



Cavan Town and Environs Integrated Framework Plan 2020: Transportation Study

Cavan County Council and Cavan Town Council

July 2007



QM

WSP Ireland
Floor 4, Harcourt Centre
Block 3, Harcourt Road
Dublin 2
Tel: +353 (0) 1418 2224
Fax: +353 (0) 1418 2223
<http://www.wspgroup.com>

Reg. No: 347522



FORWARD

On the 9th July, 2007 Variation No.1 (2007) to the Cavan Town and Environs Development Plans was adopted by Cavan County Council and Cavan Town Council. It incorporates three documents:

1. Cavan Town and Environs Integrated Framework Plan 2020
2. Cavan Town and Environs Integrated Framework Plan 2020: Transportation Study
3. Cavan: Urban Design Framework

The purpose of the Cavan Town and Environs Integrated Framework Plan, Transportation Study and Urban Design Framework documents is to provide a broad vision for the future development of Cavan Town and Environs as a 'hub' as designated in the National Spatial Strategy (2002).

The vision outlined in the long-term Integrated Framework Plan will be implemented through statutory Development Plans including Variation No. 1 (2007).

The detailed Transportation Study which follows, has been developed in tandem with the Integrated Framework Plan in order to co-ordinate land use and development with a transport network for the town that will give people the opportunity to make trips to, from and within the town using the most appropriate mode of transport, whether by foot, wheelchair, bicycle, public transport or private car.

Ultimately the Study concludes with both strategic and specific transport recommendations that are tailored to Cavan in terms of physical growth of the Town in terms of its spatial development patterns and both its economic and social needs.

Variation No. 1 (2007) and subsequent Development Plans adopt and will adopt the principle of the Transportation Study, however, it should be noted that many of the details in this document will be subject to further public consultation and in many cases separate Council approval prior to implementation.



Contents

1	Introduction	3	7	Phasing and Costing	48
1.1	General	3	7.1	Phasing and Delivery of Recommendations	48
1.2	The Study Area	3	7.2	Preliminary Cost budget	49
1.3	Focus of the Study	3	7.3	Development Contributions	50
1.4	Format of the Report	4			
2	Study Area Context	6		Appendix A: Town Centre Improvement Figures	
2.1	National Policy Context	6		Appendix B: External Junction Improvements	
2.2	Regional Policy Context	7			
2.3	Local Policy Context	7			
2.4	Transport Characteristics of the Study	8			
3	Consultation	13			
4	Transport Vision and Issues	17			
4.1	Transport Vision	17			
4.2	Transport Issues	18			
5	Transport Recommendations	20			
5.1	Introduction	20			
5.2	Transport Network	20			
5.3	Town Centre Recommendations	23			
5.4	Beyond the Town Centre	29			
6	Transport Modelling	36			
6.1	Introduction	36			
6.2	Modelling Scenarios	39			
6.3	Key Modelling Outputs	40			
6.4	Future Road Proposals	44			
6.5	Conclusions from the Traffic Modelling	46			



1 Introduction

1.1 GENERAL

Cavan is designated as a Hub Town within the National Spatial Strategy and in this context Cavan County Council and Cavan Town Council have developed an Integrated Framework Plan for the development of Cavan Town and Environs up to the year 2020. One of the clear objectives of the Integrated Framework Plan is to coordinate land use and development with a transport network for the town that will give people the opportunities to make trips to, from and within the town using the most appropriate mode of transport, whether by foot, wheelchair, bicycle, public transport or private car.

In February 2005 Cavan County and Town Councils' issued an invitation to tender for the transport aspects of the Integrated Framework Plan. In March 2005 WSP Ireland Ltd were appointed as the consultants to carry out the Transportation Study.

The Land Use and Urban Design elements of the study were carried out by Cavan County Council in association with O'Mahony Pike Architects. These are the subject of a separate report entitled 'Cavan 2020: Integrated Framework Plan for Land Use and Transportation' that must be read in conjunction with this study. Both reports were developed in a coordinated manner and the Transportation Study is founded on the preferred land use development framework detailed in the Integrated Framework Plan.

In particular the Transportation Study has been developed in partnership with the Roads & Transportation and Planning departments of Cavan County Council.

1.2 THE STUDY AREA

The general study area is identified on Map 1. It incorporates the town and environs and includes all areas that are anticipated to form part of the urban area of Cavan for the foreseeable future. The study area is generally bounded to the east by the N3, incorporating the N3 to N55 bypass that is currently under construction, however it does extend to the Kilmore Hotel on the N3.

The 2002 census records that the population of Cavan Town and Environs was approximately 6,600 whilst the target population outlined in the Integrated Framework Plan is 16,000. This represents a significant growth that will create a resultant significant increase in trip making in the study area. The key to integrating land use and transport planning for the town and environs is to develop a transport network that allows for these trips to be made in the most sustainable manner but that also allows Cavan to grow as a vibrant economic centre that serves a dispersed hinterland.

1.3 FOCUS OF THE STUDY

Arising from the original study brief, the Transportation Study addresses the town and environs from two interrelated perspectives. On the one hand it focuses on the **town centre** and address all transport issues therein, including:

- Pedestrian and cyclist accessibility to the town centre and permeability therein.
- The appropriate routing and management of motorised traffic including deliveries.
- The facilitation of public transport including a public transport hub.
- Car parking requirements, management and locations.
- Potential pedestrianisation of sections of the town centre.
- The transport vision for key development areas within the town centre.

On the other hand it focuses on the **environs** and assesses key transport issues incorporating the following:

- Traffic management proposals on the existing road network, particularly at key junctions that will enhance the flow of traffic yet also cater for the needs of slow modes.
- The identification of potential new access or relief routes to new development areas and the town centre.
- The feasibility of public transport services being developed to serve the entire urban area.
- Traffic management measures to be adopted to improve the safety and general environment of the N3 between the Ballinagh Road junction and the Kilmore Hotel junction.

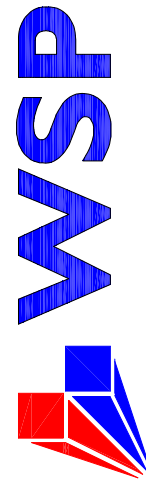
Ultimately the study concludes with both strategic and specific transport recommendations that are tailored to Cavan in terms of its physical characteristics, in particular its topography, the historical street and road network and the planned growth of the town in terms of its spatial development patterns and both its economic and social needs.

The recommendations are phased in terms of their short, medium or long term implementation. In addition physical traffic management measures are also subjected to sketch design on ordnance map base with associated budget costs.

The entire study is supported by SATURN network modelling of the existing and future road network in the town and environs



Ordnance Survey Ireland Licence No. EN 0004504 © Government of Ireland



Cavan Urban Area

Map 1.1

FIGURE No.

1.4 FORMAT OF THE REPORT

This report is presented in six further sections that bring the reader through the assessment and development of the transport recommendations, creates a clear vision for transport in Cavan and sets out the next steps towards implementing the transport recommendations.

Section 2: Study Area Context

A fundamental requirement of the study is that it addresses the specific transport characteristics of Cavan. This section of the report reviews the town and environs, on the one hand, in the context of the national, regional and local policy context. On the other hand it reviews the key characteristics of the urban area in the context of the transport issues that form the focus of the study. This review incorporated significant 'on the ground' reviews and assessments by the consultants together with consultation with key stakeholders and a review of all relevant planning applications within the study area.

Section 3: Consultation

It is critical that the study is based on a full understanding of the study area and central to this understanding are the views of all stakeholders. Consultation with these stakeholders was central to developing the transport visions, principles and recommendations.

Section 4: Transport Vision and Issues

Following the assessment and review of the study area it was critical that a clear vision and set of transport principles was developed for Cavan. This ensured that the resultant transport management recommendations were based on coherent transport goals that fully addressed the focus issues.

Section 5: Transport Recommendations

These recommendations form the core deliverables from the study and the recommendations are broadly broken down into two categories. The first category consists of transport guiding principles that are to be applied, in particular, to the key development areas in the town centre and to the development of public transport and new access roads to serve the study area. The second category consists of tangible and explicit transport management recommendations that are to be applied to the existing road and street network. By and large these latter recommendations are designed to be delivered in the short to medium term and therefore will form the first steps in delivering the overall transport vision for Cavan.

Section 6: Transport Modelling

It is critical that the transport recommendations are founded on sound transport movement predictions. This section of the report describes the development of the SATURN network model that was used to simulate current year traffic flows and to predict future year flows when the study area reaches a population of 16,000 people based on the land use patterns identified in the Land Use report. The key outputs of the base and future year models are described in terms of how they were used to assist in the formulation of the transport recommendations.

Section 7: Phasing and Costing

This section of the report outlines the phasing for implementing the physical transport management recommendations on the road and street network and outlines budget cost estimates for the proposals developed in section 5.



2 Study Area Context

2.1 NATIONAL POLICY CONTEXT

2.1.1 Department of Transport: Statement of Strategy 2005-2007

This document outlines the Department of Transport's strategy for all modes of transport for the near future. It sets high level goals regarding integration, investment, safety, competition, regulation and reform and finally delivery. Objectives are defined across all modes of transport and strategies necessary to deliver these objectives are identified.

The strategy contains a number of guiding principles including the support of land use and spatial planning. In particular it is recognised that capital investment for public transport, should be given to local authorities who take practical steps to enhance accessibility and facilitate sustainable development. Clearly this principle should be applied to Cavan and any proposals to improve bus services and access to same.

Encouraging modal shift is a further guiding principle. The strategy recognises that some level of congestion is an inevitable feature of modern lifestyles however in urban areas a shift away from dependency on car travel can be facilitated by significant investment in public transport and the introduction of measures to provide facilities for cyclists and pedestrians. It can be assumed that this principle should be applied to Cavan in the context of its potential growth to a population of 16,000.

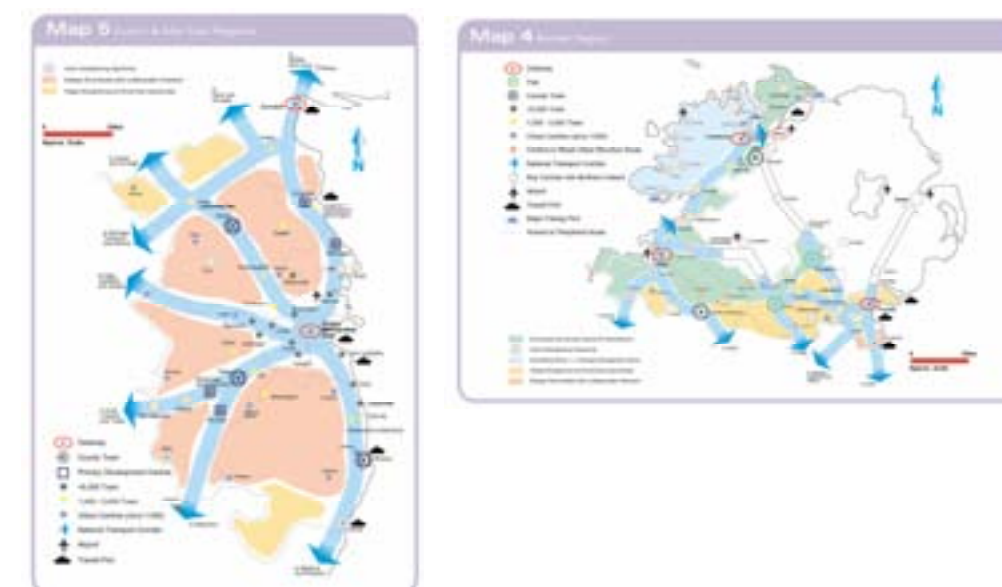
The Strategy also outlines other principles that are applicable to Cavan including social inclusion and the development of transport policies that take account of people with mobility or sensory impairment and those without access to car travel. The Department explicitly outlines the necessary strategy to work with local authorities in large urban areas to develop and implement public transport, traffic management and cycling and pedestrian measures. These requirements are fully applicable to the Cavan and are central to the Transportation Study brief.

The Department is also preparing a ten-year strategic investment plan which will set out the framework for the longer term development of an efficient, integrated and sustainable transport system which promotes competitiveness, enhances quality of life and contributes to social inclusion and balanced regional development.



2.1.2 The National Spatial Strategy

In the National Spatial Strategy (NSS), Cavan has been identified as a Hub Town that occupies a strategic location on the N3 leading to Enniskillen, with the town itself supporting an extensive hinterland. Cavan is located on the N3 one of the strategic radial road corridors from Dublin and therefore Cavan is directly linked by road to the Greater Dublin Area, Dublin Airport and the ports of Dublin and Drogheda.



The characteristics of a Hub are outlined in the NSS (see note 1). In transport and population terms the key characteristics that underpin the transport requirements for Cavan (see note 2) include:

- A significant urban population in the range of 20,000-40,000 set in an associated rural hinterland
- An important transportation node
 - On the national road and bus or rail network
 - With access to a regional or national airport
 - Having efficient access to port facilities
- An effective local transport system with facilities for pedestrians and cyclists

⁽¹⁾National Spatial Strategy: Pg 40, Fig 3.1 'Gateway and Hubs – Characteristics'.

⁽²⁾The Guidelines for the Border Region (2004) set a target population of 16,000 for Cavan.

Section 6.1.4 of the NSS outlines the local authorities as having a key role in the local implementation of the strategy through the development of the necessary statutory planning guidelines, development plans and local plans. This Transportation Study of Cavan should be viewed as a fundamental part of this local planning requirement.

2.2 REGIONAL POLICY CONTEXT

Regional Planning Guidelines: Border Region

In the context of transport in Cavan the key strategic goals for the region include supporting the role of Cavan as a Hub Town and identifying, prioritising and assisting in delivery of physical infrastructure incorporating transport by road, air, sea and including public transport by bus and rail. The guidelines recognise Cavan's strategic location on the N3 road corridor and its proximity to major towns in Northern Ireland such as Enniskillen.

The key concepts in relation to transport include maximising access to, and encouraging the use of public transport, cycling and walking whilst also promoting the cost effective provision of public services including roads. A Special Investment Programme is identified that will prioritise the development of the Gateways and Hubs including investment in Non National Roads and Traffic Management. In terms of Cavan Town and Environs this is a key prioritisation that signals the need to invest in the road and street network of the urban area in order to cater for both vehicular and slow mode traffic (pedestrians and cyclists).

As a Hub Town the guidelines explicitly recognise Cavan as one of the seven key urban settlements in the region and specific note is made of recent private sector investment and public sector decentralisation. Substantial improvements in infrastructure, including transport, will be necessary if continued growth is to be achieved.

2.3 LOCAL POLICY CONTEXT

Cavan County Development Plan 2003 – 2009

Whilst the Cavan County Development Plan excludes the area of Cavan Town and its environs, the policies outlined in the plan play a major role in the development of the wider strategic road network and transport policies of the study area.

The County Development Plan has highlighted a number of policies in relation to strategic development:

- Promoting established urban areas as development growth areas.
- Preferring the development of established energy efficient urban centres with good inter-urban transport corridors.
- Promoting higher density development where appropriate within established urban areas.
- Promoting development of employment generators within or in proximity to residential areas.

- Providing the infrastructure to ensure adequate serviced land is available to meet these policy objectives in areas that are compatible with the concept of sustainability.

The development plan highlights the need to support and accommodate an 'east-west' link (Dundalk-Shercock-Cootehill-Cavan-Belturbet-Sligo) and to improve the inter-urban, local urban and rural road network particularly in terms of pavement, capacity and safety, and encourage the further development of all other relevant forms of sustainable transportation. This will be achieved by implementing policies such as:

- Reserving National Routes as main inter-urban transport corridors and minimise new accesses on to them.
- Improving the quality of the regional and local road networks in terms of alignment and, more importantly, road surface treatment.
- Ensuring that all development proposals fulfil traffic safety and car parking requirements.

The above aims and policies of the County Development Plan are viewed as key issues to be considered in the development of transport recommendations for the town of Cavan and its environs.

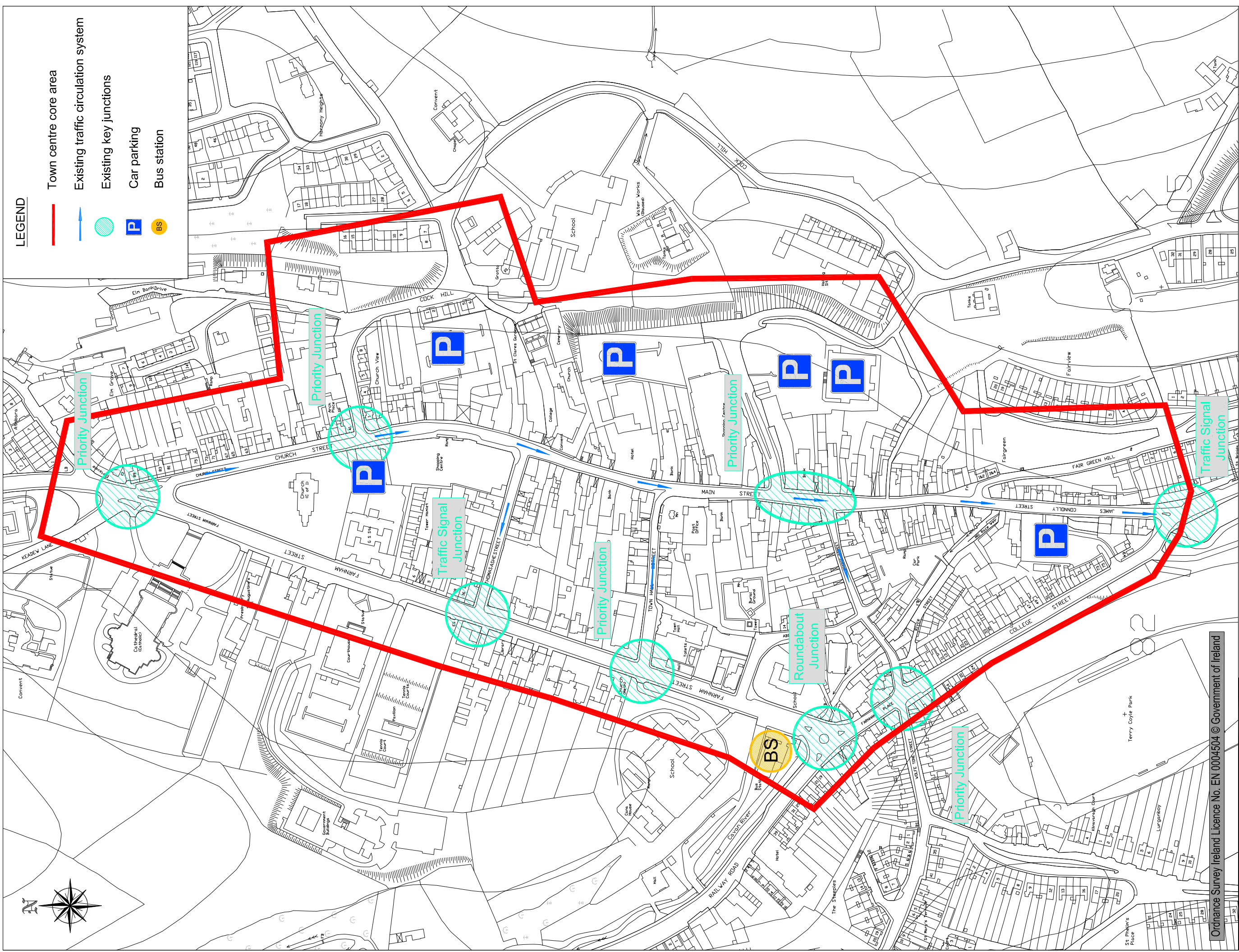
Cavan Town and Environs Development Plan 2003-2009 and Cavan Town Development Plan 2003-2009

The two development plans encompassing the town and environs contain transport and traffic policies and objectives that compliment each other and form key considerations in the development of the transport recommendations of the Land Use and Transportation Study.

Key policies include:

- To provide an efficient bypass system that relieves the town's central area.
- To consider town centre parking in terms of reducing traffic congestion and facilitating retail growth.
- To provide improved pedestrian and cyclist linkages between residential areas and the town centre.
- To consider kerbside parking whilst also ensuring the free flow of traffic.

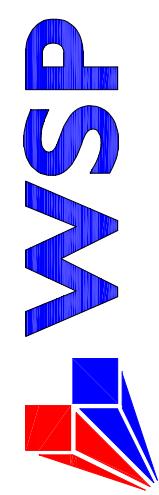
Transport and traffic management objectives are outlined in terms of both strategic and local objectives.



LEGEND

- Town centre core area
- Existing traffic circulation system
- Existing key junctions
- Car parking
- Bus station

Ordnance Survey Ireland Licence No. EN 0004504 © Government of Ireland



Town Centre Core Area: Existing Traffic Management

FIGURE No.

Strategic objectives include:

- The consideration of access from the national route network to the R198 (Arvagh).
- Access from Swellan to the town centre.
- The consideration of improved north south linkages in the eastern environs between the town centre and the N3 Bypass.

Local transport objectives include:

- Monitoring the supply and demand for public car parking in the town centre.
- The provision of improved pedestrian linkages between residential areas and the town centre.
- The provision of cycle routes linking residential areas to the town centre and the provision of secure cycle parking facilities within the town centre.
- Monitoring parking and implementing parking regulations within the town centre where such parking impedes traffic circulation.
- Promote east-west traffic routing via N55, R154 (Kilnaleck- Ballinagh) and R198 (Arvagh).
- Extend pedestrianisation within the central area as part of the town centre enhancement scheme.

2.4 TRANSPORT CHARACTERISTICS OF THE STUDY

General

The general topography of the Cavan area is dominated by drumlins which give the town a unique landscape of small hills that have influenced the spatial development of the town and the location and gradients of roads and footpaths.

In general terms access in a north south direction along the Dublin Road, Ballinagh Road, Farnham Street, Cathedral Road, Cootehill Road and Railway Road is along relatively flat gradients. The River Cavan is also a defining element of the landscape that, in the town centre, runs between Connolly Street and College Street and broadly parallel to Railway Road under the Farnham Street junction.

However in an east west direction, particularly close to the town centre, there are significant gradients along Cock Hill and Wolfe Tone Street. The new mutli storey car park to the east of Main Street is a direct consequence of the particular topography of the town between Main Street and Cock Hill which is characterised by a bluff that creates a major level difference between the at grade car parks off Main Street and the disused water treatment plant.

In the environs of the town the drumlin landscape has influenced the pattern of development and the development of the road infrastructure and will continue to influence the choice of new road alignments. Within the environs residential development has occurred in dispersed locations with relatively low densities. This has resulted in a town that is disjointed with many residents living beyond acceptable walking distance of the town centre. The Urban Design Framework Study is readdressing this imbalance by identifying infill development sites close to and within the town centre as the most critical new residential development sites. This will result in a more compact urban form that will make walking and cycling more practical mode choices for a larger proportion of the population.

The Town Centre

The town centre forms the transport core of the study areathat is the main focus for trips and, in particular is a key focal point for pedestrians and cyclists, car parking, deliveries and public transport services. In the context of this Transportation Study the town centre is defined in terms of the area bounded by Farnham Street, College Street, James Connolly Street, Main Street, Church Street and Cock Hill. This area is outlined on Map 2.1 on which some key characteristics of the existing transport network are illustrated.

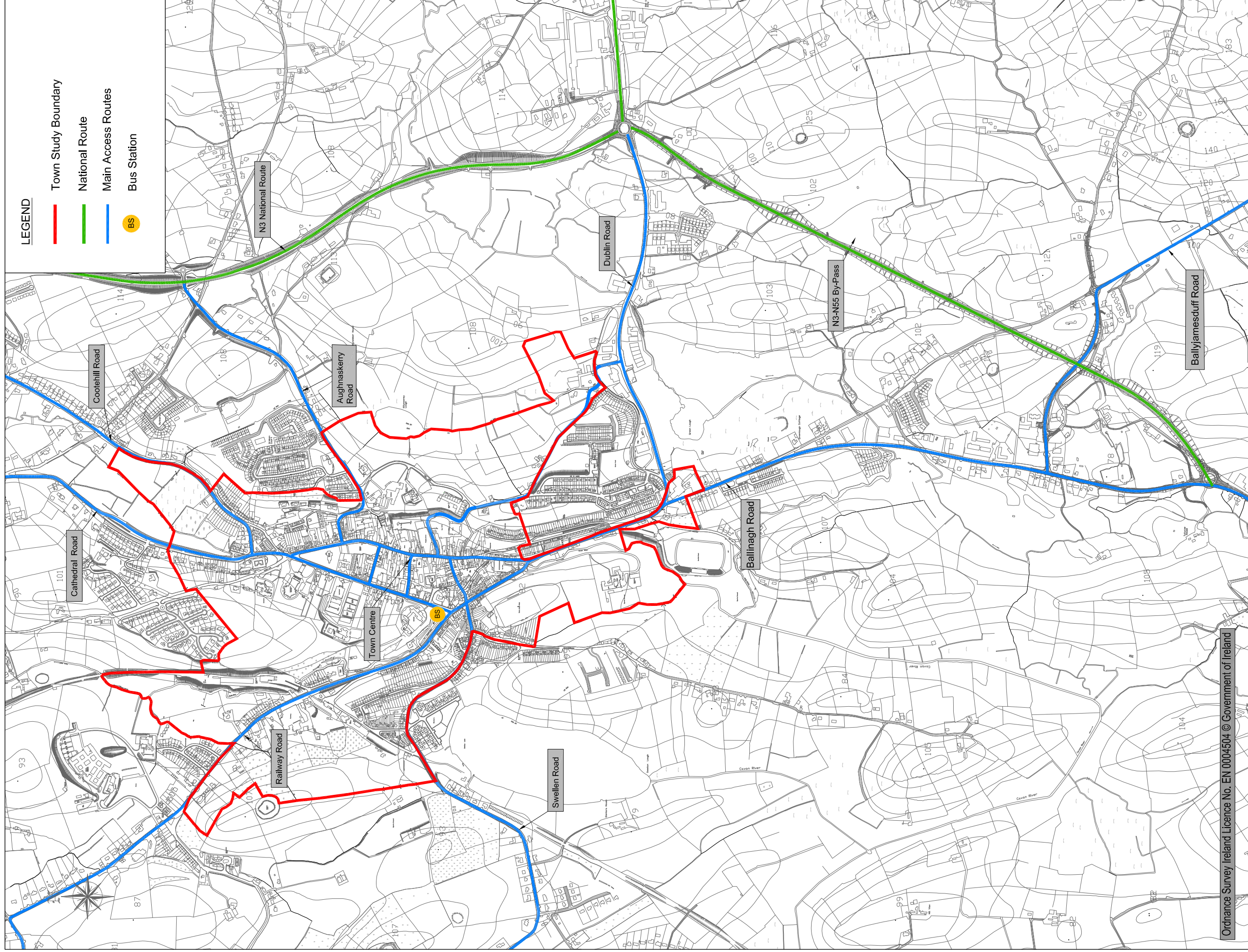
These characteristics include the traffic circulation system including the one way flows on Church Street, Main Street, James Connolly Street, Bridge Street, Town Hall Street and Thomas Ashe Street. The key junctions in the town centre are identified including the current form of junction control. The main off street parking facilities are identified and are described in further detail below. The bus station is also identified and this forms the existing public transport focal point in the study area.

As outlined in the Integrated Framework Plan the future growth of the town's population will create a demand for an expanded town centre core leading to the development of new streets to the west of Farnham Street and east of Main Street. These form two of the four key development areas in the town centre that will be central to the development of the transport core and the vision for the transport aspects of these areas as detailed within Section 4.1.

Road and Street Network

Cavan Town is strategically located on the N3 National Primary Route which links Dublin to Enniskillen in Northern Ireland via the A32 and the A4. The N55 linking Athlone to Cavan also forms a major artery into the town. Cavan has witnessed significant growth in traffic volumes over the last twenty years based on large volumes of through traffic on the N3 and N55, and increased growth in internal traffic movements within the town due to increases in population, employment and commercial activity.

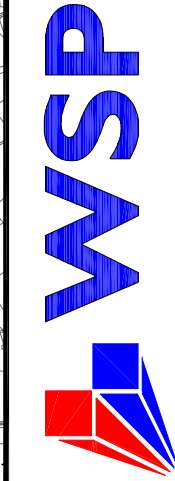
The construction of the N3 bypass in 1999 has mitigated against some of the effects of this growth and the construction of the extension of the bypass to the N55 has further relieved some of the



LEGEND

- Town Study Boundary
- National Route
- Main Access Routes
- BS Bus Station

Ordnance Survey Ireland Licence No. EN 0004504 © Government of Ireland



Strategic Existing Road Network

FIGURE No.

pressures on the town's street network, however the opportunities gained by these strategic routes must be managed carefully.

Within the town and its environs, the most highly trafficked route is the Dublin Road (Old N3). This road is still the main access route to the town and carries traffic volumes in excess of 1200 vehicles in the AM peak and 1500 vehicles in the PM peak. The Ballinagh Road forms the main link from the south of the town into the town centre. The intersection of these two radial routes is controlled by a priority junction. Historically, the high volume of traffic, road geometry constraints and competing accesses, have caused considerable queuing and delays at the intersection, in particular on the Ballinagh Road and southern approach of the Dublin Road. However, the opening of the N55 bypass has removed a large volume of traffic from the Ballinagh Road. As the town expands this critical junction will continue to have a significant impact on the overall capacity of the network.

Swellan Road and Railway Road provide key radial routes from the western environs to the town centre. A roundabout junction exists at the intersection of Railway Road, College Road and Farnham Street. This intersection experiences significant traffic flows throughout the day and as a result is a critical element of the road network.

Cathedral Road and Cootehill Road provide distributor routes in the northern environs linking the N3 bypass to the town centre. Both routes carry moderate levels of traffic and in general experience less congestion than occurs on the Dublin Road.

The centre of Cavan has built up around the two streets of Main Street and Farnham Street that are complimented by the linking streets of Thomas Ashe Street, Town Hall Street and Bridge Street.

Due to traffic volumes and the narrow streets, a one-way system was introduced in the centre of the town some time ago. The one-way system is predominantly based on Church Street / Main Street, which is one way in a southerly direction leading on to Connolly Street. The streets that link Main Street and Farnham Street are predominantly one way with the majority of other streets in the town carrying two-way traffic.

Pedestrian and Disabled Access Facilities

There are currently no pedestrian only areas in the town centre although the introduction of the town centre one way system has allowed for increased footpath widths in some areas. Indiscriminate parking, footpath obstructions and inadequate crossing facilities help discourage pedestrian trips, in particular for people with disabilities. It is possible to consider a revision of the town centre one way system to incorporate the provision of pedestrian only areas. This is discussed in Section 5.3.2 of this report.

A limited number of controlled pedestrian crossings have been provided on the periphery of the town centre cell; however these are generally located outside of pedestrian desire lines at the key road intersections. There are a number of opportunities to improve pedestrian crossing facilities in tandem with the proposed street by street transport management measures detailed in Section 5.3.3.

Although pedestrian access to the town centre from the east and west is strongly influenced by the topography, residents of Cavan, generally view these prevailing conditions as a feature of the town and not an obstacle to walking. This enables the development of residential areas to the immediate east and west of the town centre, supported by strong pedestrian links.

In general access from the south, is not influenced by topography but other prevalent issues such as available footpath space. In particular, the width, condition and in some places absence of a footpath on Ballinagh Road discourages walking trips.

To the north of the town centre, gradients are relatively shallow with some access routes following the line of the river valley. In particular an attractive linear park and walkway has been developed along a section of Cathedral Road. Opportunities exist to develop similar linear parks along Railway Road and sections of Dublin Road, linking the town centre to the outlying residential areas.

These prevailing conditions, combined with the stated Development Plan objective to improve pedestrian access and mobility, clearly demonstrates a need for the Transportation Study to focus on pedestrian access to and through the town centre.

Cyclist Facilities

Currently there are little formal cycle facilities within the town centre or on any of the radial routes. The topography of the town presents a constraint in terms of increasing mode share based on the prevailing conditions as described in the preceding section. There is a clear need to improve facilities for cyclists however potential measures are closely linked to prevailing traffic volumes given the general need for cyclists to share road space with traffic.

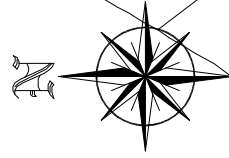
There is currently some provision for cyclists with widened footpaths on the Cootehill Road and there are adequate widths on Cathedral Road for separate cycling. This provision could be improved to incorporate off road cycle tracks on the Cootehill Road and on road advisory cycle lanes on Cathedral Road.

Car Parking

The Transportation Study addresses town centre car parking and the effect of parking demand on roads and streets surrounding the centre. The following is a summary of the prevailing parking provision and demand patterns in the town centre area incorporating residential, short stay and long stay demands.

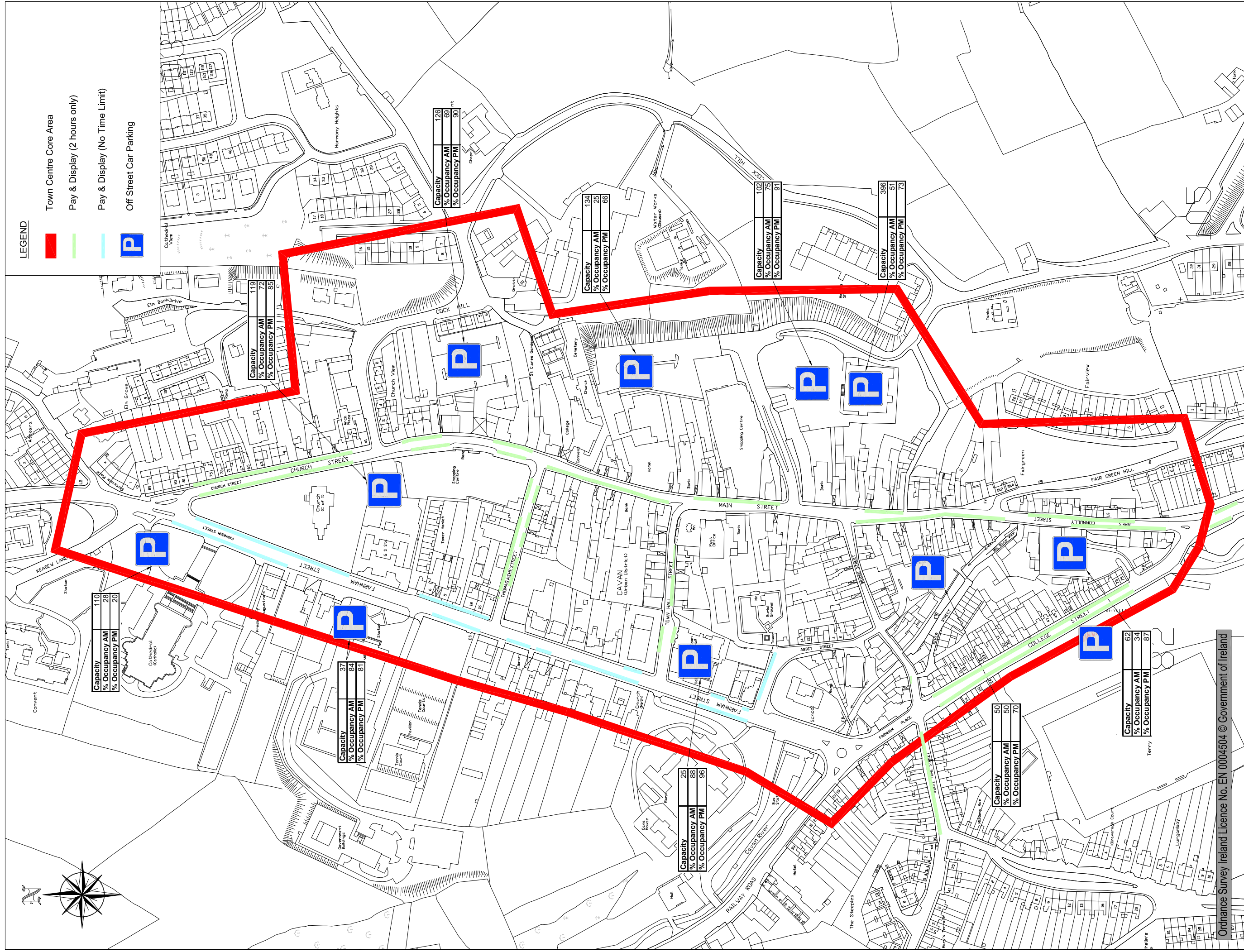
On Street Parking

The majority of car parking in the centre of Cavan is metered, with all of the public car parks and all on-street parking within the town centre operating on a pay and display basis. Map 2.3 indicates the existing on and off street parking facilities in the town centre.



LEGEND

- █ Town Centre Core Area
- █ Pay & Display (2 hours only)
- █ Pay & Display (No Time Limit)
- P Off Street Car Parking



Ordnance Survey Ireland Licence No. EN 0004504 © Government of Ireland



Town Centre Core Area: Existing Parking Patterns

FIGURE No.

In order to determine the demand for on-street parking, a survey was undertaken on Wednesday 7th September 2005, between 9:00-10:00 in the morning and 4:00-5:00 in the afternoon. The results of the survey are highlighted below in Table 2.1.

Table 2.1: On Street Parking Demand

Location	Max Duration	Capacity	AM Occupancy	PM Occupancy
Dublin Road	2hr	27	14	19
College Street	2hr	60	30	28
Wolfe Tone Street	n/a	15	8	9
Farnham Street	n/a	95	51	71
Church Street	2hr	63	43	41
Thomas Ashe Street	2hr	23	20	23
Town Hall Street	2hr	18	16	18
Main Street	2hr	29	25	26
Abbey Street	n/a	9	8	9
Bridge Street	2hr	2	1	2
James Connolly Street	2hr	70	35	44
Total		411	251	290

Although the survey only gives a snapshot of the quantum of on street parking in the town centre, the results do indicate a strong demand for on street short stay parking. Nevertheless there is currently a surplus of approximately 120 spaces on street parking spaces in the town during the peak weekday demand period.

Off Street Parking

A significant proportion of the town's off street parking provision is located to the west of Main Street. These include the Newcourt Car Park, Town Centre North Car Park, Town Centre South Car Park and the new Multi Storey Car Park, which equates to a total parking provision of 758 spaces or 72% of the town centre's off street parking provision. Smaller public car parks are located off Abbey Street, James Connolly Street, Town Hall Street and the Courthouse, whilst a privately run public car park is situated underneath Dunnes Stores.

Surveys of off street parking demand were carried out concurrently with the on street parking survey undertaken on the 7th September 2005. Table 2.2 below indicates the results of this survey.

Table 2.2: Off Street Parking Demand

Location	Capacity	AM Occupancy	PM Occupancy
James Connolly Street Car Park	62	21	54
Abbey Street Car Park	50	25	35
Town Hall Car Park	25	22	24
Courthouse Car Park	37	31	30
Dunnes Stores Car Park	119	86	101
Newcourt Car Park	126	87	114
Town Centre South Car Park	102	77	93
Town Centre North Car Park	134	33	88
Multi-Storey	396	100	120
Total	1051	482	659

Similarly to the on-street parking survey, the above results demonstrate a strong demand for off street parking during the afternoon peak; however there is still a surplus of approximately 390 spaces during this busy period. A further assessment of the above figures, shows that a significant proportion of the parking surplus is due to an under use of the new Multi Storey Car Park. Given the high occupancy levels in the other town centre car parks, it is anticipated that this current surplus will quickly reduce as the town's population expands.

Long Term Parking

Given the current reasonable parking pricing structure operating in the town, it is difficult to determine the proportion of long term parking in the town centre. Some unpaid long term parking was observed on the key radial routes into the town centre, namely Dublin Road, Railway Road and Cathedral Road, however this generally did not obstruct the free flow of traffic. By and large, substantial long term commuter parking was not observed in the residential areas on the periphery of the town centre cell.

Public Transport Provision

Cavan Bus Station acts as a hub for Bus Éireann Expressway and local services, with frequent long distance services to Dublin, Donegal, Belfast and Galway and local services to Dundalk, Monaghan and Carrigallen. Table 2.3 below summarises the public bus services which operate in Cavan.

Table 2.3: Bus Éireann Services operating in Cavan

ROUTE	SERVING	TYPE	FREQUENCY
30	Dublin-Cavan- Donegal	Expressway	6 services daily with an extra service on Friday
65	Belfast-Cavan- Galway	Expressway	Twice daily from Monday to Saturday with an extra service on Friday Once on Sunday
109	Dublin-Cavan	Commuter	17 times daily from Monday to Saturday and 14 times on Sunday
166	Cavan-Dundalk	Local/Rural Commuter	Once daily from Monday to Friday
175	Cavan-Monaghan	Local/Rural Commuter	Twice a day from Monday to Friday
179	Cavan Local Service	Local/Rural Commuter	One service on Tuesdays only
465	Cavan-Carrigallen	Local/Rural Commuter	Once a day from Monday to Friday

contribute towards significant delays at the intersection of the Ballinagh Road and Dublin Road due to the restricted junction layout. This issue has largely been resolved by the construction of the N55 bypass, however a proportion of HGVs still use this route to make local deliveries.

Whilst the Expressway services are regular and reliable, they do not cater for people living in the environs of Cavan or the surrounding town lands. Furthermore, given the orientation of the services towards Dublin, areas to the west of the town are largely excluded.

Private bus operators also provide a range of services into Cavan Town. Donnelly's Coaches operate a service from Longford to Cavan and Streamline operates a return service to Dublin. There are also a number of private bus operators providing services to various Universities and Institutes of Technology such as Athlone, Dundalk and Maynooth.

As identified through the consultation process, there is currently a lack of local services operating in Cavan Town and its environs, in particular catering for people with disabilities. As the town expands to its anticipated population, opportunities exist to develop a local community service to cater for people living outside of the walking catchment of the town. This issue is dealt with in further detail in Section 5.2.5 of this report.

Heavy Goods Vehicles and Deliveries

In terms of HGV movements, this study focuses on loading and deliveries within the town centre and, at present there is limited control to deliveries particularly on Main Street. This often results in the blocking of other road traffic and contributes to both a perceived and real issue regarding pedestrian safety.

Outside of the town centre, the construction of the N3 Bypass has removed a significant proportion of through HGV movements from the town, however HGV traffic approaching from the south



3 Consultation

3.1.1 Introduction

The need for extensive consultation throughout the study process was outlined in the consultant's brief as being a key component of the Transportation Plan preparation. Consultation is one of the keys to the success of the study as it ensures that the issues and objectives of all relevant parties, and most importantly the residents of Cavan Town and Environs, are fully appreciated and incorporated in the study recommendations.

Clearly conflict arises between the requirements and visions of the various groups but consultation strives to achieve an understanding and consensus between the disparate parties and produce solutions that achieve the widest possible acceptance within the best practice guidelines.

The objectives of the consultation process can be summarised as follows:

- To raise awareness of the study with all stakeholders.
- Provide all stakeholders with adequate opportunity to be involved in and influence the plan's preparation.
- To identify and establish a better understanding of local issues, needs and concerns.
- To promote active citizenship and local democracy.
- Facilitate an open, transparent and fair process wherein all stakeholders can take ownership of the recommendations.

All issues raised during the consultation process were taken on board by the consultants in developing the transport recommendations for Cavan.

The two phases of consultation consisted of three broad strands consisting of:

1. **General Public:** Public Display of the study objectives and issues.
2. **Cavan County and Town Councillors:** Presentations to Councillors.
3. **Other Key Stakeholder Groups:** Written correspondence and meetings

The consultation input resulted in issues being included and taken forward that may not have been fully appreciated by the consultant team at the outset of the study. Details of these consultations are outlined below.

3.1.2 General Public

Phase 1

The methodology of the public consultation was discussed in detail between the consultants and the relevant staff of Cavan County and Town Councils. It was agreed that the optimum way to reach the most people was to carry out a public display and General Public Information Evening in the Cavan Town Hall. The display would be accompanied by a questionnaire that could be completed to give formal responses.

This public display and General Public Information Evening was advertised through the local press prior to the date of the display.

The public consultation took place on Tuesday 24th May 2005 at 7:30pm in Cavan Town Hall. Representatives of WSP Ireland and Cavan County Council were in attendance at the Public Information Evening to inform the public of the purpose of the study and to explain how they can contribute to the development of the town as it continues to grow. An issues paper was prepared to assist the public in their consideration of the key issues of the study and to help in completing the questionnaire.

Following the General Public Information Evening, a public display was erected in the Courthouse from Wednesday 25th May to Friday 3rd June. The format of the public display incorporated theme boards that identified specific issues in relation to traffic flow, public transport, parking and pedestrian and cyclist facilities in the town. Attendees were invited to view the boards and were then asked to complete a questionnaire in relation to the issues raised.

Phase 2 and 3

The second phase of the public consultation involved the public display of the Transportation Study Draft Final Report – July 2006 over a four week period from Thursday 5th October 2006 to Thursday 2nd November 2006. The document was made available for viewing at the following locations:

- The Planning Department, Farnham Centre, Cavan Town; Cavan Town Council, Town Hall; and
- Cavan County Council Website; www.cavancoco.ie 24 hours a day.

Written submissions were invited from the general public were invited and it was stated that these would be considered before the document was finalised. Seventeen formal written submissions were received from members of the public and key stakeholders.

A formal response to the above submissions that were relevant to the Transportation Study was issued in March 2007 in the document 'Cavan Transportation Study: Response to Public Consultation Submissions'.

The third phase of public consultation involved public consultation from 24th May 2007 - 25th June 2007. The document was made available at the above locations also. A public consultation evening was held on the 12th June, 2007 in the Town Hall, Cavan Town for members of the public to discuss the Transportation Study. Ten written submissions were received and were considered before the document was finalised.

3.1.3 Other Key Stakeholders

In addition, the consultants wrote to or met the following other Stakeholder Groups. The views of all of these groups were considered by the Consultants in developing the transport recommendations.

Other Key Stakeholder Groups
Bus Éireann Disabled Advocacy Groups Cavan Access Association Cavan Network of People with Disabilities Irish Wheelchair Association National Council for the Blind Ambulance Service Fire Service An Garda Síochána Primary and Secondary Schools in the study Area Local Public Transport Service Providers Cavan Institute

Feedback from First Phase General Public Consultation

The following summary outlines the questions and range of responses received during the Public consultation.

Traffic Route Network	
Q1	<i>What areas and roads in the study area suffer from traffic congestion?</i> <ul style="list-style-type: none"> ■ Ballinagh Road in the vicinity of Tractamotors ■ The Cock Hill area ■ Dublin Road Retail Park ■ Exit / Entrance of Tesco car park ■ Keadue Lane Exit ■ Town Hall / Main Street junction ■ Bridge St / Barrack Hill junction ■ Abbey St / Farnham St left turn

	<ul style="list-style-type: none"> ■ Drumalee Cross ■ Crubany National school due to a huge increase in pupils attending the school ■ Bus Office Parking ■ Reasons: Volume of traffic <ul style="list-style-type: none"> Poor Signage Poor Road Markings Illegal parking
Q2	<i>What improvements could be made to the traffic flow system in the town centre?</i> <ul style="list-style-type: none"> ■ Changing flow in the lower part of Bridge St and allow traffic coming off the roundabout and past McGinty's bar to turn left into Bridge St. ■ Better road marking and signage ■ Reassessment of overall traffic flow ■ Increased enforcement of parking regulations
Q3	<i>Where do articulated vehicles contribute to traffic congestion?</i> <ul style="list-style-type: none"> ■ Dunnes Stores yard ■ Tesco, Main St. ■ Blackhorse Inn / College of Further Study, Church St ■ Post office junction ■ St Felim's School / Town Hall St junction ■ Bus Station

Public Transport

Q4	<i>If you travel to the bus station, how do you get there?</i> <ul style="list-style-type: none"> ■ Private transport, walking, taxi ■ No adequate service provided for people with disability such as accessible buses or taxis
----	--

- Q5** Is there a need for bus services linking the outlying areas of the town to the town centre? What route(s) should be served?
- All the areas where major housing developments are taking place outside the urban boundaries.
 - Ballinagh Road
 - Cockhill Road (Drumalee area)
 - Ballyhaise area
 - Need for accessible service from town centre from town centre to retail outlets outside town
- Q6** *Are there adequate hackney services? If not, what time of the day or evening is it most difficult to get a taxi?*
- Inadequate in light of the target population figure of 16,000.
 - Insufficient suitable transport for people with disability.
 - Difficult times are early morning and early afternoon.

Parking Requirements

- Q7** *If you regularly drive to the town centre during the day:*
What is the purpose of your trip?
Where do you park?
Is this parking in a convenient location?
- Social, domestic, education and employment
 - Purpose dictates parking needs
 - Location is not suitable for people with restricted mobility
 - Abuse of disabled parking is an issue
- Q8** *Are you put off parking in the town centre due to lack of space, cost or any other reason? If your answer is yes, please state the reason(s).*
- Lack of wheelchair parking spaces
 - Abuse of existing wheelchair spaces
 - Enforcement of regulation in relation to abuse of parking spaces
 - Insufficient 'dished kerbing' in the entire shopping area
- Q9** *Does parking by others prevent you parking near your house? If your answer is yes, please tell us why and where this is.*
- In general, cars parking at footpaths or at entrances create hazards for people with physical / sensory disabilities.
- Q10** *Are there streets where parking causes delays to traffic? If your answer is yes, please state why and where this happens.*
- The Cockhill area. Parking should be banned while building / road works are taking place
 - Farnham Street
 - Church Street / Ashe Street junction
 - Main Street / Bridge Street junction
 - Reason: Illegal parking through use of ATM machines and goods delivery.

Needs of Pedestrians & Cyclists

Q11 *If you walk or cycle to the town centre what route do you take?*

How could this route be improved to make your journey safer and quicker?

- Footpaths free of obstruction
- Even footpath surface required and it should be regularly maintained
- Tactile surface should be introduced at junctions along with adequate dishing of footpaths.
- Introduce cycle lanes

Q12 *Are you prevented from walking to the town centre?*

If your answer is yes, what route would you like to take?

What prevents your from using this route?

- For those with disability access to the town is difficult
- Reasons: Lack of pedestrian crossings
 - Lack of sufficient footpath 'dishing'
 - Poor footpath maintenance
 - Colour Clues for the visually impaired

Q13 *How do you travel to school and what is your route?*

If you do not walk or cycle, what are the reasons?

If you do cycle, how could your journey be made quicker and safer?

- Services are restricted for students with disability due to lack of suitable public transport

A final presentation was given to the Councillors on Wednesday 25th October 2006. The presentation incorporated a question and answers session and the consultants took on board all comments from the Councillors.

3.1.4 Cavan County & Cavan Town Councillors

At the outset of the project, a presentation of the study context and key issues was given to the relevant elected members of Cavan County Council and all of the Cavan Town Council Members on Monday 16th May 2005.

In April 2006, a draft report was issued to the Councillors and a further presentation of the study was given prior to the study going on its second public display.

4 Transport Vision and Issues

4.1 TRANSPORT VISION

The transport vision for the town centre and its environs has been identified from policy review, on site assessments, stakeholder consultation and ongoing consultation with the executive staff of the Town and County Councils. As an integrated framework, the transport vision is fundamentally linked to the land use patterns and urban design frameworks proposals identified within the 'Cavan 2020: Integrated Framework Plan'.

TOWN CENTRE

The transport vision for the town centre is to optimise accessibility to the town centre for all modes of transport whilst maximising permeability and priority for public transport, walking and cycling trips.

Key Redevelopment Areas

In addition to this overall vision, four key redevelopment areas have been identified within the town centre that are detailed in the Integrated Framework Plan and illustrated on Map 4.1. In order to take a long term view of transport within the town centre transport visions for these sites were developed as follows:

1. Town Centre Quarter:

The commercial and economic heart of the town lies between the streets of Main Street, Bridge Street, Farnham Street and Thomas Ashe Street. As outlined in the Integrated Framework Plan a major opportunity exists to coordinate the redevelopment of the back lands encased within these town centre streets. Incorporating a mix of residential and commercial uses this area would be redefined by the development of a network of laneways linking the surrounding streets with focal points created at new civic spaces.

The potential to pedestrianise part of Main Street and to upgrade the existing Town Hall Square form an integral part of this vision and would create a formal pedestrian link to the lands to the east of Main Street thereby creating a vibrant and inviting pedestrian town centre.

2. New Eastern Gateway:

The transport vision for this site is to create a convenient and attractive link between the existing town centre and the development lands in the eastern environs. In terms of slow modes this would ensure that viable links are developed to the residential areas to the immediate east of the town centre. From the perspective of car traffic the site is envisaged

as the key car parking area in the town centre that can be strategically accessed from the entire town and environs and also from N3 corridor and surrounding hinterland.

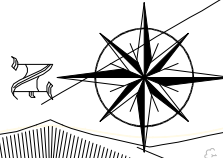
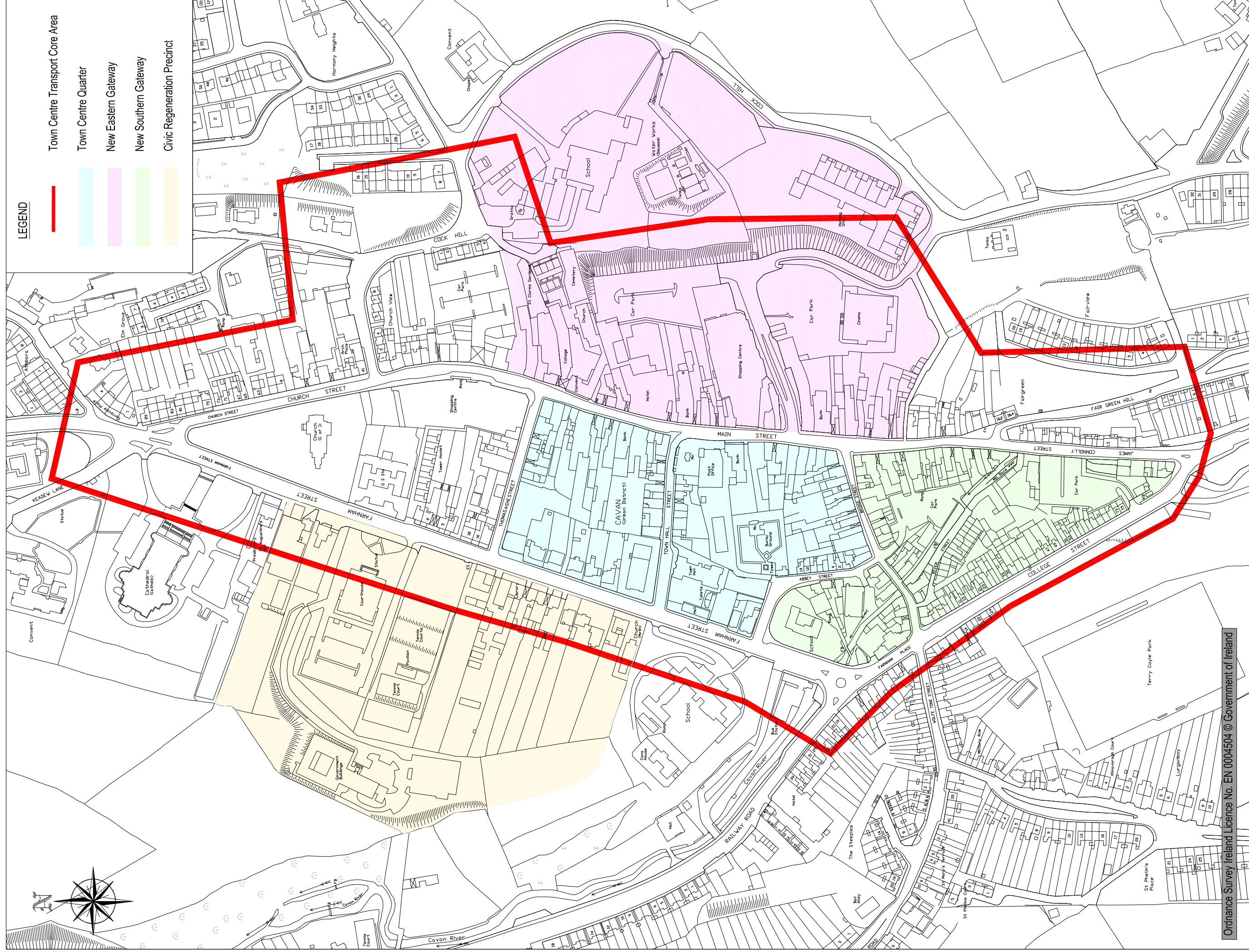
In urban design terms the potential exists to develop a new street running parallel to Main Street and the development of a new built environment that can accommodate slow mode access from the high ground in the vicinity of Cock Hill to the lower lying Main Street. This new environment creates the opportunity to develop the town centre eastwards thereby minimising the effective walking distances from the eastern environs. A significant opportunity is identified that would consolidate all parking into multi storey facilities thereby significantly increasing the quantum of town centre parking but in a form that makes best use of available land and takes full account of the local topography.

3. Civic Regeneration Precinct:

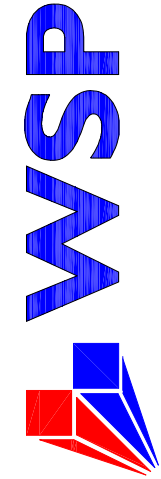
Given its proximity to the town centre core, a significant opportunity exists to open up the development lands to the west of Farnham Street and Keadue Lane. The lands off Keadue Lane are envisaged as being primarily residential with strong pedestrian links directly to the town centre in the vicinity of the Court House. To the west of Farnham Street are envisaged employment and civic land uses building on the existing uses at the Court House, central government offices and the new library and civic offices buildings. This includes the potential to create a new street aligned to the rear of Farnham Street. Vehicular access to the new street will be via Farnham Street, with the potential for a minor access to the residential portion of the site directly off Keadue Lane.

4. New Southern Gateway:

A significant opportunity exists to regenerate the backlands bounded by Bridge Street, James Connolly Street and College Street. In terms of transport, the main focus of this site is to open up access to the river frontage with a view to extending a River Cavan amenity walk into the heart of the town centre. In this context the potential exists to redevelop the areas at the junctions of James Connolly Street / College Street and Farnham Street / College Street to create direct, convenient and identifiable gateways to the town centre for pedestrians and cyclists.



Ordnance Survey Ireland Licence No. EN 0004504 © Government of Ireland



Key Town Centre Development Areas

FIGURE No.

BEYOND THE TOWN CENTRE

Outside the town centre the overall transport vision is to provide efficient access to the town centre for all modes of transport, to provide strategic new road links that will provide access to existing and future development lands and to provide amenity walking and cycling links.

4.2 TRANSPORT ISSUES

Detailed below are the issues that were addressed in order to develop the tangible transport management recommendations that are the building blocks for developing the vision. These issues are identified separately in this section in terms of the town centre and 'Beyond the Town centre' herein under the headings of:

- Provision for Pedestrians and Cyclists
- General Road Traffic
- Public Transport
- Car Parking
- Provision for Heavy Goods Vehicles and Deliveries

TOWN CENTRE

Provision for Pedestrians and Cyclists

The issues relating to pedestrians and cyclists relate to access to and within the town centre are listed below. It is inherent that in addressing these issues the needs of people with disabilities are fully incorporated.

- Development of a town centre within which appropriate priority, including pedestrianisation and footpath enhancement, will be given to pedestrians and cyclists.
- Assessment of improvements to safety in particular with respect to the movement of heavy goods vehicles and the general interaction of cars and slow modes.
- Improvement of crossing facilities at key junctions and on key roads and streets, in particular Farnham Street, College Street, Church street, Main Street and James Connolly Street.
- The provision of cyclist parking and other facilities in the public realm.

General Road Traffic

The movement of traffic within and around the town centre must, where appropriate, be facilitated however this must be balanced by the considerations of pedestrian and cyclist safety and priority. The key issues are:

- Maintaining Farnham Street and College Street as a key distributor route around the town centre whilst facilitating the movement and crossing of pedestrian and cyclists.
- Determination of an optimal traffic circulation system within the town centre, incorporating one way systems, turning restrictions etc, which will facilitate access to existing and new car parking locations and is consistent with slow mode priority measures.
- Assessment of key junctions on the road and street network with a view to optimising traffic flow whilst also facilitating the movement of slow modes.

Public Transport

Public transport must be considered in terms of existing and future provision for bus and taxi services in the town, as well as private and school bus services. The issues are:

- Improvement of access and facilities at the existing bus station that will form the public transport hub for the study area.
- Facilitating bus services within the town centre in terms of bus stops and potential future services.
- Facilitating taxi circulation and potential future taxi facilities.

Car Parking

In general parking must be consider in terms of the demand for short and long stay parking and the parking needs of residents:

- Assessing the current parking patterns, in particular for long term parking, in the town centre and its impact on residential streets and traffic flow.
- Assessing the provision of parking in the town centre in terms of location, and the provision of on street, off street and multi storey facilities including the redevelopment of existing car park sites.
- Addressing the needs for parking for people with disabilities both on street and in off street car parks.
- The monitoring of potential future growth in the demand for town centre car parking and the identification of appropriate mitigation measures.

Provision for Heavy Goods Vehicles and Deliveries

To encourage the continued growth of commercial activities in the town centre, delivery vehicles must be actively accommodated whilst facilitating the free flow of traffic: The issues include:

- Assessment of existing goods movements in the town centre in terms of routing and delivery locations.
- Consideration of management measures to facilitate and control delivery vehicles to appropriate periods of the day.

BEYOND THE TOWN CENTRE

Provision for Pedestrians and Cyclists

The movement of pedestrians and cyclists from outlying residential areas into the town centre and to other major trip attractors must be considered in terms of making best use of existing infrastructure and the town's diverse topography. Specific considerations include:

- The identification of appropriate infrastructure interventions on the key pedestrian and cyclist links into and from the town centre
- The identification of new amenity routes linking the amenity sites in the environs to residential areas and the town centre.

General Road Traffic

The focus of future infrastructure improvements beyond the town centre should be to facilitate the efficient movement of traffic on the appropriate road network. The key issues are:

- The development of strategic new road links outside the town centre and within the environs that will facilitate the movement of road traffic around the town centre and to and from the national road network.
- On completion of the N55 bypass the implementation of infrastructure interventions on the Ballinagh Road, to preserve the new function of this route and provide for alternative modes of transport.
- The identification of key new road links to facilitate access to undeveloped lands.
- The assessment of all key junctions in the environs with a view to optimising traffic flow whilst facilitating the safe passage of slow modes.
- The identification of appropriate traffic management improvements on the N3 between the town bypass and the Kilmore Hotel junction.

Public Transport

- The assessment of the potential to develop town bus services appropriate to the scale of the study area in terms of the existing and potential future population.
- Consideration of the potential to enhance existing inter town bus services in terms of frequency, routing and bus stops.

Provision for Heavy Goods Vehicles and Deliveries

- Assess the volume of through traffic on the Dublin Road and Ballinagh Road, and consider measures to direct heavy good vehicles onto the appropriate road network.
- The development of measures that will facilitate in minimising the volumes of heavy goods vehicles travelling through the town.

5 Transport Recommendations

5.1 INTRODUCTION

These recommendations form the core deliverables from the study and are firstly described in strategic terms within the context of the overall Transport Network for the study Area. Section 5.2 details this network for the town and environs in terms of vehicular traffic; pedestrians, cyclists and public transport and outlines some of the best practice guidelines to be followed in order to deliver these recommendations.

Following the development of the strategic recommendations specific transport management recommendations were developed that are to be applied to the existing and future road and street network. Some of these recommendations have been designed as stand alone initiatives that can be delivered in the short to medium term, whilst a number of the transport management recommendations have been designed to facilitate the town as it grows to its target population of 16,000, and as a result need only be implemented as and when warranted. These specific recommendations are outlined in Sections 5.3 and 5.4 which refer to the 'town centre' and 'Beyond the Town centre' respectively.

Within Section 5.3 the specific transport management recommendations for the town centre incorporate street by street interventions that address pedestrian and cyclist accessibility, the vehicular traffic circulation system, management of delivery vehicles, the facilities for public transport and car parking provision. Thus a comprehensive and coordinated set of recommendations is presented for the town's transport focal point.

Having determined the town centre interventions, recommendations were developed in Section 5.4 for 'Beyond the Town Centre' outwards along the key access routes and the critical junctions along these routes. In effect this determined that linkages were designed 'from the town centre outwards' which ensures that all linkage to and through the town centre are developed as continuous links that will provide the various modes with a coherent passage to, from and around the town centre. In addition specific recommendations are made in Section 5.4 in terms of strategic new road links to open up lands for development.

5.2 TRANSPORT NETWORK

The overall future transport network of the town is described in terms of its component route networks for general road traffic, pedestrians, cyclists and public transport. This network determines, at a strategic level, the key town centre links to be developed for each mode and facilitates the identification of key areas on the combined network where the various mode links intersect and thus require further detailed assessment of how the needs of the various modes can be accommodated at such points.

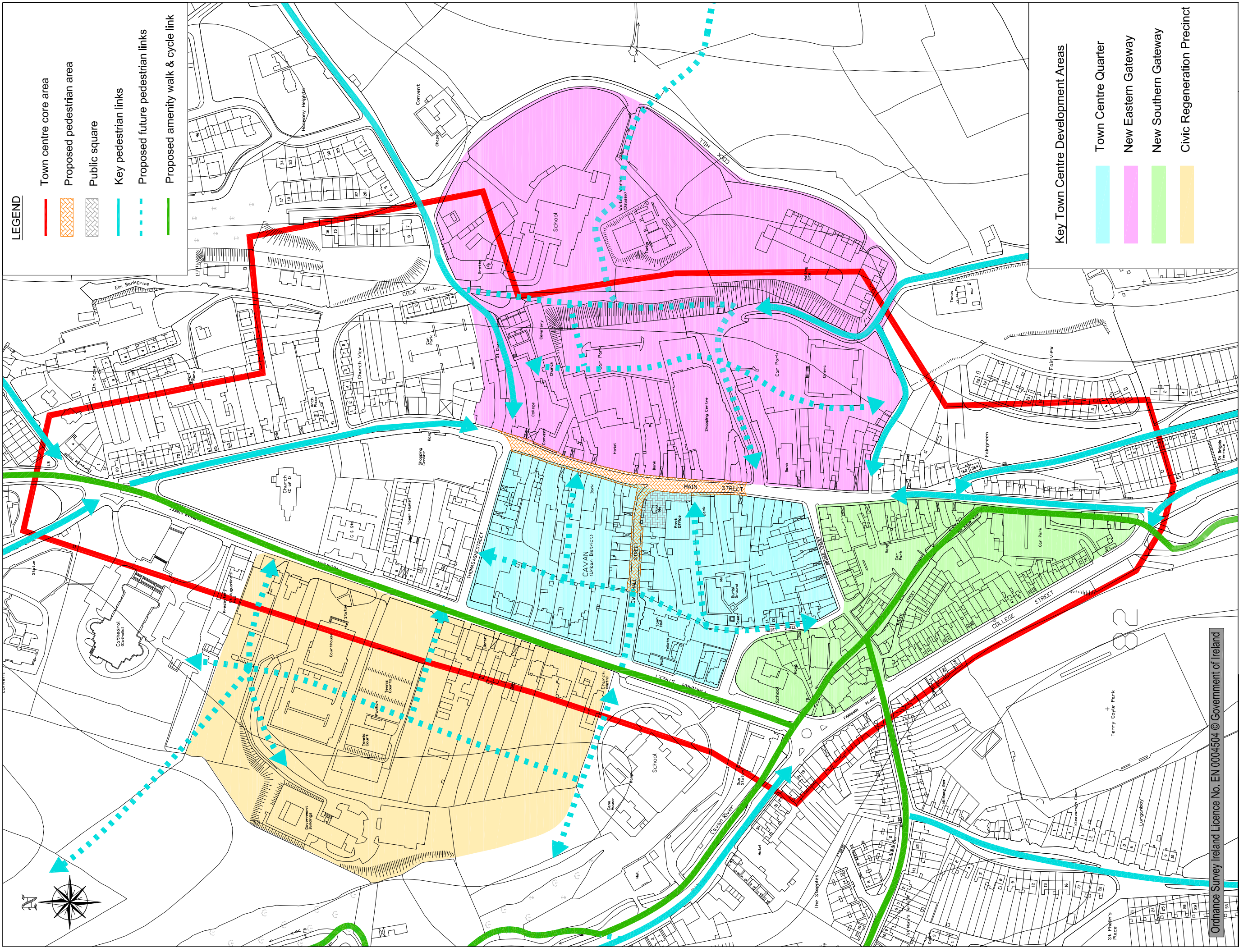
5.2.1 Road and Street Hierarchy

A road and street hierarchy is essential in order to classify the function, shape and use of all roads and streets in the Cavan Study Area. The classification is based on criteria such as the available road and footpath space, the desirable and necessary volume of traffic, the potential pedestrian and cycle volumes, the surrounding environment and urban form and the destination of traffic on the route. In broad terms the classification in Cavan can be described as follows:

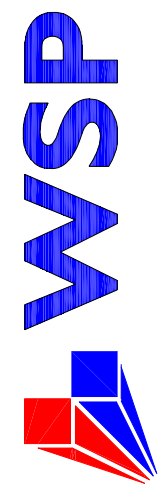
Table 5.1: Road Hierarchy

Context	Classification	Description
National	National Route	Major roads such as the N3 and N55 forming part of the national road network and serving as primary inter city and town routes. Regional roads such as the R198, R188 and R212 serving as inter town routes.
Beyond the Town Centre	Regional/Distributor Roads	Roads that are generally providing both vehicular and pedestrian access to the town centre or providing linkage around the town centre. Examples include the Dublin Road and Cootehill Road
	Local Access Roads	Roads that link the distributor Road network to individual developments
Town Centre	Primary Streets	Town centre links carrying relatively high pedestrian volumes and forming the primary vehicular access to main car parks, main delivery routes. At present most of the streets in the town centre are in this category.
	Secondary Streets and Laneways	These are links that carry limited, if any, vehicular traffic. At present there are a small number in the town centre including River Street.

This hierarchy classification allows for different forms of traffic management to be applied to each class of road and street. For example Secondary Streets and Laneways can be considered as appropriate for pedestrianisation or shared surfaces. On Primary Streets formal demarcation between roadway and footways is generally necessary however some streets, such as Main Street, can be considered for pedestrianisation during designated time periods where alternative vehicular traffic routes can be provided.

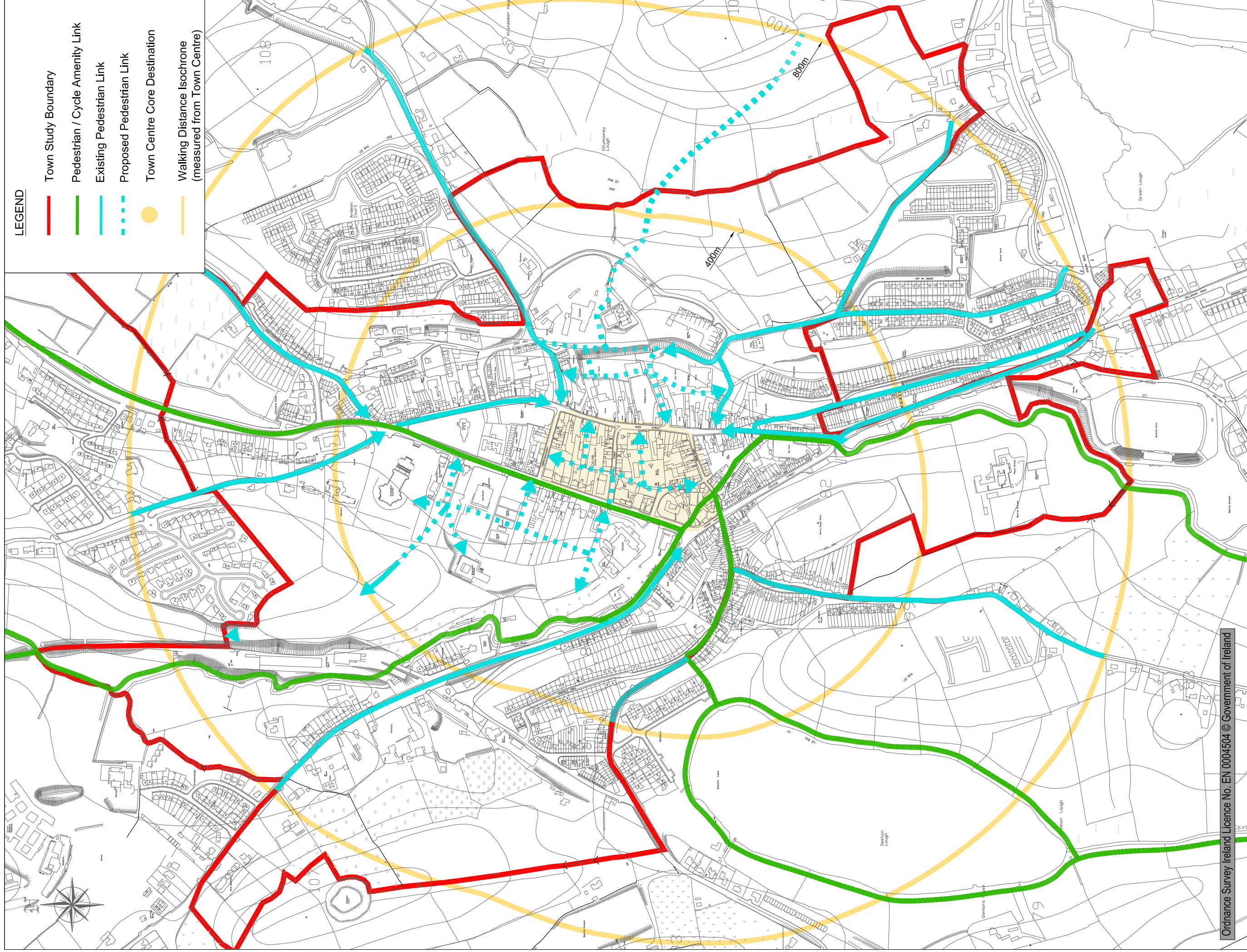


Ordnance Survey Ireland Licence No. EN 0004504 © Government of Ireland



Town Centre Core Area: Pedestrian Links

FIGURE No.



All streets can be considered in terms of enhanced footpath provision that could also contain seating areas and other such amenities together with raised junctions and pedestrian crossings to facilitate the passage of pedestrians.

National and Distributor Routes are primary carriers of vehicular traffic and should be generally, free of traffic management measures except at key junctions.

The strategic future road network for Cavan Town and its environs is illustrated on Map 5.6. This Map shows the National and Distributor Routes as well as the probable alignment of strategic new road links and proposed junction upgrades. All other road routes outside the town centre can be considered as Local Access Roads. Map 5.3 (Section 5.3) indicates the street hierarchy within the town centre.

Within Sections 5.3 and 5.4, the function, shape and use of the key streets and roads within the town centre and environs, respectively, are outlined in tandem with the specific transport management recommendations to be applied on each link.

In terms of the town centre the overall benefit of National and Distributor Routes is to divert the maximum volume of traffic around the town centre and therefore assist in limiting traffic within the town centre to trips that have a destination in the heart of the town.

5.2.2 Pedestrian Routes

The key walking links within the town centre are indicated on Map 5.1. These are the links that will provide the town centre with the desirable level of accessibility and incorporate both existing streets and potential new streets and laneways. The new streets and laneways will predominantly be developed within the key development areas as described in Section 4.1. Whilst these are indicative only they clearly demonstrate that in the future Cavan Town Centre can be redefined by new streetscapes and pedestrian areas.

The extent of intervention that would assist in delivering accessibility to the town centre was based on the acceptable 1000m walking distance to the town centre for commuting to work and the 800m preferred maximum walking distance to the centre for shopping and other business. The 800m walking distance is illustrated on Map 5.2 that illustrates the key walking links leading to the town centre.

Developing the walking links within these catchments will focus resources on providing quality links to those who are most likely to avail of the infrastructure. These links were subsequently assessed along the entirety of the route from the town centre, through the key town centre junctions out to the extent of the 1000m walking catchment. In order to develop walking routes to the quality that would optimise their usage the routes were assessed under the 'Five Cs' criteria as follows:

- Connected: Linking the places where people want to go.
- Convenient: Direct routes should follow desire lines, with easy to use crossings.
- Comfortable: Good quality footways with adequate widths and free of obstructions.
- Convivial: Attractive, well lit and safe, with a variety of landscaping and views along the route.
- Conspicuous: Easy to follow routes with helpful signage.

Each route was audited in terms of these criteria and proposed improvements are outlined in Sections 5.3 and 5.4.

5.2.3 Cyclist Routes

As described in Section 2.4 the topography of Cavan strongly influences the existing and potential future volumes of cycle traffic. However a key focus of the study is to optimise cycle usage by providing infrastructure both on route and at destinations that assist in promoting cycling in the town and environs. The cycle route network shown on Map 5.2 indicates the practical cycle routes within the town and environs that can provide safe and convenient access to the town centre. The town centre, being the main trip destination within the urban area, is the natural focal point for these cycle measures which will also serve other land uses on these routes such as schools and employment sites. In time further cycle interventions can be considered to other key destinations in the environs.

Therefore the recommendations of the study address two aspects of cycle planning; spatial planning, in the context of the town centre as the major trip destination, and the introduction of physical measures to assist cyclist on their route. A third issue that falls outside the direct remit of this study is promoting cycling as a viable and preferable mode of transport. Whilst spatial planning and physical intervention will assist in the promotion of cycling further issues must be addressed.

These measures include the promotion of cycling to schools through the development of 'Safe Routes to School' programmes tailored to the needs of each school in the area. These programmes are intended to promote cycle and walking, not only to school, but also within the overall travel culture. Essentially, if young people are not travelling by bicycle to school and other destinations as part of their everyday activities then it is very unlikely that they will travel by bicycle to work and other destinations as they move into adulthood.

Further measures include the facilitation of cycling to work through the provision of convenient and secure cycle parking facilities and the provision of proper showering and changing facilities. This must be considered in terms of both existing and future employment developments in Cavan Town and Environs. Future developments can be addressed through the planning process where Mobility Management Plans are requested for all significant employment sites and, based on these plans, adequate cycle parking and changing facilities should be identified on site layout and floor plan drawings.

In terms of physical measures these were considered along each access route and in terms of the following hierarchy of solutions

- Traffic Reduction
- Traffic Calming
- Junction treatment
- Carriageway redistribution (on road cycle lanes)
- Segregated Cycle Lanes (off road cycle tracks)

This hierarchy forms a logical sequence of considerations that firstly identifies if any intervention is necessary and secondly determines the appropriate form of intervention on each route. Within the

town centre, the containment of traffic volumes, the proposed circulation system and the pedestrian proposals will create a conducive environment for cycling. Therefore the introduction of further interventions for cyclist is generally unnecessary. On street cycle parking locations have been identified and these will be complemented by parking facilities that will be provided in future development sites per the car parking standards prescribed in the County and Town Development Plans.

Outside the town centre the cycle routes are located on the key radial road links serving the town centre. Based on the traffic model outputs and anticipated prevailing traffic speeds on these routes it was concluded that cycle measures could be limited to junction treatments without the necessity to create formal cycle lanes on or adjacent any of the roads.

5.2.4 Amenity Walking and Cycling Routes

Maps 5.1 and 5.2 also illustrate the potential amenity walking and cycling links that can be developed into and through the town centre. These links can serve a dual purpose of providing both amenity routes that extend out into the environs and also local links to the town centre or other trip destinations such as the hospital or schools.

Within the town centre these routes follow the street network and also the River Cavan as it flows to the southern section of the centre. This route along the river creates the opportunity to redefine this area of the town and focus its redevelopment on the river. As these routes continue out of the town centre they take the form of linear parks as they progress along Cathedral Road, along the River Cavan adjacent Railway Road, adjacent Swellan Lough to new development lands in the south west of the town and southwards along the River Cavan through the grounds of the Royal School to new development lands.

Within the northern environs the Cathedral Road and Railway Road routes can loop into one another to form a full amenity loop that can be used for as active exercise routes, nature trails etc. Similarly the Swellan Lough and Royal School routes can form a loop in the southern environs.

5.2.5 Public Transport Routes

The significant population growth areas in the urban area will occur in both the eastern and southern environs with limited residential growth to the west of the old railway line. In keeping with the overall development principle of town centre consolidation, a significant proportion of these population growth areas are located within acceptable walking distances to the town boundary.

Given the scale of the existing town, the population target of 16,000, the proposed consolidation of its future population, and the recommendations to develop pedestrian and cycle linkages; there is limited scope to develop and operate a town bus service as a financially self supporting service. It is therefore certain that state or privately operated services will not develop in the study area without significant and continuous subvention.

Notwithstanding the above, clearly there is a need to provide transport for sections of the community that already live outside of the walking catchments or have no alternative mode of transport for either economic or disability reasons. Therefore it is recommended that the development of a community based bus service be explored for Cavan Town and Environs. Such a service would be developed along the lines of the Rural Transport Initiatives that have been developed over the past number of years with the support of the Department of the Environment. One of these initiatives, 'Rural Lift' presently operates out of Dowra in west Cavan.

These schemes offer a vital bus services to various rural communities throughout the country and clearly if such schemes can be considered as necessary for rural communities then it can be reasonably argued that they are equally necessary for communities that live on the edges of significant urban areas such as Cavan where such towns are below the necessary threshold to develop financially viable bus services.

At a minimum this community base service could operate on a number of looped routes throughout the town offering a minimum of four services a day to the town centre and possibly other key locations such as the hospital.

As outlined in Section 2, Bus Éireann currently operates a number of services to Cavan, approaching the town from the east, north and south. These services are supported by a number of private bus operators, however there are few bus stops on the periphery of the town centre and limited services to the west of the town.

It is therefore additionally recommended that the opportunity be explored with Bus Éireann and the relevant private bus operators to provide additional bus stops at strategic locations with the town's environs. Bus stop locations should be planned to optimise catchments from both existing and future residential clusters and neighbourhoods based on a desirable walking distance of 400m to a bus stop.

Specific town centre public transport issues including taxi facilities are described in Section 5.3.5.

5.3 TOWN CENTRE RECOMMENDATIONS

5.3.1 Introduction

The specific town centre recommendations were determined by firstly assessing the main pedestrian and cyclist desire lines through town centre streets as identified on Maps 5.1 and 5.2. Measures were developed to afford priority to these movements in terms of both provision of footpaths and junction crossings. The measures were developed based on the principle that pedestrians have comfortable footpath provision that offers opportunities for seating areas and other facilities, combined with providing access across the vehicular portion of the streets primarily via raised junctions and pedestrian crossings combined with extended footpath areas at junctions. The overall impact is to permit pedestrians to move through the town centre with minimal if any recourse to negotiate stepped changes in level with the removal of existing footpath pinch points, particularly at junctions.

Following the determination of these requirements car traffic routes were determined based on providing the necessary level of access for car traffic that had a trip destination within the town centre. These routes were primarily determined by assessing the most efficient routes from the town's main radial routes to the potential town centre car parks, described below in Section 5.3.6, that would minimise the impact of car traffic on the key pedestrian and cyclist links. A new traffic circulation system was subsequently determined that caters for necessary car traffic movements without compromising the needs of pedestrians and cyclists.

Finally the needs of delivery vehicles and bus services were considered in terms of the proposed circulation systems and alterations were considered to facilitate the access of these vehicles. In addition the overall management of heavy goods vehicles and delivery vehicles was assessed in terms of other management requirements such as time restrictions, weight limits and specific prohibitions.

The town centre recommendations are illustrated in summary form on Map 5.3 which indicates the proposed traffic circulation system, proposed pedestrianisation, form of junction control at the key junctions and the location off street parking facilities. These are shown in the context of the road and street hierarchy.

5.3.2 Town Centre Pedestrianisation and Revised Circulation System

The proposed town centre pedestrianisation and revised circulation system is intrinsically linked and was developed based on the following considerations.

- Creation of a pedestrian priority zone in the heart of the town centre on Main Street, Town Hall Street and Bullock Lane.
- Removal of through car trips within the town centre core
- Direct access for car traffic to the car parks located to the east and south of the town centre.
- Integration into the proposed town and environs road hierarchy.

- Creation of enhanced facilities for town centre deliveries.

Arising from the above design considerations, the following circulation system has been developed for the town centre.

As illustrated on Map 5.3, this system is centred on two partial one way systems to the north and the south of the town centre core separated by the pedestrianisation zone. To the north of the town centre, Church Street and Thomas Ashe Street will remain one way streets in a southbound and westbound direction respectively. To the south of Thomas Ashe Street, it is proposed that Main Street become pedestrianised up to its junction with the car park access road adjacent to Tesco.

Bridge Street will remain one-way, but with the direction of flow reversed to an eastbound direction. James Connolly Street will remain one way southbound from its junction with Bridge Street, with the exception of a short two way traffic flow section from its junction with Bridge Street to the car park access road adjacent to Tesco. As part of these proposals, Abbey Street will be turned into a one way street northbound.

In order to facilitate local access, Town Hall Street will become two-way from its junction with Farnham Street to the Town Hall. Beyond this point it is envisaged that the pedestrianisation scheme proposed on Main Street could be extended for the remainder of Town Hall Street. This will then become the focal point for the network of laneway and new civic areas proposed between Thomas Ashe Street and Bridge Street. Given their strategic importance within the wider transport network, College Street and Farnham Street will remain open to two way traffic.

It is recommended that ultimately the pedestrianisation scheme be operated between 11:00 in the morning and 7:00 in the evening to coincide with the busiest commercial period. Outside of this period, Main Street and Town Hall Street will be opened up to vehicular traffic to provide for deliveries and retain a sense of activity within the town.

In addition, it is recommended the Bullock Lane be pedestrianised as shown on Map 5.3. This can be achieved through the placement of bollards at the James Connolly Street end of Bullock Lane. Vehicular access and egress for existing users of Bullock Lane will be retained via Cock Hill Road. The creation of a cul-de-sac on Bullock Lane will remove the potential for an increase in traffic on this link when Main Street is pedestrianised. If additional access is required in the even of an emergency, the proposed bollards can be lowered to all the necessary access from James Connolly Street.

Impact of the circulation system

The full impact of the town centre circulation system in terms of vehicular movements is addressed in Section 6: Transport Modelling. In general this assessment indicates that the new circulation system and pedestrianisation scheme will aid traffic flow within the town and remove a significant portion of through car trips.

When assessing the circulation system, it is important to consider other factors which contribute to the overall success of a revised traffic circulation and pedestrianisation scheme. Table 5.2 below highlights some of the benefits and other considerations of the scheme.

Table 5.2: Evaluation of the Proposed Traffic Circulation Systems

	Benefits	Other considerations
Town Centre Circulation System	<ul style="list-style-type: none"> ■ Removal of through traffic on Main Street and creation of vibrant civic area ■ Significant reduction in traffic on Town Hall Street and improve civic area ■ Potential reduction in traffic on James Connolly Street. 	<ul style="list-style-type: none"> ■ Potential increase in traffic on Thomas Ashe Street ■ Potential increase in traffic on Bridge Street ■ Removal of parking on Main Street

Clearly there are a number of economic and social factors that need to be considered in addition to the transport issues outlined above. Given the sensitivity of such a significant scheme it is recommended that the pedestrianisation scheme and revised circulation system be brought forward to public consultation at the time the scheme is being brought forward to detail design. This will allow the general public to contribute towards the development of the scheme and ultimately take ownership of it.

It should be noted that in order for the scheme to be successful it is necessary for alternative vehicular traffic routes to be provided linking the east of the town centre to the Dublin Road as outlined in Section 5.4.2.

5.3.3 Street by Street Transport Management Measures

Based on the strategic transport management recommendations in Section 5.2 and coordinated with the proposed traffic circulation systems, the street by street transport management measures are detailed on drawings SI 01 to SI 10 inclusive contained in Appendix A. Map 5.4 illustrates the location of all of these drawings in the context of the entire town centre. These drawings represent a comprehensive redevelopment of the town centre streetscape that prioritises high quality pedestrian access and permeability. The provision for car traffic that has a destination within the town centre is interwoven with the pedestrian and public transport priorities with further provision for the delivery of goods and bus services.

Each drawing lists the transport issues that pertained at each location together with a list of the recommended transport management measures that address these issues. The drawings clearly illustrate the recommendations incorporating key considerations such as the form of junction control, kerb realignments, and the form of pedestrian crossings, road markings and signage.

As outlined in Section 5.1, some of the street by street transport management measures have been designed as stand alone initiatives that can be delivered in the short to medium term, whilst a number of the transport management recommendations have been designed to accommodate the growth in traffic as the town expands to its target population of 16,000, and as a result need only be implemented as and when warranted.

5.3.4 Heavy Goods Vehicles and Delivery Management

The movement of goods vehicles in the town centre creates a number of perceived and real issues with regards to traffic safety and the passage of pedestrians. Firstly these vehicles pose an actual and perceived threat to pedestrians and cyclists particularly at junctions and where such vehicles are reversing. On streets where significant delivery movements are taking place throughout the day the environment is not conducive to the passage of pedestrians particularly where footpaths are narrow.

Additionally the unloading of goods can partially or fully block footpaths for significant periods of time which further reduces the quality of the environment for the pedestrian. This unloading issue can be further exacerbated by vehicles partially parked on footpaths. At present both Main Street and James Connolly Street are particularly prone to significant volumes of delivery vehicles throughout the working day.

In line with the recommendation to partially pedestrianise Main Street and Town Hall Street, it is proposed that a Vehicle Control Zone be established for these streets. Within this zone on street deliveries will be limited between the hours of 7.00pm and 11.00am. The street by street transport management drawings SI 01 to SI 10 indicate where on street delivery bays will be provided in the context of the overall recommendations for the town centre.

In addition, all vehicles over 3.5 tonnes will be prohibited at all times from the use of Bridge Street between Abbey Street and James Connolly Street. This weight limit restriction will minimise the volume of large goods vehicles accessing the town centre from College Street and Farnham Street. HGV traffic requiring access to James Connolly Street during the core hours of 11:00am to 7:00pm will be directed to the more appropriate town centre access routes from Dublin Road, as detailed in Section 5.4. HGV traffic requiring access to James Connolly Street outside of the pedestrianisation periods will be able to use Church Street and Main Street.

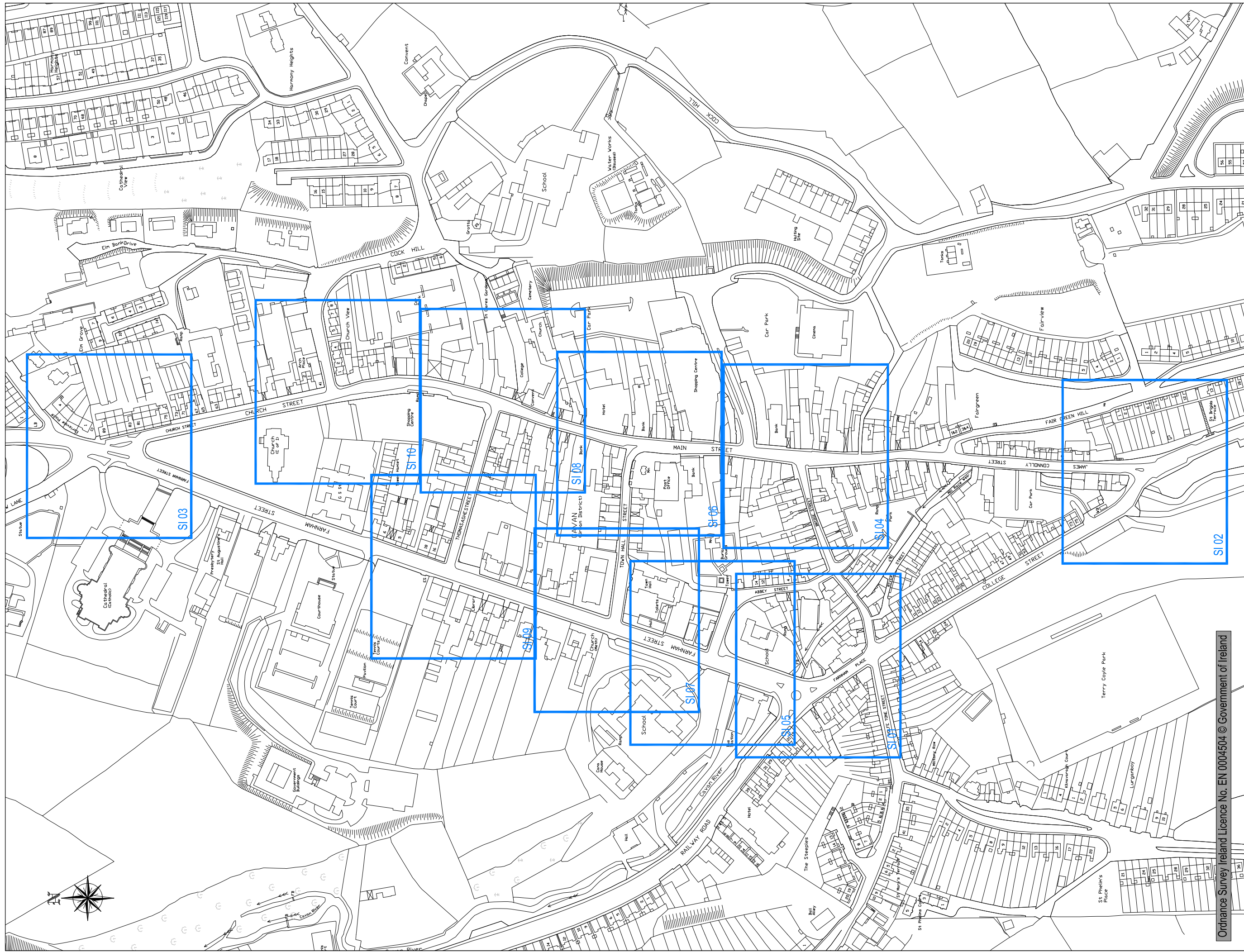
5.3.5 Public Transport Facilities

Bus

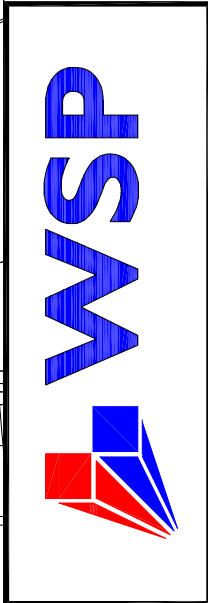
The existing bus station on Farnham Street is ideally located in terms of its proximity to the town centre. Given this relationship, and the vision to create a pedestrian priority town centre, it is not considered necessary to route public bus services along the Main Street, but instead strengthen the links between the bus station and the heart of the town centre through the pedestrian priority measures and the development of new and improved streetscapes as outlined in Section 5.2.2 and detailed in Section 5.3.3. Secure cycle parking facilities can also be located at the station

In addition the bus station is ideally located in terms of the pedestrian and cycle links into the town centre and also in terms of its accessibility for car and bus traffic from the wider road network. Therefore the existing station will be the public transport hub for the study area and the surrounding hinterland.

It is also recommended that the bus parking and maintenance facilities be relocated from the rear of the bus stop and waiting facilities. It is not necessary to maintain these facilities on site and their relocation would permit the redevelopment of the site, potentially as part of the Railway Road linear river park where the park meets the town centre. This would significantly improve the local



Ordnance Survey Ireland Licence No. EN 0004504 © Government of Ireland



Town Centre Core Area: Street Improvements Masterplan

Map 5.4

FIGURE No.

environment and would clearly establish the Farnham Street / Railway Road junction, in tandem with the recommended junction improvements, as a Gateway to the town centre. The redevelopment of the bus station site would permit the passenger ticket and waiting building to be relocated northwards to the back edge of the site thus opening up the river edge.

As illustrated on Fig. SI 01 of Appendix A, it is proposed to introduce pedestrian crossing facilities on Farnham Street and Railway Road and introduce wider landing areas in front of the bus station. In addition, the reallocation of road space will allow the establishment of formal bus bays on Farnham Street for both the bus station and the opposing school. In terms of bus services, the station would operate only as a set down and pick up facility.

Whilst the bus station would be the public transport hub there is nothing to preclude local bus services operating in the vicinity of Main Street in the future. Bus services can operate within the recommended traffic circulation system and bus stop facilities have been proposed at either end of the pedestrian area on Main Street in the vicinity of the Thomas Ashe Street and Bridge Street junctions.

Taxis

Taxi services are a key element in the transport network for Cavan. As the population grows to 16,000 this role will be consolidated and expanded and the opportunity will exist to develop formal hackney office or taxi rank facilities in the heart of the town centre. In the context of the proposed town centre circulation system and in terms of available road widths, it is recommended that these facilities are provided at two locations in the follows:

- Church Street in the vicinity of Dunne's Stores.
- The car park access road to the east of Main Street.

In addition the proposed loading bays in the transport core will be limited for use between 7.00am and 11.00am. Outside of this time period it is proposed that these bays be used for pick up and drop off purposes for all car traffic and, as such, these will provide additional taxi facilities.

5.3.6 Car Parking

Introduction

The supply of parking provision is a key element in the development of a sustainable town centre for Cavan. The oversupply of parking can lead to excessive numbers of car trips and loss of land banks that could be used for more appropriate land use purposes. On the other hand an under-provision can compromise the growth of the centre especially in the context of Cavan Town serving a wider hinterland that has limited bus services.

The recommendations for car parking are considered in terms of public parking provision and the demand for short term, long term and residential parking together with the spatial distribution of spaces.

Summary of Existing Car Parking Patterns

As detailed in Section 2, car parking surveys carried out as part of this study indicate that there is currently a surplus of approximately 300 off street parking spaces within the town centre core. These are distributed between the private car parks and the municipal at-grade, with a significant surplus in the Multi Storey Car Park. On street parking within the town centre is well utilised, with a high turn over due to the 2 hour parking limit.

Given the reasonable pricing structure within the town centre, long stay parking demand is, in general, accommodated in the town centre off street car parks, with a small proportion of parking on town centre streets such as Farnham Street. During the survey, some long term on street parking was observed along the towns radial routes outside of the pay and display parking zones, namely: Dublin Road, Swellan Road, Railway Road, Cathedral Road and Cootehill Road. Parking on these routes is generally sporadic and does not affect the free flow of traffic. In general, residential areas within walking distance of the town centre are not adversely affected by long stay commuter parking.

In overall, the availability, accessibility and pricing structure for town centre parking is adequate to accommodate the existing demand for both long stay and short stay parking and the parking patterns have little impact on residential areas in the vicinity of the town centre.

Providing for Future Demand

Off Street

The provision of future off street parking facilities is indicated on Map 5.3. At present there are some 1051 car spaces provided in public off street car parks. The map indicates that the car park at Dunne's Stores and the adjacent car park off Main Street be, at a minimum, retained in terms of their current capacities, notwithstanding that either could be redeveloped at some point in the future. The Multi Storey Car Park would be retained but the redevelopment of the site to the East of Main Street could potentially result in the existing 260 at grade car spaces on this site being replaced by up to 700 spaces in a new multi storey facility envisaged as part of the urban design framework for this area.

In addition it is recommended that a new public car park facility be developed within the development area to the West of Farnham Street. This facility could provide up to 400 spaces. Ultimately it is recommended that the two small at grade car parks located to the west of James Connolly Street are removed as part of the development of this southern town centre area as envisaged in Section 4.1.

In overall terms, based on these recommendations, the town centre will be served by approximately 1,400 car spaces, a net increase of over 400 on the existing provision. The location of car parks are spread out around the town so as to receive car traffic as it approaches along the various radial routes to the town centre and thereby precluding significant volumes of traffic from using the street network directly to the east and west of Main Street.

On Street

With the implementation of the street improvements proposed within this study, approximately 114 short stay on street spaces will need to be removed with 30 of these located on Main Street. This will result in a net provision of approximately 300 on street spaces. On street parking plays a vital role in contributing to the economic success and vibrancy of the town, and therefore retention of this quantum of spaces is desirable, striking a balance between the improvement of pedestrian accessibility whilst recognising other commercial needs of the town centre.

Total Provision

In summary the car park surveys indicate that the existing peak parking demand in Cavan Town centre is for approximately 1,000 on a typical working day. In terms of future provision the implementation of the study recommendations would result in approximately 1,700 spaces being provided between on street and off street facilities - a surplus of 700 over the existing peak demand. This future provision will cater for the needs of Cavan as the town and environs grows towards its target population and in the context of growth in travel by slow modes and the best use of available land banks.

Disabled Parking

Within the town centre, disabled parking spaces will be provided in designated on and off street spaces. On street spaces are identified in the street by street traffic management improvements whilst the spaces in car parks should be located so as to be convenient and safely accessible in terms of their proximity to lifts, pedestrian entry and exit points and in terms of the width of the spaces.

Car Park Signage

It is recommended that, in the longer term, variable message car park directional signage be erected on the approach routes to the town centre. This signage will direct drivers to the most convenient and available car spaces via the appropriate roads and streets.

Monitoring Parking Demand

Given the existing and potential surplus of town centre parking spaces, it is envisaged that both short term and long term demand can be accommodated within the town centre car parks for the foreseeable future. It is also recognised that there is no immediate need to extend the existing pay and display or residential permit zones.

Should a substantial increase in demand arise, then there is the potential to introduce a tariff system whereby long term parking zones are identified within existing parking areas e.g. the least accessible level of a multi-storey car park. As the town approaches its target population of 16,000, there may be a requirement to develop long term car parks on the periphery of the town centre cell. This proposal would need to be undertaken in tandem with a review of the parking tariffs within the town centre to encourage greater levels of short term parking.

Given the public transport issues detailed in this study and the potential demand for such a facility in the context of the population of the town's hinterland, the provision of a park and ride system for the town would not be a practical or economically viable prospect. In broad terms these facilities require a minimum of 700 spaces to be economically viable and are provided in urban areas that have a significantly larger urban and hinterland population with an associated established urban bus service.

The surplus for the town centre will need to be constantly monitored to ensure that there is an adequate supply for the town especially when considered in relation to new developments. This will require ongoing monitoring of parking provision, from the baseline surplus situation established in this study, through to the balancing of future provision and demand. This balance should be constantly monitored through the comparison of demand, quantified through a rolling programme of parking surveys, compared to ongoing and anticipated planning approvals and their likely parking requirements.

The provision of car parking for new developments will need to be considered very carefully to ensure that this surplus of spaces is not fully consumed by new developments. A balance between the provision of car parking and the full development of valuable lands within the town centre needs to be struck to ensure the developers are able to develop land to its full potential but still ensuring there is an adequate supply of car parking with the town centre.

For example, if a mixed use development is proposed which includes retail, residential and office uses, it is important that adequate provision is made for all users of the development. Where it is not feasible to provide all the required car parking on site then residential and customer parking should take precedence over that of employees of the scheme. It must be the developer's responsibility to provide the Town Council with the actual number of residents, customers and employees of the scheme and ensure that adequate provision is made for them whether it is on site, within public car parking facilities within the town. In identifying these requirements it is not practical to assume that residents or employees will pay for parking on site and therefore the allocation of parking to these groups should not be within the paid parking components of development sites.

Where car parking is to be provided outside the development site it will need to be taken out of the current surplus of spaces available in the town and the cost of the provision of these spaces should be contributed to by the developer.

In the future small retail and commercial developments should not be required to provide parking on site but parking for such developments should be provided, incorporating development contributions, from the pool of public parking.

Car Parking Standards

Given the profile of parking use detailed above, table 5.3 below considers separate parking standards which could be implemented for the town centre and environs which takes stock of existing and future parking needs. Under this proposal it is recommended that separate standards also be implemented for cycle parking.

Table 5.3: Recommended parking standards for new developments.

Development	Development Unit or Area that Requires a Single Parking Space (Maximum Standards)		
	Car Parking Standards		Cycling Standards
	Town Centre	Environs	All Zones (Stands)
Residential	1per unit	1-2 per unit	To be agreed
Residential - Apartments	1per unit	1 per unit & 10% visitor parking	1 per 10 units
Student Accommodation	1 per 6 student beds	1 per 6 student beds	1 per unit
Shop/ retail units	25 m. sq of retail floor space	20 m. sq of retail floor space	100 m. sq. of retail floor space
Shopping Centres > 1000sqm	Individually assessed		
Supermarkets.	20 m.sq of retail floor space	18 m.sq of retail floor space	100 m.sq. of retail floor space
Retail warehousing / Cash & Carry	40 m. sq.	35 m.sq	150 m.sq.
Garden Centres	30 m. sq.	25 m.sq.	150 m.sq.
Car Showrooms: Gross Floorspace	200 m.sq.	100 m.sq.	N/A
Factory Retail Floorspace.	N/A	40 m. sq	150 m.sq.
Public Houses (Public Area).	5 m. sq	5 m. sq	150 m. sq
Restaurants.	20 m. sq.	10 m. sq	100 m.sq
Café	1 per 20 m.sq of dining space	1 per 20 m.sq of dining space	100 m.sq
Take aways	3 per takeaway	3 per takeaway	100 m.sq
Offices, Financial & Professional Services(including banks other agencies, betting shops): Gross Floorspace	25 m. sq.	20 m. sq.	100 m.sq.
Manu. Industrial / Light Industrial.: working floorspace	40m.sq.	40 m.sq.	500 m.sq.

Garage (service) Working space	300 m.sq.	300 m.sq	N/A
Warehouses: Gross Floorspace	75 m. sq	150 m.sq	500 m.sq.
Conference Centres: Public Area	50 m.sq.	25 m. sq.	To be agreed
Surgeries, Clinics and Group Medical Practices	1 per Public Consulting Room 1 per 20sqm of public rooms	2 Spaces per Public Consulting Room	1per Public Consulting room
Guesthouse / Hotels (excluding Public Areas)	1 per bedrooms	1 per Bedroom	1 per 20 beds
Hostels	1 per 2 bedrooms	1 per 2 bedrooms	1 per 10 beds
Cinemas, Theatres, Stadia	15 seats	8 seats	1 per 20 seats
Swimming Pools, Ice Rinks, etc.	1 space per 10 m.sq. of pool / rink plus one per three staff	1 space per 20 m. sq. of pool / rink plus one per three staff	1 space per 20 m. sq. of pool / rink plus one per three staff.
Bowling alleys	2 spaces per Lane.	4 spaces per Lane.	2 per Lane.
Amuse. / Entertainment: Gross Floorspace	50 m.sq.	30 m.sq.	50 m.sq.
Community centre	1 per 10m.sq of public floorspace	1 per 10m.sq of public floorspace	75 m.sq
Places of Worship	25 seats	10 seats	10 seats
Crèches	1 per 6 children & 1 per staff	1 per 6 children & 1 per staff	1 per 6 staff
Gymnasium	1 per 50 m ² public space	1 per 30 m ² public space	150 m.sq.
Sports Clubs, grounds	1 space per 15 m. sq. & 6 spaces for each pitch, 2 for each court.	1 space per 15 m. sq. & 6 spaces for each pitch, 2 for each court.	1 space per 15 m. sq. & 6 spaces for each pitch, 2 for each court.
Hospitals / Nursing homes	1per Bed	1per Beds + staff parking	1 per 10 staff on duty
Library	50 m. sq.	30 m. sq.	1 per 50 m. sq.
Funeral Home	10 spaces	10 spaces	N/A
Schools (Primary)	1 per Classroom	1 per Classroom	1 per 5 students.
Schools (Secondary) 1 per Classroom 1 per Classroom 1 per 4 students.	1 per Classroom	1 per Classroom	1 per 5 students. (Non Bus)
Schools (Third Level)	1 per Classroom and1 per 15 Students	1 per Classroom and1 per 15 Students.	1 per 3 students

The standards are considered appropriate for a town that is promoting the improvement and development of pedestrian and cyclist links together with the expansion of bus services serving the town centre and environs.

Whilst the above table presents clear parking standards for each land use, predominantly night-time land uses within the transport core area could be subject to less stringent parking requirements given the existing night time surplus in Cavan. Instead, a financial contribution could be levied for the provision of public parking facilities within the vicinity of the development. This levy will be based on a defined parking standard for such developments.

This principle could be applied in general but each site, in particular mixed use developments, will be considered on their own merits in terms of determining the car parking provision. Factors affecting the parking provision will include scale, overlapping of day and night-time uses and proximity of available public parking. The overall parking requirement of the site with regard to coincidental and non-coincidental uses can be determined using tools such as recognised traffic generation databases. In particular, the prevalence of longer opening hours for retail developments should be assessed where relevant.

Mobility Management Plans

Mobility Management Plans consist of a package of measures put in place by an organisation to encourage and support more sustainable travel patterns among staff, clients and other visitors. Mobility Management Plans are an effective tool for land use planning and transport demand management and as a result are now viewed by planners as an essential component for large scale commercial developments. Such a plan usually concentrates on staff commuting patterns but may also include business travel and fleet management. Mobility Management Plans seek to encourage sustainable travel through:

- Home working
- Car sharing
- Public transport use
- Cycling and walking

The plan is usually implemented as a planning condition and should take the form of a formally published document which outlines the organisations proposed measures and achievable targets. A realistic plan with achievable targets can provide many benefits for employers, employees and to members of the wider community. Benefits include reduced congestion, improved accessibility and cost savings in time and money. In preparing such plans guidance should be sought from the 'The Route to Sustainable Commuting – An Employers Guide to Mobility Management Plans' issued by the Dublin Transportation Office.

To this end, it is recommended that Mobility Management Plans be sought for all new large scale developments or collection of smaller developments. Whilst varying levels of guidance exists on the threshold levels for requesting Mobility Management Plans, it is recommended that the need for a Mobility Management Plan be determined by the Planning Officer on an individual basis.

Transport Assessments

Where significant developments are proposed it will be necessary for applicants to demonstrate the impact of their proposal on the integrated transport system by means of a Transport Assessment, in accordance with best practice. This will include an assessment of the impact of the proposal on the full range of modes of transport, and incorporating measures to maximise accessibility of non-private car related movements.

5.4 BEYOND THE TOWN CENTRE

Following on from the development of the town centre Traffic Management recommendations, this section of the report addresses the existing and proposed new road links and junction improvements to the town centre core and new development lands. Particular attention is given to the sections of the routes that are within walking catchment of the town centre.

5.4.1 Existing Road Links

N3 – East of Dublin Road / N55 Roundabout

To the east of the Dublin Road / N55 Roundabout and west of the Kilmore Hotel junction, the N3 performs the dual function of a national primary route bypassing Cavan Town and as a local distributor road serving local commerce. Therefore, the re-design of this section of route must balance the needs and safety of all users.

The prevailing width of this section of road is 14metres, with multiple right turning lanes running along its length. In terms of pedestrian access, the footpath provision is fragmented on both sides of the road and there are no pedestrian crossings.

Based on the dual function of the route and the need for improved safety, it is proposed that the existing junction at the Kilmore Hotel be reconstructed as a roundabout junction. In tandem with these works it is proposed that the central lane for right turning traffic be removed and replaced with a kerbed central reserve, thereby creating a 'left in left out' arrangement on each of the business accesses along this section of route. The construction of a roundabout at this location will help redefine the urban boundary of Cavan and remove conflicting cross movements on a National Primary Route.

N3 – North of Dublin Road / N55 Roundabout

As the lands to the east of the town centre are developed and commercial activity on the N3 increases, consideration must be given to a means of providing for pedestrians wishing to cross the N3 north of the Dublin Road / N55 Roundabout. Given the volumes and speeds of traffic on the N3 bypass and the need to preserve its function as a national route, it is not considered appropriate to provide uncontrolled or controlled at grade pedestrian crossings of this route. Therefore, if the demand arises, consideration should be given to the construction of a pedestrian and cyclist bridge where future desire lines exist on the N3. The importance of this connection will be realised, when the eastern environs of the town grows to meet the N3 bypass.

Given the quantum of development on this section of road, an alternative proposal for the construction of a bypass linking the Kilmore roundabout to the N3 bypass north of its existing junction has been considered. The merit of this route in terms of vehicular traffic is discussed in Section 6 of this report.

Given the routes function as a national primary route, all of these improvements will need to be carried out in close consultation with the NRA.

Dublin Road – West of the N3 / N55 Roundabout

Dublin Road has a relatively wide aspect from its junction with the N3 / N55 Roundabout to the junction with the Ballinagh Road. This section of road has seen considerable development in recent years with the provision of significant scale retail parks and residential developments on both sides of the road.

Traffic volumes and characteristics on this link have altered considerably for the better on completion of the N55 bypass link; however Dublin Road continues to function as the main access route from the N3 to the town centre. The Dublin Road between the N3 / N55 Roundabout and the Ballinagh Road junction should be subject to an upgrade design that would be considered with its function as a mixed use route facilitating vehicular, pedestrian and cyclist traffic. The upgrade would incorporate the redesign, as necessary, of all road junctions including the potential redesign of the Ballinagh Road junction as outlined below and the provision for new access to development lands. The redesign should prioritise the provision of continuous footpath and cycle lanes from the N3 / N55 Roundabout to the Ballinagh Road junction with appropriate crossing facilities.

As detailed in Section 5.4.2 and illustrated on Map 5.6, two route options have been identified for the construction of a new distributor link through the eastern environs linking the eastern side of the town centre via Cock Hill to the Dublin road east of the Ballinagh Road junction.

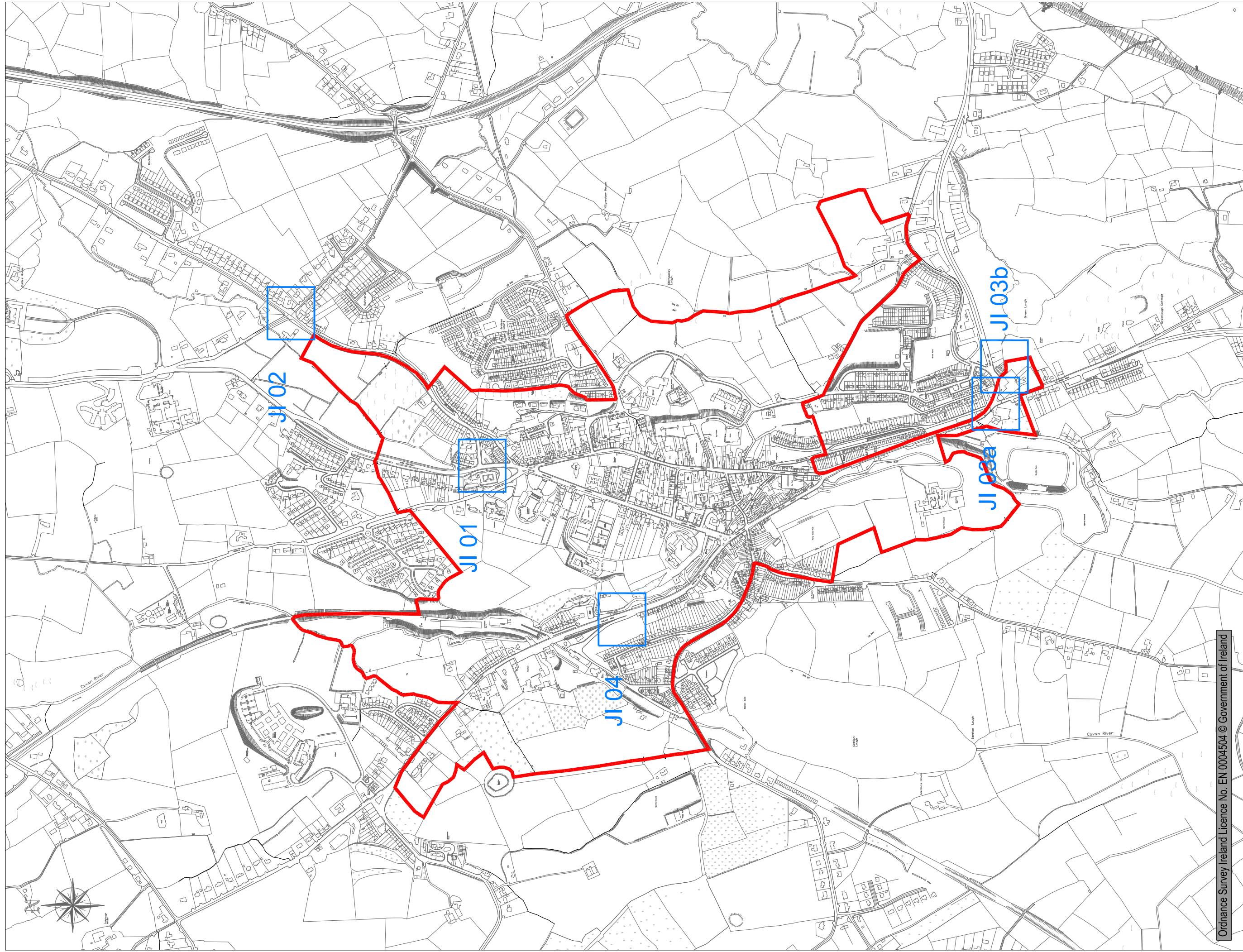
On completion of one or both of these eastern links into the town centre, traffic volumes on the Dublin Road between its junction with the Ballinagh Road and the town centre will be significantly reduced, thereby enabling cyclists to rejoin the carriageway. As part of the redevelopment of this streetscape, it is the preference of this study to remove on street parking along this section of road.

Ballinagh Road

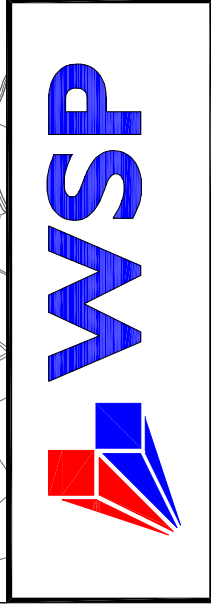
Ballinagh Road presents a generally straight and relatively wide road alignment from the southern environs to Creighan Drive. In the vicinity of the Dublin Road junction the road narrows and the footpath provision, at present, is undefined. As outlined in Section 2, the completion of the N55 bypass has relieved congestion and removed a considerable portion of HGV traffic from the Ballinagh Road. As a result traffic volumes are now low at this junction and it is recommended that the existing priority junction remain in operation in the short term. As the town expands, in particular in the southern environs, traffic volumes will increase again at this junction. With this in mind, consideration may need to be given to the rationalisation of traffic movements at this junction to preserve its capacity. In particular the banning of right turn manoeuvres from Ballinagh Road into Dublin Road will reduce conflicts and improve the overall capacity of the junction.

As and when the junction approaches capacity in the future due to the anticipated growth in traffic, alternative forms of junction will need to be implemented at this location and two forms of junction have been designed for the Ballinagh Road / Dublin Road junction.

Drawing JI03A, Appendix B illustrates how a traffic signal controlled junction incorporating pedestrian crossing facilities can be constructed at the existing junction location whilst retaining the existing built edge of the street. In addition to these works, it is proposed that the footpaths be reconstructed and connected into the existing footpath provision to the south of Creighan Drive. The introduction of a traffic signal controlled junction at the Ballinagh Road / Dublin Road junction will

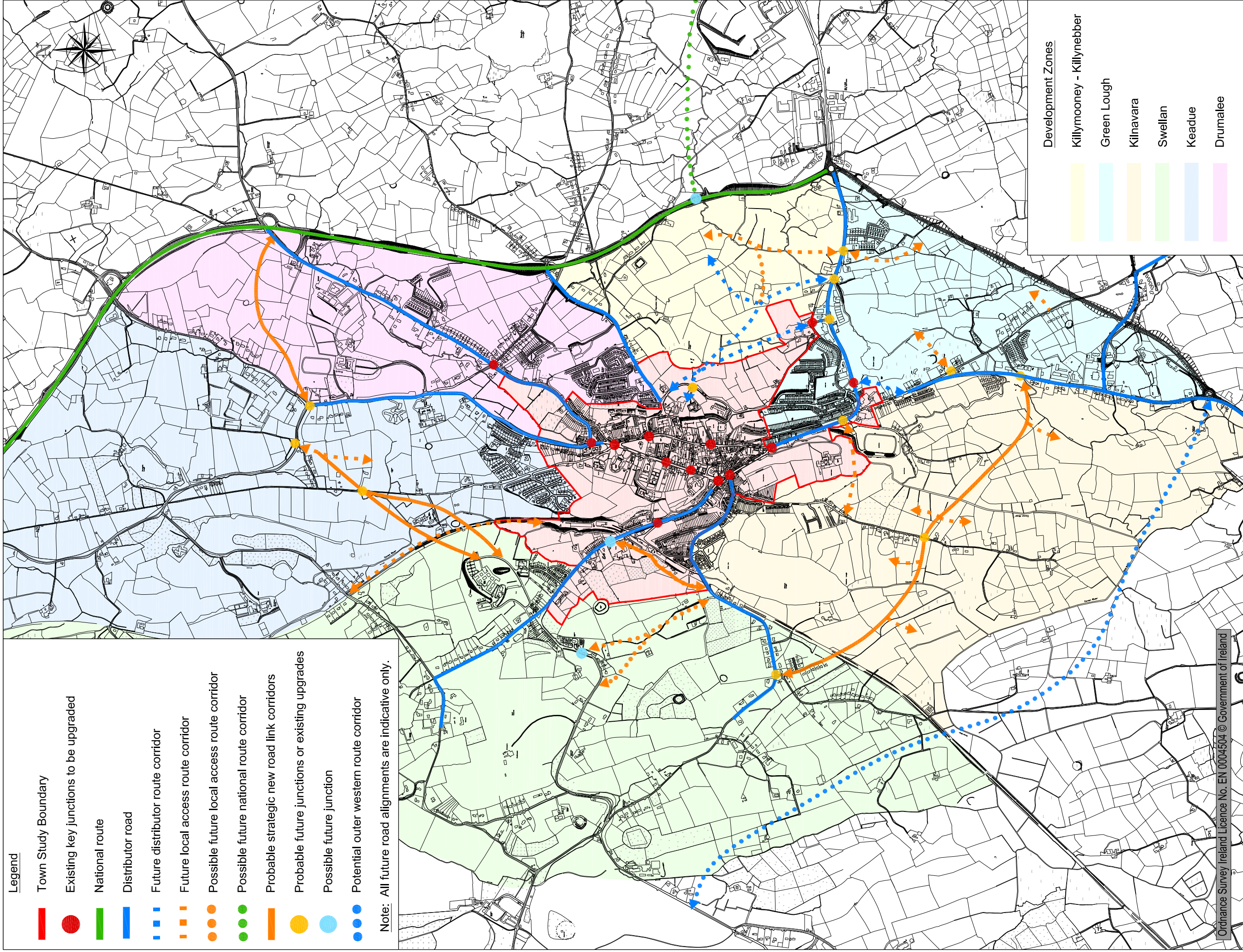


Ordnance Survey Ireland Licence No. EN 0004504 © Government of Ireland



External Junction Improvements Masterplan

FIGURE No.



improve traffic flows and reduce congestion by regulating the volumes of traffic on the Ballinagh Road. Whilst the results of the modelling analysis shows an overall improvement in traffic flow at the junction, some queuing may still occur during the peak traffic period, in particular on the Dublin Road approach from the town centre and the Ballinagh Road.

As a short to medium term goal, it is recommended that land be acquired to the east of the existing intersection and garage to allow for the realignment of the northern end of Ballinagh Road and the construction of a standard roundabout with an ICD of 30m as illustrated on Drawing JI03B, Appendix B. This form of junction will increase capacity for Ballinagh Road and Dublin Road traffic and permit the safe manoeuvre of HGV traffic. The relocation of the Ballinagh Road junction will also distance the Fairgreen access road from this intersection and will formalise the back road access into this residential area.

Whilst the northern end of the existing alignment of Ballinagh Road will be closed to vehicular traffic, the passage of pedestrians and cyclists from Ballinagh Road to and from Dublin Road can be significantly improved by facilitating their movement on the exiting road alignment at the junction. This will significantly reduce conflict between these slow modes and vehicular traffic at this location.

Swellan Road / Wolfe Tone Street

Wolfe Tone Street currently suffers from localised traffic congestion due to the demand for on street parking and its steep topography. It is recommended that the existing quantum of on street parking be retained to service local residents; however in order to improve the flow of traffic it is recommended that Wolfe Tone Street be made one way eastbound from its junction with Military Row to College Street. This proposal is also discussed in section 5.4.2 of this report under the sub-heading 'Swellan'. Under this proposal, access to Swellan Road will be via Railway Road. The impact of this proposal on vehicular traffic on Wolfe Tone Street and the wider network is assessed in section 6 of this report.

Railway Road

Railway Road has a relatively wide aspect and experiences free flowing traffic throughout the day and as a result requires little intervention. In line with the proposal to make Wolfe Tone Street one way, it is recommended that the intersection of Fire Station Road / Railway road be re-designed to facilitate vehicles accessing and egressing Fire Station Road, as illustrated on drawing JI04. Given the elevation of Fire Station Road, the straight alignment of Railway Road and the acute angle at which they meet a properly designed roundabout cannot be safely accommodated at this location. As an alternative, it is recommended that a build out be provided at the mouth of this junction to improve visibility for vehicles egressing Fire Station Road, reduce the angle of turning movements and formalise on street parking on the west side of Railway Road.

It is also recommended that the road space at the Rock Cross junction be narrowed to help reduce vehicular speeds. Footpath provision should be made continuous on both sides of the road where sufficient width exists. At locations where the carriageway is narrow, a continuous single footpath should be provided linking into the outlying residential developments.

The development of a river amenity walk and cycleway adjacent to Railway Road is addressed in Section 5.4.3 of this report.

Cathedral Road

Cathedral Road and Cootehill Road experience similar levels of traffic and both provide the service of distributor links to the north of Cavan. It is therefore recommended that the existing priority junction at Cathedral Road / Cootehill Road be redeveloped as a traffic signal controlled junction to improve the capacity of Cootehill Road and provide safe crossing facilities for pedestrians. Drawing JI01, Appendix B indicates the preferred layout for this junction. It is also recommended that the existing short cut at Athbara be closed off to vehicular traffic.

Similarly to above, footpath provision should be made continuous on both sides of the road where sufficient width exists. At locations where the carriageway is narrow, a continuous single footpath should be provided linking into the outlying residential developments.

Future traffic predictions indicate that cycle provision can be facilitated on the road carriageway without the need to install cycle lanes. In addition, it is recommended that the existing amenity walk through the park on the eastern side of Cathedral Road be strengthened to accommodate cyclists. This proposal is described in further detail in section 5.4.3 of the report.

Cootehill Road

Cootehill Road serves a number of small residential developments and links the northern interchange of the N3 bypass to the town centre and, as a result, experiences moderate levels of traffic. As detailed above it is recommended that its junction with Cathedral Road become a traffic signal controlled junction to improve its capacity.

The Drumalee Cross junction currently operates as a priority junction with a ghost island right turn lane facility. Given the wide aspect of the road, vehicular speeds are relatively high. In order to improve safety and capacity for east-west traffic movements, it is recommended that the intersection be redesigned as a traffic signal controlled junction. Fig JI 02 illustrates the layout of this junction incorporating pelican crossing facilities. As part of the works, it is recommended that a 2.0metre wide footpath be constructed on the eastern side of Cootehill Road.

Beyond this junction footpath widths are generous up to the vocational school and therefore no further interventions are required.

Aughnaskerry Road

In its existing context Aughnaskerry Road carries relatively low volumes of traffic compared to Cootehill Road or Dublin Road. As identified within the Urban Design Framework Plan, the consolidation of development to the north and south of this link will see an increase in local traffic accessing the town centre. Vehicular traffic accessing the town centre will be directed to the existing multi storey car park or the Main Street redevelopment Car Park via the new link road from Cock Hill.

Given its proximity to the town centre, it is recommended that continuous footpaths be developed on both sides of the road for the extent of the residential zoned areas. Pedestrian access to the town centre will via the new pedestrian link outlined throughout Section 5.3.

5.4.2 Strategic New Road Links

DESIGN CRITERIA

As outlined in section 5.2, the purpose of developing a functional road hierarchy is to create a safe and efficient network for all modes of transport. A fundamental principle behind the establishment of a road hierarchy is that motor traffic should be concentrated onto roads appropriate to their journey purpose. The separation of mutually- incompatible functions can, as far as practical, be achieved through the design or adaptation of a road to encourage appropriate driver behaviour, in particular driver speed. Design features which contribute to the function of the road include, width and alignment of the carriageways, footways and cycle ways, number of accesses, signing, markings, on street parking, speed restrictions etc.

In developing a road hierarchy for the town, it is essential that all new links are designed with a specific function that compliments the existing road hierarchy. With this in mind, a set of design guidelines have been produced for new road links which broadly outlines the design criteria for each classification. The guidelines detailed below in table 5.4 addresses the priorities and needs of all road users for each classification of route.

Table 5.4: Design Criteria for New Roads

Road User	Activity	Local Access / Collector Road		District Distributor Road	
		Function	Design Criteria	Function	Design Criteria
Vehicular Traffic	Predominant Use	To cater for vehicular movements near beginning or end of journey. Predominantly local traffic only	<ul style="list-style-type: none"> Road width: 6.0metre to 7.0metre Verge Width: optional No Hard Shoulder required in urban environment 	To serve local and through traffic movements in providing direct access from primary network to major trip attractors e.g. town centre	<ul style="list-style-type: none"> Road width: 7.3metre to 10.0metre Verge Width: 2.0metres No Hard Shoulder required in urban environment
	Intersections	Multiple Junctions acceptable.	<ul style="list-style-type: none"> Junctions to be priority controlled or mini roundabouts 	Junctions limited to roads of equal importance or immediate lower category. Frequency of intersections should be minimised to maintain efficient flow of traffic.	<ul style="list-style-type: none"> Junctions to be signal controlled or normal roundabouts. Urban Traffic Control (UTC) system should be incorporated to multiple traffic signal controlled junctions to help maximise flow
	Roadside Frontage	Direct access from individual dwellings acceptable	<ul style="list-style-type: none"> See "Recommendations for Site Developments Works for Housing Areas" for driveway detail. 	Direct access from individual dwellings not acceptable	<ul style="list-style-type: none"> Building line set back. No individual access from properties, apart from sites generating flows at levels similar to local access / distributor roads.
	Parking	On road parking acceptable where off road sites are not provided or parking does not unduly impede the flow of traffic		No on road parking. Clearway to be maintained.	
	HGV Activity	Only for delivery of goods and services	<ul style="list-style-type: none"> Layout of road to deter HGV through 	Route to facilitate movement of HGV traffic	<ul style="list-style-type: none"> See NRA TD/9/00 "Road link Design" for

Road User	Activity	Local Access / Collector Road		District Distributor Road	
		Function	Design Criteria	Function	Design Criteria
			movements. See "Recommendations for Site Development Works for Housing Areas" for layout considerations	between different parts of urban area	vertical and horizontal alignment of road
	Public Transport	Potential Public transport route	<ul style="list-style-type: none"> On Road bus stops permissible 	Potential Public transport route	<ul style="list-style-type: none"> Off road bus laybys to be considered at strategic locations
	Design speeds and speed limits	Subject to 50kph limit but layout of road should discourage speed. Consideration to be given to designation of 30kph routes in certain circumstances – through consultation with Gardai.	<ul style="list-style-type: none"> Horizontal alignment constraints and good urban design to be used to constrain vehicular speeds. Vertical traffic calming measures should not be required on new roads. See Section C of the DoE's "Traffic Management Guidelines" 	Subject to 50/60 kph in urban environment.	<ul style="list-style-type: none"> See NRA TD/9/00 "Road link Design" for vertical and horizontal alignment of road
Pedestrians	Use	Facilitate pedestrian movements at the beginning or end of journey	<ul style="list-style-type: none"> Minimum 2m wide footpaths 	Facilitate pedestrian movement to trip attractors e.g. town centre	<ul style="list-style-type: none"> Minimum 2m wide footpaths, separated from carriageway by 2.0metre verge
	Cross movements	Considerable freedom with crossing at random and some areas shared with vehicles	<ul style="list-style-type: none"> Crossings predominantly uncontrolled. See Section C of the DoE's "Traffic Management Guidelines" for detail of raised crossings. 	Pedestrian crossings restricted to strategic locations.	<ul style="list-style-type: none"> All pedestrian crossings are to be signal controlled. Positive measures to be introduced for their safety. E.g. Pedestrian guard rails.

Road User	Activity	Local Access / Collector Road		District Distributor Road	
		Function	Design Criteria	Function	Design Criteria
			<ul style="list-style-type: none"> Signal controlled crossings or Zebra crossings to be considered at strategic locations. E.g. adjacent to local shops or schools 		<ul style="list-style-type: none"> See "Local Transport Note 1/95" for "The Assessment of Pedestrian Crossings". See "Local Transport Note 2/95" for "The Design of Pedestrian Crossings".
Cyclists	Use	Facilitate cyclist movements at the beginning or end of journey	<ul style="list-style-type: none"> Cyclists to share road space with slow moving vehicular traffic. 	Facilitate cyclist movement to trip attractors e.g. town centre	<ul style="list-style-type: none"> Cyclists to be accommodated on off road cycle track, subject to sufficient space. Where the above is not feasible, on road cycle lanes should be provided. See "Provision of Cycle Facilities, National Manual for urban areas" for detail
	Cross movements	Freedom to be given to cyclists to cross at multiple locations	<ul style="list-style-type: none"> Cyclist to share road space and Priority with vehicular traffic. Parking to be removed from the vicinity of junctions to maintain good levels of visibility. 	Cyclist crossings restricted to strategic locations.	<ul style="list-style-type: none"> Controlled Toucan crossings to be installed at traffic signal controlled crossings. See "Provision of Cycle Facilities, National Manual for urban areas" for detail

It is intended that these guidelines be applied to the proposed new road links detailed within this section of the report. It is recognised that the choice and layout of new roads are often constrained by cost and environmental factors and therefore a flexible approach to design will be needed. Where relaxations are required, these should be mitigated to ensure that the overall safety and capacity of the route conforms to acceptable standards.

EXTERNAL NEW ROAD LINKS

The routes outlined below have been developed linking the existing and future residential developments to the town centre core and beyond to the national and regional road network. The key access routes and associated new / improved junctions are illustrated on Map 5.6 and outlined below and have been addressed in terms of the development lands they will serve. The viability of these routes in terms of vehicular traffic is assessed in Section 6 of this report.

Killymoony – Killynebber

This area consists of the developments lands bounded by the N3 Bypass, Dublin Road, Cock Hill and Aughnaskerry Road. Dublin Road will continue to form the main access route from the N3. Given the size of the lands and the proposed scale of development, three new links have been identified linking Dublin Road to these lands. These are detailed below, moving in an east to west direction:

1. Link to be developed northwards from the Dublin road through the Lakeland Retail Park Access Road to serve the development lands to the immediate west of the N3 bypass. Link to be developed as a local access / collector road only via the proposed roundabout outlined in Section 5.4.1.
2. The estate road currently under construction for the Killynebber Residential Development scheme can be extended to access developments lands to the north of the site. This road can be continued westwards to link into the proposed New Eastern Gateway site and eastwards towards residential and commercial lands outlined in Section 5.3 and Map 5.3, thereby providing the new distributor link from the Dublin Road to the town centre.
3. As detailed in Section 5.4.1, potential also exists to develop a distributor road through the existing access road between “Homemaker” and “Advance Pitstop”. This route would continue northwards through the development lands to the east of Killymooney Lough, linking into the town centre at the proposed New Eastern Gateway site.

At the intersection of Dublin Road with the above three links it is recommended that the existing junctions be reconstructed as roundabout junctions incorporating crossing facilities for pedestrians and cyclists.

At the distributor road junction with Cock Hill, town centre traffic will be directed to the Eastern Gateway Site or existing Multi Storey Car Park. Given the vertical alignment and limited width of Cock Hill, consideration is to be given to developing a parallel access route to the east of Cock Hill with a new junction on Complex Road. Under this proposal, Cock Hill would remain open only to

local traffic accessing the school. Potential would then exist to close off one end of Cock Hill to stop through traffic use.

As illustrated on Map 5.6, it is proposed that an east / west link be developed connecting the above new road proposals. Footpaths and cycle routes shall be developed along the three north south access links and east / west access link to the town centre. At Cock Hill a direct pedestrian link to the town centre is proposed through the disused water treatment plant station as outlined in section 5.3.

Green Lough

This area consists of the developments lands bounded by the Dublin Road, N55 Bypass and Ballinagh Road. Similarly to Killymoony and Killynebber, the Dublin Road will continue to form the main access route from the N3.

Potential exists to construct a spur road from the existing access road through the Meadow Park residential estate westwards to serve development lands to the immediate west of the N55 bypass. Given the existing alignment of this road, development should be limited.

It is proposed that an access / collector road be developed through the Green Lough area linking into the “Lakeland Retail Park” Access Road junction on the Dublin Road. It is not recommended that this road be linked through to the Ballinagh Road. The junction on the Dublin Road should be redesigned as a roundabout junction.

Vehicular traffic will continue to use the Ballinagh Road and Dublin Road to access to town centre. It is proposed that a direct pedestrian and cycle link to be developed through these development lands to Ballinagh Road / Dublin Road junction via Green Lough.

Kilnavara

This area consists of the developments lands bounded by Ballinagh Road and the disused railway line. In this region it is proposed that an access link be developed from the Ballinagh Road to Swellan Road as illustrated on Map 5.6. Given the location of extant planning permissions along the proposed alignment of this route, it is realised that the link will need to be developed with a level of direct road side frontage, therefore it is the preference that this road be developed as a local collector road only.

Swellan

This area consists of the developments lands to the west of the town centre bound by the old railway line and Railway Road. Development in the western environs will be limited up to the expanded population of 16,000, therefore minimal infrastructure improvements are proposed in this region. Notwithstanding the above, a new link has been considered linking Swellan Road to Railway Road. The purpose of this route would be to open up access lands in the Swellan region and provide an alternative route to the town centre that would complement the proposed one-way system on Wolfe Tone Street.

To the north of Railway Road in the vicinity of the hospital and the Mart Site, a significant quantum of land should be available for employment purposes. As a result, it is anticipated that this area will generate a large number of employment trips. In order to reduce pressure on the local road network, it is recommended that a northern link road be developed connecting the hospital and employment lands in this region to Cathedral Road and beyond to the N3 northern interchange. It is intended that this road will facilitate local trips to develop lands in Kilnavara and Keadue as well as employment trips originating from outside of Cavan. These new link roads will also provide the opportunity to create a new access road running along the alignment of the old railway line, thereby enabling access to development lands along this corridor.

Keadue

This area consists of the developments lands to the north of the town centre bounded by the old railway line and Cathedral Road. In general, Cathedral Road and Keadue Lane experience relatively low volumes of traffic compared to the Ballinagh Road or Dublin Road and as a result there is no need for significant infrastructure works in this area.

As illustrated on Map 5.6, new access links have been proposed from Cathedral Road to open up access to these lands. This area will also be served by the proposed link road connecting the hospital site to Cathedral Road.

Given the relative width of Keadue Lane, it is recommended that the majority of future development in this area access onto Cathedral Road.

Drumalee

This area consists of the developments lands bounded by Cathedral Road and Aughnaskerry Road. As identified in the Swellan Section a new access route is proposed linking the development lands of Keadue and Latt to the N3 northern interchange and beyond to the proposed employment lands to the east of the bypass. This purpose of this route is to open up access to these development lands and provide a direct route from the N3 to these development lands thereby removing a portion of through traffic from sensitive routes within the town centre.

Western Bypass

A key objective of the Cavan Town Development Plan 2003 -2009 is the development of a road link from the N55 to the R198 Swellan Road. Within this report it is recommended that a local collector road be developed from the Ballinagh Road to the Swellan Road to provide access from the Swellan Region to the Ballinagh Road and N55, thereby avoiding the need to travel through the town centre. In addition, the purpose of this route is to open up development lands within the south and west environs of the town as shown on Map 5.6.

A further consideration of the study has been the development of a western bypass of Cavan on the periphery of the environs linking the N55 southern junction to the N3 northern interchange. The potential purpose of this route would be to reduce congestion within the town centre by connecting the arterial roads to the west of the town to the national road network. This route would not be

required to accommodate the growth of the town and environs as envisaged in this study. However the route option is identified on Map 5.6 as there is the potential that the route may become necessary if the growth of the town and environs exceeds the current projections.

5.4.3 Amenity Walking and Cycling Routes

As illustrated on Map 5.2, a network of amenity walking and cycling links have been identified within the town based on existing walkways and the town's natural and built amenity attractions. In general the proposed amenity walks form a figure eight to the north and south of the town, with the meeting of the routes centred on the Farnham Street / Railway Road junction.

Southern Loop

Starting at the Farnham Street / Railway Road junction, the route travels southwards along college Street before joining the existing footpath adjacent to the River Cavan. Walking along the banks of the River Cavan, the route leads southwards through the Royal School. The route then continues along the banks of the River Cavan weaving through the drumlins in the southern environs of the town.

Approximately 2km to the south of the town centre, the river and pathway turns sharply heading northwards towards Swellan Lough. At Swellan Lough the path can split in two, travelling along both banks of the lake before rejoining at its northern end. A short inclined section of path will link the northern tip of Swellan Lough to Swellan Road. Travelling eastwards, the route follows Swellan Road and Wolfe Tone Street before rejoining the start of the route at Farnham Street.

Although the route passes through an undulating landscape the path follows the river nearly all of the way, so is relatively flat. This should make the route attractive for all age groups.

Northern Loop

The northern loop commences at the southern end of Farnham Street and heads northwards past the courthouse and cathedral before joining Cathedral Road. On Cathedral Road the route joins the footpath through the existing linear park. Travelling northwards, the route continues along Cathedral Road, past St Felim's Hospital up to the banks of Drumgola Lough, some 2.5km north of the town centre. The route traverses the banks of Drumgola Lough before heading south westwards through the woodlands at Loreto, a designated Natural Heritage Area. The route then leads southwards joining the River Cavan to the north of the hospital site. The route then follows the banks of the River Cavan all the way to the town centre. This section of route is generally free of obstruction; however there are some areas which may require some land acquisition and clearance work to achieve the linear park. In particular, it is recommended that consideration be given to the redistribution of bus parking at the Bus Station to allow the linear park to continue southwards along the river right up to its junction with Farnham Street, thereby creating a focal point for the amenity routes.

This route is longer than the southern loop and covers a more varied terrain, and may therefore be considered a more challenging route.



Other Routes

The above routes focus on the northern and southern environs of the town. Other routes into the town centre may exist to the east and west of the town connecting places of interest such as Killymooney Lough, Green Lough or Swellan Fort. In addition, an amenity route could be developed around the periphery of the town linking a number of natural, archaeological and historical interests.

Design Considerations

Within the built environment, it is anticipated that the routes will be used for amenity, commuter and school trips, therefore it is essential that measures to secure a high level of safety are integrated into the design. A bound surface material should be used for the route, with cyclist preferably segregated from pedestrians. In terms of personal security, it is proposed that the route be lit in the urban area and designed with a good level of natural surveillance from neighbouring properties or adjacent roads.

On the outer fringes of the town, the surface of the track may consist of an unbound material and cyclist and pedestrians may be able to share the same path space. Lighting may also not be required in these areas. In these areas it is important that the design of the route and choice of materials reflect the surrounding environment.

Key to the success of the routes is its promotion as a recreational and educational facility. To this end, interpretive information boards can be provided at regular intervals to highlight the town's wildlife and heritage interests.

6 Transport Modelling

6.1 INTRODUCTION

This section of the report outlines the process undertaken in constructing a traffic model for the town and evaluates the impacts of the various transport recommendations detailed within Section 5 of this report.

6.1.1 SATURN

The SATURN computer modelling suite was used to model the strategic movements of traffic in the Cavan Town and Environs area. The extent of the SATURN model includes those routes external to the urban area of Cavan that affect the routing of traffic through the town, and all key roads and streets within the urban area.

6.1.2 Data collection

In May 2005, 12 hour traffic counts were undertaken at strategic locations throughout the town to provide data for the calibration and validation of the SATURN Model. These locations are shown below in Table 6.1. This data was also used to identify the morning and evening peak traffic flow period for Cavan. This was observed to be from 8:00am to 9:00am in the morning and 5:00pm to 6:00pm in the evening. These peak traffic flow periods were then brought forward as the two modelling periods for all base year and future year assessments of the town.

Table 6.1: Junction Turning Counts

No.	Location	Date
Site 1	Cathedral Rd / Cootehill Rd	19 th May 2005
Site 2	Cathedral Rd / Farnham St / Church St	19 th May 2005
Site 3	Farnham St / Town Hall St	19 th May 2005
Site 4	Aughnaskerry Rd / Cock Hill Rd	19 th May 2005
Site 5	Church St / Church View	19 th May 2005
Site 6	College St / Barrack Hill	24 th & 26 th May 2005
Site 7	Barrack Hill / St Phelim's Place	24 th & 26 th May 2005
Site 8	Barrack Hill / Swellan Court	24 th & 26 th May 2005
Site 9	College St / Connolly St	24 th & 26 th May 2005

Site 10	Dublin Rd / Athlone Rd	24 th & 26 th May 2005
Site 11	Dublin Rd / N3	24 th & 26 th May 2005
Site 12	R212 / West Arm	24 th & 26 th May 2005
Site 13	Main St / Bridge St	24 th & 26 th May 2005
Site 15	Drumallee Rd / Aughnaskerry Rd	24 th & 26 th May 2005
Site 16	Farnham St / College St	24 th & 26 th May 2005

In addition to the junction turning counts a series of link counts were also undertaken for the Cavan Area collected from Automatic Traffic Counters (ATCs). These counts were taken in the week beginning 23rd May 2005 and are outlined in Table 6.2.

Table 6.2: Automated Traffic Counts

No.	Location	Date
Site 1	Railway Rd, nr Hospital	May 2005
Site 2	N3 offslip / Cootehill Rd (northbound)	May 2005
Site 3	N3 offslip / Cootehill Rd (southbound)	May 2005
Site 4	Farnham Rd, outside Garda station	May 2005
Site 5	Main St	May 2005
Site 6	James Connolly St	May 2005

To determine the nature of traffic within the town of Cavan, it was necessary to identify the current traffic patterns. This was achieved by obtaining data on the origins and destinations of existing trips. To obtain this information on a global scale, Road Side Interview Surveys (RSIs) were carried out on 5 key access roads to the town on both an inbound and outbound direction. The locations of the RSIs and a summary of the results are listed in Table 6.3.

Table 6.3: Destination of RSI Trips

RSI Site	Date of Survey	Total Traffic in Interview Direction from MCC (07:30-9:30 and 16:30-18:30)	Interviews (07:30-9:30 and 16:30-18:30)	Sample %
Site A, Dublin Rd	1 st June 2005	2429	488	20.1
Site B, Athlone Rd	25 th May 2005	1644	393	23.9
Site C, Railway Rd	26 th May 2005	1522	482	31.7
Site D, R212	25 th May 2005	968	382	39.4
Site E, R188	25 th May 2005	961	481	50.0
TOTAL		7524	2226	29.6

6.1.3 Model Development

A zone system was developed in SATURN from a detailed investigation of the existing land uses present in Cavan, based on mapping and site observations. Zones have been based on homogenous land use areas with unique zones for large trips attractors such as car parks, schools, hospitals and any other large developments. Zones were also created to represent the areas under consideration for future expansion of the town.

The Cavan Model contains 133 zones, 115 within the urban area and the remaining external to the town. The zone system covers the whole of Ireland, with small precise zones within the urban area of Cavan Town, with increasing zones sizes the further away from Cavan. In particular this has incorporated zoning of the Greater Dublin Area to allow for estimation of commuter trips. In the town centre, the zone structure is suitably disaggregated to identify access to the main street areas with car parks being designated as stand alone zones.

The SATURN network was then constructed by connecting the zones by a series of nodes and links that represent the network from the OS map base complemented by the inventory of the transport network.

6.1.4 Matrix Development

To create matrices for the morning and evening peak traffic flow periods, data was sourced primarily from that collected during the Roadside Interviews. Each interview produced a trip origin and destination which was allocated to zones for inclusion in the matrix.

Each site collected interview data from a sample of traffic in one direction only but counted total passing traffic in both directions. To gain data for the whole flow, each interview was multiplied by a factor equivalent to the number of interviews divided by the total flow for a particular time period. The non-interview direction was assumed to be the reverse of the interview direction in the opposite peak, with trips entering the town in the morning peak leaving the town in the evening peak and vice versa. This is the conventional way of producing origin-destination data from Road Side Interviews.

Two matrices were produced for each peak hour, with trips split into light vehicles or heavy goods vehicles according to vehicle type data recorded during the interviews.

The Roadside Interview data provided trip information for trips entering and leaving Cavan Town, which are classified as 'internal / external' and 'external / internal' trips. The data identified 'through' traffic, which are classified as 'external / external' trips. This leaves those trips made solely within Cavan Town, i.e. not passing an interview site. These are classified as 'internal / internal' trips.

To produce 'internal / internal' trips, the matrix was seeded in a structured manner. This involved a small volume of trips being seeded between a trip producer (residential zone) and a trip attractor (school, employment etc.). The resultant make-up of the matrix is shown below.

Table 6.4: Data sources for Matrix

	Internal <i>(Cavan Town)</i>	External <i>(Outside Cavan)</i>
Internal <i>(Cavan Town)</i>	Manual Seeding	RSI Interviews
External <i>(Outside Cavan)</i>	RSI Interviews	RSI Interviews


Following the process described above, a base matrix of movements was identified. The base matrix must undergo a number of processes to ensure that the synthetic car matrix accurately simulates existing traffic movements observed in the surveys. The stages involved in this process are briefly outlined below:

1. **Matrix Estimation** - Taking the above matrix, changes were made to balance the number of trips with the recorded traffic flow, and include trips to / from zones that were unidentified through the original matrix creation;
2. **Model Calibration** - The new matrix was tested in conjunction with the base network. Adjustments were subsequently made to the network in order to match modelled flows and observed flows. This calibration is in accordance with the DMRB Volume 12a: 'Traffic Appraisal in Urban Areas';
3. **Model Validation** - Tests were undertaken to compare the accuracy of the modelled traffic flow to the observed traffic flows through a number of statistical means. Once acceptable standards were reached, the model was validated to the base year.

6.1.5 Forecasting

Growth forecasting for Cavan has centred on the target population for 2020, which is given as 16,000 residents. Such a large expansion (from an existing population of 6592 in 2002) will produce a different matrix of trips, rather than simply generating more trips with an identical distribution. It is believed that a significant number of new residents, for example, will commute to Dublin on completion of the M3 Motorway. In order to approximate a realistic shift in trip distribution, therefore, towns and cities within Ireland were examined for proximity to Dublin (in terms of travel time) and population size to identify one that closely resembled Cavan as it is envisaged in 2020.

Mullingar was identified as being the closest match, and the distribution of trips to work for Mullingar in terms of distance travelled was used as a template for the forecast matrices. This was compared with Cavan's existing distribution of trips, and factors were established between the two. Thus it could be seen that the percentage of trips of 0 and 1 mile would remain virtually unchanged whereas the percentage of trips of 30+ miles would increase from an existing 8% in Cavan in 2002 to 19% in Cavan in 2020. The effects of rail commuting between the 2 towns is not identical, but as the number of trips is less than 1% it is considered to have very little effect on the estimation process.



New trips for development zones utilised TRICS trip rates for UK households (excluding Greater London, which has a much better access to public transport than would be the case for Cavan). Multiplying the number of new households by the incoming and outgoing trip rates for the AM and PM time periods gave the total number of new trips per zone.

In order to base the number of new trips on a realistic Origin-Destination (O-D) matrix, Cavan was divided into geographical areas (town centre, North, South and West). All existing zones with at least 25 residents in 2002 were pooled together to create an Area O-D matrix. In this way, those residing in the South or North, for example, have better access to the N3, and so are more likely to have trips to Dublin for example, and will reflect the trips already in these zones.

These new trips must also conform to the distribution pattern established by the Mullingar template, and so the number of new trips was distributed according to the proportion of trips within each distance category. The External-to-External trips were generated by multiplying the existing trips in the base matrix by the forecast growth on major roads in Ireland.

Thus a matrix for additional new trips could be created to add to the existing matrix.

This process was repeated for the new employment zones, with TRICS trip rates for the appropriate employment sector being used. Again, multiple zones were pooled to create an O-D matrix from which the new trips were created. However, the process was somewhat simpler as it was not necessary to use Mullingar as a template.

In order to create the final forecasting matrices, the additional residential and employment matrices were added to the base matrix for each time zone.

6.2 MODELLING SCENARIOS

Arising from the transport recommendations detailed in Section 5 of the report, a number of modelling options were developed and tested against the base year and future year land use scenarios. The outputs of these modelled scenarios were then assessed against the relevant transport visions and issues outlined in Section 4 of the report, in order to determine their overall transport impact.

On a global scale, the key transport principle to be assessed was to optimise accessibility to the town centre for all modes of transport whilst maximising permeability and priority for walking and cycling trips. This was considered in tandem with the principle of creating a traffic network with improved circulation and reduced congestion.

In terms of specific transport visions, outlined below are the key issues that have been assessed:

- Assess the impact of the new N3 – N55 bypass on the traffic volumes on the Dublin Road, Ballinagh Road and the town centre in general.
- Assess the impact of key individual junction improvement proposals
- Assess improvements to the traffic circulation within the town centre, incorporating one way systems and turning restrictions etc
- Examine the feasibility of changing the flow of traffic on Wolfe Tone Street to one way eastbound only.
- Consider the impacts and advantages of developing strategic road links outside the town centre to facilitate road traffic around Cavan and to and from the national road network.

6.2.1 Base Year Assessments

Transport Management Measures which require relatively small investment in infrastructure and can be implemented in the short to medium term have been assessed against the existing base year traffic flows. The transport scenarios tested in the base year are outlined below:

- **Base Option 1: Validated Base Year:** This model run represents the present day situation and is a useful reference for comparing all base year and future year scenarios. It is important to note that as the traffic surveys were undertaken in May 2005, the present day scenario represents traffic flows in Cavan before completion of the N55 bypass.
- **Base Option 2: New N3 – N55 Bypass:** This model run assesses the impact of the new N3 – N55 bypass on traffic flows in and around the town.
- **Base Option 3: Proposed Key Junction Improvements:** This model run is the same as Base Option 2 and includes all proposed junction improvements as detailed in Section 5 of this report.

- **Base Option 4: Town Centre Circulation System:** This model run is the same as Base Option 2 and includes all proposed junction improvements and the revised town centre circulation system as detailed in Section 5.3.2 of the report.
- **Base Option 5: One-Way Eastbound on Wolfe Tone Street:** This model run is the same as Base Option 4 except that traffic flows on Wolfe Tone Street are restricted to one way eastbound only.

6.2.2 Future Year Assessments

The introduction of strategic new road links are modelled in the future year assessments as these will generally require significant investment and may only be feasible when zoned lands are developed. The transport scenarios tested in the future year are outlined below:

- **Future Option 1: Do Minimum:** This model run consists of the future land uses for a target population of 16,000 in the year 2020. The network is the same as Base Option 5 and includes all proposed junction improvements and the revised town centre circulation system.
- **Future Option 2: Strategic New Road Links:** This model run is the same as Future Option 1 and includes all proposed strategic new road links.

6.3 KEY MODELLING OUTPUTS

The SATURN model provides statistics on the mechanised traffic on the study area road network. This includes global information such as total travel times and average journey speeds as well as individual link flows and junction performance statistics.

6.3.1 Impact of N3 – N55 Bypass

This section compares the movement of vehicles within and around the town centre before and after completion of the N3 – N55 Bypass. The volume of vehicles using the new bypass as modelled in SATURN is shown below in Table 6.5. The units in Tables 6.5, 6.6, 6.7 and in Tables 6.10, 6.11, 6.12, 6.13 are hourly vehicular flows.

Table 6.5: Traffic flows on the new N3 – N55 Bypass

Link	Between Junctions:	Direction	Base Opt1				Base Opt2			
			AM		PM		AM		PM	
			HGV	LIGHT	HGV	LIGHT	HGV	LIGHT	HGV	LIGHT
N3 - N55 bypass	Dublin Road Ballinagh Road	2-way	N/A	N/A	N/A	N/A	98	880	94	789

The above modelling figures reflect the current present day scenario where the N3 – N55 Bypass carries significant volumes in both the morning and evening peak hours. In particular, the link carries a large volume of HGVs thus relieving the town centre of this undesirable heavy through traffic.

The focus of the impact of this new link road on the existing road network is on Ballinagh Road, Dublin Road, existing N3 and key town centre routes i.e. Farnham Street. The volume of vehicles using these links for Base Option 1 and Base Option 2 are shown in Table 6.6.

Table 6.6: Traffic flows on key links when N3 – N55 bypass in operation

Link	Between Junctions:	Direction	Base Opt1				Base Opt2			
			AM		PM		AM		PM	
			HGV	LIGHT	HGV	LIGHT	HGV	LIGHT	HGV	LIGHT
Ballinagh Road	Creighan Drive Dublin Road	2-way	80	952	81	1054	27	628	29	620
Dublin Road	N3 Roundabout Junction Meadow Park	2-way	83	1178	83	1440	46	1029	48	1244
N3	Dublin Road Cootehill Road (R188)	2-way	77	556	47	928	77	640	60	1029
Farnham Street	Railway Road Abbey Street	2-way	81	1388	48	1627	63	1242	31	1511

As observed on site, the above modelling analysis shows that the N3 – N55 Bypass has a positive effect on the town and its main access routes to the south. A substantial volume of traffic has been transferred from the Ballinagh Road and the Dublin Road on to the new link road. This has benefited the town centre where traffic volumes on Farnham Street have reduced. These modelling figures also demonstrate the transfer of HGV through trips from the Dublin Road and the Ballinagh Road to the new bypass.

As expected, the modelling analysis shows that traffic flows on the N3 have increased on completion of the N3 – N55 Bypass. This is a positive impact of the new link road as it is desirable for this national route to carry large volumes of through traffic which were previously travelling through the town area.

The overall positive impact of the new N3 – N55 Bypass on the network is supported by SATURN's global network statistics between Base Option 1 and 2. In the morning peak, the average speed on the modelling network increases from 37.4 km/h in the pre N55 Bypass scenario to 63.6 km/h when the bypass is in operation. The total travel time around the network decreases from 442.1 PCU hrs in the pre N55 Bypass scenario to 327.3 PCU hrs when the bypass is in operation.

6.3.2 Key Junction Improvements

This section assesses the short term impact of the key proposed junction improvements in the town centre and external to the town centre in terms of vehicular movements on sensitive links and individual junction performance. The key junctions that were examined are:

- Dublin Road / Ballinagh Road Junction
- Dublin Road / College Street / James Connolly Street Junction
- Farnham Place / Railway Road / Farnham Street Junction

These junctions are considered to be fundamental to the distribution and volumes of traffic entering and exiting the town centre. Details of the proposed improvements can be found in Figures SI 01 to SI 10 in Appendix A. For the purposes of illustrating the impacts of the proposed junction improvements, Base Option 3 was compared to Base Option 2 as shown in Table 6.7.

Table 6.7: Traffic flows on key routes affected by proposed junction improvements

Link	Between Junctions:		Direction	Base Opt2				Base Opt3			
				AM		PM		AM		PM	
				HGV	LIGHT	HGV	LIGHT	HGV	LIGHT	HGV	LIGHT
Dublin Road	Ballinagh Road	Park Lane	NB	50	556	7	460	54	669	31	645
			SB	6	441	33	787	4	375	28	530
Ballinagh Road	Creighan Drive	Dublin Road	NB	25	322	3	249	45	713	25	613
			SB	2	306	27	371	8	371	23	340
Railway Road	Farnham Street	Scout Hall	NB	35	473	24	360	28	424	40	395
			SB	8	306	8	342	7	303	19	440
Farnham Street	Town Hall Street	Thomas Ashe Street	NB	21	403	5	722	24	442	24	878
			SB	13	294	6	314	12	260	9	486
James Connolly Street	James Connolly Street CP	Dublin Road	NB	1way	1way	1way	1way	1way	1way	1way	1way
			SB	3	206	10	499	2	112	2	173
College Street	College Street CP	Wolfe Tone Street	NB	40	579	10	784	44	679	36	888
			SB	5	292	22	385	4	308	30	430
Link Road between Cock Hill & Dublin Road	John Paul Avenue	Housing Estate Junction	NB	9	338	16	410	16	296	16	368
			SB	0	261	8	189	10	369	16	452
N3 - N55 bypass	Dublin Road	Ballinagh Road	NB	59	738	49	440	38	350	35	268
			SB	39	141	44	349	38	93	9	179

The above figures show that the potential realignment of the Ballinagh Road to form a new roundabout junction with the Dublin Road greatly increases the northbound traffic flows on the Ballinagh Road. This is because the proposed new junction has a significantly higher capacity than the existing priority junction as can be seen in Table 6.8.

Notwithstanding the above, queuing and delays on the Ballinagh Road are significantly reduced on construction of the proposed new roundabout as shown in Table 6.9. This makes the Ballinagh Road a more attractive route in to the town centre, thereby potentially reducing the benefits of the N3 – N55 bypass. As a mitigation measure, consideration could be given to the introduction of weight restrictions on the Ballinagh Road (north of the interchange with the new N3 – N55 bypass) to remove unwanted HGV movements from this link. Alternatively, consideration could be given to the banning of right turn manoeuvres from the Dublin Road to Ballinagh Road for HGV traffic.

The introduction of traffic signals at the Dublin Road / College Street / James Connolly Street junction will increase the overall capacity of the junction. This increased capacity will allow greater volumes of traffic to travel on the Dublin Road and College Street. The increase in PM westbound car movements on Cock Hill from 189 to 452 indicates that this link will be used as the exit from the town centre car parks instead of James Connolly Street. This is an acceptable situation as Cock Hill has a higher capacity than James Connolly Street and a substantial volume of traffic is removed from this town centre street. Pedestrian safety is also increased with the provision of pelican crossing facilities at the junction on College Street and James Connolly Street.

Junction Performance

With regards to junction performance, Table 6.8 indicates the ratio of flow to capacity (RFC) at the key junctions for both the Base Option 2 scenario and the junction improvements scenario, Base Option 3. Table 6.9 shows the average queues (in passenger car units or PCUs) on each arm of the key junctions.

Table 6.8: Ratio of Flows to Capacities at key junctions

Junction	Base Year Option 2		Base Year Option 3	
	Average RFC %			
	AM	PM	AM	PM
1 Dublin Road/Ballinagh Road Junction	44	47	19	21
2 Dublin Road/College Street/James Connolly Street Junction	25	33	46	42
3 Farnham Street/Railway Road/Farnham Place Junction	46	46	47	56

Table 6.9: Average queues at key junctions

Junction	Arm	Base Year Option 2		Base Year Option 3	
		Av. Queue (PCUs)			
		AM	PM	AM	PM
1 Dublin Road/Ballinagh Road Junction	Ballinagh Road	11.7	9.1	0.1	0.1
	Dublin Road (east)	0.0	0.0	0.0	0.0
	Dublin Road (west)	0.8	3.5	0.0	0.1
2 Dublin Road/College Street/James Connolly Street Junction	Dublin Road	0.0	0.0	5.3	4.2
	College Street	0.0	0.0	2.6	4.9
	James Connolly Street	0.3	5.3	3.2	1.7
3 Farnham Street/Railway Road/Farnham Place Junction	Farnham Place	0.7	0.4	0.7	0.8
	Railway Road	0.3	0.4	0.4	1.1
	Farnham Street	0.0	0.0	0.0	0.0

As observed on site, the modelling analysis shows that the existing Dublin Road / Ballinagh Road priority junction operates satisfactorily on completion of the N55 Bypass during the AM and PM peak with RFC values below 50% and average queue lengths not exceeding 12 vehicles on the Ballinagh Road. Whilst some queuing still exists at this junction during peak traffic periods, the results of the modelling analysis indicate that the priority junction will perform satisfactorily whilst traffic flows on Ballinagh Road remain relatively low. As detailed in Section 5.4, it is therefore recommended that the existing priority junction remain in operation. When the capacity of the existing junction is exceeded, alternative forms of junction will need to be implemented at this location.

The introduction of a roundabout at the Dublin Road / Ballinagh Road junction would give equal and safe priority to the minor arms of the junction so that traffic from the Ballinagh Road could exit on to the Dublin Road. This will result in reduced queues on this arm as shown above in Table 6.9. Therefore, whilst the priority junction will operate satisfactorily in the short term, when traffic

volumes grow on Ballinagh Road as outlined in section 6.4, clearly a junction with greater capacity such as the roundabout will need to be implemented in the medium to long term.

As is stated above, the queues modelled in Base Option 2 at the Dublin Road / College Street / James Connolly Street junction are significantly less than those observed on site due to the queuing of traffic back from the Dublin Road / Ballinagh Road junction. These queues will be removed when the Dublin Road / Ballinagh Road junction is upgraded to a roundabout junction. It is acceptable to have small queues on the new traffic signal controlled junction at the Dublin Road / College Street / James Connolly Street junction as extra priority is allocated to the James Connolly Street arm. The introduction of traffic signals at the junction addresses the existing sightlines which are deficient for a priority junction. The junction operates within capacity whilst accommodating the provision of pelican crossing facilities at the junction which increases the safety and accessibility for pedestrians.

The Farnham Place / Railway Road / Farnham Street junction will remain as a roundabout with two lane entries on all arms. Pelican crossing facilities will be provided at an adequate distance downstream of the junction on all arms to ensure that queuing and delays through the junction will not be increased.

The global network statistics that SATURN outputs highlight the overall positive impact of the proposed junction improvements on the network as a whole. Over – capacity queues decrease from 6.0 PCUs/hr in Base Option 2 to 0.1 PCUs/hr in Base Option 3.

6.3.3 Town Centre Circulation Systems

This section assesses the short term impact of the revised town centre circulation systems A and B on sensitive links and junction performance at the key town centre junctions. Details of these circulation system proposals can be found in Section 5.3.2. Table 6.10 below indicates traffic flows on key routes within the town centre for the N3 – N55 Bypass scenario (Base Option 2), the town centre circulation system A scenario (Base Option 4) and the town centre circulation system B scenario (Base Option 5).

Table 6.10: Traffic flows on Sensitive town centre Routes

Link	Between Junctions:		Direction	Base Opt2				Base Opt4			
				AM		PM		AM		PM	
				HGV	LIGHT	HGV	LIGHT	HGV	LIGHT	HGV	LIGHT
Farnham Street	Railway Road	Abbey Street	NB	35	794	6	944	27	609	9	743
			SB	27	448	25	567	22	457	21	588
Church Street	Cock Hill	Thomas Ashe Street	NB	1way	1way	1way	1way	1way	1way	1way	1way
			SB	22	419	6	532	19	404	2	269
Cock Hill	Church Street	Elm Bank Drive	EB	2	96	7	150	1	34	4	94
			WB	10	198	1	155	11	213	1	184
Thomas Ashe Street	Church Street	Farnham Street	EB	1way	1way	1way	1way	1way	1way	1way	1way
			WB	1	43	1	27	8	137	10	252
Main Street	Town Hall Street	Tesco Car Park Entrance	NB	1way	1way	1way	1way	1way	1way	Ped	Ped
			SB	19	367	16	624	5	151	Ped	Ped
Town Hall Street	Main Street	Town Hall CP	EB	6	126	4	168	2	21	Ped	Ped
			WB	1way	1way	1way	1way	1way	1way	Ped	Ped
Bridge Street	James Connolly Street	Abbey Street	EB	1way	1way	1way	1way	2	165	2	126
			WB	19	183	15	385	1way	1way	1way	1way
Wolfe Tone Street	Church Street	Military Row	EB	7	227	2	104	6	226	2	101
			WB	2	95	3	154	2	99	2	152
James Connolly Street	Bridge Street	Fair Green Hill	NB	1way	1way	1way	1way	1way	1way	1way	1way
			SB	2	218	12	494	1	126	5	200
Dublin Road	Creighan Drive	James Connolly Street	NB	40	540	8	404	43	645	41	678
			SB	7	433	31	833	5	398	28	675
College Street	College Street CP	Wolfe Tone Street	NB	40	579	10	784	43	690	39	949
			SB	5	292	22	385	5	354	26	515
Railway Road	Farnham Street	Swellan	NB	38	486	21	362	31	432	43	333
			SB	8	314	8	345	7	331	18	440

In general, the above figures show that the pedestrianisation of Main Street from Thomas Ashe Street to the entrance to Tesco Car Park helps reduce traffic flows on this key retail street in the morning peak. This street will be pedestrian only from 11:00 am – 7:00pm and this will create an attractive, traffic free town centre area for pedestrians. The eastern end of Town Hall Street will also fall under this restriction and access to the street will only be to facilitate motorists wishing to use the Town Hall car park. The performance of the individual options for a new town centre circulation system are outlined below.

Town Centre Circulation System

As described in Section 5.3.2, the town centre circulation system is centred on two partial one way systems to the north and south of the town centre core. This is shown on Map 5.3. To the north of the town, traffic flows on Church Street are greatly reduced as access to Main Street has been

limited to between 7:00am – 11:00am and 7:00pm to 7:00am. Cock Hill sees a slight increase in westbound traffic flows in the morning peak which is a result of motorists using this eastern link road to access the north of the town centre core. Thomas Ashe Street sees an increase in westbound traffic, as expected with the restrictions on Main Street. Arising from this, it is anticipated that the junction of Thomas Ashe Street and Farnham Street will require traffic signals to give additional priority to traffic approaching from Thomas Ashe Street.

To the south of the town, the reversal of flow on Bridge Street results in similar flows in the morning peak and reduced flows in the evening peak. This demonstrates that the reversal of flow on Bridge Street is acceptable in terms of capacity. While the street will become an access route to the town centre car parks for traffic from the west, the preferred route to the car parks is via Cock Hill.

There is a reduction of southbound traffic on James Connolly Street due to the restrictions on Main Street. On College Street there are increased volumes in both directions due to the extra capacity of the Dublin Road gained from the introduction of the proposed junction improvements as discussed in Section 6.3.2. Traffic flows on Wolfe Tone Street remain at similar levels to the volumes observed in the Base Option 2 scenario.

The overall reduction of northbound flows on Farnham Street demonstrates that the revised town centre circulation system discourages through traffic from using the town centre and displaces through traffic on to the more appropriate routes of the road hierarchy around the town.

6.3.4 Feasibility of One Way Eastbound Only Traffic on Wolfe Tone Street

This section examines the feasibility of the option to change the flow of traffic on Wolfe Tone Street to one way eastbound as recommended in Section 5.4.1. Table 6.11 below compares traffic flows on town centre routes within the vicinity of Wolfe Tone Street in Base Option 4 to Base Option 5.

Table 6.11: Comparison of Town Centre flows in Base Option 4 and Base Option 5

Link	Between Junctions:		Direction	Base Opt4				Base Opt5			
				AM		PM		AM		PM	
				HGV	LIGHT	HGV	LIGHT	HGV	LIGHT	HGV	LIGHT
Wolfe Tone Street	Church Street	Military Row	EB	6	226	2	101	6	226	2	93
			WB	2	99	2	152	1way	1way	1way	1way
Farnham Street	Railway Road	Abbey Street	NB	27	609	9	743	27	612	9	742
			SB	22	457	21	588	22	466	22	580
Farnham Place	Wolfe Tone Street	Farnham Street	NB	37	662	38	801	39	716	39	897
			SB	8	416	25	749	8	368	25	701
Railway Road	Farnham Street	Scout Hall	NB	31	432	43	333	33	529	45	479
			SB	7	331	18	440	7	326	19	442
College Street	College Street CP	Wolfe Tone Street	NB	43	690	39	949	44	686	39	949
			SB	5	354	26	515	5	353	26	506
Bridge Street	Abbey Street	College Street	EB	13	263	3	299	13	264	3	297
			WB	1way	1way	1way	1way	1way	1way	1way	1way

The above analysis shows that the conversion of Wolfe Tone Street to a one-way street in the eastbound direction will only create an increase in northbound traffic flows on Railway Road and Farnham Street. From a wider perspective, the effect of this restriction is very minimal and the increase in queuing and delays on the Farnham Street / Railway Road / Farnham Place junction is negligible. There are significant benefits to Farnham Place as delays are considerably reduced due to no vehicles turning right on to Wolfe Tone Street.

In its wider context this option is considered feasible with accompanying traffic management measures for Highfield Road and St. Patrick's Terrace as outlined in section 5.4.1. In addition, the Swellan Link Road will ultimately compliment this one-way proposal. However, consideration must first be given to inconvenience and delays incurred by local residents accessing Wolfe Tone Street from the town centre and the option

6.4 FUTURE ROAD PROPOSALS

This section examines the effects of the proposed strategic new road links on the overall flow of traffic within the town and its environs. Details of these proposals can be found in Section 5.4.2 and on Map 5.6. The proposed new routes are as follows:

1. Dublin Road to Cock Hill (south west of Killynebbber Lough)
2. Dublin Road to Development Lands in Killynebbber
3. N3 to Kilmore
4. Dublin Road to Meadow Park
5. Dublin Road to Ballinagh Road
6. Ballinagh Road to St. Phelim's Place
7. Ballinagh Road to Swellan Road
8. Swellan Road to Barrack Hill
9. Cathedral Road to Development Lands in Keadue
10. Cootehill Road to Cathedral Road
11. Cathedral Road to Cavan General Hospital

Table 6.12 below indicates the volume of traffic that will be carried by these routes in the future year of 2020.

Table 6.12: Future Year traffic flows on strategic new road links

Link	Between Junctions:		Direction	Future Option 2			
				AM		PM	
				HGV	LIGHT	HGV	LIGHT
1 Dublin Road to Cock Hill (south west of Killynebbber Lough)	Dublin Road	Between Link 1 & 2	NB	5	186	0	443
	Between Link 1 & 2	Cock Hill	SB	1	272	10	658
			NB	5	238	0	579
			SB	1	405	10	712
2 Dublin Road to Development Lands in Killynebbber	Dublin Road	Between Link 1 & 2	NB	1	75	2	146
	Between Link 1 & 2	New Development Zone	SB	2	65	0	58
			NB	1	217	2	212
			SB	2	127	0	206
3 N3 to Kilmore	N3	Kilmore	EB	48	747	22	700
			WB	61	358	36	1329
4 Dublin Road to Meadow Park	Dublin Road	New Development Zone	NB	0	16	0	45
			SB	0	65	0	33
5 Dublin Road to Ballinagh Road	Ballinagh Road	East of Kilmoooney Lake	NB	2	65	2	111
	East of Kilmoooney Lake	Dublin Road	SB	3	132	4	274
			NB	2	82	2	140
			SB	3	92	7	366
6 Ballinagh Road to St. Phelim's Place	St. Phelim's Place	Dublin Road	EB	0	38	1	294
			WB	2	22	0	31
7 Ballinagh Road to Glenside Road	Barrack Hill	St. Phelim's Place	EB	0	64	0	28
	St. Phelim's Place	Ballinagh Road	WB	1	80	10	327
			EB	0	220	1	78
			WB	2	142	10	489
8 Glenside Road to Barrack Hill	Barrack Hill	Killashandra Road	NB	0	1	0	9
			SB	0	28	0	14
9 Cathedral Road to Development Lands in Keadue	County Road	Keadue Development Zone	NB	0	58	0	95
			SB	0	31	0	45
10 Cootehill Road to Cathedral Road	Cathedral Road	Latt Development Zone	EB	2	212	5	92
	Latt Development Zone	Cootehill Road	WB	8	361	6	411
			EB	2	185	5	100
			WB	8	286	5	299
11 Cathedral Road to Cavan General Hospital	County Road	Hospital	NB	1	66	3	38
			SB	10	448	1	49

The analysis shows that the creation of a new N3 bypass from the Kilmore Hotel to north of the Pollamore roundabout would carry significant volumes and help reduce traffic flows on this section of Dublin Road. The new distributor route from the Dublin Road to Cock Hill will serve as a new internal relief road to the east of the town centre and will carry significant traffic volumes. This link will serve as an access road to the town centre car parks and also for deliveries.

The proposed access roads to lands in Killynebbber, Meadow Park and Keadue will adequately serve the demand for access to these new development zones.

The remaining link roads will all carry significant volumes of traffic in the future year which indicates that they are viable in terms of facilitating new development in these areas and for protecting the existing town centre access route. The only exception to this is the proposed link from the Swellan Road to Barrack Hill. There will be very small traffic volumes using this link in the future year which indicates a lack of demand for that route with respect to the future residential and employment zoning for the Kilnavara area.

Further to the potential demand for the new road links, equal importance must be given to the effects of the new roads on the existing main access routes into the town centre. This is shown below in Table 6.13.

Table 6.13: Comparison of present day traffic flows (with N3 – N55 bypass included) to future year traffic flows with strategic new road links included.

Link	Between Junctions:		Direction	Base Opt2				Future Opt2				Overall increase in traffic
				AM		PM		AM		PM		
				HGV	LIGHT	HGV	LIGHT	HGV	LIGHT	HGV	LIGHT	
Dublin Road	Ballinagh Road	Park Lane	NB	50	556	7	460	45	945	11	987	23%
			SB	6	441	33	787	4	373	22	631	
Ballinagh Road	Creighan Drive	Dublin Road	NB	25	322	3	249	35	1016	15	755	57%
			SB	2	306	27	371	8	616	15	549	
Railway Road	Farnham Street	Scout Hall	NB	35	473	24	360	19	678	18	445	34%
			SB	8	306	8	342	9	543	14	609	
Cathedral Road	Cootehill Road	Cathedral close	NB	3	163	0	283	9	303	9	349	43%
			SB	19	265	7	194	19	490	8	431	
Cootehill Road	Near Rathdrum Estate	Rocklands Estate	NB	13	236	5	133	10	468	7	285	13%
			SB	6	257	7	564	1	226	5	395	
Complex Road	Cock Hill	Harmony Heights	EB	1	97	8	325	4	289	1	350	39%
			WB	3	264	2	163	1	458	2	296	
N3 - N55 bypass	Dublin Road	Ballinagh Road	NB	59	738	49	440	63	872	49	467	18%
			SB	39	141	44	349	40	217	24	519	
Farnham Street	Railway Road	Abbey Street	NB	35	794	6	944	21	807	10	1060	9%
			SB	27	448	25	567	15	566	19	644	

This analysis shows that in the future year there will be increased traffic flows on the main access roads to the town. This is to be expected, given the growth of the town from a population of 6,600 in 2002 to a target of 16,000 in 2020. However, to examine the potential benefits of the new road links, it is also necessary to compare the traffic flows on the existing main access route in the Future Year Option 2 scenario to the Future Year Option 1 scenario as shown below in Table 6.14.

Table 6.14: Comparison of traffic flows in the future year “Do minimum” scenario to the introduction of the proposed strategic new road links.

Link	Between Junctions:		Direction	Future Opt1				Future Opt2				% change
				AM		PM		AM		PM		
				HGV	LIGHT	HGV	LIGHT	HGV	LIGHT	HGV	LIGHT	
N3 Bypass	Dublin Road	Cootehill Road (R188)	NB	81	697	58	1016	56	1008	61	1230	23%
			SB	65	650	24	680	59	674	23	1133	
Dublin Road	Ballinagh Road	Park Lane	NB	33	854	9	955	45	945	11	987	-12%
			SB	4	712	21	789	4	373	22	631	
Ballinagh Road	Creighan Drive	Dublin Road	NB	30	983	18	986	35	1016	15	755	-10%
			SB	10	726	17	536	8	616	15	549	
Railway Road	Farnham Street	Scout Hall	NB	24	777	20	476	19	678	18	445	-25%
			SB	10	890	15	702	9	543	14	609	
Cathedral Road	Cootehill Road	Cathedral close	NB	2	242	8	285	9	303	9	349	20%
			SB	19	457	8	284	19	490	8	431	
Cootehill Road	Near Rathdrum Estate	Rocklands Estate	NB	13	236	5	133	10	468	7	285	13%
			SB	6	257	7	564	1	226	5	395	
Complex Road	Cock Hill	Harmony Heights	EB	7	447	6	538	4	289	1	350	-27%
			WB	3	410	0	369	1	458	2	296	
N3 - N55 bypass	Dublin Road	Ballinagh Road	NB	69	834	47	441	63	872	49	467	11%
			SB	38	204	16	366	40	217	24	519	
Farnham Street	Railway Road	Abbey Street	NB	10	795	6	733	21	807	10	1060	-2%
			SB	21	858	20	775	15	566	19	644	
James Connolly Street	Bridge Street	Fair Green Hill	NB	1way	1way	1way	1way	1way	1way	1way	-70%	
			SB	1	174	4	283	0	113	2		157

The above analysis shows that the construction of the proposed new road links, in general, will benefit the flow of traffic on the existing key radial routes to the town centre. In particular, the proposed new road linking the development lands at Cavan General Hospital to the N3 junction on the Cootehill Road will divert local traffic onto the N3 that is currently travelling through the town. This increases the effectiveness of the N3 as a bypass of the town centre.

The proposed new link from the N3 to Kilmore relieves pressure on the Dublin Road (west of the N3) as traffic is effectively bypassing the Dublin Road within the urban area of Cavan Town. The new distributor link from the Dublin Road to Cock Hill also reduces the flow on the Dublin Road between the Ballinagh Road and James Connolly Street, therefore easing the pressure on the critical junctions to the south of the town centre. This is supported by the significant reduction in flows on James Connolly Street as traffic is now exiting the town centre car parks via the new distributor road.

With the introduction of the proposed new routes, the N3 sees a greater utilisation as explained above. This results in an acceptable increase in traffic volumes now using the distributor routes to the north of the town, such as the Cootehill Road and Cathedral Road.

As the population of the town grows to 16,000, the construction of the proposed new distributor routes around the town results in only a moderate increase in traffic flows on Farnham Street in the future year when compared to the Base Option 2.

6.5 CONCLUSIONS FROM THE TRAFFIC MODELLING

The town centre of Cavan has developed to a large extent as a relatively compact commercial network of streets. However outside of the town centre; development has been less restrained with one off housing estates and isolated commercial / industrial developments. This unsustainable form of growth has contributed to a heavy reliance on private car usage, resulting in significant volumes of traffic and congestion within the town centre during peak traffic periods.

As part of this study, a number of short term transport measures have been developed which will help to reduce congestion on sensitive routes within the town centre. The results of the analysis demonstrate that for the present day scenario, the proposed junction improvements and the revised town centre circulation systems will help improve traffic flows at busy intersections and remove a portion of through traffic from the town centre.

As the town expands from its existing population of 6,600 to a target population of 16,000, the demand on the transport network will increase proportionately. To support this population growth, the main focus of the Integrated Framework Plan has been to allow for the commercial expansion of the town centre and the promotion of higher density residential developments on lands proximate to the town centre. This compact pattern will provide an improved integration between existing and future residential areas and commercial amenities. Whilst, this pattern of development is considered sustainable, the results of the modelling analysis demonstrate that this increase in population can not be sustained without substantial improvements in the road network. A comparison of the present day scenario to the future year 'Do Minimum' scenario shows that traffic flows on the key radial routes into the town centre, namely Ballinagh Road, Railway Road, Cathedral Road, Cootehill Road and Aughnaskerry Road, will all increase by on average 70% if no supporting road infrastructure is developed. Consequently, this will lead to an unsustainable increase in congestion at the key junctions on the periphery of the town centre cell.

As an integrated study, this report has sought to reduce demand for car travel through the development of transport measures complementary to the future land use proposals. The results of the modelling analysis show that the construction of a new distributor road from Dublin Road to the east of the town centre and the construction of a new link road from the Cavan General Hospital development area to the N3 intersection on Cootehill Road will attract local and external traffic onto a more appropriate hierarchy of roads thereby minimising through traffic on more sensitive town centre routes. When compared to the present day scenario, town centre streets such as Farnham

Street and James Connolly Street will only experience a moderate increase in traffic in the region of 10% when the town expands to 16,000 and the supporting infrastructure is constructed.

Whilst the modelling analysis clearly demonstrates that the future road proposals will assist the distribution of traffic, the increase in population from 6,600 to 16,000 will invariably lead to an increase in traffic on many of the town's key links. This result is a consequence of the constraints of topography in Cavan and its environs, the existing spatial patterns of residential developments and the future population patterns which will still be relatively dispersed and of a relatively low density. As a result, it is anticipated that the private car will remain the dominant form of transport as the town expands to its target population.

Furthermore, considering the dispersed nature of the existing population balanced against the proposed future population living within walking distance of the town centre, it would be financially unfeasible for a local bus to operate an adequate level of service within the town that would significantly impact on the predicted traffic volumes.

In overall terms, the modelling assessment shows that the growth anticipated in the Integrated Framework Plan can only be achieved through the development of an improved road infrastructure supported by the necessary pedestrian and cycle improvements



7 Phasing and Costing

7.1 PHASING AND DELIVERY OF RECOMMENDATIONS

The overall Transport Study recommendations, as detailed in Section 5.4 and 5.5 are detailed below in terms of the phasing and timeframe for their implementation. The timeframes, which are indicative only, are described in terms of

- Short Term: Within seven years
- Long Term: Within seven to fifteen years

Clearly the physical recommendations will need to be costed and design must then be developed from the preliminary layouts indicated in this plan to detailed design and contract documents. This work will be a significant undertaking by the Council in terms of capital cost funding and the resources required to develop the recommendations from preliminary designs to contract documents

The physical recommendations also represent a significant undertaking in terms of roadworks on the existing street and road network. It will be necessary that, in overall terms, the phasing of works is planned in order that the impact on all road users is kept to a reasonable and practical minimum.

Short Term Recommendations

The short term recommendations have been developed as measures to address the towns existing congestion issues and can therefore be implemented as capital funding becomes available. The potential delivery of these schemes is detailed below:

Town Centre Pedestrianisation and Revised Circulation

As identified in the modelling assessment, it is recommended that the pedestrianisation scheme and revised circulation system not be implemented until the Dublin Road to Cock Hill distributor route or the proposed improvements to the existing Cock Hill Road have been constructed. On completion of the pedestrianisation scheme, these road proposals will provide the main access route for Heavy Goods Vehicles delivering to the town centre and will help remove traffic from more sensitive town centre routes, therefore these road schemes are intrinsically linked to the town centre pedestrianisation.

A detailed programme of implementation of all aspects of these recommendations should be developed immediately in order to identify the phasing over this short term period.

Street by Street Transport Management Measures

These recommendations relate to the physical interventions within the town centre and as a result are intrinsically linked to the pedestrianisation scheme and revised circulation systems. The proposed junction improvements detailed on drawings SI02, SI04, SI06, SI07, SI08 and SI09 relate to the revised circulation scheme and therefore should be implemented as part of this project.

The proposed junction improvements detailed on drawings SI01, SI03 and SI10 can be viewed as stand alone initiatives and can therefore be implemented as soon as funding becomes available. The Farnham Street proposals can be incorporated into the Council's current proposals to upgrade this street.

Heavy Goods Vehicles and Delivery Management

Similarly to above, these recommendations are intrinsically linked to the pedestrianisation scheme and revised circulation systems and should therefore be implemented as part of this project.

Beyond the Town Centre: Existing Road Improvements

Two new junction schemes have been developed for the Ballinagh Road / Dublin Road intersection. Consideration can be given to the upgrading of the existing Ballinagh Road / Dublin Road to a traffic signal controlled junction to improve safety for pedestrians and the overall capacity of the junction. Alternatively, proposals have been developed for the realignment of the northern end of the Ballinagh Road to allow for the construction of a roundabout to the east of the existing junction.

The proposed improvements to the Dublin Road between the N3 roundabout and the Ballinagh Road junction should be developed in the short-term.

It is desirable that the junction improvements proposed on Railway Road, Cathedral Road and Cootehill Road be implemented in the short term time period. Again, a detailed programme of implementation of all aspects of these recommendations should be developed immediately in order to identify the phasing over this short term period. In terms of capital funding of the schemes this could identify that certain elements may not be feasible until early in the medium term.

Strategic Road Links

Given the scale of the proposed Dublin Road to Cock Hill distributor route, this scheme could be viewed as a long term project, however the rate of progress of the Killynebber Residential Scheme indicates that this route could be delivered in the short term. Furthermore, given the need to develop this route or the Cock Hill Road improvements scheme in advance of the town centre pedestrianisation, it is strongly recommended that this scheme be put forward as a short term project.

Long Term Recommendations

The long term recommendations generally relate to the strategic road links and car park proposals. Much of the funding for these projects is likely to come from developer contributions and therefore their phasing will be substantially dictated by the rate of development.

Strategic Road Links

The road proposal from the Cavan General Hospital Development Area to the N3 northern intersection must be completed before extensive development takes place in the employment lands to the north west of the town centre.

It is anticipated that the remaining strategic road links will only be completed as adjacent lands are developed and therefore this will dictate their timeframe for completion.

Car Parking

As outlined in Section 5.3.6, there is currently a surplus of off-street parking in the town centre. The surplus for the town centre will need to be constantly monitored to ensure that there is an adequate supply for the town especially when considered in relation to new developments. Additional Short term parking will only be required in the town centre as the key development areas become extensively developed.

7.2 PRELIMINARY COST BUDGET

A preliminary cost budget for the proposed street improvements, junction improvements and the strategic new road links as detailed in section 5 was prepared by O'Byrne Jenkins Quantity Surveyors.

Table 7.1 outlines the breakdown of this preliminary cost budget for each individual item of road works. Please note the following assumptions which apply to the derived cost estimates:

- This preliminary cost estimate has been prepared using in-house and historical data and is based on design information which may vary during the development of the design brief.
- This preliminary cost estimate is based on prices ruling on 1st April 2006 and does not take into account any provision for inflation from that date.
- Value Added Tax normally recoverable by registered companies is not included in this preliminary cost estimate.
- Professional Consultants fees have not been included in this preliminary cost estimate.
- Statutory levies and charges such as capital costs, public utility, connection charges, road opening licences, planning and local authority levies have not been included in this preliminary cost estimate.
- Land purchase costs and associated charges have not been included in this preliminary cost estimate.
- We have assumed that no major diversions of existing services are required for carrying out the works; this information is unknown at this stage .
- No allowance for the treatment and / or disposal of contaminated material is allowed for in this cost preliminary estimate.
- No allowance for archaeological investigation or impact of the same on the proposed works.
- No contingency sum has been included in this preliminary cost estimate.

Table 7.1: Summary of preliminary cost budget for proposed road works.

STREET IMPROVEMENTS			
SI 01	Farnham Street - Farnham Place (2no. Junctions)	€470,000	
SI 02	College Street - Dublin Road	€345,000	
SI 03	Farnham Street - Cathedral Road	€395,000	
SI 04	Main Street - Bridge Street	€315,000	
SI 05	Farnham Street - Abbey Street	€348,000	
SI 06	Main Street - Town Hall Street	€410,000	
SI 07	Farnham Street - Town Hall Street	€448,000	
SI 08	Main Street - Thomas Ashe Street	€324,000	
SI 09	Farnham Street - Thomas Ashe	€337,000	
SI 10	Church Street - Cock Hill	€332,000	
	Sub-total for the Street Improvements		€3,724,000
JUNCTION IMPROVEMENTS			
JI 01	Cathedral Road - Cootehill Road Junctions	€413,000	
JI 02	Cootehill Road Junction	€15,000	
JI 03A	Dublin Road - Ballinagh Road Junction	€375,000	
JI 03B	Dublin Road - Ballinagh Road Junction	€580,000	€1,883,000
	Sub-total for Junction Improvements		€5,607,000
ROAD IMPROVEMENTS			
Road 1	East of town centre, Distributor Route	€3,110,500	
Road 2A & B	East of town centre, Road Improvements	€801,800	
Road 3	Ballinagh Road to Swellan Road Link Road	€5,125,000	
Road 4	Dublin Road to Kilnavara Link Road	€286,705	
Road 5	Realigned Ballinagh Road North	€332,000	
Road 6	Swellan Road to Railway Road North Access Road	€1,468,000	
Road 7	Swellan to Railway Road South Access Road	€1,115,800	
Road 8 A & B	Realigned Ballinagh Road Distributor Route	€5,516,800	
Road 9	Realigned N3 Bypass - National Route	€9,818,000	
	Sub-total for Road Improvements		€28,074,605
	Overall Preliminary Budget Costings		€33,681,605

7.3 DEVELOPMENT CONTRIBUTIONS

Section 48 of the Planning and Development Act, 2000 enables a planning authority, when granting a planning permission under Section 34 of the Act, to include conditions for requiring the payment of a contribution in respect of public infrastructure and facilities benefiting development in the area of the planning authority, and that is provided, or that it is intended will be provided, by or on behalf of a local authority (regardless of other sources of funding for such infrastructure and facilities). It is the policy of the Council to implement the Council's Development Contributions Scheme 2004.

A special development contribution may be levied under Section 48 of the Act where exceptional costs not covered by the Cavan Town Council Development Contribution Scheme 2004 are incurred by the Council in the provision of a specific public infrastructure or facility. (The particular works will be specified in the planning conditions when special development contributions are levied). Only developments that will benefit from the public infrastructure or facility in question will be liable to pay the special development contribution

The implementation of the Cavan Integrated Framework Plan and transportation objectives will require significant investment in both physical and social infrastructure to support the new residential communities and commercial developments within the area. It will be expected and required that developers fund and provide the infrastructure necessary to support any development proposed by them and to contribute financially to the cost of other essential infrastructure and amenities necessary to support the development of the plan area as a whole.

In this regard, consideration may be given to the preparation of a revised Section 48 Development Contribution Scheme to be made specifically for Cavan and, if considered necessary, augmented by a Supplementary Contribution Scheme under Section 49 of the Act to fund major infrastructure projects.





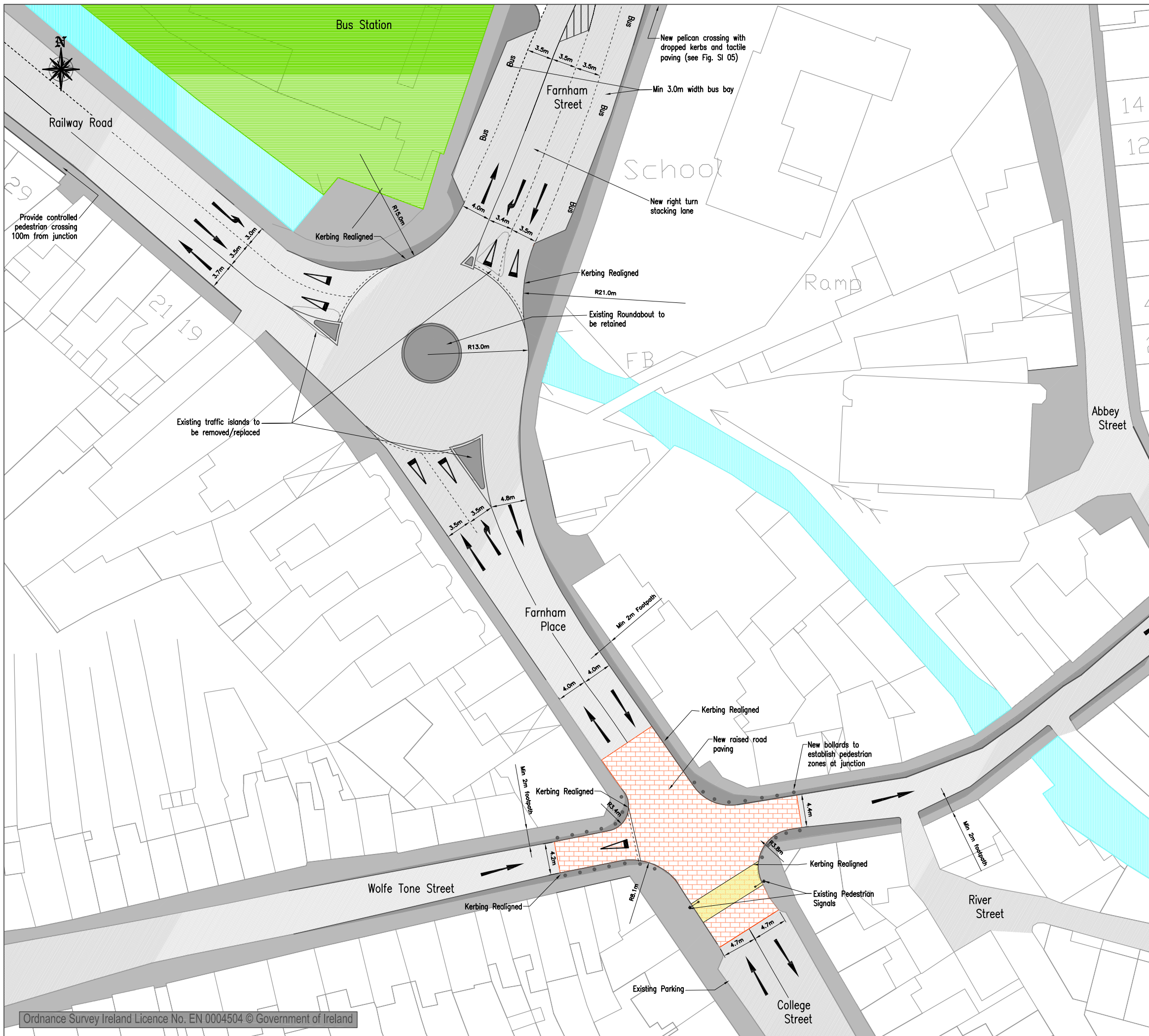
Appendices, Figures & Tables





Appendix A Town Centre Improvement Figures





As detailed in Section 5.3.1, the following junction improvement recommendations shall only be implemented as and when they are warranted.

Requirements

- Introduction of improved junction arrangements to increase junction safety and efficiency.
- Facilitate safe passage of pedestrians to Town Centre along Wolfe Tone Street and Railway Road.
- Formalise and improve bus waiting facility on Farnham Street.
- Improve pedestrian waiting areas at Farnham Street - Railway Road junction.
- Facilitate new Town Centre circulation system at Wolfe Tone Street junction.

Recommendations

- Improved junction arrangement incorporating existing roundabout at Railway Road - Farnham Street Junction.
- Remove/replace existing traffic islands at Railway Road - Farnham Street junction.
- New kerbing alignment at the Railway Road - Farnham Street junction to facilitate new junction layout and improve safety of pedestrian areas.
- Provide new pelican crossing facilities with dropped kerbs and tactile paving 100m from junction on Railway Road.
- Provide new pelican crossing facilities with dropped kerbs and tactile paving on Farnham street. (see Fig SI 05)
- Provide a minimum 2m footpath width where necessary.
- Provide raised road paving at Wolfe Tone Street - Farnham Place junction to improve pedestrian and traffic safety.
- Provide bollards at Wolfe Tone Street - Farnham Place junction to clearly define pedestrian zone and improve pedestrian safety.

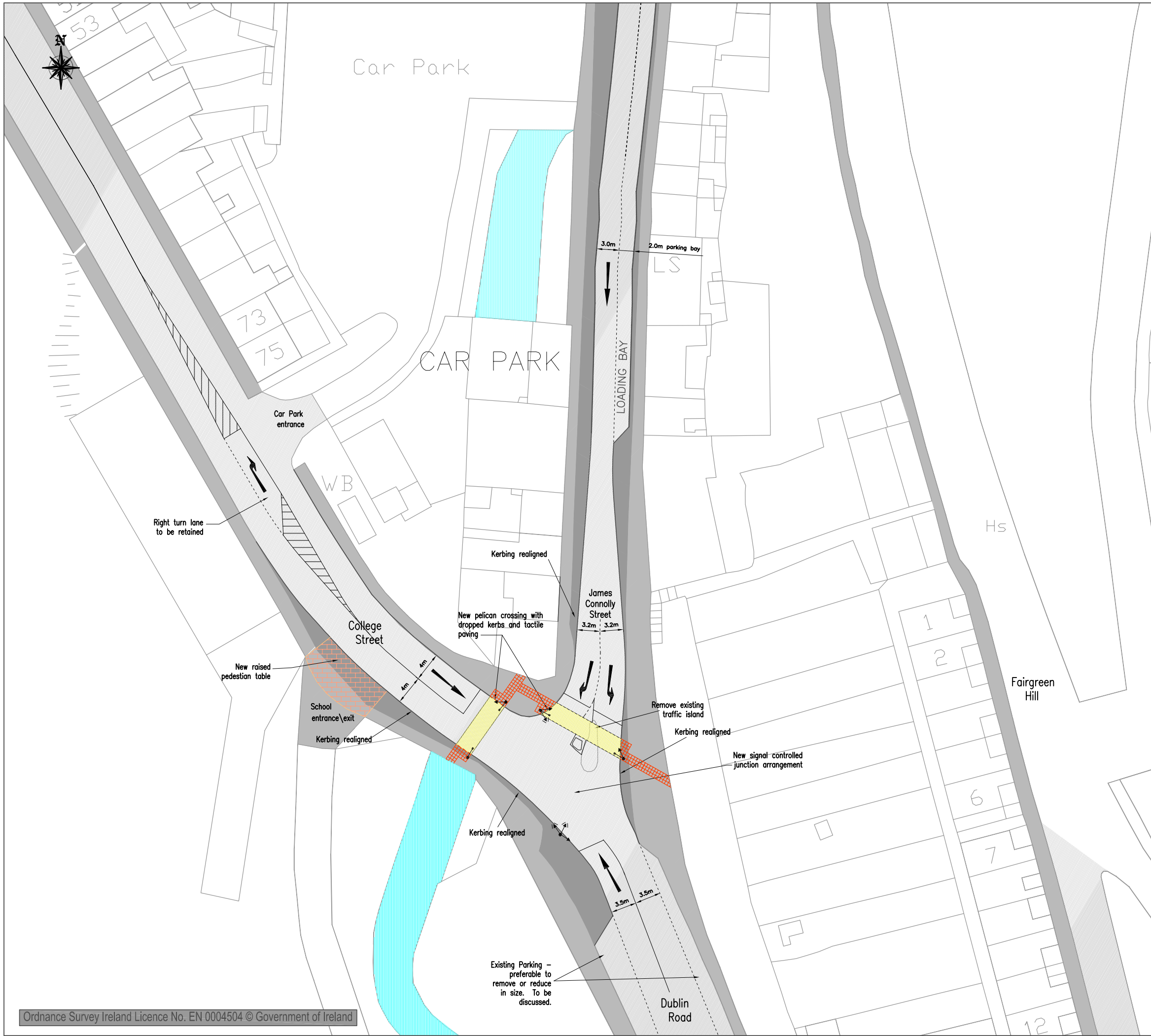
NOTE:

All road markings not shown. This drawing is indicative only and subject to detailed design

Future Street Improvements
Wolfe Tone St - Farnham PI Junctions

Fig. SI 01





As detailed in Section 5.3.1, the following junction improvement recommendations shall only be implemented as and when they are warranted.

Requirements

- Improve capacity for traffic exiting Town Centre one-way system on James Connolly Street.
- Facilitate safe passage of pedestrians along amenity river walk and Dublin Road through provision of enhanced pedestrian crossing facilities at the junction.
- Improve flow on College Street and Dublin Road.
- Rationalise vehicular movements in the vicinity of the junction.

Recommendations

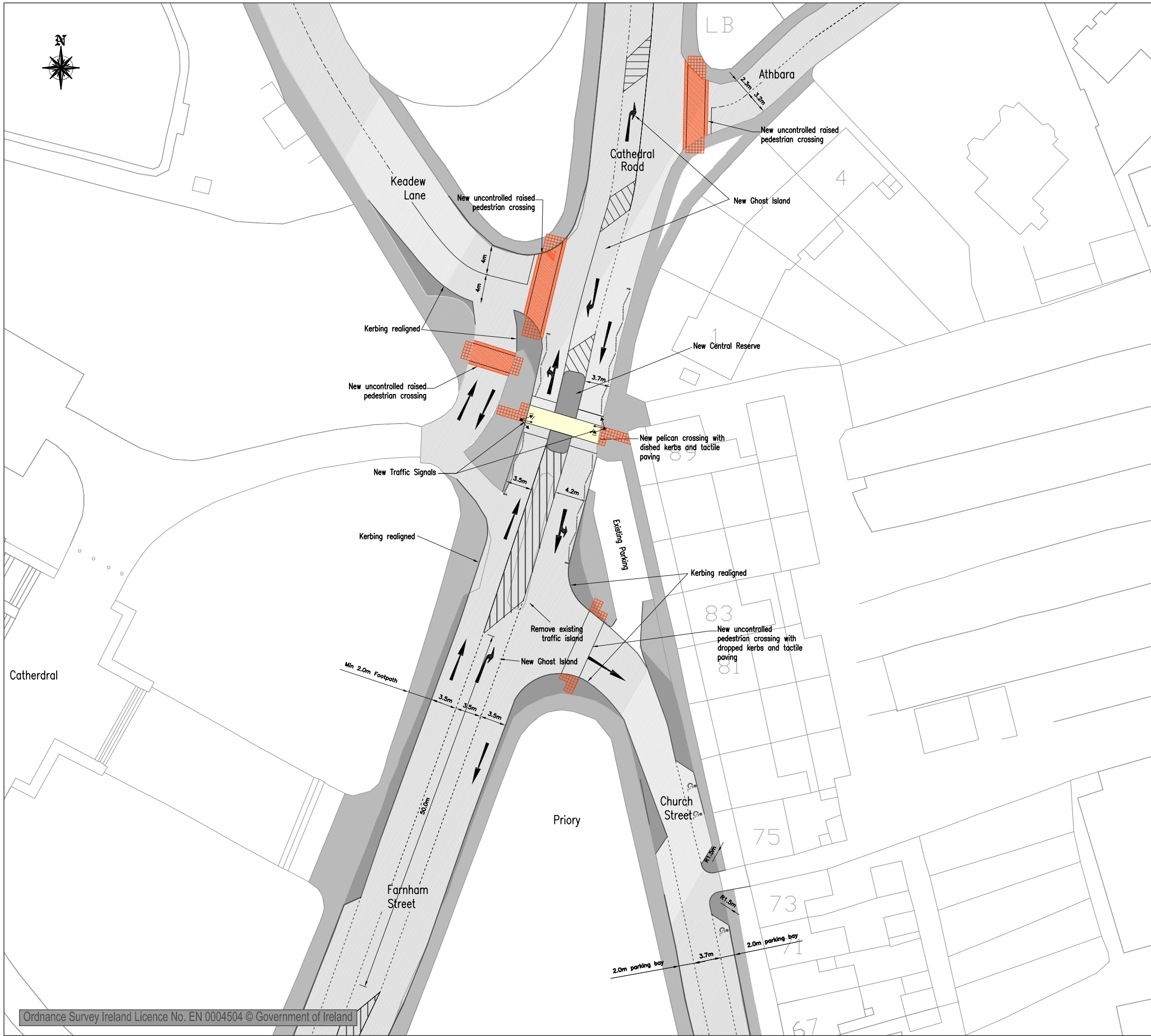
- Introduction of signalised junction arrangement to improve safety and efficiency.
- Provision of clear road markings to indicate junction arrangement and to act as a traffic calming measure.
- Remove existing traffic island at junction.
- Provide new kerbing alignments where necessary.
- Provide new pelican crossing facilities at junction with dropped kerbs and tactile paving.
- Provide minimum 2m footpath width where necessary.
- Provide raised pedestrian area at school entrance/exit for improved pedestrian safety.
- Removal or reduction of on street parking on Dublin Road.
- Retention of right turn ghost island on College Street to provide for access to car park.

NOTE:
All road markings not shown. This drawing is indicative only and subject to detailed design

Future Street Improvements
College Street – Dublin Road Junction

Fig. SI 02





As detailed in Section 5.3.1, the following junction improvement recommendations shall only be implemented as and when they are warranted.

Requirements

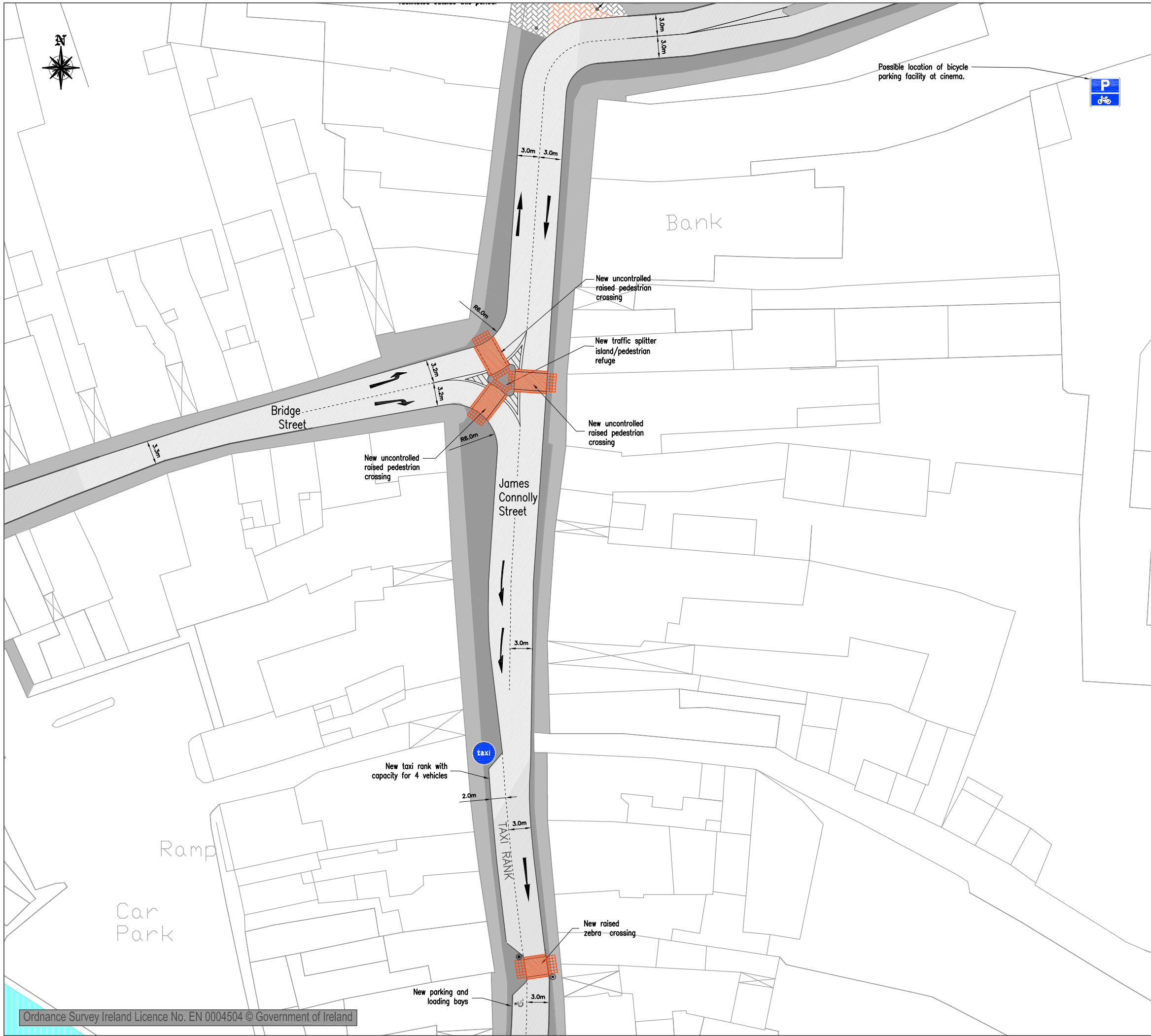
- Improved capacity for traffic turning right from Farnham Street onto Church Street in line with Town Centre circulation system.
- Facilitate safe movement of pedestrians across Cathedral Road and Keadew Lane in line with identification of key pedestrian links to Town Centre.

Recommendations

- Introduction of traffic signals on Cathedral Road to assist right turning onto Church Street and improve safety and efficiency.
- Provision of clear road markings to indicate junction arrangement and act as traffic calming.
- Remove existing traffic island at junction.
- Provide new controlled pelican crossing incorporating kerbed refuge island on Cathedral Road to assist right turning traffic from Farnham Street onto Church Street.
- Provide uncontrolled raised pedestrian crossings on Keadew Lane and Athbara accesses to improve pedestrian safety.
- Provide ghost islands on Cathedral Road to facilitate right turning onto Keadew Lane and Athbara.
- Provide raised pedestrian crossing on Church Street to improve safety.
- Provide new kerbing alignments where necessary.
- Provide minimum 2m footpath width where necessary.

NOTE:
All road markings not shown. This drawing is indicative only and subject to detailed design

Future Street Improvements
Farnham Street – Cathedral Road Junction



As detailed in Section 5.3.1, the following junction improvement recommendations shall only be implemented as and when they are warranted.

Requirements

- Facilitate new Town Centre circulation system at Bridge Street, Main Street and James Connolly Street.
- Facilitate safe movement of pedestrians across James Connolly Street.
- Facilitate mix of town centre needs along James Connolly Street.

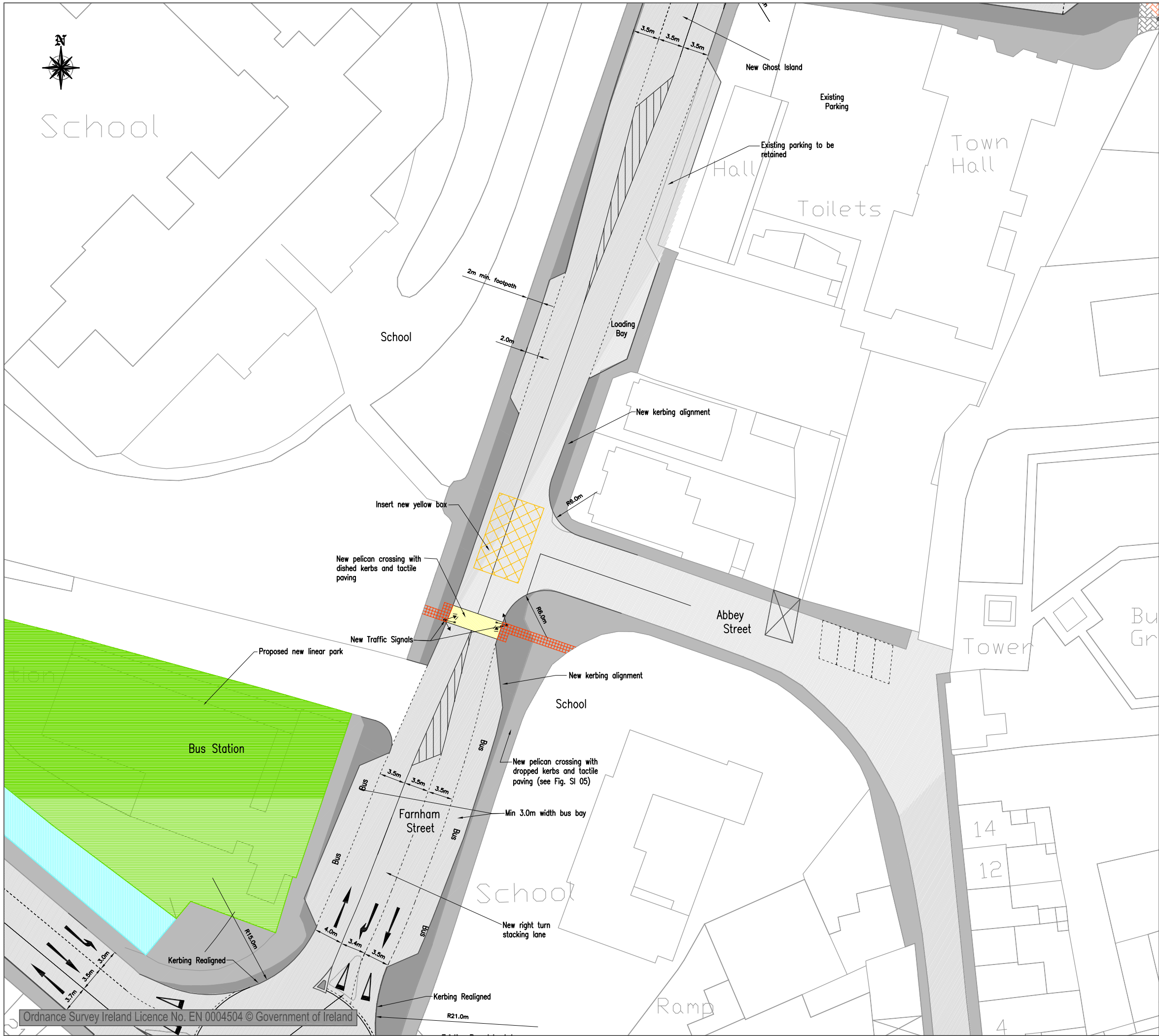
Recommendations

- Introduction of traffic splitter island on Bridge Street to assist turning onto James Connolly Street and improve safety and efficiency.
- Provision of clear road markings to indicate junction arrangement and act as traffic calming.
- Provide new zebra crossing on James Connolly Street to improve pedestrian safety.
- Provide new kerbing alignments where necessary to improve pedestrian safety.
- Provide taxi rank, parking bays and loading bay on James Connolly Street to accommodate Town Centre needs.

NOTE:

All road markings not shown. This drawing is indicative only and subject to detailed design

Future Street Improvements
Main Street – Bridge Street Junction



As detailed in Section 5.3.1, the following junction improvement recommendations shall only be implemented as and when they are warranted.

Requirements

- Introduction of improved junction arrangements to increase junction safety and efficiency.
- Facilitate new Town Centre circulation system at Farnham Street and Abbey Street.
- Facilitate safe movement of pedestrians across along Farnham Street in the direction of the Town Centre.
- Formalise and improve bus waiting facilities on Farnham Street.

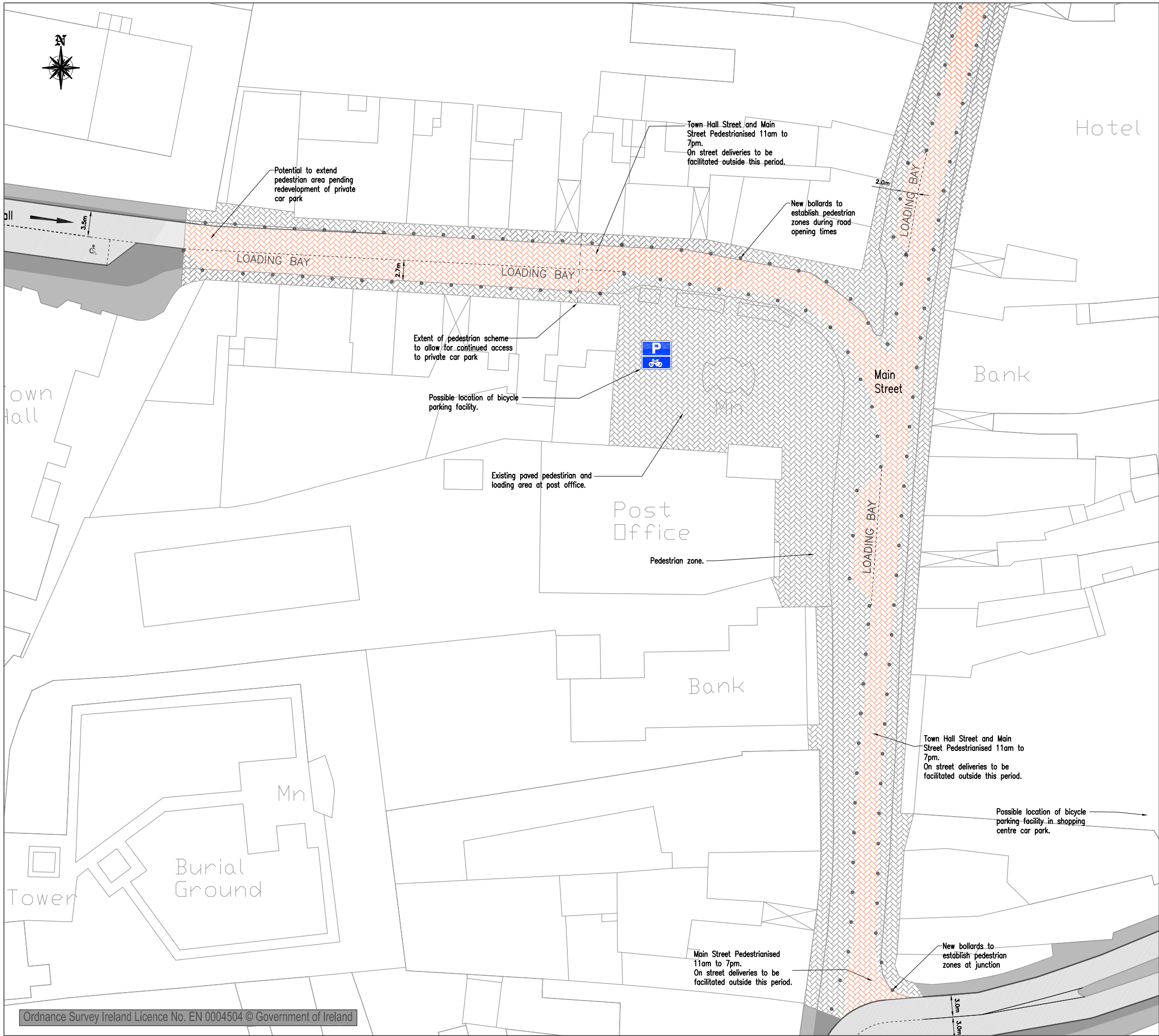
Recommendations

- Provision of clear road markings to indicate junction arrangement and act as traffic calming.
- Provide new kerbing alignments where necessary to improve pedestrian safety.
- Provide minimum footpath width of 2.0m where required on Farnham street.
- Provide new pelican crossing with dropped kerbs and tactile paving on Farnham Street.
- Provide new yellow box on Farnham Street to facilitate right turning traffic from Abbey Street.

NOTE:

All road markings not shown. This drawing is indicative only and subject to detailed design

Future Street Improvements
Farnham Street - Abbey Street Junction



As detailed in Section 5.3.1, the following junction improvement recommendations shall only be implemented as and when they are warranted.

Requirements

- Facilitate new Town Centre circulation system and pedestrian area at Town Hall Street and Main Street.
- Facilitate safe movement of pedestrians along Town Hall Street and Main Street during road opening hours.
- Facilitate mix of Town Centre needs.

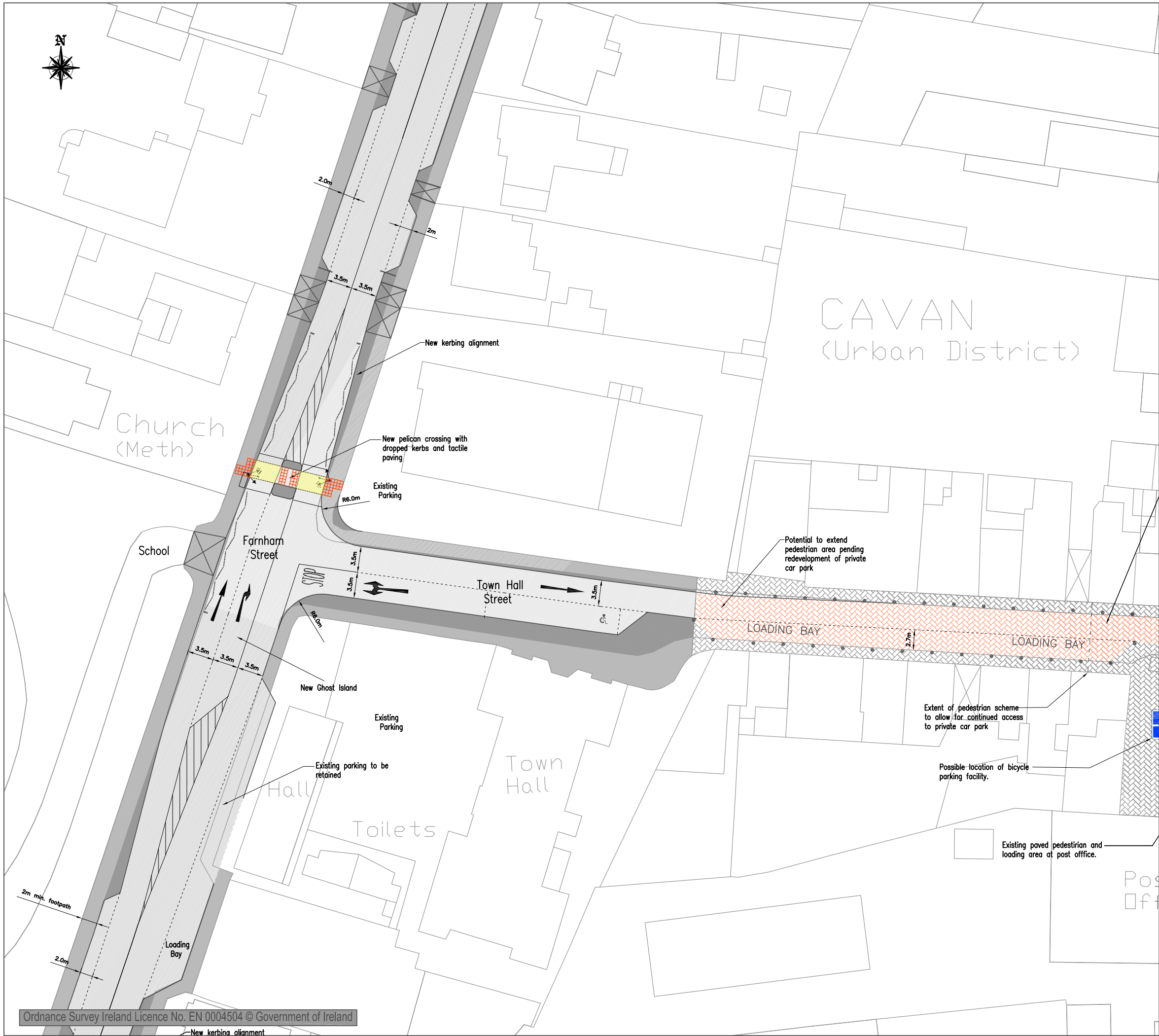
Recommendations

- Provision of bollards to establish pedestrian zones at the junctions and along Town Hall Street and Main Street during road opening hours.
- Provide new kerbing alignments where necessary to improve pedestrian safety.
- Provide bicycle parking facilities and loading bays to accommodate Town Centre needs.

NOTE:

All road markings not shown. This drawing is indicative only and subject to detailed design

Future Street Improvements
Main Street – Town Hall Street Junction



As detailed in Section 5.3.1, the following junction improvement recommendations shall only be implemented as and when they are warranted.

Requirements

- Facilitate new Town Centre circulation system at Farnham Street and Town Hall Street.
- Facilitate right turn onto Town Hall Street.
- Facilitate safe movement of pedestrians across along Farnham Street in the direction of the Town Centre.

Recommendations

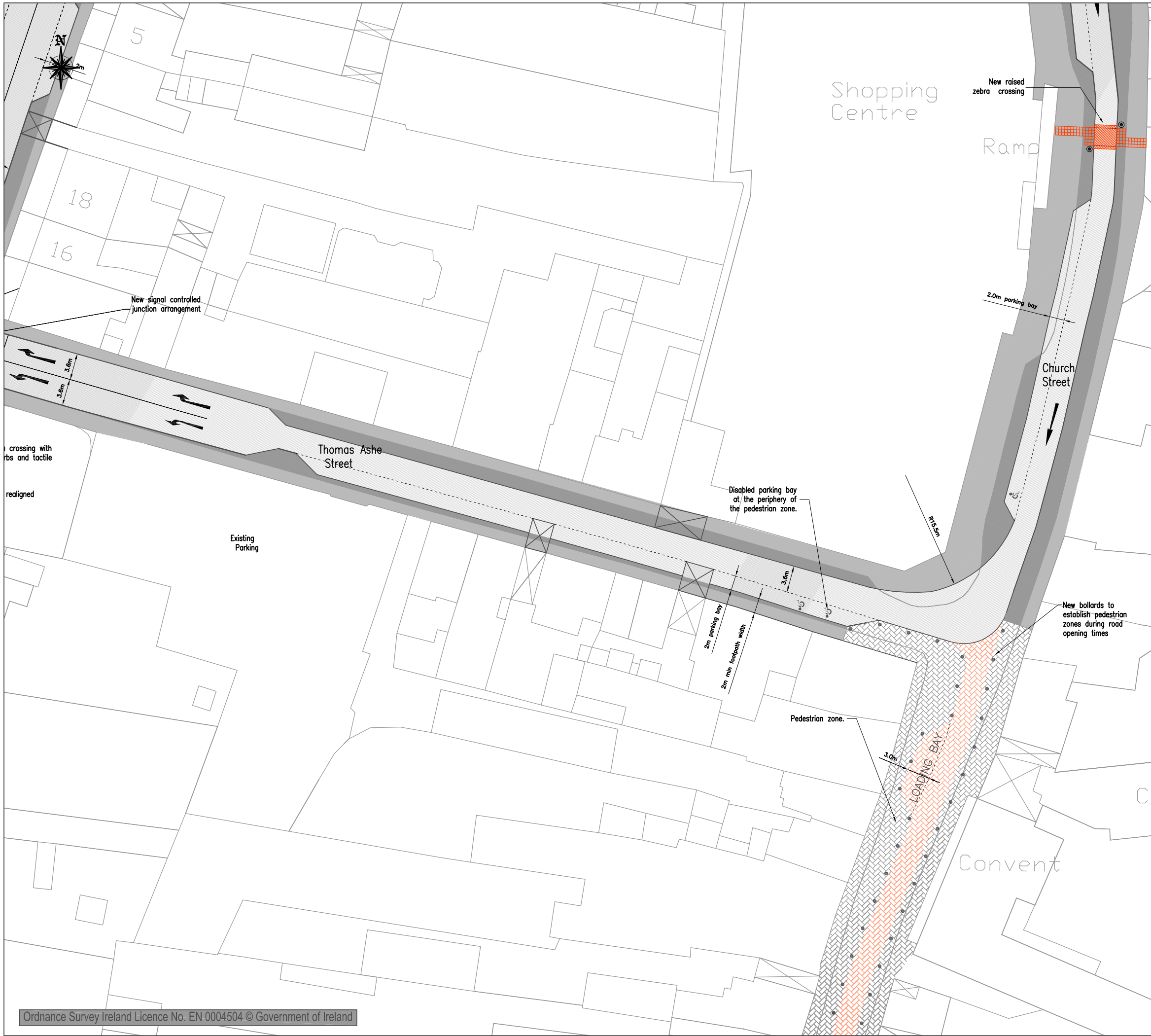
- Provide new ghost island to facilitate right turn onto Town Hall street.
- Provide controlled pedestrian crossing on Farnham Street to facilitate safe pedestrian movement to Town Centre and facilitate right turning onto Farnham Street from Town Hall Street.
- Provision of clear road markings to indicate junction arrangement and act as traffic calming.
- Provide new kerbing alignments where necessary to improve pedestrian safety.
- Footpath width to be minimum 2m.

NOTE:
All road markings not shown. This drawing is indicative only and subject to detailed design

Future Street Improvements
Farnham Street – Town Hall Street Junction

Fig. SI 07





As detailed in Section 5.3.1, the following junction improvement recommendations shall only be implemented as and when they are warranted.

Requirements

- Facilitate new Town Centre circulation system and pedestrian zone at Church Street and Thomas Ashe Street.
- Facilitate safe movement of pedestrians along Church Street and Thomas Ashe Street to pedestrian zone.
- Facilitate mix of Town Centre needs.

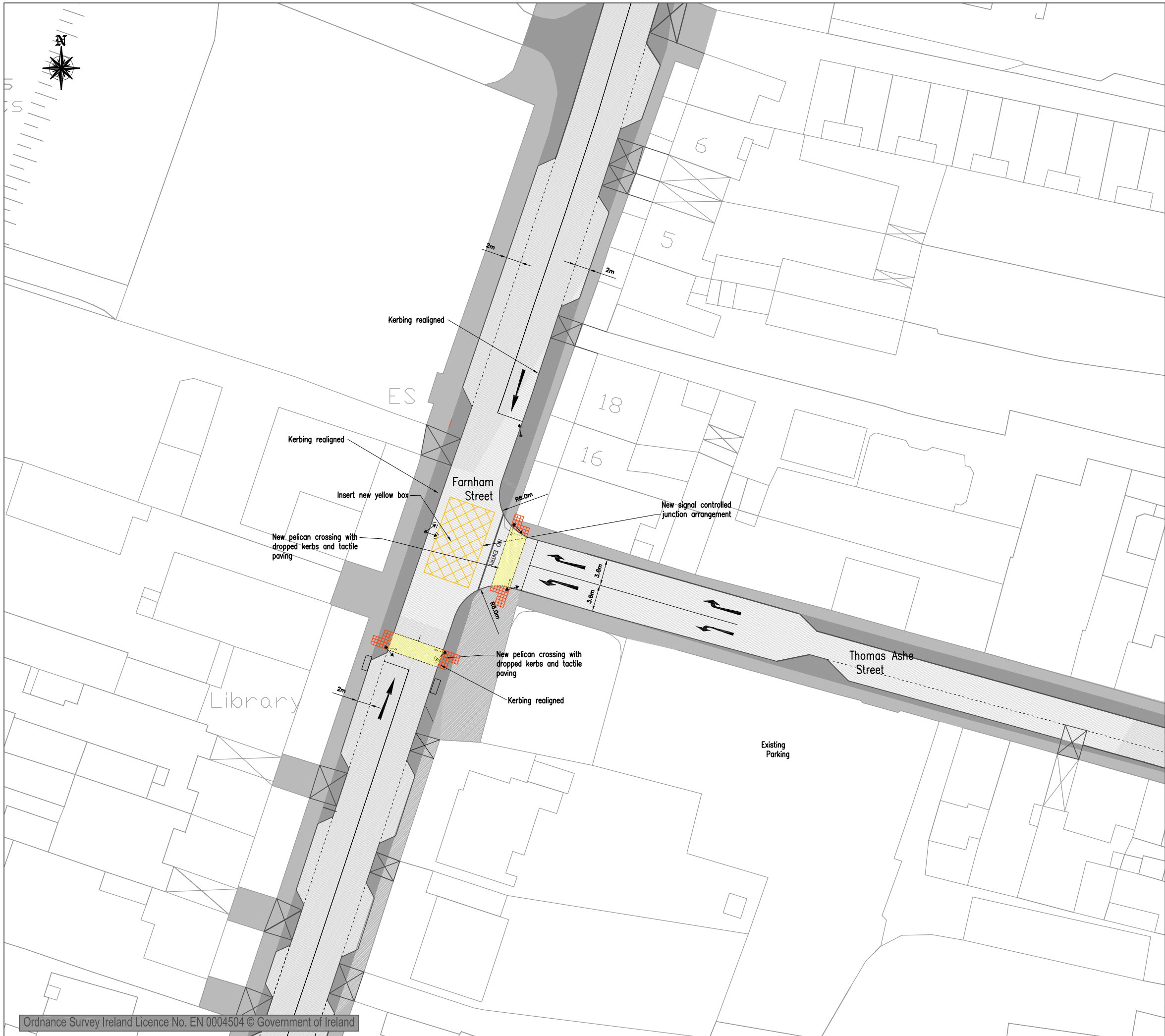
Recommendations

- Provision of clear road markings to indicate junction arrangement and act as traffic calming.
- Provide new kerbing alignments where necessary to improve pedestrian safety.
- Footpath width to be minimum 2m.
- Provide new bollards at the junction to establish pedestrian area during road opening hours.
- Provide on street disabled parking bays, within the periphery of the pedestrian area, and loading bays to accommodate Town Centre needs.

NOTE:

All road markings not shown. This drawing is indicative only and subject to detailed design

Future Street Improvements
Main Street – Thomas Ashe Street Junction



As detailed in Section 5.3.1, the following junction improvement recommendations shall only be implemented as and when they are warranted.

Requirements

- Facilitate new Town Centre circulation system along Thomas Ashe Street and Farnham.
- Improved capacity for traffic turning right from Thomas Ashe Street onto Farnham Street in line with Town Centre one-way system.
- Facilitate safe movement of pedestrians across Farnham Street and Thomas Ashe Street in line with identification of key pedestrian links to Town Centre.

Recommendations

- Introduction of traffic signals on Farnham Street - Thomas Ashe Street junction to assist right turning onto Farnham Street and improve safety and efficiency.
- Provision of clear road markings to indicate junction arrangement and act as traffic calming.
- Provide new controlled pedestrian crossings to improve pedestrian safety.
- Provide new kerbing alignments where necessary.

NOTE:

All road markings not shown. This drawing is indicative only and subject to detailed design

Future Street Improvements
Farnham Street – Thomas Ashe Street Junction



As detailed in Section 5.3.1, the following junction improvement recommendations shall only be implemented as and when they are warranted.

Requirements

- Facilitate safe movement of pedestrians along Church Street.
- Facilitate mix of town centre needs.

Recommendations

- Provide raised pedestrian crossing at Cockhill Junction to improve pedestrian and vehicular safety.
- Provide raised zebra crossing on Church street to facilitate safe movement of pedestrians.
- Provide mix of parking bays, including disabled parking bays and loading bays to accommodate town centre needs.

NOTE:
All road markings not shown. This drawing is indicative only and subject to detailed design

Future Street Improvements
Church Street – Cock Hill Junction

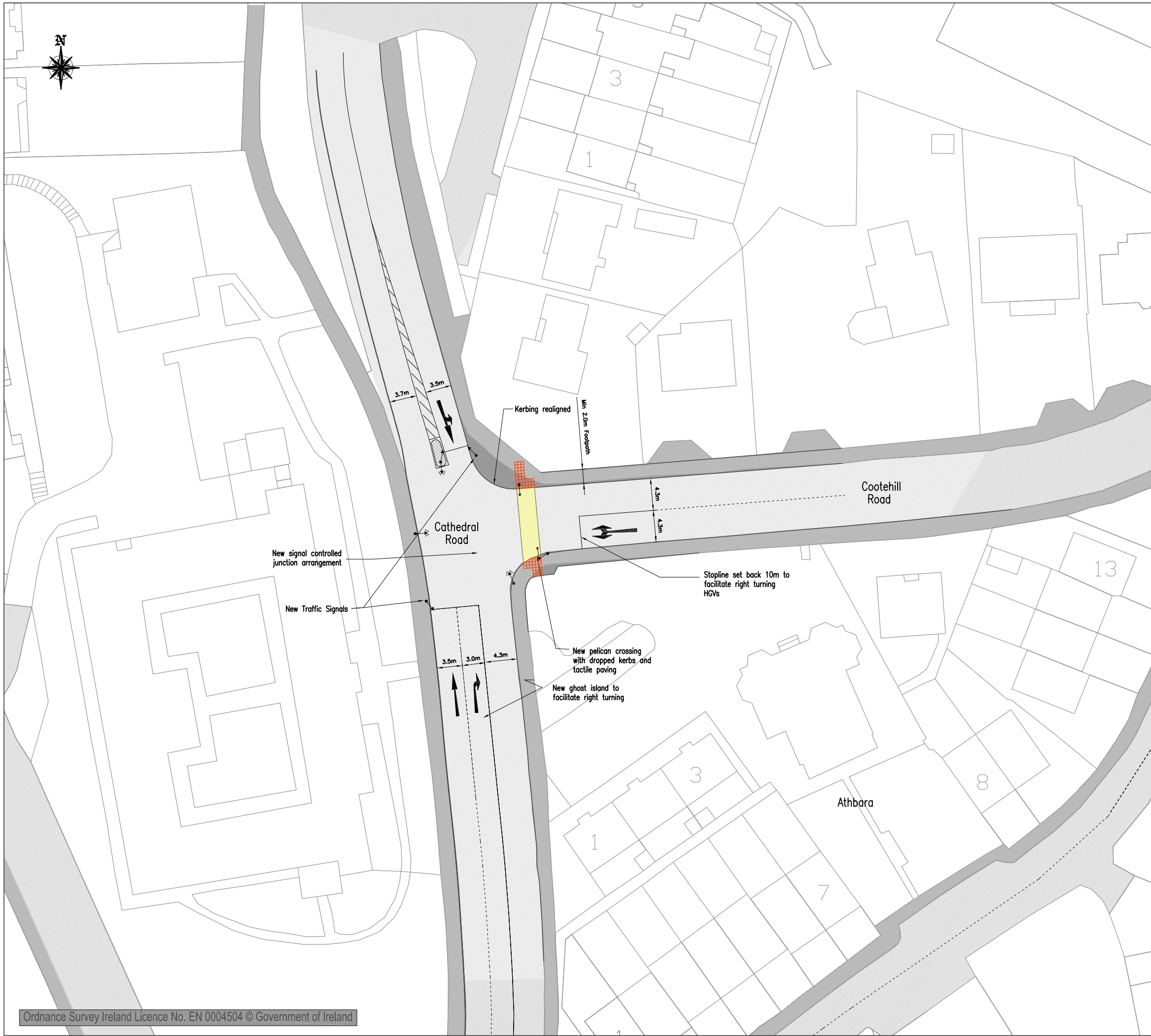
Fig. SI 10





Appendix B External Junction Improvements





As detailed in Section 5.3.1, the following junction improvement recommendations shall only be implemented as and when they are warranted.

Requirements

- Improve capacity for vehicles accessing and egressing Cotehill Road.
- Provision of safe pedestrian links to Town Centre in line with identification of key pedestrian links.

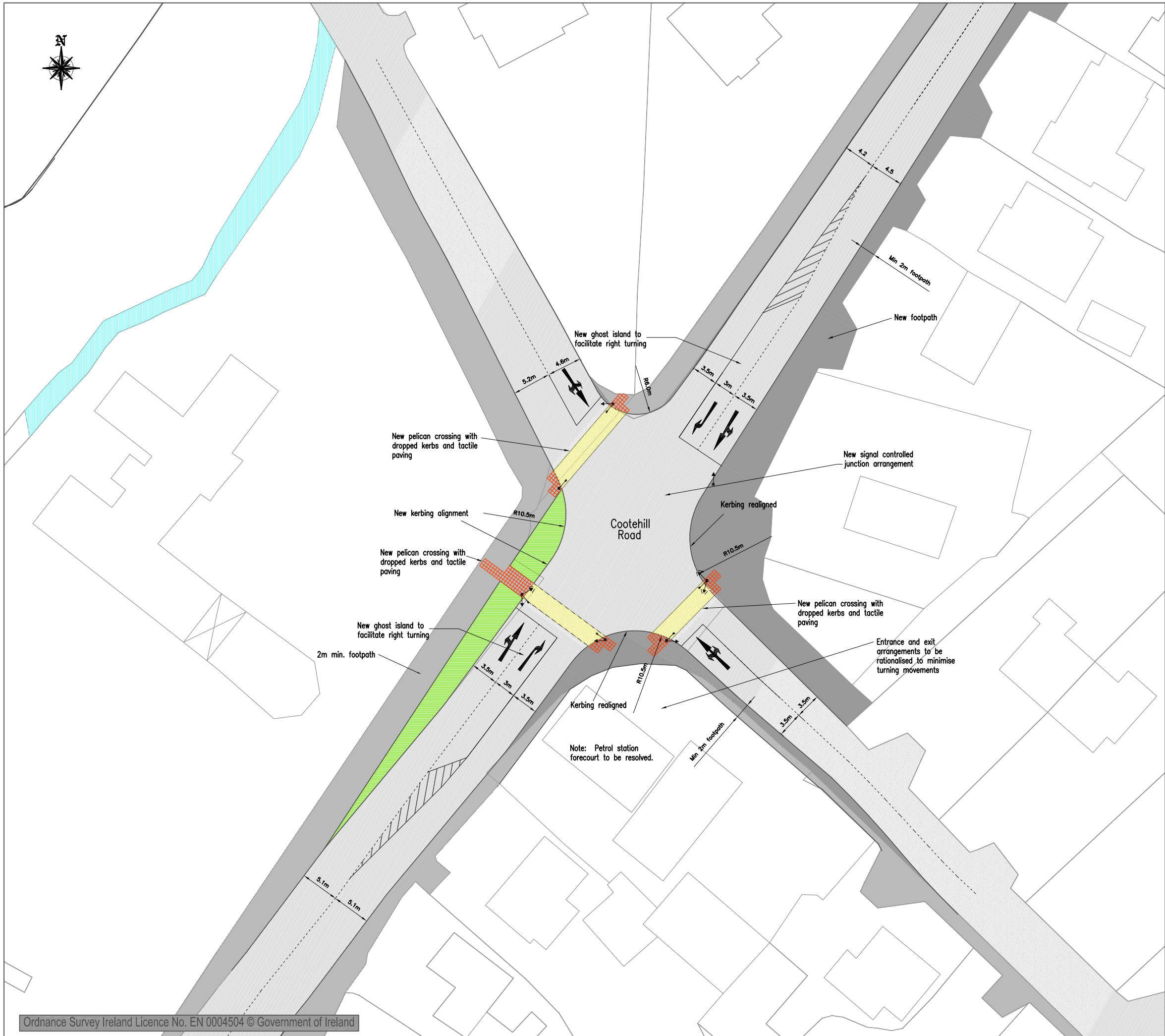
Recommendations

- Introduction of signalised junction arrangement to improve safety and efficiency.
- Introduce new ghost island right turn lane at junction as shown.
- Provide new pelican crossing facility at entrance to Cotehill Road to provide safe pedestrian link to Town Centre.
- Provide a minimum 2m footpath width where feasible.
- Set back stop line on Cotehill Road to facilitate right turning HGVs.
- Realign kerb on North side of Cotehill Road to extent footpath area and reduce vehicular speed at junction.

NOTE:

All road markings not shown. This drawing is indicative only and subject to detailed design

Future Junction Improvements
Cathedral Road – Cotehill Road Junction



As detailed in Section 5.3.1, the following junction improvement recommendations shall only be implemented as and when they are warranted.

Requirements

- Improve capacity for East-West movement across junction to facilitate new developments and access to northern junction on N3 bypass.
- Provision of safe pedestrian crossing facilities at the junction.
- Creation of safe pedestrian link on East side of Cootehill Road.

Recommendations

- Introduction of signalised junction arrangement to improve safety and efficiency incorporating right turn lanes on Cootehill Road.
- Provision of clear road marking to indicate junction arrangement and to act as traffic calming.
- Provide new ghost islands as shown to facilitate right turning from Cootehill Rd and improve efficiency.
- Provide new kerbing alignment where necessary.
- Provide new pelican crossing facilities at junction as indicated.
- Provide min 2m footpath on east side of Cootehill Road if feasible.

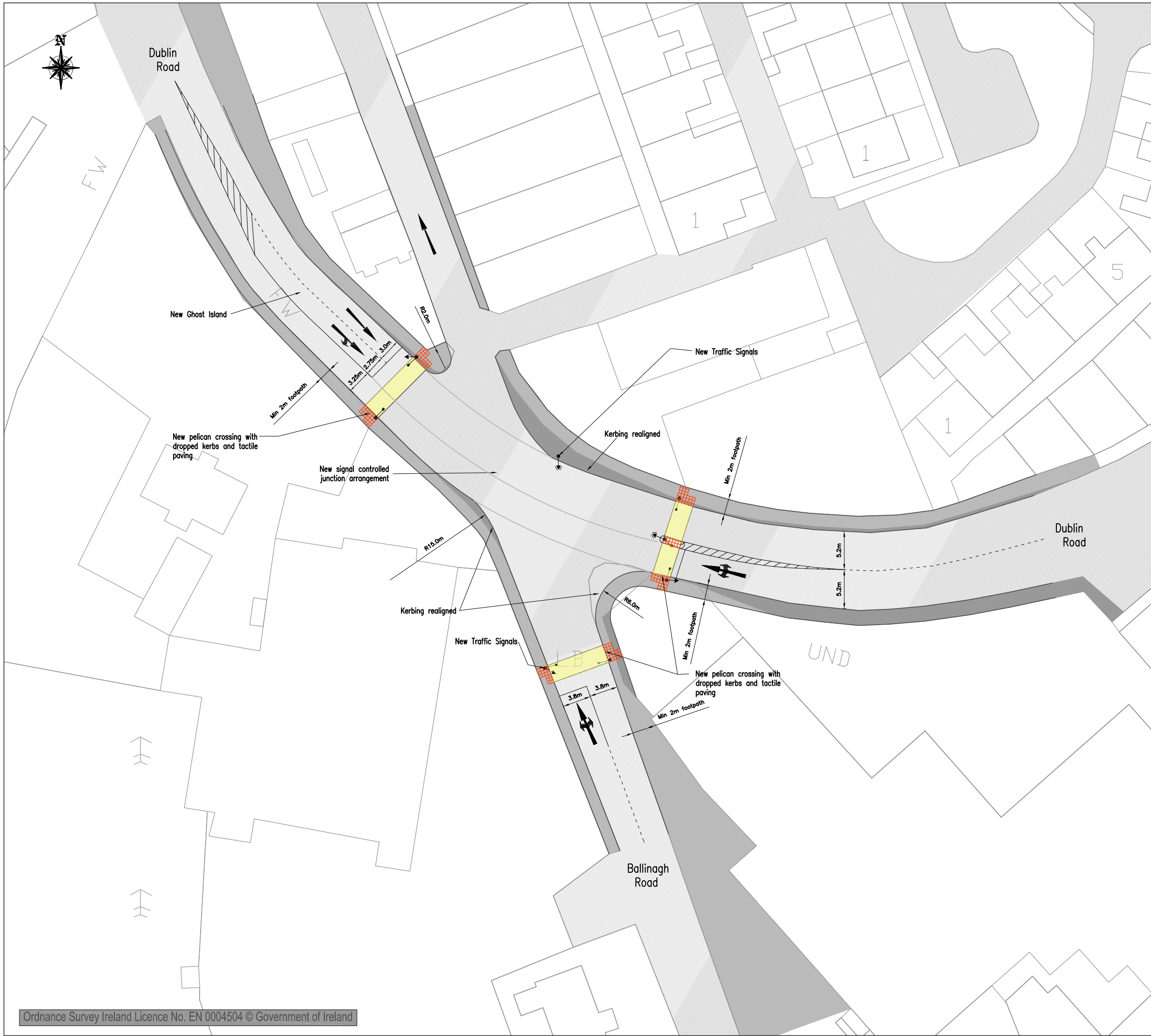
NOTE:

All road markings not shown. This drawing is indicative only and subject to detailed design

Future Junction Improvements
Drumalee Cross Junction

Fig. JI 02





As detailed in Section 5.3.1, the following junction improvement recommendations shall only be implemented as and when they are warranted.

Requirements

- Reduce overall delays and queuing of vehicles at junction.
- Improve capacity of junction for traffic on Ballinagh Road.
- Provision of safe pedestrian crossing facilities in line with identification of key pedestrian links.
- Improve footpath widths where feasible.
- Accommodate HGV movements for pre and post completion of N55 bypass.

Recommendations

- Introduction of signalised junction arrangement to improve safety and efficiency.
- Set back stop line on Ballinagh Road to facilitate left turning HGVs.
- Provide new pelican crossings as shown with dropped kerbs and tactile paving to provide safe pedestrian link to town centre.
- Provide a minimum 2m footpath width where necessary.
- Realign kerbline to achieve new junction layout and improve pedestrian facilities.
- Introduce new ghost island to facilitate right turn onto Ballinagh Road.

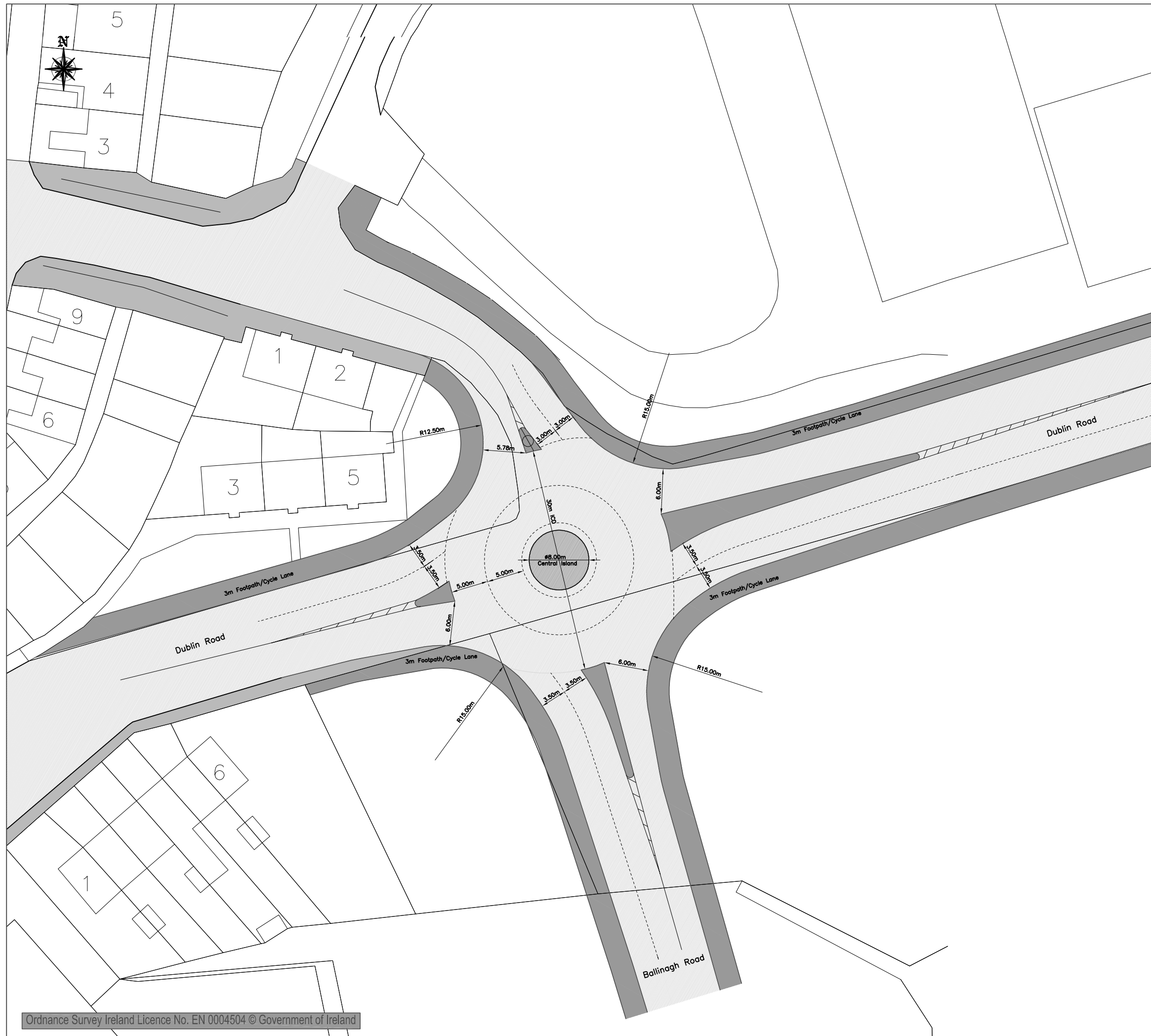
NOTE:

All road markings not shown. This drawing is indicative only and subject to detailed design

Future Junction Improvements
Dublin Road – Ballinagh Road Junction

Fig. JI 03A





As detailed in Section 5.3.1, the following junction improvement recommendations shall only be implemented as and when they are warranted.

Requirements

- Reduce overall delays and queuing of vehicles at Ballinagh Road.
- Improve capacity of junction for traffic on Ballinagh Road.
- Improve footpath widths to accommodate pedestrians and cyclists.
- Accommodate HGV movements for pre and post completion of N55 bypass.

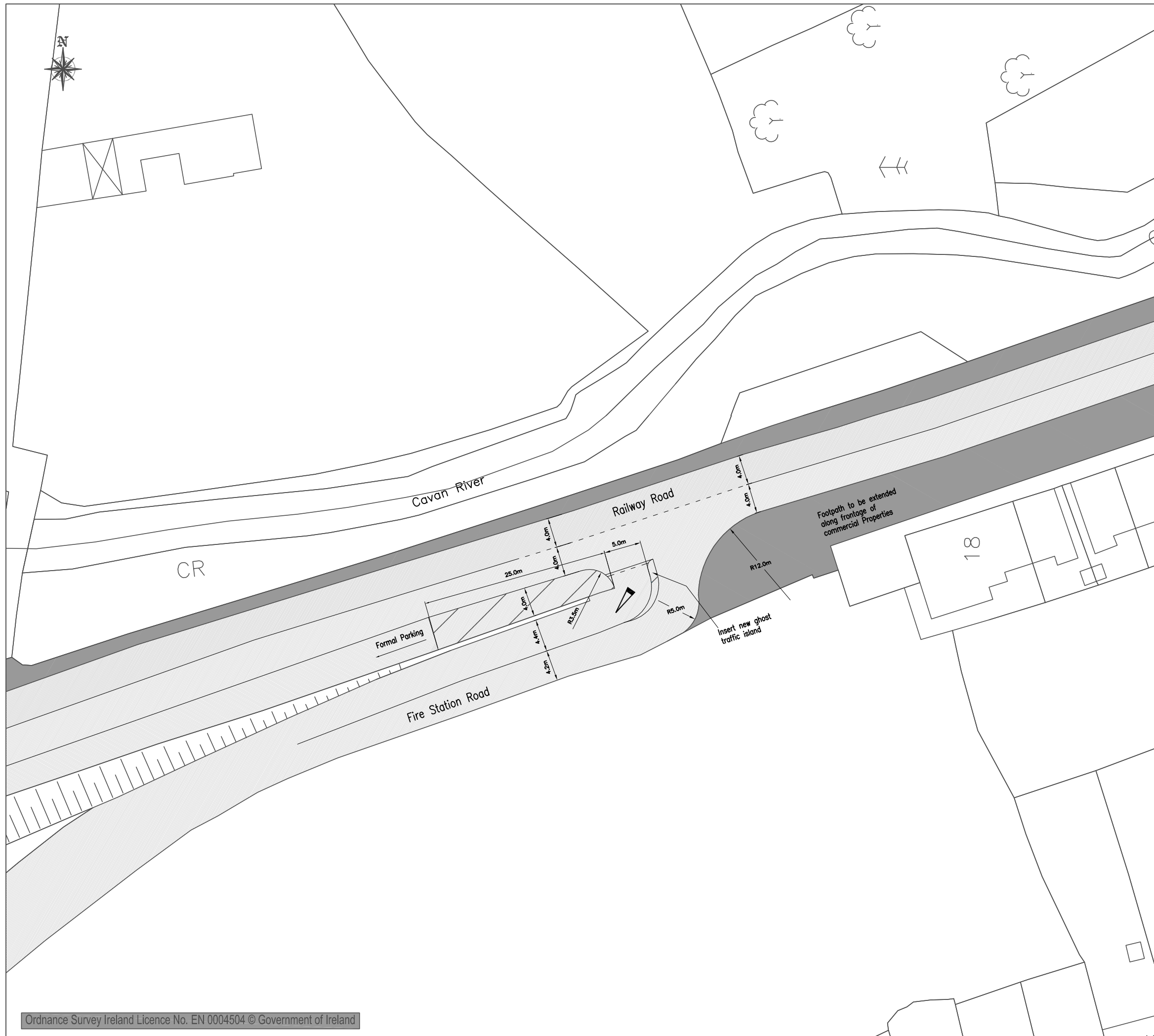
Recommendations

- Realignment of northern end of Ballinagh Road.
- Construction of 30m ICD roundabout at junction of realigned Ballinagh Road and Dublin Road to improve safety and efficiency.
- Provide new pelican crossings as shown with dropped kerbs and tactile paving to provide safe pedestrian link to town centre.
- Provide a 3m footpath width to accommodate pedestrians and cyclists.
- Provide pedestrian crossing facilities where necessary.

NOTE:

All road markings not shown. This drawing is indicative only and subject to detailed design

Future Junction Improvements
New Dublin Road Roundabout



As detailed in Section 5.3.1, the following junction improvement recommendations shall only be implemented as and when they are warranted.

Requirements

- Improve Safety for vehicles egressing Fire Station Road.
- Formalise parking in vicinity of junction to improve safety and efficiency.
- Provision of adequate footpath widths.

Recommendations

- Provide new ghost verge to increase turning radius at junction and improve visibility.
- Increase footpath widths keeping existing parking provisions in front of commercial properties on Railway Road.
- Formalise Parking areas to north of junction on western side of road using ghost verge as a starting point.

NOTE:

All road markings not shown.
This drawing is indicative only and subject to detailed design

Future Junction Improvements
Railway Road – Fire Station Junction



