Castletownbere Transportation Study

Draft Final Report for Second Round Public Consultation

Cork County Council

Project number: 60535188

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AECOM Imagine it. Delivered.

Quality information

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Revision History

Revision	Revision date	Details	Authorised	Name	Position
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Vision Statement for Castletownbere Transportation Study:

"To support the role of Castletownbere as the strategic hub on the Beara peninsula and in doing so create the infrastructure that enhances ease of movement and travel for all, and improves the quality of life for the local and wider community".

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1. Introduction

1.1 Background and Study Requirements

AECOM were appointed by Cork County Council to prepare the Castletownbere Transportation Study. The study examines the current transport situation and identifies measures to support the transport requirements of the town.

Specifically the aims of the study are to:

- Establish how the accessibility and the safety of transport movement can be improved;
- Identify the opportunities to optimise the current transport network;
- Establish the future transport network required to support the town;

Growth in population, employment, and tourism in this area of West Cork is forecast in various planning policy documents including the West Cork Local Area Plan. Castletownbere is well positioned along the Wild Atlantic Way. The Wild Atlantic Way has been successful in attracting tourists and further investment is proposed along the route.

This growth will result in an increase in vehicular, pedestrian, cyclist and public transport journeys. This study outlines the transport infrastructure and policy measures required to support the growth of the town. Opportunities to enhance the public realm have also been identified as this will support the vibrancy and attractiveness of the town and also support active travel.

1.2 Overview of the Study Area

The study area is outlined in Figure 1.1.

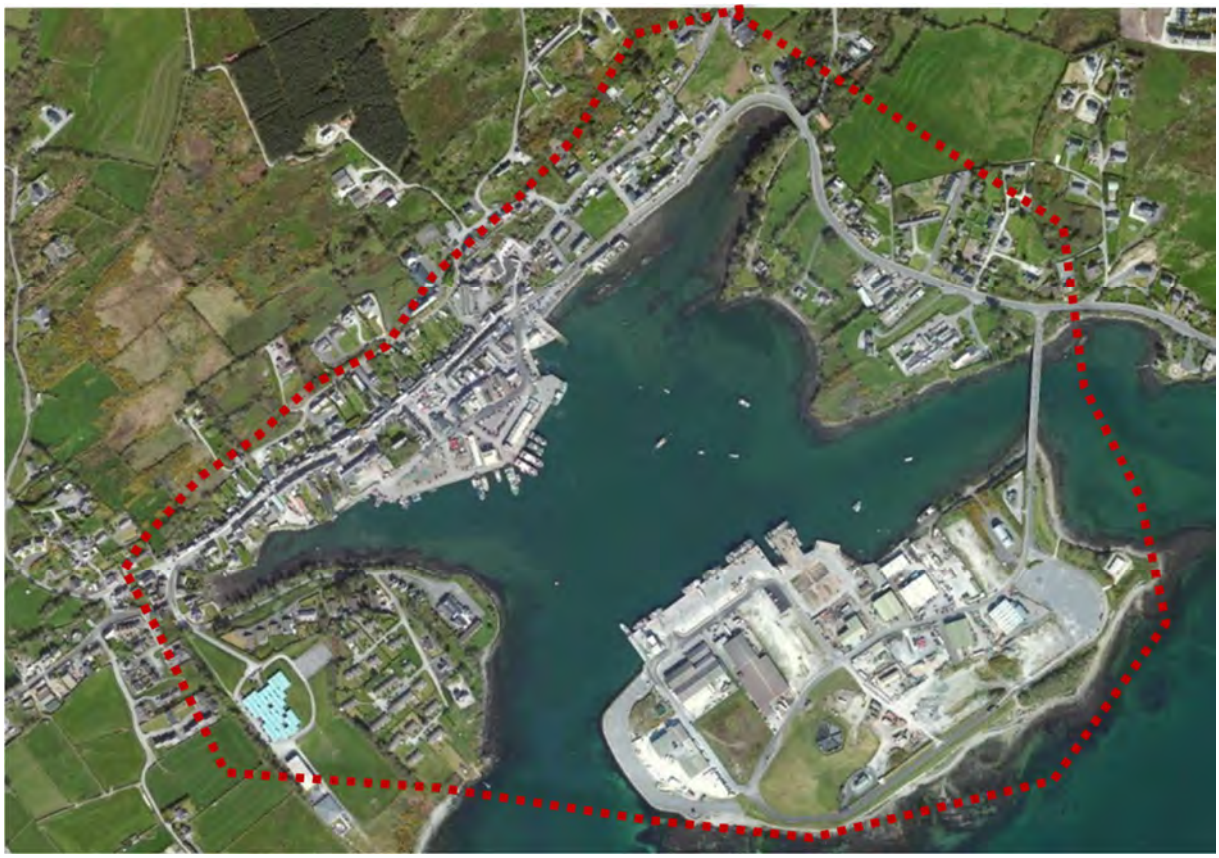


Figure 1.1 Study Area

This area has been selected to incorporate the town centre and also the primary routes which provide access and egress to the town. It includes the junction with Dinish Island in the east and the junction with the 'Old Bakery' in the west end of the town. The extent of the study area facilitates the study to

examine the issues within Castletownbere and the issues associated with routing through Castletownbere.

1.3 Study Methodology

The methodology for this Transportation Study is outlined in more detail in Chapter 2. It involved the following key steps:

- Understanding Existing Situation;
- 1st Round Consultation;
- Visioning, Assessment Framework and Options;
- Option Assessment;
- Emerging Proposed Strategy;
- 2nd Round Consultation;
- Final Report.

1.4 Structure of this Report

This report is structured as follows:

Chapter 2 Methodology

This Chapter outlines the methodology adopted for this project.

Chapter 3 Existing Conditions

This Chapter sets out the current transport and public realm conditions in Castletownbere.

Chapter 4 Vision and Objectives

The vision, objectives, and evaluation framework for the study is outlined in Chapter 4.

Chapter 5 Recommended Transportation Strategy

Chapter 5 outlines the package of measures which comprise the Castletownbere Transportation Study. These measures are being recommended to deliver the vision and objectives of the study.

Chapter 6 Implementation of Castletownbere Transportation Study.

In this Chapter an implementation plan will be presented to specify the measures implementation over the short, medium and longer term.

Chapter 7 Recommendations

Chapter 7 concludes the report with a series of recommendations.

2. Methodology

2.1 Introduction

This Chapter presents an overview of the methodology used to develop the Castletownbere Transportation Study. The methodology is summarised in Figure 2.1 below:

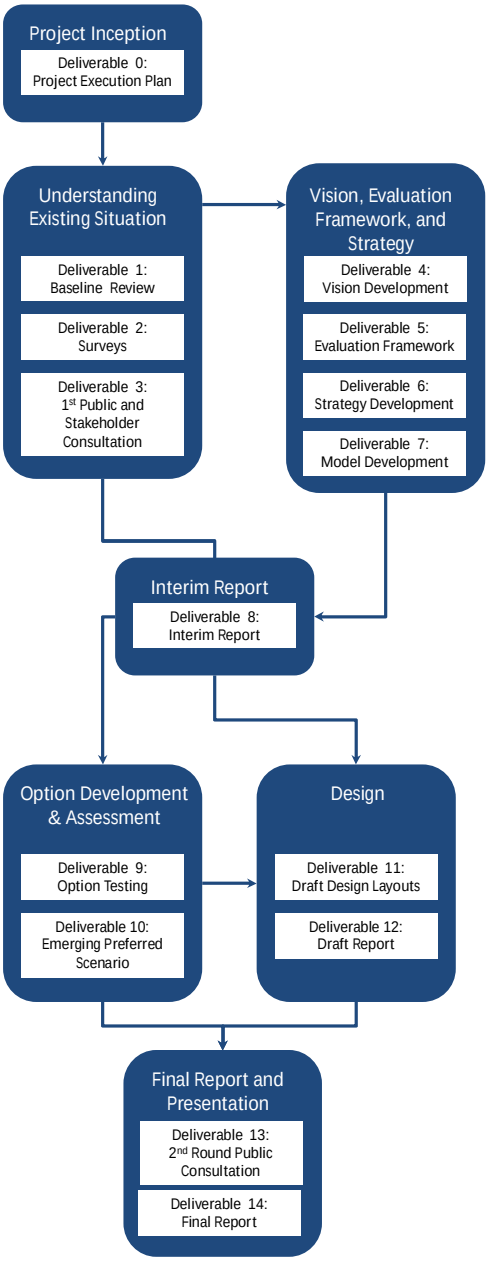


Figure 2.1 Study Methodology

2.2 Project Inception

During the project inception stage a detailed understanding of the study objectives was established. An inception meeting was held in September 2016 to review the brief, confirm the methodology, identify stakeholders and agree the lines of communication.

2.3 Understanding of Existing Situation

The purpose of this stage was to develop a comprehensive understanding of the existing situation within the study area. This was achieved by undertaking:

- Site visits;

- Survey and data collection;
- 1st Round Public and Stakeholder Consultation.

Site Visits

Site visits were undertaken during September and October 2016 to:

- Obtain an overview on the transport provision and observe the traffic management arrangements;
- A detailed review was undertaken to understand the conditions experienced by the different type of road user (i.e. mobility impaired, pedestrians (including children and the elderly), cyclists, motorists, heavy good and delivery vehicles;
- Observations were made in relation to transport behaviours within the study area and how road users respond to the provision;
- An assessment was made in relation to the quality of the public realm and the opportunities to support more active transport was established;
- A detailed review of various junctions was undertaken to identify particular issues and difficulties current experienced;
- Safety issues were noted particularly where these relate to vulnerable road users such as school children and the mobility impaired;

Surveys

A comprehensive set of transport surveys were undertaken:

- Pedestrian counts at 13 locations;
- Junction turning counts at 13 locations;
- Automatic traffic counters at 3 locations;
- Parking surveys at 5 locations;
- Journey time surveys between 5 locations.

Further information on the traffic surveys including outputs is provided in the Castletownbere Transportation Study Baseline Report.

Consultation

Consultation is an important input to the Castletownbere Transportation Study. By engaging with the community we were more informed about the issues, perceptions, aspirations and insights of the community. This provided valuable information.

The consultation process for the Castletownbere Transportation Study involved a number of inputs including a public exhibition, and meetings with key stakeholders such as the local schools, An Gardai Síochána, bus operators, community groups and associations.

Public Exhibition

A public exhibition was held in the Beara Coast Hotel on Tuesday 11th October 2016 between the hours of 16:00 to 20:00. The event was advertised in a local paper (The Southern Star see Figure 2.2) and a leaflet drop was organised to invite members of the public to attend. The purpose of the exhibition was to make people aware of the study and to invite them to make submissions and outline any issues or concerns they may have.

The event was hosted by members of the Castletownbere Transportation Study project team from Cork County Council and AECOM. Visitors who attended were invited to view a number of presentation boards which provided more information on the study including objectives, methodology,

issues, and programme. An example of the information that was available for review is presented in Figure 2.3.

The exhibition was well attended with a constant flow of engaged visitors throughout the evening. In total over 110 people attended the exhibition and over 60 written submissions were received either on the evening or over the following couple of weeks.

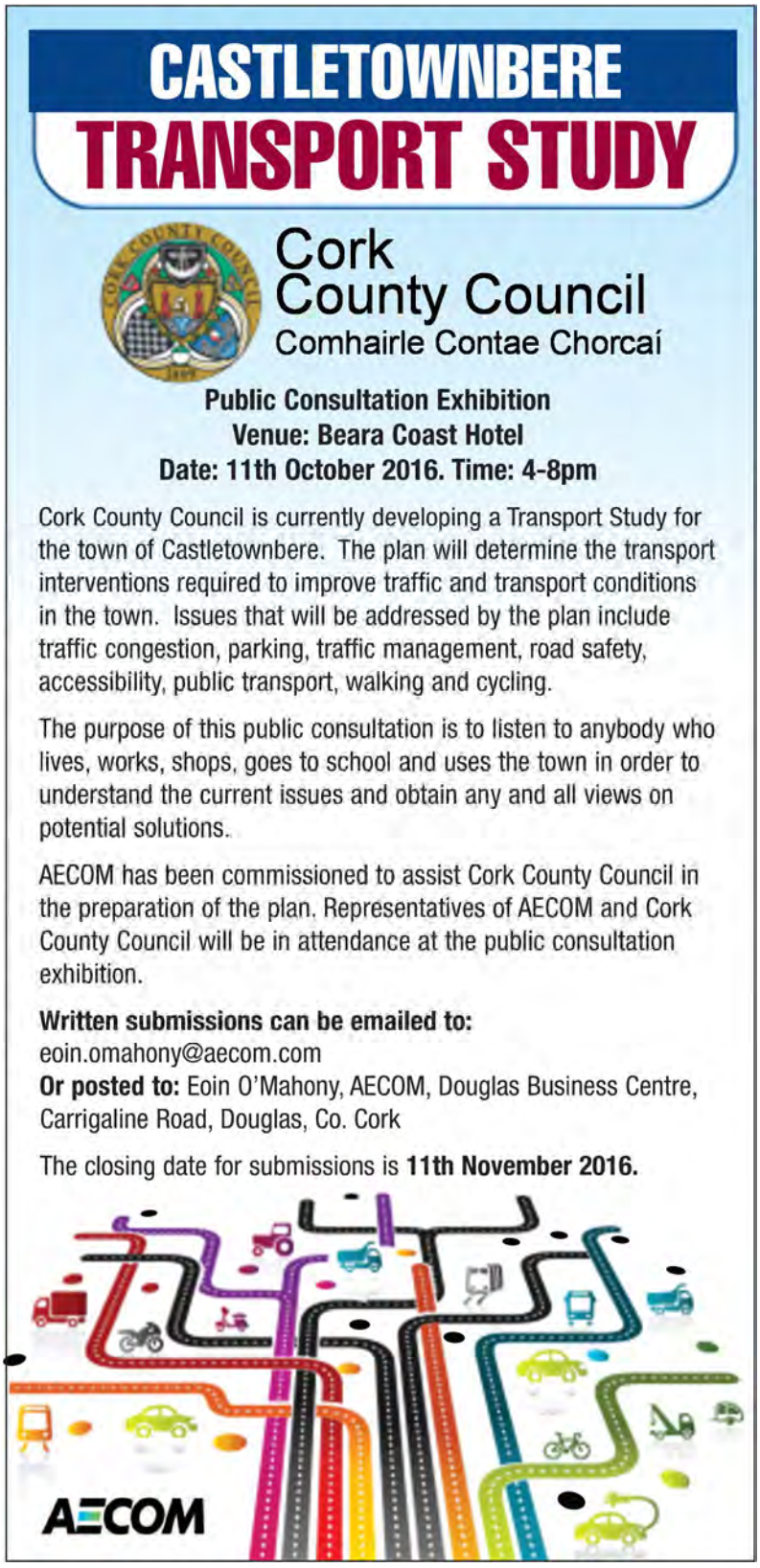
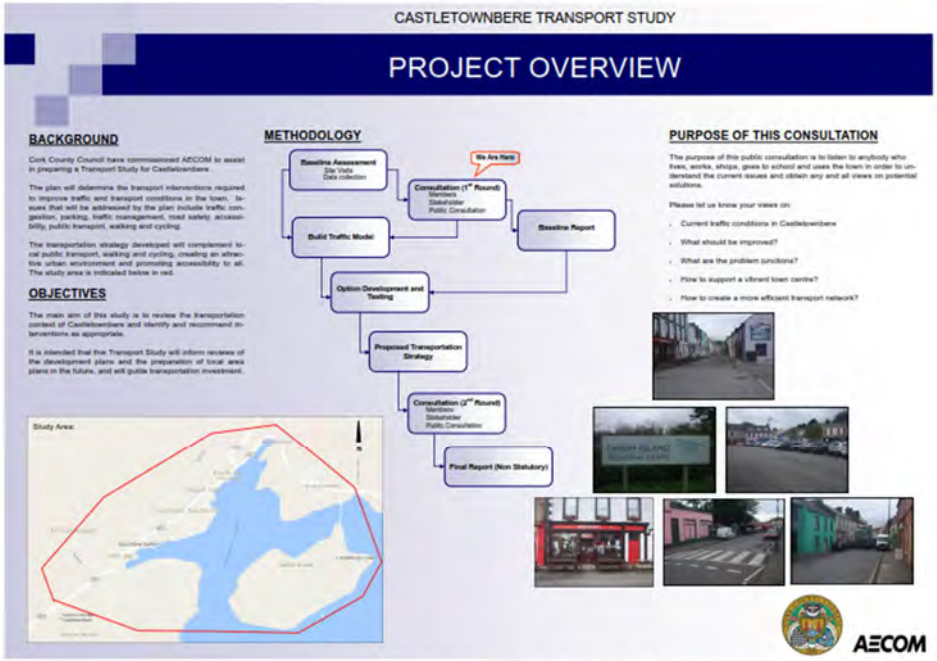
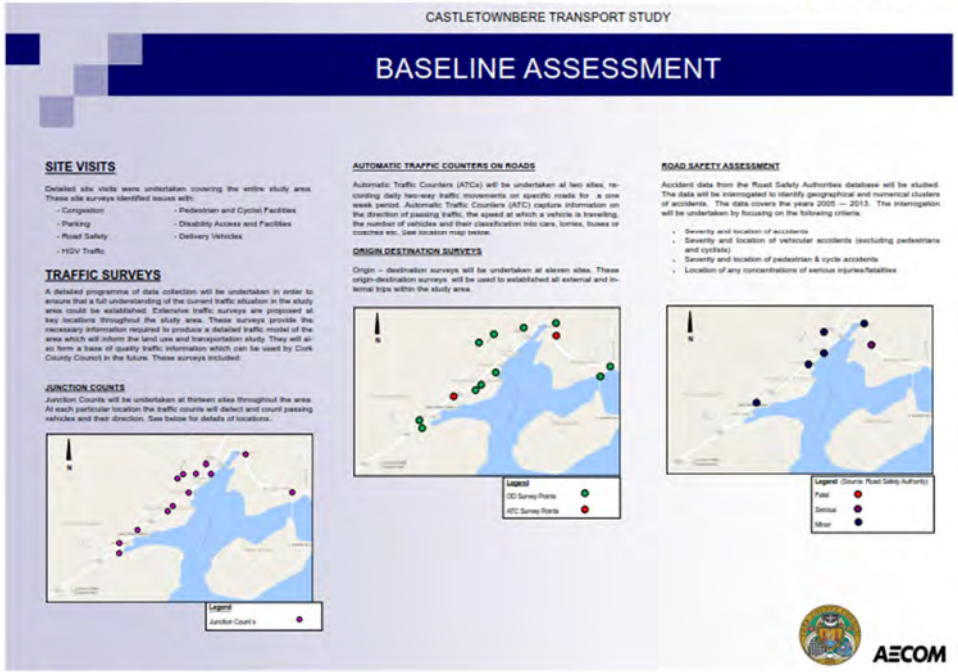
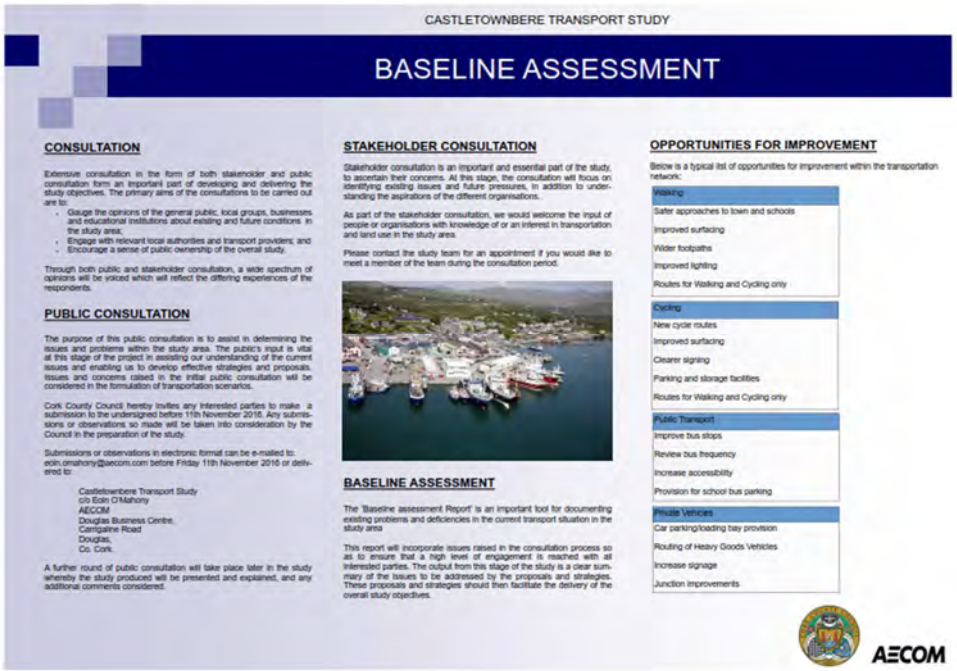


Figure 2.2 Newspaper Advert for Public Exhibition

Figure 2.3 Selection of posters displayed during 1st Round Public Consultation







Stakeholders were contacted by email and invited to a meeting. All stakeholders were encouraged to make written submissions. Those contacted included development associations, community groups, schools, businesses and private individuals were also encouraged to make submissions with any relevant issues. Approximately four weeks was allowed for the receipt of submissions in relation to the study. The local stakeholders who were contacted in relation to this study are illustrated in Table 2.1 below. This table shows that a broad representative response was obtained from local groups and stakeholders.

Table 2.1 Stakeholder Consultation

Group/Organisation	Contact Method
Castletownbere Development Association	Email and Meeting
Beara Community Groups	Email and Meeting
Bere Island Group	Email and Meeting
An Garda Siochana	Email and Meeting
Retailers & Business Owners	Email and Meeting
Schools	Email and Meeting
Bus Eireann	Email and Meeting
Department of Agriculture, Food & the Marine	Email and Meeting
Castletownbere Harbour Users Forum	Email and Meeting
General Public	Newspaper Advert, Leaflet Drop and Open Meeting

A summary and review of the submission received is outlined in 1st Round Public Consultation Report Castletownbere Transportation Study which is included in the Appendix A to this report.

2.4 Vision, Evaluation Framework and Strategy Development

The purpose of this stage is to develop a vision for the Castletownbere Transportation Study. This vision is then underpinned by a series of objectives and key performance indicators. These represent the foundation of an evaluation framework which was utilised to measure the performance of the various options identified for the study area. Chapter 4 of this report provides further detail in relation to this part of the project.

2.5 Strategy Development

Various options were developed through a series of Project Team Meetings. The options were developed to assist in identifying the transport conditions in Castletownbere town. The options were developed following a review of:

- Current conditions established through the Baseline Report for Castletownbere Transportation Study;
- Feedback and information gathered through the 1st Round Public Consultation;
- Review of National, Regional and Local Policy;
- Review of previous studies in the area (e.g. Accessibility Audits);

The options were developed focusing on:

- Pedestrian provision;
- Town centre circulation;

- Junction improvements to support safer facilities for vulnerable road users;
- Public transport provision;
- Car parking provision;
- Routing and provision for heavy good vehicles.

2.6 Traffic Model Development

To assist in understanding how the options perform against the study objectives a traffic model was developed for the study area. The model was developed using the microsimulation software VISSIM. The extent of the traffic model is outlined in the figure below.

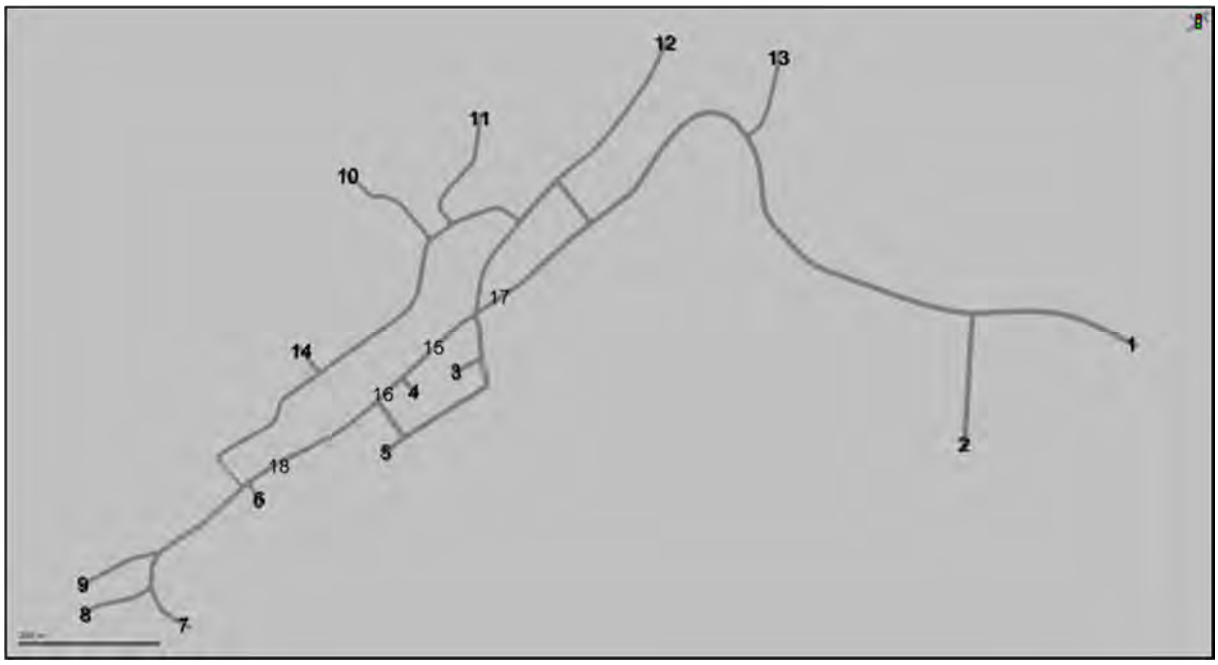


Figure 2.4 Traffic Model Extents

Survey data collected during 2016 was used to develop the model. The model was calibrated to ensure that the model assignments reflect the existing travel situation. Calibration is an iterative process, whereby the model is continually revised to ensure that the most accurate replication of the base year conditions is represented. The model calibration process was undertaken based on the requirements of the TII Project Appraisal Guidelines for National Roads Unit 5.1: Construction of Transport Models.

Model validation comprises the comparison of calibrated flows against an independent data set which was not used as part of the calibration process. It forms a check on the quality of the network and assignment. Both AM and PM peak models satisfy the PAG requirement that 85% of all modelled journey times are within 15% of observed data or less than 60 seconds if higher. The Base models are therefore validated to the requirements of PAG.

Further information in relation to the calibration and validation is contained within the Castletownbere Transportation Study Micro Simulation Modelling Report which is contained within the Appendix C to this report.

2.7 Assessment of Options

An evaluation framework was developed to test the various high level options against the vision and objectives for the study (Chapter 4 provides more detail).

The methodology for the study includes the use of the traffic model which forms an input into the evaluation framework. In summary:

Step 1:
Three town centre circulation options were identified and assessed against the objectives for the study for the forecast year 2026. These options are outlined in more detail in the Castletownbere Transportation Study Micro Simulation Modelling Report which is included in the Appendix C to this report.

Step 2:
The preferred town centre circulation option was then tested against a 'Do Nothing'. The 'Do Nothing' scenario essentially represents baseline conditions i.e. growth in traffic volumes however no alterations to the current road network.

Step 3:
For the forecast year 2036 two significant transport interventions were added to the town centre circulation option:

- A new road to the north of the town centre which primarily serves zones development lands;
- A new road to the south of the town which be provided by reclaiming land from the sea and would provide for traffic travelling through the town.

These scenarios were then tested against a Do Minimum Year 2036 Scenario. Similar to Step 2 the scenarios were then assessed through the evaluation framework. The results of this assessment are outlined Castletownbere Transportation Study Micro Simulation Modelling Report and are presented in the Appendix C to this report.

Based on the result of the testing outlined above the Castletownbere Transportation Study Year 2026 and Year 2036 recommendations for interventions were established.

Preliminary design drawings were prepared for all of the key junctions within Castletownbere Town. In tandem with this work a number of concept designs for the public realm were prepared to support the objectives of the study.

The emerging preferred strategy for Castletownbere is outlined in this Draft Final Report, which will be brought forward for 2nd Round Public Consultation.

2.8 Final Report

A second and final public consultation exhibition event will be held in the Beara Coast Hotel in April 2018. Members of the public will be invited to attend in a similar manner to the first round public consultation. The purpose of the exhibition will be to present the draft recommendations of the study and provide the public with an opportunity to give their opinions.

Visitors to the exhibition will have an opportunity to engage with the Castletownbere Transportation Study project team and discuss any issues or concerns that they have with the emerging proposals. A period of 4 weeks will be provided for written submissions to be received.

When all of the submissions have been considered a report will be produced which will outline recommendations for changes to the designs. When these changes have been completed and approved the final report will be drafted.

3. Understanding Existing Conditions

3.1 Introduction

This chapter outlines a review of the existing conditions within the study area. The review will cover:

- Current travel characteristics: A review of the 2016 Census data which provides information on the characteristics for Castletownbere including the population, mode share, car ownership, household size which can all influence the travel patterns in the area.
- Feedback from the 1st Round Public Consultation: A review of the submissions received during the consultation including the key issues to be addressed by this study.
- Pedestrian facilities: A review of current pedestrian facilities to identify locations and issues to be addressed by this study;
- Public realm review: An assessment of the current public realm in Castletownbere including identification of opportunities to enhance the area;
- Public transport: A review of the current public transport provision within the town focusing on the current bus facilities rather than service provision which outside the remit of this study;
- Traffic assessment: A review of the traffic issues within the town including an operational review of the key junctions identified.

3.2 Current Travel Characteristics

This section provides details on the current travel characteristics of the study area. This review has been facilitated by an analysis of the 2016 Place of Work, School or College Census of Anonymised Records (POWSAR).

The population of the town is approximately 900. The wider Electoral District is known as Killaconenagh. According to the 2016 Census the population of Electoral district of Killaconenagh is 1,483 people. It is interesting to note the age profile of people within the area.

Figure 3.1 illustrates the age profile of the population. It indicates a significant portion of the population is either over 70 years old or less than 10 years old. This has implications for the study suggesting a focus on improving the quality of infrastructure for these more vulnerable road users.

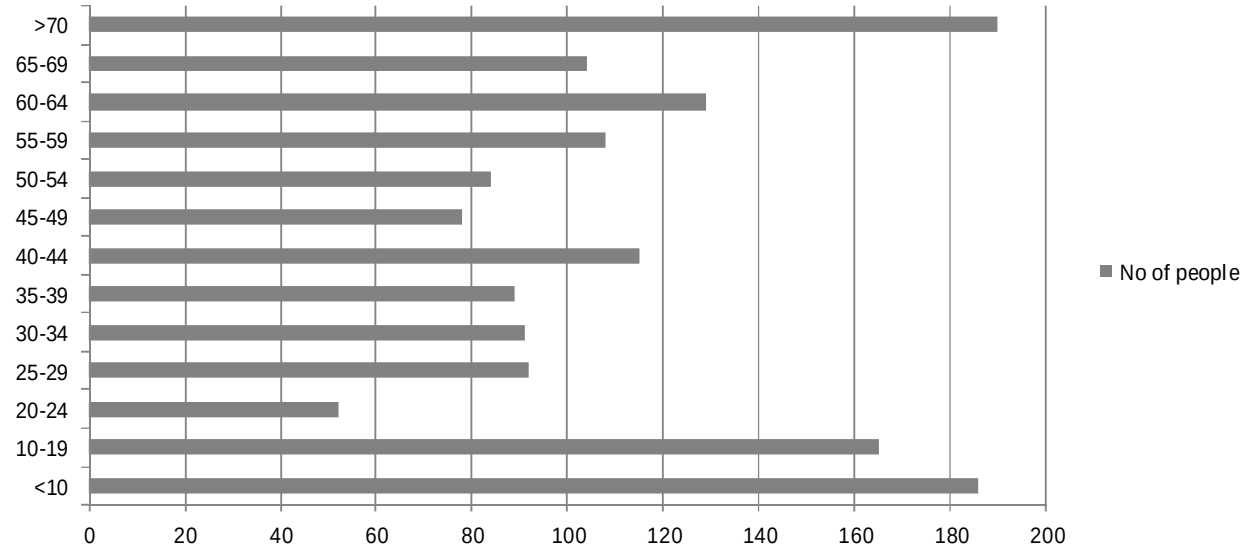


Figure 3.1 Age profile of the population within the study area

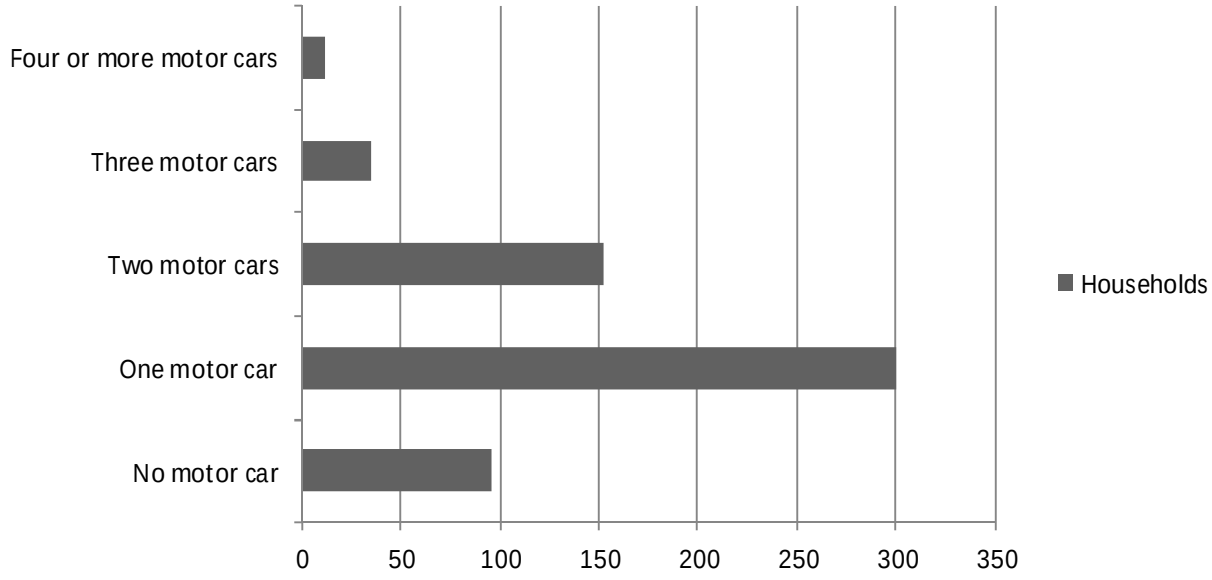


Figure 3.2 Household access to Motor Car

The above graph indicates a large proportion of the population (84%) has access to a motor vehicle. This is not surprising given the dispersed nature of development in the area. Dispersed population is more difficult to serve by public transport.

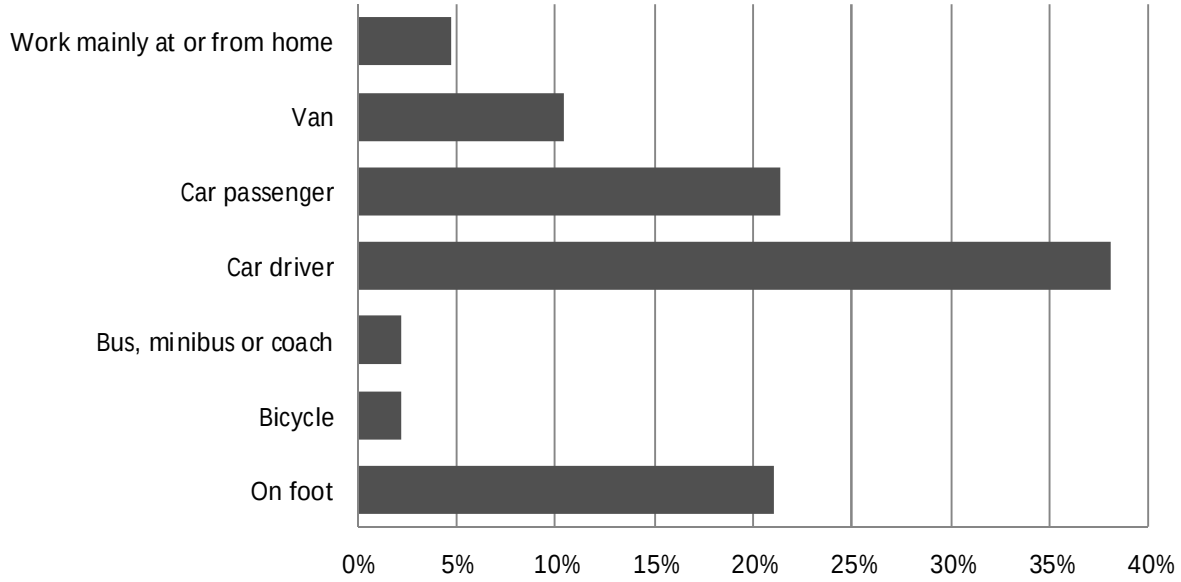


Figure 3.3 Means of Travel to Work, School or College

The above graph indicates car driver is the most popular means of travel to work, school or college. Car passenger is also relatively high which may reflect shared trips to school and work places. Most interestingly though is the relatively high percentage of trips undertaken on foot. Despite the relatively high access to motor vehicles a large number of trips are undertaken on foot which may be related to the length of journeys as indicated in the following graph.

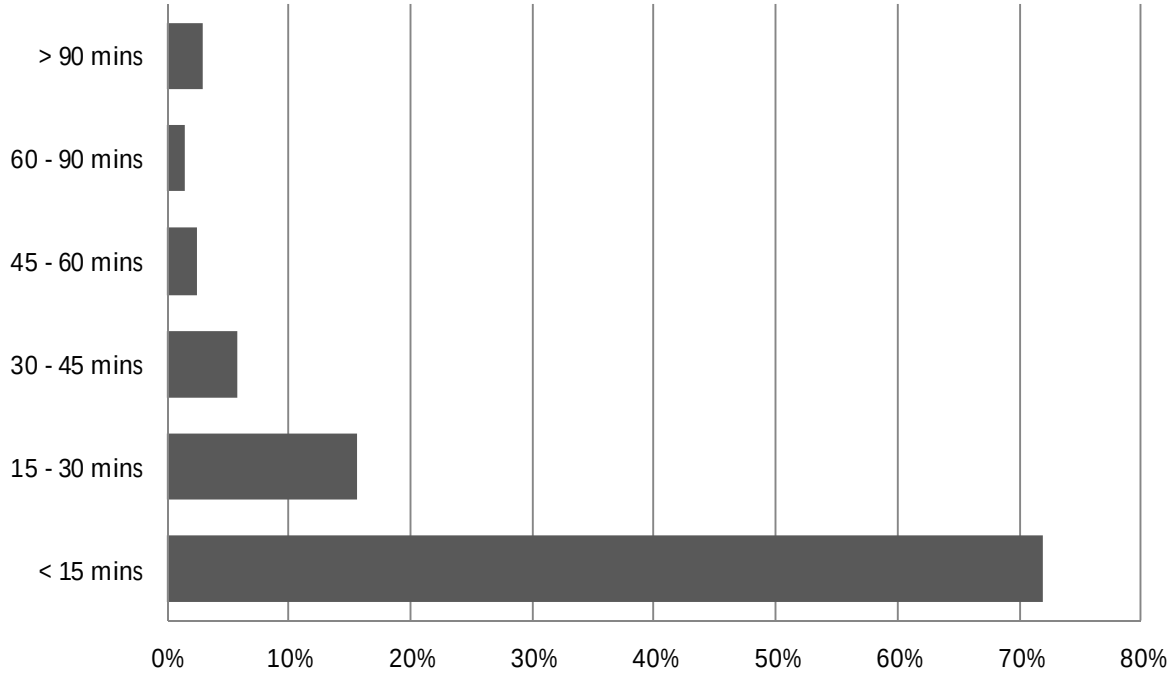


Figure 3.4 Journey times for travel to Work, School or College

The majority of journey times to work, school and college in the study area are less than 15 minutes. This suggests the area is a largely self-contained settlement where often the choice of place of work school and college follows the choice of residential location.

Implications for Castletownbere Transportation Study

The following has been derived from this review of the Census information:

- The population of the study area includes a significant proportion of the study population are in dependant age groups (both young and older age groups). This suggests the transport provision will need to provide for the needs of these more vulnerable age groups by being more forgiving and supportive.
- A significant proportion of the population have access to a motor vehicle. The car is the most popular means of travel within the study area. Whilst promoting active travel will be a key component appropriate facilities to support economic activity in the town such as car parking will be necessary.
- Walking is already a popular means of travel. This is very interesting given the relatively poor provision which will be outlined later. Proposals to improve the quality of the pedestrian provision and the public realm will encourage more active travel and support existing pedestrians.
- The majority of journey times to work, school and college in the study area are less than 15 minutes. This suggests the area is a largely self-contained settlement where often the choice of place of work school and college follows the choice of residential location. These conditions suggest that there is potential for more walking and cycling trips if appropriate infrastructure is provided.

3.3 Feedback from 1St Public Consultation

A total of 60 written submissions were received as part of the 1st Round Public Consultation.

The responses play a key role in developing a detailed understanding of the issues affecting Castletownbere and its environs. The consultation process also provides an insight into potential solutions to these issues.

The following summarises the issues raised in the submissions received:

- Car parking – the quantum, location and availability of car parking was raised extensively and vigorously throughout the consultation. It was suggested that a detailed parking survey be undertaken in the town to identify the existing demand and length of stay. More parking in specific areas was a focus of a number of submissions.
- Pedestrian facilities – Several submissions outline the view that the pedestrians are not well provided for within the town. The streets do not feel comfortable for pedestrians. There is an absence of safe crossings facilities and the speed of traffic is too high. Cars parked on the footpaths create difficulties for pedestrians, buggies and wheelchairs.
- Public realm – A number of submissions expressed the view that the public realm of Castletownbere town could be more attractive. These submissions outlined the town centre is dominated by car parking which does little to reflect the unique, picturesque location of Castletownbere in West Cork.
- Traffic circulation – many submissions expressed the opinion that the current circulation system for traffic in the town is not efficient and proposed the introduction of one way system to improve traffic flow.
- Relief road – To support a one way system a relief road along the inner harbour was proposed. Others did not support this as it had the potential to cut off pedestrian access to the sea and encouraging HGVs and other traffic. Others preferred a relief road to the north of the town as contained in the Local Area Plan.
- HGV routing – The routing of HGVs through the town is an issue that causes distress as outlined in a number of submissions.
- Junction and road improvements were suggested as being required for the following locations:
    - R571/R572 Super Valu Junction;
    - North Road R571 Junction;
    - North Road to Co-Action;
    - West End along Main Street to Community Hospital;
    - Options for Relief Road;
    - Secondary School junction to public road;
    - Primary school bus set down and pedestrian route along Back Road;
    - Dinish Island R572 Junction.
- Public transport – The provision for public transport needs to be considered for the town. The existing bus stop although centrally located is not particularly prominent or visible. Layover space for coach and tourist buses is also required. The issue of school bus set down and the impacts of this on other businesses were also raised.

3.4 Provision for Pedestrians

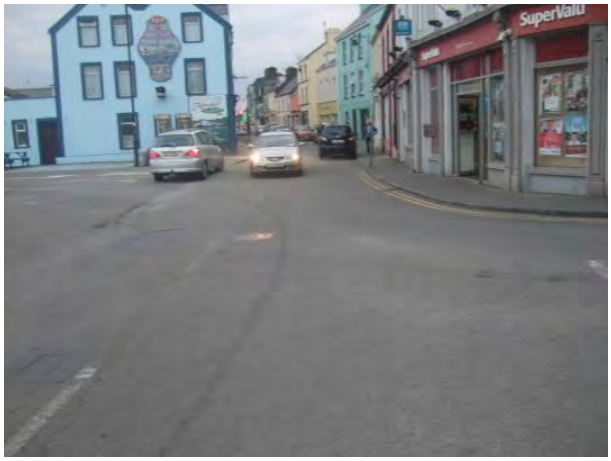
An Accessibility Audit was undertaken in Castletownbere in 2009 on behalf of Cork County Council. This Audit identified a large number of issues within the town in terms of accessibility. Solutions to these issues were outlined in the report as well as a cost estimate for implementation. It appears many of the same issues raised in this report remain.

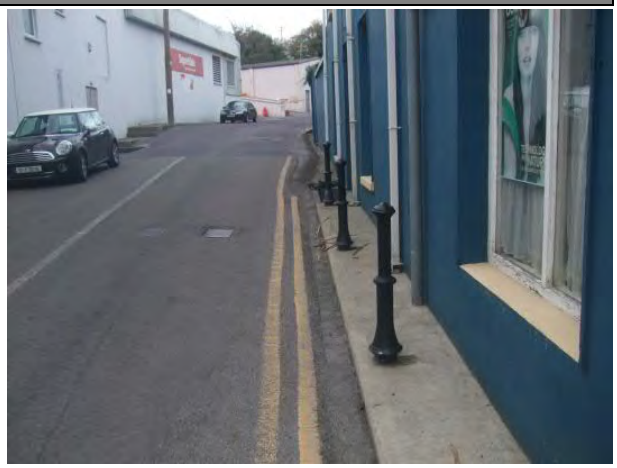
In general provision for pedestrians within Castletownbere is poor. While a footpath is provided on one or both sides for the majority of streets within the town the width can vary and is often well below the standard required.

Cars' parking on the footpaths is a significant issue. This reduces the functionality of the footpath and hinders pedestrian movement. It also makes the footpaths unpassable for buggies and wheelchairs. A number of critical locations are outlined below.

Figure 3.5 Reference Map

Location No.1: R572/R571 ('SuperValu' Junction)





This junction is a large four arm priority junction. It is the first experience visitors to town have when approaching from the east. It is also the busiest junction in the town.

Pedestrian activity is highest at this junction in the study area. There is a strong pedestrian crossing movement from the car parking facility to the SuperValu. Pedestrian surveys indicate that the total number of pedestrians crossing through this junction during the typical morning peak (09:00 – 10:00) is 237 and in the evening peak (16:00 – 17:00) is 331 pedestrians.

Heavy good vehicles have difficulty making a right turn from the R572 to the R571 at this junction due to the relatively tight radii. Some HGVs travel through the car parking area to turn right. Others travel to the harbour area and undertake a u turn movement to travel northbound on the North Round (R571).

The parking surveys which will be outlined in more detail in Section 3.9 indicate these parking spaces at this location are well utilised. The surveys indicate the parking area is regularly fully occupied. The majority of the parking is for short stay which corresponds to the site observations which indicate a significant draw from the convenience retailing such as the 'SuperValu'.

Observations from site indicate car parking can occur on the double yellow lines immediately outside the Super Value and within the clearway yellow box for the Bere Island ferry. Which indicates this junction is under significant pressure in terms of catering for the parking demands that are placed on it.

The public consultation highlighted pedestrians are walking through this junction every day to the Co-Action facility on the North Road. Overall it can be summarised that the current layout provides very poor facilities for pedestrians at this busy location.

If additional car parking areas can be identified in close proximity these new spaces could be allocated for long stay parking. This would facilitate the 'SuperValu' junction to be designated a short term parking area (less than two hours). This would result in better utilisation and turnover of spaces and support the businesses located at this junction. This would also facilitate much improved provision for pedestrians including wider footpaths and crossing facilities.

Summary of issues:

- Pedestrian provision – narrow footpaths and no crossing facilities;
- Parking provision – significant demand recorded at this location;
- HGV routing through junction to access North Road;
- Introduction to town centre from east - should make a positive impact.

Location No.2 : Town Square

The Town Square is surrounded by a number of shops, café, pubs, a bank, a petrol station, fire station and a library. These businesses and civic buildings are very important in terms of providing an anchor destination for the town. These services draw people into town and create a social environment for people to mix. Enhancing the accessibility and improving the public realm will support the economic activity and facilitate the use of the services that are located here.

The parking surveys which will be outlined in more detail in Section 3.9 indicate these parking spaces at this location are well utilised. The surveys indicate the parking area is regularly fully occupied and there is a mixture of demand for short and long stay parking. The majority of the demand is for short stay parking which corresponds to the site observations which indicate a significant draw from the convenience retailing such as the 'Spar'.

The square functions predominately as a car park. There is no provision for pedestrian priority and the car parking zones are poorly defined. This contributes to a sense that pedestrians are poorly served by the current layout. Even basic facilities such as dropped kerbs or raised crossings to accommodate wheelchairs or buggies are not provided. There is potential to address these issues which will be outlined in more detail later in this report.

The bus stop located in Main Square is not particularly prominent or accessible. The car parking that is provided in Town Square can make the bus stop difficult to access.

Delivery vehicles require loading parking facilities to service the businesses located in the Square. Site observations have highlighted a very strong pedestrian desire line from the parking area in Town Square towards the bank and the Spar shop. Ensuring vehicles travel on Main Street at low speeds will be important to provide safer conditions for pedestrians.

If additional car parking areas are identified in close proximity to Town Square these could be allocated for long stay parking. This would facilitate the Town Square to be designated a short term parking area (less than two hours). This would result in better utilisation and turnover of spaces and support the businesses located in Town Square.

Summary of issues:

- Pedestrian provision – narrow footpaths on Main Street;
- Parking – significant demand recorded at this location;
- Potential to enhance Town Square to support economic activity;
- Bus stop accessibility and visibility to be improved.
- No loading/servicing parking bays in Town Square;

Location No.3: Main Street

Main Street provides for the primary traffic movement through the town. Some sections of Main Street are relatively narrow and observations from site have recorded instances when HGV mount the footpaths. This results in unpleasant and unsafe conditions for pedestrians.

Parking on the footpaths is widespread and frequent on Main Street. This reduces the functionality of the footpath and hinders pedestrian movement. It also makes the footpaths unpassable for buggies and wheelchairs.

At the West End of Main Street close to the playground the overall width is very narrow. Instances of motorists driving up on the footpath at relatively high speed were observed. This is a safety concern and highlights the hostile conditions currently experienced by pedestrians.

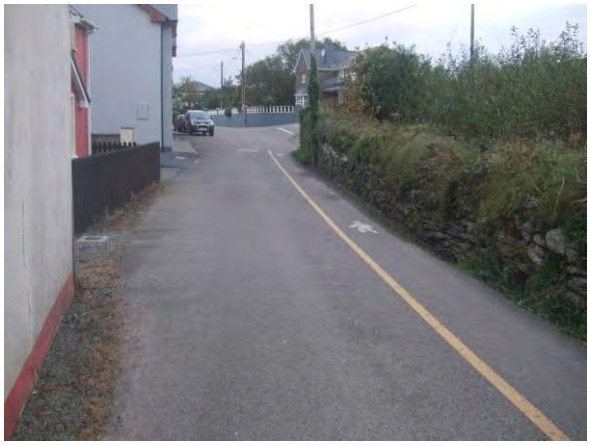
Similarly along the East End of Main Street parking occurs by the steps to the Church. The presence of a number of retail and service providers also results in a demand for parking. Parking on the footpath is common at this location also. As a result the conditions for pedestrians and the mobility impaired are very difficult.

Students regularly walk from the Secondary School to the Town Square along Main Street. Students can be required to walk in the carriageway because cars are parked on the footpaths.

Summary of issues:

- Pedestrian provision – narrow footpaths on Main Street which is the primary route for pedestrian and cyclist movement through the town;
- Parking – widespread parking on footpaths on Main Street which renders the footpath unpassable for buggies and wheelchairs;
- Carriageway provision – narrow carriageway struggles to accommodate the volume of traffic along Main Street. Vehicles were observed mounting the footpaths to pass vehicles travelling in the opposite direction;

Location No.4: Back Road



The Primary School is accessed via the Back Road. This is a narrow road without footpaths. An informal one way system for vehicular traffic applies on the road. In the absence of funding to provide footpaths, road markings have been provided, to allocate space for the school children who walk on this road. Whilst traffic speeds are generally low the road needs footpaths to provide for the young pedestrians and to support more active travel.

Summary of issues:

- Pedestrian provision – pedestrians not well catered for on Back Street which provides access to the Primary School;
- Carriageway provision – narrow carriageway in places for two way traffic circulation;

Location No.5: North Road

North Road provides connectivity between the Co-Action facility and the town centre. The road currently has limited footpath provision on one side for a short section. Consultation with Community Groups revealed patrons of the Co- Action facility regularly walk from their accommodation located on the western side of town to the Co- Action facility in the east.

The North Road also functions as a distributor road for Heavy Good Vehicles travelling predominately from the Quay on Dinish Island delivering fish further North along the West coast of Ireland.

This conflict in terms of supporting vulnerable road users and facilitating economic activity will need to be addressed as part of this study. At a minimum a footpath will need to be provided along the North Road as far as the Co-Action facility. (credit google maps for image above).

Summary of issues:

- Pedestrian provision – pedestrians insufficiently catered for on North Road which provides access to the Co-Action facility;

3.5 Provision for Cyclists

There is limited infrastructure provided to support cycling however the scenic beauty of the area offers much for cyclists. A recent addition is a 250m section of shared use path on the approach to the Beara Coast Hotel (shown in the Figure below).

Figure 3.6 New section of shared use path

There are many cycling routes throughout the Beara Peninsula that are a tourist attraction. One of these is the Beara Way Cycling Route (138km in length) and is routed for the most part on country roads. The Beara Peninsula is on the Wild Atlantic Way and tourism is anticipated to increase. Cycling tourism is considered to be an opportunity if a more hospitable environment can be created within the town.

3.6 Public Realm

Castletownbere is in need of investment in the public realm. The current provision does not reflect the importance of the town to the Beara Peninsula and the picturesque landscape that surrounds the town. As previously outlined the town has an abundance of relatively poorly defined hard surfaced areas.

Figure 3.7 Existing Public Realm

The town has many assets which can contribute to a quality public realm, most notably its coastal location, in a picturesque landscape setting of high significance. The harbour adds activity and interest as trawlers moor and cast off. The town also has a number of attractive traditional shopfronts and local landmark buildings which create a unique sense of place.

The key challenges facing the development of a quality public realm in the town is the dominance of vehicular traffic, parking and hard surface areas. Many of the hard surface areas seem 'un-programmed', but offer the opportunity for reconfiguration and rationalisation, to reduce their physical and visual impact.

The Main Square could become a high quality space, worthy of its position in the heart of the town. A multi-functional space could facilitate pedestrian priority and become a hub of positive activity such as; outdoor markets, the town Christmas tree location and high profile festival setting. The associated enhancement of the Main Street and the Harbour environs would transform the appearance and pedestrian experience in the town.

Figure 3.8 Pubs, cafés and shops provide attractive backdrop to the Town Square

A SWOT analysis was undertaken in order to assess the various strengths, weaknesses, opportunities and threats for public realm assessment. These are outlined as follows;

Strengths:

- Location on Wild Atlantic Way;
- Location on Beara Peninsula;
- Coastal setting;
- West Cork(!) character and charm;
- Active harbour/fishing industry/boats and trawler activity;
- Heritage e.g. High Cross in Main Square;
- Traditional shopfronts;
- Landmark buildings e.g. Churches;
- Shops, pubs, cafes on the Main Square.

Weaknesses:

- Vehicular traffic dominance;
- Extent of hard surfacing often poorly defined;
- Wide road junctions;
- Extent of car parking often supporting disorganised parking arrangements;
- Narrow footpaths;
- Views to Dinish and Beara Island are impacted by industrial/marine buildings and structures;
- Clutter – signage, phones boxes and industrial public lighting.

Opportunities

- Irish Water is proposing significant works in the town beginning Q1/Q2 2019. The works involve new foul sewers and water-mains beneath the public roads. This provides an opportunity to renew the streets.
- Significant amount of land in State ownership (Department of Agriculture Marine and Fisheries)
- It is understood the Church and grounds next to the Town Square have been acquired by Castletownbere Development Association. This presents an excellent opportunity to integrate and link this site with the public realm proposals for the town.
- Create a main square which offers more to the Community and visitors;
- Tourism in general and cycling tourism in particular;
- Support events such as annual festivals;
- Potential for allocation of priority to pedestrians on some streets;
- Providing alternative locations for parking to make the town more accessible;
- Leisure marine facilities in the harbour.

Threats

- Excessive demands for vast areas of car parking has the potential to choke the town with

traffic, create an unpleasant environment and discourage walking and cycling;

- Opportunity to promote more active travel not realised;
- The Community may decide not to accept that change is needed.

Castletownbere's position on the Wild Atlantic Way means that investment in the town supports all the other villages along the Beara Peninsula. Investment in the town will not alone benefit the town itself but will have spin off benefits to the entire community including for example Glengarriff, Adrigole, Bere Island, Dursey Island, Alihiles, and Eyeries.

3.7 Public Transport

The 236 Bus Eireann route operates between Cork City and Castletownbere, routing through Bandon, Bantry and Glenagarriff. This service takes approximately 2 hours and operates twice a day, in the morning and in the afternoon in both directions. Other services provide connectivity to Cork City, and Bantry. These are provided by the private sector. They take the N22 route into Cork City.

Within the town the bus stop is located within the Main Square. The provision at the bus stop includes a flag pole. There is an absence of shelter and clear information in relation to frequency, cost and destinations. The stop is not accessible to anyone in a wheelchair when cars are parked in the adjacent area.

Figure 3.9 Bus Stop in Castletownbere

3.8 Traffic Conditions

In this section the traffic conditions in Castletownbere will be discussed. A number of key junctions in the town will be highlighted and the existing issues outlined.

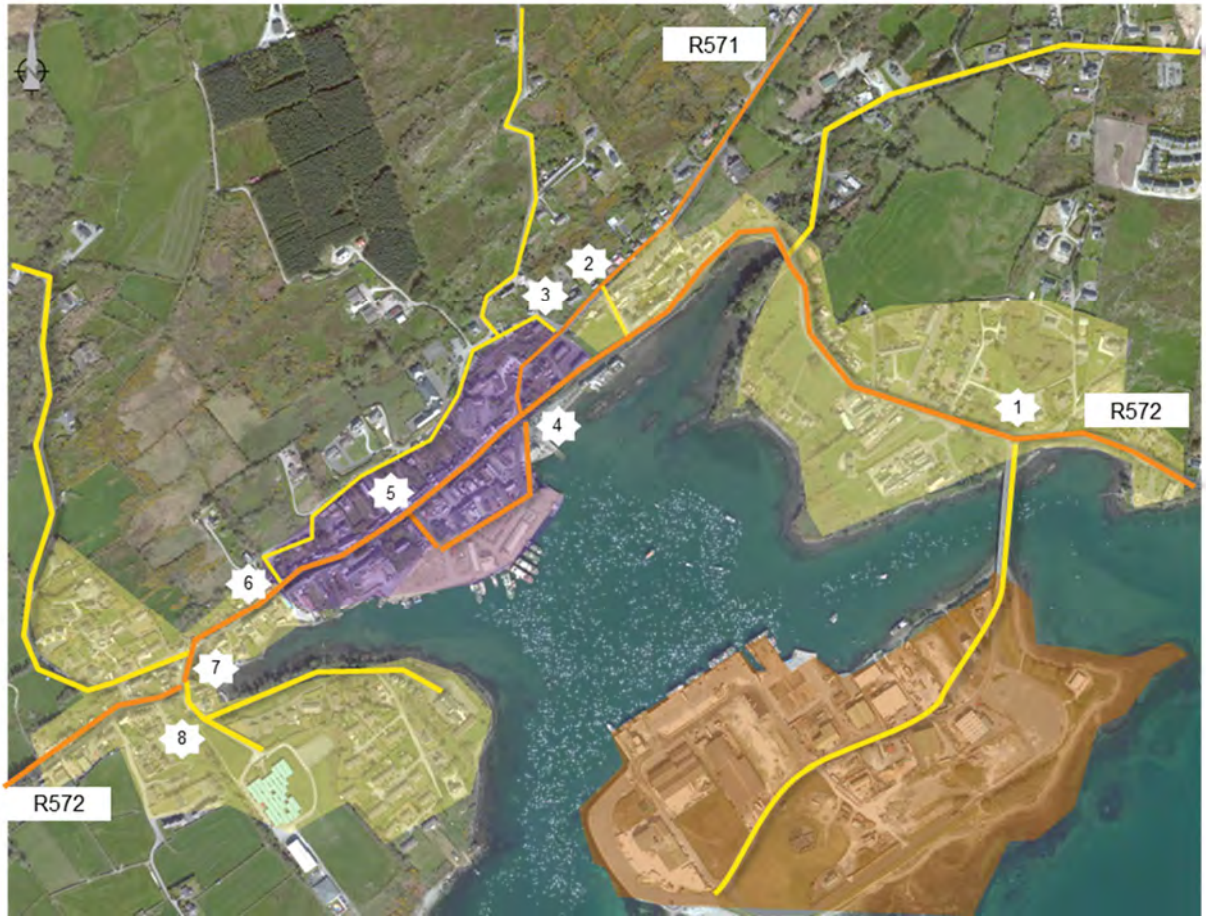


Figure 3.10 Key Junctions

Junction No.1 : R572/Dinish Island Junction

Castletownbere is Ireland's largest whitefish port. Engagement with the Department of Agriculture, Fisheries and Marine indicates a desire to increase economic activities on Dinish Island by relocating activities currently undertaken in Castletownbere town. Indeed significant investment is proposed for Dinish Island with a new quay extension and two new breakwater structures. These proposals will double the berthage at Dinish Island.

A priority controlled junction with the R572 provides access to Dinish Island. The R572 provides connectivity to Glengarriff, Bantry and the rest of Cork. It is also used as a recreational walking route. It will be important that the layout of this junction accommodates the development proposals whilst also providing for the safety of pedestrians.

Summary of issues:

- Relatively large number of HGV vehicles utilise junction;
- Development proposals will generate an increase in traffic;
- The R572 is well used as a walking route and the Community Hospital located nearby generates a pedestrian crossing demand.

Junction No.2 : North Road Junction

The North Road junction is located on a relatively steep gradient and space is tight for turning movements. The North Road provides connectivity to the West coast of Ireland. The traffic surveys undertaken indicate this junction is well used by Heavy Goods Vehicles from Dinish. Indeed a boundary wall (to Mrs Lyons property) has suffered damage as a consequence of the geometry of the junction and the large vehicles utilising it currently.

In addition as outlined previously pedestrians travel along the road between the Co- Action facility and the town centre. The junction currently has no facilities for pedestrians. This is a particular concern given the relatively high number of Heavy Goods Vehicles and vulnerable road users mixing at this location. (credit to google maps for image).

Summary of issues:

- Damage to boundary wall as a result of the current junction geometry and the large vehicles currently using the junction;
- Provision for pedestrians travelling to the Co – Action facility.

Document copies

This junction provides an access route to a number of residential dwellings on the Back Road and importantly the Primary school. Residential dwellings and a Doctors surgery are also located in proximity to the junction on the R571. The width of the Back Road is narrow and a result school buses set down on the R571.

The absence of appropriate pedestrian facilities at this junction and along the Back Road has already been highlighted. The Doctors surgery and other dwellings generate a demand for car parking along the road.

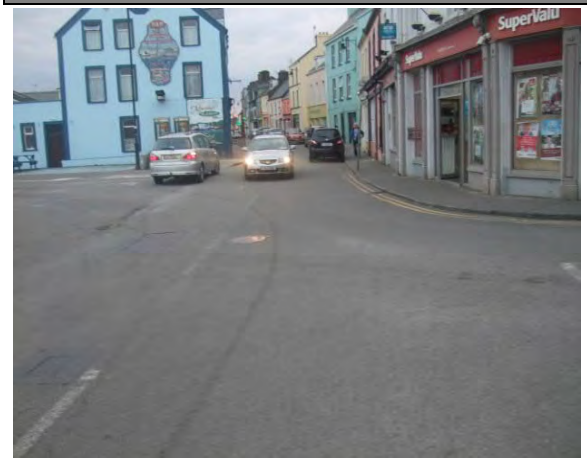
The North Road also functions as a distributor road for Heavy Good Vehicles travelling predominately from the Quay on Dinish Island delivering fish further North along the West coast of Ireland.

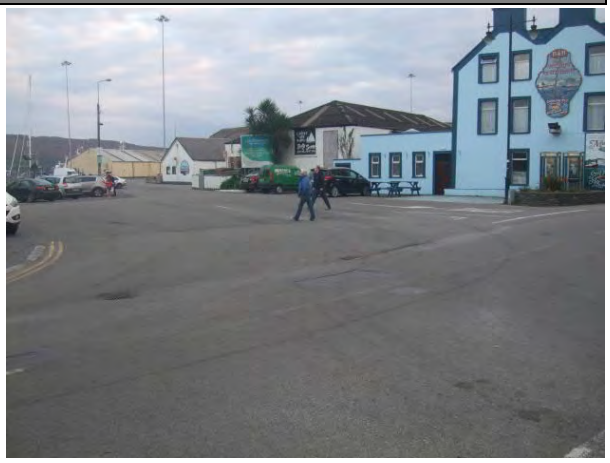
This conflict in terms of supporting vulnerable road users and facilitating economic activity will need to be addressed as part of this study. At a minimum a footpath will need to be provided along the North Road as far as the Co-Action facility.

Summary of issues:

- Footpaths are required on North Road so pedestrians can access the Co-Action facility and the Primary School;
- Public transport - provision for bus set down;
- Parking provision for dwellings and Doctors surgery.

Junction No.4 : R571/R572 Junction





This is the busiest junction in the town. It will therefore be central to improving traffic conditions. A Vets Surgery, Bere Island ferry, Super Valu, the Emergency Response Lifeboat Service, and a Builders Merchants are all located in close proximity the junction. This leads to significant demands being placed on the junction. Much of this relates to parking issues with long stay and short stay parking requirements all drawing from a limited number of spaces.

There is some evidence that HGV traffic is avoiding Junction No.3 (Back Road/R571 Junction) and either travelling through the car parking area at Junction No. 4 or undertaking a U- turn in the Harbour area to travel northbound on the North Road.

Rationalising the competing demands, accommodating the strong pedestrian desire line, and providing accessibility to development lands to the north of the town will all need to feed into the design solution for this junction.

Summary of issues:

- Pedestrian provision – narrow footpaths and no crossing facilities;
- Parking provision – significant demand for parking recorded at this location;
- The current junction radii make it very difficult for HGV to make a right hand turn from the R572 to the North Road. There is some evidence that HGV traffic is avoiding Junction No.3 (Back Road/R571 Junction) and either travelling through the car parking area at Junction No. 4 or undertaking a U- turn in the Harbour area to travel northbound on the North Road. This creates potential for conflict with pedestrians and other vulnerable road users ;
- This junction is the introduction to the town centre from east – it should make a positive impact.

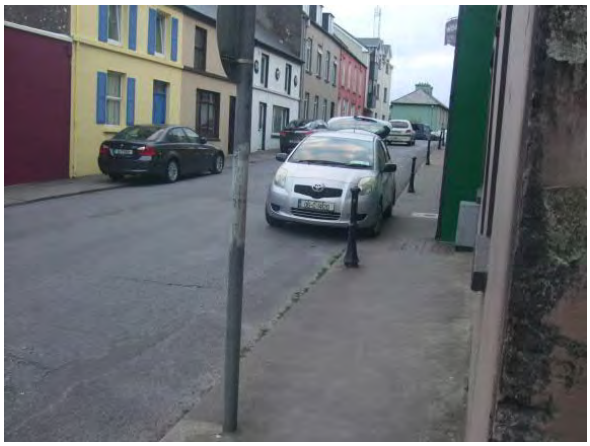
Junction No.5 : Main Square Junction

This junction provides the primary access to the Main Square. It accommodates through traffic that route to the South avoiding the narrow sections of Main Street. The parking in Main Square and the Bank and 'Spar' store create a strong pedestrian desire to cross Main Street in proximity to the junction. A zebra crossing has been provided and is well used. Parking adjacent to the crossing reduces the visibility of pedestrians and is a safety concern at this location. The retail outlets, pubs and cafes surrounding Main Square need delivery vehicles to provide produce. There is an absence of any dedicated loading facilities in any of the parking areas.

Summary of issues:

- Pedestrian provision – strong pedestrian desire line observed crossing Main Street at this junction. Narrow footpaths on Main Street which is the primary route for pedestrian and cyclist movement through the town;
- Parking – significant demand recorded at this location. Widespread parking on footpaths on Main Street which renders the footpath unpassable for buggies and wheelchairs. Parking close to the zebra crossing on Main Street was observed despite the double yellow lines. This restricts the visibility of pedestrians and a number of near miss incidents were observed at this location;
- No loading/servicing parking bays in Town Square;
- Carriageway provision – narrow carriageway struggles to accommodate the volume of traffic along Main Street – vehicles were observed to mount the footpaths to pass vehicles travelling in the opposite direction;

Junction No.6 : Back Road and Main Street Junction



There are no footpaths on the Back Road as it approaches Main Street. The road width narrows as it approaches Main Street where vehicular traffic speeds are relatively low and a 30kph speed limit applies.

Visibility is restricted by buildings for traffic leaving the Back Road and looking to access Main Street. The visibility and the road widths available support low speed.

It is understood the Primary School recommend an informal one way traffic circulation westbound on the Back Road during school term.

There are a number of residential dwellings located on this section of Main Street. This results in a demand for parking. Bollards have been placed within the footpath to preserve space for pedestrians.

Summary of issues:

- The narrow carriageway on the Back Road is more suitable to one way traffic circulation;
- Car parking on footpaths on Main Street restricts the available width for pedestrians and the functionality for buggies and wheelchairs. The height of the footpath kerbs on Main Street varies. In some locations the kerb height is close to the carriageway level which facilitates vehicles in mounting the footpaths.
- The narrow carriageway on Main Street struggles to accommodate the volume of traffic. Towards the West end of Main Street vehicles were observed mounting the footpaths to pass vehicles travelling in the opposite direction. This creates the potential for collisions between vehicles and pedestrians;

Junction No.7 : R572/Cametringane Woods Junction

The junction of the R572 and Cametringane Woods provides connectivity with all areas west along the Beara Peninsula. As a result it plays an important strategic function as it provides connectivity for the rest of the peninsula.

The footpaths are narrow and the presence of guard rails and signage restricts the movement of pedestrians and anyone with mobility impairment.

This junction is located close to the Secondary School. Large numbers of pedestrians travel through the junction to access the shops and services located in the Town Square.

Summary of issues:

- The narrow footpaths are not sufficient to adequately support the volume of pedestrian activity at this location;
- The presence of guard rails and signage restricts the movement of pedestrians and anyone with mobility impairment;

Junction No.8 : Secondary School/Cametringane Woods Junction

The alignment of the access road to the Secondary School provides direct visibility towards the R572. As a result vehicles can overshoot the stop line when leaving the Secondary School. There is a potential for sideswipe collisions at this location as a result. This would appear to a legacy issue associated with extension of the Cametringane Woods road where the alignment of the junction was not addressed.

Summary of issues:

- The alignment of the Secondary School access road with the Cametringane Woods road provides direct visibility towards the R572. As a result vehicles can overshoot the stop line when leaving the Secondary School. This creates the potential for collisions at this location;
- The horizontal realignment of the access road will create a stronger perpendicular junction will improve the visibility and reduce the risk of collisions. Some vertical re-profiling will also be required to achieve a suitable tie in;

3.9 Car Parking

While recognising the need to support activity in the town with an appropriate parking provision, it is accepted that excessive parking has the potential to choke the town with traffic, create an unpleasant environment and discourage walking and cycling. Striking the right balance is therefore a critical issue for the Transportation Study.

A parking survey was undertaken. The purpose of the survey was to establish the current demand for parking and the typical length of stay.

The surveys were carried out over three days, two weekdays and one weekend day from the 1st – 3rd December 2016 over a 12 hour time period from 07:00 to 19:00 each day. The surveys were repeated during the busy summer period 24th - 26th August 2017. The town was divided into five car parking zones Zone A to Zone E which are displayed in the figure below.

Figure 3.11: Car Parking Zones in Town Centre

The occupancy data and parking provision for each zone is presented below. The occupancy data represents all observed parking whether that occurs within the parking spaces provided, on double yellow lines, clearways, disabled spaces, loading bays, or on the road. The parking provision represents the actual parking spaces provided in the location although it is important to note that none of the zones are signed and lined in accordance with guidelines. Therefore the provision is an estimate based on observations and a review of the area available in each zone.

Outputs from the parking surveys are contained in Appendix D.

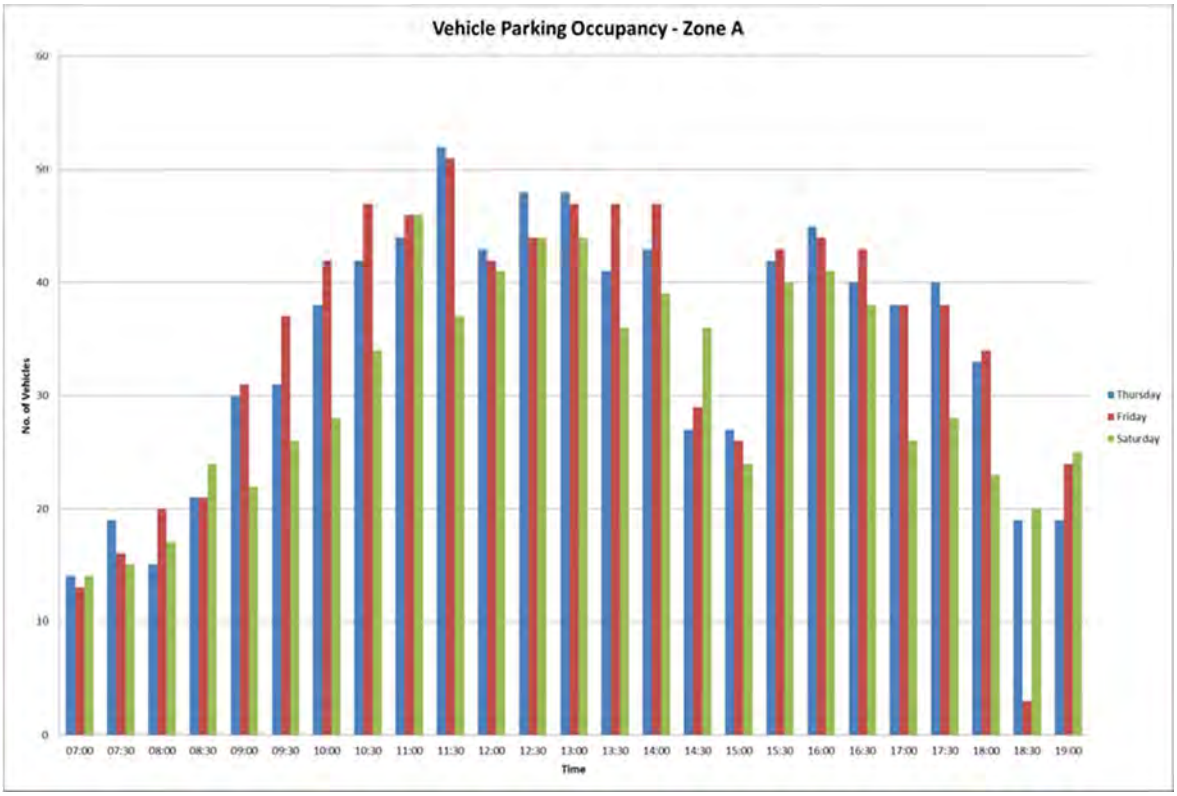


Figure 3.12: Parking Data for Zone A

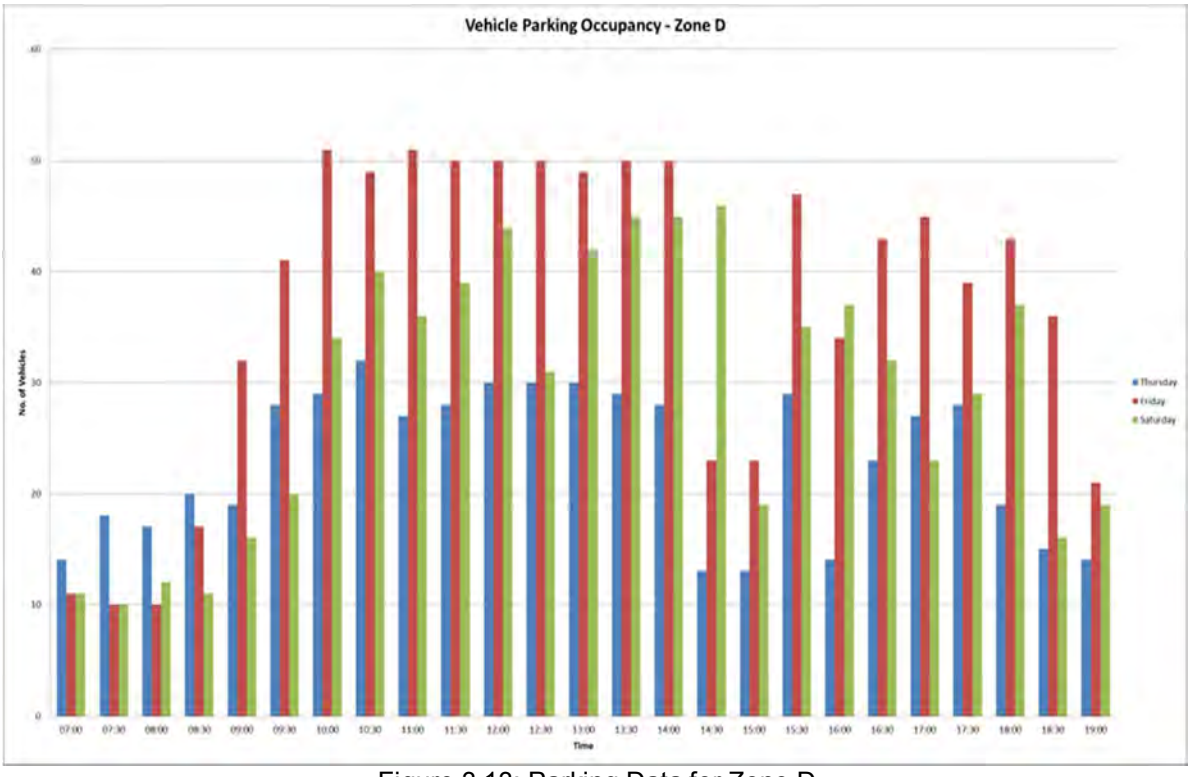


Figure 3.13: Parking Data for Zone D

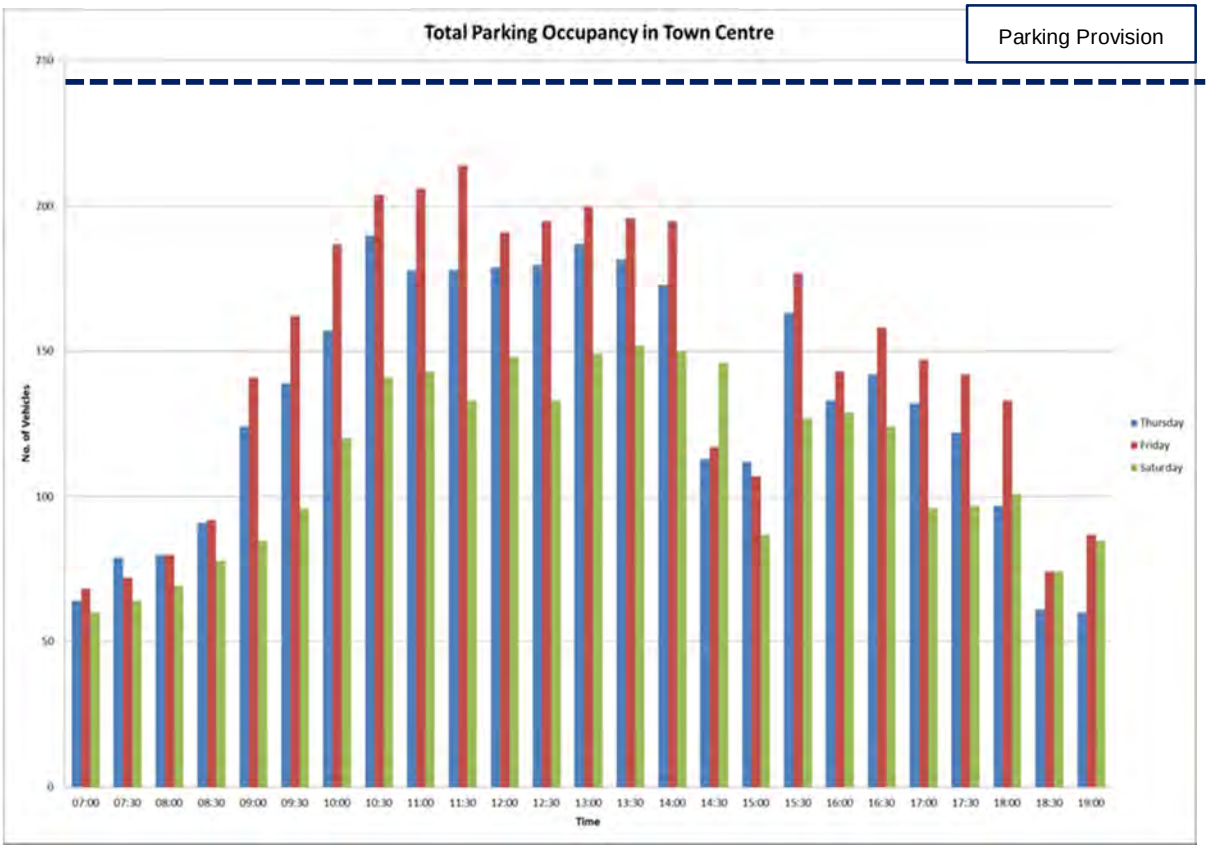


Figure 3.14: Parking Data for all Zones (A-E)

The above data demonstrates the east end of the town does indeed experience parking pressures. Overall though, the town would appear to accommodate the current levels of demand although not in the locations where demand is greatest (Zones A and D). It is important that the provision is sufficiently robust to cater for growth and seasonal peaks.

The survey also provided data on the length of stay in each of the zones. An important output from the survey is that short term parking (<2 hours) is evident in Zone A, more longer term (> 8hours) in Zone B, whilst Zone C, D and E contain a mix of short and medium (<8 hours) durations.

Within Zone A for example the duration of stay is illustrated in the figure below:

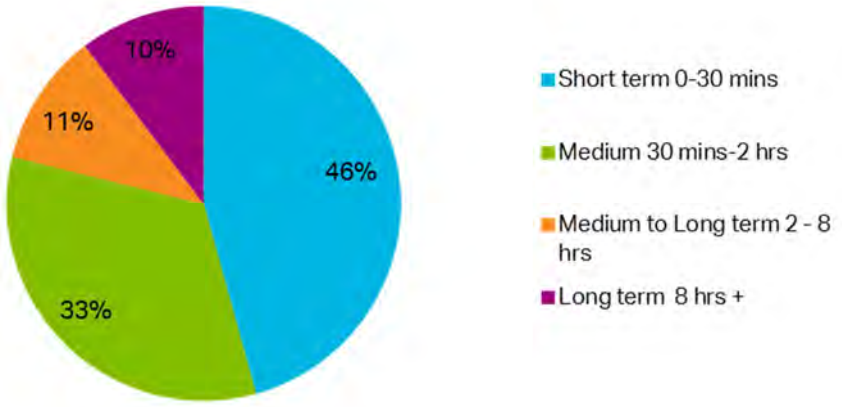


Figure 3.15 Duration of Stay in Zone A

The above data suggest 21% of the car parking in Zone A is 2 hours or longer. If alternative locations could be provided for these longer stay it would ease the pressure at this location.

The duration of stay for Zone B is illustrated in the figure below:

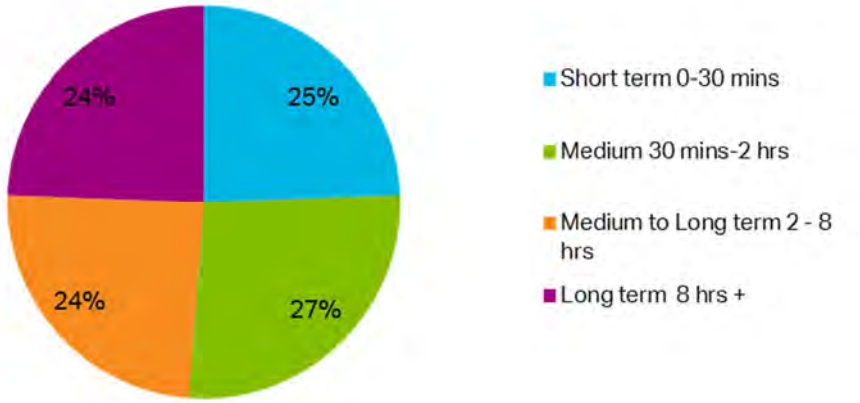


Figure 3.16 Duration of Stay in Zone B

The above data suggest 48% of the car parking in Zone B is 2 hours or longer. The duration of stay for Zone D is illustrated in the figure below:

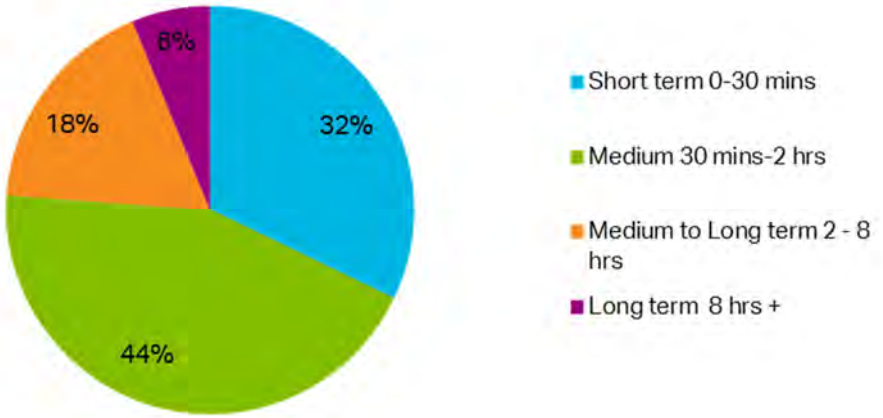


Figure 3.17 Duration of Stay in Zone D

This suggested 24% of the parking in Zone D is 2 hours or longer. This is useful information in the formulation of a car parking strategy. In essence the strategy will involve ensuring the areas which are under the most pressure are used most effectively. One mechanism to achieve this is the introduction of a maximum stay perhaps for 2 hours in Zone A and D. Alternative locations will need to be identified for the longer terms parking requirements.

The proposed parking strategy for Castletownbere is outlined in Section 5.1 of this report.

4. Vision and Objectives

4.1 Introduction

This chapter describes the process adopted to evaluate several transport strategies leading to the identification of a preferred package of measures which will comprise the Castletownbere Transportation Study. The evaluation framework is illustrated in the figure below and comprises of the following key elements.

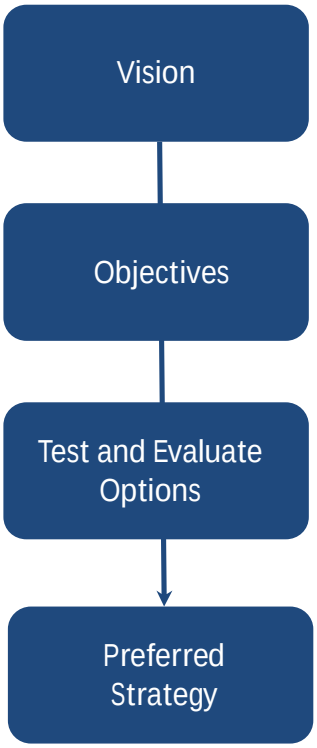


Figure 4.1 Assessment Framework

Vision Statement: The Transportation strategy is developed by first defining a Vision Statement which outlines the future aspirations for the area and its citizens and provides an over-arching context for the study.

Objectives: Once the study vision was developed, specific and measurable evaluation objectives have been defined for the Castletownbere area that support:

- its sustainable future;
- the Vision statement;
- the specific issues communicated during the public and stakeholder consultation process; and issues identified from extensive traffic surveys, site visits and from the detailed transport modelling, analysis and evaluation.

Test Strategies: A package of strategy measures will be developed for testing based on current transportation needs identified within Castletownbere.

Key Performance Indicator (KPI) Evaluation: Both quantitative and qualitative KPIs have been defined to assess how well the test strategies achieve the specified Castletownbere study objectives.

Preferred Strategy: Based on the results of the KPI analysis, a preferred package of measures will be defined to form the Castletownbere Transportation Study.

The following sections of this chapter provide further information on each of the aspects outlined above including the development of a Vision Statement and objectives, and the definition of KPIs

which will be utilised to identify the preferred Castletownbere Transportation Study.

4.2 Developing a Vision

The identification of a Vision Statement is a very important part of the Castletownbere Transportation Study process, as, without it, the evaluation objectives would be developed in isolation.

The Vision Statement provides the over-arching context for the specific measures within the Castletownbere Transportation Study, providing the all-encompassing blanket to which the evaluation objectives fall under, and ultimately the basic justification for the proposed set of public realm enhancements, individual junction and street improvements and so on.

Figure 4.1 above, illustrates the link between the Vision Statement, objectives, policies and measures and performance measurement. The Vision Statement creates a sense of what the Castletownbere Transportation Study will achieve in the medium to long term so that the public can easily identify with its rationale and purpose. It communicates the desire to improve quality of life in the Castletownbere Area.

Evaluation objectives may then be set within the broad framework provided by the Vision Statement, such that transport proposals are integrated with the future aspirations for Castletownbere and its surrounding areas. The Vision Statement, therefore, focuses more on the future public realm and transport environment than the current situation.

Three key sources were utilised to assist in the development of the Vision Statement for Castletownbere, namely:

1. National, Regional and Local Policy: To ensure that the vision for Castletownbere is in line with existing aims and objectives for the area set out in national and local policy, such as the Project Ireland 2040 National Planning Framework, Smarter Travel: A Sustainable Transport Future 2009-2020, Cork County Development Plan, Castletownbere Local Area Plan etc.

2. Baseline Study: To gain an understanding of the key issues apparent within Castletownbere Town, the Project Team carried out extensive site visits and surveys.

3. Public Consultation: As outlined previously in Chapter 3, public consultation was carried out in Castletownbere to allow the local community and key stakeholders to provide their views on the town, including existing issues and potential solutions. This provided the local community (i.e. the people most impacted by this Study) with an opportunity to define a vision for the future of their town.

Information gathered through a review of national and local policy, baseline studies and consultation with the public was utilised to develop the following Vision Statement:

> “To support the role of Castletownbere as the strategic hub on the Beara peninsula and in doing so create the infrastructure that enhances ease of movement and travel for all, and improves the quality of life for the local and wider community”.

4.3 Developing Objectives

A series of evaluation objectives have been developed to assist in achieving the defined vision for Castletownbere. The Department of Transport, Tourism and Sport's (DTTAS) Guidelines on a Common Appraisal Framework for Transport Projects and Programmes sets out high level objectives which can be applied. These can be broadly categorised as follows:

- Economic;
- Health and Safety;
- Environment; and
- Integration, Accessibility and Social Inclusion.

Economic

The Castletownbere Transportation Study can contribute to economic growth by encouraging the regeneration of the town centre making it a more attractive place to be, thus increasing pedestrian footfall. This can be achieved by improving accessibility and by enhancing the appeal of an area through public realm improvements.

Castletownbere Transportation Study Economic Objectives

- Support improved economic competitiveness of Castletownbere;
- Regenerate Castletownbere Town centre to increase footfall;
- Support the economic expansion of the town in keeping with the Local Area Plan;
- Improve the attractiveness of the town centre which will support Castletownbere as a destination for tourism

Health and Safety

The Health and Safety evaluation objectives are concerned with a variety of issues including the reduction in injuries and loss of life, damage to property, loss of income and improving the overall well-being of people living within the Castletownbere (e.g. improving fitness, reducing obesity)

Castletownbere Transportation Study Health & Safety Objectives

- Facilitate a healthy lifestyle for all people living and working in Castletownbere;
- Create a cleaner environment;
- Improve safety for road users

Environment

Environmental evaluation objectives are concerned with conservation of Bio-diversity, Cultural Heritage, and Landscape. The environmental evaluation objectives seek to reduce the harmful impacts of development and transportation on the environment and promote the cultural heritage which currently exists in Castletownbere.

Castletownbere Transportation Study Environmental Objectives

- Promote the natural and built heritage of Castletownbere;
- Reduce the adverse impact of noise, vibration and emissions generated by traffic movements;
- Improve the public realm of Castletownbere

Integration, Accessibility and Social Inclusion

According to the Department of Transport, Tourism and Sport's guidelines, a number of aspects of integration need to be considered. For the Castletownbere Transport Study, it will be necessary to demonstrate some consideration of modal integration (i.e. integrating amongst transport modes), and effectively integrating land uses with transport infrastructure in ways that promote sustainable development and efficient use of resources.

Social inclusion is concerned primarily with accessibility for those without a car and those whose mobility is impaired. A sub-objective of the Social Inclusion evaluation objective is that of equity. This is primarily concerned with ensuring that the benefits of a transport strategy are reasonably well distributed across society. Differing groups of people will have differing levels of need. An equitable strategy would generally prioritise the needs of the disadvantaged or those with special needs. This includes disabled or elderly people, but more generally is a group described as having no car available.

Accessibility is usually defined as 'ease-of-reaching'. This evaluation objective relates to providing access for people from a variety of areas with differing availability and means of transport, to facilities in different locations. This is usually considered from the point of view of residents, such that residential areas may be categorised by their ease of access to the main facilities provided in the area (e.g. schools, shops etc.).

Castletownbere Transportation Study Integration, Accessibility and Social Inclusion Objectives

- Facilitate high levels of walking and cycling;
- Improve access to public transport;
- Integration of new development areas with the existing town to encourage sustainable travel.

4.4 Assessment Framework

A detailed assessment has been prepared to outline the testing of the various options against the objectives. This assessment is included in Appendix B of this report.

The conclusions of the assessment are that in the short term in the implementation of a one way traffic management system will deliver benefits.

In the longer term development lands to the north of the town will be access by a new road to the north and increased through traffic will justify a new road to the south of Main Street. This new road to the south will require property acquisition and will involve reclaiming and potentially dredging the harbour. Figure 5.2 and 5.3 provide an overview in the following Chapter.

5. Transportation Strategy

5.1 Introduction

The Transportation strategy for Castletownbere involves the following elements:

- Car parking strategy;
- Town centre circulation - short term;
- Town centre circulation - longer term;
- Junction improvements;
- Walking and cycling network;
- Heavy goods vehicles strategy.

This chapter should be read in conjunction with the following drawings which are contained in Appendix E.

- SK100 Proposed General Arrangement (West End);
- SK101 Proposed General Arrangement (Town Square);
- SK102 Proposed General Arrangement (East Town);
- SK103 Proposed General Arrangement (North Road to Dinish Junction);
- SK104 Proposed General Arrangement (Dinish Junction to Petrol Station);
- SK105 Dinish Island Junction;
- SK106 R571/R572 'Super Valu' Junction;
- SK107 North Road;
- SK108 Main Square and Car Parks;
- SK109 Secondary School Junction;
- SK110 Cross Sections.

5.2 Car Parking Strategy

Case for Additional Parking

The case for additional parking was made vigorously by the community during the public consultation. It was clear the community believe additional parking is required. The extent and frequency of parking on footpaths indicates a frustration with the current provision.

The Local Area Plan proposes an expansion in terms of population and employment in the town. The population of town is projected to increase from 912 people to 1,439 people whilst the plan contains significant zoning for employment, and expansion of the town centre.

In addition the Department of Agricultural, Fisheries and Marine are advancing plans for an extension to the Pier facilities on Dinish Island. These proposals will double the berthage at Dinish and increase the demand for services and facilities within the town.

The provision of new off-street car parking in the town is therefore required as a consequence of;

- Projected growth in the town identified in the Local Area Plan;
- Proposals for extension to the Pier facility on Dinish Island.
- Seasonal increase in traffic associated with summer traffic on Wild Atlantic Way;

- Enhancements to the town to improve the public realm and accessibility;
- The removal of parking on footways so they are available to pedestrians and mobility impaired road users.

The purpose of the parking survey was to establish the demand and turnover of spaces. In overall terms the survey indicated a peak demand for approximately 220 spaces between 11.30 -12.30 on a Friday morning. There are approximately 240 spaces provided in the main car parking areas in the town.

The survey indicated that there is a demand for long stay (> 8 hours), medium stay (2 - 8 hours), and short stay (less than 2 hours). On average 12% of the demand is for long stay, 18% is for medium stay and 70% is for short stay across the town.

The survey revealed that there is a concentration of demand at the east end of the town at the junction R572/R571 (SuperValu). This is not surprising given the confluence of activities at this location. It is the point of entry for traffic from the east, there is convenience retail (SuperValu), a Church, Veterinary Clinic and other services, and the Bere Island ferry operates from the location.

The conclusion of the assessment of the parking survey, and the projected growth of the town, is that an increase on the existing provision is required. A traffic management regime setting out the time limits to park in a location will be introduced, so that higher turnover will occur in locations with the greatest demand.

Parking surveys indicate a shortfall in parking occurs in two locations at the R571/R572 'SuperValu' junction and in the Main Square. Coincidentally both of these locations have been identified as requiring wider footpaths so vulnerable road users are provided with safer facilities. This will necessitate a reduction in parking in these locations however the strategy proposes long stay parking to be relocated from areas with the highest demand to locations in close proximity that can accommodate it.

Parking Strategy

In Section 3.9 the current occupancy and length of stay data was presented for each of the primary parking zones in the town.

The parking strategy has been developed based on the following guiding principles:

- Parking on footpaths will not be accepted by the Community when a reasonable traffic management system is implemented, in conjunction with investment in the public realm and new car parking areas. This is an issue that the Community itself will need to take ownership of in the interests of the making the town more accessible.
- The R571/R572'SuperValu' junction requires a redesign to provide more appropriate facilities and safer conditions for pedestrians, to improve accessibility to the development lands to the north, and enhance the operational efficiency which is impacted by the various demands associated with Bere Island ferry, the SuperValu store, the Lifeboat Emergency service, and other services.
- Similarly the Main Square will be redesigned to accommodate a public realm scheme. This scheme will reduce the parking provision at this location however a number of nearby sites have been identified to provide replacement parking.
- These proposals will reduce the parking provision at these locations however a number of nearby sites have been identified to provide replacement parking. These sites will accommodate the longer stay and the implementation of a short stay (2 hours max) policy which will deliver better utilisation of the current facilities within the Main Square and the R571/R572 'SuperValu' junction.

Figure 5.1 North Rd and Bridewell Sites

A number of opportunity sites have been identified on the North Road, Bridewell and Western infill site. Refer to Appendix E Drawings SK100 – 102 for layouts. Indicative layouts have been prepared to indicate the volume of parking that could be provided in these locations. The Bridewell can accommodate approximately 44 spaces and the North Road site can accommodate approximately 18 spaces.

Figure 5.2 Car Parking Zones

The impacts of these proposals on the parking provision is summarised in the table below.

Parking Zones	Current Total	In Medium to Longer Term Use (>2 hrs)	Proposed Provision
North Road site	0	0	18
Bridewell site	0	0	44
Western infill site	0	0	64
New Street (old Council Yard)	0	0	16
Zone A	50	11	38[1,2]
Zone B	22	11	0
Zone C	54	29	57
Zone D	55	13	36[2]
Zone E	64	27	64
Total	245		337

[1] includes 11 spaces which are proposed to be allocated for Bere Island ferry. This will assist the operational efficiency of the junction.

[2] Zones A (R571/R572 'Super Valu' junction) and Zone D (Town Square) will be designated as short to medium term stay (< 2 hours). This will deliver better utilisation and turnover of spaces.

Recommendations on Car Parking

- An increase on the existing car parking provision is required. The purchase of a number of potential sites for additional parking should be pursued. A number of sites have been identified for this purpose on North Road, and the Bridewell, DAFM lands and the Western infill site.
- It is recommended that a maximum stay be introduced of 2 hours locations with the highest demand (R571/R572 junction, the Town Square and Main Street). This will deliver higher turnover in locations with the greatest demand.
- The junction upgrades should be delivered in conjunction with the new car parking facilities. It is important that new car parking is delivered at the same time at the junction upgrades to ensure the junctions operate as intended. This can only be achieved if alternative parking is provided.
- Parking on footpaths will not be accepted by the Community when a reasonable traffic management system is implemented, in conjunction with investment in the public realm and new car parking areas. This is an issue that the Community itself will need to take ownership of in the interests of the making the town more accessible.

5.3 Roads and Street Strategy

5.3.1 Introduction

Three town centre circulation options were identified and assessed against the objectives for the study. These options are outlined in more detail in the Castletownbere Transportation Study Micro Simulation Modelling Report which is included in the Appendix C to this report.

The preferred town centre circulation option was then tested against a 'Do Nothing'. The 'Do Nothing' scenario essentially represents baseline conditions i.e. growth in traffic volumes however no alterations to the current road network. The preferred town centre circulation is outlined in the following section.

The assessment framework contained in Appendix B identified the introduction of a one way system on main-street will deliver the optimum traffic circulation in the short to medium term. It is understood this is the traffic circulation system implemented during festivals in the town. Feedback from the community is that the system is successful.

5.3.2 Short Term/Medium Term

The proposed traffic management regime is outlined in the figure below:

Figure 5.2 Short / Medium Term Traffic Management

Main Street between Main Square and the R571/R571 'Super Valu' junction will change from two way traffic to one way eastbound. The North Road between the R571/R571 'Super Valu' junction and the North Road junction will be northbound only.

This will facilitate a significant investment in the public realm of Main Square (Chapter 6 contains more details). On North Street new and wider footpaths, on street parking, bus set down areas and pedestrian crossing facilities will be provided. This will significantly improve the provision for all users.

5.3.3 Longer Term

For the forecast year 2036 two significant transport interventions were added to the town centre circulation option:

- A new road to the north of the town centre which primarily serves zones development lands;
- A new road to the south of the town which be provided by reclaiming land from the sea and would provide for traffic travelling through the town.

These scenarios were then tested against a Do Minimum Year 2036 Scenario. The scenarios were then assessed through the evaluation framework. Based on the result of the testing outlined above the Castletownbere Transportation Study Year 2036 recommendations for interventions were established. The assessment framework contained in Appendix B identified the provision of new road to the south of Main street would accommodate the through traffic and support the long term development of the town.

This new road will facilitate Main Street being converted to one way eastbound. This will provide new and wider footpaths, on street parking, bus set down areas and pedestrian crossing facilities will be provided. This will significantly improve the provision for all users. The longer term roads strategy is outlined in the figure below.

Figure 5.3 Longer Term Road Strategy

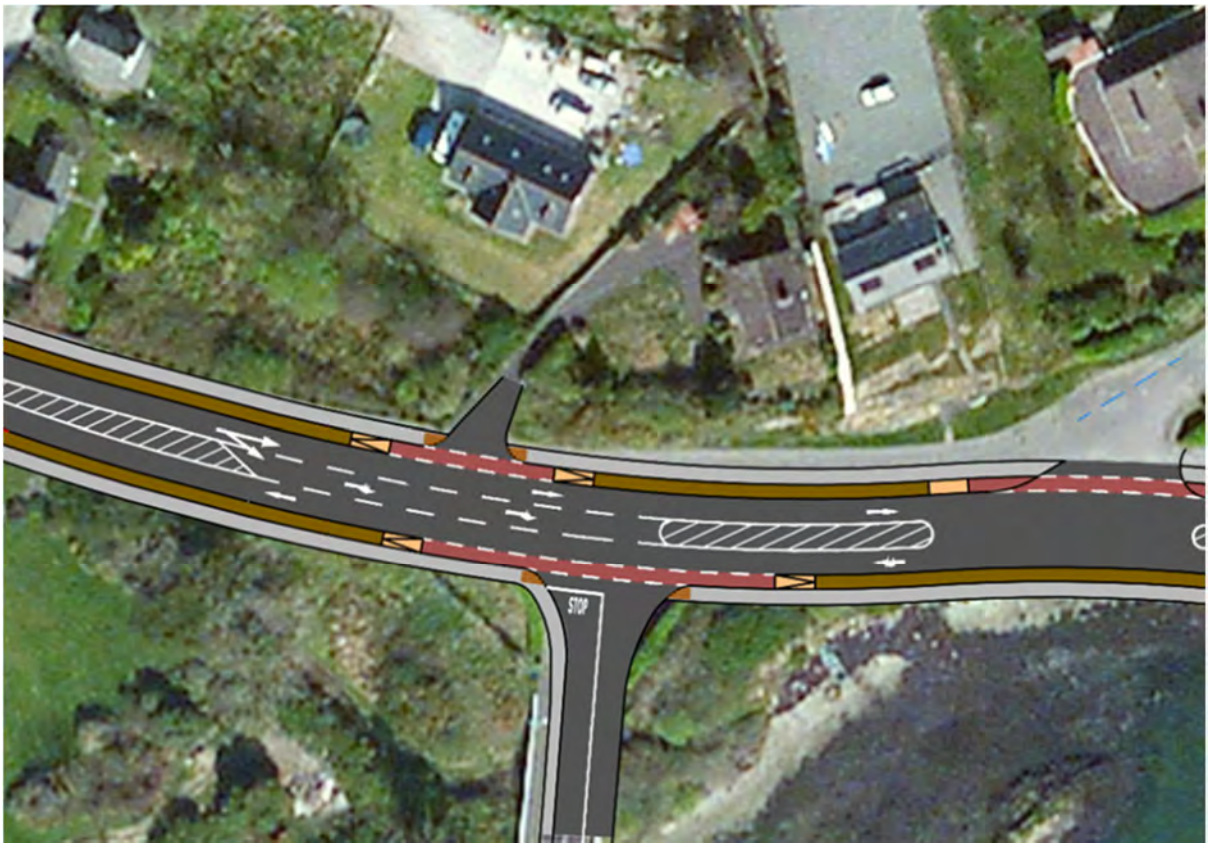
A new street can be provided through the Old Council Yard (see Section 6.4). This will provide opportunities for redevelopment and facilitate the consolidation of the town. Consolidation of development in the town will support the investment proposals and will be easier to access by active travel modes. The longer term roads layout also provides opportunities for the buildings in the town to redevelop and re-orientate towards the sea to take advantage of the harbour views.

Recommendations on Roads and Street Strategy

- In the short to medium term it is recommended that Main Street will change from two-way to one way eastbound between Main Square and the R571/R571 'Super Valu' junction. The North Road between the R571/R571 'Super Valu' junction and the North Road junction will be northbound only.
- In the longer term the provision of new road to the south of Main Street is required to accommodate the through traffic and support the long term development of the town. This new road will facilitate Main Street being converted to one way eastbound. Again this will provide new and wider footpaths, on street parking, bus set down areas and pedestrian crossing facilities will be provided. This will significantly improve the provision for all users. This road is fundamental to the development of the town and will be required in advance of the Northern Road whose function will be to provide access to the development lands rather than relieve the pressure on Main Street.
- The roads and street strategy should be delivered in conjunction with the new car parking facilities. It is important that new car parking is delivered at the same time so the layouts operate as intended. This can only be achieved if the new car parking is provided.

5.4 Junction Improvements

Junction No.1 : R572/Dinish Island Junction



This junction will be upgraded to provide a right turn lane onto Dinish Island. This will ensure the development proposals for Dinish benefit from an increase in capacity through the junction. Public lighting, footpaths and cycle tracks will be provided on the R752 to accommodate the pedestrian and cyclist movement through the junction. This junction improvement is considered an essential measure to mitigate the traffic impact associated with the new quay extension on Dinish Island.

Benefits of the new layout:

- Provides a safer junction layout with a storage area provided for right turn movements from the R752. Visibility is improved at the junction so that all movements can be undertaken in a safer manner.
- The right turn lane ensures the traffic traveling to Dinish Island has less impact on the traffic travelling on the R572. The storage area provided by the right hand turn lane reduces the potential for rear end shunt collisions.
- Will support the strategic role of Castletownbere in the commercial fishing industry by increasing the capacity of the junction. This will safeguard Castletownbere as a centre of fleet activity, processing and ancillary services;
- Walking and cycling will be supported with wider footpaths and new cycle tracks on both sides of the junction. Recreational walking between the town centre and the petrol station to the east of the junction will also benefit from these facilities.
- Provision of right hand turn lane provides safer storage and capacity for the large proportion of heavy good vehicles accessing Dinish Island.
- Public lighting will be improved to assist in providing safer conditions at the junction.

Junction No.2 : North Road Junction

Footpaths will be provided along the North Road. The boundary wall that has been repeatedly struck at this location will be set back to prevent further material damage.

Footpaths will connect with the R571 so a walking network is developed that connects to the primary attractors such as the Primary School and the Co- Action facility.

Benefits of the new layout:

- The layout will deliver a safer junction. The footpath provision will deliver much better levels of service for pedestrians. Connectivity will be greatly improved with footpaths from the bus set down area and new car parking areas.
- The potential for damage to the boundary wall as a result of the heavy good vehicles travelling through the junction will reduce significantly. Less heavy good vehicles will be forced into the town to travel northbound on the North Road. This will also mean there will be less u turning movements by heavy goods vehicles at the SuperValu junction.
- Footpaths at least 2m wide will be provided throughout. This will support safer pedestrian movement through the junction. Pedestrian crossing facilities including a signalised crossing of the North Road will provide greatly improved accessibility to the Co- Action facility.
- Bus set down facilities and parallel parking will also improve conditions at this location.

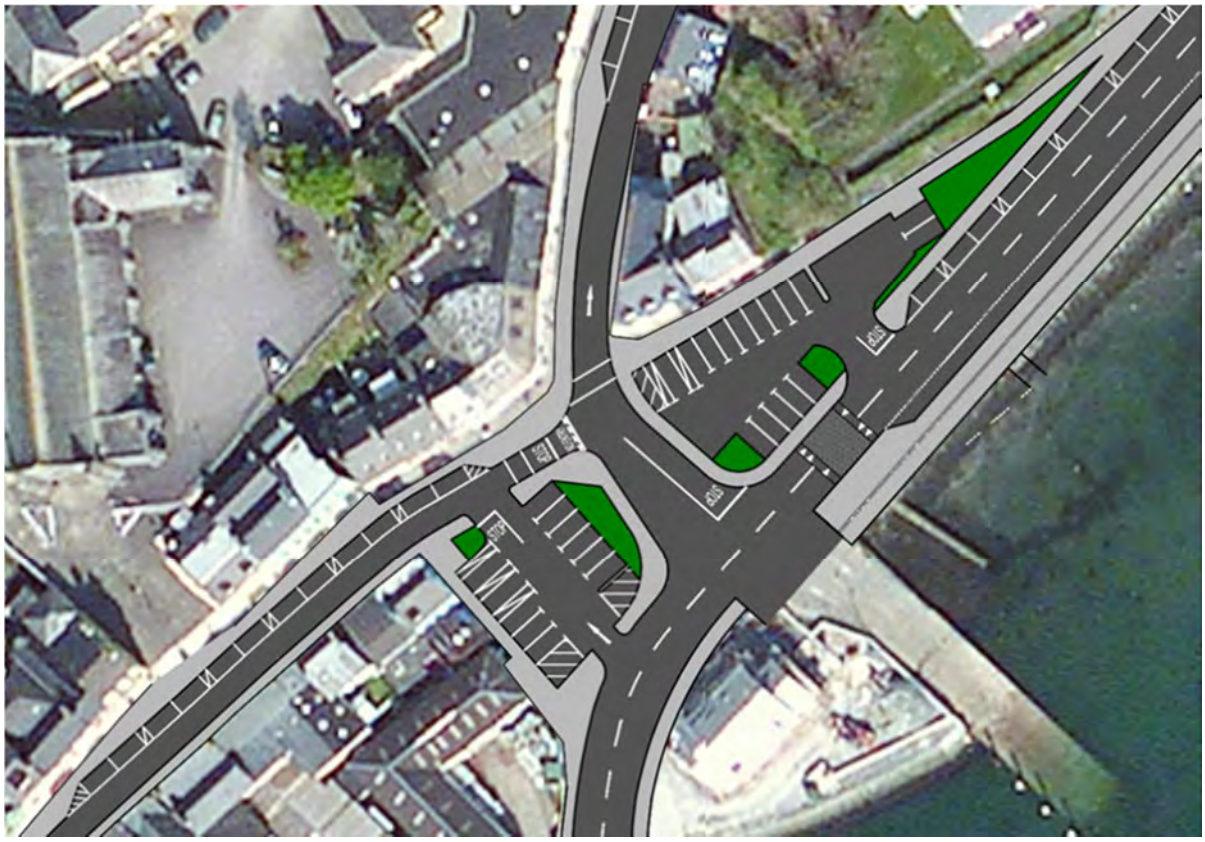
Junction No.3 :Back Road/North Road (R571) Junction

A one way northbound system will be implemented along the R571. This will facilitate footpaths, bus set down, and car parking for the businesses and services. A footpath will provide connection from this junction to the Primary School on the Back Road. Footpaths will also be provided on the North Road. This will deliver greatly improved connectivity for pedestrians.

Benefits of the new layout:

- The new layout will provide safer conditions for all road users.
- Pedestrians will benefit from greatly improved connectivity to the town centre, the Primary School and the Co- Action facility.
- Additional parking supports the business and services located in close proximity to the junction;
- The bus set down area will provide a safer refuge for passengers alighting from buses. The footpath will greatly improve accessibility to the Primary School.
- The one way northbound system supports reduced and calmer traffic conditions along this stretch of the North Road.

Junction No.4 : R571/R572 'SuperValu' Junction



The junction will be realigned to improve the levels of service delivered. The primary traffic route will move to the south to support the new one way eastbound traffic circulation on Main St. This provides opportunities to accommodate the short term parking demands at the junction.

The surveys (outlined in Section 3.9) identify the majority of parking that currently occurs is short stay. The surveys also indicate this location is a 'hotspot' for parking with the demand regularly meeting the allocation. It is therefore proposed that the parking in this location is identified as maximum 2 hour stay. This will deliver greater turnover and better utilisation of the spaces which are in the greatest demand.

It is proposed that 38 car parking spaces will be provided. This excludes the parallel parking on Main Street and the R572 which is located very close by. This is approximately 12 spaces less than currently park at this location so new car parks on the North Road (18 spaces) and the Bridewell site (44 spaces) will be provided to address this and support the longer stay parking requirements. These car parks are located a short 2 minute walk from the junction.

Stacking space will be provided on the southern side of the R572 for vehicles wishing to use the Bere Island ferry. This will accommodate 11 vehicles. The one way system on Main Street provides the opportunity for additional parking at the steps to the Church. Furthermore the parallel parking on the R572 will be formalised through resurfacing, road markings and signage.

The U-turns undertaken by heavy good vehicles in the harbour area will be eliminated and the North Road will be upgraded to provide a footpath and parallel parking will be provided where the width is sufficient. Overall this layout will provide greatly improved levels of service to all users. It will also provide a much better introduction to Castletownbere town.

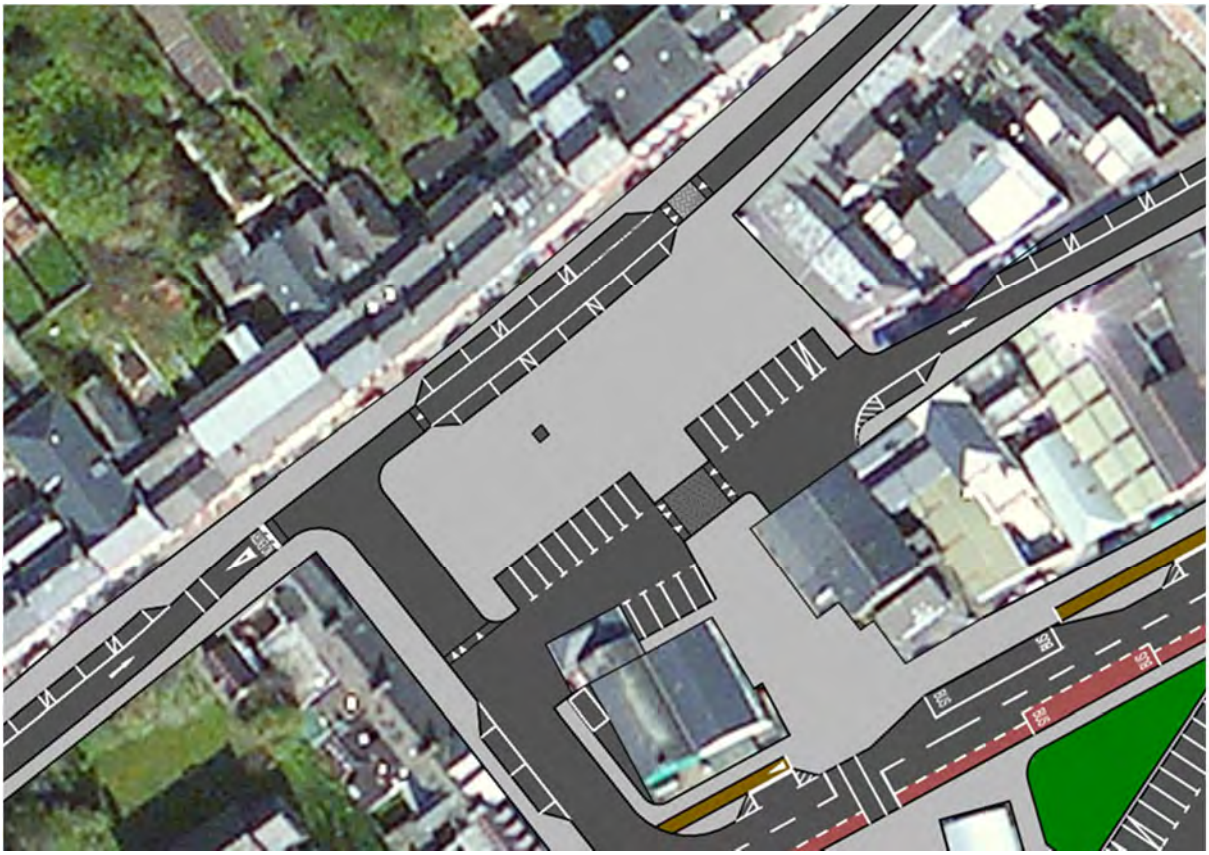
Benefits of the new layout:

- Maximum 2 hour stay will support greater turnover and better utilisation of the car parking spaces which are in the greatest demand. New car parks on the North Road (18 spaces) and the Bridewell site (44 spaces) will support the longer stay parking requirements. These

car parks are located a short 2 minute walk from the junction.

- Pedestrian safety and accessibility will be greatly improved with new wider footpaths and new crossing facilities.
- Provides a legible and coherent junction arrangement. It integrates with the traffic management system proposed for the town to deliver better circulation, less delay and queuing.
- Improves accessibility to the development lands to the north of the town. The junction radii facilitate all traffic movements ensuring the U-turns undertaken by heavy good vehicles in the harbour area will be eliminated which all contributes to a more attractive and safer layout.
- Optimises the use of space at the busiest junction in the town. It provides greater definition to the intended use which will provide wider benefits to the transport network within the town.

Junction No.5 : Town Square Junction



A transformational public realm scheme is proposed for Town Square. This will be outlined in more detail in Chapter 6. This will be supported by a traffic management system involving one way eastbound traffic circulation on Main Street. This facilitates the provision of wider footpaths and parallel parking on Main Street.

Chapter 6 of this report outlines the proposals for Town Square in more detail. The Local Area Plan identifies: *'improvements to the public realm of the town could greatly improve the overall attractiveness of the town centre, enhancing business confidence in the town and the overall public perception of Castletownbere as a place to visit'.* The proposals for Town Square aim to deliver this.

The overall vision is to enhance the towns assets, such as landmark buildings and colourful shopfronts, create a pedestrian friendly network of paths and spaces and provide a template for a visually identity which can be used for future (phased) enhancements. There is an opportunity to celebrate local heritage in the streetscape and include bespoke elements to enrich the space.

The proposed works will provide an improved pedestrian and vehicular safety while creating a legible public realm amenity. The enhancement of the square will create a contemporary and pedestrian focused space, forming a central town 'heart' and primary public ream space. The square will be activated by informal walk-throughs, café tables and chairs.

The surveys outlined in Section 3.9 identified the majority of parking that currently occurs is short stay. The surveys also indicate this location is a 'hotspot' for parking with the demand regularly meeting the allocation. It is therefore proposed that the parking in this location is identified as maximum 2 hour stay. Greater turnover of the spaces will support better utilisation of the spaces for the higher demands. Longer stay parking will be accommodated in two new redesigned car parks to the south.

Businesses requiring deliveries can be accommodated with allocated loading parking bays. These loading bays can revert to regular parking after a specified time in the day (post 10 am for example).

Benefits of the new layout:

- Will greatly improve the overall attractiveness of the town. This in turn will enhance Castletownbere as a destination for tourism and economic activity.
- Will create a new civic space for the community to meet, celebrate and socialise. The Square will be a place for events and festivals. The space can enhance the town assets, such as landmark buildings and colourful shopfronts. The Square can celebrate local heritage in the streetscape.
- Will provide a high quality, attractive and safe pedestrian environment reflective of the towns tourism function within the region. The Square can portray a strong, positive image of enjoyment, creativity and inclusiveness and provide a positive impression of Castletownbere.
- Will create a contemporary and pedestrian focused space forming a central town 'heart'. The key design language may then be expanded to other parts of the town such as the Church grounds adjacent to the Town Square.

Junction No.6 : Back Road and Main Street Junction

A one way westbound system is proposed by Back Street travelling in the opposite direction to Main Street. The 30kph speed limit on the approach to Main Street will be retained.

A new street will be provided through the old council yard. This street will be designed to support the redevelopment of the town centre. Consolidating the town centre supports the public realm investment proposed for Town Square and will promote sustainable active travel.

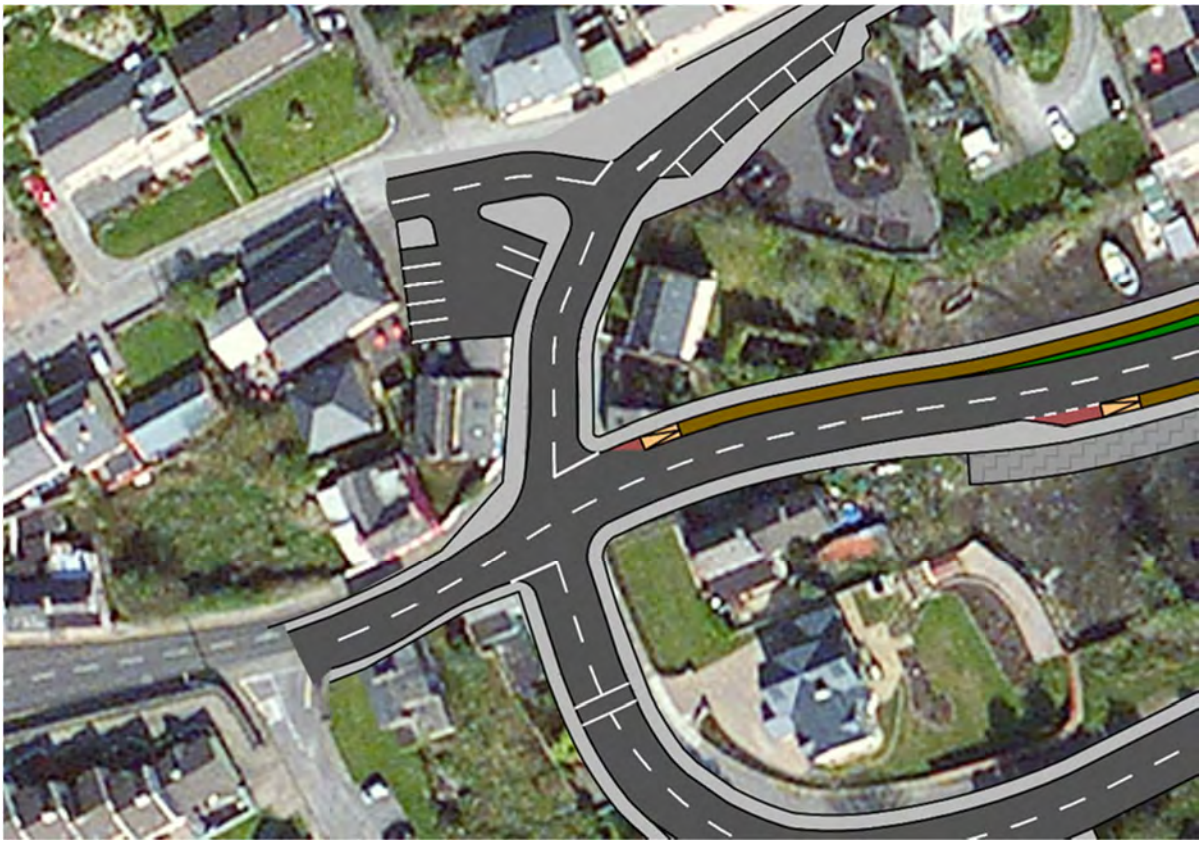
The new street through the old council yard can support and encourage redevelopment and consolidation in the town centre. Setting back the building line from the new street would facilitate street tree planting.

Chapter 6 of this report outlines the proposals for this new street in more detail.

Benefits of the new layout:

- One way system on Back street and Main Street will improve pedestrian and vehicular safety;
- Additional parking on the new street through the Old Council Yard and Main Street ;
- The new street through the old council yard can support and encourage redevelopment and consolidation in the town centre.

Junction No.7 : R572/Cametringane Woods Junction



The junction will be completing realigned with the introduction of the new southern road. A derelict house will need to be acquired to provide the new road. The new alignment will provide a more coherent and legible route for traffic along the strategic east west movement. Widened and resurfaced footpaths will provide improved conditions for pedestrians. Similarly the one way system on Main Street will facilitate widened footpaths adjacent to the playground.

Benefits of the new layout:

- New alignment will provide a more coherent and legible route for traffic along the strategic east west movement
- Widened and resurfaced footpaths will provide improved conditions for pedestrians;

Junction No.8 : Secondary School /Cametringane Woods Junction

The Secondary School access road will be realigned to provide more of a perpendicular approach to and from the Secondary School. Also vertical realignment of the Cametringane Woods road will assist in tying in the junction. This will reduce the potential for collisions at the junction.

Benefits of the new layout:

- Layout realigned to provide more of a perpendicular approach to and from the Secondary School;
- This will reduce the potential for collisions at the junction;
- Footpaths and pedestrian crossing facilities will also be upgraded.

5.5 Walking and Cycling Strategy

There are a number of key walking and cycling generators in Castletownbere. Walking trips in the town comprise walking for leisure and walking for travel. The key pedestrian generators/attractors for include:

a) Dinish Island;

b) Recreational Walk to Petrol Station along R572;

c) Community Hospital;

d) Co Action;

e) Doctors Surgery;

f) Super Value, Dentist Surgery, Emergency Response Lifeboat;

g) Primary School;

h) Town Square – Cafes, Shops and Pubs;

i) Playground;

j) Hotel;

k) Secondary School;

l) GAA grounds;

m) Development lands.

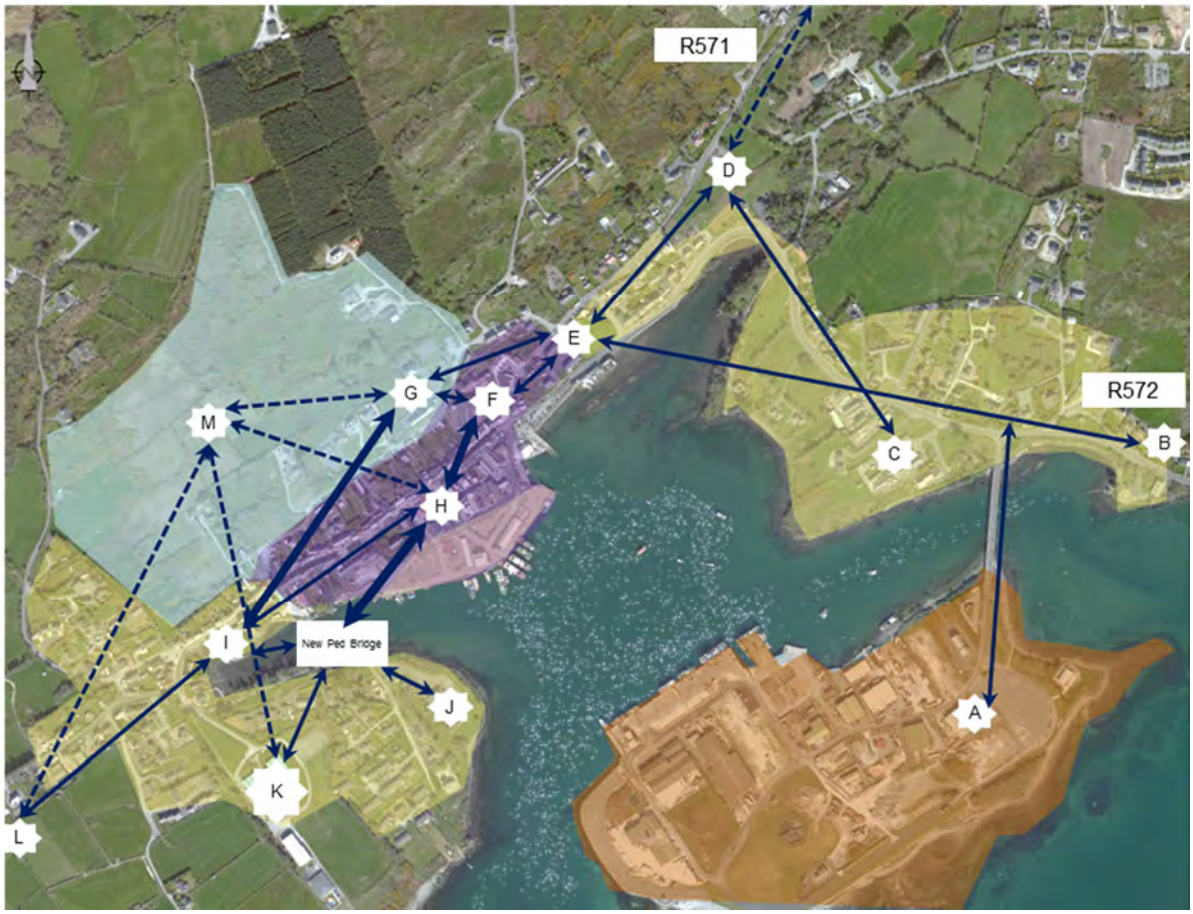


Figure 5.4 Primary attractors will be connected via a pedestrian network of footpaths at least 2m wide.

Travel on foot includes trips between pedestrian generators. In some cases, this demand is not provided for at all, or is provided poorly or circuitously. For example, there is a considerable movement between the secondary school and Main Street. Similarly, a significant number of pedestrians travel regularly between the Co Action Centre and Main Street / Supermarket. On a more local level, there is considerable pedestrian demand between existing parking and the supermarket in Castletownbere (as evidenced in pedestrian surveys completed for the Castletownbere Transportation Study Baseline Report) which is not provided for in a controlled manner.

Where possible, footpaths have been proposed on both sides of the road but in some cases, a better overall outcome has been achieved by provision of footpaths on one side of the road. The width of footpaths will be a minimum of 2m.

A key benefit of the scheme for pedestrians is the improved pedestrian environment on Main Street, facilitated by the narrowing of the carriageway due to introduction of one-way system and widening of footpaths.

The introduction of the southern road also provides opportunity for a high-quality walking environment for pedestrians, with footways proposed on both sides of the road along its length.

Pedestrian connectivity between the southern relief road and Main Street is proposed by way of a pedestrian plaza area, which serves movement as well as civic space functions.

In terms of the desire lines currently not particularly well provided for the following should be noted:

- A new footbridge is proposed to serve the desire line linking the Secondary School and Main Street, as well as providing a high amenity route to the hotel and amenity walk. The footbridge will meet the southern relief road at a signalised pedestrian crossing, which provides a controlled crossing enabling pedestrian movement to Main Street and also connecting to the wider footpath network.

- Pedestrian travel between the Co-Action Centre and Main Street will be improved by provision of a footway on the north side of North Road, continuing through the junction with R572. Approximately 70 metres from the junction, a signalised pedestrian crossing is proposed across R572 which links to a footway along the southern side of the road, providing access to the Co-Action Centre.

Cycle lanes are proposed on both sides of the road linking Dinish Island Bridge to Seaview Terrace. Along Seaview Terrace it is proposed that cyclists will share the road with vehicular traffic, and cycle lanes resume further west, south of the junction with side road junction, and continue along the proposed southern relief road. Cyclist access to the hotel and the secondary school is possible via the proposed boardwalk/bridge.

Recommendations on Walking and Cycling Strategy

- A new footbridge is recommended to serve the desire line linking the Secondary School and Main Street, as well as providing a high amenity route to the hotel and amenity walk. The footbridge will meet the southern relief road at a signalised pedestrian crossing, which provides a controlled crossing enabling pedestrian movement to Main Street and also connecting to the wider footpath network.
- It is recommended that pedestrian travel between the Co-Action Centre and Main Street will be improved by the provision of a footway on the north side of North Road, continuing through the junction with R572. Approximately 70 metres from the junction, a signalised pedestrian crossing is proposed across R572 which links to a footway along the southern side of the road, providing access to the Co-Action Centre.
- The reconfiguration of the Main Street junction adjacent the Bank and Spar with a raised table, and the inclusion of the southern road, redirects traffic away from this junction. This combined with the new parking layout and pedestrian crossings at the junction, improves conditions for pedestrians considerably.
- It is recommended that methods to engage the Community are explored. The purpose of this engagement should be to encourage the Community in taking ownership to ensure car parking on footpaths is no longer accepted.
- It is recommended that an advocacy group be established to represent persons with an interest in improving pedestrian accessibility. It is important that the interests of pedestrians, person in wheelchairs and buggies are represented and reflected in the design proposals as they move through the various stages through to implementation.
- It is recommended that schools in the study area continue to engage with the green schools programme which is co-ordinated by An Taisce.

5.6 Heavy Good Vehicles Strategy

The provision for Heavy Good Vehicles to access the North Road was reviewed in detail. A number of options were considered. The option of a new road between the R572 and the North Road was eliminated due to the topographical constraints. The Study is proposing the realignment of the North Road junction to reduce the risk of collisions with the boundary walls.

Enhancing the North Road junction provides a route for HGV traffic from Dinish Island without having to come into town. The upgrade of the junction while impactful on the immediate adjacent property has significant benefits for the town. These include the reduction of HGV traffic travelling through the town which will improve conditions pedestrians and cyclists.

5.7 Public Transport Proposals

The public realm proposal for Main Square will be outlined in Section 6. A relocation of the current bus stop is proposed as part of this Study. It is recommended that bus and coaches setting down in Castletownbere are provided with a high quality bus shelter to announce their arrival into a landmark location. A sample of the type of proposal is presented in Figure 5.5

Figure 5.5 Unique bus shelter to mark landmark arrival in town

The provision of car parking adjacent to the public transport facilities supports integration and interchange between the modes.

6. Public Realm

6.1 Introduction

The existing town public realm is largely dominated by the relatively extensive vehicle movement corridors and car parking (both designated and informal). The streetscape character is derived from the traditional shopfronts, colourful facades, landmark buildings and landscape setting synonymous with West Cork. There is potential to celebrate and further enrich the town, especially its landmark buildings and the relatively un-programmed open spaces. The rationalisation of car parking and the partial one-way traffic system will offer improved pedestrian circulation and also create opportunities for enhancements, such as street tree planting.

The core of the Square is a special space, around the existing monument. There is an opportunity to create a seating space with raised planters and trees. The proposed feature paving units, artwork and any other bespoke details would also be concentrated in this space. The main square comprises a pedestrian space to facilitate a range of uses; markets and festivals etc. More café tables and chairs could be installed on the 'square' rather than solely on the existing paths. A limited number of (short-term) parking spaces will be located to the southern edge of the space and also paved to ensure visual continuity.

The concept is outlined in the following figure:

Figure 6.1 Concept for Town Square

6.2 Aspirations for Town Square

The overall vision for the town masterplan is to enhance the towns assets, such as landmark buildings and colourful shopfronts, create a pedestrian friendly network of paths and spaces and provide a template for a visually identity which can be used for future (phased) enhancements. The design aspiration is to develop a hierarchy of spaces, considering that the harbour is, as yet, undeveloped as a recreational space and the limited potential of the small playground space. There is an opportunity to celebrate local heritage in the streetscape and include bespoke elements to enrich the space.

The proposed works will provide an improved pedestrian and vehicular safety while creating a legible public realm amenity. The enhancement of the square will create a contemporary and pedestrian focused space, forming a central town 'heart' and primary public ream space. The square will be activated by informal walk-throughs, café tables and chairs and also on a formal and programmed approach. The key square design language may then be expanded to other parts of the town. The concept design sketches and proposals may be used as a template for further development of the town's public realm, to create a consistent identity for Castletownbere.

The vision for Town Square is for a vibrant, high quality space that will be a community focus point and destination for people visiting Castletownbere. It will be a key public space and a destination hub for pedestrian movement around the town. The role of town square will be to provide a shared civic space. The place should portray a strong, positive image of comfort and enjoyment, creativity and inclusiveness, which gives a positive impression of Castletownbere.

The Town Square will act as the integral hub for people's use and enjoyment of potential future pedestrian and cyclist priority access strategy. The flexible design of the square is crucially important in supporting its multi-functional role. It is critical that Town Square can comfortably accommodate the large numbers of people who will visit and move through the space every day, on market-days and during festivals. At the same time, it is important that the size of space is not so over-generous that it diminishes the vibrant atmosphere that should be generated there. The flatness and size of the space also ensures that there is ample room for outdoor eating/drinking and the occasional staging of performance and event activities, whilst not seeming over-crowded.

Figure 6.2 Public realm scheme supporting local businesses

The Town Square should be experienced as one overall space that has a limited vehicle circulation system running around a portion of its periphery while accommodating a number of short-term car parking spaces. The majority of the buildings provide and generate natural surveillance of the space, which is of great importance for the enjoyment of the town centre, particularly at night.

The removal of the existing road to the east of the square and rationalisation and relocation of existing

parking spaces creates a pedestrian space in the heart of the town. The raised crossings will form a seamless pedestrian link to Main Street and 'Garden Street' and the wider town. The reduced carriageway widths and perceived dominance will be reduced by the raised crossing interventions.

The philosophy for the side streets which link to the harbour, are to retain and enhance views to the harbour and also improve pedestrian links. The public space must reflect and respond to the coastal nature of its context. The design intent aims to create casual, spontaneous experiences, for informal use, with seasonal interest and enjoyment generated by the multi-functional programming. In particular, the square will have a dynamic feel created by the procession of people moving through the spaces and the pulse of Wild Atlantic Way tourists, harbour activity and bus passengers. The place will also have local activity, as it will be a destination for people to eat and drink outside and to rest and chat.

Feature paving on the town square can celebrate local heritage, such as the historic Spanish princess Beara place name origin or quotes from 'MacCarthy's Bar' about Castletownbere. For example:

"*Never pass a bar with your name on it."*

Pete McCarthy, McCarthy's Bar: A Journey of Discovery in Ireland

Figure 6.3 Precedent Image - Feature engraving on natural stone paving, Central library, Liverpool

6.3 Garden Street

The existing short street located immediately to the west of the fire station. There is no defined pedestrian path and this space is dominated by vehicles, travelling through the street and informal car parking. The proposals will pedestrianize this newly termed 'garden street'. The proposals will enhance the setting for the external dining which already occurs here. The planting will enhance the appearance of the space and filter views of the nearby car parking spaces.

The new 'garden' street could be the town's health hub, with the start/finish of a highway to health route. The concept sketch and precedent images show community gardens, which would require a community champion/tidy towns committee to support and maintain.

Figure 6.4 Concept for Garden Street

6.4 New Street through Old Council Yard

The new street will create a new public realm route and in combination with the adjacent proposed pedestrian bridge will create a new desire line between the Secondary School and Main Street. The New Street could support and encourage redevelopment and consolidation of development in the town. Setting back the building line from the new street would facilitate street tree planting and 'green' the street. The new street will integrate positively with the development block and the new public realm which extends to meet the former carriage house (currently a gallery). The new car park area to the west of the street should be well screened to minimise potential visual intrusion.

The sketch below illustrates the key elements of the street and shows how tree planting may be included to enhance the streetscape. The appearance of the proposed boundary treatments and existing building gables will influence the appearance of the streetscape, as will the proposed new development. The public realm elements are standard, in contrast to bespoke nature of the town square core design, as the available views to the waterfront and the potential built development will likely be the key focus in this streetscape.

Figure 6.5 Concept Sketch for New Street through Old Council Yard

6.5 Precedent Scheme

Clonakilty is a relevant recent scheme. Of note is the main street with its bespoke paving features and street seating. The restoration of this street took advantage of the drainage works being undertaken to reduce threats of further flooding to create an opportunity to redesign the street at the same time. The works were extensive but undertaken in close consultation with the local businesses who celebrated the completion of the public works with a street party including a sit down meal in the street.

In Emmett Square reclaiming and redesigning the square to a very high standard involved the introduction of sculpture, fountains and seating has encouraged the restoration of the Georgian buildings around the square. Michael Collins House has also been recently renovated and reopened as a museum including a contemporary building extension which blends comfortably into the Georgian fabric of the square.

Figure 6.6 Relevant Local Scheme: Clonakilty Co. Cork

6.6 Materials

Proposals for materials are outlined in Appendix F. These materials are entirely indicative and this stage as they will be subject to cost reviews once a funding stream has been established. They have been provided to demonstrate the potential and quality that could be provided.

Recommendations on Public Realm

- A public realm scheme is recommended for the town. The proposed works will provide improved pedestrian and vehicular safety while creating a legible public realm amenity. The enhancement of the square will create a contemporary and pedestrian focused space, forming a central town 'heart' and primary public ream space.
- It is recommended the Town square will become a new civic space for the community to meet, celebrate and socialise. The Square will be a place for events and festivals. The space can enhance the town assets, such as landmark buildings and colourful shopfronts. The Square can celebrate local heritage in the streetscape.
- The removal of the existing road to the east of the square and rationalisation and relocation of existing parking spaces creates a pedestrian space in the heart of the town. The raised crossings will form a seamless pedestrian link to Main Street and 'Garden Street' and the wider town. The reduced carriageway widths and perceived dominance will be reduced by the raised crossing interventions.
- The proposals will pedestrianise the newly termed 'Garden Street'. The proposals will enhance the setting and appearance of the space and create a direct link between the town and the harbour area.
- A new street is proposed along the Old Council Yard area. This will create a new public realm route and in combination with the adjacent proposed pedestrian bridge will create a new desire line between the Secondary School, Beara Coast Hotel and Main Street. The New Street will support and encourage redevelopment and consolidation of development in the town. Setting back the building line from the new street would facilitate street tree planting.

7. Implementation of Castletownbere Transportation Study

7.1 Introduction

This chapter makes recommendations on the delivery of the Castletownbere Transportation Study in terms of the implementation of the specific recommendations presented earlier in this report. Also presented are recommendations regarding mechanism to manage the delivery of the Castletownbere Transportation Study.

The implementation of measures is broken into 3 tranches:

- Tranche 1: Measures that can be implemented in the Short Term
- Tranche 2: Measures that can be implemented in the Medium Term (require land acquisition and/or completion of Irish Water project)
- Tranche 3: Measures implemented in the Longer Term

7.2 Timeline

The timeline for implementation will be subject to funding and successful delivery of the water-main and sewage network by Irish Water. These works are proposed to commence in Q1/Q2 2019. Works to the transport network in Castletownbere should be dovetailed into the completion of each of the elements of these projects.

An indicative sequencing of projects is outlined below:

Tranche 1: Measures that can be implemented in Short Term:

- Project No.1: Garden Street – Pedestrian street from Town Square;
- Project No.2: Dinish Island junction;
- Project No.3: Footpaths and cycle tracks along R572 between petrol filling station and R571/R572 (SuperValu) junction;
- Project No.4 New Street through Old Council Yard

These measures are proposed to support walking and cycling and are recommended for implementation as soon as funding is available.

Tranche 2: Measures that can be implemented in Medium Term (require land acquisition and/or completion of Irish Water projects)

- Project No.5: North Road footpath and North Road junction with R571;
- Project No.6: Town Square and Main Street - new circulation system on Main Street between Town Square and R571/R572 (Super Value) junction & Town Square public realm & new car parking on DAFM lands;
- Project No.7 R571/R572 (SuperValu) junction & new car parking on North Road and Bridewell;

Tranche 3: Measures implemented in Longer Term

- Project No.8 New southern road & infill parking;
- Project No.9 New pedestrian bridge;
- Project No.10: Completion of one way eastbound circulation system on Main Street;
- Project No.11: New northern access road to development lands (to be delivered by developer)

7.3 Implementation

It is recommended that an Implementation Group be established to progress the measures identified in this study. This Group will be tasked with the following:

- Preparation of objectives aligned with study for the Local Area Plan
- Progress schemes to Statutory Approval Processes (Part 8)
- Progress with the land acquisition required to deliver the measures;
- Liaise with Irish Water to capitalise on opportunities to implement the measures as this project progresses.

Another function of the Implementation Group will be to identify indicators for monitoring the progress These indicators can be divided into:

- land use planning (land availability, retail vacancy, employment surveys, planning applications)
- urban design indicators (public realm improvements and new buildings)
- transport indicators (to include pedestrian counts at key locations to monitor footfall, transfer to other sustainable modes, queuing and journey times on the road network, increases in walking and cycling network, number of junction improvements)
- environmental indicators (water quality, population and human health, air quality, cultural heritage, landscape and material assets).

Monitoring and evaluation is important in determining how successful the Castletownbere Transportation Study proposals have been in meeting the strategy objectives. In order to demonstrate value for money and identify the overall success of the scheme, it is important to monitor the before and after impacts of the measures - both as an individual entity and as a package of integrated measures.

It is recommended that the Implementation Group develop an evidence based approach which measures the performance of the schemes against the economic, environmental, social and safety objectives developed as part of the Castletownbere Transportation Study.

Monitoring the performance of strategy measures can also assist in communicating to local businesses, schools and the wider community the tangible benefits that can be achieved from the implementation of the Castletownbere Transportation Study.

8. Summary and Recommendations

8.1 Introduction

AECOM were appointed by Cork County Council to prepare the Castletownbere Transportation Study. The study examined the current transport situation and identifies measures to support the transport requirements of the town.

The study focused on determining the transport infrastructure improvements and policy measures required to accommodate the anticipated expansion of the town that will result in a growth in vehicular, pedestrian and cyclist traffic volumes. The study also examined the potential to enhance the public realm in specific locations to increase the vibrancy and attractiveness of the town and to encourage active travel.

8.2 Study Methodology

The methodology for this Transportation Study is outlined in Chapter 2. It involved the following key steps:

- Understanding Existing Situation;
- 1st Round Consultation;
- Visioning, Assessment Framework and Options;
- Option Assessment;
- Emerging Proposed Strategy;
- 2nd Round Consultation;
- Final Report.

8.3 Understanding of Existing Conditions

Several site visits were undertaken to develop a good understanding of the study area. This revealed the provision for pedestrians is relatively poor with narrow footpaths and limited cross facilities.

The 2016 Census revealed the population of the study area includes a significant proportion of the study population are in dependant age groups (both young and older age groups). This suggests the transport provision will need to provide for the needs of these more vulnerable age groups by being more forgiving and supportive.

Walking is already a popular means of travel. This is very interesting given the relatively poor provision which will be outlined later. Proposals to improve the quality of the pedestrian provision and the public realm will encourage more active travel and support existing pedestrians.

A comprehensive set of transport surveys were undertaken:

- Pedestrian counts at 13 locations;
- Junction turning counts at 13 locations;
- Automatic traffic counters at 3 locations;
- Parking surveys at 5 locations;
- Journey time surveys between 5 locations.

A total of 60 written submissions were received as part of the 1st Round Public Consultation.

The following summarises the issues raised in the submissions received:

- Car parking – the quantum, location and availability of car parking was raised extensively and vigorously throughout the consultation. It was suggested that a detailed parking survey be

undertaken in the town to identify the existing demand and length of stay. More parking in specific areas was a focus of a number of submissions.

- Pedestrian facilities – Several submissions outline the view that the pedestrians are not well provided for within the town. The streets do not feel comfortable for pedestrians. There is an absence of safe crossings facilities and the speed of traffic is too high. Cars parked on the footpaths create difficulties for pedestrians, buggies and wheelchairs.
- Public realm – A number of submissions expressed the view that the public realm of Castletownbere town could be more attractive. These submissions outlined the town centre is dominated by car parking which does little to reflect the unique, picturesque location of Castletownbere in West Cork.
- Traffic circulation – many submissions expressed the opinion that the current circulation system for traffic in the town is not efficient and proposed the introduction of one way system to improve traffic flow.
- Relief road – To support a one way system a relief road along the inner harbour was proposed. Others did not support this as it had the potential to cut off pedestrian access to the sea and encouraging HGVs and other traffic. Others preferred a relief road to the north of the town as contained in the Local Area Plan.
- HGV routing – The routing of HGVs through the town is an issue that causes distress as outlined in a number of submissions.
- Junction and road improvements were suggested as being required for the following locations:
- Public transport – The provision for public transport needs to be considered for the town. The existing bus stop although centrally located is not particularly prominent or visible. Layover space for coach and tourist buses is also required. The issue of school bus set down and the impacts of this on other businesses were also raised.

8.4 Visioning, Assessment Framework & Strategy Development

The Vision Statement provides the over-arching context for the specific measures within the Castletownbere Transportation Plan. Information gathered through a review of national and local policy, site visits, and consultation with the public was utilised to develop the following Vision Statement:

> "To support the role of Castletownbere as the strategic hub on the Beara peninsula and in doing so create the infrastructure that enhances ease of movement and travel for all, and improves the quality of life for the local and wider community".

This vision was underpinned by a series of objectives and key performance indicators. These represent the foundation of an assessment framework which was utilised to measure the performance of the various options identified for the study area.

To assist in understanding how the options perform against the study objectives a traffic model was developed for the study area. The model was developed using the microsimulation software VISSIM.

A series of options were tested within the assessment framework to identify which option performed best in terms of achieving the study vision and objectives.

8.5 Castletownbere Transportation Study Recommendations

A number of recommendations are contained within this study and are summarised below:

Car Parking

- An increase on the existing car parking provision is required. The purchase of a number of potential sites for additional parking should be pursued. A number of sites have been identified for this purpose on North Road, and the Bridewell, DAFM lands and the Western infill site.
- It is recommended that a maximum stay be introduced of 2 hours locations with the highest demand (R571/R572 junction, the Town Square and Main Street). This will deliver higher turnover in locations with the greatest demand.
- The junction upgrades should be delivered in conjunction with the new car parking facilities. It is important that new car parking is delivered at the same time at the junction upgrades to ensure the junctions operate as intended. This can only be achieved if alternative parking is provided.
- Parking on footpaths will not be accepted by the Community when a reasonable traffic management system is implemented, in conjunction with investment in the public realm and new car parking areas. This is an issue that the Community itself will need to take ownership of in the interests of the making the town more accessible.

Public Realm

- A public realm scheme is recommended for the town. The proposed works will provide improved pedestrian and vehicular safety while creating a legible public realm amenity. The enhancement of the square will create a contemporary and pedestrian focused space, forming a central town 'heart' and primary public ream space.
- It is recommended the Town square will become a new civic space for the community to meet, celebrate and socialise. The Square will be a place for events and festivals. The space can enhance the town assets, such as landmark buildings and colourful shopfronts. The Square can celebrate local heritage in the streetscape.
- The removal of the existing road to the east of the square and rationalisation and relocation of existing parking spaces creates a pedestrian space in the heart of the town. The raised crossings will form a seamless pedestrian link to Main Street and 'Garden Street' and the wider town. The reduced carriageway widths and perceived dominance will be reduced by the raised crossing interventions.
- The proposals will pedestrianise the newly termed 'Garden Street'. The proposals will enhance the setting and appearance of the space and create a direct link between the town and the harbour area.
- A new street is proposed along the Old Council Yard area. This will create a new public realm route and in combination with the adjacent proposed pedestrian bridge will create a new desire line between the Secondary School, Beara Coast Hotel and Main Street. The New Street will support and encourage redevelopment and consolidation of development in the town. Setting back the building line from the new street would facilitate street tree planting.

Roads and Streets

- In the short to medium term it is recommended that Main Street will change from two-way to one way eastbound between Main Square and the R571/R571 'SuperValu' junction. The North Road between the R571/R571 'SuperValu' junction and the North Road junction will be northbound only.
- In the longer term the provision of new road to the south of Main Street is required to accommodate the through traffic and support the long term development of the town. This new road will facilitate Main Street being converted to one way eastbound. Again this will provide new and wider footpaths, on street parking, bus set down areas and pedestrian

crossing facilities will be provided. This will significantly improve the provision for all users. This road is fundamental to the development of the town and will be required in advance of the Northern Road whose function will be to provide access to the development lands rather than relieve the pressure on Main Street.

- The roads and street strategy should be delivered in conjunction with the new car parking facilities. It is important that new car parking is delivered at the same time so the layouts operate as intended.

Walking and Cycling

- A new footbridge is recommended to serve the desire line linking the Secondary School and Main Street, as well as providing a high amenity route to the hotel and amenity walk. The footbridge will meet the southern relief road at a signalised pedestrian crossing, which provides a controlled crossing enabling pedestrian movement to Main Street and also connecting to the wider footpath network.

- It is recommended that pedestrian travel between the Co-Action Centre and Main Street will be improved by the provision of a footway on the north side of North Road, continuing through the junction with R572. Approximately 70 metres from the junction, a signalised pedestrian crossing is proposed across R572 which links to a footway along the southern side of the road, providing access to the Co-Action Centre.

- The reconfiguration of the Main Street junction adjacent the Bank and Spar with a raised table, and the inclusion of the southern road, redirects traffic away from this junction. This combined with the new parking layout and pedestrian crossings at the junction, improves conditions for pedestrians considerably.

- It is recommended that methods to engage the Community are explored. The purpose of this engagement should be to encourage the Community in taking ownership to ensure car parking on footpaths is no longer accepted.

- It is recommended that an advocacy group be established to represent persons with an interest in improving pedestrian accessibility. It is important that the interests of pedestrians, person in wheelchairs and buggies are represented and reflected in the design proposals as they move through the various stages through to implementation.

- It is recommended that schools in the study area continue to engage with the green schools programme which is co-ordinated by An Taisce.

Heavy Goods Vehicles

- The realignment of the North Road junction is recommended to accommodate Heavy good Vehicles travelling on North Road and reduce the risk of collisions with the boundary walls.

Public Transport

- A relocation of the current bus stop is recommended. It is recommended that public transport passengers setting down in Castletownbere are provided with a high quality bus shelter to announce their arrival into a landmark location.

8.6 Timeline for Implementation

The timeline for implementation will be subject to funding and successful delivery of the water-main and sewage network by Irish Water. These works are proposed to commence in Q1/Q2 2019. Works to the transport network in Castletownbere should be dovetailed into the completion of each of the elements of these projects.

An indicative sequencing of projects is outlined below:

Tranche 1: Measures that can be implemented in Short Term:

- Project No.1: Garden Street – Pedestrian street from Town Square;
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- Project No. 4 New Street through Old Council Yard

These measures are proposed to support walking and cycling and are recommended for implementation as soon as funding is available.

Tranche 2: Measures that can be implemented in Medium Term (require land acquisition and/or completion of Irish Water projects)

- Project No.5: North Road footpath and North Road junction with R571;
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- Project No.7 R571/R572 (SuperValu) junction & new car parking on North Road and Bridewell;

Tranche 3: Measures implemented in Longer Term

- Project No.8 New southern road & infill parking;
- Project No.9 New pedestrian bridge;
- Project No.10: Completion of one way eastbound circulation system on Main Street;
- Project No.11: New northern access road to development lands (to be delivered by developer)

8.7 Implementation Group

It is recommended that an Implementation Group be established to progress the measures identified in this study. This Group will be tasked with the following:

- Preparation of objectives aligned with study for the Local Area Plan
- Progress schemes to Statutory Approval Processes (Part 8)
- Progress with the land acquisition required to deliver the measures;
- Liaise with Irish Water to capitalise on opportunities to implement the measures as this project progresses.

Monitoring and evaluation is important in determining how successful the Castletownbere Transportation Study proposals have been in meeting the strategy objectives. In order to demonstrate value for money and identify the overall success of the scheme, it is important to monitor the before and after impacts of the measures - both as an individual entity and as a package of

integrated measures.

It is recommended that the Implementation Group develop an evidence based approach which measures the performance of the schemes against the economic, environmental, social and safety objectives developed as part of the Castletownbere Transportation Study.

Monitoring the performance of strategy measures can also assist in communicating to local businesses, schools and the wider community the tangible benefits that can be achieved from the implementation of the Castletownbere Transport.

Appendix A 1st Round Public Consultation Report

Report on First Round Public Consultation for Castletownbere Transport Study

7 December 2016

Quality information

Prepared by	Checked by	Approved by
Eoin O'Mahony	Joe Seymour	Joe Seymour

Revision History

Revision	Revision date	Details	Authorised	Name	Position
0	7/12/16	Draft	EOM	Eoin O'Mahony	Associate Director
1	19/12/16	Final	EOM	Eoin O'Mahony	Associate Director

Prepared for:

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Figures

1. Introduction

1.1 Project Background

AECOM has been commissioned by Cork County Council to prepare a Transport Plan for Castletownbere. The plan will determine the transport interventions required to improve traffic and transport conditions in the town. Issues that will be addressed include traffic congestion, parking, traffic management, road safety, and accessibility, public transport, walking and cycling.

A Public Consultation Exhibition was held in the Beara Coast Hotel on Tuesday 11th October 2016 from 16:00 to 20:00. The purpose of this public consultation was to listen to anybody who lives, works, shops, goes to school and uses the town in order to understand the current issues and obtain any and all views on potential solutions.

Representatives of Cork County Council and AECOM were in attendance at the public consultation exhibition. Stakeholder meetings were held on Wednesday 12th & Thursday 13th October 2016. The study area is outlined in the figure below.

Figure 1.1 Study Area

1.2 Purpose of this Report

This report provides an overview of the written responses received during the 1st public consultation on Castletownbere Transport Plan. The consultation process forms an important component of the development of the Plan as the responses play a key role in developing a detailed understanding of the current issues affecting Castletownbere and its environs. The consultation process also provides an insight into potential solutions to these issues and a view as to how Castletownbere should develop in terms of transport improvements.

In general, consultation is required for the following reasons:

- Local stakeholders have an in-depth understanding of local issues, given that they experience these conditions on a daily basis. It is therefore crucial to gain an understanding of these issues at an early stage in the study, so that opportunities to address these issues can be considered. Furthermore, public representatives and local community groups are best placed to relay the views of local residents for consideration as part of this study.

- Local businesses are impacted by traffic conditions as a result of general traffic congestion, which increases the costs (and reduces the attractiveness) of accessing their premises to do business. Deliveries are also impacted by general traffic congestion, as is the availability of conveniently located areas to perform these activities. It is important that these issues are understood in the context of making recommendations for the study.

- Greater insight is provided, from the day to day users of the road network, in terms of the impact on all road users (i.e. car drivers, public transport users, cyclists and pedestrians and vulnerable road users) of current traffic conditions and existing traffic management arrangements in the Castletownbere area.

1.3 Consultation Process

The consultation process carried out for the Castletownbere Transport Plan involved a public exhibition, and meetings with stakeholders such as the Castletownbere Harbours Users Forum, Castletownbere Development Association, Beara Community Groups, Bere Islanders, Retailers, Schools and Public Transport Operators.

1.4 Notification of Public Consultation Exhibition

The following activities were undertaken to raise awareness of the public consultation process:

- The Elected Members of the West Cork Municipal District were briefed on the 3rd of October 2016. The briefing involved a presentation from the project team followed by a questions and answers session. The presentation outlined the purpose of the study and the opportunities available for residents and other stakeholders to contribute to the study.
- An advert was placed in the Southern Star Newspaper week commencing 3rd October 2016. The advert highlighted the purpose to the study, the location and timing of the event. The advert also contained contact information for written submissions.
- A leaflet drop was organised to households in Castletownbere to notify residents of the Public Consultation Exhibition in the Beara Coast Hotel on Tuesday 11th October.

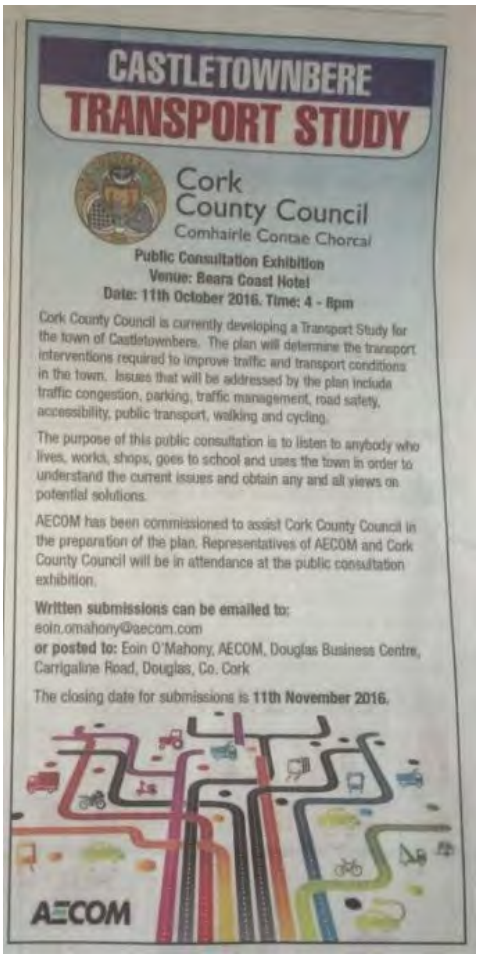


Figure 1.2. Advert for Public Consultation in Southern Star Newspaper

1.5 Public Consultation Event

A number of posters were on display during the event to provide information on the following:

- Project Background
- Purpose of Public Consultation
- Project Objectives
- Data Collection
- Issues
- Traffic Conditions
- Walking and Cycling

A number of maps showing an aerial view of the study area were available and people used these to highlight issues to the study team. The material on display during the Public Consultation is contained within Appendix 1.

The event was well attended with approximately 110 people signing in during the event.

Figure 1.3. Photo of Public Consultation

1.6 Structure of this Report

The remainder of this report is structured as follows;

Chapter 2 Submissions Received

This chapter summarises the submissions received and outlines the response of the study team.

Chapter 3 Conclusion

This Chapter summarises and highlights the key issues and findings from the public consultation process.

Chapter 4 Appendix 1

Contains the maps displayed during the Public Consultation Exhibition.

Chapter 5 Appendix 2

Contains some maps and drawings received as submissions

2. Submissions

2.1 Introduction

This section outlines the submissions received from stakeholders and the general public. This process forms an important part of the study as the responses play a key role in developing a detailed understanding of the current issues affecting Castletownbere and the development of potential solutions.

2.2 Stakeholder Organisations

Stakeholders were contacted by email and invited to a meeting. All stakeholders were encouraged to make written submissions. Those contacted included development associations, community groups, schools, businesses and private individuals were also encouraged to make submissions with any relevant issues. Approximately four weeks was allowed for the receipt of submissions in relation to the study. The local stakeholders who were contacted in relation to this study are illustrated in Table 2.1 below. This table shows that a broad representative response was obtained from local groups and stakeholders.

Table 2.1 Groups consulted

Group/Organisation	Contact Method
Castletownbere Development Association	Email and Meeting
Beara Community Groups	Email and Meeting
Bere Island Group	Email and Meeting
An Garda Siochana	Email and Meeting
Retailers & Business Owners	Email and Meeting
Schools	Email and Meeting
Bus Eireann	Email and Meeting
Department of Agriculture, Food & the Marine	Email and Meeting
Castletownbere Harbour Users Forum	Email and Meeting
General Public	Newspaper Advert, Leaflet Drop and Open Meeting

Written submissions have been received from concerned residents and people with a genuine interest in improving Castletownbere Town. In total 60 written submissions were received from stakeholders and the general public. With regard to privacy and confidentially, submissions from members of the general public have been noted and are included anonymously under the General Public submissions below.

A summary of the information contained in these submissions is outlined in the following pages.

Castletownbere Development Association

Identified issues/problems;

1. Traffic Flow
   Very congested – need for short term solutions – one way streets, change to traffic circulation.
2. Parking
   At very worst the same amount of cars that park in the town should continue to be provided in the future. Infill across from Super Value to create additional parking spaces in new car park
3. Relief Road
   Should be the vision going forward – there can be no improvements in certain areas of the town without a relief road.
4. Footpaths & Amenity
   There are a significant number of trip/fall hazards at present and it is impossible for a person to move freely with a pram or wheelchair to go from one end of the town to the other without being obstructed.

A number of drawings were included in the submissions which propose a new relief road along the inner harbour and changes to traffic circulation. These drawings are contained in the Appendix to this report.

Department of Agriculture Fisheries and Marine (DAFM)

Identified issues/problems;

1. Masterplan
   DAFM are developing masterplan for the harbour. Expect to have draft available in January 2017. Would like to keep in contact with the Transport Study so Plans are consistent.
2. Office Building
   DAFM developing planning application for office building. Will include public car park and willing to transfer ownership of road to Cork County Council. Details of road widths etc to be confirmed to facilitate planning application.
3. Extension to Pier on Dinish Island
   DAFM submitting plans for extension to pier on Dinish island to An Bord Pleanala. Will increase capacity of the harbour. Confirmation on impacts for traffic volumes to be forwarded.

Community Groups (Co –Action Group)

Identified issues/problems;

1. R-571 Kenmare Road
   The submission outlines the view of Co-Action that accessing their centre on the R-571, Kenmare Road is highly dangerous. There is no footpath between the town and the centre.
2. Tallon Road
   Co-Action has two residential units on the Tallon Road. Pedestrian access is not safe from here to Town.
3. Supervalu Junction
   This is a chaotic junction with no pedestrian crossings, narrow footpaths, high volumes of traffic, traffic from multiple directions and haphazard parking. It is impossible for those with a disability – visual impairment, hearing impairment, sensory processing difficulties or poor concentration to negotiate this junction safely.
4. Footpaths throughout Castletownbere
   Footpaths, where they exist are too narrow and for most of the time are unusable as vehicles are parked on them.
5. Access to Castletownbere Community Hospital
   There is no pedestrian crossing to the hospital and the footpath from town is too narrow.
6. Commuter Bus Parking

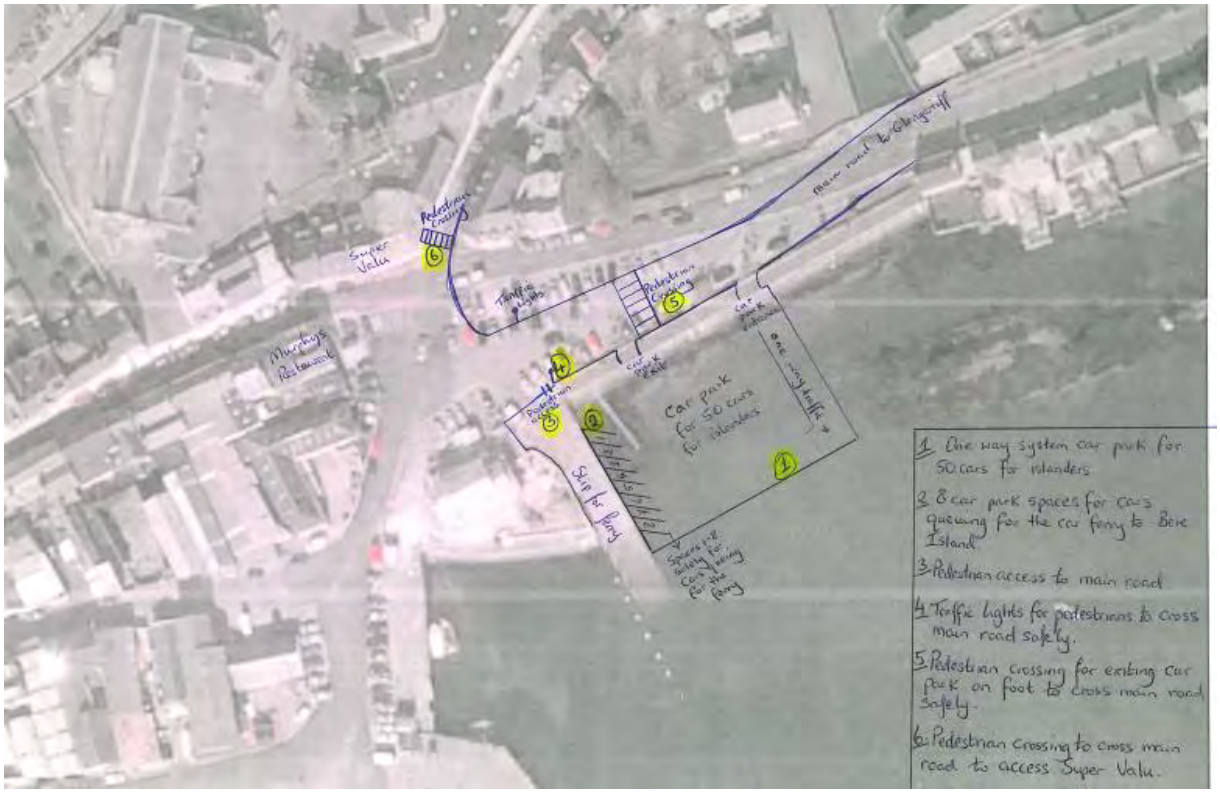
The current bus stop is in the middle of the square, with no pedestrian access and is obviously not wheelchair accessible

Bere Island Projects Group Ltd

Identified issues/problems;

Submission was centred on the area in the vicinity of the ferry landing adjacent to the Super Value junction. An annotated map was included highlighting the proposal:

1. Car parking spaces for 50 cars. From their research this would be a minimum of 50 car park spaces needed to service the island as many cars are left on the mainland.
2. Spaces for cars queuing for the car ferry. A proper queuing system is needed as often the current system extends out across the proposed main road.
3. Access from the slipway to the main road. In the interest of safety this will only serve as a pedestrian access.
4. Traffic lights. To ensure safe crossing of the road traffic lights are required alongside the pedestrian access.
5. Pedestrian crossing from the car park. To ensure safety when exiting the car park a pedestrian crossing is required.
6. Pedestrian crossing near Super Valu. To access Super Valu a pedestrian crossing is needed to safely cross.



Schools

Identified issues/problems;

Secondary School

1. The junction between the public road and the access road to the secondary school needs to be improved. The current alignment results in vehicles failing to yield when travelling from the school towards the public road.

Primary School

2. School buses set down on the North Road as they cannot get up to the Back Road to the school.
3. The lack of footpaths along the Back Road to the primary school creates unsafe conditions for school children.

Business Owners

Identified issues/problems;

1. Owner 'Former Beara Bay' Hotel
   Submission sets out traffic conditions in the vicinity of the 'Former Beara Bay' Hotel. Traffic utilising private car park as through route. Outlines traffic difficulties experienced when area to front of hotel closed off. Submission also highlights several potholes in the area.
2. Sarah Walker of Sarah Walker Gallery

   Opposed to a relief road from the pier along the inlet in front of the gallery building. This proposal would be cutting off pedestrian access to the sea and encouraging HGVs and general traffic. Such a road would cancel out the potential benefits of a seaside aspect.
3. Murphys Stores

   Customers have been using the area marked Black on the following map since the area was reclaimed in the 1970's.

There are currently approx 40 marked spaces in this area including 4 Handicapped Spaces. However over 80 vehicles are using this location at any given time during the week. This increases at times of commercial activity / mass / funerals etc.

It is paramount that accommodation is made for the businesses at the eastern end. At least 100 car park spaces should be made available in this area – It is imperative that status quo remains - the amount of cars parked in this area is replicated. If you had to line out the existing space according to the regulation then you would only get parking for approx 25 cars.

Would like to see a safe crossing in place at this junction that is accessible to wheelchair users and buggies.

The ideal location for parking for the East End of the town that would suffice business needs that make up the East End hub of the town is the area marked below.

This would provide parking for businesses in the town. It would also provide parking both long term and short term for islanders and fishermen who need to leave cars in the town for substantial periods of time. It would also give space to buses, tour buses and visitors alike.

Currently have 10 40ft deliveries to our backyard every week. We also have over 40 large trucks and numerous van etc that use the North Road access to the shop per week. Access to this area must be maintained at all times.

There are two areas that could be considered that are currently derelict adjacent to Super Valu, these are shown on the map below. There is a possibility to use these areas as an alternative access point to the main road. It is also worthy to note the adjacency of this area to the primary school where access and Health and Safety is also currently an issue.

Submissions from General Public

Identified issues/problems;

1. Pedestrians are not well catered for in Castletownbere – cars park and drive on footpaths.. Parking next to zebra crossings reduces visibility of pedestrians crossing the road. No signalised crossings. Speed of traffic too high.
2. Streets are too narrow for two way traffic due to parking. Introduce a one way system
3. Not enough parking available. Infill the harbour to provide more parking.
4. Bus stop is not prominent or wheelchair accessible.
5. Concern was expressed about the co- ordination of this study and the main drainage scheme
6. The availability of parking in close proximity to emergency services is a concern at fire station and for lifeboat crew
7. Concern about safety at Super Value junction
8. Zebra crossing in town not commissioned (lights never on)
9. Delivery trucks park by playground – not safe for children
10. Too many outdoor tables outside licenced premises (taking up parking spaces)
11. Dangerous junction at North Road/R571
12. Provision for wheelchair users is appalling throughout the town
13. Concern this study has missed the tourist season
14. Traffic system introduced for regatta week works very well
15. Absence of cycling facilities
16. Town needs gateway treatment to signify entering a town.
17. So much car parking in town centre makes the place ugly.
18. Town is very congested during funerals

19. Routing of trucks through the town is unsafe
20. Elderly and mobility impaired people are neglected
21. Signage is very poor and confusing
22. Cars are abandoned not parked
23. Kenmare and Clonakilty are good examples of what could be done
24. Castletownbere should be a nicer place for tourists to visit
25. Road surface is very poor. Several potholes particularly are west end.
26. Lighting along Mill Road is not sufficient.
27. Motorvan traffic is high due to Wild Atlantic Way. Need places for these to park.
28. Important that no parking is lost in the town
29. Difficult to walk to schools – need footpaths along Back Road
30. Need dedicated loading bays for deliveries in the town
31. All day parking should not be allowed on Main St
32. Promote off street parking
33. Car parked on footpaths should be clamped
34. Relief road required from west end of pier to silver dollar
35. Council yard should be turned into car park
36. Market on Thursdays should be banned. Takes up too much parking and causes too much disruption.
37. Need more disabled car parking
38. Relocate the playground
39. Access for deliveries is required during any road works
40. Parking regulations need to be enforced
41. Signage should be improved
42. Need to improve footpaths to Co-Action Centre
43. Can lands owned by the Department of Marine be used for more car parking?
44. School buses setting don on the Back Road use up car parking spaces for customers
45. An extension of rural transport services using minibuses would seem to be a practical way of moving towards a more integrated system, especially if linked to Bus Eireann routes and times.
46. Reduce speed limit around the Tallon Road to 50 kmh.
47. Install street lighting around the Tallon Road.
48. Install speed bumps between East end of Tallon Road and Silver Dollar.
49. Install a mini roundabout or island at the junction where the road from the secondary school meets Main Street.
50. Reinstate the STOP junction signs and road markings at the junction adjacent to The Old Bakery that meets Main Street.

51. Police parking on Zig Zag lines and pedestrian crossing at Bank Place.
52. Install STOP signs at Breens Corner and O'Donoghues corner North side of the Square.
53. Develop One Way system on Main Street between McCarthy's bar and the junction at the Pier.
54. Act on historic plan to by-pass town centre via a bridge across the "slob" West End.
55. The road outside Issie's (From Issie's eastwards) should be made pedestrianised. The main road (with a few speed bumps in the town) into CTB from Glengarriff could run closer to the ferry terminal to Bere Island. In saying this there would need to be proper facilities put in place for this to work. These would include (a) traffic lights so people can cross safely from the ferry terminal, (b) pedestrian access via footpaths and (c) traffic lights at Issie's and Super Valu so as to cross the road safely
56. A car park for Bere Islanders is essential

3. Conclusions

This report provides an overview of the responses received during the 1st public consultation on Castletownbere Transport Plan. The consultation process forms an important component of the development of the Transport Plan for Castletownbere.

The responses play a key role in developing a detailed understanding of the current issues affecting Castletownbere and its environs. The consultation process also provides an insight into potential solutions to these issues and a view as to how Castletownbere should develop in terms of transport improvements.

Arising from the public consultation the following are issues to be addressed by the study:

- Pedestrian facilities – Several submissions outline the view that the pedestrians are not well provided for within the town. The streets do not feel comfortable for pedestrians. There is an absence of safe crossings facilities and the speed of traffic is too high.
- Public realm – There was a view expressed that the public realm of Castletownbere town could be more attractive. A number of submissions outlined the view that the town centre is dominated by car parking which does little to reflect the unique, picturesque location of Castletownbere in West Cork.
- Parking – the quantum, location and availability of parking are issues that were raised throughout the consultation. It is proposed that a detailed parking survey be undertaken in the town to identify the existing demand and length of stay.
- Traffic circulation – many submissions expressed the opinion that the current circulation system for traffic in the town is not efficient and proposed the introduction of one way system to improve traffic flow.
- Relief road – To support a one way system a relief road along the inner harbour was proposed. Others preferred a relief road to the north of the town as contained in the Local Area Plan.
- HGV routing – The routing of HGVs through the town is an issue to be considered as part of the study
- Junction and Road Improvements will be developed for:
    - R571/R572 Super Value
    - North Road R571 Junction
    - North Road to Co-Action
    - West End along Main Street to Community Hospital
    - Options for Relief Road
    - Secondary School junction to public road
    - Primary school bus set down and pedestrian route along Back Road
    - Dinish Island Junction
- Public transport – The provision for public transport needs to be considered for the town. The existing bus location although centrally located is not particularly prominent or visible. Layover space for coach and tourist buses is also required.

4. Appendix 1

CASTLETOWNBERE TRANSPORT STUDY

PROJECT OVERVIEW

BACKGROUND

Cork County Council have commissioned AECOM to assist in preparing a Transport Study for Castletownbere .

The plan will determine the transport interventions required to improve traffic and transport conditions in the town. Issues that will be addressed by the plan include traffic congestion, parking, traffic management, road safety, accessibility, public transport, walking and cycling.

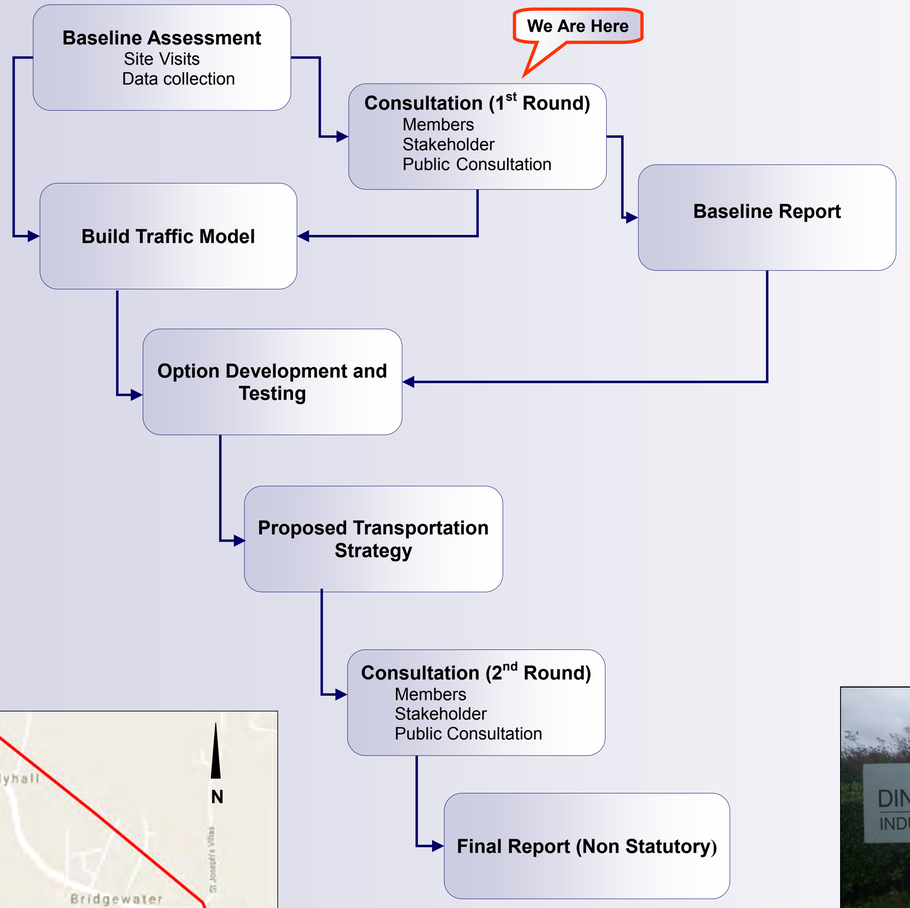
The transportation strategy developed will complement local public transport, walking and cycling, creating an attractive urban environment and promoting accessibility to all. The study area is indicated below in red.

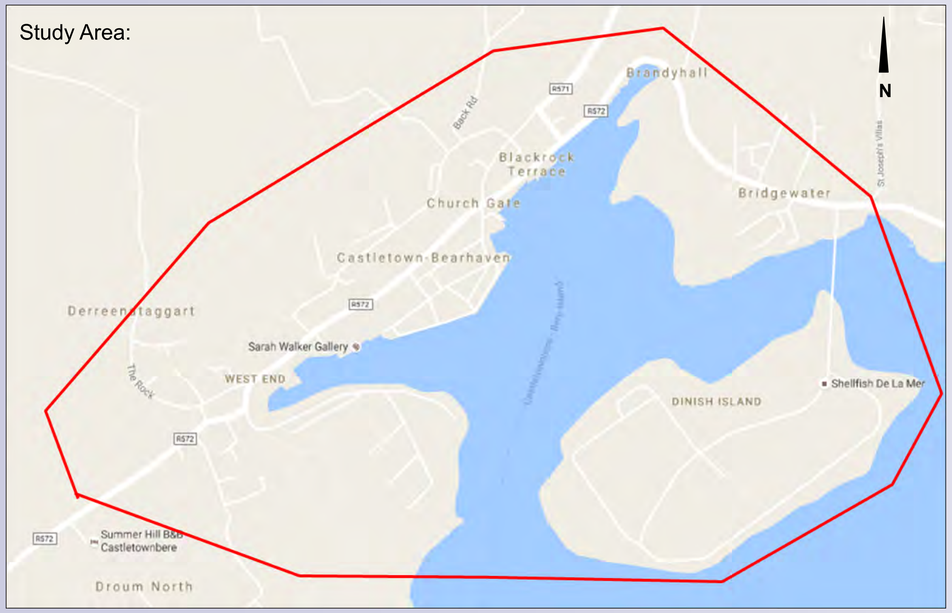
OBJECTIVES

The main aim of this study is to review the transportation context of Castletownbere and identify and recommend interventions as appropriate.

It is intended that this Transport Study will inform reviews of the development plans and the preparation of local area plans in the future, and will guide transportation investment.

METHODOLOGY





PURPOSE OF THIS CONSULTATION

The purpose of this public consultation is to listen to anybody who lives, works, shops, goes to school and uses the town in order to understand the current issues and obtain any and all views on potential solutions.

Please let us know your views on:

- Current traffic conditions in Castletownbere
- What should be improved?
- What are the problem junctions?
- How to support a vibrant town centre?
- How to create a more efficient transport network?

BASELINE ASSESSMENT

SITE VISITS

Detailed site visits were undertaken covering the entire study area. These site surveys identified issues with:

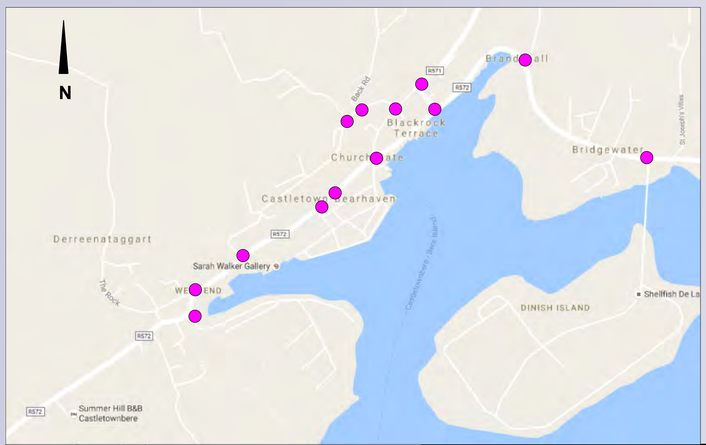
- Congestion
- Parking
- Road Safety
- HGV Traffic
- Pedestrian and Cyclist Facilities
- Disability Access and Facilities
- Delivery Vehicles

TRAFFIC SURVEYS

A detailed programme of data collection will be undertaken in order to ensure that a full understanding of the current traffic situation in the study area could be established. Extensive traffic surveys are proposed at key locations throughout the study area. These surveys provide the necessary information required to produce a detailed traffic model of the area which will inform the land use and transportation study. They will also form a base of quality traffic information which can be used by Cork County Council in the future. These surveys included:

JUNCTION COUNTS

Junction Counts will be undertaken at thirteen sites throughout the area. At each particular location the traffic counts will detect and count passing vehicles and their direction. See below for details of locations.



Legend

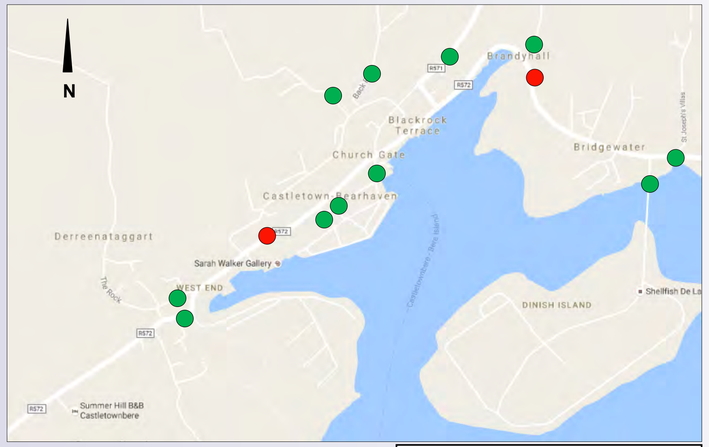
Junction Count s

AUTOMATIC TRAFFIC COUNTERS ON ROADS

Automatic Traffic Counters (ATCs) will be undertaken at two sites, recording daily two-way traffic movements on specific roads for a one week period. Automatic Traffic Counters (ATC) capture information on the direction of passing traffic, the speed at which a vehicle is travelling, the number of vehicles and their classification into cars, lorries, buses or coaches etc. See location map below.

ORIGIN DESTINATION SURVEYS

Origin – destination surveys will be undertaken at eleven sites. These origin-destination surveys will be used to established all external and internal trips within the study area.



Legend

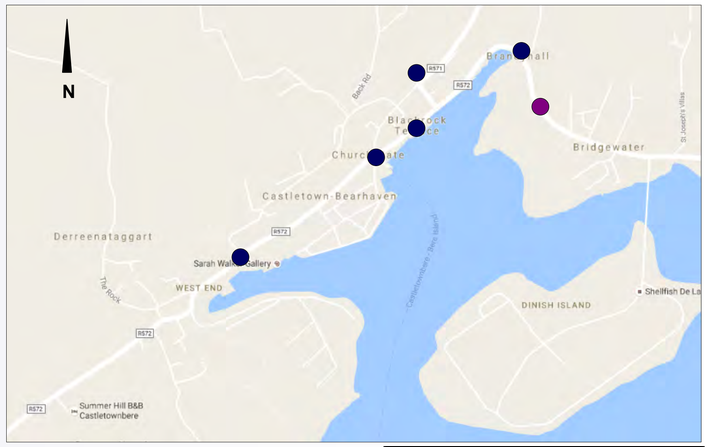
OD Survey Points

ATC Survey Points

ROAD SAFETY ASSESSMENT

Accident data from the Road Safety Authorities database will be studied. The data will be interrogated to identify geographical and numerical clusters of accidents. The data covers the years 2005 — 2013. The interrogation will be undertaken by focusing on the following criteria.

- Severity and location of accidents
- Severity and location of vehicular accidents (excluding pedestrians and cyclists)
- Severity and location of pedestrian & cycle accidents
- Location of any concentrations of serious injuries/fatalities



Legend (Source: Road Safety Authority)

Fatal

Serious

Minor

BASELINE ASSESSMENT

CONSULTATION

Extensive consultation in the form of both stakeholder and public consultation form an important part of developing and delivering the study objectives. The primary aims of the consultations to be carried out are to:

- Gauge the opinions of the general public, local groups, businesses and educational institutions about existing and future conditions in the study area;
- Engage with relevant local authorities and transport providers; and
- Encourage a sense of public ownership of the overall study.

Through both public and stakeholder consultation, a wide spectrum of opinions will be voiced which will reflect the differing experiences of the respondents.

PUBLIC CONSULTATION

The purpose of this public consultation is to assist in determining the issues and problems within the study area. The public's input is vital at this stage of the project in assisting our understanding of the current issues and enabling us to develop effective strategies and proposals. Issues and concerns raised in the initial public consultation will be considered in the formulation of transportation scenarios.

Cork County Council hereby invites any interested parties to make a submission to the undersigned before 11th November 2016. Any submissions or observations so made will be taken into consideration by the Council in the preparation of the study.

Submissions or observations in electronic format can be e-mailed to: eoin.omahony@aecom.com before Friday 11th November 2016 or delivered to:

Castletownbere Transport Study
c/o Eoin O'Mahony
AECOM
Douglas Business Centre,
Carrigaline Road
Douglas,
Co. Cork.

A further round of public consultation will take place later in the study whereby the study produced will be presented and explained, and any additional comments considered.

STAKEHOLDER CONSULTATION

Stakeholder consultation is an important and essential part of the study, to ascertain their concerns. At this stage, the consultation will focus on identifying existing issues and future pressures, in addition to understanding the aspirations of the different organisations.

As part of the stakeholder consultation, we would welcome the input of people or organisations with knowledge of or an interest in transportation and land use in the study area.

Please contact the study team for an appointment if you would like to meet a member of the team during the consultation period.

BASELINE ASSESSMENT

The 'Baseline assessment Report' is an important tool for documenting existing problems and deficiencies in the current transport situation in the study area

This report will incorporate issues raised in the consultation process so as to ensure that a high level of engagement is reached with all interested parties. The output from this stage of the study is a clear summary of the issues to be addressed by the proposals and strategies. These proposals and strategies should then facilitate the delivery of the overall study objectives.

OPPORTUNITIES FOR IMPROVEMENT

Below is a typical list of opportunities for improvement within the transportation network:

Walking
Safer approaches to town and schools
Improved surfacing
Wider footpaths
Improved lighting
Routes for Walking and Cycling only

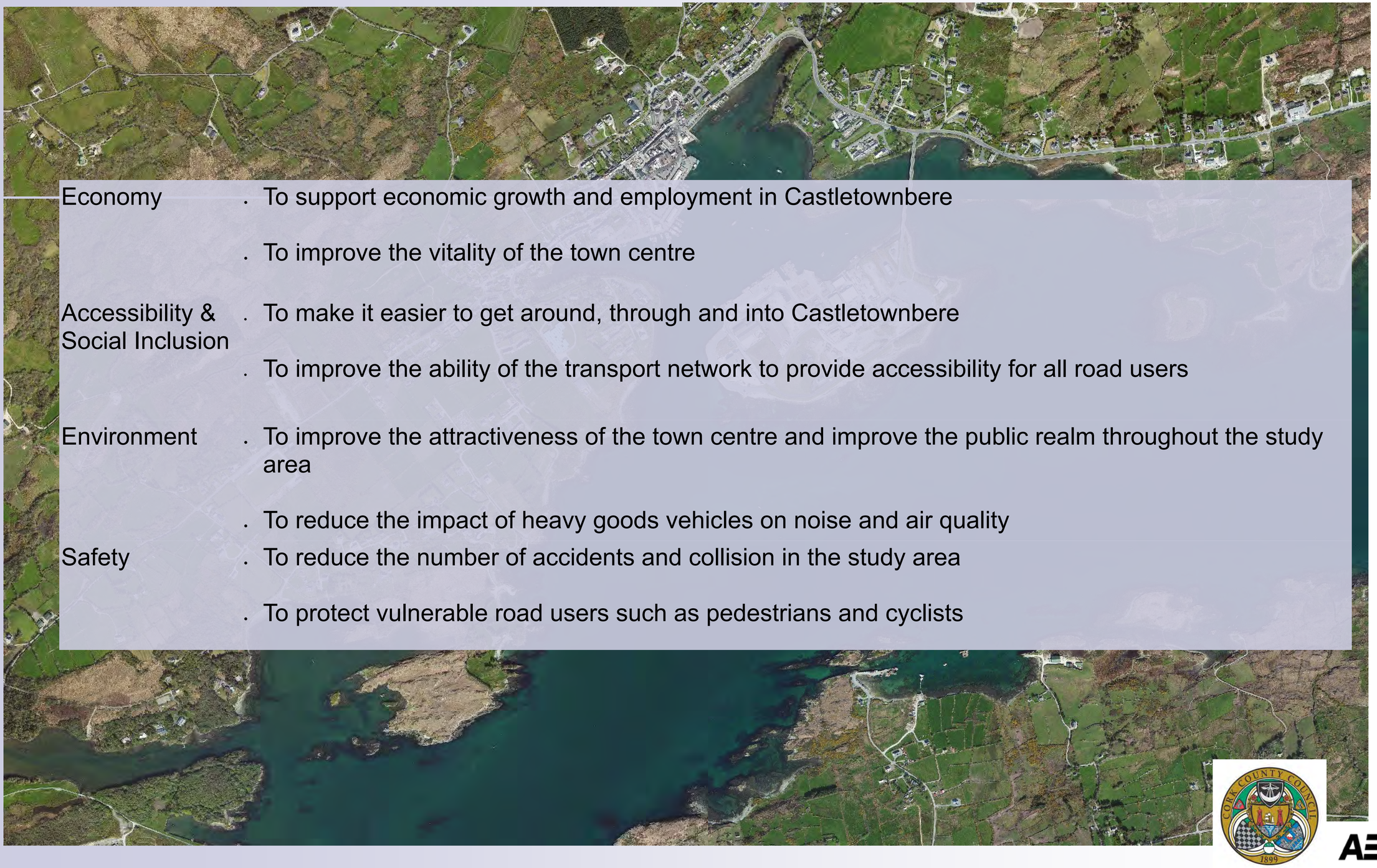
Cycling
New cycle routes
Improved surfacing
Clearer signing
Parking and storage facilities
Routes for Walking and Cycling only

Public Transport
Improve bus stops
Review bus frequency
Increase accessibility
Provision for school bus parking

Private Vehicles
Car parking/loading bay provision
Routing of Heavy Goods Vehicles
Increase signage
Junction improvements

PROJECT OBJECTIVES

EMERGING PROJECT OBJECTIVES



Economy	. To support economic growth and employment in Castletownbere
	. To improve the vitality of the town centre
Accessibility & Social Inclusion	. To make it easier to get around, through and into Castletownbere
	. To improve the ability of the transport network to provide accessibility for all road users
Environment	. To improve the attractiveness of the town centre and improve the public realm throughout the study area
	. To reduce the impact of heavy goods vehicles on noise and air quality
Safety	. To reduce the number of accidents and collision in the study area
	. To protect vulnerable road users such as pedestrians and cyclists

AECOM

ISSUES PICTURES 1

NARROW STREETS 2 WAY TRAFFIC

CAR PARKING

NARROW FOOTPATHS

RESTRICTED FOOTPATH WIDTH FOR PEDESTRIANS

HGV ROUTING THROUGH TOWN

PUBLIC REALM

ISSUES PICTURES 2

PEDESTRIAN CROSSINGS

NARROW STREETS

DELIEVERIES AND COMMERCIAL TRAFFIC

COMMERCIAL TRAFFIC

LACK OF CYCLING FACILITIES

Walking and Cycling

We want to hear your views on walking and cycling in Castletownbere

Is Castletownbere safe and attractive to walk and cycle in?

Do many children walk and cycle to school?

Is it easy to walk and cycle in Castletownbere?

What needs to be improved to encourage more people to walk and cycle?

Traffic Conditions

We want to hear your views on traffic conditions in Castletownbere

Is traffic congestion an issue in Castletownbere?

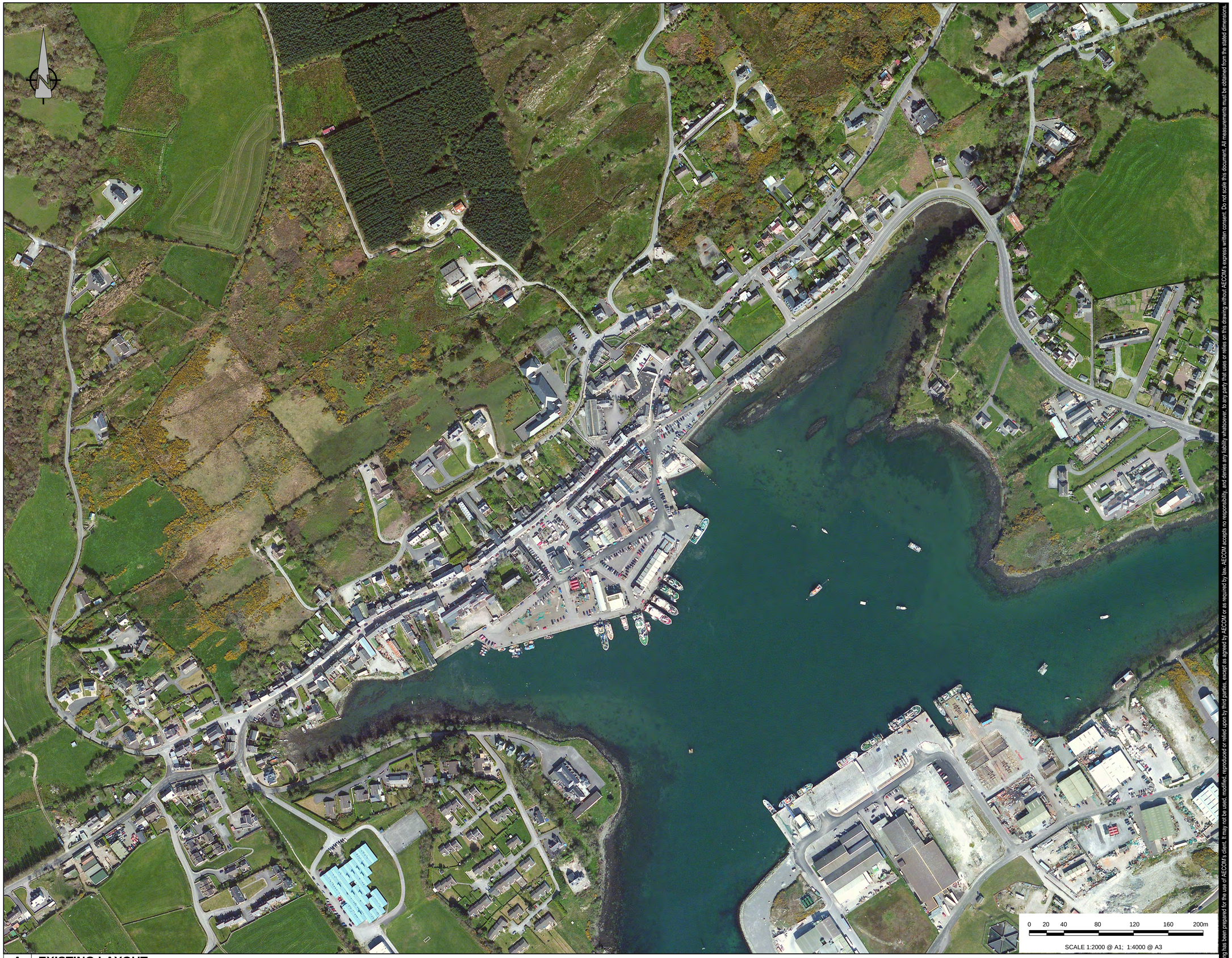
When and where does it occur?

What causes the congestion?

What could be done to improve traffic flow?

How does HGV traffic affect the road network?

Project Management Initials: ____ Designer: ____ Checked: ____ Approved: ____ ISO A1 594mm x 841mm



A	EXISTING LAYOUT
001	Scale: 1:2000 @ A1

AECOM

PROJECT

CASTLETOWNBERE TRANSPORT SUTDY

CLIENT

Cork County Council
Comhairle Contae Chorcaí

CONSULTANT

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NOTES:

1. THIS DRAWING IS TO BE READ IN CONJUNCTION WITH ALL OTHER RELEVANT ARCHITECTURAL AND ENGINEERING DRAWINGS, ANY DISCREPANCIES, ERRORS OR OMISSIONS TO BE BROUGHT TO THE ATTENTION OF THE DESIGNER.
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3. AECOM LIMITED TO BE INFORMED BY THE CONTRACTOR OF ANY DISCREPANCIES PRIOR TO THE COMMENCEMENT OF WORKS ON SITE.
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5. DO NOT SCALE, ALL MEASUREMENTS AND COORDINATES TO BE CHECKED ON SITE.

ISSUE/REVISION

I/R	DATE	DESCRIPTION

KEY PLAN

PROJECT NUMBER

SHEET TITLE

EXISTING LAYOUT

SHEET NUMBER

001

Last saved by: HANNANR(2016-10-03) Last Plotted: 2016-10-03
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5. Appendix 2

Client:	CASTLETOWNBERE DEVELOPMENT ASSOCIATION
Project:	TRAFFIC MANAGEMENT PLAN SUBMISSION 2016
Drawing Status:	ISSUE FOR DISCUSSION
Drawing Title:	OVERVIEW – TOWN CENTRE
Scale:	A1 – 1:1,000
O.S.S.	CK115

Glen Design Partnership T/A
John J. O'Sullivan & Associates
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Drawn By:	John Galvin, B.Sc. Arch. Tech.
Checked By:	Gerard Harrington B.Sc. Arch. Tech.
Date:	23/11/2016
Dwg No:	S00151601-00-141116 –

Castletown Bearhaven
School
NATIONAL SCHOOL
SACRED HEART CHURCH
Church (Cath)
10KV
SUPERVALU
TK'S
School
Seaview Tce
14.9
4.5
Brandyhall Bridge
4.1
5.3
7.6
HWM
7.8
3.9
Castle Heights
PARKING
Blar
Ca
2.5
RNLI
'ARRO' HARDWARE
FUTURE SLIP LOCATION
ALTERNATIVE ROUTE
SPAR
AIB BANK
LIBRARY
FIRE
SERVICE STATION
Imps in prog
PO
POST
TKs
St. Peter's Church (C of I)
Hotel
Tks
rrack oint
Sand & Shingle

- Two-Way Traffic
- One-Way Traffic
- 2m Footpaths
- Parking Areas

N

John J. O'Sullivan & Associates
MAGIC DAY 21st
SUNSET
SUNRISE
MAGIC DAY 21st
WINTER SOLSTICE 21st

Client:	CASTLETOWNBERE DEVELOPMENT ASSOCIATION
Project:	TRAFFIC MANAGEMENT PLAN SUBMISSION 2016
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Date:	23/11/2016
Dwg No:	S00151601-00-141116

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Appendix B Assessment Framework

Scenario	Scenario A	Scenario B	Scenario C	Notes
Name	Do Nothing	Traffic Management No.1	Traffic Management No.2	Scenarios A-C will allow the optimum traffic circulation option to be identified in the town centre and how it can be expected to perform over the next 10 years.
Year	2026	2026	2026	
Land Use	Builds out as per Local Area Plan by 2036 (pro-rated to 2026)	Builds out as per Local Area Plan(pro-rated to 2026)	Builds out as per Local Area Plan(pro-rated to 2026)	
Transport Network	Current arrangements remain 	One way system (eastbound on Main St) 	One way system (westbound on Main St) 	
Notes	Scenario A facilitates comparison against current situation (base model)	Scenario B establishes impact of one way system on Main Street	Scenario C establishes impact of alternate one way system on Main Street	

Scenario	Scenario D	Scenario E	Scenario F	Notes
Name	Do Traffic Management Proposals (Select best performing Scenario A-C)	Do Roads Proposals (Select best performing Scenario A-C & Northern Road)	Do Roads Proposals (Select best performing Scenario A-C, Northern & Southern Road)	Scenarios D-F will assist in identifying the long term road network to accommodate the full build out of the town over the next 20 years.
Year	2036	2036	2036	
Land Use	Builds out as per Local Area Plan	Builds out as per Local Area Plan(with lands served by Northern Road)	Builds out as per Local Area Plan(with lands served by Northern Road)	
Transport Network				
Notes	Scenario D will establish if a relief road is warranted	Scenario E facilitates understanding the role the Northern Road will serve (ie. Access to development lands)	Scenario F allows benefit of Southern relief road to be understood and the overall performance of the network in fully loaded conditions	

Appendix C Traffic Microsimulation Report

AECOM Imagine it. Delivered.

Castletownbere Transport Study

Traffic Modelling Report

Cork County Council

Project number: 60535188

14 April 2017

Quality information

Prepared by	Checked by	Approved by
Timi Vibal Senior Consultant	Eoin O'Mahony Associate Director	Joseph Seymour Director

Revision History

Revision	Revision date	Details	Authorized	Name	Position
Revision 1	01/06/2017	2036-G scenario added	EOM	TV	Senior Consultant

Distribution List

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Cork County Council

Prepared by:

AECOM Ireland Limited
Douglas Business Centre
Carrigaline Road
Douglas, Cork T12 P088
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Table of Contents

Figures

Tables

Introduction

01

1. Introduction

1.1 Background

This Micro-simulation Modelling Report outlines the development, calibration & validation and traffic forecasting for the VISSIM model for Castletownbere. The traffic micro-simulation model has been developed to assess the future transport needs of the town. The model has been used to assess the impact of the anticipated traffic growth due to land use schedule based on the West Cork Municipal District Local Area Plan (LAP) and to test the traffic management and road proposals within the study area.

A number of traffic management and road proposals options forms part of the transport study. This includes the testing and evaluation of one-way system eastbound/westbound options on Main Street for year 2026 and the provision of Northern Road and Southern Road options for year 2036. The study area and extent of the traffic model is illustrated in Figure 1.1.

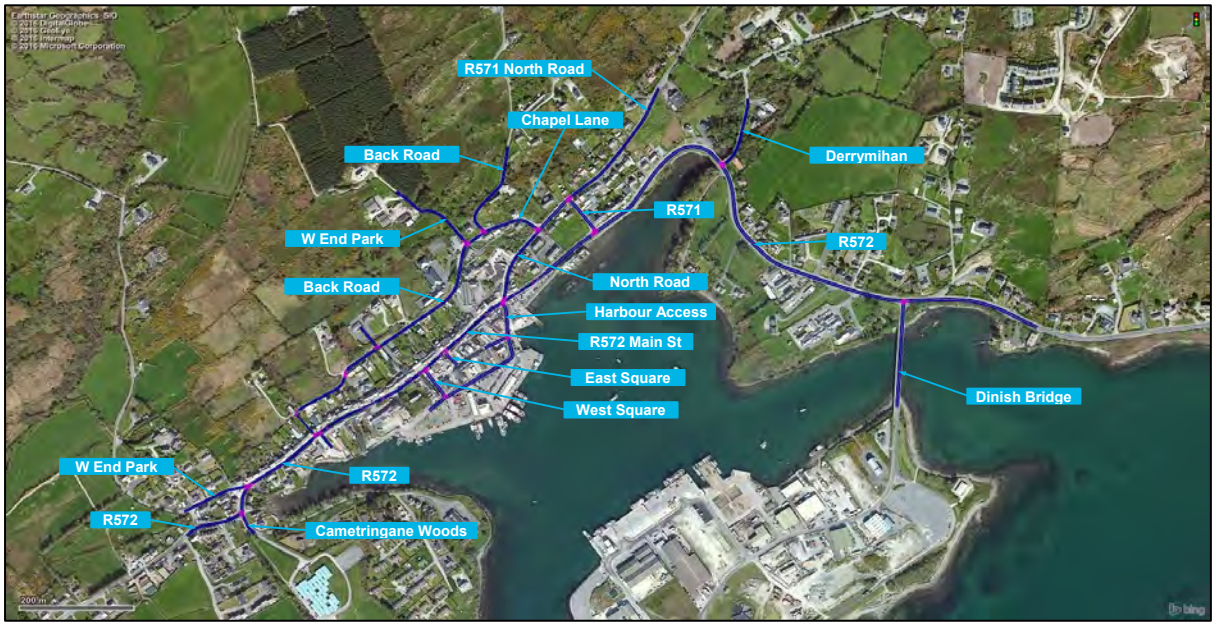

Figure 1.1 Extent of the Micro-simulation Model

1.2 Traffic Modelling Guidelines

The traffic micro-simulation modelling has been prepared in accordance with the following guidelines:

- Project Appraisal Guidelines for National Roads Unit 5.1 – Construction of Transport Models, PE-PAG-02015, October 2016;
- Project Appraisal Guidelines for National Roads Unit 5.2 – Data Collection, PE-PAG-02016, October 2016;
- Project Appraisal Guidelines for National Roads Unit 5.3 – Travel Demand Projections, PE-PAG-02017, October 2016;
- Project Appraisal Guidelines for National Roads Unit 5.4 – Transport Modelling Report, PE-PAG-02018, October 2016;
- Traffic Modelling Guidelines, TfL Traffic Manager and Network Performance Best Practice, Version 3.0, September 2010; and
- PTV VISSIM 9 User Manual, September 2016.

1.3 Report Structure

This report is structured into the following sections:

- Section 2: Data Collection

  This section presents a review of the existing traffic conditions within the study area. Vehicle junction turning counts and speed data can be found in this section.

- Section 3: Model Development

  This section presents the methodology used to develop the model road network, driver behaviours, matrix building and assignment.

- Section 4: Model Calibration and Validation

  This section presents the comparison of the observed and modelled traffic data and checked against the calibration & validation criteria and acceptability guidelines as set out in the TII PAG.

- Section 5: Future Year Model Development

  This section presents the assessment of traffic management options and road proposals for future years 2026 and 2036.

- Section 6: Summary and Conclusion

  This section summarises the model development, calibration & validation procedures and modelling results for Base and future years 2026 and 2036. This section also presents the key findings and conclusion of the study.

Data Collection

02

2. Data Collection

2.1 Introduction

In order to develop the traffic micro-simulation model, a significant level of traffic data is required to ensure that the models can replicate the existing morning peak and evening peak traffic patterns and volumes. This section of the report describes the collection of data for the development of the Base models.

2.2 Traffic Surveys

A summary of the traffic survey data that was collected as part of the development of the Base model is outlined in Table 2.1.

Table 2.1 Traffic Survey Data

Survey Type	Description
Traffic Count	Junction Turning Count (JTC) surveys at 13 locations were carried out on Tuesday 4th October 2016 between 07:00-10:00 and 16:00-19:00. JCT resurveys at 2 locations were carried out on Tuesday 29th November 2016 between 07:00-10:00.
	Automatic Traffic Count (ATC) surveys at 2 locations were carried out within 7-day period between Monday 3rd October and Sunday 9th October 2016 inclusive.
Journey Time	Journey time surveys were collected for 6 paths within the study area.
Speed Data	Speed data were collected for 2 locations as part of the ATC surveys.

The location of the traffic surveys is illustrated in Figure 2.1.

Figure 2.1 Traffic Survey Locations

2.2.1 Junction Turning Counts

A JTC captures the total number of vehicles turning at a junction and observes which turn they take. The vehicles are classified into different categories including Car, Light Goods Vehicle (LGV), Other Goods Vehicle (OGV), Bus, Motorcycle (M/C) and Pedal Cycle (P/C). JTC surveys were undertaken at 13 junctions on Tuesday 4th October 2016 between 07:00-10:00 and 16:00-19:00. Traffic flow was classified by vehicle type and recorded in 15-minute time intervals. The following junctions were surveyed (see Figure 2.1 for locations map):

- Site 1: R572 / Dinish Bridge Junction;
- Site 2: R572 / Derrymihan Road Junction;
- Site 3: R572 / R571 Junction;
- Site 4: R571 / North Road Junction;
- Site 5: Chapel Lane / North Road Junction;
- Site 6: Back Road / Chapel Lane Junction;
- Site 7: Back Road / W End Park Junction;
- Site 8: R572 / North Road Junction;
- Site 9: Main Street / East Square Junction;
- Site 10: Main Street / West Square Junction;
- Site 11: Main Street / Back Road Junction;
- Site 12: R572 / W End Park Junction; and
- Site 13: R572 / Cametringane Woods Junction.

Sites 9 and 10 were resurveyed on Tuesday 29th November 2016 between 07:00-10:00.

The vehicle junction turning counts at 13 sites within the study area are presented for the AM and PM peaks in Figures 2.2 to 2.4.

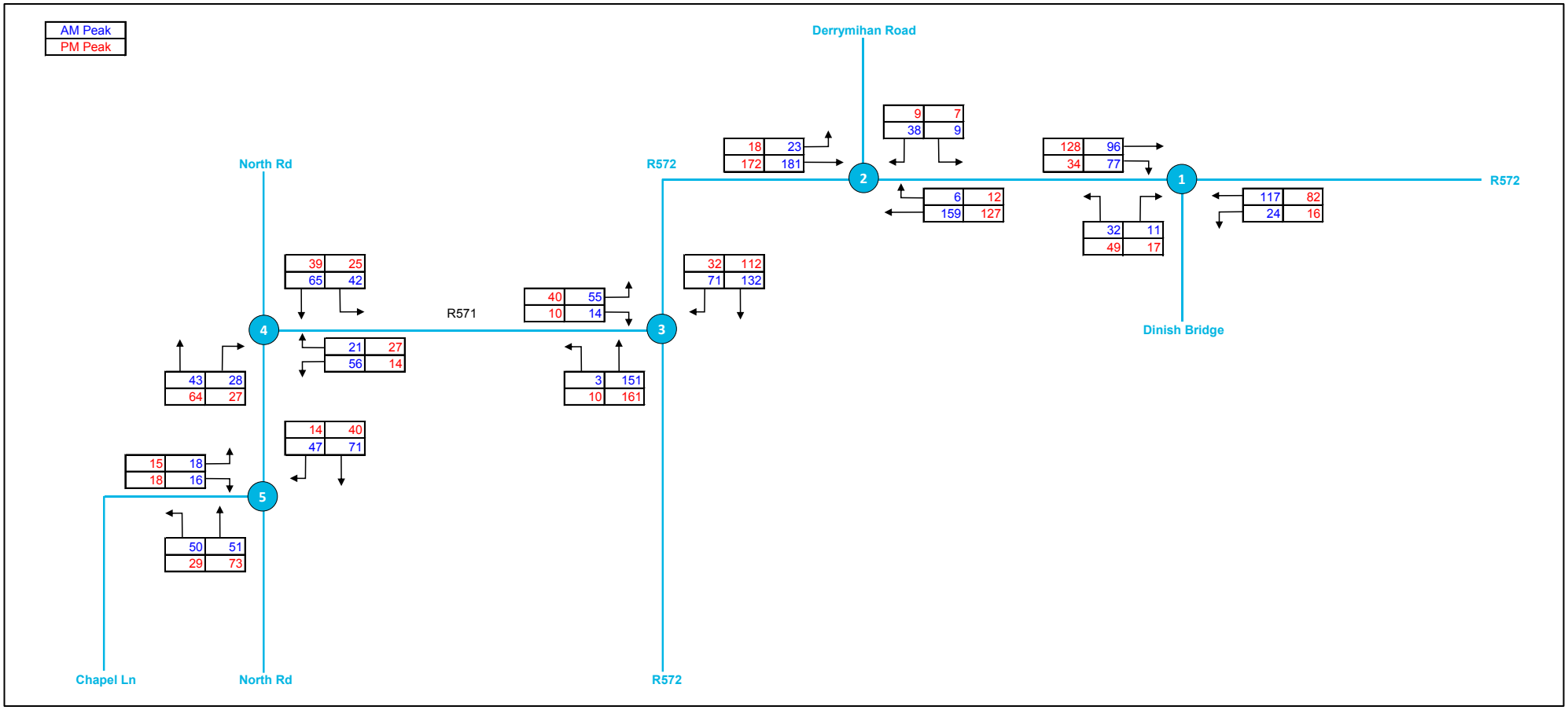

Figure 2.2 JCT for Sites 1 to 5

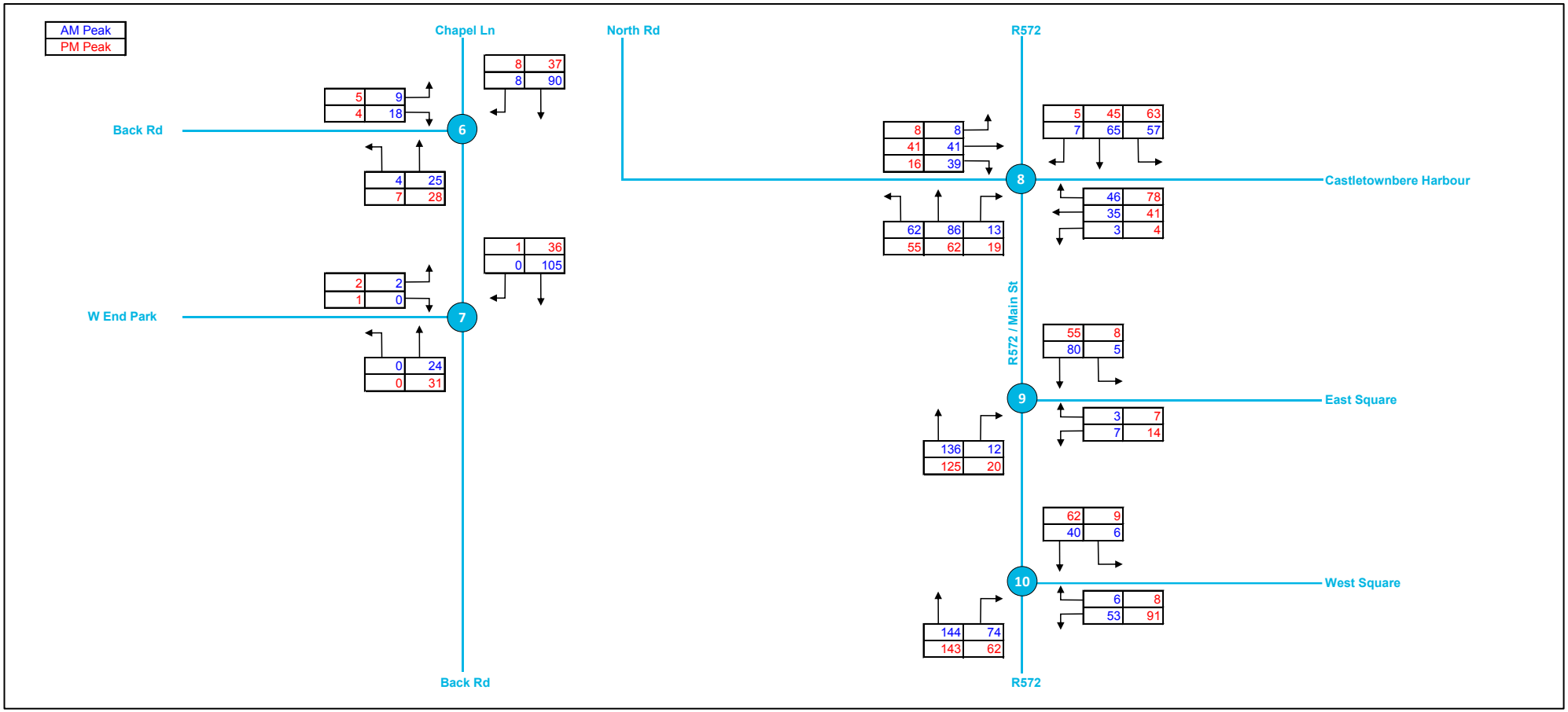

Figure 2.3 JCT for Sites 6 to 10

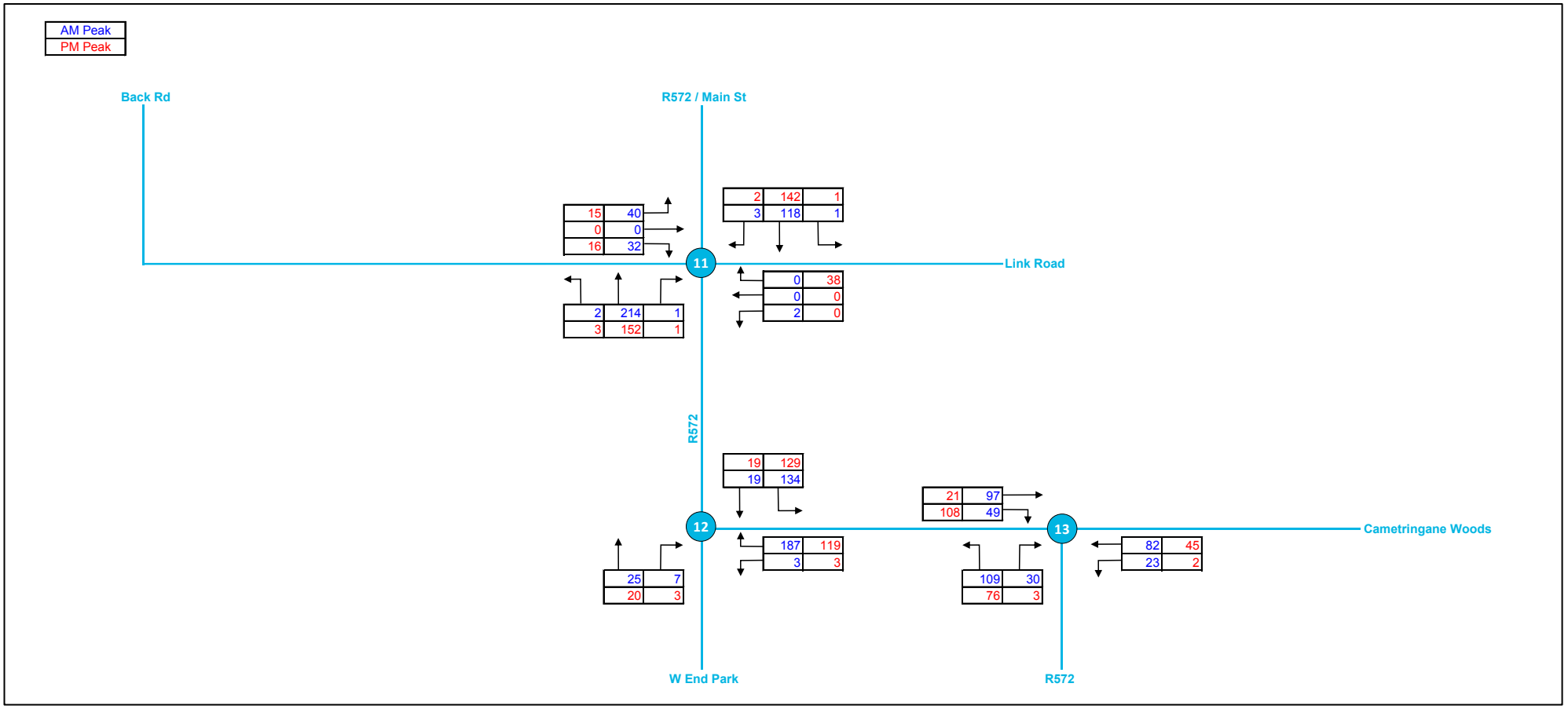

Figure 2.4 JCT for Sites 11 to 13

2.2.2 Automatic Traffic Counts

An ATC captures the number of vehicles passing a given point on a road and classifies the vehicles into different vehicle classifications including Motorcycle, Pedal Cycle, Cars, LGV & PSV (2-axle) OGV1 & PSV (3-axle) and OGV2. Traffic flow data extracted from the 2 ATC site surveys at the following point locations (see Figure 2.1 for locations map):

- Site A: R572 East of Town Centre; and
- Site B: R572 Town Centre.

The ATC surveys were carried out for 7-day period between Monday 3rd October and Sunday 9th October 2016. The weekday 15-minute average flow per vehicle class for each of the survey sites above is illustrated in Figures 2.5 to 2.8.

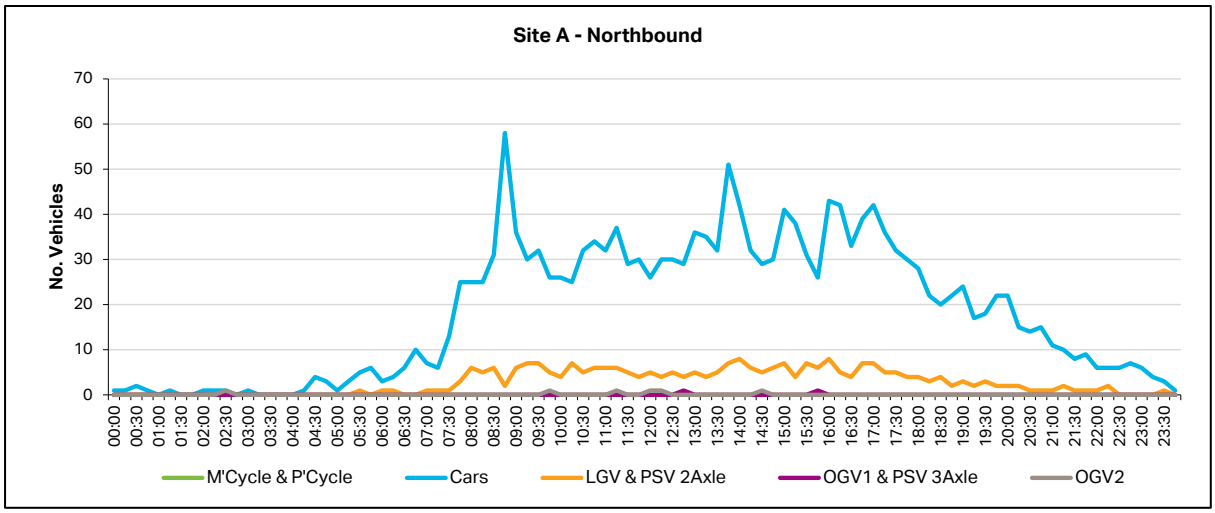

Figure 2.5 ATC for Site A – R572 East of Town Centre Northbound

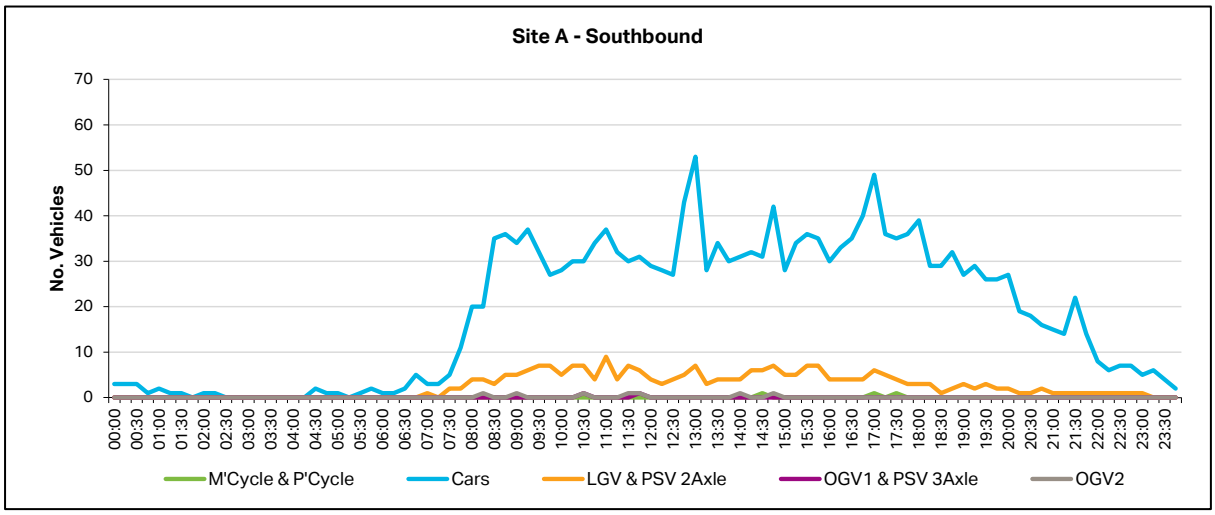

Figure 2.6 ATC for Site A – R572 East of Town Centre Southbound

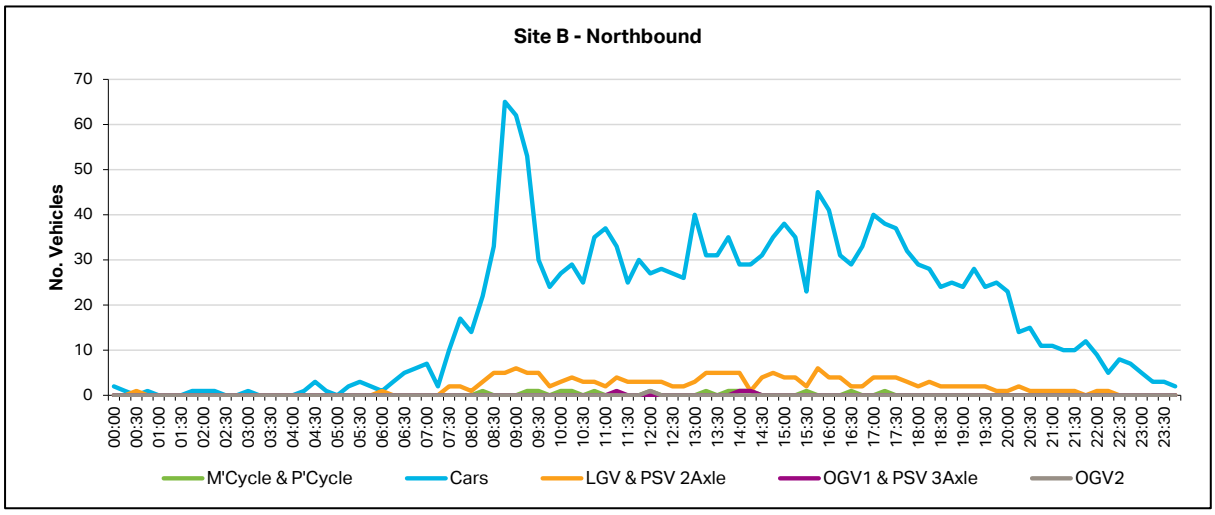

Figure 2.7 ATC for Site B – R572 Town Centre Northbound

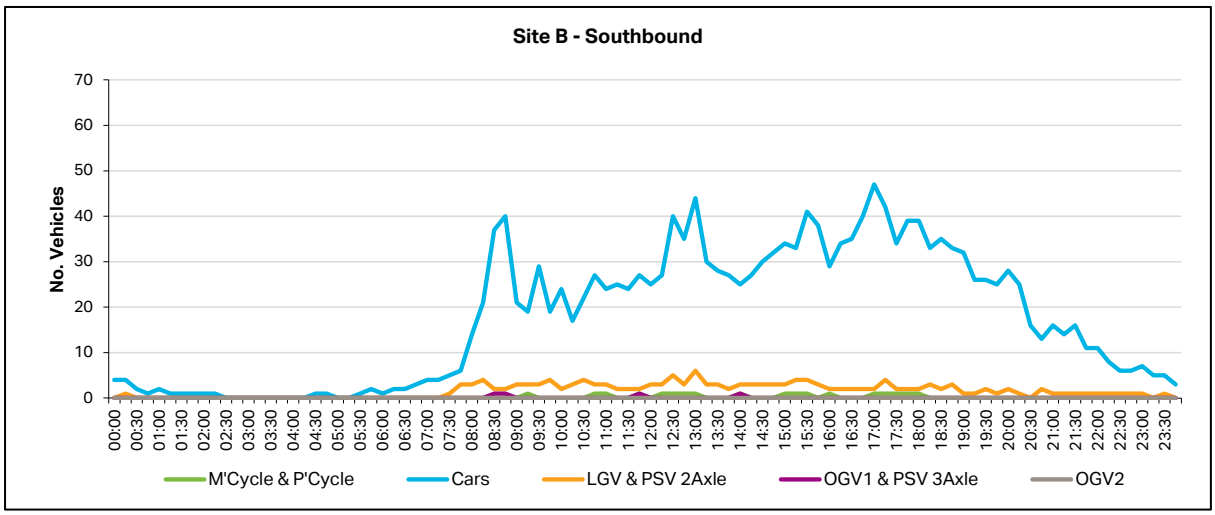

Figure 2.8 ATC for Site B – R572 Town Centre Southbound

2.2.3 Speed Data

Speed data for 2 sites were collected as part of the ATC surveys (see Figure 2.1 for locations map). The summary of the speed data for each direction at the survey sites are summarised in Table 2.2.

Table 2.2 Average Speed

	Time	Average Speed (kph)			
		ATC Site A R572 East of Town Centre		ATC Site B R572 Town Centre	
		Northbound	Southbound	Northbound	Southbound
AM Peak	08:15	51.1	49.0	34.0	32.1
	08:30	50.3	47.7	33.6	31.1
	08:45	49.9	47.1	30.6	28.8
	09:00	47.6	47.3	30.8	25.2
	09:15	48.5	46.3	28.9	25.8
	09:30	48.3	45.6	27.5	25.7
	09:45	47.7	45.4	27.7	26.2
PM Peak	15:45	47.3	45.6	24.7	24.6
	16:00	47.5	47.1	26.3	25.2
	16:15	48.5	45.9	25.7	24.5
	16:30	46.6	46.6	26.2	25.3
	16:45	47.0	45.8	26.3	25.2
	17:00	48.9	46.0	25.4	24.5
	17:15	47.0	47.2	24.6	24.7

2.2.4 Journey Time

Journey time data were collected for 6 paths within the study area. These paths are outlined below and the start and end point locations are illustrated in Figure 2.9.

- Path 1: (A to B) R572 South to R572 North;
- Path 2: (B to A) R572 North to R572 South;
- Path 3: (A to C) R572 South to North Road;
- Path 4: (C to A) North Road to R572 South;
- Path 5: (D to E) Back Road to R572 North; and
- Path 6: (E to D) R572 North to Back Road.

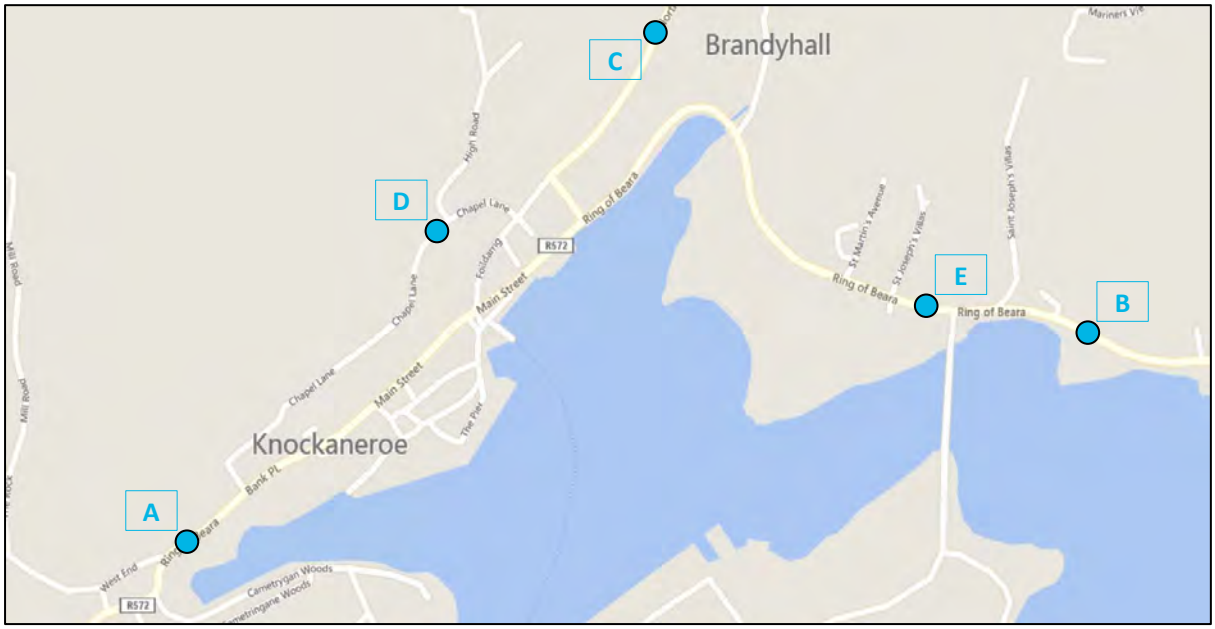

Figure 2.9 Point Locations for Journey Paths

The existing journey times are based on the Google Maps Distance Matrix API (Application Program Interface) which provides travel distance and time for a matrix of origins and destinations. In order to utilise the application program easily, AECOM developed a bespoke Visual Basic for Applications (VBA) spreadsheet which allows recording of journey times for specific time of the day or real time. The spreadsheet was used to record real time journey times on Monday 28th to Wednesday 30th November 2016. The recorded journey times are summarised in Table 2.3 for morning peak, which remained unchanged during the evening peak.

Table 2.3 Average Journey Times

Path No.	Start Point	End Point	Description	Journey Time (mm:ss)
1	A	B	R572 South to R572 North	03:42
2	B	A	R572 North to R572 South	03:45
3	A	C	R572 South to North Road	02:46
4	C	A	North Road to R572 South	03:40
5	D	E	Back Road to R572 North	02:44
6	E	D	R572 North to Back Road	02:39

Model Development

03

3. Model Development

3.1 Overview

This section of the report describes the development of the modelled road network, assignment and matrix building. The micro-simulation models have been developed for the following time periods. This includes 15-minute warm up and cool down periods.

- AM Peak: 08:15 – 09:45; and
- PM Peak: 15:45 – 17:15.

The peak hours were defined following an assessment of the ATCs and JTCs within the study area. The summary of the traffic flow for the JTC survey sites is presented in Figure 3.1.

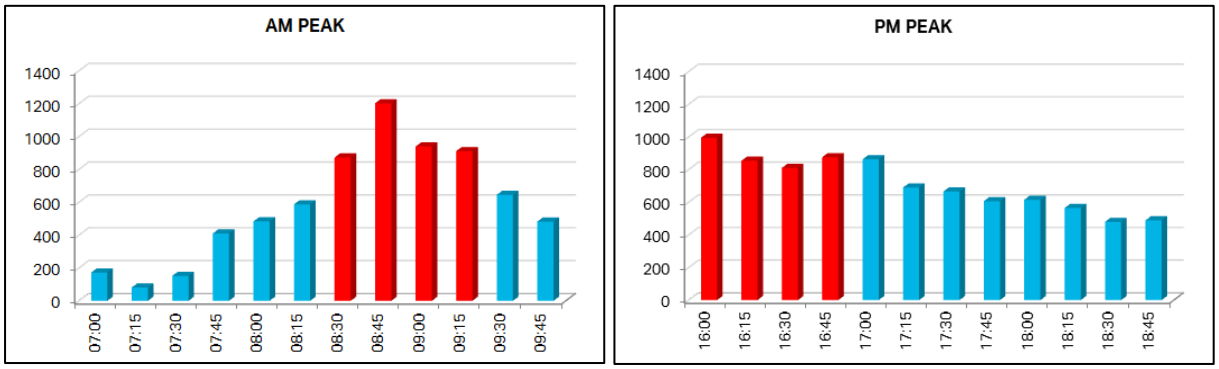

Figure 3.1 Peak Hour Selection

3.2 Network Coverage

A 2016 Base model was developed with network coverage as shown in Figure 1.1 in Section 1 of this report. The extent of the micro-simulation model covers the following areas:

- R572 / Dinish Bridge 3-arm priority junction;
- R572 / Derrymihan Road 3-arm priority junction;
- R572 / R571 3-arm priority junction;
- R571 / North Road 3-arm priority junction;
- Chapel Lane / North Road 3-arm priority junction;
- Back Road / Chapel Lane 3-arm priority junction;
- W End Park / Back Road 3-arm priority junction;
- R572 / North Road 4-arm priority junction;
- Main Street / East Square 3-arm priority junction;
- Main Street / West Square 3-arm priority junction;
- Main Street / Back Road 4-arm staggered priority junction;
- R572 / W End Park 3-arm priority junction; and
- R572 / Cametringane Woods 3-arm priority junction.

3.3 Zoning System

Zones are the start and destination points of the vehicles within the modelled road network. In traffic modelling, these are usually allocated at the end of the links that provide access to and exit from the road network. The micro-simulation model was coded with 18 zones and is illustrated in Figure 3.2.

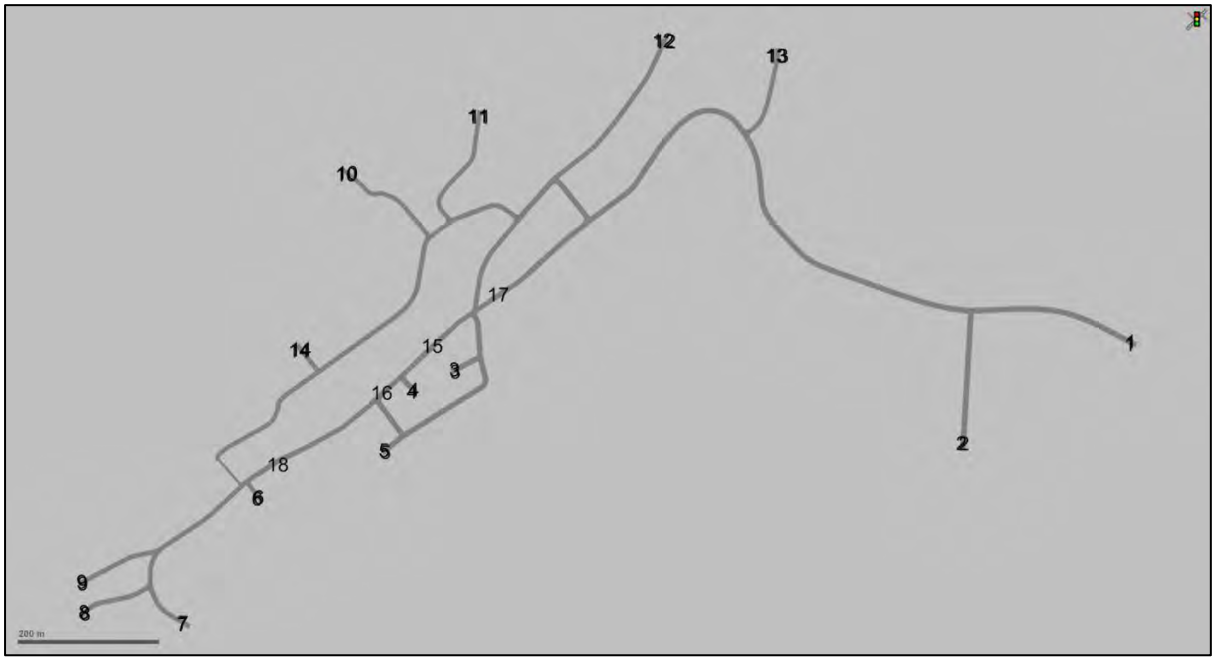

Figure 3.2 Base Model Zoning System

It is noted that Zones 15, 16, 17 and 18 are provided for on-street parking zones for modelling purposes.

3.4 Driver Behaviour

VISSIM incorporates a number of additional parameters to reflect 'real-life' conditions. This includes variable driver behaviours within a normal distribution range and desired speed decisions. Driver behaviour parameters have been modelled using the default car following model settings within VISSIM.

In addition, VISSIM assigns a 'gap acceptance' value at stopping points, to determine how traffic in the model behaves at junctions when seeking to move into the flow of mainline traffic from a minor road approach.

3.5 Assignment Methodology

VISSIM allows users to either specify fixed routing of traffic wherein the traffic demand is specified by using vehicle inputs on selected links with a given traffic volume; or to use the internal 'dynamic assignment' option wherein the traffic demand is specified in the form of one or more origin-destination matrix/matrices. In this case, the dynamic assignment has been used.

In dynamic assignment, traffic is assigned to the road network based on internal cost and travel time calculations. This would allow re-routing based on traffic responding to the changing conditions in the VISSIM road network should route options exist.

3.6 Junction Modelling

Priority markers were utilised to reflect the real life situation at priority junctions with minor arm traffic seeking gaps in opposing traffic. This has been applied in a number of junctions based on the survey video coverage, site visit observation and modelling judgement.

In addition, 'reduced speed areas' was used where appropriate (i.e. road bends, turns at a junction, etc.) in order to require vehicles to decelerate before entering the area and enter it at a reduced speed. The vehicle automatically accelerates after leaving the reduced speed area until it reaches its desired speed again.

3.7 Matrix Development

The Origin-Destination (O-D) matrix was initially based on the observed traffic turning count data. This process involved using observed traffic flows entering the model and applying turning proportions through the network to generate an output O-D prior matrix. The O-D prior matrix has been furnessed using the matrix projection facility in VISUM. This involved the projection to target values with input production and attraction values. The process has been set to 100 maximum numbers of iterations and produced the final matrix for the model.

Model Calibration and Validation

04

4. Model Calibration and Validation

4.1 Introduction

Following the development of the Base models, the process of calibration and validation were undertaken and is detailed in this section of the report.

4.2 Model Calibration

The purpose of model calibration is to ensure that the model assignments reflect the existing travel situation. Calibration is an iterative process, whereby the model is continually revised to ensure that the most accurate replication of the base year conditions is represented.

4.2.1 Model Calibration and Acceptability Guidelines

The model calibration process has been undertaken based on the requirements of the TII *PAG for National Roads Unit 5.1: Construction of Transport Models*. The PAG specifies the acceptable values for modelled and observed flow comparisons and suggests how calibration should relate to the magnitude of the values being compared. A summary of these targets is shown in Table 4.1 below.

Table 4.1. Model Calibration Criteria: Individual Flows

Criteria and Measures		Acceptability Guideline
Assigned hourly flows compared with observed flows		
1	Individual flows within 100 v/h flows less than 700 v/h	More than 85% of cases
2	Individual flows within 15% for flows between 700 & 2,700 v/h	
3	Individual flows within 400 v/h for flows greater than 2,700 v/h	

The standard method used to compare modelled counts against observed counts involves the calculation of the Geoff E. Havers (GEH) statistic (Chi-squared statistic), incorporating both relative and absolute errors. The GEH statistic is a measure of comparability that takes account of not only the difference between the observed and modelled flows, but also the significance of this difference with respect to the size of the observed flow. The GEH statistic is calculated as follows:

$$\mathrm{GEH} = \sqrt{\frac{(\mathrm{M} - 0)^2}{0.5(\mathrm{M} + 0)}}$$

Where M = Modelled Flow and O = Observed Flow.

Guidance in the PAG sets out the following GEH criteria:

Table 4.2. Model Calibration Criteria: GEH Values

Criteria and Measures		Acceptability Guideline
GEH Statistics	Individual flows – GEH < 5	More than 85% of cases

4.2.2 Calibration of Individual Flows

A total of 41 individual flows were used in the calibration process. The calibration results are summarised in Tables 4.3. The full calibration data set can be found in Appendix A of this report.

Table 4.3. Calibration Results: Individual Flows

Category	Criteria	AM Peak		PM Peak		Target
		LV	HV	LV	HV	
700 – 2,700 v/h	Within 15%	-	-	-	-	> 85%
<700 v/h	Within 100 v/h	100%	100%	100%	100%	> 85%
>2,700 v/h	Within 400 v/h	-	-	-	-	> 85%

As the results show, all GEH statistics are 100% for all user classes both for AM and PM peaks. The results therefore confirm that the models have been calibrated to a standard compliant with the TII PAG criteria for all user classes and both time periods.

4.2.3 Calibration of Link Flows

A total of 19 link flows were used in the calibration process. The results of the calibration are summarised in Table 4.4.

Table 4.4. Calibration Results: Link Flows

Criteria	AM Peak		PM Peak		Target
	LV	HV	LV	HV	
GEH Statistic	89%	100%	100%	100%	> 85%

The comparison of modelled and observed link flows shows that AM and PM peak models meet the TII calibration criteria. The results demonstrate that the calibration target is exceeded.

4.2.4 Calibration of Turning Flows

The observed and modelled turning flows were compared at each of the calibration sites in accordance with the GEH statistic criteria. The permissible difference was calculated for each value (based on the observed figure) and compared with that which had been modelled. The calibration results are summarised in Tables 4.5.

Table 4.5. Calibration Results: Turning Flows

Criteria	AM Peak		PM Peak		Target
	LV	HV	LV	HV	
GEH Statistic	90%	100%	98%	100%	> 85%

The comparison of modelled and observed turning flows shows that all peak period models meet the TII calibration criteria. The results demonstrate that the calibration target is exceeded.

4.3 Model Validation

Model validation comprises the comparison of calibrated flows against an independent data set which was not used as part of the calibration process. It forms a check on the quality of the network and assignment. Validation checks include the following:

- Individual flows validation;
- Link flows validation;

- Turning flows validation;
- Screenline validation; and
- Journey times validation.

4.3.1 Model Validation and Acceptability Guidelines

The TII PAG set out the criteria associated with the validation of transport models against flows, screenline and journey times. These criteria are summarised in Table 4.6.

Table 4.6. Model Validation Criteria

Criteria and Measures		Acceptability Guideline
Assigned hourly flows compared with observed flows		
1	Individual flows within 100 v/h flows less than 700 v/h	More than 85% of cases
2	Individual flows within 15% for flows between 700 & 2,700 v/h	
3	Individual flows within 400 v/h for flows greater than 2,700 v/h	
4	GEH statistic: Individual flows – GEH < 5	More than 85% of cases
Screenline		
5	GEH statistic: screenline totals < 4	
Modelled journey times compared with observed times		
6	Times within 15% or 1 minute if higher	More than 85% of cases

4.3.2 Validation of Individual Flows

A total of 49 observed and modelled individual flows were compared at a number of validation sites which were kept exclusive of the calibration data, in accordance with the criteria above. The permissible difference was calculated for each value (based on the observed figure) and compared with that which had been modelled. The validation results are summarised in Tables 4.7. The full validation data set can be found in Appendix A of this report.

Table 4.7. Validation Results: Individual Flows

Category	Criteria	AM Peak		PM Peak		Target
		LV	HV	LV	HV	
700 – 2,700 v/h	Within 15%	-	-	-	-	> 85%
<700 v/h	Within 100 v/h	100%	100%	100%	100%	> 85%
>2,700 v/h	Within 400 v/h	-	-	-	-	> 85%

The comparison of modelled and observed flows demonstrates that the AM and PM peak period models exceed GEH target for all user classes. Therefore, the model is deemed validated in terms of individual flows.

4.3.3 Validation of Link Flows

A total of 22 link flows were used in the validation process. The results of the validation are summarised in Table 4.8.

Table 4.8. Validation Results: Link Flows

Criteria	AM Peak		PM Peak		Target
	LV	HV	LV	HV	
GEH Statistic	86%	100%	100%	100%	> 85%

The comparison of modelled and observed link flows shows that all peak period models meet the TII criteria. The results demonstrate that the validation target is exceeded.

4.3.4 Validation of Turning Flows

The observed and modelled turning flows were compared at each of the validation sites in accordance with the GEH statistic criteria. The permissible difference was calculated for each value (based on the observed figure) and compared with that which had been modelled. The validation results are summarised in Tables 4.9.

Table 4.9. Validation Results: Turning Flows

Criteria	AM Peak		PM Peak		Target
	LV	HV	LV	HV	
GEH Statistic	94%	100%	98%	100%	> 85%

The comparison of modelled and observed turning flows shows that all peak period models meet the TII validation criteria. Therefore, the model is deemed validated in terms of turning flows.

4.3.5 Validation of Screenline

A comparison of modelled and observed flows across 3 screenlines by vehicle type and modelled time period has been undertaken for additional validation check of the models. The validation results are summarised in Table 4.10.

Table 4.10. Validation Results: Screenline

Category	Criteria	AM Peak	PM Peak	Target
GEH Statistic: Screenline Totals	< 4	100%	100%	> 85%

The comparison of modelled and observed flows across screenlines shows that all peak period models meet the TII validation criteria. The results demonstrate that the validation target is exceeded.

4.3.6 Validation of Journey Times

Validation checks were also undertaken for journey time by a comparison of modelled and observed times for 6 paths as discussed in Section 2.0 of this report. The journey time validation results are summarised in Tables 4.11 and 4.12 for AM peak and PM peak respectively.

Both AM and PM peak models satisfy the PAG requirement that 85% of all modelled journey times are within 15% of observed data or less than 60 seconds if higher. As such the Base models are considered validated to the requirements of PAG in terms of journey times.

Table 4.11. Validation Results: Journey Times – AM Peak

Path No.	Start Point	End Point	Route	Observed (mm:ss)	Modelled (mm:ss)	Absolute Difference (mm:ss)	% Difference	Validated
1	A	B	R572 South to R572 North	03:42	04:27	00:45	20.3%	**YES**
2	B	A	R572 North to R572 South	03:45	03:13	00:32	14.4%	**YES**
3	A	C	R572 South to North Road	02:46	02:57	00:11	6.6%	**YES**
4	C	A	North Road to R572 South	03:40	03:00	00:40	18.4%	**YES**
5	D	E	Back Road to R572 North	02:44	03:22	00:38	23.3%	**YES**
6	E	D	R572 North to Back Road	02:39	02:09	00:30	19.2%	**YES**
Percentage Validated								**100 %**

Table 4.12. Validation Results: Journey Times – PM Peak

Path No.	Start Point	End Point	Route	Observed (mm:ss)	Modelled (mm:ss)	Absolute Difference (mm:ss)	% Difference	Validated
1	A	B	R572 South to R572 North	03:42	04:01	00:19	8.4%	**YES**
2	B	A	R572 North to R572 South	03:45	03:36	00:09	4.1%	**YES**
3	A	C	R572 South to North Road	02:46	02:46	00:00	0.1%	**YES**
4	C	A	North Road to R572 South	03:40	03:08	00:32	14.7%	**YES**
5	D	E	Back Road to R572 North	02:44	02:45	00:01	0.7%	**YES**
6	E	D	R572 North to Back Road	02:39	02:06	00:33	20.7%	**YES**
Percentage Validated								**100 %**

Future Year Model Development

05

5. Future Year Model Development

5.1 Introduction

This section of the report sets out the development of the future year traffic models for the years 2026 and 2036 scenarios as outlined below:

- Scenario A: 2026 Do Nothing;
- Scenario B: 2026 Traffic Management No. 1;
- Scenario C: 2026 Traffic Management No. 2;
- Scenario D: 2036 Do Traffic Management No. 1 (i.e. the best performing option in year 2026);
- Scenario E: 2036 Do Traffic Management No. 1 and Roads Proposal – Northern Road;
- Scenario F: 2036 Do Traffic Management No. 1 and Roads Proposals – Northern and Southern Roads; and
- Scenario G: 2036 Do Traffic Management No. 1 and Roads Proposals – Southern Road.

5.2 Future Year Network Development

5.2.1 Scenario A: 2026 Do Nothing

The future year 'Do Nothing' network consists of the existing road network, which is assumed to be maintained over time. A screenshot of the modelled network for Scenario A, which is the same as the existing, is shown in Figure 5.1.

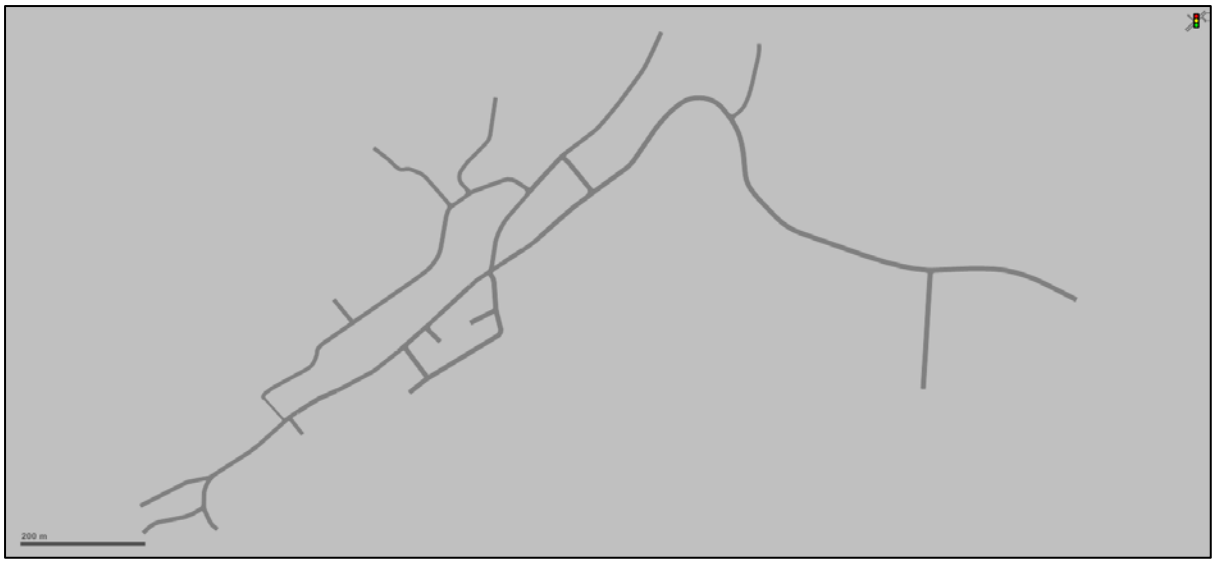

Figure 5.1 Scenario A – Modelled Network

5.2.2 Scenario B: 2026 Traffic Management No. 1

Traffic Management No. 1 includes the proposed one-way system on Main Street eastbound. The one-way system on the Main Street starts at its junction with the West Square and ends at its junction with the North Road. A screenshot of the modelled network for Scenario B is shown in Figure 5.2.

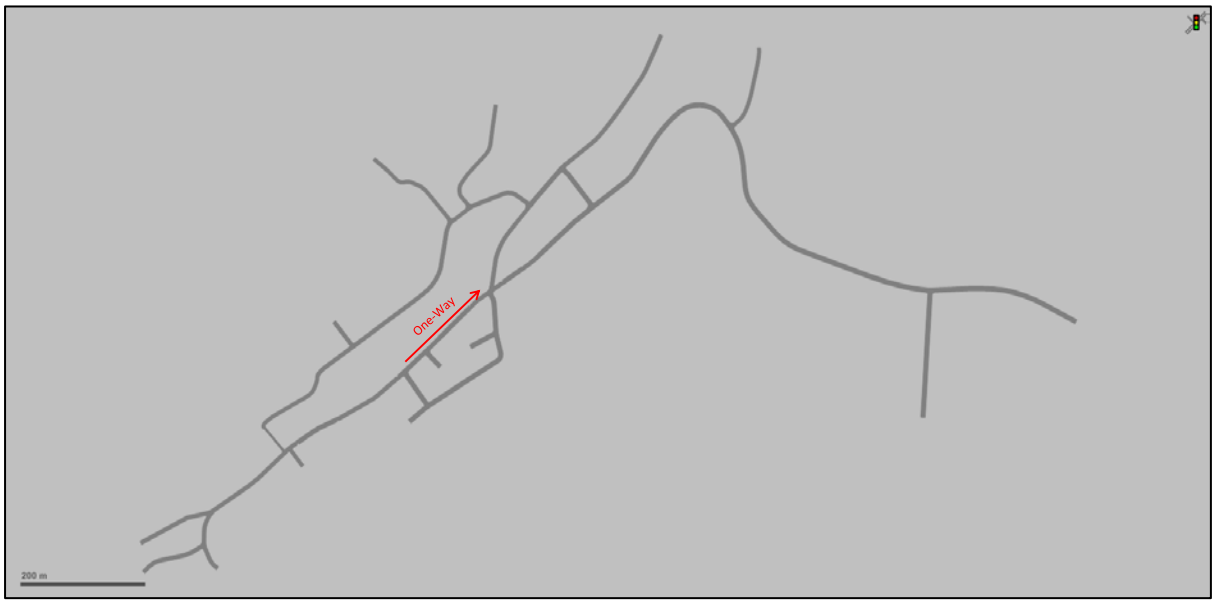

Figure 5.2 Scenario B – Modelled Network

5.2.3 Scenario C: 2026 Traffic Management No. 2

Traffic Management No. 2 includes the proposed one-way system on Main Street westbound. The one-way system on the Main Street starts at its junction with the North Road and ends at its junction with the West Square. A screenshot of the modelled network for Scenario B is shown in Figure 5.3.

Figure 5.3 Scenario C – Modelled Network

5.2.4 Scenario D: 2036 Do Traffic Management No. 1

The network for Scenario D is based on the best performing network among Scenarios A to C. As the modelling results show that the network for Scenario B is the best performing network when compared to Scenarios A and C, this network with the proposed one-way system on Main Street eastbound has been carried forward to modelling the scenarios for year 2036. A screenshot of the modelled network for Scenario D, which is the same as Scenario B, is shown is Figure 5.4. The modelling results are discussed in detail in Section 5.4 of this report.

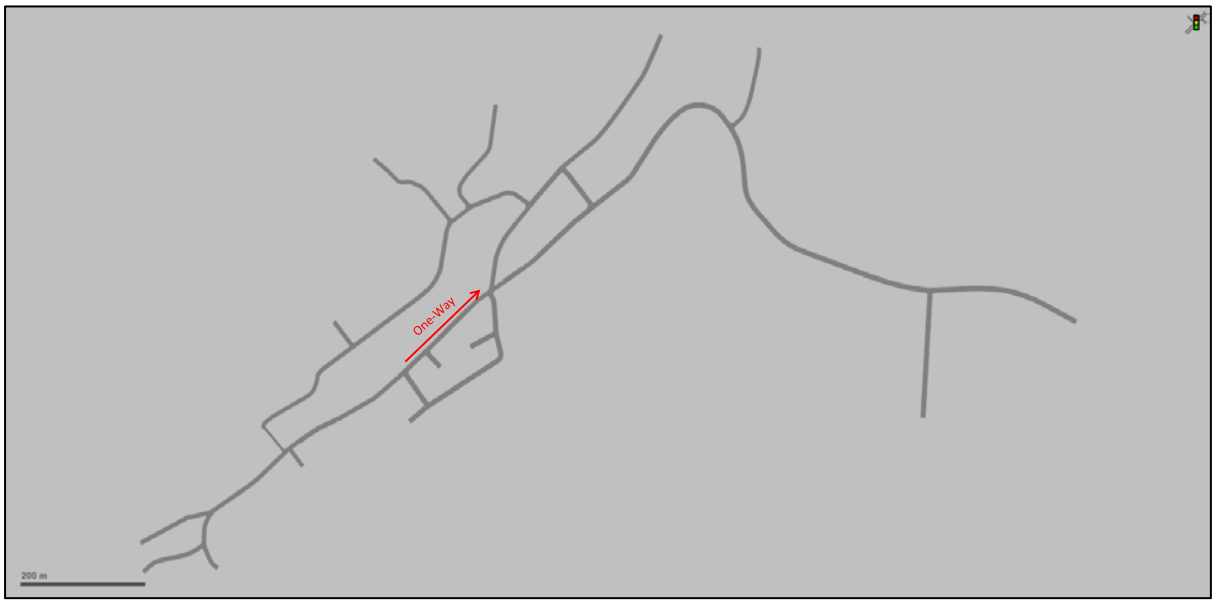

Figure 5.4 Scenario D – Modelled Network

5.2.5 Scenario E: 2036 Traffic Management No. 1 and Roads Proposal – Northern Road

Scenario E includes the proposed Northern Road as per LAP. This road runs parallel to the Back Road and links the W End Road at the south-west to Chapel Lane at the north-east of the network. Scenario E also includes the proposed one-way system on the Main Street eastbound. A screenshot of the modelled network for Scenario E is shown in Figure 5.5.

Figure 5.5 Scenario E – Modelled Network

It is noted that from this scenario, the existing St. Martin's Avenue has been added in the model at the north-east of the network. This road provides additional access to the future residential developments in the area (i.e. CR R-01 and CR R-02 – see Figure 5.10 for Castletownbere land use map). This road is coded as the same zone connector as Derrymihan Road to Zone 13. The zoning system for this scenario is illustrated in Figure 5.6.

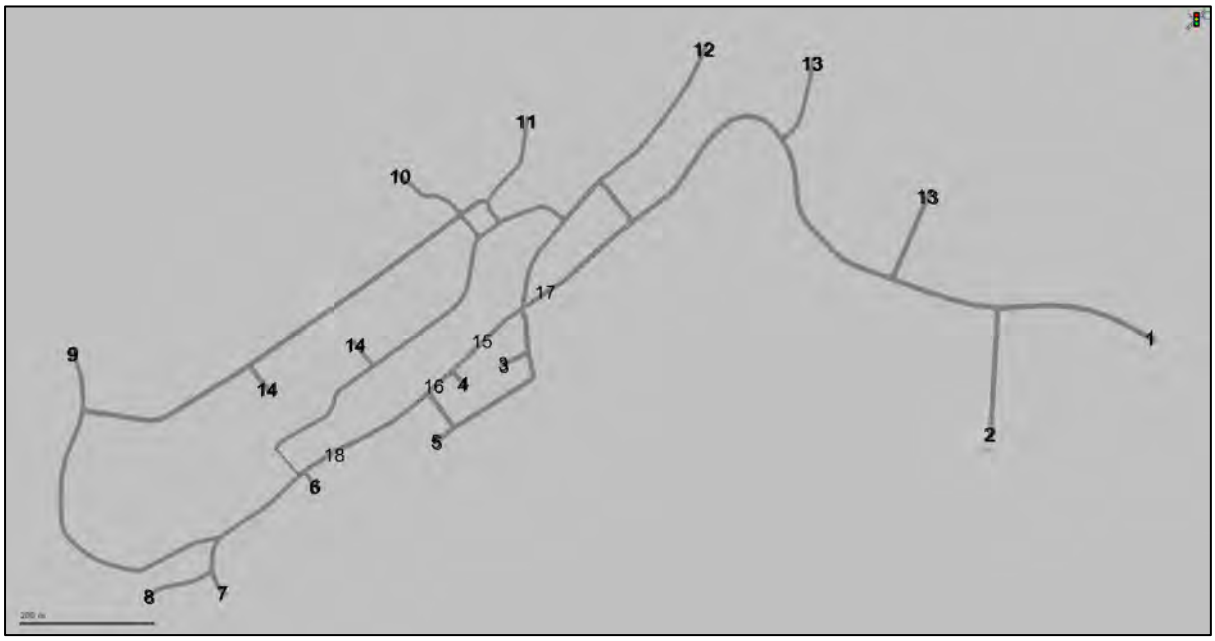

Figure 5.6 Scenario E – Modelled Zoning System

5.2.6 Scenario F: 2036 Traffic Management No. 1 and Roads Proposal – Northern and Southern Roads

Scenario F includes the proposed Northern Road as per LAP and the proposed Southern Road as shown in Figure 5.7. The proposed Northern Road is the same as in Scenario E. The proposed Southern Road runs parallel to the Main Street. It forms a crossroad at the existing R572/Cametringane Woods Junction and provides link to The Square. This scenario also includes the proposed one-way system on the Main Street eastbound.

Figure 5.7 Scenario F – Modelled Network

5.2.7 Scenario G: 2036 Traffic Management No. 1 and Roads Proposal – Southern Road

Scenario G is similar to the previous scenario but without the Northern Road as shown in Figure 5.8. This scenario includes the Southern Road which runs parallel to the Main Street. It extends the existing road at The Square and connects with the existing R572/Cametringane Woods Junction. It is noted that additional arm has been included in the model at R572/Cametringane Woods Junction.

This provides access to the future residential and retail developments in the area (i.e. CR R-03 and CR T-02 – see Figure 5.10 for Castletownbere land use map).

Figure 5.8 Scenario G – Modelled Network

The zoning system for this scenario is illustrated in Figure 5.9.

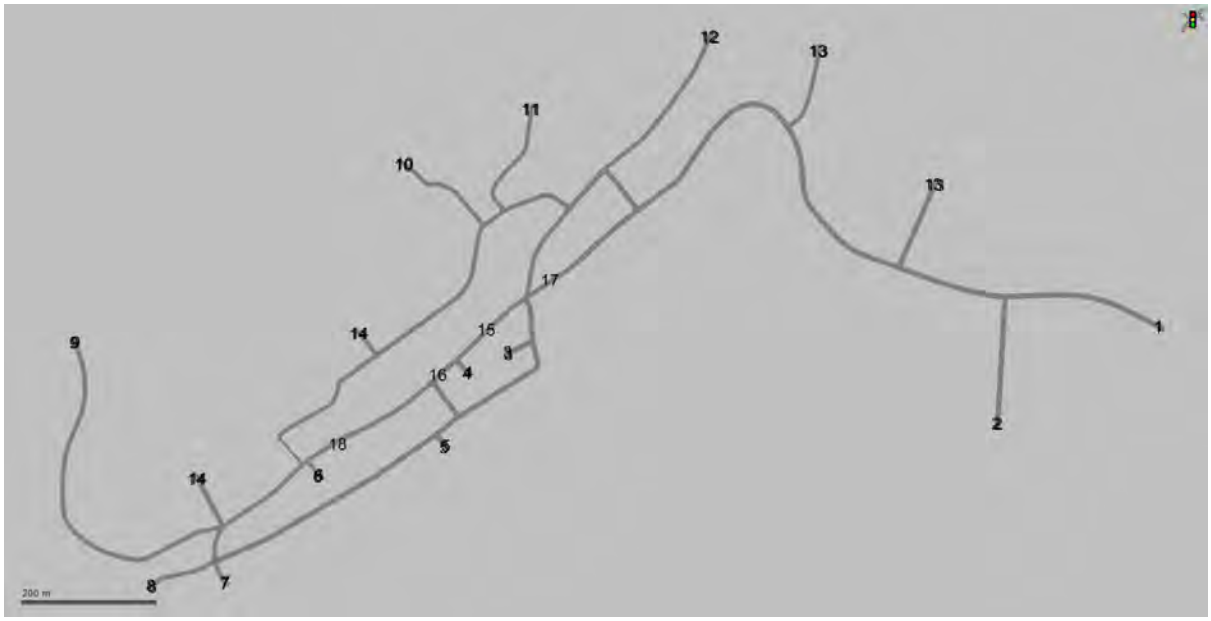

Figure 5.9 Scenario G – Modelled Zoning Sytem

5.3 Future Year Matrix Development

5.3.1 Overview

Two sets of matrices have been developed for future year scenarios. First is the demand forecast for background traffic based on the TII PAG growth factors. Second is the traffic growth based on the land use schedule within the study area as set out in the LAP.

5.3.2 Future Demand Forecast

The future demand forecast is based on the central growth factors as set out in the TII PAG. These factors were applied to the existing traffic and are summarised in Table 5.1.

Table 5.1 TII PAG Central Growth Factors

Region	2013 – 2030		2030 – 2050	
	LV	HV	LV	HV
South-West	1.02%	2.37%	0.12%	1.76%

5.3.3 Traffic Growth Based on Land Use Schedule

The LAP sets out specific zoning objectives for Castletownbere. These objectives include development for residential, industry, business, town centre, community, utilities and open space, recreation & amenity. Details of each of the development objectives are summarised in Table 5.2 and illustrated in Figure 5.10 as per LAP.

Table 5.2 LAP Castletownbere Specific Zoning Objectives

Development Objective	Objective No.	Approx. Area (Ha)	% Share	Description
Residential	CR R-01	8.8	23.0%	Medium B Density Residential Development to include detached and serviced sites subject to preparation of a detailed landscaping plan and provision of adequate road access for in---depth development & a link to adjoining residential site.
	CR R-02	8.4	21.9%	Medium B Density Residential Development including healthcare and community facilities to include detailed landscaping plan.
	CR R-03	9.8	25.6%	Medium B Density Residential Development including the phased construction of relief road.
	CR R-04	0.5	1.3%	Medium B Density Residential Development.
	CR R-05	4.6	12.0%	Medium B Density Residential Development including serviced sites and provision for access road.
	CR R-06	6.2	16.2%	Medium B Density Residential Development including provision for access road.
Total		38.3	100.0%	
Industry	CR I-01	21.3	100.0%	Small to medium sized industrial units for specialist marine related activities.
Business	CR B-01	17.6	94.6%	Small to medium sized business units within an overall planned business park layout subject to provision of adequate water services and roads infrastructure and a detailed landscaping plan.
	CR B-02*	0.8	4.3%	Business Development.
	CR B-03	0.2	1.1%	Healthcare and community facilities.
Total		18.6	100.0%	

Development Objective	Objective No.	Approx. Area (Ha)	% Share	Description
Town Centre	CR T-01*	5.7	35.6%	To promote the town centre as the primary area for retail and mixed use development, encourage sensitive refurbishment/redevelopment of existing sites and promote public realm improvements.
	CR T-02	10.3	64.4%	Provide for expansion of the town centre to facilitate additional retail/mixed use development, provision of community facilities and construction of part of U---03 northern relief road. Any proposals should make provision for a new public car park (the exact location and size of which to be agreed with the Council), provide for new town centre streets with connectivity to the existing town centre and include proposals for public realm improvements.
Total		16.0	100.0%	
Community	CR C-01	1.4	100.0%	Lands reserved for community purposes and the provision of outdoor education facilities.
Utilities	CR U-10	1.3	100.0%	Reserve site for wastewater treatment plant.
Open Space, Sports, Recreation & Amenity	CR O-01	3.8	52.8%	Provision for pedestrian and cycling link between the two roads & along the river bank.
	CR O-02	2.8	38.9%	Retain openness, trees and parkland quality.
	CR O-03	0.6	8.3%	Contribute to character and amenity of the town. Protect trees and view across the site and cove.
Total		7.2	100.0%	
Special Policy Area	CR X-01	1.7	100.0%	To protect this area for specialist marine related uses and other complementary harbour activities.

* Existing Development

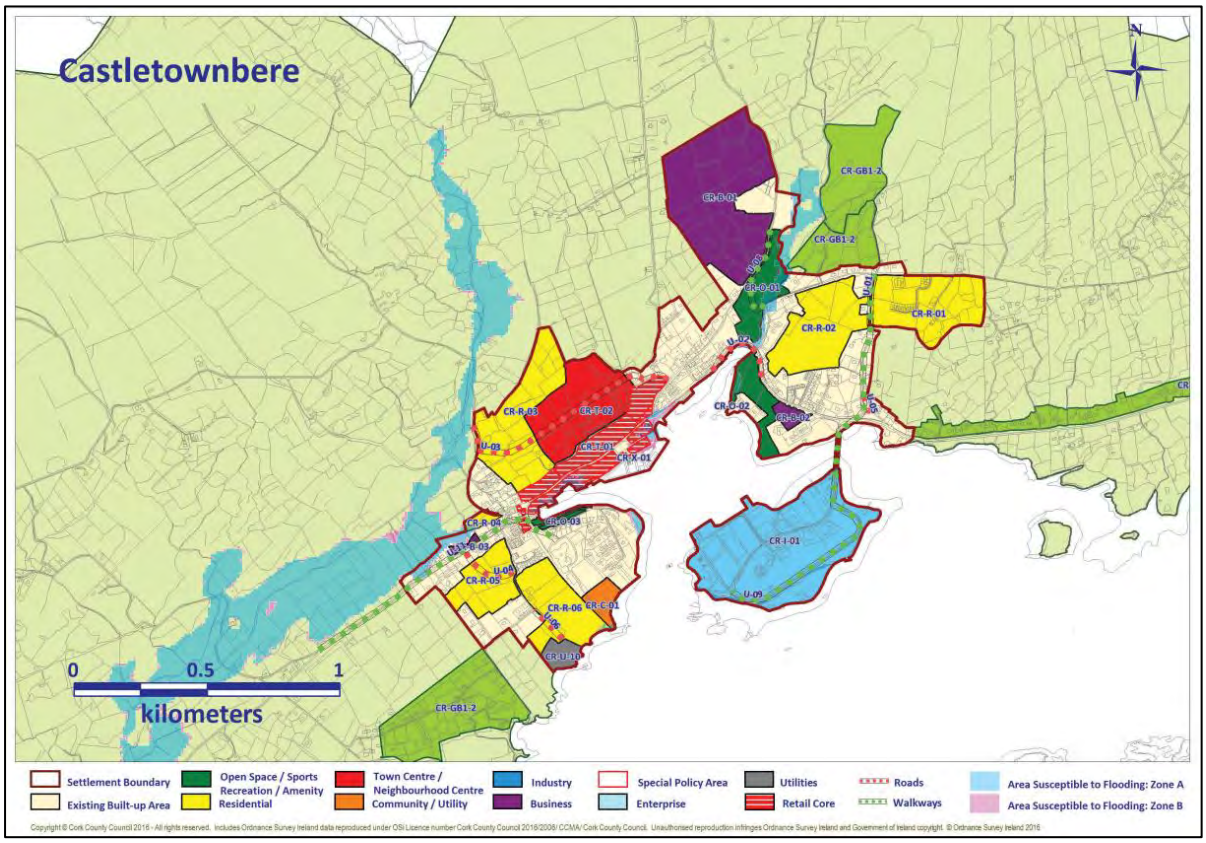

Figure 5.10 Castletownbere Land Use Map

The trip generation for the development objectives above was based on the trip rates from the Trip Rate Information Computer System (TRICS) database. TRICS is a database system comprising a large number of records including survey counts, traffic and multi-modal information of individual developments across a wide range of land use categories gathered from several places in UK and Ireland. The TRICS database has been examined and developments have been carefully selected to be similar town environments as with Castletownbere (i.e. low public transport, small size population). Table 5.3 summarises the trip rates for different land uses gathered from TRICS.

It is noted that the trip rates used for the Town Centre are based on the traffic counts at the 3 parking areas' entrance/exit points within the existing retail core (i.e. CR T-01 – see Figure 5.10 for Castletownbere land use map). These traffic counts are discussed in detail in Section 2 of this report.

Table 5.3 TRICS Trip Rates

Land Use	AM		PM		Calculation Factor (Vehicles)
	Arrival	Departure	Arrival	Departure	
Residential	2.50	9.50	8.14	5.14	Per 1 hectare
Industry	12.86	8.00	6.97	11.68	Per 1 hectare
Business	24.71	8.57	5.60	18.78	Per 1 hectare
Town Centre	36.49	26.84	17.72	27.72	Per 1 hectare
Community	15.11	6.12	6.69	12.05	Per 1 hectare
Utilities	28.16	28.16	10.68	12.62	Per 1 hectare
Open Space	0.14	0.06	0.17	0.34	Per 1 hectare
SPA / Marinas	1.88	1.10	3.17	6.70	Per 1 hectare

The trips generated for each of the development objectives based on the trip rates above is summarised in Table 5.4 both for arrivals and departures for AM and PM peaks. These trips were used for modelling the scenarios for year 2036 and with a 50% reduction for 2026. It is noted that the CR I-01 Industry relates primarily to the pier extension on Dinish Island. It is assumed that the total trips relating to the Industry would apply on year 2026.

Table 5.4 Trip Generation

Development Objective	Objective No.	Approx. Area (Ha)	% Share	AM Peak			PM Peak		
				Arr	Dep	Total	Arr	Dep	Total
Residential	CR R-01	8.8	23.0%	22	84	106	72	45	117
	CR R-02	8.4	21.9%	21	80	101	68	43	111
	CR R-03	9.8	25.6%	25	93	118	80	50	130
	CR R-04	0.5	1.3%	1	5	6	4	3	7
	CR R-05	4.6	12.0%	12	44	56	37	24	61
	CR R-06	6.2	16.2%	16	59	75	50	32	82
Total		38.3	100.0%	96	365	462	311	197	508
Industry	CR I-01	21.3	100.0%	274	170	444	148	249	397
Business	CR B-01	17.6	98.9%	435	151	586	99	331	430
	CR B-03	0.2	1.1%	5	2	7	1	4	5
Total		17.8	100.0%	440	153	593	100	335	435
Town Centre	CR T-02	10.3	100.0%	376	276	652	183	286	468
Community	CR C-01	1.4	100.0%	21	9	30	9	17	26
Utilities	CR U-10	1.3	100.0%	37	37	73	14	16	30
Open Space, Sports, Recreation & Amenity	CR O-01	3.8	52.8%	1	0	1	1	1	2
	CR O-02	2.8	38.9%	0	0	0	0	1	1
	CR O-03	0.6	8.3%	0	0	0	0	0	0
Total		7.2	100.0%	1	0	1	1	2	3
Special Policy Area	CR X-01	1.7	100.0%	3	2	5	5	11	17

5.3.4 Future Year Trip Distribution

With reference to the Castletownbere Land Use Map (see Figure 5.10) and Micro-simulation Model Zoning System (see Figures 3.2, 5.6 and 5.9), the arrival and departure trips have been assigned to the model zones in close proximity to the location of the developments. Table 5.5 outlines the model zones where the development trips have been assigned. These trips have been distributed on the network based on the existing trip ends pattern.

Table 5.5 Development Trips Assigned to Model Zones

Development Objective	Objective No.	AM Peak Vehicle Trips	PM Peak Vehicle Trips	Assigned to Model Zone
Residential	CR R-01	106	117	Zone 13

Development Objective	Objective No.	AM Peak Vehicle Trips	PM Peak Vehicle Trips	Assigned to Model Zone
	CR R-02	101	111	Zone 13
	CR R-03	118	130	Zone 14
	CR R-04	6	7	Zone 8
	CR R-05	56	61	Zone 8
	CR R-06	75	82	Zone 8
Total		462	508	
Industry	CR I-01	444	397	Zone 2
Business	CR B-01	586	430	Zone 12
	CR B-03	7	5	Zone 8
Total		593	435	
Town Centre	CR T-02	652	468	Zone 14
Community	CR C-01	30	26	Zone 7
Utilities	CR U-10	73	30	Zone 8
Open Space, Sports, Recreation & Amenity	CR O-01	1	2	Zone 13
	CR O-02	0	1	Zone 13
Total		1	3	
Special Policy Area	CR X-01	5	17	Zone 5

5.4 Results

5.4.1 Introduction

This section of the report presents the modelling results in terms of the following:

- Network Performance (including Average Travel Time per Vehicle, Total Travel Time, Average Speed, Average Delay);
- Journey Time; and
- Queue Length.

5.4.2 Network Performance

Network performance statistics were extracted from the traffic models for each of the future scenarios and a comparison was made against the Base. These statistics are summarised in Tables 5.6 to 5.9. These results are also illustrated in Figures 5.11 to 5.14. Key findings for each scenario are detailed as follows:

Scenario A: 2026 Do Nothing

In this scenario, the impact of the increased traffic in year 2026 assigned to existing road network includes increases in travel time & delay and a decrease in average speed as expected. During the AM peak, the average travel time per vehicle is seen to increase by two times (i.e. from 2.3 minutes

in Base to 4.7 minutes in year 2026). The average speed is seen to drop from 23.7 kph to 11.2 kph. Also, there has been a ninefold increase in average delay. During the PM peak, the average travel time per vehicle is seen to increase by 28.6% from the Base (i.e. from 2.1 minutes to 2.7 minutes). The average speed is seen to drop by 23% from the Base (i.e. from 27 kph to 20.8 kph) and as expected, the average delay is seen to increase by three times having 42.6 seconds in this scenario from to 13.8 seconds in the Base.

Scenario B: 2026 Traffic Management No. 1

The traffic impact of the proposed one-way system on Main Street eastbound in network performance includes minor increases in travel time & delay and minor decrease in average speed. During the AM peak, the average travel time per vehicle is seen to increase by 0.3 minutes (i.e. 18 seconds) which is negligible. Minor decrease in average speed is seen with 13.5% (i.e. from 23.7 kph in Base to 20.5 kph in 2026). Also, minor increase in average delay with additional 13.8 seconds to the Base can be seen in the modelling results. Similar patterns of traffic impact can be seen during the PM peak. Minor increase in travel time per vehicle is seen during the PM peak with 0.4 minutes (24 seconds) increase from the Base. A decrease in average speed is seen with 15.9% (i.e. from 27 kph in Base to 22.7 kph in 2026). The results also show an increase in average delay with additional 10.2 seconds to the Base, which is negligible. This scenario performs better than the previous Scenario A.

Scenario C: 2026 Traffic Management No. 2

The traffic impact of the proposed one-way system on Main Street westbound in network performance includes 26.1% minor increase in average travel time per vehicle (i.e. from 2.3 minutes in Base to 2.9 minutes in this scenario) during the AM peak. The average speed is seen to drop by 20.7% (i.e. from 23.7 kph to 18.8 kph). The average delay is seen to increase by more than threefold from the Base (i.e. from 17.2 seconds to 43 seconds). During the PM peak, the average travel time per vehicle is seen to increase by 28.6% from the Base (i.e. from 2.1 minutes to 2.7 minutes). The average speed is seen to drop by 21.1% from the Base (i.e. from 27 kph to 21.3 kph) and the average delay is seen to increase by more than two times from the Base (i.e. from 13.8 seconds to 28.4 seconds). This scenario performs better than Scenario A. However, the previous Scenario B performs better than this scenario.

2026 Modelling Results Summary

Overall, the modelling results show that **Scenario B** with the proposed one-way system on Main Street eastbound (Traffic Management No. 1) is the best performing option in year 2026. This is seen for both AM and PM peaks. The traffic management modelled in Scenario B is carried forward to the modelling of 2036 scenarios.

Scenario D: 2036 Do Traffic Management No. 1

The impact of the increased traffic in year 2036 assigned to the network with the one-way system on Main Street eastbound (i.e. 2026 Scenario B network) includes increases in travel time & delay and a decrease in average speed as expected. During the AM peak, the average travel time per vehicle is seen more than doubled from the Base (i.e. from 2.3 minutes in Base to 5.1 minutes is this scenario). The average speed is seen to drop significantly from 23.7 kph to 10.1 kph and there has been more than a tenfold increase in average delay having 182.30 seconds in this scenario from 17.2 seconds in Base. Similarly, during the PM peak, the average travel time per vehicle is seen to increase by 42.9% from the Base (i.e. from 2.1 minutes to 3.0 minutes). A decrease of 30.4% is seen in average speed and as expected, there has been more than a threefold increase in average delay from the Base.

Scenario E: 2036 Traffic Management No. 1 and Roads Proposal – Northern Road

The traffic impact of the proposed Northern Road together with the proposed one-way system on Main Street eastbound includes increases in travel time & delay and a decrease in average speed. However these impacts are better than the previous Scenario D. During the AM peak, the average

travel time is seen to increase by 52.2% (i.e. from 2.3 minutes in Base to 3.5 minutes in this scenario). The average speed is seen to drop by 32.1% having 16.1 kph in this scenario from 23.7 kph in Base. As expected, an increase in delay is seen with more than five times from the Base (i.e. from 17.2 seconds to 90 seconds). During the PM peak, the average travel time is seen to increase by 42.9% (i.e. from 2.1 minutes in Base to 3.0 minutes in this scenario). The average speed is seen to drop by 26.7% having 19.8 kph in this scenario from 27 kph in the Base. An increase in delay is seen with more than three times from the Base (i.e. from 13.8 seconds to 44.1 seconds). This scenario performs better than the previous Scenario D.

Scenario F: 2036 Traffic Management No. 1 and Roads Proposal – Northern and Southern Roads

The traffic impact of the proposed Southern and Northern Road together with the proposed one-way system on Main Street eastbound includes increases in travel time & delay and a decrease in average speed. However these impacts are better than the previous Scenario E. During the AM peak, the average travel time is seen to increase 30.4% having 3.0 minutes in this scenario from 2.3 minutes in Base. The average speed is seen to decrease by 19.4% (i.e. from 23.7 kph in Base to 19.1 kph in this scenario). The average delay is seen to increase by more than three times from the Base having 58.8 seconds delay in this scenario from 17.2 seconds in Base. During the PM peak, minor increase of 33.3% is seen on average travel time per vehicle (i.e. from 2.1 minutes in Base to 2.8 minutes in this scenario). The average speed is seen to drop by 23% having 20.8 kph in this scenario from 27 kph in Base. Also, minor increase of 23.5 seconds is seen on average delay having 37.3 seconds delay in this scenario from 13.8 seconds in the Base. This scenario performs better than Scenario D. However, the previous Scenario E performs better than this scenario.

Scenario G: 2036 Traffic Management No. 1 and Roads Proposal – Southern Road

Increases in travel time & delay are seen with the proposed Southern Road together with the proposed one-way system on Main Street eastbound. Scenario F performs better than this scenario. The results show that the difference in average speed between this scenario and Scenario E (with the proposed Northern Road) is marginal. During the AM peak, the average travel time is seen to increase 82.6% having 4.2 minutes in this scenario from 2.3 minutes in Base. During the PM peak, there is a 38.1% increase in average travel time having 2.1 and 2.9 minutes for Base and Scenario G respectively.

2036 Modelling Results Summary

Overall, the modelling results show that **Scenario F** with the proposed Southern and Northern Road together with the proposed one-way system on Main Street eastbound is the best performing option in year 2036. This is seen for both AM and PM peaks. Both Scenario E (with the proposed Northern Road) and Scenario F (with the proposed Northern Road and Southern Road) is seen to improve the network performance when compared against Scenario D (without the Northern and Southern Roads) and Scenario G (with the Southern Road only) especially during the AM peak which is the town's busiest time of the day.

Table 5.6 Network Performance Results – 2026 AM Peak

Network Performance	Base	2026 – A	Diff	% Diff	2026 – B	Diff	% Diff	2026 – C	Diff	% Diff
Ave. Travel Time per Veh (min)	2.3	4.7	2.4	104.3%	2.6	0.3	13.0%	2.9	0.6	26.1%
Total Travel Time (hours)	2,108.9	9,483.7	7,374.8	349.7%	5,274.5	3,165.6	150.1%	5,861.9	3,753.0	178.0%
Average Speed (kph)	23.7	11.2	-12.5	-52.7%	20.5	-3.2	-13.5%	18.8	-4.9	-20.7%
Average Delay (secs)	17.2	161.3	144.1	837.8%	31.0	13.8	80.2%	43.0	25.8	150.0%

Table 5.7 Network Performance Results – 2036 AM Peak

Network Performance	Base	2036 – D	Diff	% Diff	2036 – E	Diff	% Diff	2036 – F	Diff	% Diff	2036 – G	Diff	% Diff
Ave. Travel Time per Veh (min)	2.3	5.1	2.8	121.7%	3.5	1.2	52.2%	3.0	0.7	30.4%	4.2	1.9	82.6%
Total Travel Time (hours)	2,108.9	14,447.6	12,338.7	585.1%	10,593.6	8,484.7	402.3%	8,882.8	6,773.9	321.2%	12,375.2	10,266.3	486.8%
Average Speed (kph)	23.7	10.1	-13.6	-57.4%	16.1	-7.6	-32.1%	19.1	-4.6	-19.4%	13.0	-10.7	-45.1%
Average Delay (secs)	17.2	182.3	165.1	959.9%	90	72.8	423.3%	58.8	41.6	241.9%	130.9	113.7	661.0%

Table 5.8 Network Performance Results – 2026 PM Peak

Network Performance	Base	2026 – A	Diff	% Diff	2026 – B	Diff	% Diff	2026 – C	Diff	% Diff
Ave. Travel Time per Veh (min)	2.1	2.7	0.6	28.6%	2.5	0.4	19.0%	2.7	0.6	28.6%
Total Travel Time (hours)	1,678.1	4,830.7	3,152.6	187.9%	4,470.9	2,792.8	166.4%	4,811.4	3,133.3	186.7%
Average Speed (kph)	27	20.8	-6.2	-23.0%	22.7	-4.3	-15.9%	21.3	-5.7	-21.1%
Average Delay (secs)	13.8	42.6	28.8	208.7%	24	10.2	73.9%	28.4	14.6	105.8%

Table 5.9 Network Performance Results – 2036 PM Peak

Network Performance	Base	2036 – D	Diff	% Diff	2036 – E	Diff	% Diff	2036 – F	Diff	% Diff	2036 – G	Diff	% Diff
Ave. Travel Time per Veh (min)	2.1	3.0	0.9	42.9%	3.0	0.9	42.9%	2.8	0.7	33.3%	2.9	0.8	38.1%
Total Travel Time (hours)	1,678.1	7,455.2	5,777.1	344.3%	7,479.9	5,801.8	345.7%	7,001.9	5,323.8	317.3%	7,129.5	5,451.4	324.9%
Average Speed (kph)	27	18.8	-8.2	-30.4%	19.8	-7.2	-26.7%	20.8	-6.2	-23.0%	19.7	-7.3	-27.0%
Average Delay (secs)	13.8	47.7	33.9	245.7%	44.1	30.3	219.6%	37.3	23.5	170.3%	52.1	38.3	277.5%

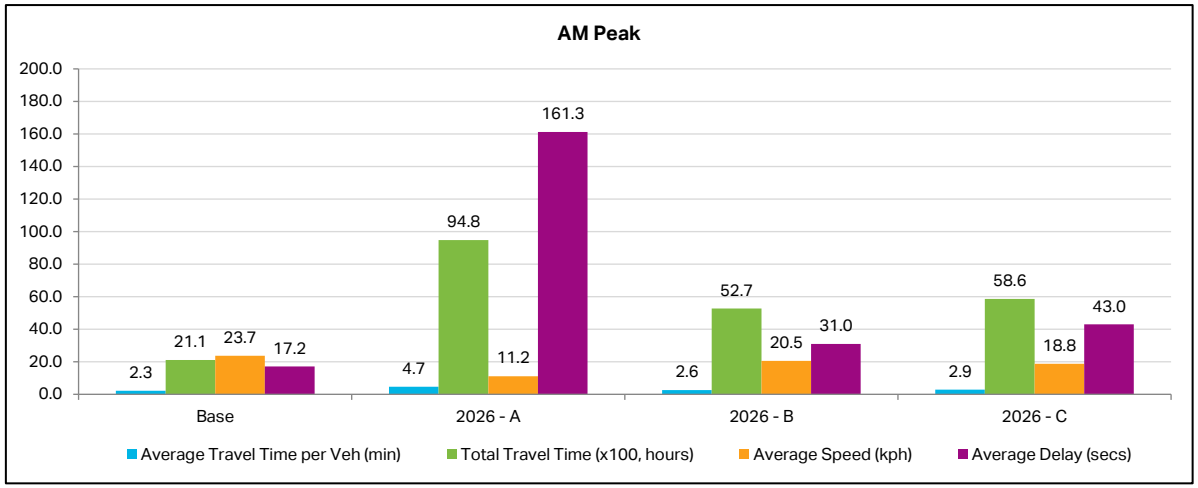

Figure 5.111 Network Performance Results – 2026 AM Peak

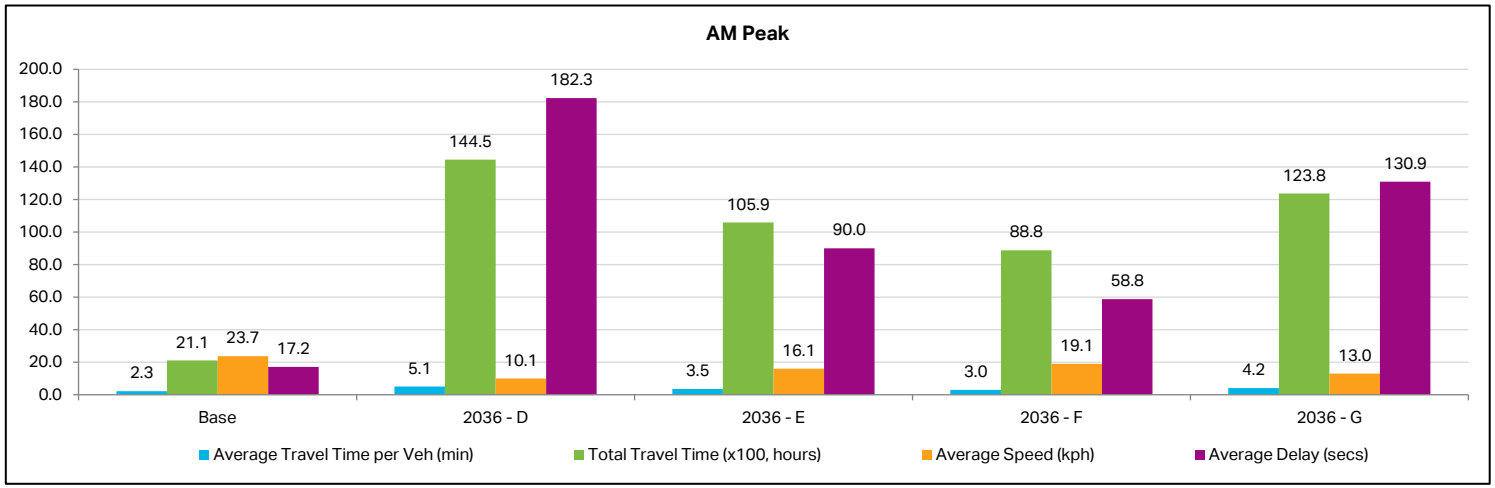

Figure 5.122 Network Performance Results – 2036 AM Peak

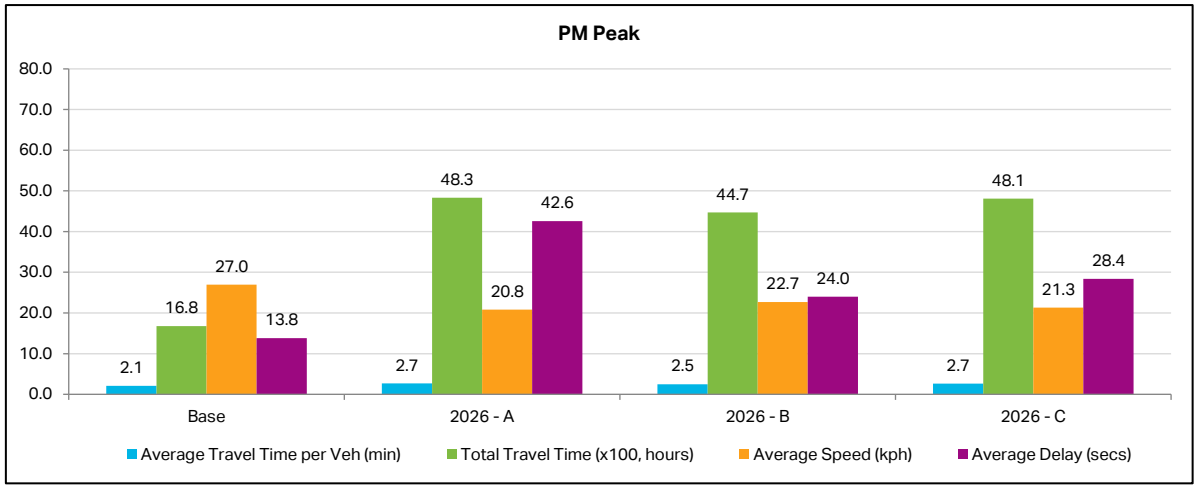

Figure 5.133 Network Performance Results – 2026 PM Peak

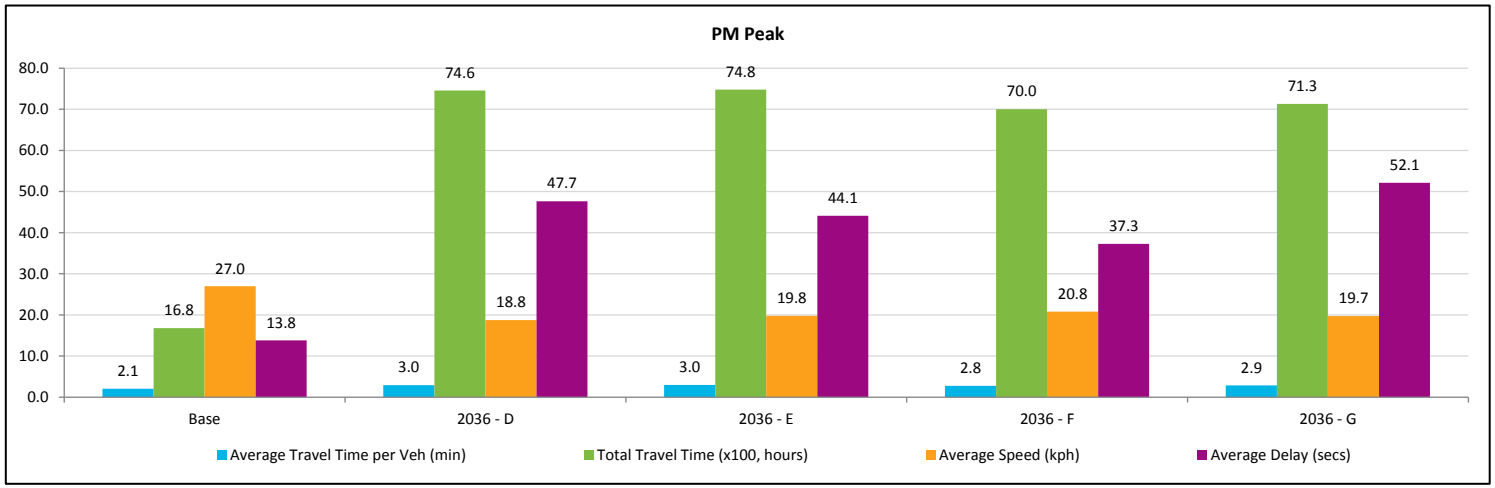

Figure 5.14 Network Performance Results – 2036 PM Peak

5.4.3 Journey Time

Journey times were extracted from the traffic models for 6 paths and a comparison was made against the Base. Details of these paths are discussed in Section 2 of this report – see Figure 2.9 for the start and end point locations of the paths. Journey time results are summarised in Tables 5.10 to 5.13. These results are also illustrated in Figures 5.15 to 5.18. Key findings for each scenario are detailed as follows:

Scenario A: 2026 Do Nothing

As expected, increases in journey time can be seen from the results for both AM and PM peaks. The highest increase can be seen on path no. 4 North Road to R572 South with more than four times from the Base (i.e. from 03:00 in Base to 12:24 in Scenario A) during the AM peak. During the PM peak, the highest 63.7% increase in journey time can be seen on path no. 3 R572 South to North Road with 04:31 in this scenario from 02:46 in Base.

Scenario B: 2026 Traffic Management No. 1

In this scenario, there has been a 39.5% increase in journey time on path no. 4 North Road to R572 South (i.e. from 03:00 in Base to 04:11 in Scenario B) being the highest during the AM peak. This is because of the longer route that vehicles take for this journey path due to the proposed one-way system on Main Street eastbound. While increases can be seen during the PM peak, these impacts are minor having less than 60 seconds for all paths. This scenario has better journey times than the previous Scenario A.

Scenario C: 2026 Traffic Management No. 2

In this scenario, the highest 68.9% increase in journey time can be seen on path no. 3 R572 South to North Road having 04:59 in this scenario from 02:57 in Base. Similarly, during the PM peak, 36% increase can be seen on path no. 1 R572 South to R572 North having 05:27 in this scenario from 04:01 in Base. These increases are expected on the paths because of the longer route that vehicles take due to the proposed one-way system on Main Street westbound. This scenario generally appears to have better journey times than Scenario A. However, the previous Scenario B performs better than this scenario.

2026 Modelling Results Summary

Generally, the journey time results show that **Scenario B** with the proposed one-way system on Main Street eastbound (Traffic Management No. 1) is the best performing option in year 2026.

Scenario D: 2036 Do Traffic Management No. 1

Increases in journey time can be seen in the modelling results for all paths for both AM and PM peaks as expected. There has been an additional 05:34 journey time for path no. 3 R572 South to North Road during the AM peak and 01:14 during the PM peak, being the highest increases for this scenario.

Scenario E: 2036 Traffic Management No. 1 and Roads Proposal – Northern Road

In this scenario, the modelling results show increases in journey times when compared against the Base. However, this scenario generally performs better than the previous Scenario D. During the AM peak, the highest increase is seen on path no. 6 R572 North to Back Road with additional 02:50 journey time to the Base. It is noted that due to the traffic growth for year 2036, a build-up of queues is observed on the R572 southbound approach at R572/R571 Junction. Additional delays are seen on R572/R571 and R571/North Road Junctions. These delays have increased journey times on paths traversing the Back Road and the North Road. More details on queue length are presented in Section 5.4.4 of this report – see Figure 5.20 for model screenshot of the build-up of queues on R572 North Road. During the PM peak, the highest 55.8% increase in journey time can be seen on path no. 3 R572 South to North Road (i.e. from 02:46 in Base to 04:18 in this scenario).

Scenario F: 2036 Traffic Management No. 1 and Roads Proposal – Northern and Southern Roads

The journey time results in this scenario are generally better than the previous Scenarios D and E. While increases can be seen when compared against the Base, the journey time results for this scenario generally show improvements when compared to Scenarios D and E.

During the AM peak, an additional 02:12 journey time to the Base can be seen on path no. 6 R572 North to Back Road which is the highest increase in this time period. During the PM peak, the highest increase can be seen on path no. 5 Back Road to R572 North with additional 01:16 journey time to the Base. As discussed in the previous scenario, the build-up of queues on R572/R571 areas introduced additional delays on paths traversing the Back Road and the North Road.

Scenario G: 2036 Traffic Management No. 1 and Roads Proposal – Southern Road

In this scenario, the modelling results show increases in journey times when compared against the Base. The high increases are seen during the AM peak on path no. 2 R572 North to R572 South and path no. 6 R572 North to Back Road. The increase in path no 2 R572 North to R572 South is almost three times the Base (i.e. from 03:13 in Base to 09:51 in this scenario) while the increase in path no. 6 R572 North to Back Road is almost two times the Base (i.e. from 02:09 in Base to 04:30 in this scenario). Again, this is due to the build-up of queues on R572/R571 areas which introduced additional delays on paths traversing the Back Road and the northern part of the North Road. During the PM peak, the journey time increases are all less than 1 minute. The highest increase is seen on path no. 5 Back Road to R572 North with 57 seconds increase from the Base. Scenario F is generally performs better than this scenario. *2036 Modelling Results Summary*

The addition of the Northern Road on the network in Scenario E brings improvement on the journey times for the 6 paths within the study area in year 2036 when compared against Scenario D. Similarly, the addition of the Southern Road on the network in Scenario G brings improvement on the journey times when compared to Scenario D. Also, the modelling results show that with the Southern Road on the network together with the Northern Road and the proposed one-way system on Main Street eastbound in Scenario F generally brings further improvements on the journey times. **Scenario F** is the best performing option for 2036 in terms of journey time.

Table 5.10 Journey Time Results – 2026 AM Peak

Path No.	Journey Path	Dist (km)	Base	2026 – A	Diff	% Diff	2026 – B	Diff	% Diff	2026 – C	Diff	% Diff
1	R572 South to R572 North	1.70	04:27	06:30	02:03	46.1%	04:21	00:06	-2.2%	06:35	02:08	47.8%
2	R572 North to R572 South	1.70	03:13	05:59	02:47	86.6%	04:14	01:01	31.7%	03:59	00:47	24.4%
3	R572 South to North Road	1.10	02:57	05:10	02:13	74.9%	03:34	00:37	20.8%	04:59	02:02	68.9%
4	North Road to R572 South	1.07	03:00	12:24	09:24	314.2%	04:11	01:11	39.5%	03:53	00:53	29.5%
5	Back Road to R572 North	1.20	03:22	04:38	01:16	37.5%	03:29	00:07	3.5%	03:31	00:09	4.5%
6	R572 North to Back Road	1.20	02:09	06:14	04:05	190.6%	02:23	00:15	11.6%	02:20	00:11	8.6%

Table 5.11 Journey Time Results – 2036 AM Peak

Path No.	Journey Path	Dist (km)	Base	2036 – D	Diff	% Diff	2036 – E	Diff	% Diff	2036 – F	Diff	% Diff	2036 – G	Diff	% Diff
1	R572 South to R572 North	1.70	04:27	06:36	02:09	48.2%	04:54	00:27	10.3%	04:09	00:18	-6.6%	04:28	00:01	0.4%
2	R572 North to R572 South	1.70	03:13	07:34	04:22	136.0%	07:22	04:10	129.6%	05:47	02:34	80.2%	09:51	06:38	206.8%
3	R572 South to North Road	1.10	02:57	08:31	05:34	188.4%	03:35	00:38	21.5%	03:21	00:24	13.3%	03:52	00:55	31.2%
4	North Road to R572 South	1.07	03:00	04:59	01:59	66.5%	05:18	02:18	76.9%	04:38	01:38	54.5%	04:42	01:43	57.1%
5	Back Road to R572 North	1.20	03:22	05:03	01:41	50.0%	04:40	01:17	38.3%	03:31	00:09	4.2%	03:40	00:17	8.6%
6	R572 North to Back Road	1.20	02:09	05:41	03:32	164.9%	04:58	02:50	132.0%	04:21	02:12	102.7%	06:39	04:30	210.3%

Table 5.12 Journey Time Results – 2026 PM Peak

Path No.	Journey Path	Dist (km)	Base	2026 – A	Diff	% Diff	2026 – B	Diff	% Diff	2026 – C	Diff	% Diff
1	R572 South to R572 North	1.70	04:01	05:49	01:49	45.1%	04:29	00:29	11.9%	05:27	01:27	36.0%
2	R572 North to R572 South	1.70	03:36	03:54	00:18	8.4%	03:44	00:08	3.7%	04:02	00:26	12.2%
3	R572 South to North Road	1.10	02:46	04:31	01:46	63.7%	02:48	00:02	1.1%	03:45	00:59	35.8%
4	North Road to R572 South	1.07	03:08	03:22	00:14	7.6%	03:32	00:25	13.1%	03:36	00:28	15.2%

Path No.	Journey Path	Dist (km)	Base	2026 – A	Diff	% Diff	2026 – B	Diff	% Diff	2026 – C	Diff	% Diff
5	Back Road to R572 North	1.20	02:45	02:56	00:11	6.6%	03:32	00:46	28.1%	03:35	00:50	30.3%
6	R572 North to Back Road	1.20	02:06	02:12	00:06	4.6%	02:13	00:07	5.6%	02:12	00:06	5.1%

Table 5.13 Journey Time Results – 2036 PM Peak

Path No.	Journey Path	Dist (km)	Base	2036 – D	Diff	% Diff	2036 – E	Diff	% Diff	2036 – F	Diff	% Diff	2036 – G	Diff	% Diff
1	R572 South to R572 North	1.70	04:01	05:32	01:31	37.9%	04:51	00:50	20.9%	04:27	00:27	11.0%	04:39	00:39	16.1%
2	R572 North to R572 South	1.70	03:36	04:18	00:43	19.7%	05:05	01:29	41.1%	04:39	01:03	29.2%	04:10	00:34	15.9%
3	R572 South to North Road	1.10	02:46	04:00	01:14	44.6%	04:18	01:33	55.8%	03:24	00:38	23.1%	03:28	00:42	25.3%
4	North Road to R572 South	1.07	03:08	03:41	00:34	17.9%	04:00	00:52	27.7%	04:02	00:54	28.9%	04:01	00:53	28.4%
5	Back Road to R572 North	1.20	02:45	03:54	01:09	41.5%	03:56	01:11	43.1%	04:01	01:16	46.0%	03:42	00:57	34.4%
6	R572 North to Back Road	1.20	02:06	02:33	00:27	21.30%	02:30	00:24	18.9%	02:30	00:24	18.9%	02:15	00:08	6.7%

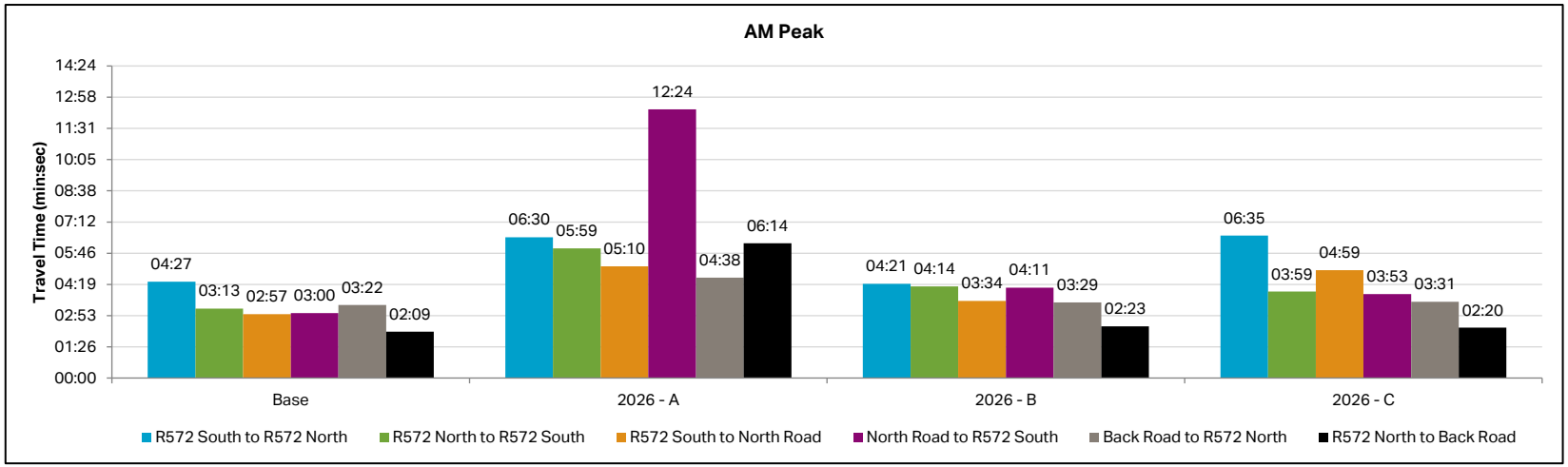

Figure 5.15 Journey Time Results – 2026 AM Peak

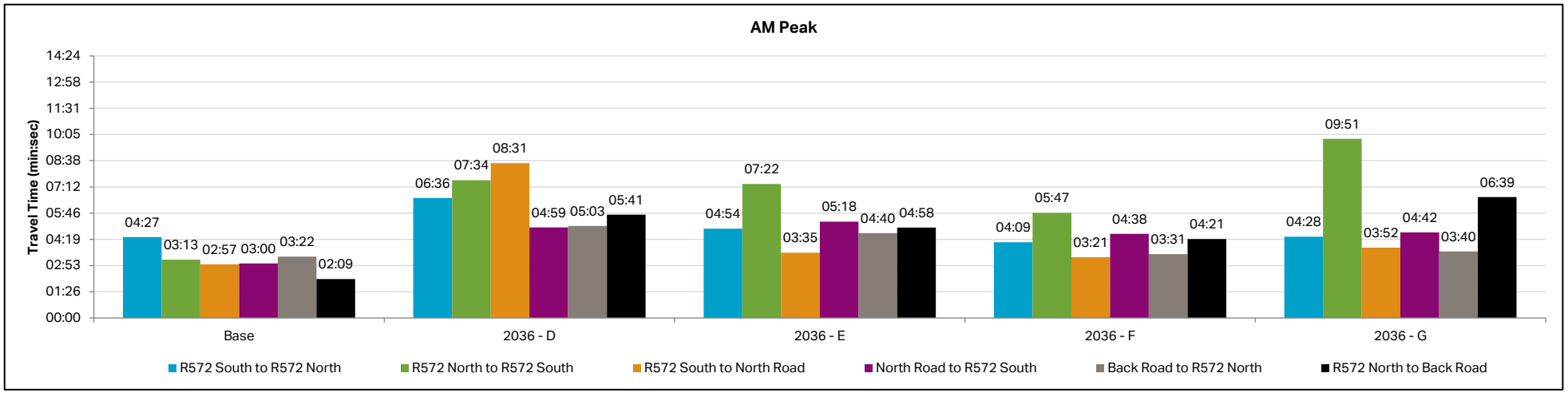

Figure 5.16 Journey Time Results – 2036 AM Peak

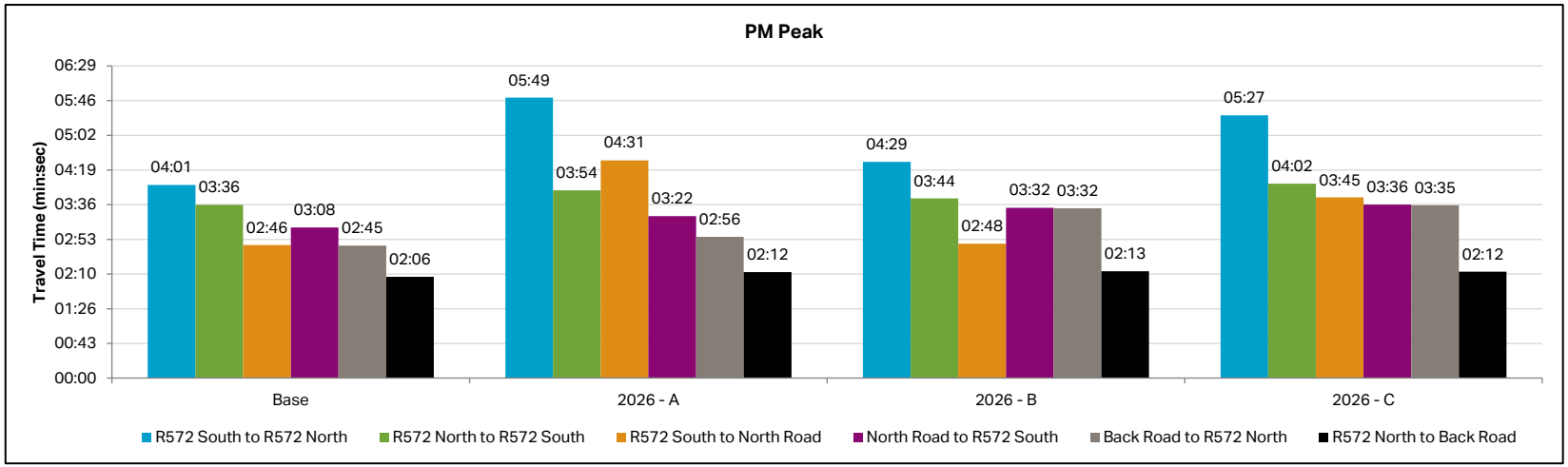

Figure 5.17 Journey Time Results – 2026 PM Peak

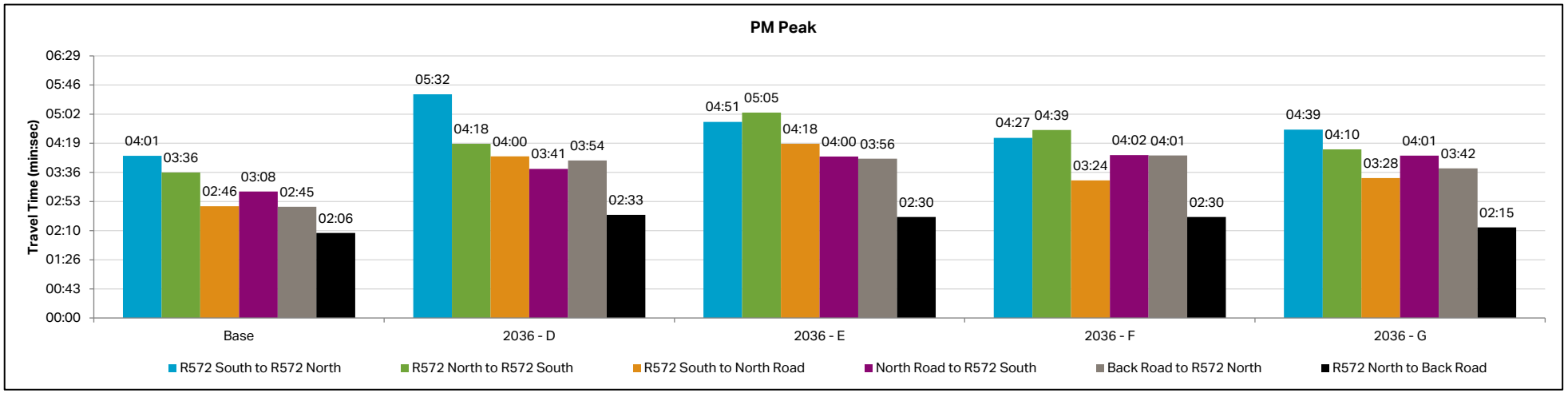

Figure 5.18 Journey Time Results – 2036 PM Peak

5.4.4 Queue Length

Queue lengths were extracted from the traffic models for 3 junctions within the study area. These junctions are outlined below and the locations are shown in Figure 5.19.

- Junction 1: R572 Main Street / West Square;
- Junction 2: R572 Main Street / North Road; and
- Junction 3: R572 / R571.

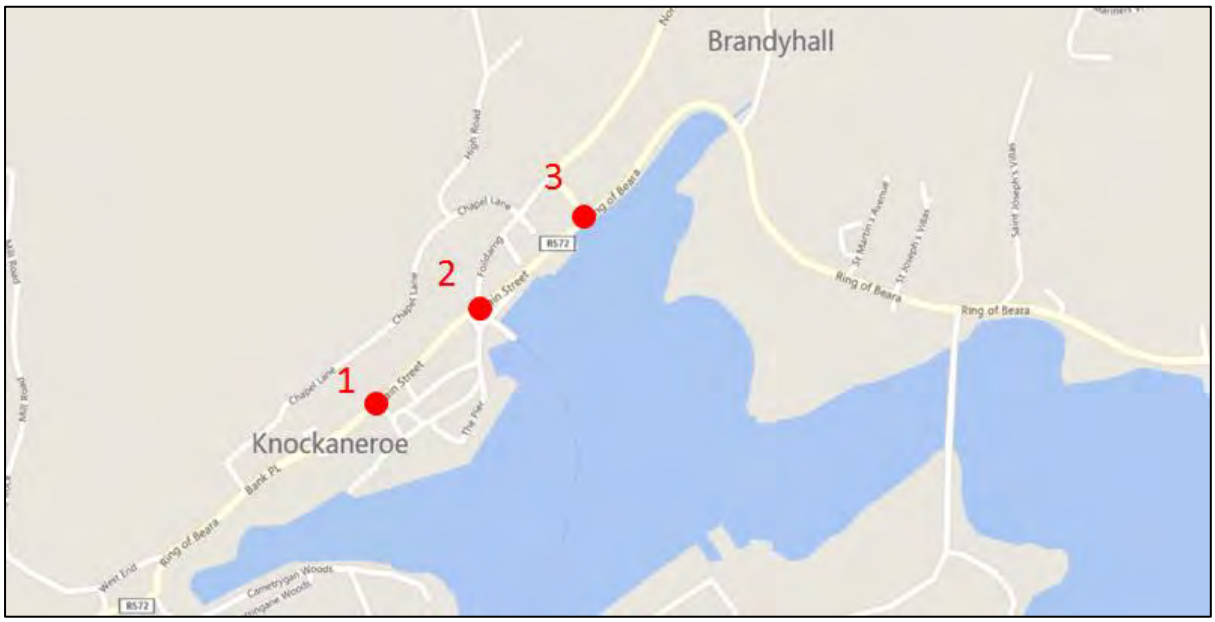

Figure 5.19 Location of Junctions for Queue Length Results

Queue length results are summarised in Tables 5.14 to 5.17. Key findings for each scenario are detailed as follows:

Scenario A: 2026 Do Nothing

In this scenario, a build-up of queues with 96 vehicles is seen on the North Road eastbound approach at R572 Main Street/North Road Junction and 82 vehicles on R571 eastbound approach on R572/R571 Junction during the AM peak. These queues would cause excessive delay and therefore suggests a need for traffic mitigation measures. During the PM peak, the longest queue is 15 vehicles and is seen on R572 Main Street northbound approach at R572 Main Street/West Square Junction while the existing is 7 vehicles. The level of queues during the PM peak seems manageable.

Scenario B: 2026 Traffic Management No. 1

The impact on queues in this scenario is seen minor during the AM and PM peaks. The longest queue is seen on R572 Main Street northbound at R572 Main Street/West Square Junction from 11 vehicles in Base to 18 vehicles in this scenario during the AM peak. During the PM peak, the highest impact is seen on West Square westbound at R572 Main Street/West Square Junction from 3 vehicles in Base to 9 vehicles in this scenario. The network in this scenario leads to improvement on queue length which is better than the previous Scenario A.

Scenario C: 2026 Traffic Management No. 2

The impact on queues in this scenario is generally with the same level as seen in the previous Scenario B. The longest queue is seen on R572 Main Street northbound approach with 16 vehicles and 12 vehicles for AM peak and PM peak respectively, which are both manageable.

2026 Modelling Results Summary

As can be seen in the modelling results, both **Scenario B** and **Scenario C** lead to improvement of queues when compared against Scenario A. The impact on queue in these two scenarios are the same and manageable.

Scenario D: 2036 Do Traffic Management No. 1

As expected, a build-up of queues with 84 vehicles is seen on North Road eastbound at R572 Main Street/North Road Junction and 92 vehicles on R572 southbound at R572/R571 Junction during the AM peak. During the PM peak, the longest queue with 29 vehicles is seen on R571 eastbound at R572/R571 Junction.

Scenario E: 2036 Traffic Management No. 1 and Roads Proposal – Northern Road

In this scenario, the modelling shows a massive build-up of queues with 101 vehicles on R572 southbound approach at R572/R571 Junction during the AM peak and 56 vehicles on R571 eastbound approach at the same junction during the PM peak. A screenshot of the model with the queues in these areas is presented in Figure 5.20. The impacts on queues in other areas are seen minor and manageable. This scenario is better than the previous Scenario D.

Figure 5.20 Build-up of Queues of R571 North Road

Scenario F: 2036 Traffic Management No. 1 and Roads Proposal – Northern and Southern Roads

This scenario generally shows improvements on queue results when compared against Scenario E and Scenario G. However, the long queues at R572/R571 Junction is still existent on R572 southbound approach with 95 vehicles during the AM peak and 51 vehicles on R571 eastbound during the PM peak. The impacts on queues in other areas are seen minor and manageable.

Scenario G: 2036 Traffic Management No. 1 and Roads Proposal – Southern Road

In this scenario, the highest queue is seen on R572 southbound at R572/R571 Junction with 102 vehicles during the AM peak. Again, this is due to the delay in R571/R572 area with the increased traffic flow in year 2036. During the PM peak, the highest queue is seen on R572 Main Street northbound at R572 Main Street/North Road Junction. Generally, Scenario F is seen to perform better than this scenario in terms of queues for both AM and PM peaks.

2036 Modelling Results Summary

The modelling results show that **Scenario F** has the least impact in queue lengths on the network. However, the results shown in Scenario E and G have a small difference when compared against Scenario F. Both Scenarios F and E lead to improvement on queues when compared to Scenario D in general. Also, the modelling shows a build-up of queues at R572/R571 Junction on R572 southbound and R571 eastbound approaches which suggests a need for traffic mitigation measure (i.e. signal controls) for year 2036.

The queue results for all scenarios are also illustrated in Figures 5.21 to 5.24.

Table 5.14 Queue Length Results – 2026 AM Peak

Junc No.	Junction	Approach	Base	2026 – A	Diff	% Diff	2026 – B	Diff	% Diff	2026 – C	Diff	% Diff
1	R572 Main St/ West Square	R572 Main St. NB	11	25	14	127.3%	18	7	63.6%	16	5	45.5%
		R572 Main St SB	0	2	2	0.0%	0	0	0.0%	6	6	0.0%
		West Square WB	2	3	1	50.0%	12	10	500.0%	7	5	250.0%
2	R572 Main St/ North Road	R572 Main St. NB	2	3	1	50.0%	9	7	350.0%	0	-2	-100.0%
		R572 Main St. SB	0	5	5	0.0%	2	2	0.0%	5	5	0.0%
		Harbour Access WB	3	10	7	233.3%	9	6	200.0%	10	7	233.3%
		North Road EB	2	96	94	4700.0%	9	7	350.0%	9	7	350.0%
3	R572/R571	R572 NB	0	0	0	0.0%	0	0	0.0%	0	0	0.0%
		R572 SB	1	82	81	8100.0%	11	10	1000.0%	8	7	700.0%
		R571 EB	3	7	4	133.3%	4	1	33.3%	5	2	66.7%

Table 5.15 Queue Length Results – 2036 AM Peak

Junc No.	Junction	Approach	Base	2036 – D	Diff	% Diff	2036 – E	Diff	% Diff	2036 – F	Diff	% Diff	2036 –G	Diff	% Diff
1	R572 Main St/ West Square	R572 Main St. NB	11	14	3	27.3%	24	13	118.2%	11	0	0.0%	17	6	54.5%
		R572 Main St SB	0	0	0	0.0%	0	0	0.0%	0	0	0.0%	0	0	0.0%
		West Square WB	2	22	20	1000.0%	16	14	700.0%	3	1	50.0%	7	5	250.0%
2	R572 Main St/ North Road	R572 Main St. NB	2	12	10	500.0%	8	6	300.0%	7	5	250.0%	13	11	550.0%
		R572 Main St. SB	0	5	5	0.0%	1	1	0.0%	0	0	0.0%	2	2	0.0%
		Harbour Access WB	3	20	17	566.7%	18	15	500.0%	18	15	500.0%	21	18	600.0%
		North Road EB	2	84	82	4100.0%	8	6	300.0%	9	7	350.0%	16	14	700.0%
3	R572/R571	R572 NB	0	2	2	0.0%	0	0	0.0%	0	0	0.0%	1	1	0.0%
		R572 SB	1	92	91	9100.0%	101	100	10000.0%	95	94	9400.0%	102	101	10100.0%
		R571 EB	3	5	2	66.7%	10	7	233.3%	7	4	133.3%	12	9	300.0%

Table 5.16 Queue Length Results – 2026 PM Peak

Junc No.	Junction	Approach	Base	2026 – A	Diff	% Diff	2026 – B	Diff	% Diff	2026 – C	Diff	% Diff
1	R572 Main St/ West Square	R572 Main St. NB	7	15	8	114.3%	8	1	14.3%	12	5	71.4%
		R572 Main St SB	0	0	0	0.0%	0	0	0.0%	5	5	0.0%
		West Square WB	3	7	4	133.3%	9	6	200.0%	4	1	33.3%
2	R572 Main St/ North Road	R572 Main St. NB	2	3	1	50.0%	5	3	150.0%	0	-2	-100.0%
		R572 Main St. SB	0	0	0	0.0%	0	0	0.0%	3	3	0.0%
		Harbour Access WB	3	5	2	66.7%	7	4	133.3%	6	3	100.0%
		North Road EB	2	6	4	200.0%	5	3	150.0%	6	4	200.0%
3	R572/R571	R572 NB	0	0	0	0.0%	0	0	0.0%	0	0	0.0%
		R572 SB	0	4	4	0.0%	6	6	0.0%	4	4	0.0%
		R571 EB	1	6	5	500.0%	5	4	400.0%	8	7	700.0%

Table 5.17 Queue Length Results – 2036 PM Peak

Junc No.	Junction	Approach	Base	2036 – D	Diff	% Diff	2036 – E	Diff	% Diff	2036 – F	Diff	% Diff	2036 –G	Diff	% Diff
1	R572 Main St/ West Square	R572 Main St. NB	7	9	2	28.6%	8	1	14.3%	5	-2	-28.6%	12	5	71.4%
		R572 Main St SB	0	0	0	0.0%	0	0	0.0%	0	0	0.0%	0	0	0.0%
		West Square WB	3	14	11	366.7%	13	10	333.3%	3	0	0.0%	6	3	100.0%
2	R572 Main St/ North Road	R572 Main St. NB	2	7	5	250.0%	10	8	400.0%	9	7	350.0%	28	26	1300.0%
		R572 Main St. SB	0	0	0	0.0%	0	0	0.0%	0	0	0.0%	0	0	0.0%
		Harbour Access WB	3	10	7	233.3%	14	11	366.7%	16	13	433.3%	21	18	600.0%
		North Road EB	2	10	8	400.0%	9	7	350.0%	13	11	550.0%	8	6	300.0%
3	R572/R571	R572 NB	0	0	0	0.0%	0	0	0.0%	1	1	0.0%	0	0	0.0%
		R572 SB	0	5	5	0.0%	11	11	0.0%	14	14	0.0%	9	9	0.0%
		R571 EB	1	29	28	2800.0%	56	55	5500.0%	51	50	5000.0%	15	14	1400.0%

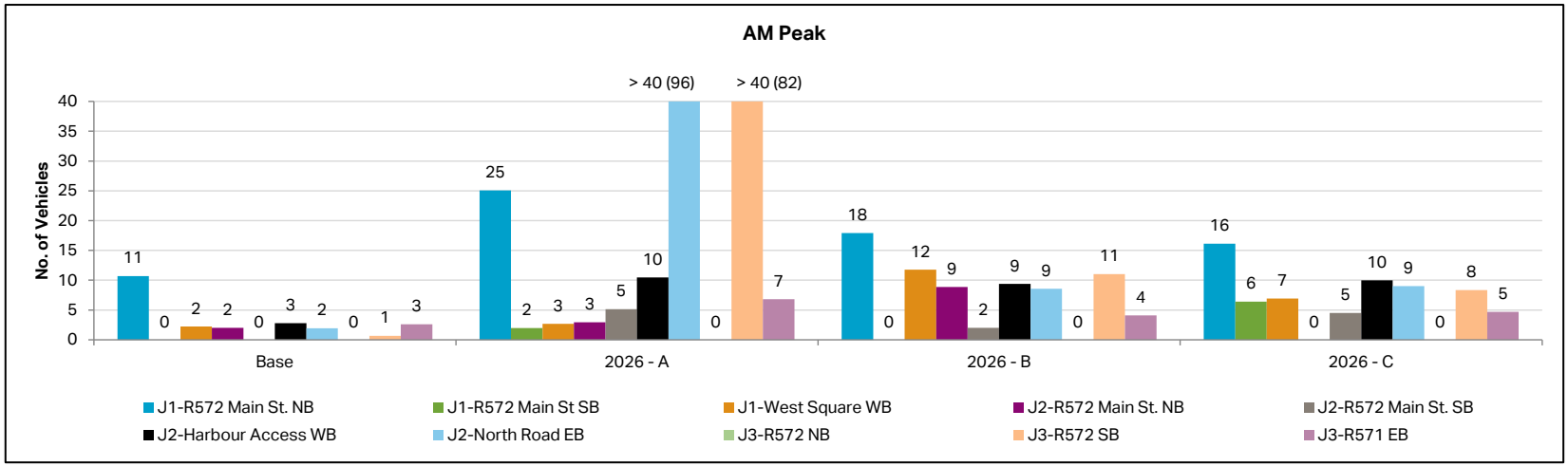

Figure 5.21 Queue Length Results – 2026 AM Peak

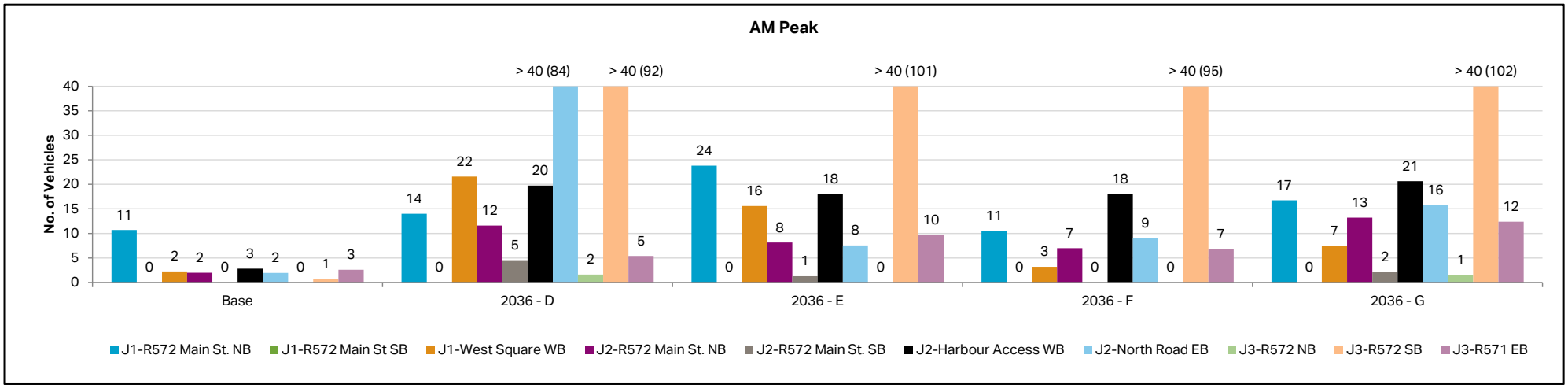

Figure 5.22 Queue Length Results – 2036 AM Peak

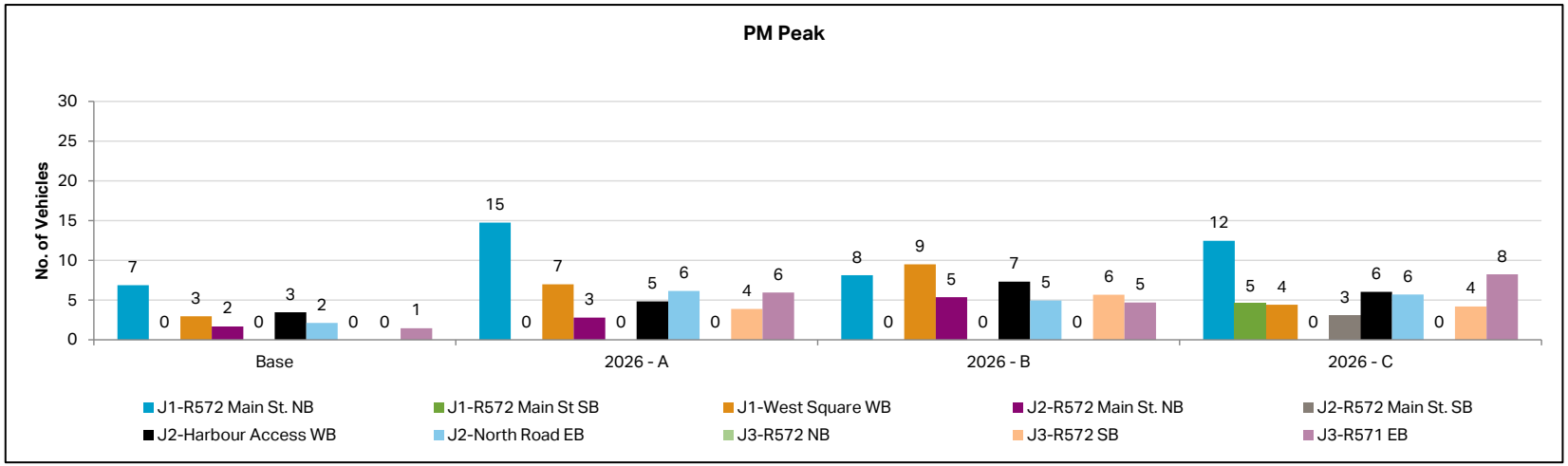

Figure 5.23 Queue Length Results – 2026 PM Peak

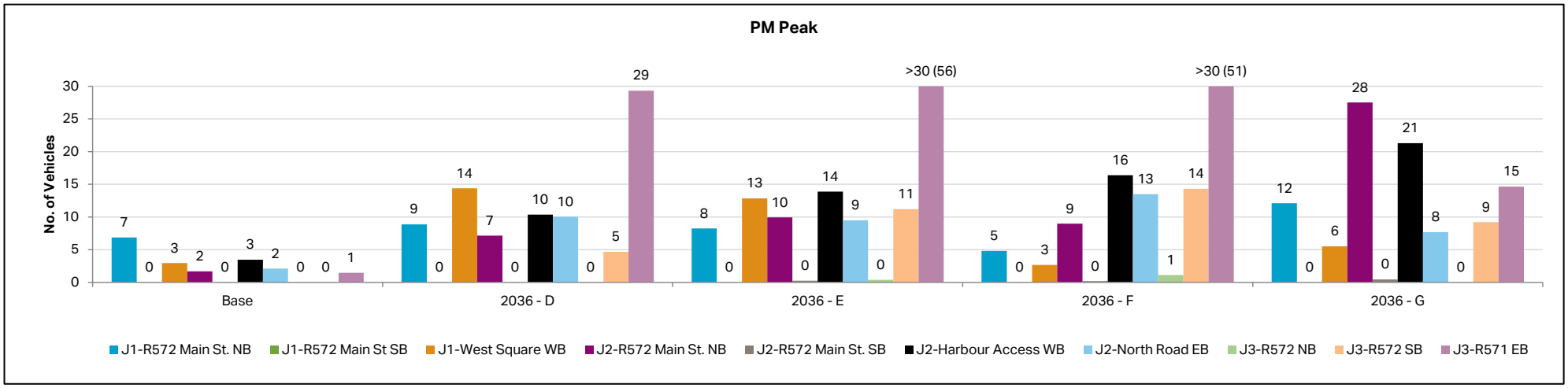

Figure 5.24 Queue Length Results – 2036 PM Peak

Summary and Conclusion

06

6. Summary and Conclusion

This report has been prepared to detail the development, calibration and validation of the VISSIM models for Castletownbere. AECOM developed the micro-simulation models in order to assess the impact of the traffic growth in the area. The models were also used to test the traffic management and road proposals within the study area. The Base models have been developed using a significant level of traffic data including a number of traffic surveys to ensure that the model can replicate the existing volumes and traffic patterns in Castletownbere town.

Model calibration and validation checks were undertaken in accordance with *TII PAG Unit 5.1 – Construction of Transport Models*. As detailed in Section 4 of this report, the calibration and validation results for traffic flows and journey times show that the AM and PM peak models exceed the targets for all user classes. This demonstrates that the quality of the Base models network and assignment is robust and fit for purpose. Therefore the results of future modelling works are considered robust.

Future years 2026 and 2036 were assessed with different scenarios as follows:

- *Scenario A: 2026 Do Nothing* – this scenario includes the traffic growth in 2026 assigned on the current arrangement of road network. The modelled network is shown in Figure 5.1 in Section 5 of this report.
- *Scenario B: 2026 Traffic Management No. 1* – this includes the traffic growth in 2026 assigned on a network with the proposed one-way system on Main Street eastbound. The modelled network is presented in Figure 5.2 in Section 5 of this report.
- *Scenario C: 2026 Traffic Management No. 2* – this includes the traffic growth in 2026 assigned on a network with the proposed one-way system on Main Street westbound. The modelled network is presented in Figure 5.3 in Section 5 of this report.
- *Scenario D: 2036 Do Traffic Management No. 1* – this includes the traffic growth in 2036 assigned on a network with the proposed one-way system on Main Street eastbound (i.e. Scenario B which is the best performing network with the proposed traffic management tested in year 2026). The modelled network is presented in Figure 5.4 in Section 5 of this report.
- *Scenario E: 2036 Traffic Management No. 1 and Roads Proposal – Northern Road* – this includes the traffic growth in 2036 assigned to a network with the proposed one-way system on Main Street eastbound and with the proposed Northern Road. The modelled network is presented in Figure 5.5 in Section 5 of this report.
- *Scenario F: 2036 Traffic Management No. 1 and Roads Proposal – Northern and Southern Roads* – this includes the traffic growth in 2036 assigned on a network with the proposed one-way system on Main Street eastbound and with the proposed Northern Road and Southern Road. The modelled network is presented in Figure 5.7 is Section 5 of this report.
- *Scenario G: 2036 Traffic Management No. 1 and Roads Proposal – Southern Road* – this includes the traffic growth in 2036 assigned to a network with the proposed one-way system on Main Street eastbound and with the proposed Southern Road. The modelled network is presented in Figure 5.8 in Section 5 of this report.

The key findings for each of the scenarios assessed include the following:

<u>*Scenario A: 2026 Do Nothing*</u>

Scenario A leads to increases in travel time & delay and a decrease in average speed as expected. During the AM peak, the average travel time per vehicle is seen to increase by two times (i.e. from 2.3 minutes in Base to 4.7 minutes in year 2026). The average speed is seen to drop from 23.7 kph to 11.2 kph. Also, there has been a ninefold increase in average delay. During the PM peak, the

average travel time per vehicle is seen to increase by 28.6% from the Base (i.e. from 2.1 minutes to 2.7 minutes). The average speed is seen to drop by 23% from the Base (i.e. from 27 kph to 20.8 kph) and as expected, the average delay is seen to increase by three times having 42.6 seconds in this scenario from to 13.8 seconds in the Base.

Increases in journey time can be seen from the results for both AM and PM peaks. The highest increase can be seen on path no. 4 North Road to R572 South with more than four times from the Base (i.e. from 03:00 in Base to 12:24 in Scenario A) during the AM peak. During the PM peak, the highest 63.7% increase in journey time can be seen on path no. 3 R572 South to North Road with 04:31 in this scenario from 02:46 in Base.

A build-up of queues with 96 vehicles is seen on the North Road eastbound approach at R572 Main Street/North Road Junction and 82 vehicles on R571 eastbound approach on R572/R571 Junction during the AM peak. These queues would cause excessive delay and therefore suggests a need for traffic mitigation measures.

Scenario B: 2026 Traffic Management No. 1

Scenario B leads to minor increases in travel time & delay and minor decrease in average speed. During the AM peak, the average travel time per vehicle is seen to increase by 0.3 minutes (i.e. 18 seconds) which is negligible. Minor decrease in average speed is seen with 13.5% (i.e. from 23.7 kph in Base to 20.5 kph in 2026). Also, minor increase in average delay with additional 13.8 seconds to the Base can be seen in the modelling results. Similar patterns of traffic impact can be seen during the PM peak. Minor increase in travel time per vehicle is seen during the PM peak with 0.4 minutes (24 seconds) increase from the Base. A decrease in average speed is seen with 15.9% (i.e. from 27 kph in Base to 22.7 kph in 2026). The results also show an increase in average delay with additional 10.2 seconds to the Base, which is negligible. The network in this scenario performs better than the previous Scenario A.

There has been a 39.5% increase in journey time on path no. 4 North Road to R572 South (i.e. from 03:00 in Base to 04:11 in Scenario B) being the highest during the AM peak. This is because of the longer route that vehicles take for this journey path due to the proposed one-way system on Main Street eastbound. While increases can be seen during the PM peak, these impacts are minor having less than 60 seconds for all paths. This scenario has better journey times than the previous Scenario A.

The impact on queues in this scenario is seen minor during the AM and PM peaks. The longest queue is seen on R572 Main Street northbound at R572 Main Street/West Square Junction from 11 vehicles in Base to 18 vehicles in this scenario during the AM peak. During the PM peak, the highest impact is seen on West Square westbound at R572 Main Street/West Square Junction from 3 vehicles in Base to 9 vehicles in this scenario. The network in this scenario leads to improvement on queue length which is better than the previous Scenario A.

Scenario C: 2026 Traffic Management No. 2

Scenario C leads to 26.1% increase in average travel time per vehicle (i.e. from 2.3 minutes in Base to 2.9 minutes in this scenario) during the AM peak. The average speed is seen to drop by 20.7% (i.e. from 23.7 kph to 18.8 kph). The average delay is seen to increase by more than threefold from the Base (i.e. from 17.2 seconds to 43 seconds). During the PM peak, the average travel time per vehicle is seen to increase by 28.6% from the Base (i.e. from 2.1 minutes to 2.7 minutes). The average speed is seen to drop by 21.1% from the Base (i.e. from 27 kph to 21.3 kph) and the average delay is seen to increase by more than two times from the Base (i.e. from 13.8 seconds to 28.4 seconds). This scenario performs better than Scenario A. However, the previous Scenario B performs better than this scenario.

In terms of journey time, the highest 68.9% increase can be seen on path no. 3 R572 South to North Road having 04:59 in this scenario from 02:57 in Base. Similarly, during the PM peak, 36% increase can be seen on path no. 1 R572 South to R572 North having 05:27 in this scenario from 04:01 in Base. These increases are expected on the paths because of the longer route that vehicles take

due to the proposed one-way system on Main Street westbound. This scenario generally appears to have better journey times than Scenario A. However, the previous Scenario B is better than this scenario.

The impact on queues in this scenario is generally with the same level as seen in the previous Scenario B. The longest queue is seen on R572 Main Street northbound approach with 16 vehicles and 12 vehicles for AM peak and PM peak respectively, which are both manageable.

2026 Modelling Results Summary

The modelling results show that **Scenario B** with the proposed one-way system on Main Street eastbound (Traffic Management No. 1) is the best performing option in year 2026. This is seen for both AM and PM peaks in terms of network performance, journey times and queues. The traffic management modelled in Scenario B is carried forward to the modelling of 2036 scenarios.

Scenario D: 2036 Do Traffic Management No. 1

Scenario D leads to increases in travel time & delay and a decrease in average speed as expected. During the AM peak, the average travel time per vehicle is seen more than doubled from the Base (i.e. from 2.3 minutes in Base to 5.1 minutes is this scenario). The average speed is seen to drop significantly from 23.7 kph to 10.1 kph and there has been more than a tenfold increase in average delay having 182.30 seconds in this scenario from 17.2 seconds in Base. Similarly, during the PM peak, the average travel time per vehicle is seen to increase by 42.9% from the Base (i.e. from 2.1 minutes to 3.0 minutes). A decrease of 30.4% is seen in average speed and as expected, there has been more than a threefold increase in average delay from the Base.

Increases in journey time can be seen in the modelling results for all paths for both AM and PM peaks. There has been an additional 05:34 journey time for path no. 3 R572 South to North Road during the AM peak and 01:14 during the PM peak, being the highest increases for this scenario.

As expected, a build-up of queues with 84 vehicles is seen on North Road eastbound at R572 Main Street/North Road Junction and 92 vehicles on R572 southbound at R572/R571 Junction during the AM peak. During the PM peak, the longest queue with 29 vehicles is seen on R571 eastbound at R572/R571 Junction.

Scenario E: 2036 Traffic Management No. 1 and Roads Proposal – Northern Road

Scenario E leads to increases in travel time & delay and a decrease in average speed. However these impacts are better than the previous Scenario D. During the AM peak, the average travel time is seen to increase by 52.2% (i.e. from 2.3 minutes in Base to 3.5 minutes in this scenario). The average speed is seen to drop by 32.1% having 16.1 kph in this scenario from 23.7 kph in Base. As expected, an increase in delay is seen with more than five times from the Base (i.e. from 17.2 seconds to 90 seconds). During the PM peak, the average travel time is seen to increase by 42.9% (i.e. from 2.1 minutes in Base to 3.0 minutes in this scenario). The average speed is seen to drop by 26.7% having 19.8 kph in this scenario from 27 kph in the Base. An increase in delay is seen with more than three times from the Base (i.e. from 13.8 seconds to 44.1 seconds). This scenario performs better than the previous Scenario D.

The modelling results show increases in journey times when compared against the Base. However, this scenario generally performs better than the previous Scenario D. During the AM peak, the highest increase is seen on path no. 6 R572 North to Back Road with additional 02:50 journey time to the Base. It is noted that due to the traffic growth for year 2036, a build-up of queues is observed on the R572 southbound approach at R572/R571 Junction. Additional delays are seen on R572/R571 and R571/North Road Junctions. These delays have increased journey times on paths traversing the Back Road and the North Road. During the PM peak, the highest 55.8% increase in journey time can be seen on path no. 3 R572 South to North Road (i.e. from 02:46 in Base to 04:18 in this scenario).

The modelling also shows a massive build-up of queues with 101 vehicles on R572 southbound approach at R572/R571 Junction during the AM peak and 56 vehicles on R571 eastbound approach at the same junction during the PM peak. The impacts on queues in other areas are seen minor and manageable.

Scenario F: 2036 Traffic Management No. 1 and Roads Proposal – Northern and Southern Roads

Scenario F leads to increases in travel time & delay and a decrease in average speed. However these impacts are better than the previous Scenario E. During the AM peak, the average travel time is seen to increase 30.4% having 3.0 minutes in this scenario from 2.3 minutes in Base. The average speed is seen to decrease by 19.4% (i.e. from 23.7 kph in Base to 19.1 kph in this scenario). The average delay is seen to increase by more than three times from the Base having 58.8 seconds delay in this scenario from 17.2 seconds in Base. During the PM peak, minor increase of 33.3% is seen on average travel time per vehicle (i.e. from 2.1 minutes in Base to 2.8 minutes in this scenario). The average speed is seen to drop by 23% having 20.8 kph in this scenario from 27 kph in Base. Also, minor increase of 23.5 seconds is seen on average delay having 37.3 seconds delay in this scenario from 13.8 seconds in the Base. This scenario performs better than Scenario D. However, the previous Scenario E performs better than this scenario.

The journey time results in this scenario are generally better than the previous Scenarios D and E. While increases can be seen when compared against the Base, the journey time results for this scenario generally show improvements when compared to Scenarios D and E. During the AM peak, an additional 02:12 journey time to the Base can be seen on path no. 6 R572 North to Back Road which is the highest increase in this time period. During the PM peak, the highest increase can be seen on path no. 5 Back Road to R572 North with additional 01:16 journey time to the Base. As discussed in the previous scenario, the build-up of queues on R572/R571 areas introduced additional delays on paths traversing the Back Road and the North Road.

This scenario generally shows improvements on queue results when compared against Scenario E and Scenario G. However, the long queues at R572/R571 Junction is still existent on R572 southbound approach with 95 vehicles during the AM peak and 51 vehicles on R571 eastbound during the PM peak. The impacts on queues in other areas are seen minor and manageable.

Scenario G: 2036 Traffic Management No. 1 and Roads Proposal – Southern Road

Scenario G leads to increases in travel time & delay when compared against the Base. Scenario F performs better than this scenario. The results show that the difference in average speed between this scenario and Scenario E (with the proposed Northern Road) is marginal. During the AM peak, the average travel time is seen to increase 82.6% having 4.2 minutes in this scenario from 2.3 minutes in Base. During the PM peak, there is a 38.1% increase in average travel time having 2.1 and 2.9 minutes for Base and Scenario G respectively.

The journey time results in this scenario also show increases when compared against the Base. The high increases are seen during the AM peak on path no. 2 R572 North to R572 South and path no. 6 R572 North to Back Road. The increase in path no 2 R572 North to R572 South is almost three times the Base (i.e. from 03:13 in Base to 09:51 in this scenario) while the increase in path no. 6 R572 North to Back Road is almost two times the Base (i.e. from 02:09 in Base to 04:30 in this scenario). Again, this is due to the build-up of queues on R572/R571 areas which introduced additional delays on paths traversing the Back Road and the northern part of the North Road. Scenario F generally performs better than this scenario. During the PM peak, the journey time increases are all less than 1 minute. The highest increase is seen on path no. 5 Back Road to R572 North with 57 seconds increase from the Base.

In terms of queues, the highest queue is seen on R572 southbound at R572/R571 Junction with 102 vehicles during the AM peak. Again, this is due to the delay in R571/R572 area with the increased traffic flow in year 2036. During the PM peak, the highest queue is seen on R572 Main Street northbound at R572 Main Street/North Road Junction. Generally, Scenario F is seen to perform better than this scenario in terms of queues for both AM and PM peaks.

2036 Modelling Results Summary

The modelling results show that **Scenario F** with the proposed Southern and Northern Road together with the proposed one-way system on Main Street eastbound is the best performing option in year 2036. This is seen for both AM and PM peaks. Both Scenario E (with the proposed Northern Road) and Scenario F (with the proposed Northern Road and Southern Road) is seen to improve the network performance when compared against Scenario D (without the Northern and Southern Roads) and Scenario G (with the Southern Road only) especially during the AM peak which is the town's busiest time of the day.

The addition of the Northern Road on the network in Scenario E brings improvement on the journey times for the 6 paths within the study area in year 2036 when compared against Scenario D. Similarly, the addition of the Southern Road on the network in Scenario G brings improvement on the journey times when compared to Scenario D. Also, the modelling results show that with the addition of the Southern Road on the network together with the Northern Road and the proposed one-way system on Main Street eastbound in Scenario F generally brings further improvements on the journey times. **Scenario F** is the best performing option for 2036 in terms of journey time.

The modelling results also show that **Scenario F** has the best impact in reducing queue lengths on the network.

Appendices

Appendix A

Calibration and Validation Data Set

Appendix A Calibration and Validation Data Set

- Calibration Data – AM Peak – Light Vehicles
- Calibration Data – AM Peak – Heavy Vehicles
- Calibration Data – PM Peak – Light Vehicles
- Calibration Data – PM Peak – Heavy Vehicles
- Validation Data – AM Peak – Light Vehicles
- Validation Data – AM Peak – Heavy Vehicles
- Validation Data – PM Peak – Light Vehicles
- Validation Data – PM Peak – Heavy Vehicles

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Appendix D Car Parking Data

Castletownbere
Car Parking Data

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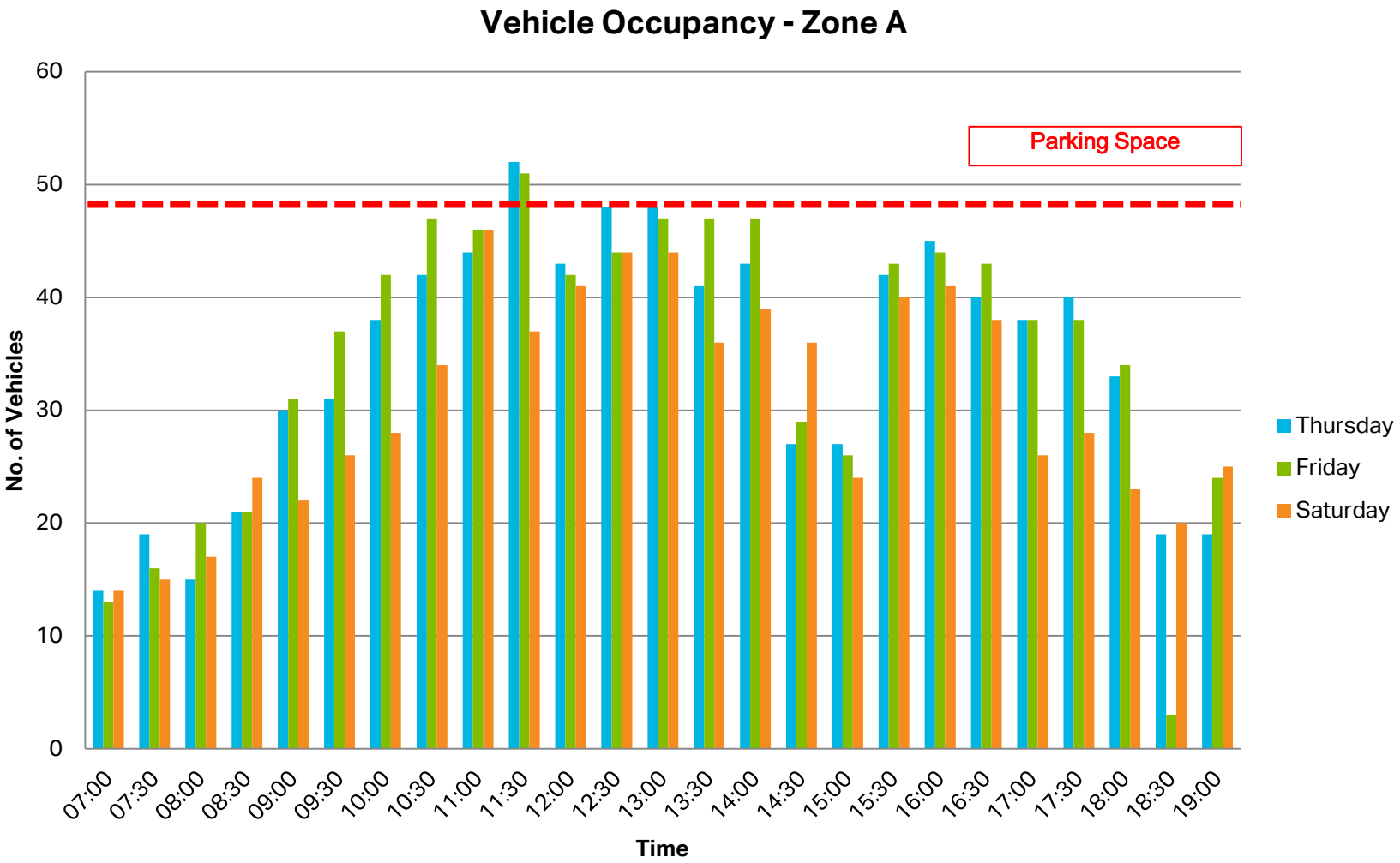
Car Parking Zones

Demand & Capacity – Zone A



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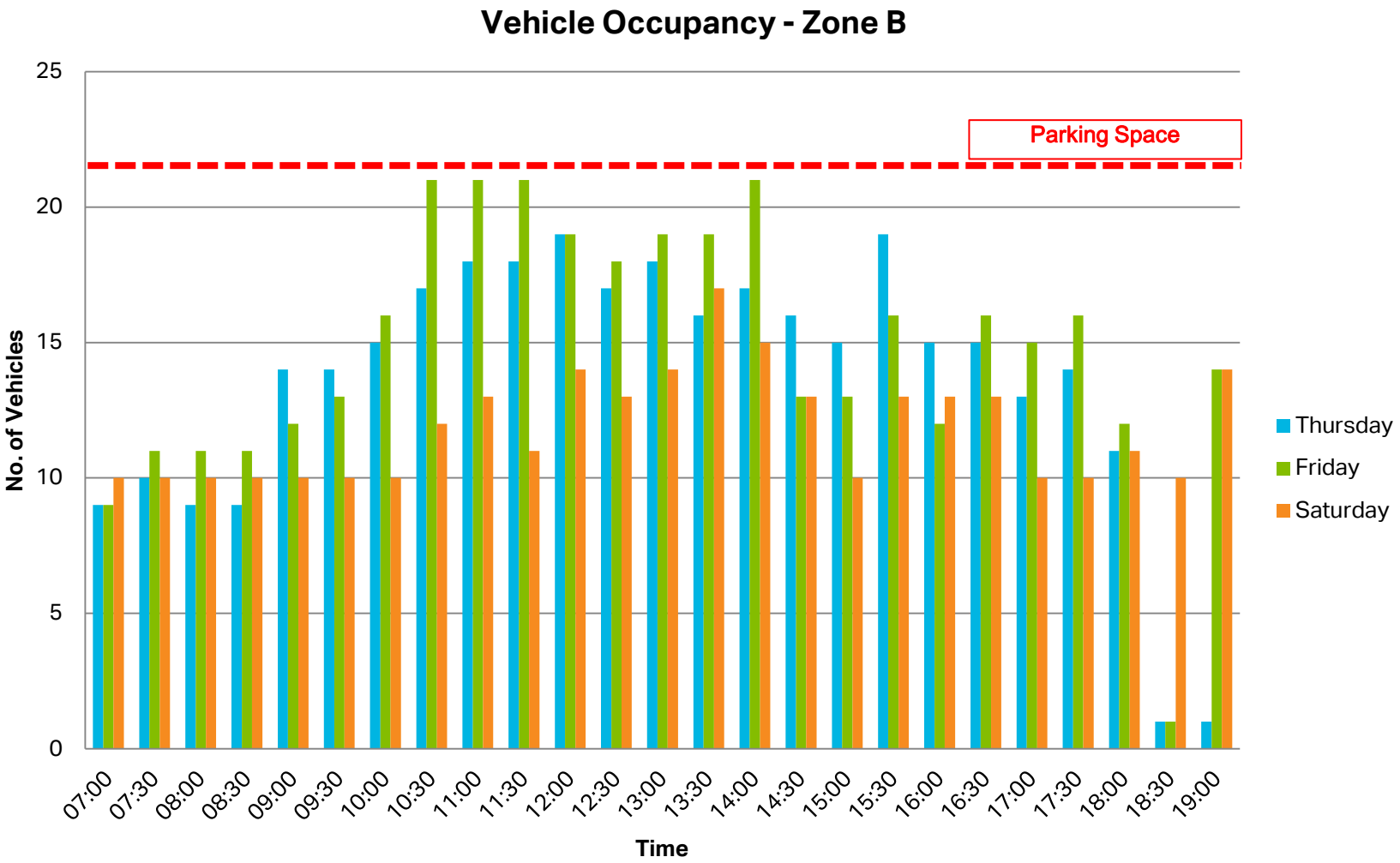
Demand & Capacity – Zone B



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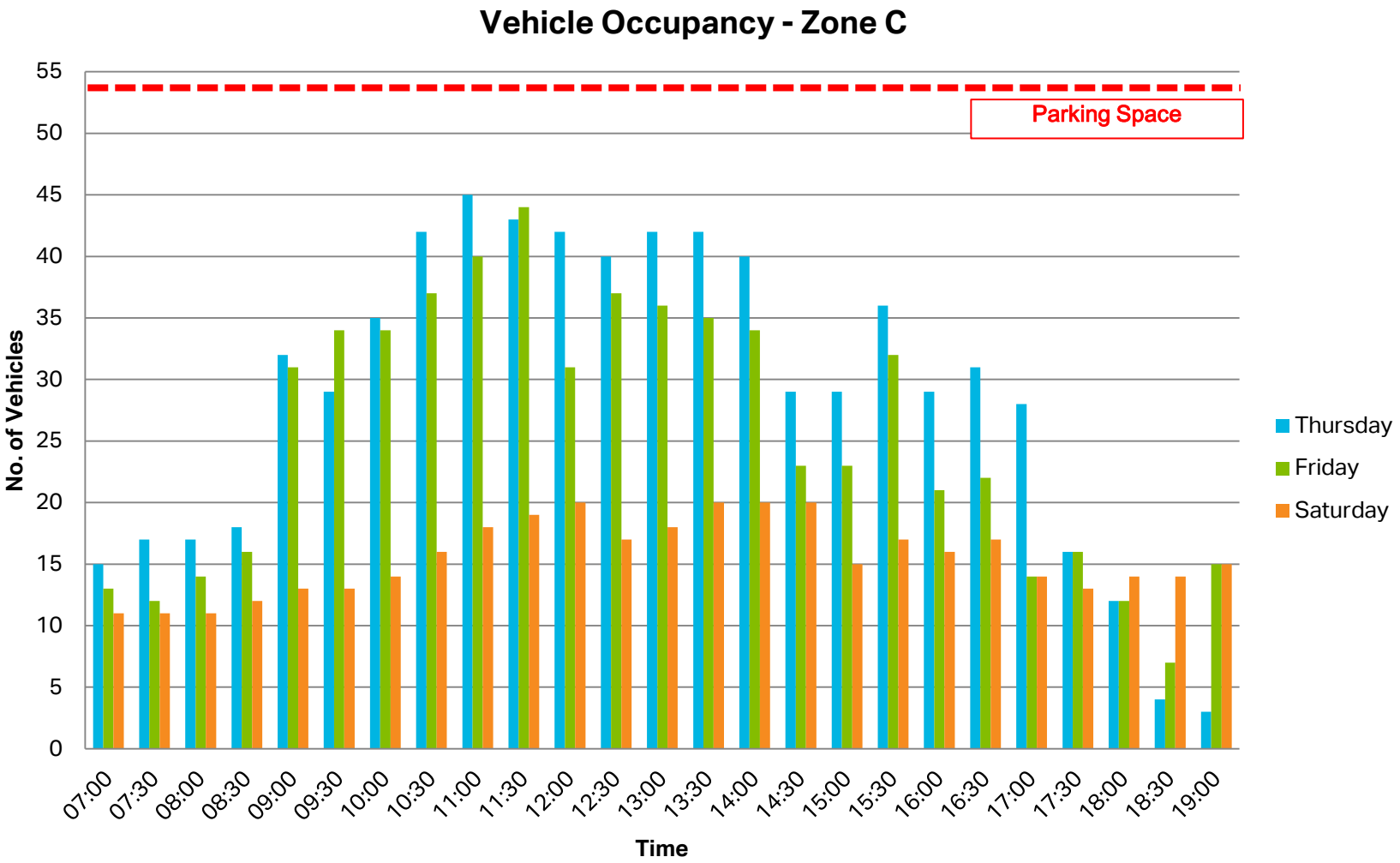
Demand & Capacity – Zone C



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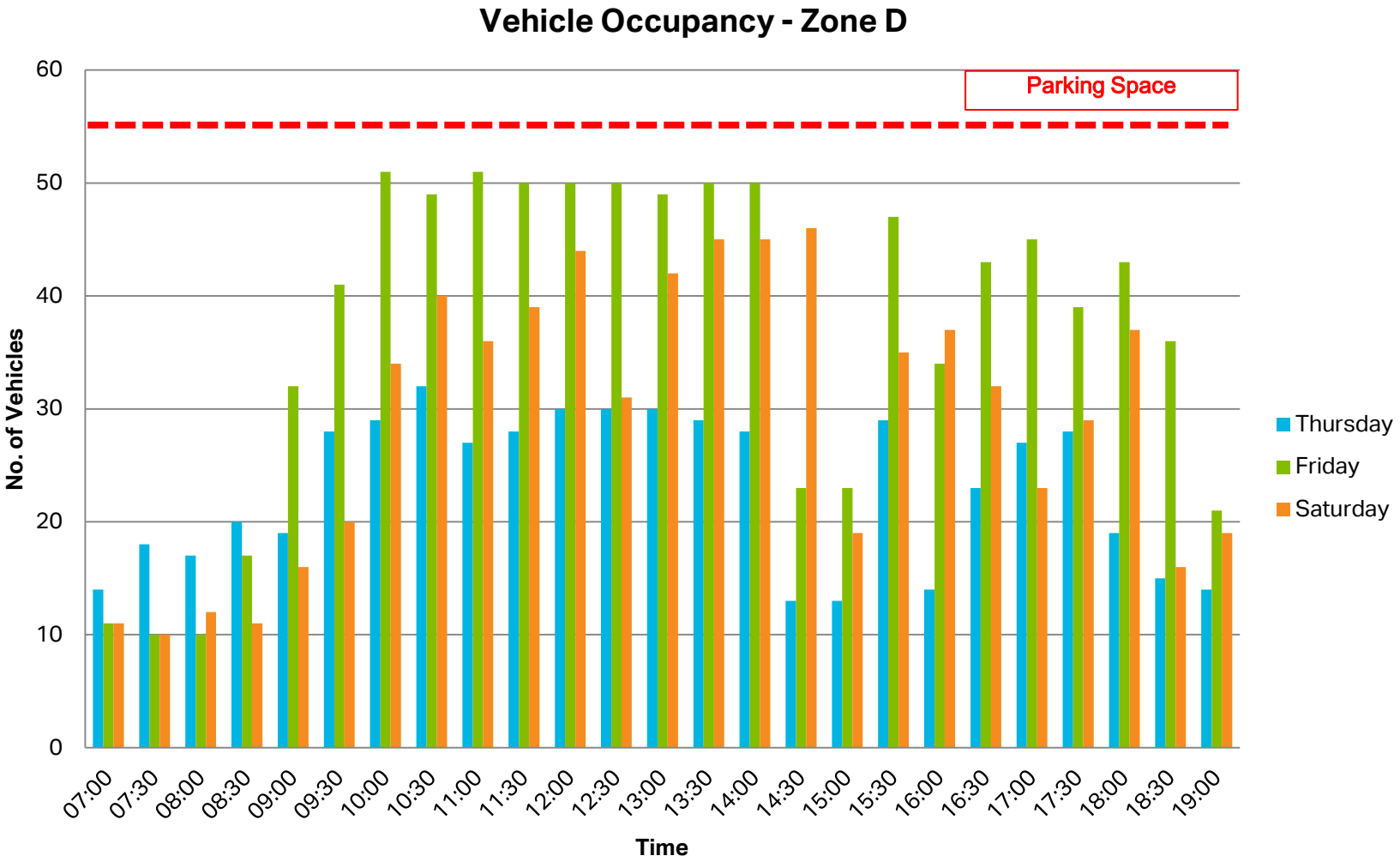
Demand & Capacity – Zone D



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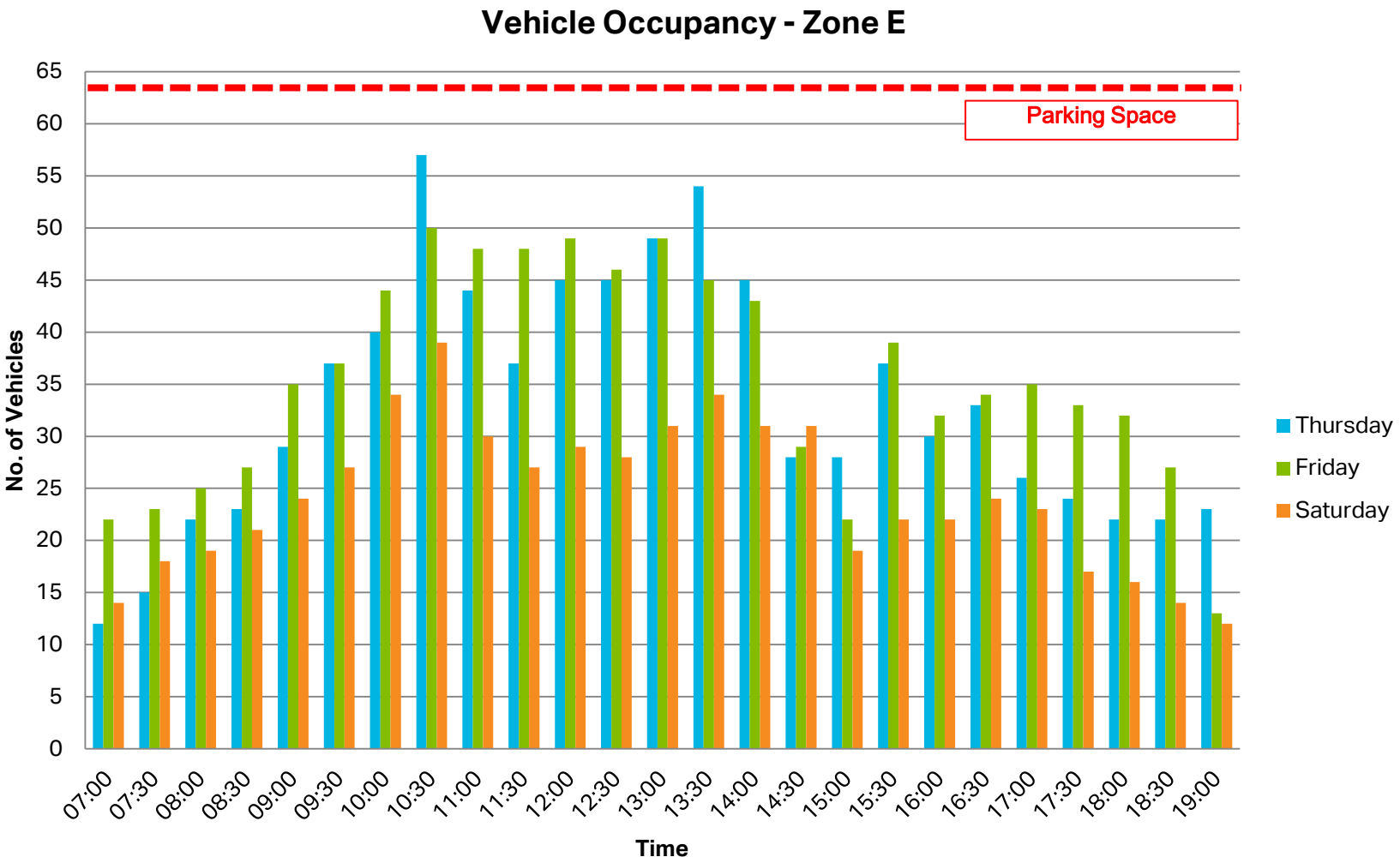
Demand & Capacity – Zone E



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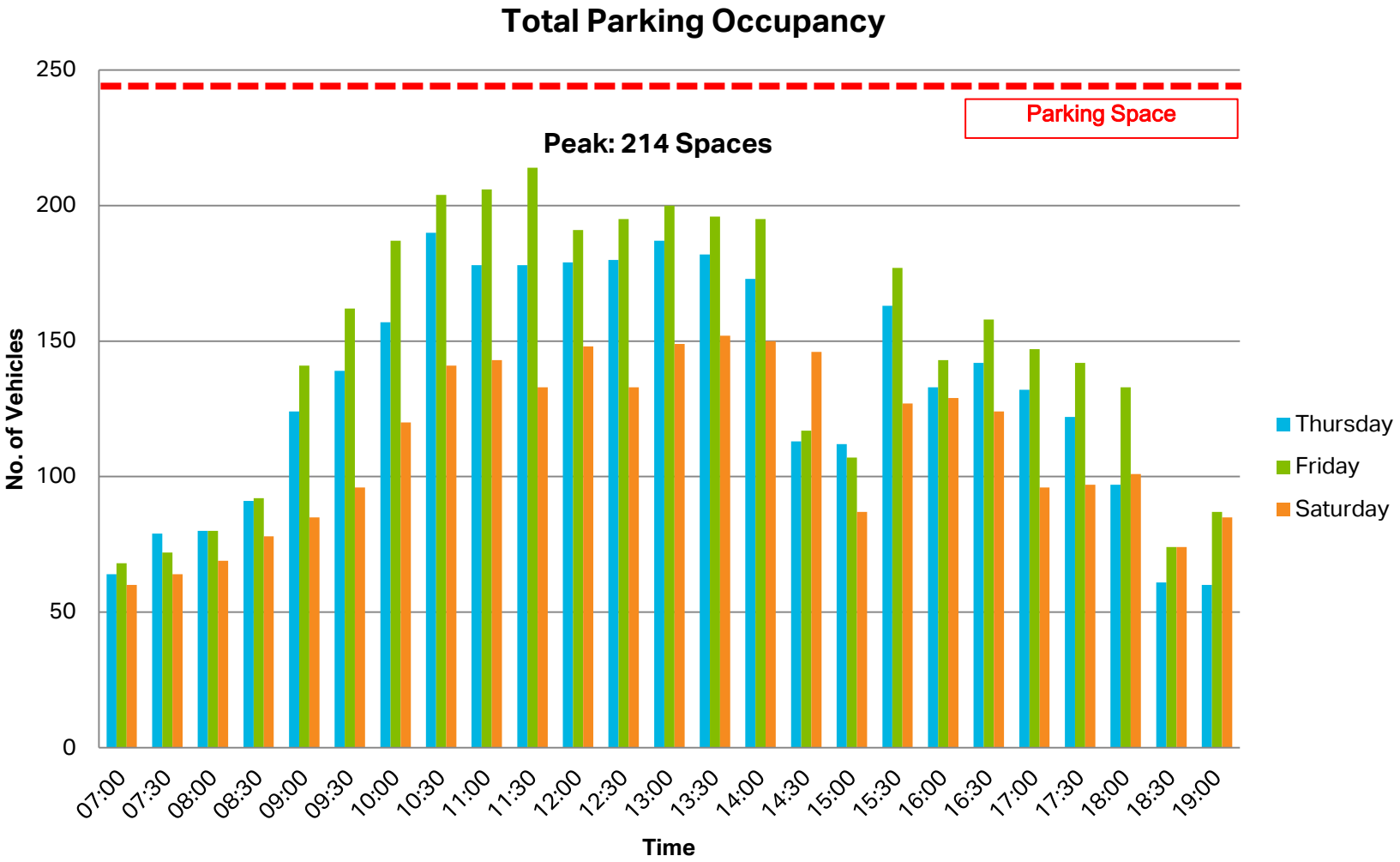
Demand & Capacity – All Zones



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Appendix E Drawings

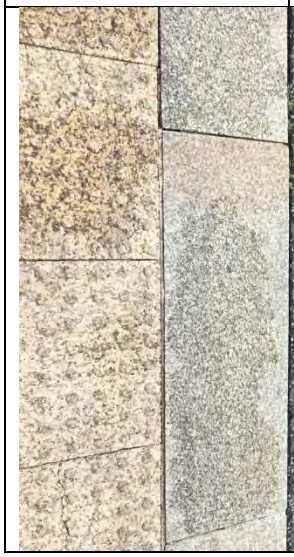
Appendix F Proposed Hard Surfaces Palette

Appendix F- Proposed Hardsurfaces Palette

Material hierarchy	Location/Example	Public realm space/paths	Car park bays	Road surface	Kerbs
Special Places (Highest priority)	Core of Town Square and other important places, such as detail areas near landmark buildings and threshold of proposed pedestrian bridge	Bespoke engravings/inlays on paving to celebrate or interpret local heritage. Concentration of feature colour element - glass and resin paving units	N/A	N/A	N/A
Precedent projects Central library, Liverpool		***Example*** http://www.hardscape.co.uk/project/central-library-liverpool/ 			
Primary priority	Main Street, Town Square and Garden Street	Natural stone paving units – Blue Limestone Feature colour element - glass and resin paving units	Natural stone setts	Hot rolled asphalt with decorative stone chippings.	Natural stone – granite kerbs

Precedent projects 'Blue Carpet', Newcastle and Grand Canal Plaza, Dublin		***Example product*** The Crystalpave Products range, uses TTURA™ resin and 85% recycled glass, and can be manufactured in a variety of shapes and bespoke sizes (to 100mm, pavers and walling) in almost any colour from a BS or RAL colour chart. http://www.hardscape.co.uk/material/glass/	 		
Secondary priority	Secondary streets such as 'New Street'	Hot rolled asphalt with decorative stone chippings. Triple row of setts to road edge	Precast concrete units with natural stone aggregate	Hot rolled asphalt with decorative stone chippings.	Natural stone – granite kerbs

Tertiary priority	Tertiary streets, service areas and carparks	Hot rolled asphalt with decorative stone chippings.	Hot rolled asphalt with decorative stone chippings.	Hot rolled asphalt with decorative stone chippings.	Natural stone – granite kerbs



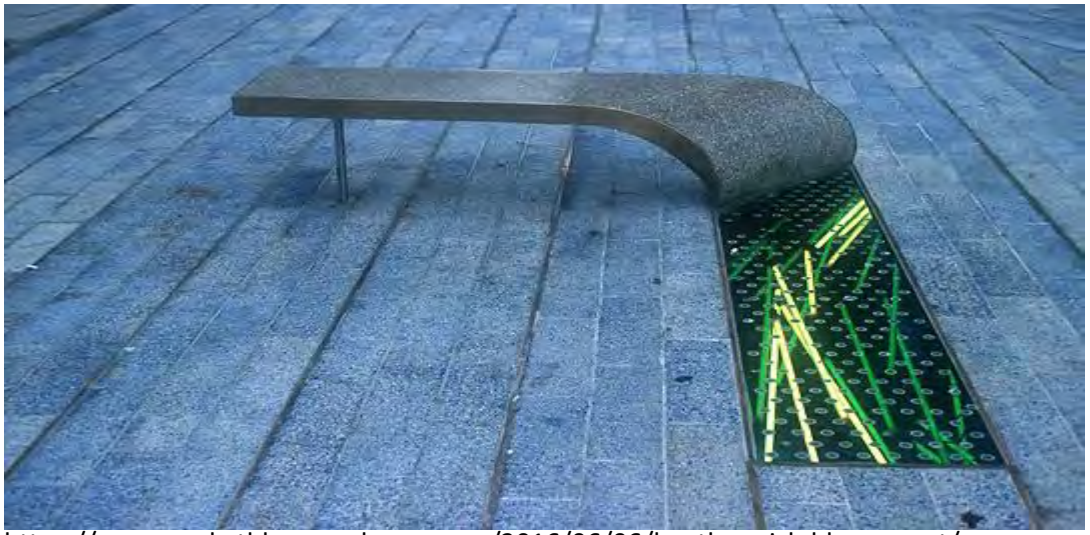
Precedent Image - Feature engraving on natural stone paving, Central library, Liverpool

http://www.hardscape.co.uk/project/central-library-liverpool/

Precedent Image – Blue glass and resin paving, 'Blue Carpet', Laing Art Gallery Square, Newcastle

https://www.google.co.uk/search?biw=1920&bih=936&tbm=isch&sa=1&ei=zpOWWsTDCoLQjwO8maSABA&q=blue+carpet+blue+glass+paving&oq=blue+carpet+blue+glass+paving&gs_l=psy-ab.3...846867.852378.0.852511.16.14.0.0.0.0.0.0..0.0....0...1c.1.64.psy-ab..16.0.0....0.Uogbwk-8qVc#imgrc=Yy_9T5iz8eX2NM:&spf=1519818569082

Precedent Image –Feature lighting and Blue glass and resin paving, 'Blue Carpet', Laing Art Gallery Square, Newcastle

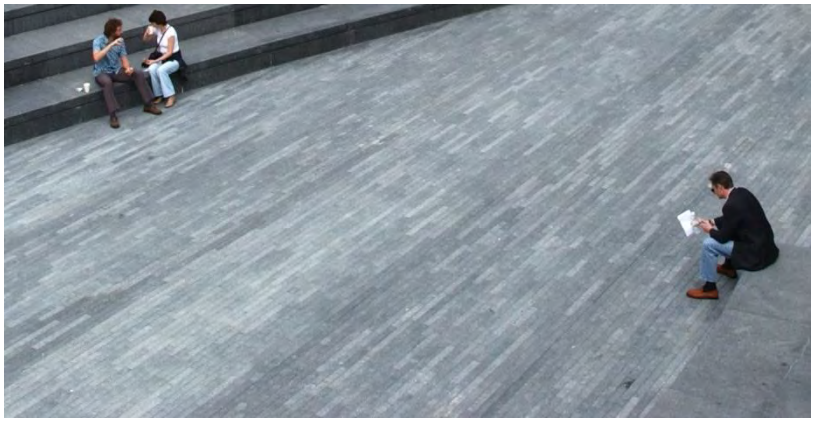


https://moormarketblog.wordpress.com/2016/06/06/heatherwick-blue-carpet/

Precedent Image – Blue glass and resin paving detail, Broadmead, Bristol

http://www.hardscape.co.uk/project/broadmead-bristol/

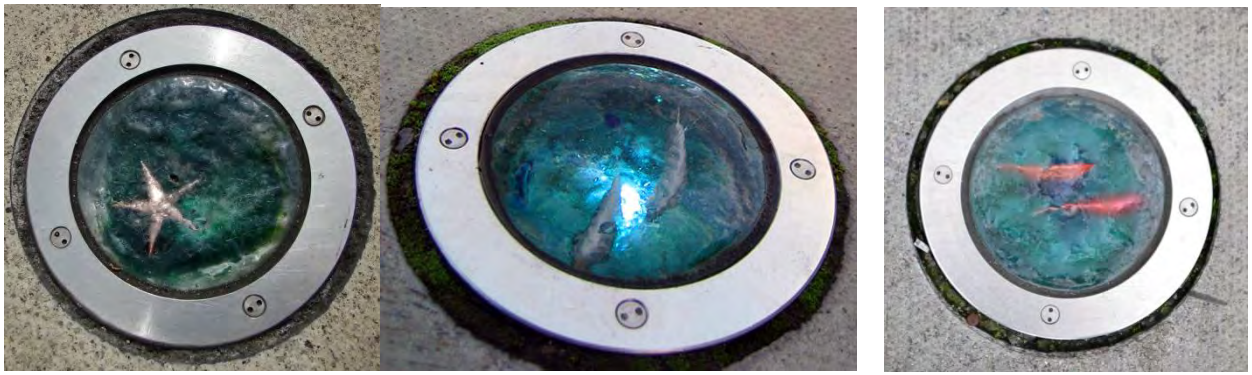
Precedent Image – Blue limestone paving



http://www.hardscape.co.uk/wp-content/uploads/2016/08/more-1.jpg

Design inspiration – historic glass fishing floats - glass & marine colours

https://www.fohbc.org/2012/04/glass-fishing-floats/



Light fittings inspired by a marine theme

This precedent project is relevant as is illustrates how a relatively small interventions can enliven and enrich a streetscape. The marine theme is also especially appropriate.

Reference: http://www.racheljoynt.com/free-flow-2005/

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