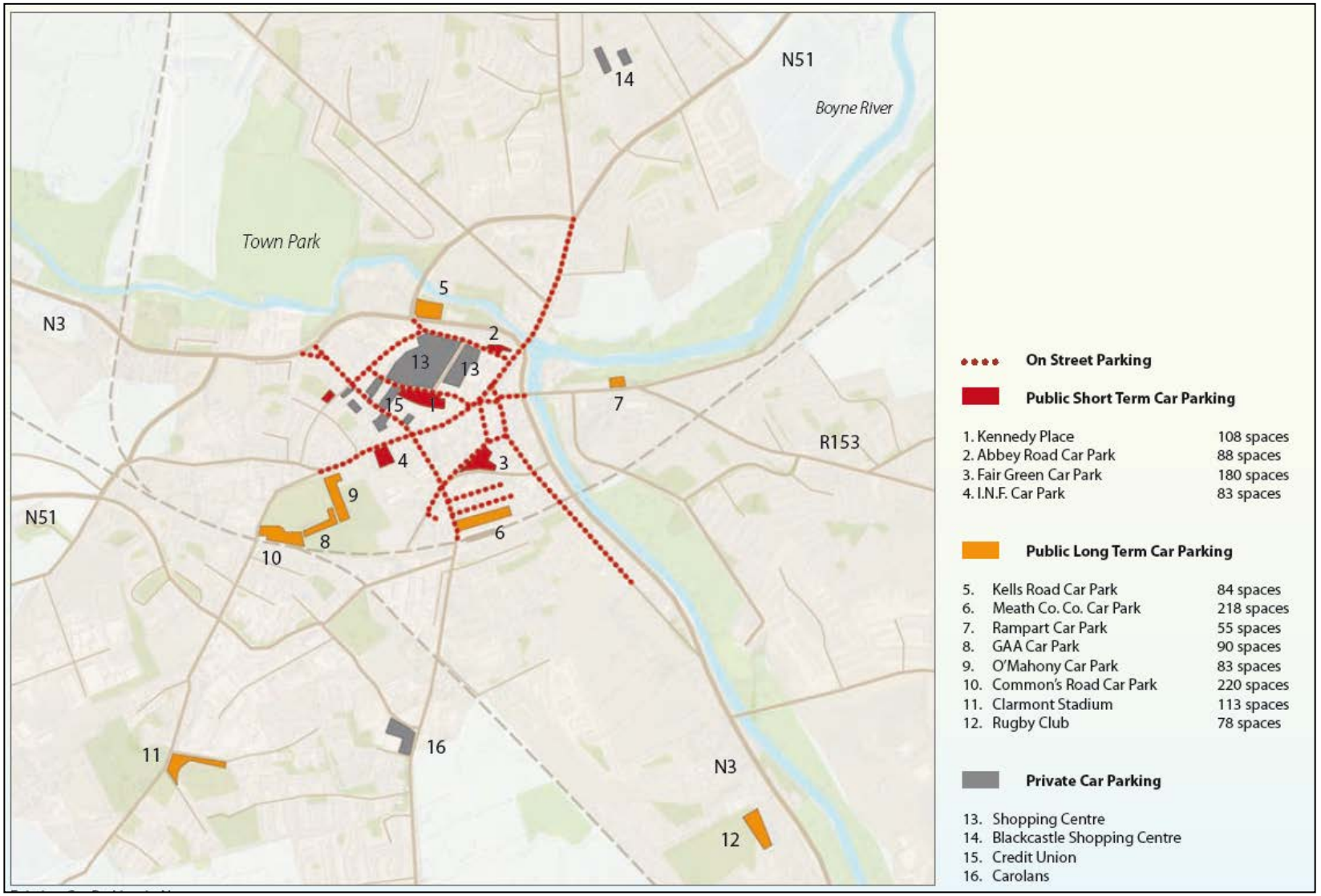

Junction of Dublin Rd (R147) with Sion Rd and Springfield Glen
River Boyne
Legend
Reported Garda Accidents
2005 - 2010
Minor Injury
Serious Injury
Fatality


Kentstown Road/ Old Athlumney Road
Legend
Reported Garda Accidents
2005 - 2010
Minor Injury
Serious Injury

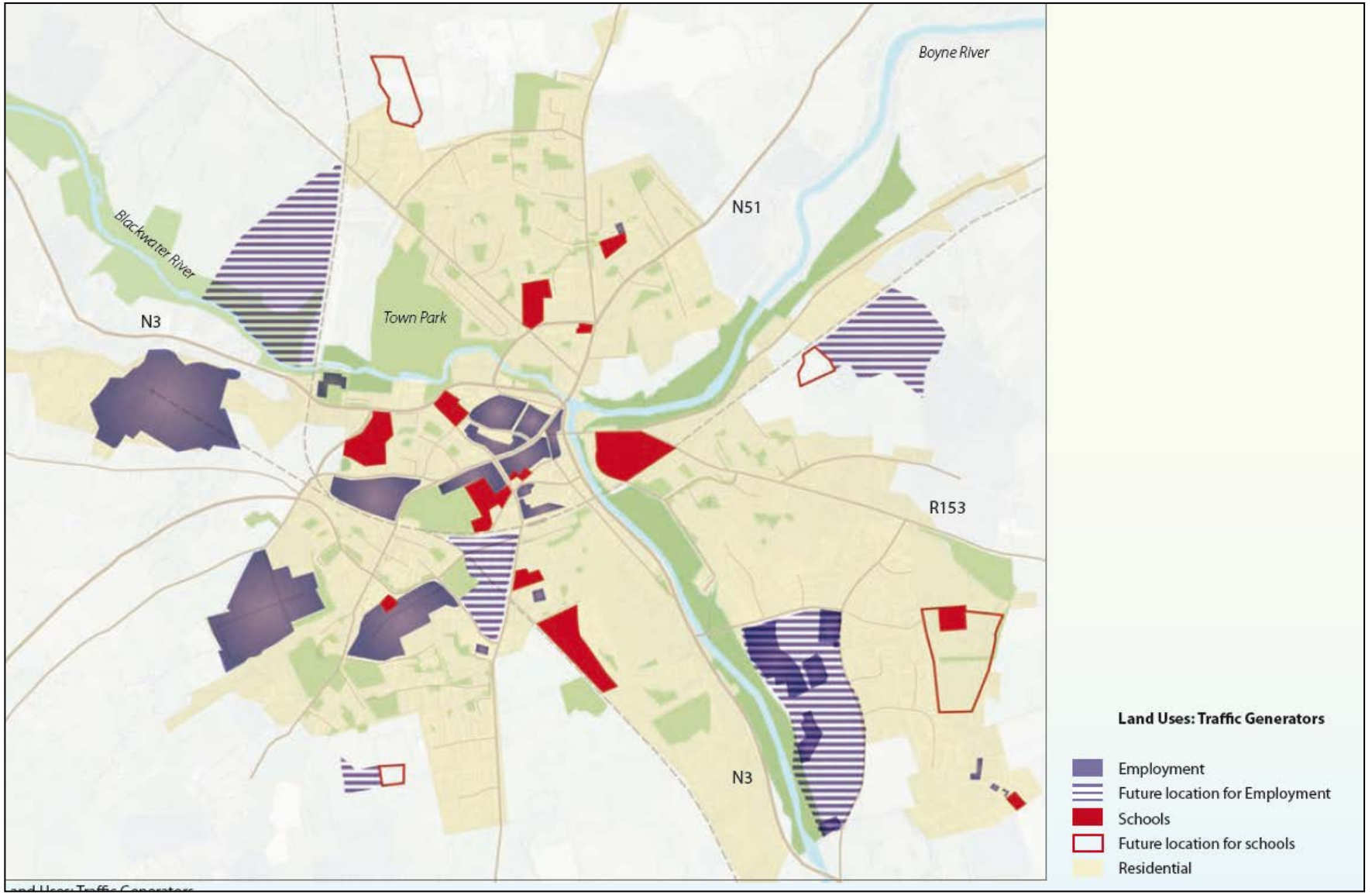

Old Johnstown Village
JOHNSTOWN
Spire View Way
Spire View Road
Spire View Rise
Spire View Way
Parochial House
Car Park
Pump
Church
UND
Chestnut Court
ES
Car Park
Medical Centre
Cill Foireann
School
Carne Hill
63.9
60.4
57.3
55.5
60.9
64.6
64.7
Legend
Reported Garda Accidents in Navan 2005 - 2010
Minor Injury

Appendix D

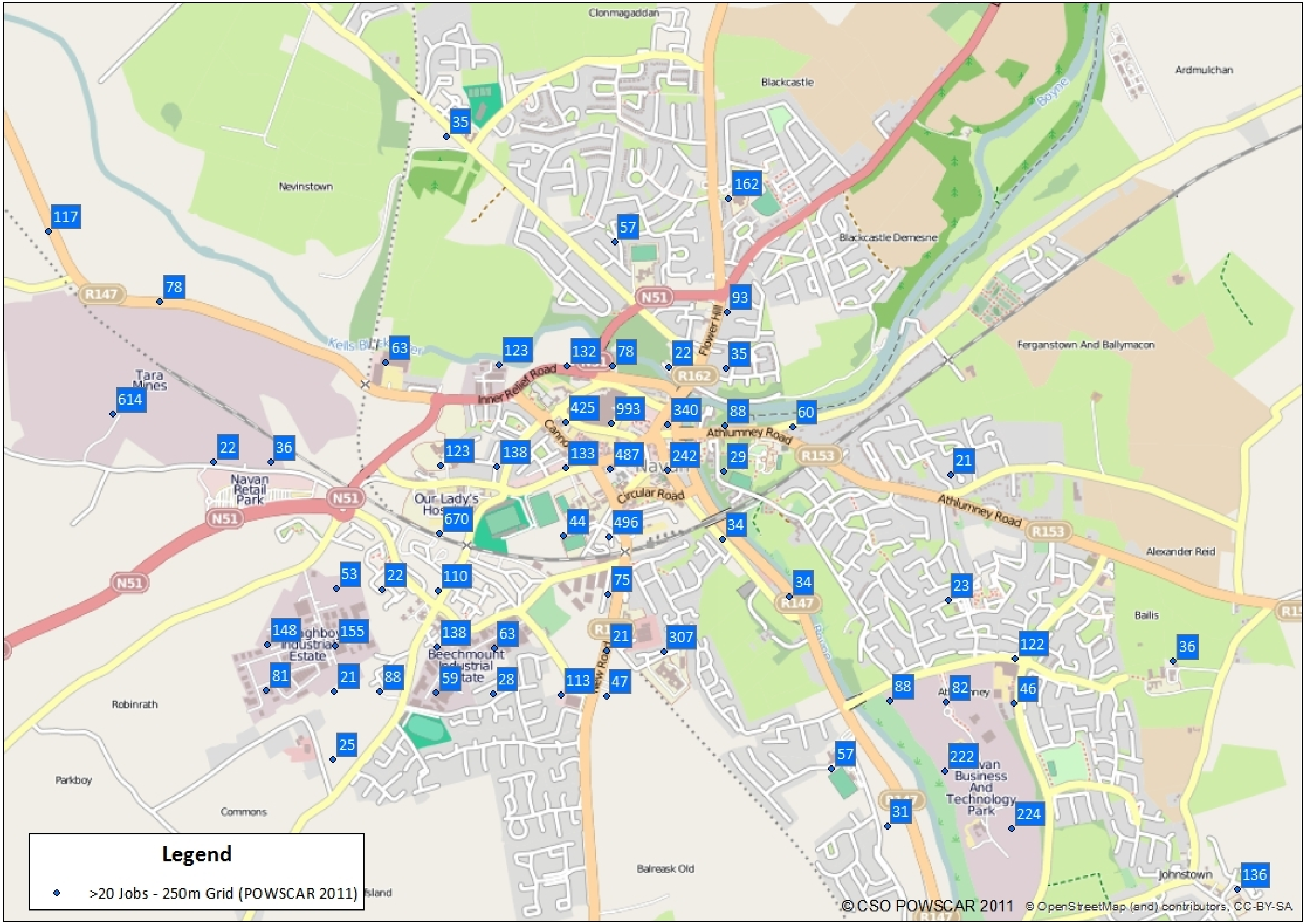
Location of Existing Public and Private Car Parks in Navan



Land Uses: Traffic Generators

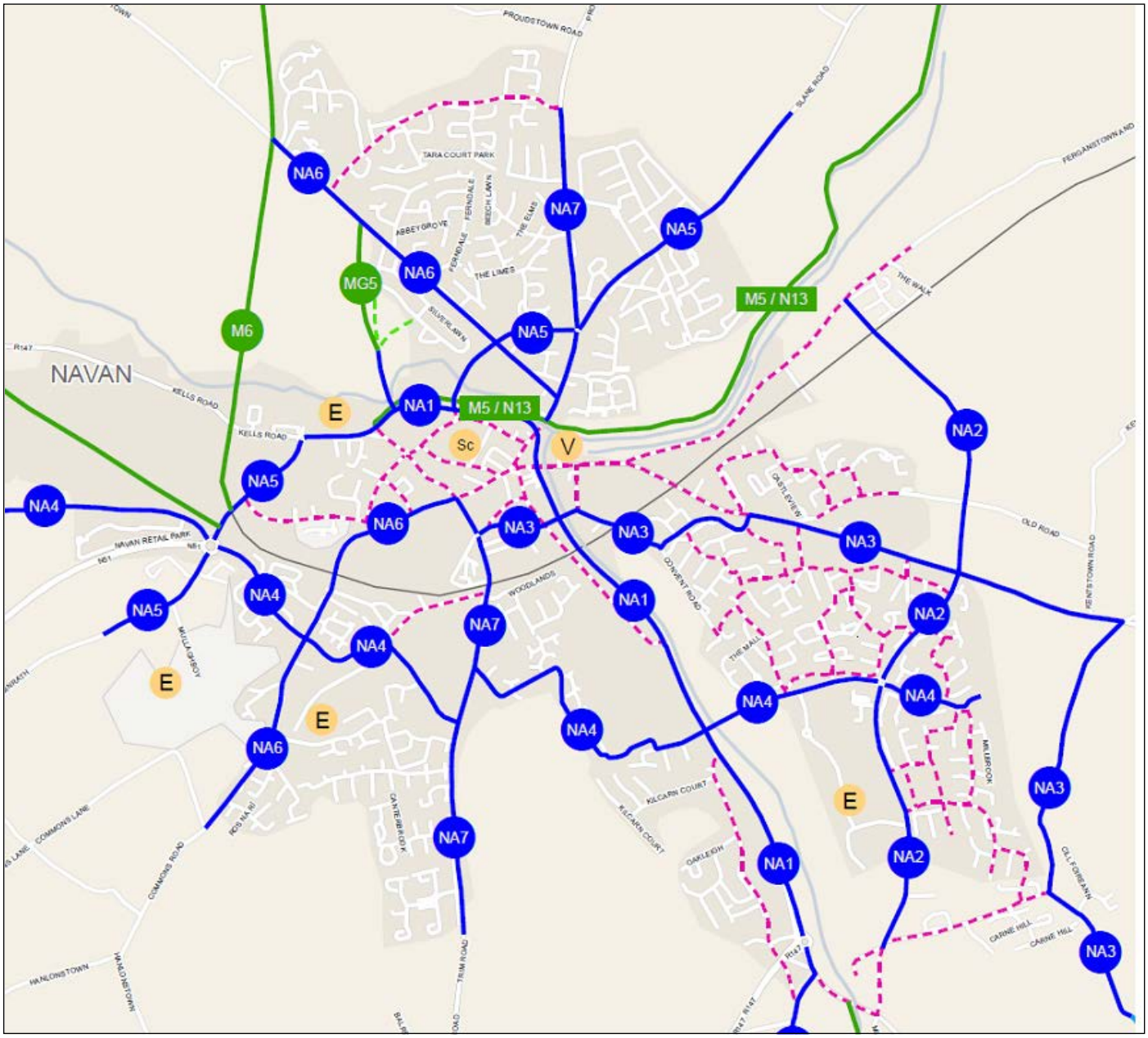


Appendix E


Legend
>20 Jobs - 250m Grid (POWSCAR 2011)
© CSO POWSCAR 2011
© OpenStreetMap (and) contributors, CC-BY-SA
Clonmagaddan
Blackcastle
Ardmulchan
Nevinstown
Blackcastle Demesne
Ferganstown And Ballymacon
Tara Mines
Navan Retail Park
Our Lady's Hos
Alexander Reid
Bailis
Robinrath
Parkboy
Commons
Balreask Old
Johnstown
Beechmount Industrial Estate
Navan Business And Technology Park
Inner Relief Road
Athlumney Road
Circular Road
Flower Hill
New Road
117
78
614
22
36
35
63
123
132
78
22
35
162
57
93
425
993
340
88
60
123
138
133
487
242
29
21
670
44
496
34
53
22
110
75
34
23
148
155
138
63
21
307
122
36
81
21
88
59
28
113
47
88
82
46
25
57
222
31
224
136

Appendix F

Proposed Navan Cycle Network



Legend:

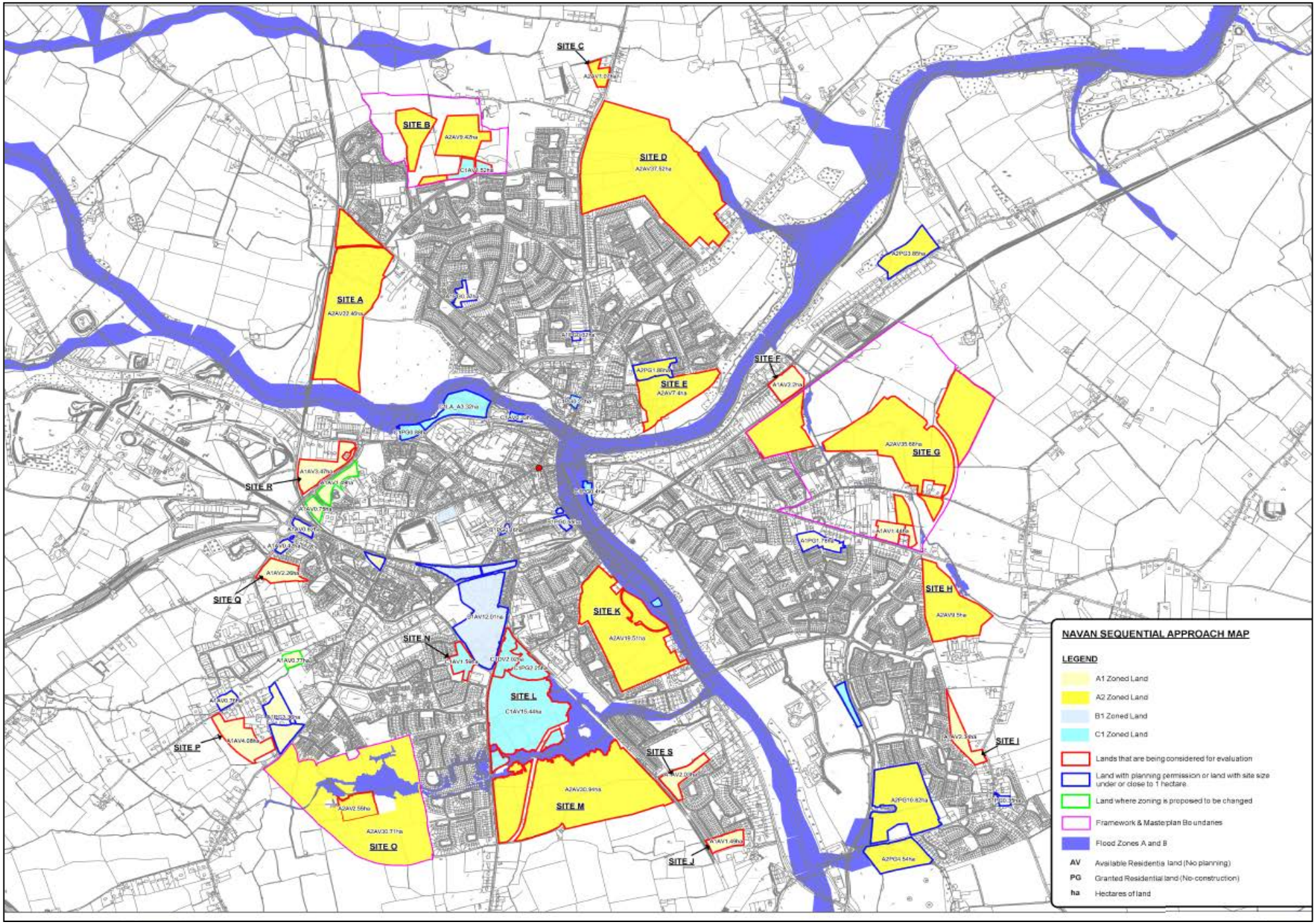
- Dublin - Primary
- Dublin - Secondary
- Greenway
- Primary/Secondary
- Inter-Urban
- Feeder
- Minor Greenway
- P Permeability Link
- County Council Boundaries
- E Employment Zones
- H Hospitals
- I Institute of Technology
- Sc Shopping Centre
- Te Town Centre
- U University
- V Village Centre

Údarás Náisiúnta Iompair
National Transport Authority

AECOM
Roughan & O'Donovan

Grand Canal House,
Upper Grand Canal Street,
Dublin 4
Tel: +353 (0)1 238 3100
Fax: +353 (0)1 238 3199
www.aecom.com

Appendix G


SITE A
SITE B
SITE C
SITE D
SITE E
SITE F
SITE G
SITE H
SITE I
SITE J
SITE K
SITE L
SITE M
SITE N
SITE O
SITE P
SITE Q
SITE R
SITE S
NAVAN SEQUENTIAL APPROACH MAP
LEGEND
A1 Zoned Land
A2 Zoned Land
B1 Zoned Land
C1 Zoned Land
Lands that are being considered for evaluation
Land with planning permission or land with site size under or close to 1 hectare
Land where zoning is proposed to be changed
Framework & Masterplan Boundaries
Flood Zones A and B
AV Available Residential land (No planning)
PG Granted Residential land (No construction)
ha Hectares of land