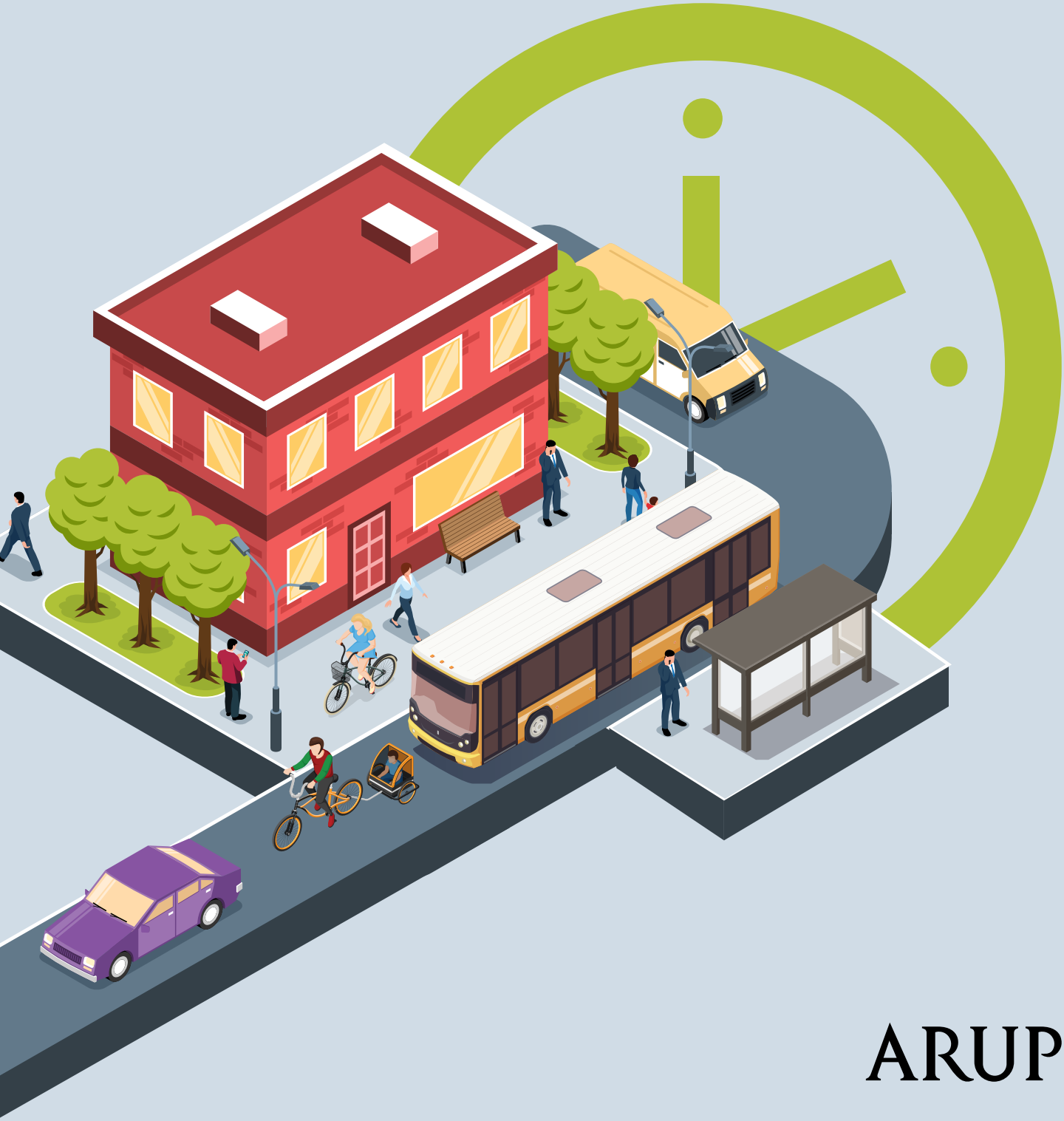
Tionól Réigiúnach an Deiscirt
Southern Regional Assembly

10 Minute Towns

Accessibility & Framework Report

Carlow
Ennis
Tralee

July 2020



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SECTION 1

Introduction

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1 Introduction

Arup has been commissioned by the Southern Regional Assembly (SRA) to undertake a "10 Minute Town" concept which will form part of the Regional Action Plan for Interreg Europe MATCH-UP project.

The key objective is to map and identify infrastructural requirements to support '10 minute' towns within the region. The "10 Minute Town" concept is about creating connected communities – understanding how our neighbourhoods work and to map out how a more compact and permeable urban form can provide high quality and safe links to public transport, shops, services, green spaces and to other neighbourhoods, which will reduce the need to travel and therefore reduce carbon emissions.

The overall aim of the study is to create a framework for and/or good practice guidance for mapping the '10 Minute Town' concept, which can be used by other towns to adapt the same concept. It should be noted that this report is not a policy or land use document and relevant Local Authorities can, at their discretion, use the finding of this work to inform any policy documents, land use plans and transportation studies.

This report has developed an implementation tool to assist Local Authorities to undertake a "10 Minute Town" assessment. For the purposes of developing the tool, we assessed three towns - Carlow, Tralee and Ennis. This report has identified different infrastructural measures which will improve the uptake of sustainable mobility in towns and villages across the Southern Region. The analysis framework also provides an evidence base which will be a resource to Local Authority plans in support of greater access to community facilities by sustainable travel modes and create improved "10 Minute Towns".

Our report presents the methodology and assumptions adopted in the implementation tool as part of the study and will act as a framework for future studies in the region. We have then highlighted our findings from the assessment and these findings are discussed further in this report. It should be noted that the opportunities cited in this report will be subject to further evaluation in mobility plans and/or land use plans of the relevant Local Authorities.

The typical suburban development pattern seen in recent decades in many Irish towns has consisted of individual housing areas delivered by independent land owners. This has often led to poor connectivity between these residential areas and key community facilities such as schools, shops, leisure, and healthcare facilities. In addition, the transport networks associated with this development pattern have been centred on private vehicles, with little attention paid to pedestrian and cycle accessibility, or access to the public transport network. This has fostered car dependency and has tended to undermine the viability and attractiveness of more sustainable modes of travel in towns and villages across the country.

"This has often led to poor connectivity between these residential areas and key community facilities"

Recent developments in planning policy, led by the National Planning Framework (NPF) and the Regional Spatial and Economic Strategies (RSES) and including the Design Manual for Urban Roads and Streets, have sought to address the issues associated with the previous development pattern. There has been much more focus on core policy objectives for compact growth and sustainable mobility and for support of improved permeability and the quality of the environment for pedestrians and cyclists in newer developments. However, there remains a challenge to retrofit our existing towns and villages to provide a coherent transport network focused on sustainable mobility, in particular facilitating convenient access to community facilities by walking and cycling. The emphasis on compact growth in the NPF and RSES for the delivery of new housing, employment, and community facilities will result in shorter distance trips. These will naturally promote access on foot or by bike, as they are more convenient for these modes compared to the longer distance trips that are generated by less dense suburban areas.

SECTION 2

Policy Context

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2 Policy Context

Project Ireland 2040 is the long-term overarching government strategy that seeks to focus public spending on infrastructure in areas that will improve life in Ireland for all its people.

Project Ireland 2040 aims to accommodate an additional population of one million people by 2040. Under this strategy, the framework to guide development and investment on a national level is the NPF. The framework aims to define common goals on a national level, so that more detailed policies adopted at regional and local levels are complimentary and avoid conflicting policies as has often occurred in the past.

The NPF aims to establish 'regional parity' between the different regions of Ireland, with targeted growth in the Southern, Northern and Western regions to address the 'regional dominance' of the Eastern and Midland Region. Without this, the pressure on Dublin and its environs will continue to increase and overall national development will suffer. In the Southern Region, it is intended that the population will increase by 340,000-380,000 to around 2 million people, with the number in employment increasing by 225,000 to around 880,000 from 2016 to 2040. All Regional Assemblies have now adopted an RSES to give effect to the NPF at regional level. All Local Authorities are now required to ensure alignment of Development Plans and Local Area Plans with the RSES to ensure the achievement of national and regional policy objectives.

"All Regional Assemblies have now adopted an RSES to give effect to the NPF at regional level"

The physical form of urban development is identified as one of the most important challenges to solve for regional potential to be unlocked. It is noted that infrastructure and amenities have tended to play catch-up with new housing and employment, which has led to car dependence and difficulty in providing sufficient public transport. The trend towards suburban development has hollowed out urban centres and created sprawl, which has in turn reduced the attractiveness of towns and villages as places to live and work, increased Ireland's carbon footprint relative to our European neighbours, and negatively impacted on the nation's quality of life.

The NPF proposes ten key National Strategic Outcomes, and three of these are especially relevant to creating sustainable towns and villages. These are:

Compact growth managing growth in cities, towns, and villages to create places that are attractive for people to live and work, with access to all amenities and services;

Sustainable mobility reducing the environmental impact of transport through transition to sustainable travel modes; and

Enhanced amenities and heritage creating attractive cities, towns, and villages with a good quality of life. This will be achieved by investing in well-designed public realm, extensive amenities and recreational infrastructure, and integration with our built, cultural, and natural heritage.

To advance these objectives at regional level, the RSES implements these key National Strategic Outcomes through the following Strategy Statements:

RSES Strategy Statement No. 1 - Strengthening and growing our cities and metropolitan areas; harnessing the combined strength of our three cities, as a counterbalance to the Greater Dublin Area, though quality development, regeneration and compact growth; building on the strong network of towns and supporting our villages and rural areas;

RSES Strategy Statement No. 4 - Transforming our transport systems towards well-functioning, sustainable integrated public transport, walking and cycling, and electric vehicles;

RSES Strategy Statement No. 7 - Strengthening and protecting our region's diversity, language and culture, our recreational assets, our natural and built heritage; and

RSES Strategy Statement No. 8 - Safeguarding and enhancing our environment through sustainable development, prioritising action on climate change across the region, and driving the transition to a low carbon and climate resilient society.

The National Development Plan (NDP) 2018-2027 is a €116 billion investment package to deliver the National Strategic Outcomes laid out in the NPF. €91 billion of this is to come from the exchequer, and the remainder from commercial State-Owned Enterprises.

A total of €14.5 billion has been earmarked to deliver housing and sustainable urban development. Much of this is aimed at delivering new housing in brownfield sites within pre-existing urban centres, rather than on greenfield sites in suburban locations as has often happened in recent years. This will densify urban centres, helping to revitalise them and improve their economic fortunes. It will encourage greater numbers of walking and cycling trips and assist in the provision of public transport, services, and amenities, which will improve quality of life.

Development patterns in recent decades have been radically different to the past, with newer suburban development tending to undermine existing urban cores. Regeneration of towns and villages can help to overcome the issues that have resulted and create more cohesive towns and villages. The NDP allocates €3 billion to regeneration projects, of which €2 billion is aimed at cities and large urban areas and €1 billion at rural towns and villages. This funding will help to deliver the regeneration of brownfield development, public realm improvements, addressing infrastructure deficits, enhancements to amenity and public realm, and tourism and heritage initiatives.

While the €8.6 billion allocation for sustainable mobility in the NDP is focused on public transport schemes in the main cities, investment in improved infrastructure for pedestrians and cyclists is also proposed and this will aid the uptake of active travel in towns and villages as well as cities. The €1.4 billion for Enhanced Amenity and Heritage in the NDP includes investment in areas such as public spaces, streets, built heritage, natural, cultural, and sporting amenities, and sustainable transport network. Together, these will further assist in enhancing the liveability of towns and villages nationwide.

The RSES for the Southern Region outlines objectives within Part 6, section 2, 'The Regional Transport Strategy', such as:

- To provide for the integrated development of sustainable transport infrastructure, including walking, cycling (including emerging e-modes) and public transport to accommodate the necessary switch from the private car, for the travel needs of all individuals in the region, in line with the stated government transport policy;
- To support improved strategic and local connectivity;
- To cater for the demands of longer-term population and employment growth, in a sustainable manner;
- Supporting compact and smart growth through the achievement of mutual consistency between land use and transport planning, investment, and service provision.

The RSES also discusses the "10 Minute Town" concept in RPO 176. RPO 176 states,

"It is an objective to attain sustainable compact settlements with the "10-minute" city and town concepts, whereby, a range of community facilities and services are accessible in short walking and cycle timeframes from homes or are accessible by high quality public transport services by connecting people to larger scaled settlements delivering these services. Local authorities should ensure that decision making in relation to new infrastructure for improved connectivity is informed by an appropriate level of environmental assessment."

A key objective of the NDP is the realisation of compact urban growth supported by sustainable mobility to create attractive urban centres. The Interreg Europe MATCH-UP project will establish an analysis framework to ensure accessibility to key community facilities (i.e. education, health, and leisure) by walking and cycling is set at convenient levels to establish "10 Minute Towns". While no policy position is made in this analysis the findings of the analysis of case study towns is used to inform a general framework for good practice implementation of RPO 176 "10-minute city and town concepts" which will be prepared to assist the MATCH-UP Regional Action Plan (a key deliverable under Interreg Europe), assist RSES implementation of sustainable mobility objectives and as a tool/ resource for Local Authorities.

SECTION 3

Methodology

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3 Methodology

The methodology is divided into two main strands: establishment of baseline conditions; and accessibility and infrastructural requirements.

The overall methodology of the implementation tool is illustrated in Figure 1 below.

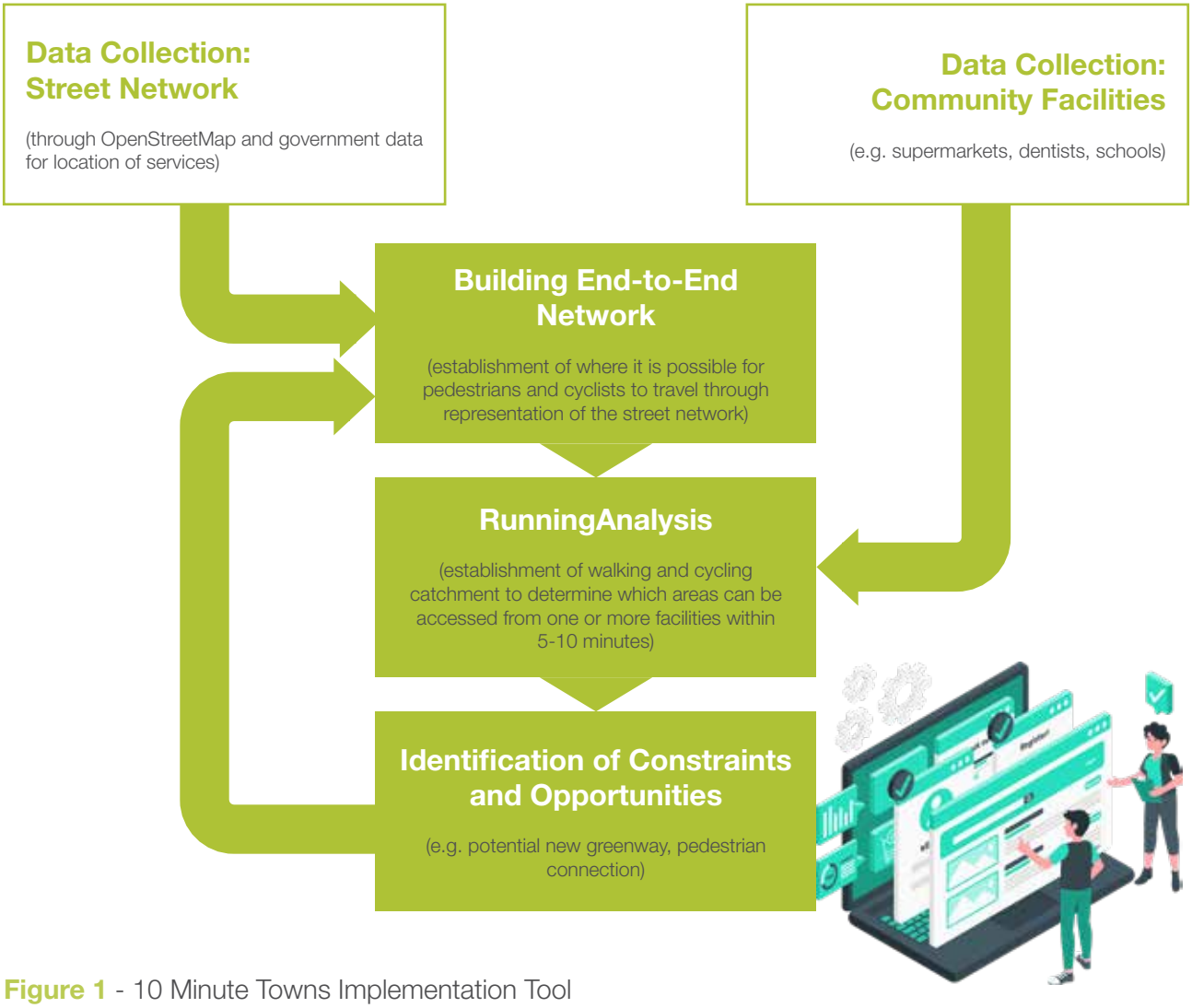


Figure 1 - 10 Minute Towns Implementation Tool

3.1 Data Collection

To undertake the analysis, the locations of amenities and services was first collected to understand the existing distribution of community facilities in the three towns. The categories of facilities were as follows:

Healthcare:

- Dentists;
- General practices;
- Health Centres;
- Hospitals;
- Nursing homes; and
- Pharmacies.

Education:

- Third level institutions;
- Secondary schools;
- Primary schools; and
- Special needs schools.

Retail:

- Supermarket;
- Shopping centres; and
- Corner shops.

Leisure:

- Theatres;
- Cinemas;
- Libraries;
- Museums; and
- Sports and Recreation Facilities.

Public Transport:

- Bus stops; and
- Rail stations.

Geographic data for many community facilities, such as education and healthcare, is available from the official government open data portal data.gov.ie. For other facilities, such as retail and leisure, as well as for the street network, OpenStreetMap (OSM) data is a valuable resource. OSM is an open-source collaborative online mapping project, and its data can be freely used with attribution. There are many online portals for downloading data from OSM into GIS-compatible formats.

It should be noted that facilities may be taken from source data as polygon features, in which case they should be converted to point features before proceeding with the analysis in a Geographical Information System (GIS) package ArcGIS.

3.2 Data Validation

The preliminary data was validated with both Local Authority contacts and report team colleagues who are residents in the three towns to verify accuracy and ensure that community facilities not included in the source datasets were added. Additional information about the towns and proposals for future developments and facilities that may be relevant to the study were also requested from the Local Authority contacts.

3.3 Walking and Cycling Network Data

3.3.1 Baseline (Existing Network)

The street network utilised in the analysis was derived from Open Street Map data and imported into ArcGIS as a polyline feature. A high-level review of the existing walking and cycling network was undertaken on Google Maps and Google Streetview to verify the accuracy of the street network, as this would impact the catchment analysis for the study. Any missing walking and cycling links were then added to the street network prior to the catchment analysis.

It should be noted that owing to the national Covid-19 travel restrictions in place in 2020, verification was only possible using online resources, although in addition Local Authority personnel reviewed the accuracy of the network. To conduct the analysis, an 'end to end' routable network must be created in a GIS package from the polylines forming the street network. The package used in this study was the Network Analyst extension within the Esri ArcGIS package.

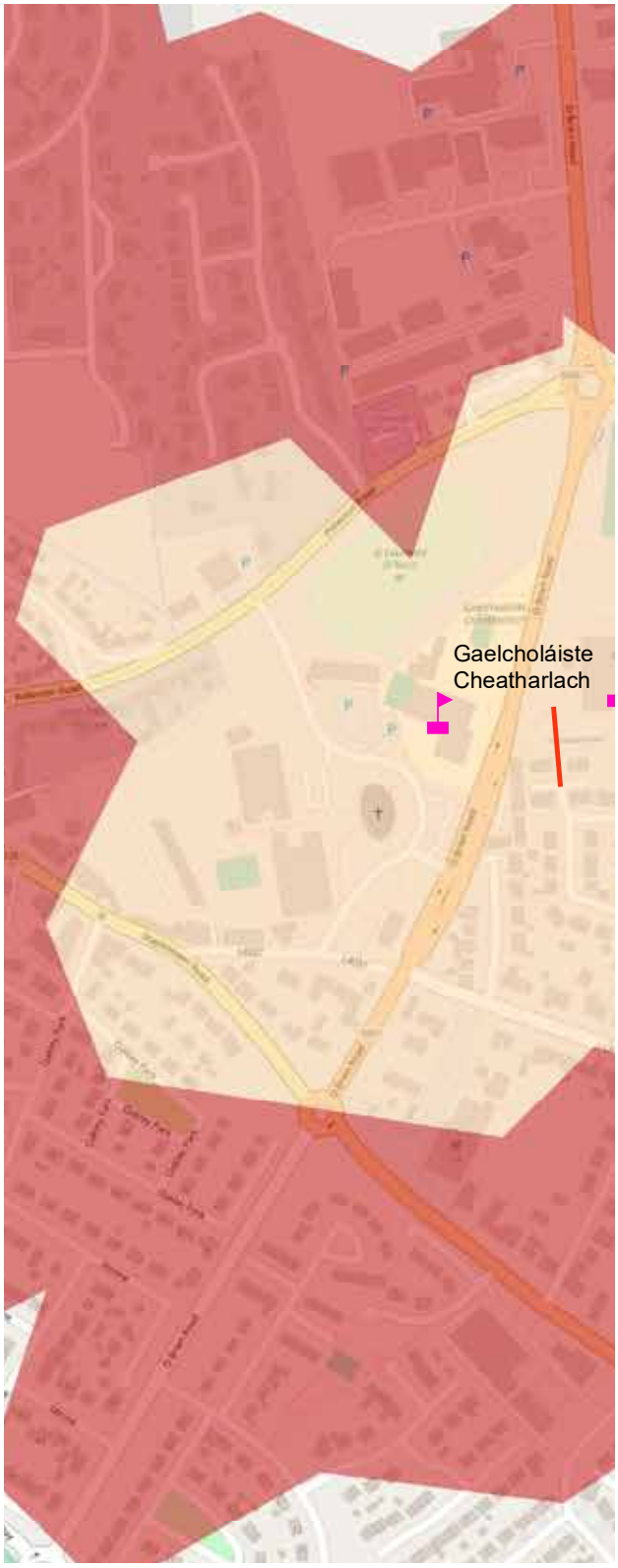
The routable network defines where it is possible to travel (indicated by the polylines representing streets), where it is possible to move between streets (indicated by the nodes where streets intersect), and how fast it is possible to move through the network (by defining an average speed for walking and cycling). Once these parameters are defined, the GIS package will be able to determine both the range that can be traversed and the time taken to do so within the extent of the network. Given that this is a pedestrian and cycle study, it is important to remove roads on which pedestrians and cyclists are not permitted (such as motorways) before creating the routable network.

It is also possible to include public transport accessibility in the routable network using timetable information in General Transit Feed Specification (GTFS) format, which is useful for locations with frequent public transport services.

3.3.2 Proposed Improvement Network

The proposed network was derived using the baseline catchment analysis undertaken in ArcGIS (as discussed in Section 3.4.2); where potential walking and/or cycling connection could be placed. These potential links were added to the existing street network to represent the proposed network in order to undertake the proposed catchment analysis.

It should be noted that the proposed improvement networks are for the purposes of a high-level analysis of the three towns only. These improvement schemes are subject to further detailed analysis to understand their feasibility and viability.



3.4 Catchment Analysis

3.4.1 Baseline (Existing Network)

Upon verification of the street network and the facilities dataset, a catchment analysis for each of the three towns was undertaken using ArcGIS. The areas of each town within the 5 and 10 minutes walking and cycling catchments from each type of facility was determined, according to the categories outlined in Section 3.1.

Once the routable (i.e. end-to-end) network has been created, the catchment analysis of facilities in the given town can be conducted. The points representing the facilities of interest are defined, and then the parameters for the catchment analysis are specified, such as the time intervals (5 and 10 minutes in this case) and the modes (walking and cycling). The analysis is then run, determining which areas can be accessed from one or more facilities within the given time interval by the given mode, and polygons representing the catchment are produced. These can then be inserted into maps for visualisation or used to calculate the number of people resident or employed within the catchment. The latter is conducted by using the catchment areas to clip 2016 Census data for Small Areas and Workplace Zones, available from the Central Statistics Office.

3.4.2 Proposed Improvement Network

A similar approach using the baseline street network, facilities dataset and the proposed improvement links for the purposes of a catchment in ArcGIS. These were compared against the baseline catchment analysis to understand if the proposed improvement links would result in wider walking and cycling catchments within 5 to 10 mins from each type of facility.

SECTION 4

Baseline Conditions

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4 Baseline Conditions

4.1 Carlow

4.1.1 Demographics

Preliminary demographic analysis was undertaken to understand the current population statistics in Carlow. The population of Carlow at the time of the 2016 census was 24,272, which marked a 5.4% increase between 2011 and 2016.

Residential car ownership statistics were also extracted from CSO to understand if there is a trend in car ownership, which may have an adverse effect on the '10 Minute Town' concept. Car ownership in 2016 has increased slightly in Carlow in comparison to 2011, with 81% of households owning one or more cars in 2016, compared to 80% in 2011.

4.1.2 Location of services

It is important to understand the location of services (i.e. healthcare, education, leisure and public transport) to establish if there is a general trend. As mentioned in Section 3, the locations of services were identified through desktop analysis and were verified by Local Authority contacts as well as colleagues who are resident in Carlow.

"The population of Carlow at the time of the 2016 census was 24,272, which marked a 5.4% increase between 2011 and 2016"

Healthcare

Figure 2 to Figure 4 show all the healthcare services (i.e. hospitals, health centres, GPs, dentists, pharmacies and nursing homes) in Carlow. Healthcare services are predominantly located within the town centre, with dentists, GPs and pharmacies on Tullow Street. Immediately north of Tullow Street there are healthcare services on College Street, Dublin Street, Dublin Road and Athy Road, whereas there are also pharmacies to the south of Kennedy Avenue. The northern part of Carlow has three hospitals: Carlow District Hospital, Sacred Heart Hospital, and St Dympna's Hospital, which is accessible via Dublin Road and Athy Road.

There are also nursing homes in Carlow, with two located within the town and another to the east of the town on Tullow Road.

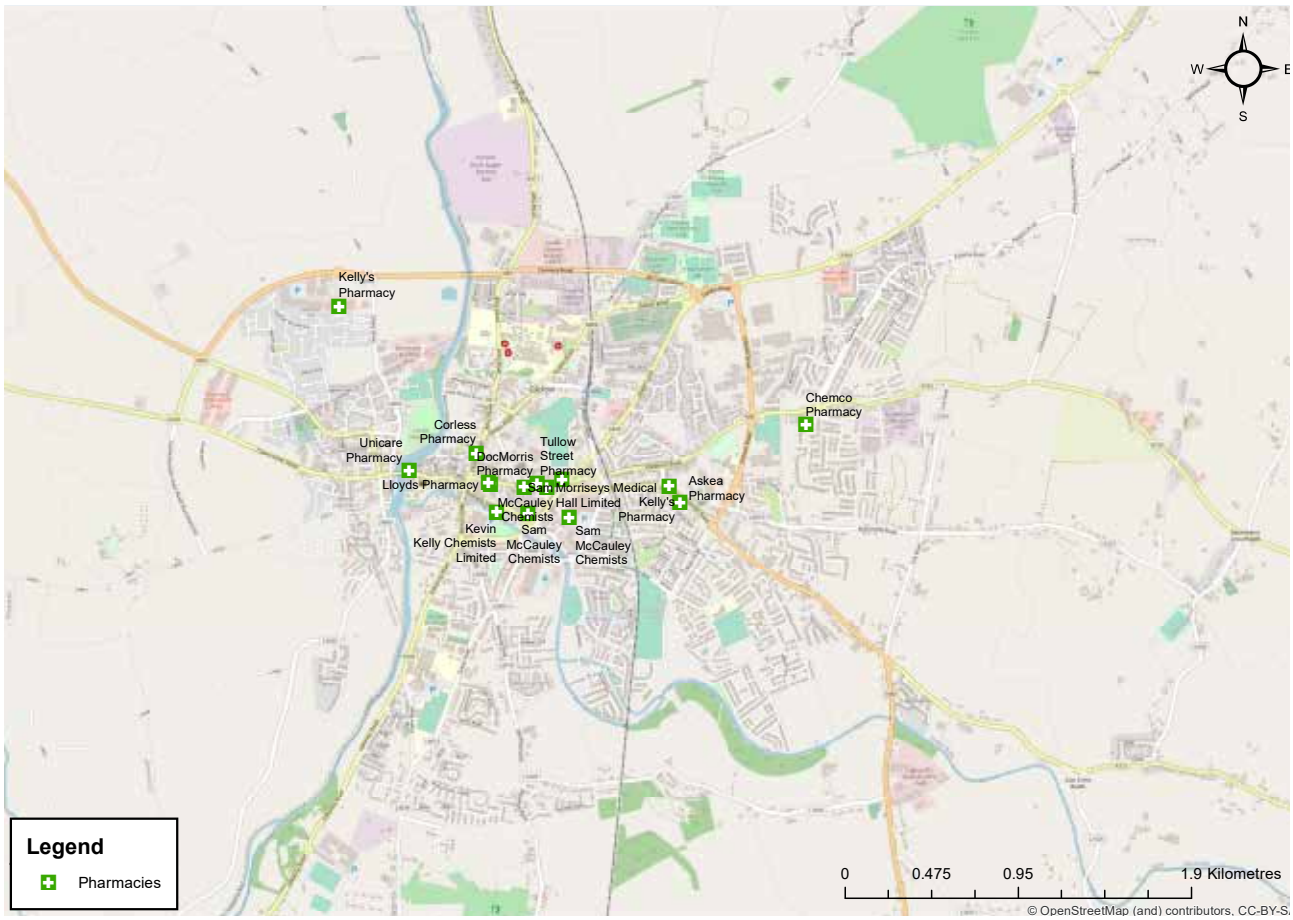


Figure 2: Pharmacies in Carlow

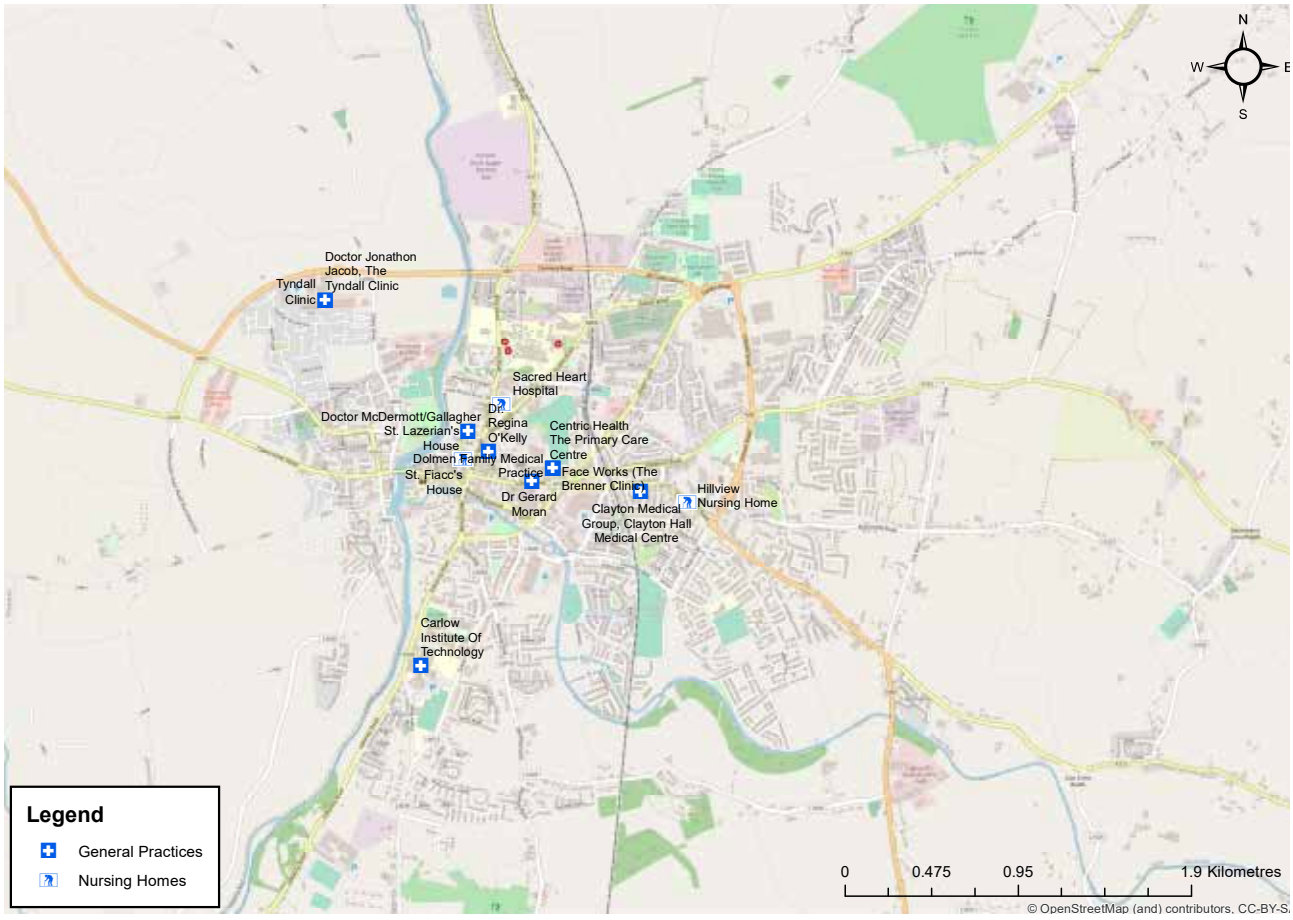


Figure 3: General Practices and Nursing Homes in Carlow

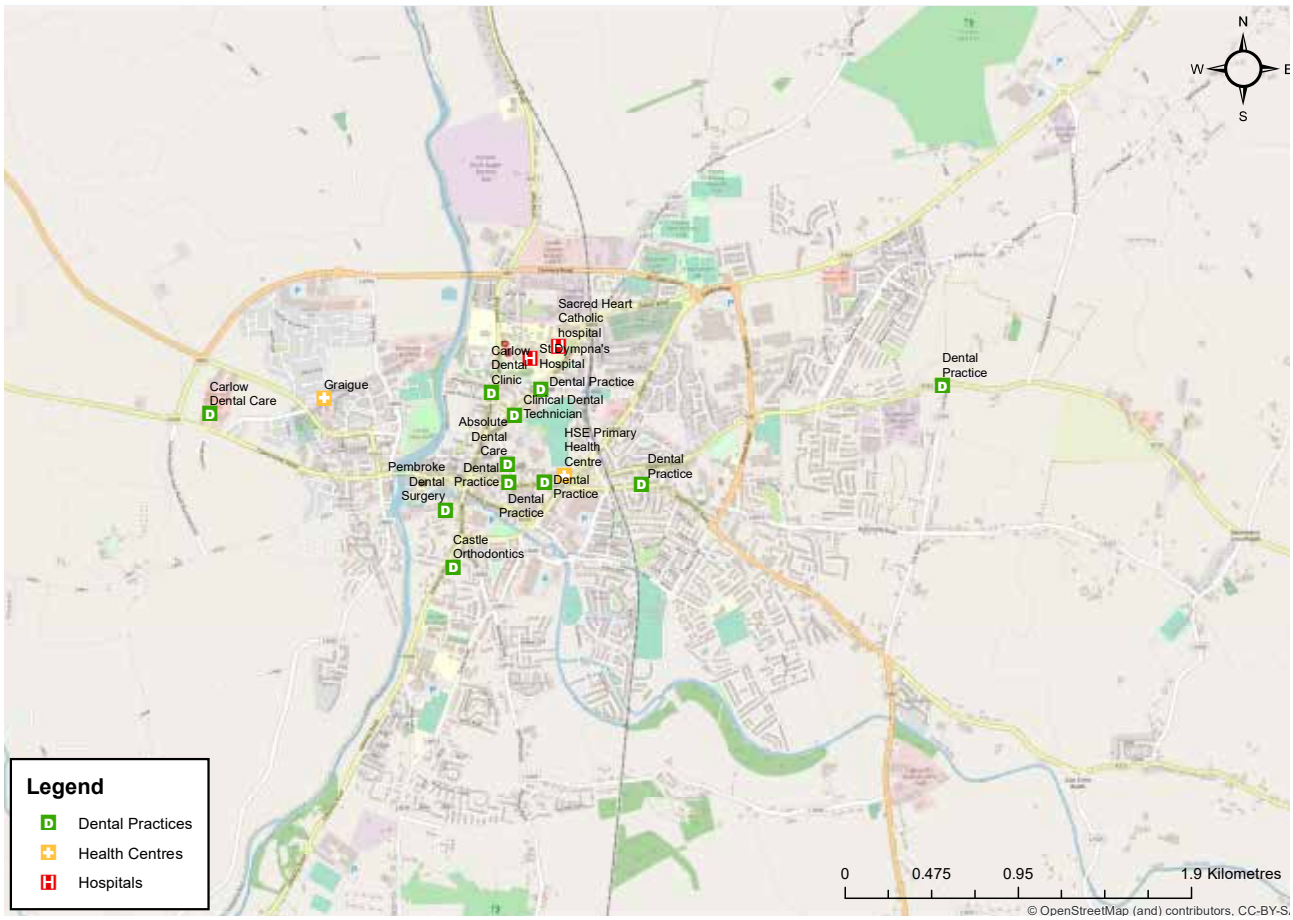


Figure 4: Dentists, Health Centres and Hospitals in Carlow

Education

Figure 5 shows all the education services (i.e. special needs, primary, secondary and colleges) in Carlow.

There is one school for students with special needs located in the northern part of Carlow, which is St Laserians Special School on Dublin Road. The majority of primary schools are located on the northern side of Carlow with four schools, with three schools immediately east of the town. Residents on the southern and western parts of Carlow have access to three primary schools in total. Secondary schools are located on the northern, eastern and southern part of Carlow.

There are two third level educational institutions in Carlow, which are Institute of Technology on Kilkenny Road and Carlow College on College Street. There is also a further education facility in the town called Carlow Vocational School.

Therefore, there is a trend that primary and secondary schools are predominantly located in the northern half of the town i.e. north of Tullow Street, while third level institutes are located in the town centre and in the south of the town. Residential areas in the north east of the town are somewhat further from schools and colleges, and generally fall outside their 10 minutes walking catchment.

Retail

Figure 6 show that retail services are generally spread throughout the town. Popular chain shops and supermarkets such as Dunnes, Tesco, SuperValu, Aldi, and Lidl are located in Carlow, with smaller shops and convenience stores such as Centra, Spar, and Moldova serving other parts of the town. Other shops such as Dealz and HomeSavers are also located in the town centre.

Some residential areas do not have retail services conveniently located nearby, particularly in the southern and north-eastern parts of Carlow.

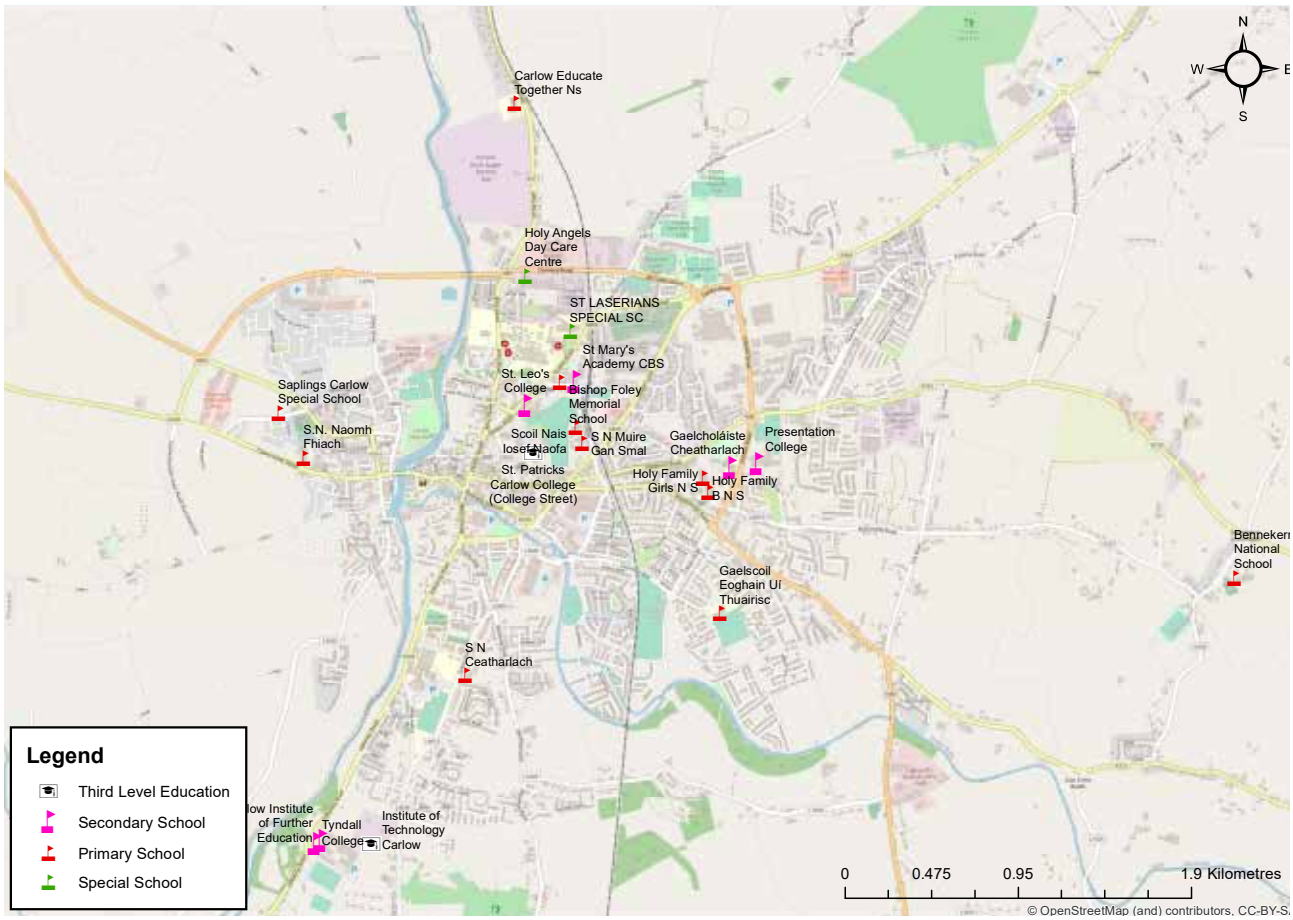


Figure 5: Education in Carlow

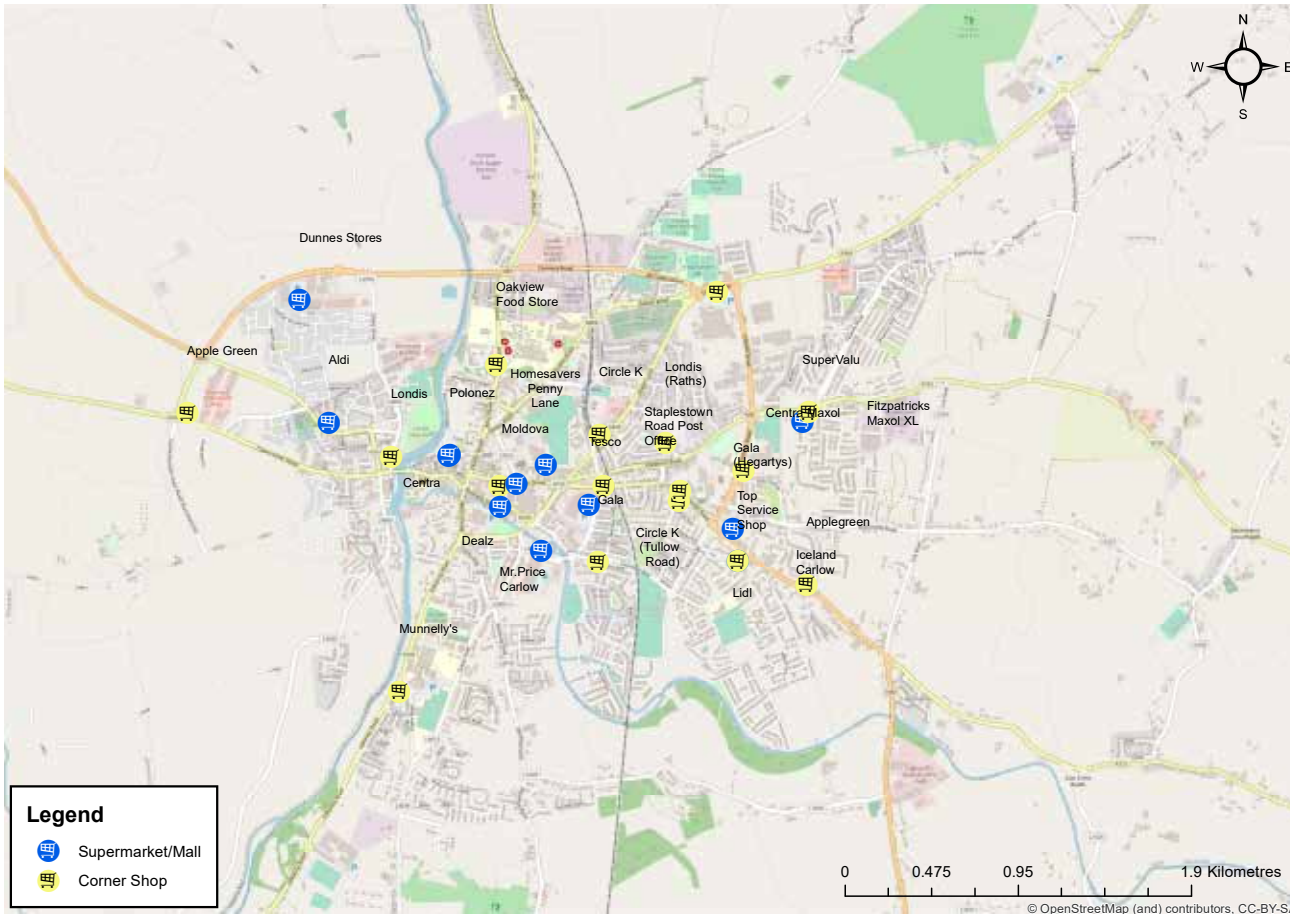


Figure 6: Retail in Carlow

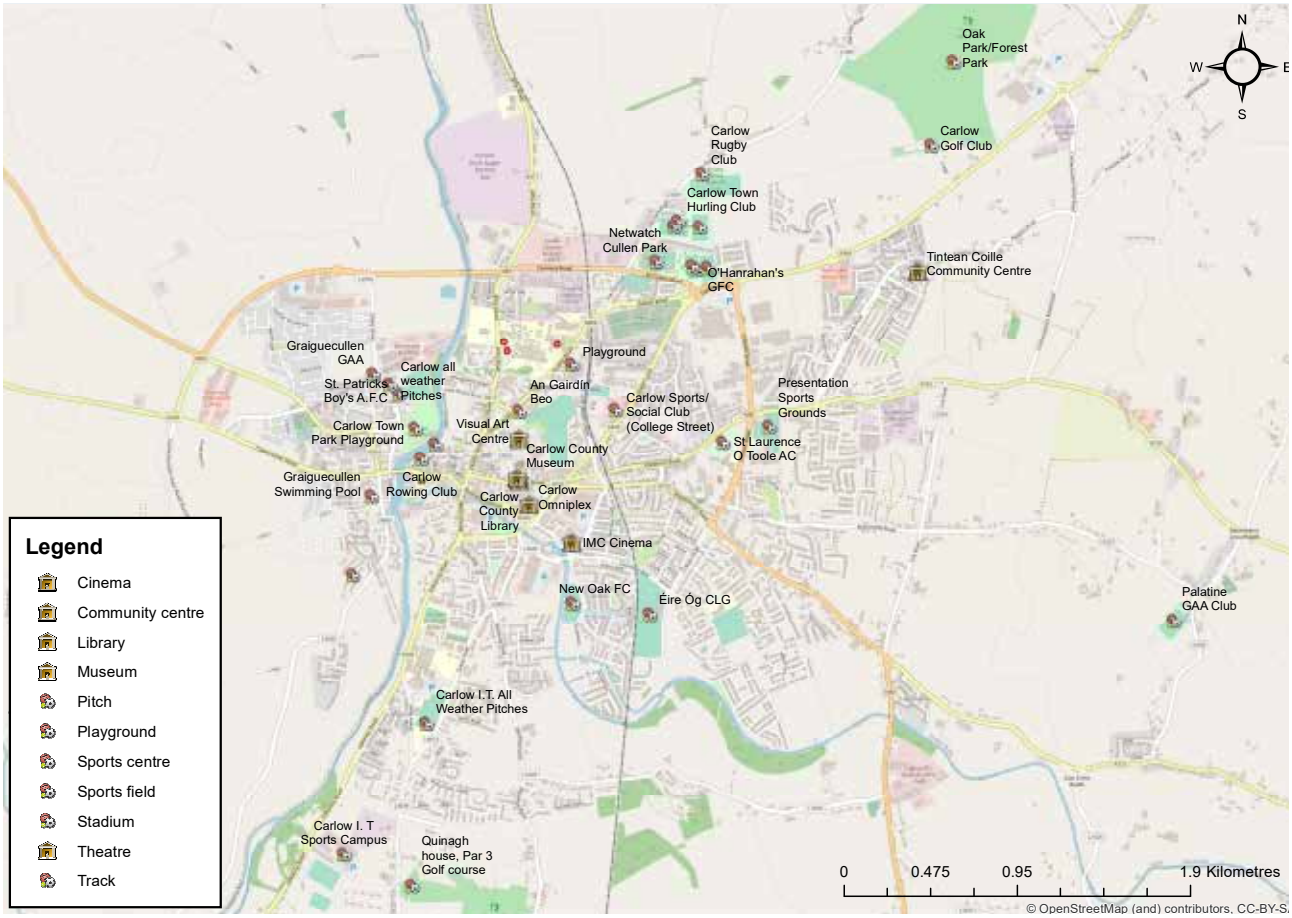


Figure 7: Leisure in Carlow

Leisure

Figure 7 illustrates the leisure services (such as theatres, cinemas, museums, and sports and recreation facilities) available to residents and visitors in Carlow.

Theatres, cinemas, and museums are generally clustered within the town centre and therefore residents and visitors would generally need to travel to access these services. Sports and recreation facilities, such as sports fields, are located throughout Carlow.

Public Transport

Figure 8 shows the public transport services available in Carlow.

Carlow Railway Station is located north-east of the town via St Joseph's Road. The station is located on the Dublin-Waterford line, and services from the station are detailed in Section 4.4.1.1.

Several bus routes serve Carlow, and details of these are discussed in Section 4.4.1.2. Bus stops in the town are primarily located along the north-south corridor through the town, with stops at Green Lane, Barrack Street, Carlow Coach Park, and Kilkenny Road. It should be noted that there are two local bus services within the town currently being considered by Carlow County Council.

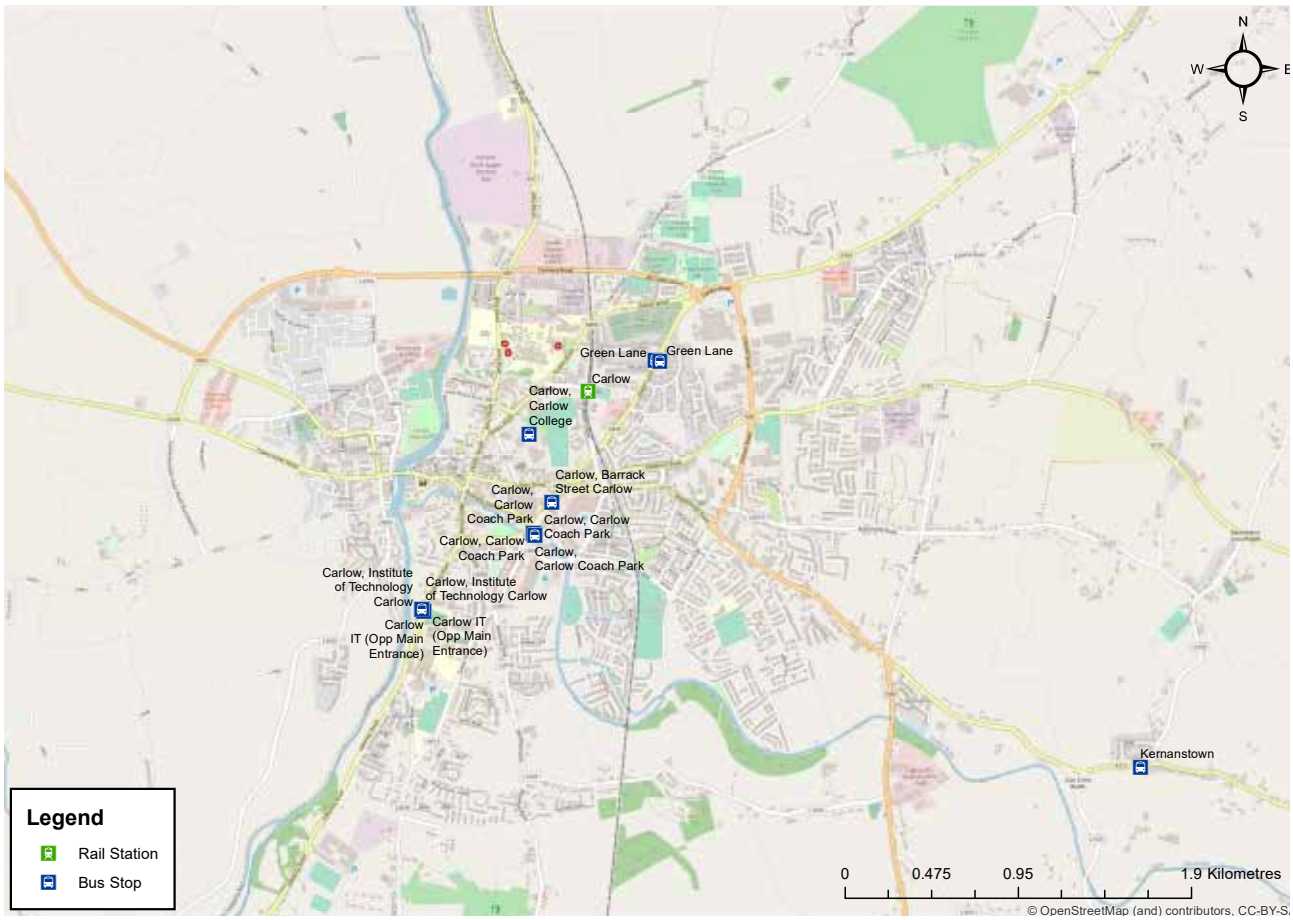


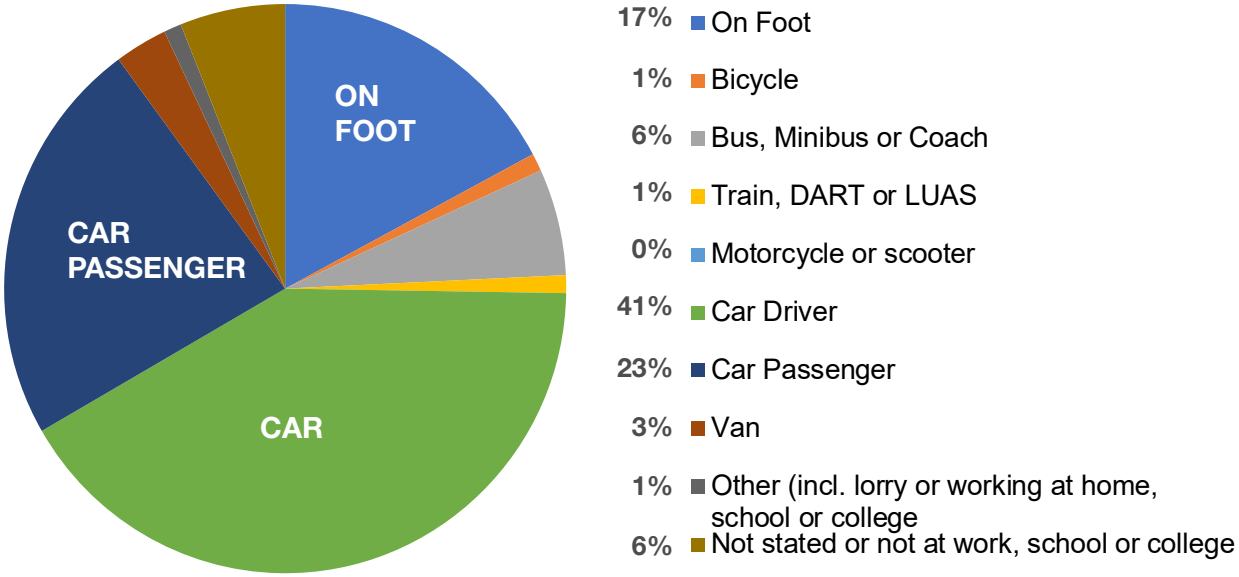
Figure 8: Public Transport in Carlow

4.1.3 Current travel patterns

Analysis was undertaken to understand the means of travel for those working or studying in Carlow. The current means of travel to work to Carlow is shown in Figure 9.

The majority of people travelling to Carlow for work or education purposes do so by car, accounting for almost 65% of the total. This is followed by walking (17%) and by bus (6%). Only 1% of people commute by bike.

Figure 9 - Means of Travel – Carlow



4.1.4 Catchment Analysis

Following the methodology outlined above, maps were produced to understand the current accessibility conditions for walking and cycling within Carlow. These catchment maps and our analysis for each service can be found within Appendix A.

Overall, the catchment analysis for cycling showed that all services in Carlow are within a 10-minute cycle catchment area and therefore comply with the 10-minute service objective. This section primarily discusses the walking catchments.

Healthcare

Healthcare services, such as GPs (shown in Figure 10) are predominantly located within the centre of Carlow and therefore residential areas on the outskirts of the town are generally outside the 10-minute walking catchment.

Adding additional pedestrian links and connections will do little to materially change the accessibility of the healthcare services. The areas of Pollerton, Tullow Road (south), Poachers Gate, and Bullock Park do not currently have 10 minute accessibility by walking to healthcare services.

Hospitals have a regional function and the majority of patients, staff and visitors will access this facility by car or public transport. The hospitals in Carlow are located within a 10-minute walk of public transport services, which opens them to a wider catchment.

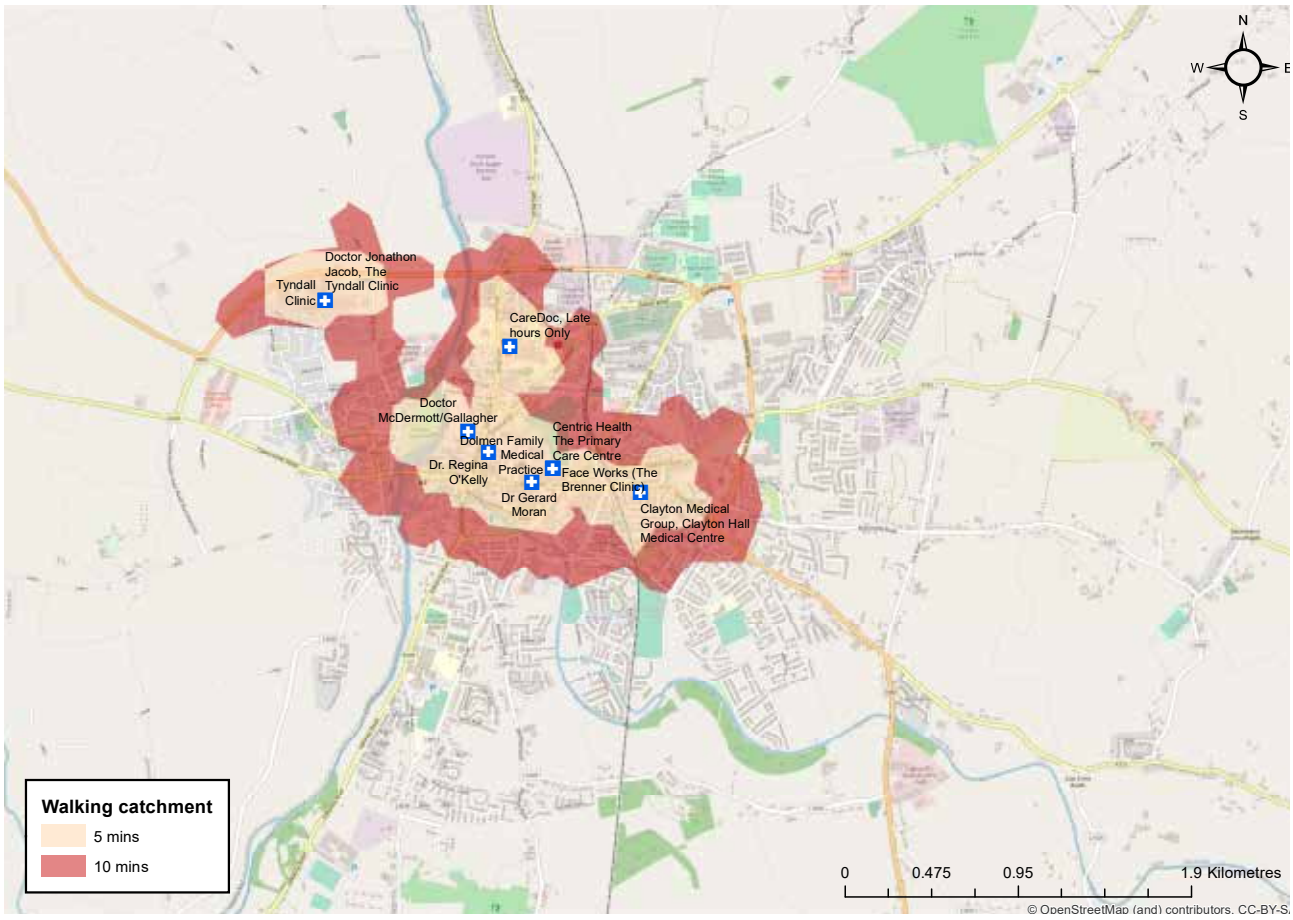


Figure 10: Carlow Walking Catchment – GPs

Education

There are residential areas in Carlow that are not located within a 10-minute walking catchment to primary schools, particularly the eastern and southern suburbs of the town. Secondary schools are generally located immediately north, east and south of the town centre, and therefore most of the residential areas on the outskirts of the town are outside their walking catchments.

As shown in Figure 11, although Presentation College is located immediately west of residential estates in Browneshill, there is no direct link between them. Therefore, the catchment analysis showed that these areas are not within a 10-minute walk to Presentation College.

There is a special school located to the north of Carlow and therefore the majority of residential areas are outside their walking catchment. Only a small percentage of the population requires access to special schools, and unlike primary and secondary schools, these facilities tend to be limited in provision across a town.

Carlow College is located in the town centre; however, Institute Technology of Carlow is located in the south of the town on the Kilkenny Road and is therefore outside a 10-minute walking distance from most of the town. On-road cycleways and bus stops are provided along Kilkenny Road which helps counteract their limited walking catchment.

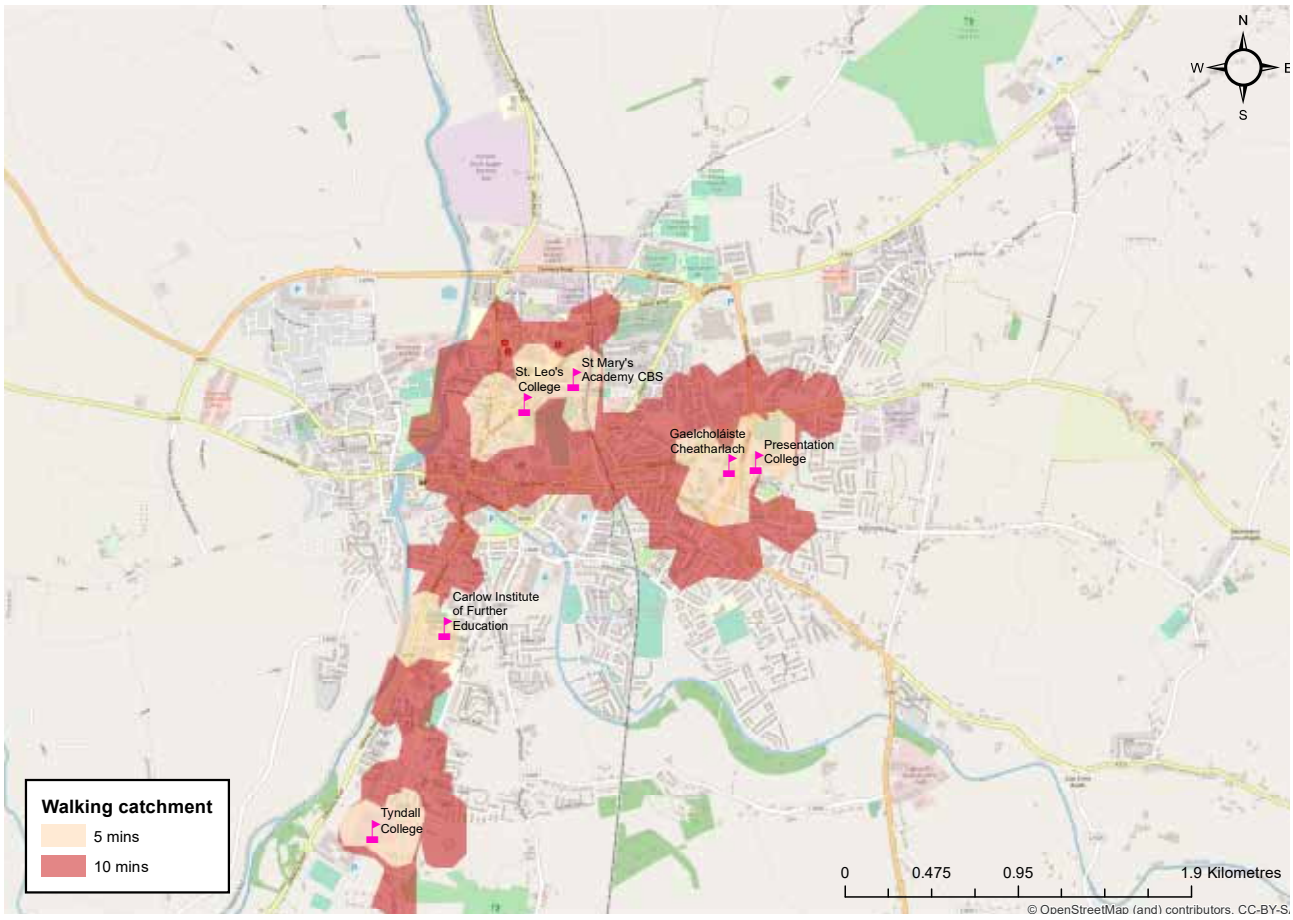


Figure 11 – Carlow Walking Catchment – Secondary Schools

Retail

Figure 12 shows that the majority of Carlow is within a 10-minute walking distance of retail services (i.e. supermarkets and corner shops), with the exception of the northeast and southern area of the town. Residents in areas where they are not within a walking distance to retail services would be more likely to drive to supermarkets or walk longer distances than 10 minutes.

Additional retail facilities at these locations may not be feasible (or desirable from a retail planning perspective) as the population densities are too low for the business to survive. Residents on the outskirts would typically drive to retail facilities as parking is conveniently available (e.g. SuperValu in Sandhills SC, Tesco Superstore at Fair Green SC, and Dunnes Stores on Sleaty Rod/N80).

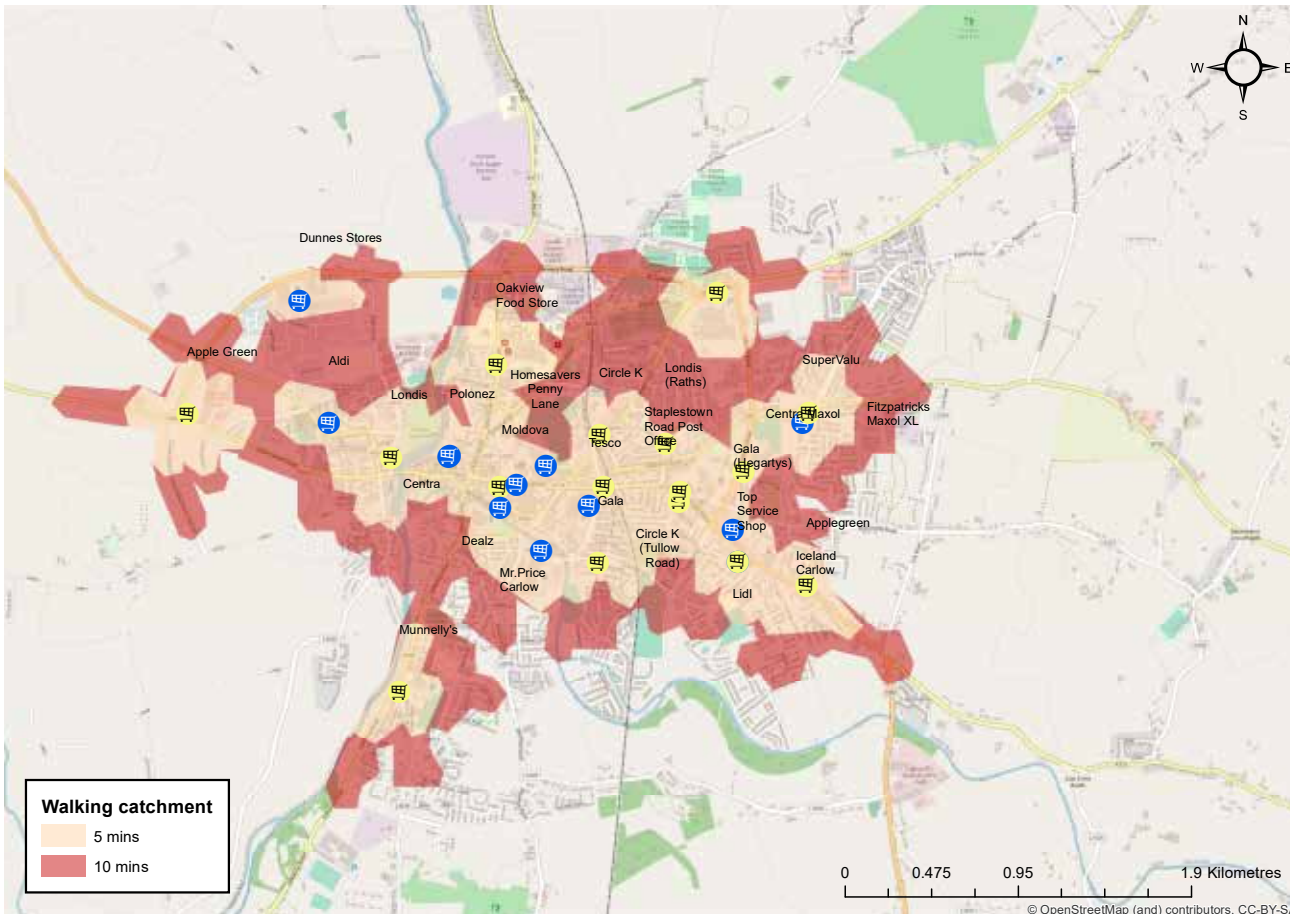


Figure 12 - Carlow Catchment Analysis - Retail

Leisure

Figure 13 shows that leisure services such as theatres, museums and libraries are generally within the centre of Carlow and therefore residents and visitors would typically travel to them by different modes of transport.

Sports and recreational facilities are scattered throughout Carlow. Although the walking catchment maps indicate that majority of residents are within 10 minutes' walk of these facilities, sports fields would generally cater for groups of people with interests in specific sports or clubs. Therefore, people who use these facilities may travel longer distances and across town despite a local facility being available.

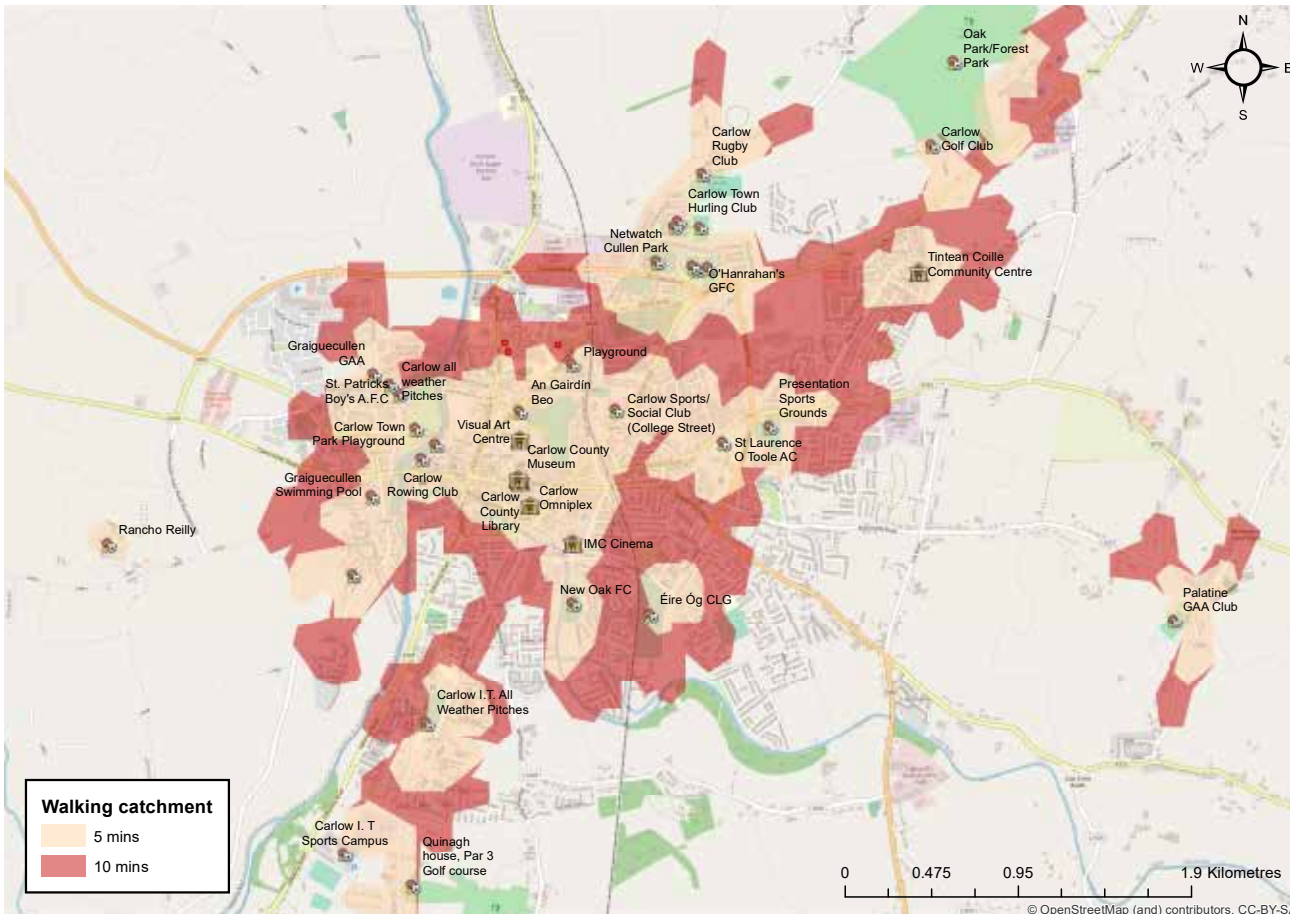


Figure 13 - Carlow Catchment Analysis - Leisure

Public Transport

Figure 14 show that bus stops are primarily located north-east and south of Carlow along Green Lane, Barrack Street and Kilkenny Road. Existing bus services link Carlow with regional destinations as well as smaller towns and villages in its hinterland, as detailed in Section 4.4.1.2. Most routes are infrequent and would rarely be availed of by the majority of the town's population. The 10-minute service principle applied to bus services would be more applicable to local bus services, which may for instance link suburban residential areas with the town centre.

The walking catchment of bus stops is only along a north-south corridor through the town and therefore the outskirts of Carlow, particularly the eastern and western areas, do not have access to public transport.

Carlow Railway Station is within a 5-10-minute walking catchment of the town centre; however, the majority of the town falls outside of this catchment area. Its catchment would be improved somewhat by adding additional pedestrian links in its vicinity.

Services on this railway line are regional, and therefore it would not be desirable to add additional stations within Carlow due to their impact on journey times. There may be potential for local bus services to connecting suburban areas to the railway station and the town centre. The principle of a 10-minute walking catchment can be utilised to identify suitable locations for the placement of bus stops.

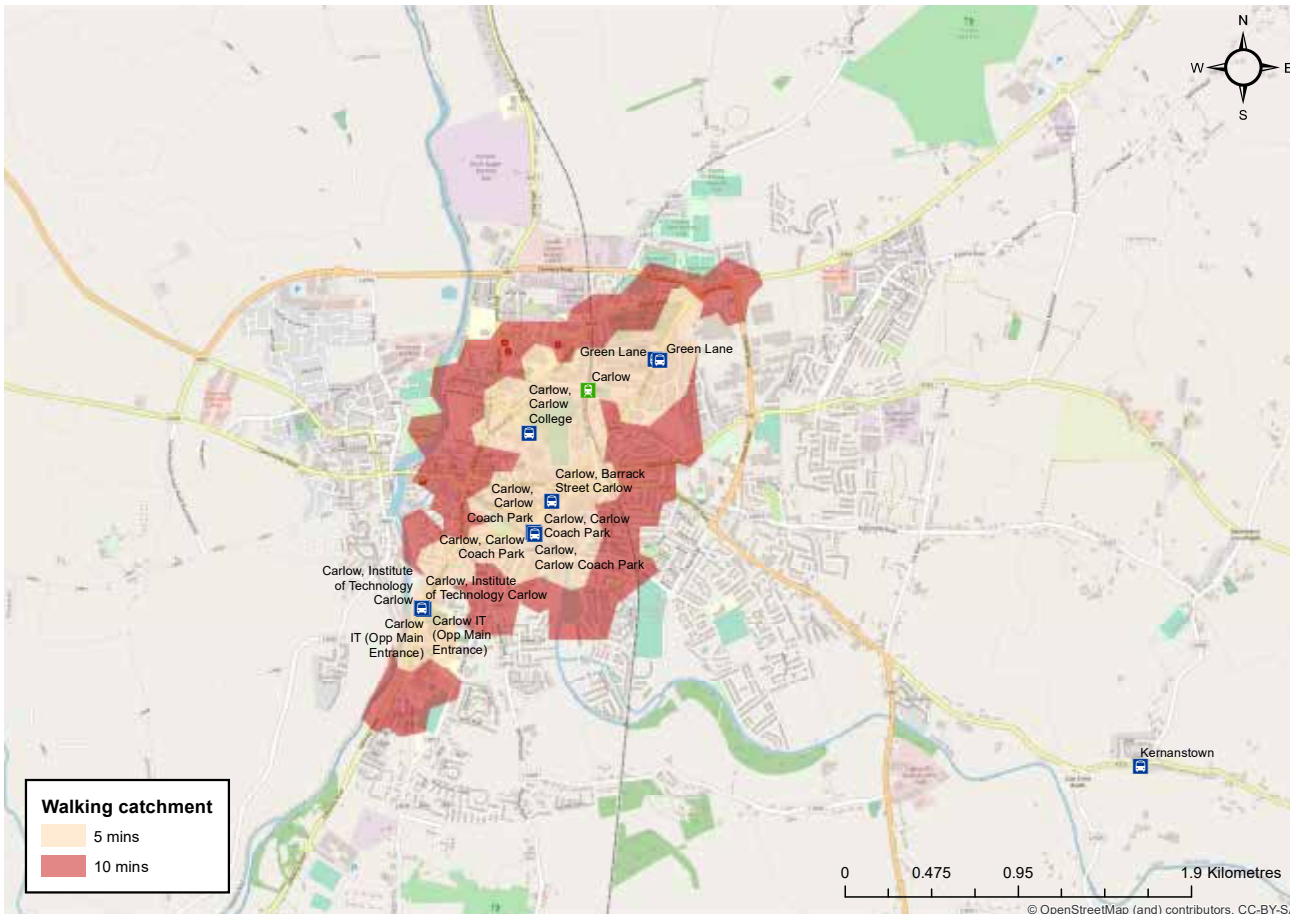


Figure 14 - Carlow Catchment Analysis - Public Transport

4.2 Ennis

4.2.1 Demographics

Preliminary demographic analysis was undertaken to understand the current population statistics in Ennis. The population of Ennis at the time of the 2016 census was 25,276, which marked a slightly decline of 0.3% between 2011 and 2016.

Residential car ownership statistics were also extracted from CSO to understand if there is a trend in car ownership, which may have an adverse effect on the '10 Minute Town' concept. Car ownership in 2016 has slightly increased in Ennis in comparison to 2011, with 85% of households owning one or more cars in 2016, compared to 84% in 2011.

4.2.2 Location of services

It is important to understand the location of services (i.e. healthcare, education, leisure and public transport) to establish if there is a general trend. As mentioned in Section 3, the locations of services were identified through desktop analysis and were verified by Local Authority contacts as well as colleagues who are resident in Ennis.

"The population of Ennis at the time of the 2016 census was 25,276, which marked a slightly decline of 0.3% between 2011 and 2016"

Healthcare

Figure 15 to Figure 17 show that healthcare services are predominantly located within the town centre along a north-south axis, with dentists, GPs and pharmacies surrounding the area of O'Connell Street.

On the north end of Gort Road there is Ennis General Hospital and St Joseph's Hospital, which also has a nursing home department. On Harmony Row in the town centre there is a health centre. Pharmacies are located mostly in the town centre with one in the north-east and another in the south-west.

There are three nursing homes in Ennis, with a nursing home in St. Joseph's and two located to the south of the town.

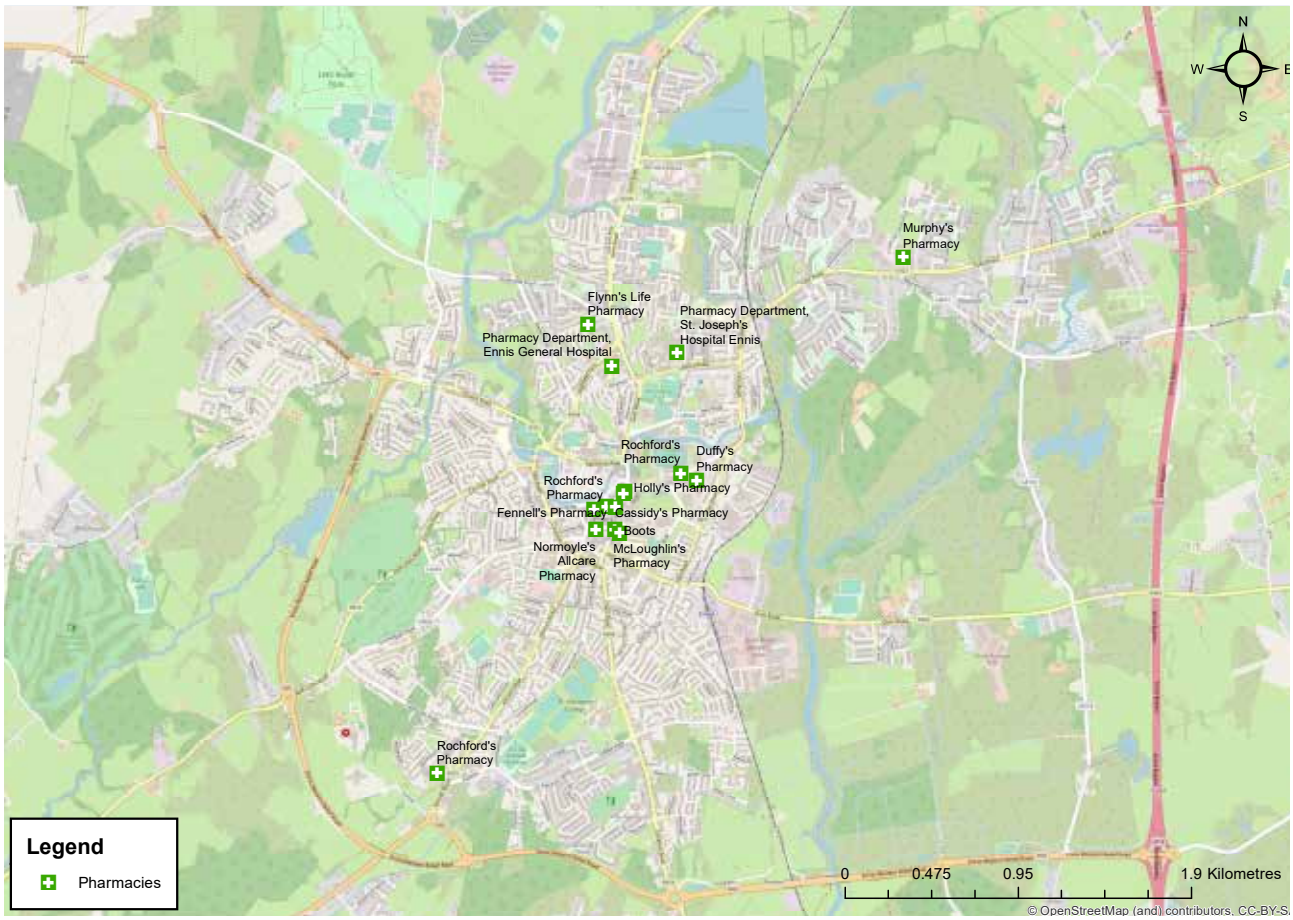


Figure 15: Pharmacies in Ennis

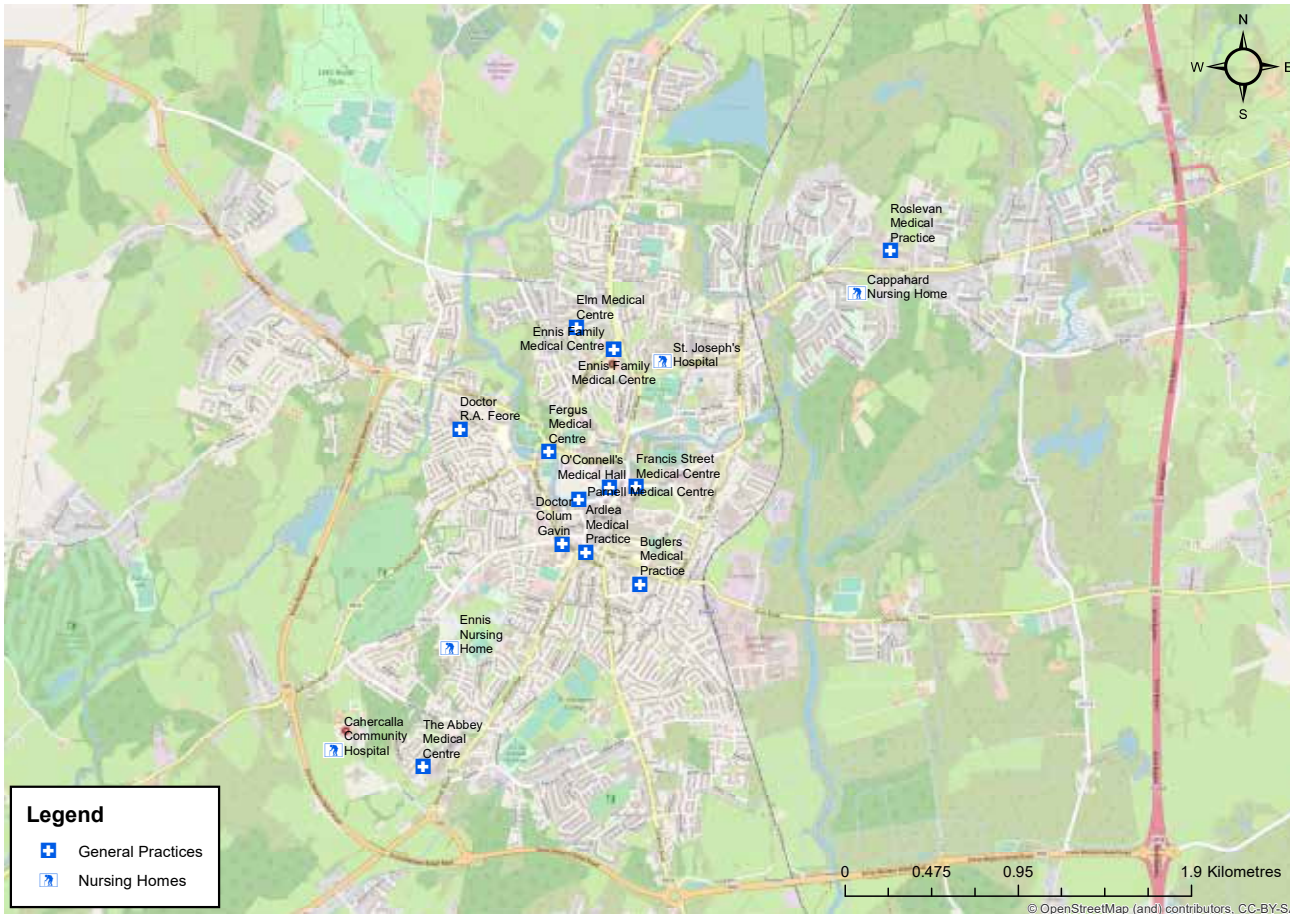


Figure 16: General Practices and Nursing Homes in Ennis

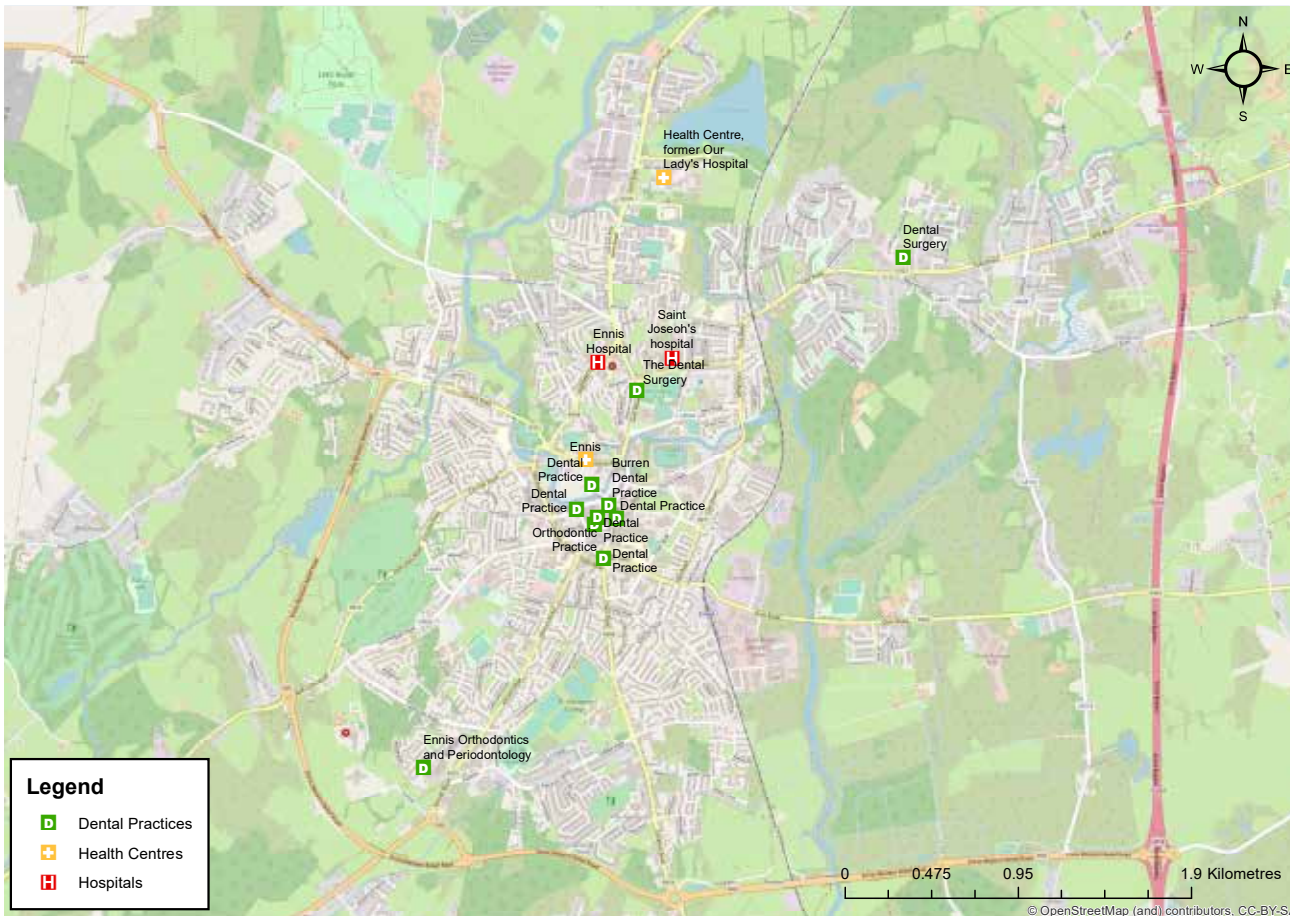


Figure 17: Dentists, Health Centres and Hospitals in Ennis

Education

As shown in Figure 18, the majority of primary schools are located to the north of Station Road/Carmody Street. Secondary schools are concentrated in the centre of Ennis, with the exception of St. Flannan's College to the south.

There are two schools for students with special needs located in the northern part of Ennis, namely St Clare's Special School on Gort Road and St. Anne's Special School on St Stenan's Road. There are currently no third level education institutes in Ennis.

Therefore, there is a trend that educational services are predominantly located in the northern part of Ennis, with few to the east and west. Residents in eastern and western parts of Ennis are generally outside a 10 minute walking catchment of schools.

Retail

Figure 19 shows that retail services are generally spread throughout the town. Popular chain shops and supermarkets such as Dunnes Stores, Tesco, Aldi, and Lidl are located in Ennis, with smaller shops and convenience stores such as Centra and Spar serving various parts of the town.

There is generally good provision of retail services within Ennis, with only a small part of the southwest not containing a retail facility.

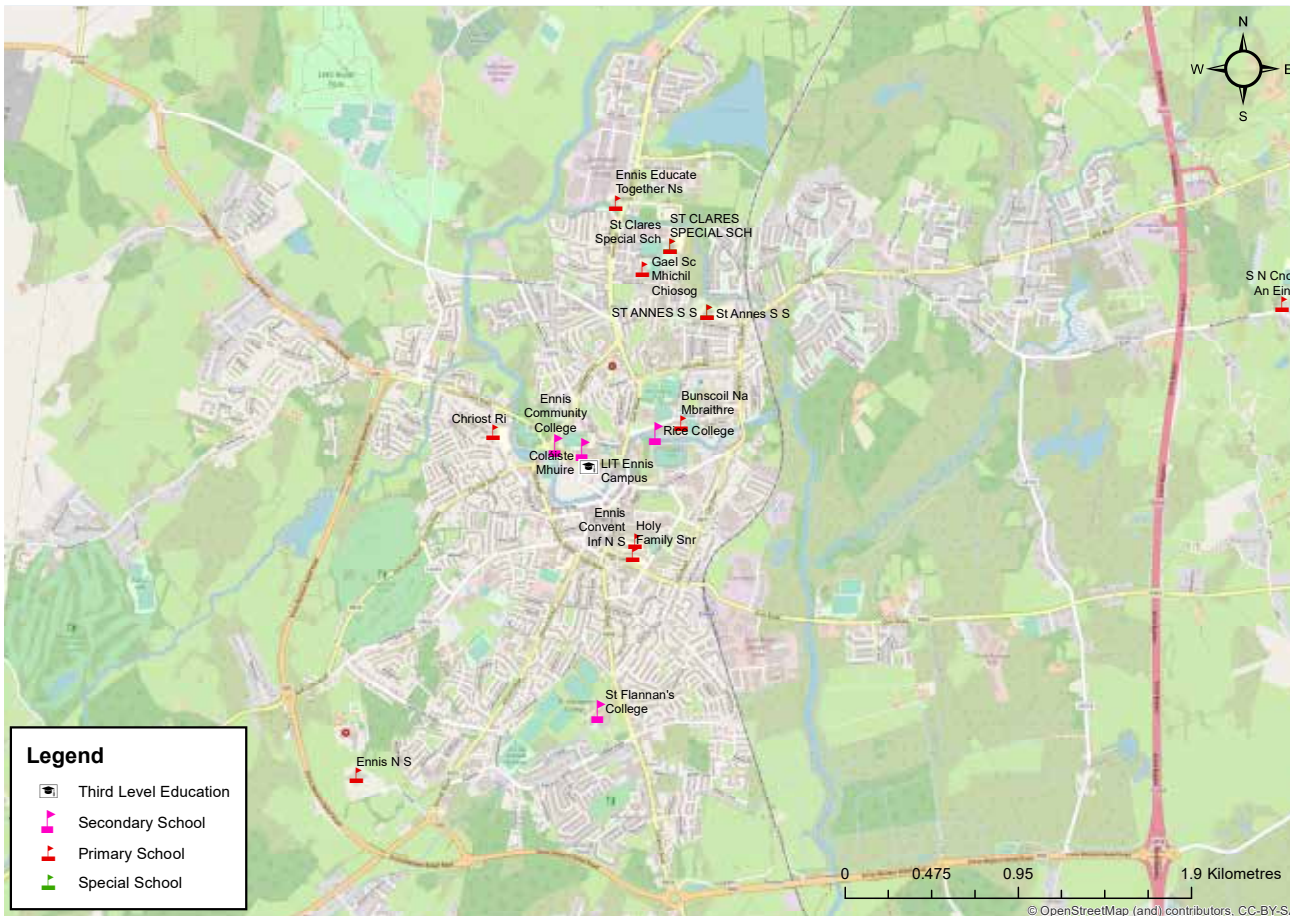


Figure 18: Education in Ennis

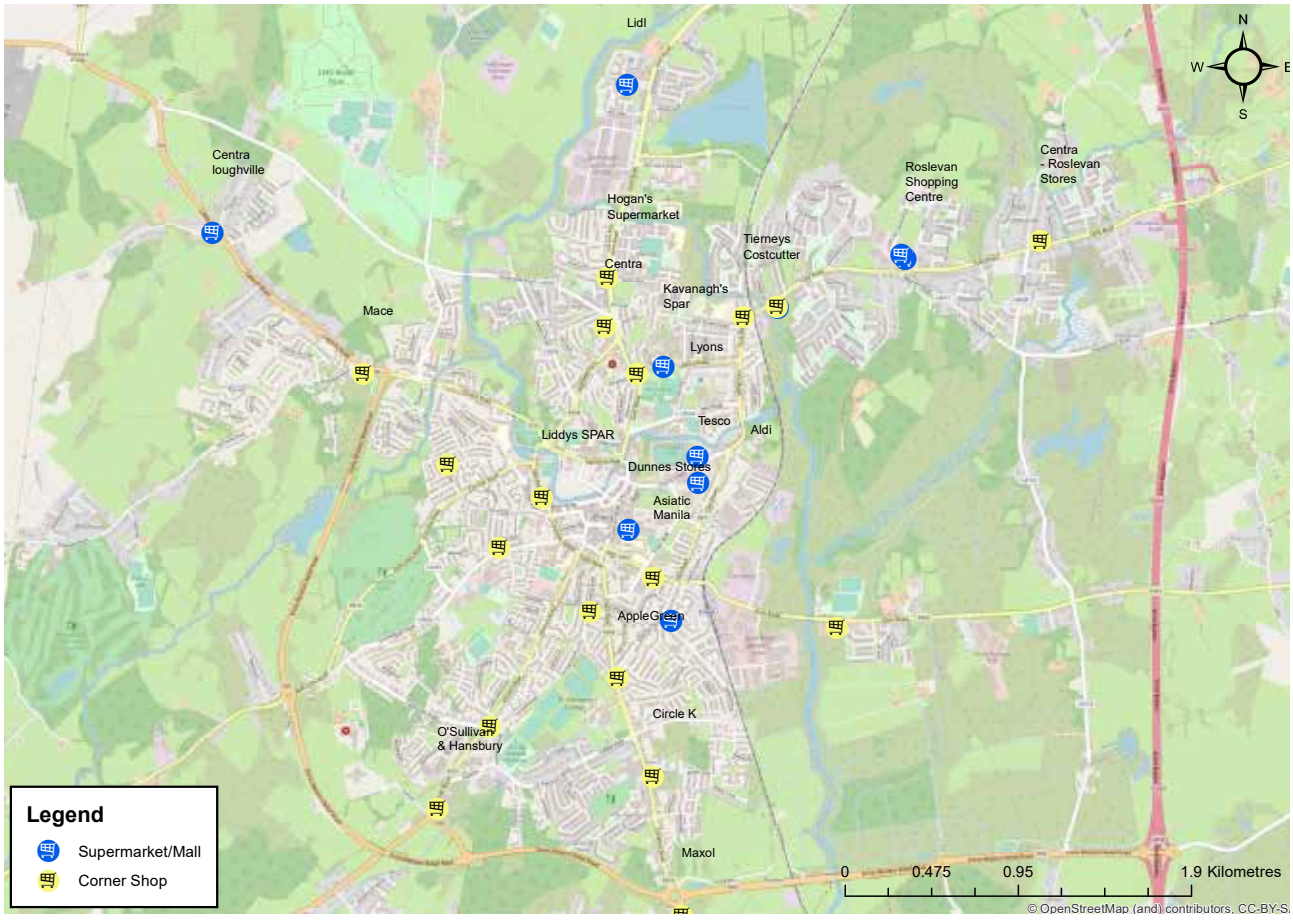


Figure 19: Retail in Ennis

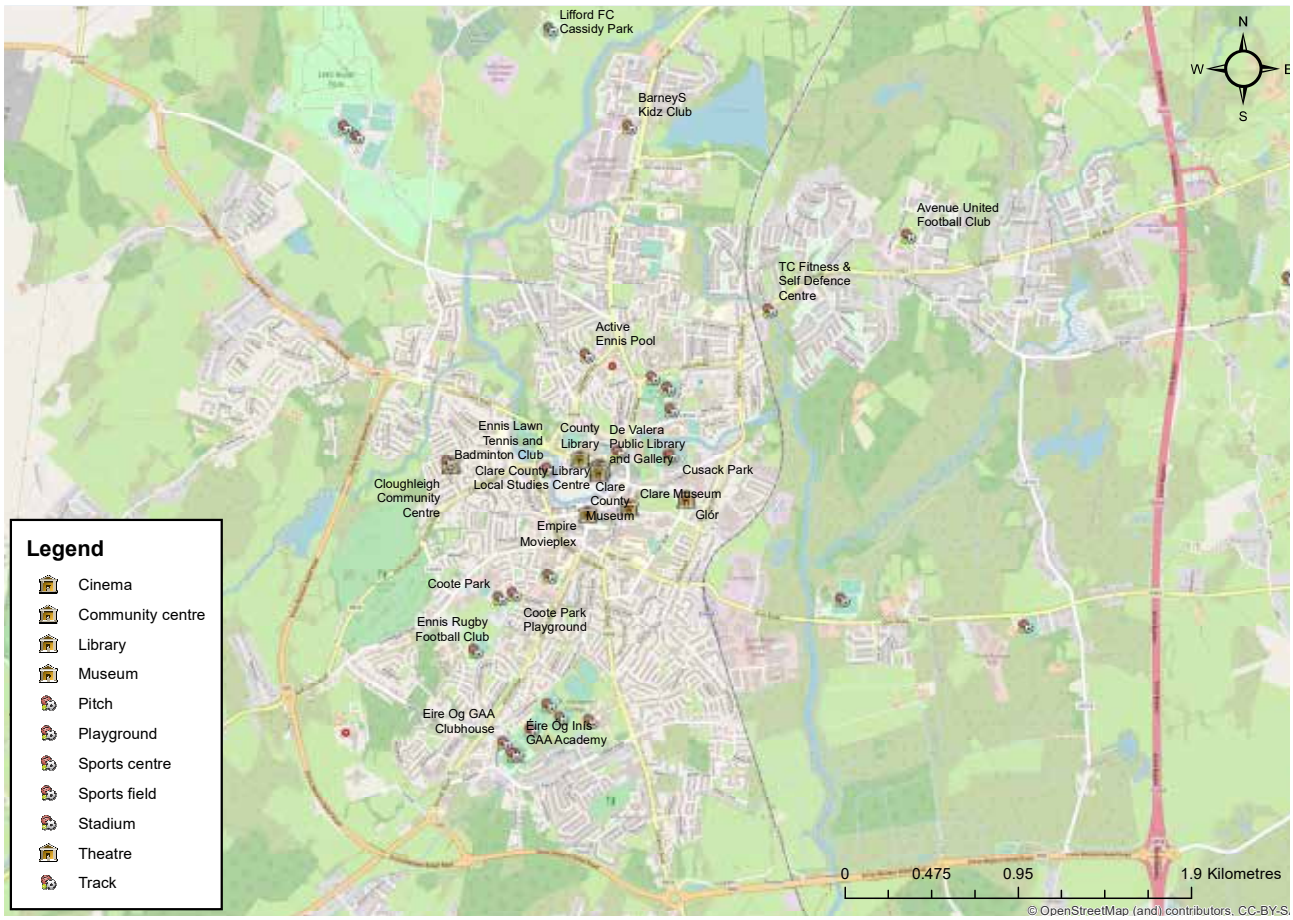


Figure 20: Leisure in Ennis

Leisure

Figure 20 shows that theatres, cinemas, and museums are generally clustered within the town centre and therefore residents and visitors would generally need to travel to access these services. Sports and recreation facilities, such as sports fields, are located throughout Ennis.

Public Transport

Ennis is located on the Galway to Limerick railway line, with additional commuter services operating between Ennis and Limerick and onward services from Limerick to Ballybrophy and to Cork, Dublin and Waterford via Limerick Junction. Services from the station are detailed in Section 4.4.2.1.

Several bus routes serve Ennis, and details of these are discussed in Section 4.4.2.2. Bus stops in the town are primarily located in the town centre and along the Clare Road to the south and the Tulla Road to the northeast. A map of the existing public bus stops and railway stations are shown in Figure 21.

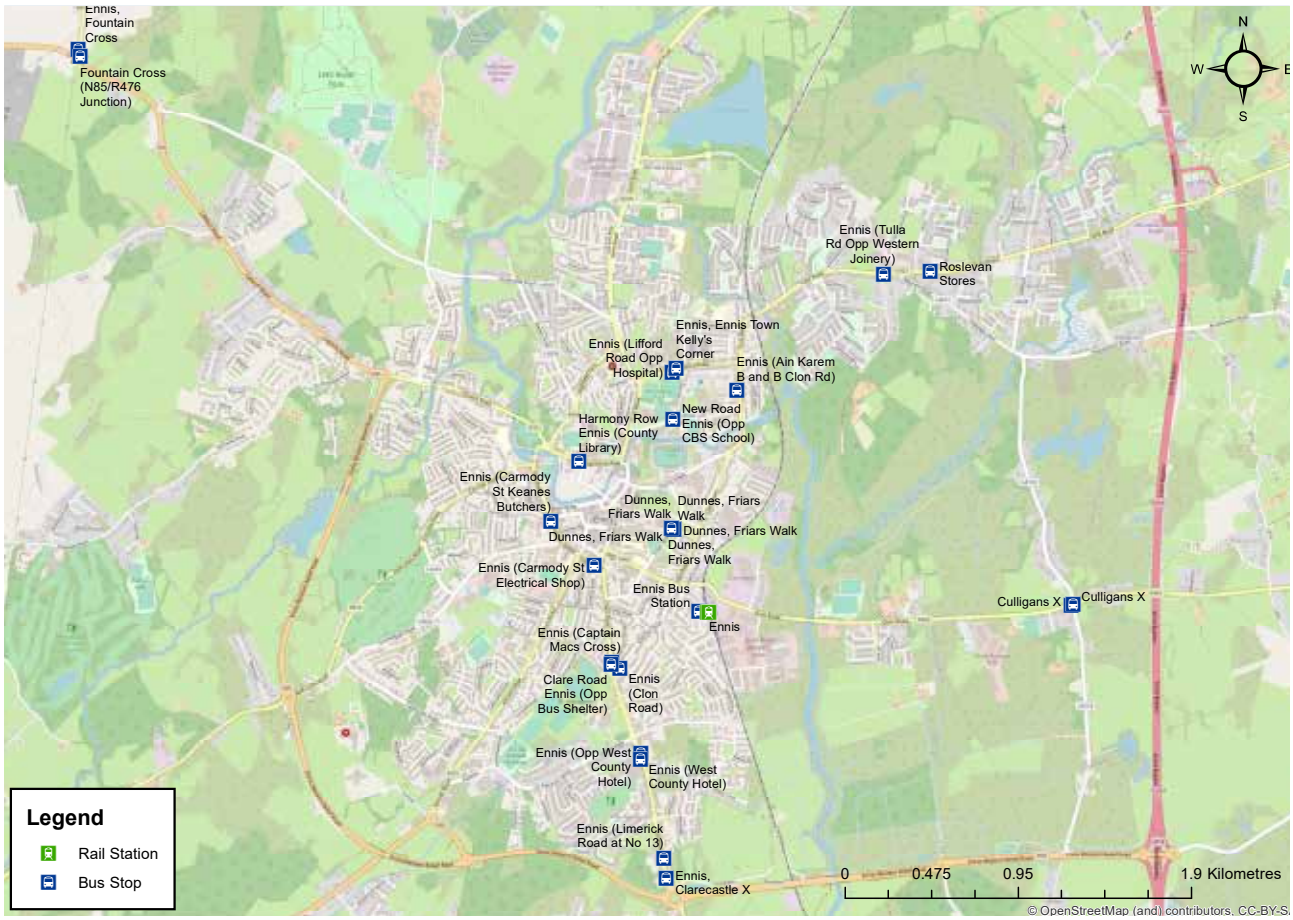


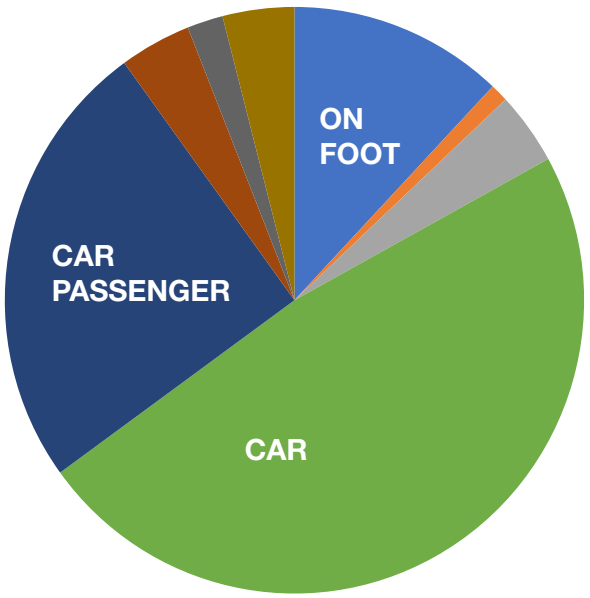
Figure 21: Public Transport in Ennis

4.2.3 Current travel patterns

Analysis was undertaken to understand the means of travel for those working or studying in Ennis, as presented in Figure 22.

The majority of people travelling to Ennis for work or education purposes do so by car, accounting for 73% of the total. This is followed by walking (12%) and by bus (4%). Only 1% of people commute by bike.

Figure 22 - Means of Travel – Ennis



12%	On Foot
1%	Bicycle
4%	Bus, Minibus or Coach
0%	Train, DART or LUAS
0%	Motorcycle or scooter
48%	Car Driver
25%	Car Passenger
4%	Van
2%	Other (incl. lorry or working at home, school or college
4%	Not stated or not at work, school or college

4.2.4 Catchment Analysis

Following the methodology outlined above, maps were produced to understand the current accessibility conditions for walking and cycling within Ennis. These catchment maps and our analysis for each service can be found within Appendix B.

Overall, the catchment analysis for cycling showed that all services in Ennis are within a 10-minute cycle catchment area, therefore complying to the 10-minute service objective. However, census data show that there is a need to further improve cycle facilities to encourage greater usage in Ennis. This section primarily discusses the walking catchments.

Healthcare

The majority of healthcare services are located within the town centre, although a few are located on the outskirts. Therefore, the majority of residents in the town centre are within a 10-minute walking catchment of these facilities.

The catchment maps indicate that areas such as Shanaballa, Lahinch Road, Gort na Habhana, and Clare Road are the areas where there are fewer pharmacies, GPs (shown in Figure 23), and dentists.

Adding additional pedestrian links and connections will not materially change the accessibility of the healthcare services. As such, access to healthcare facilities within 10 minutes of many suburban areas can only be achieved by cycling at present.

While only a small part of the town is within a 10-minute walking distance of hospitals, these have a regional function, providing health care to County Clare as a whole. It can therefore be expected that the majority of their visitors will arrive by car or public transport.

Nursing homes only cover small parts of the town; however, these services are not used by the broad spectrum of population.

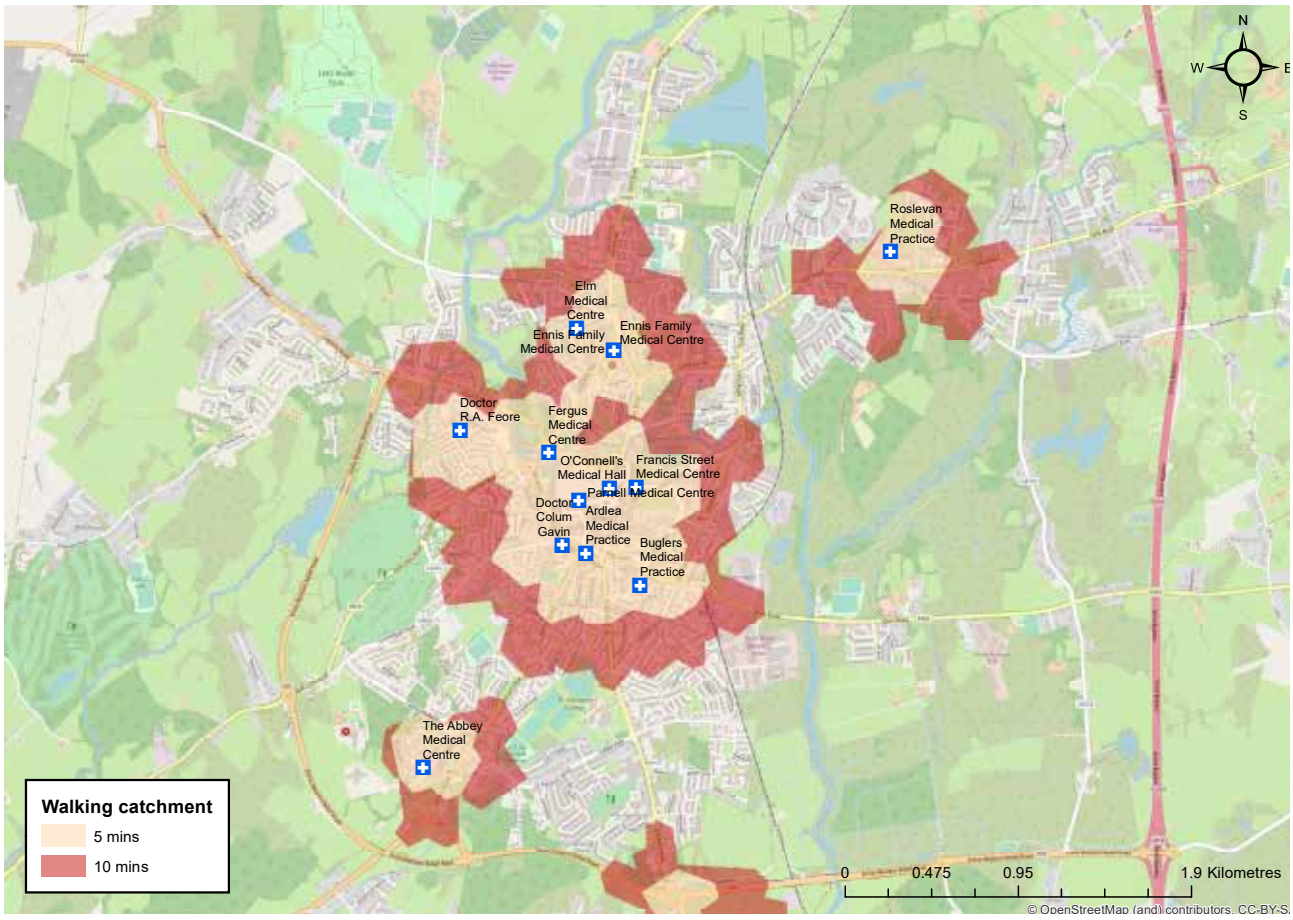


Figure 23: Ennis Walking Catchment – GPs

Education

Special schools tend to serve a broad region rather than their local area exclusively. There are two special schools in the town, both located in the northern part of the town and with a resultant limited walking catchment. However, a limited proportion of the population use this type of school and these facilities tend to be limited in provision across a town in comparison to primary and secondary schools.

Primary schools are generally located close to the town centre with the exception of Ennis National School. Similarly, secondary schools are generally within the town centre with the exception of St Flannan's College to the south, as shown in Figure 24. Therefore, there are large areas of Ennis that are not within the 10-minute walking catchment of a school.

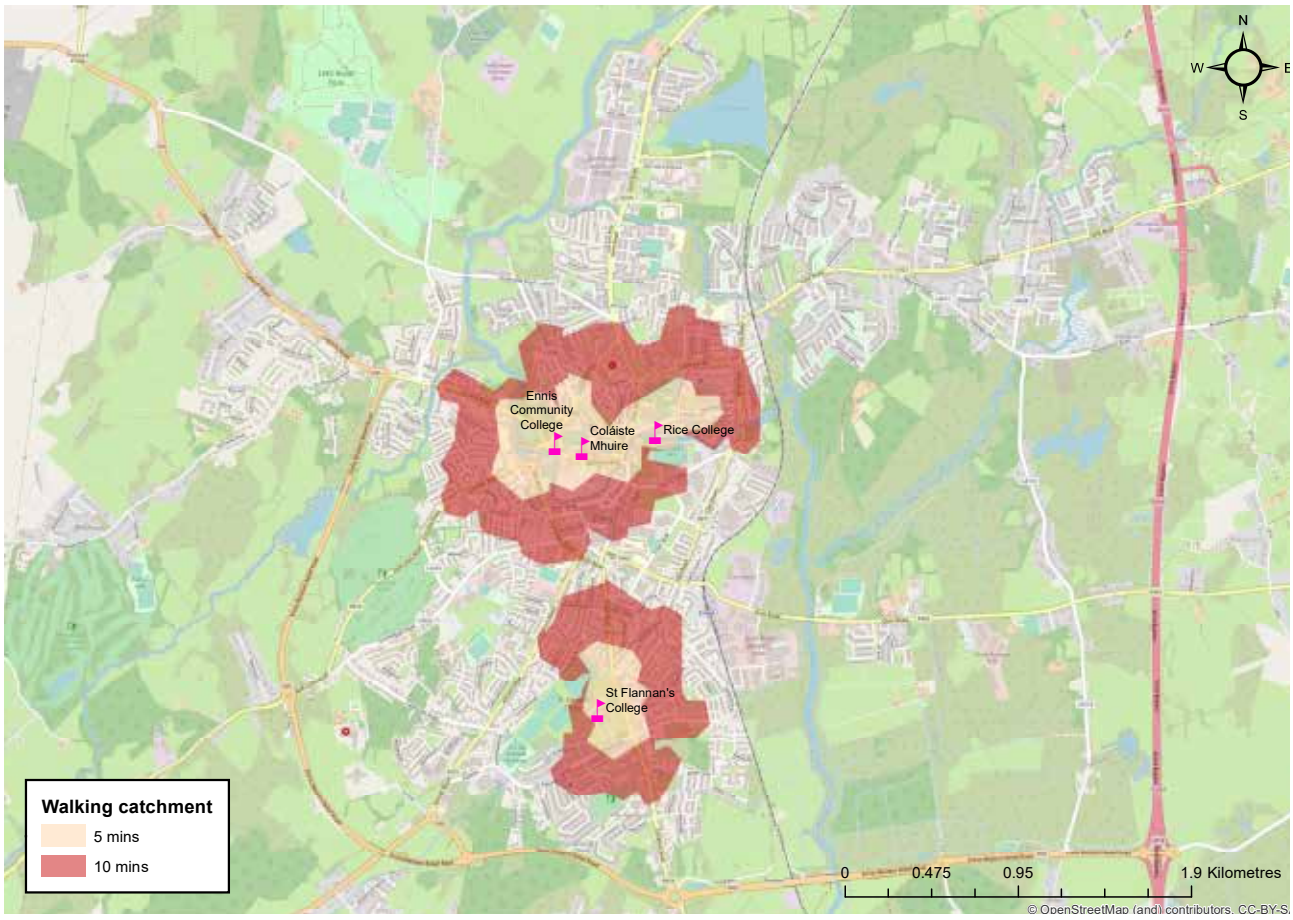


Figure 24 – Ennis Walking Catchment – Secondary Schools

Retail

As shown in Figure 25, the majority of the town is within a 10-minute walking catchment of a shop or supermarket. A few outlying residential areas are outside this walking catchment and can be assumed to predominantly drive to retail services where parking is available, such as Tesco Superstore and Aldi on Francis Street.

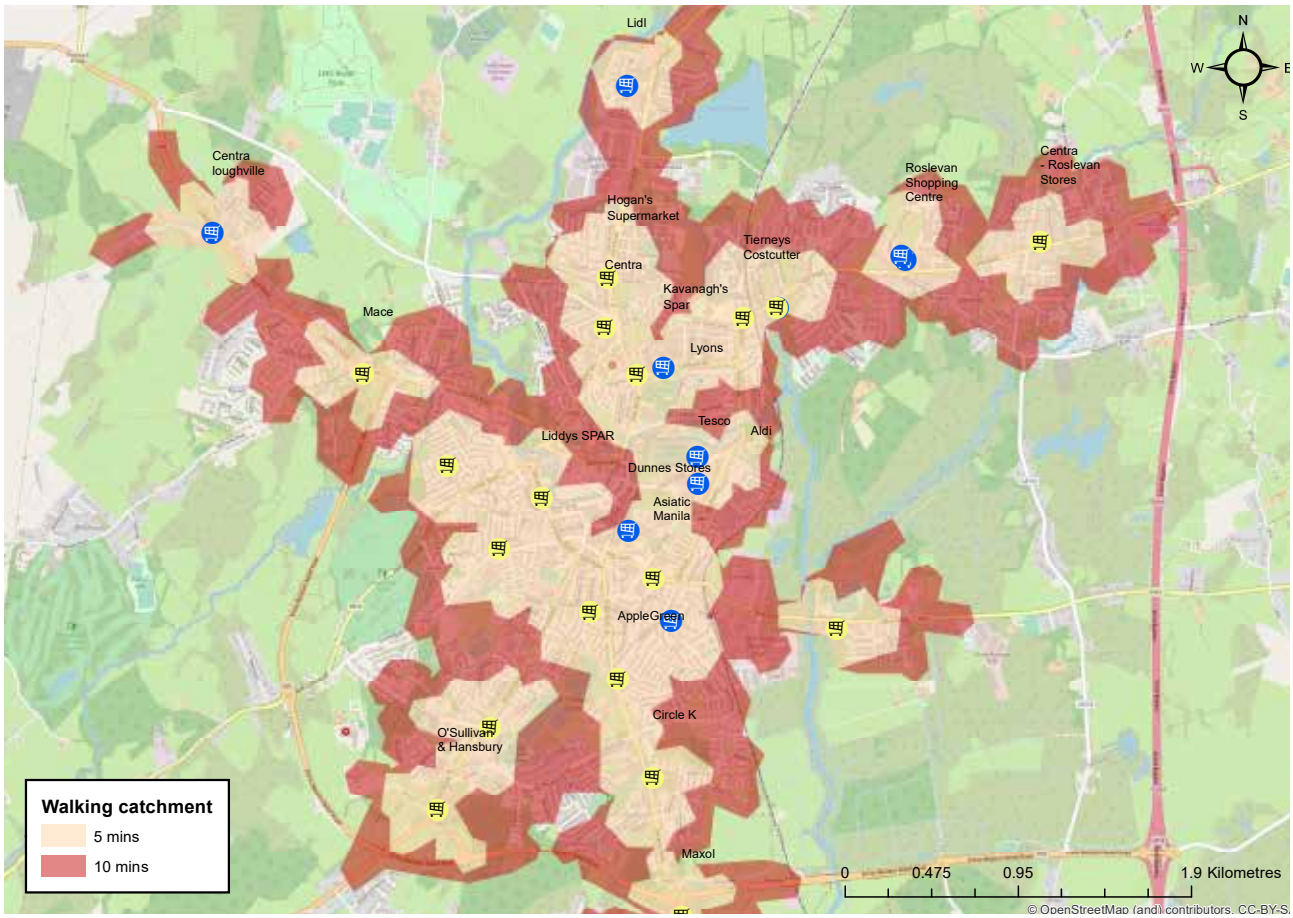


Figure 25 - Ennis Catchment Analysis - Retail

Leisure

Leisure services such as theatres, museums and libraries are generally within the centre of Ennis and therefore residents and visitors would typically travel to them by different modes of transport.

Sports and recreational facilities are scattered throughout Ennis. Although the walking catchment maps indicate that majority of residents are within 10 minutes' walk of these facilities, sports fields would generally cater for groups of people with interests in specific sports or clubs. Therefore, people who use these facilities may travel longer distances and across town despite a local facility being available.

Figure 26 shows the leisure services located throughout Ennis.

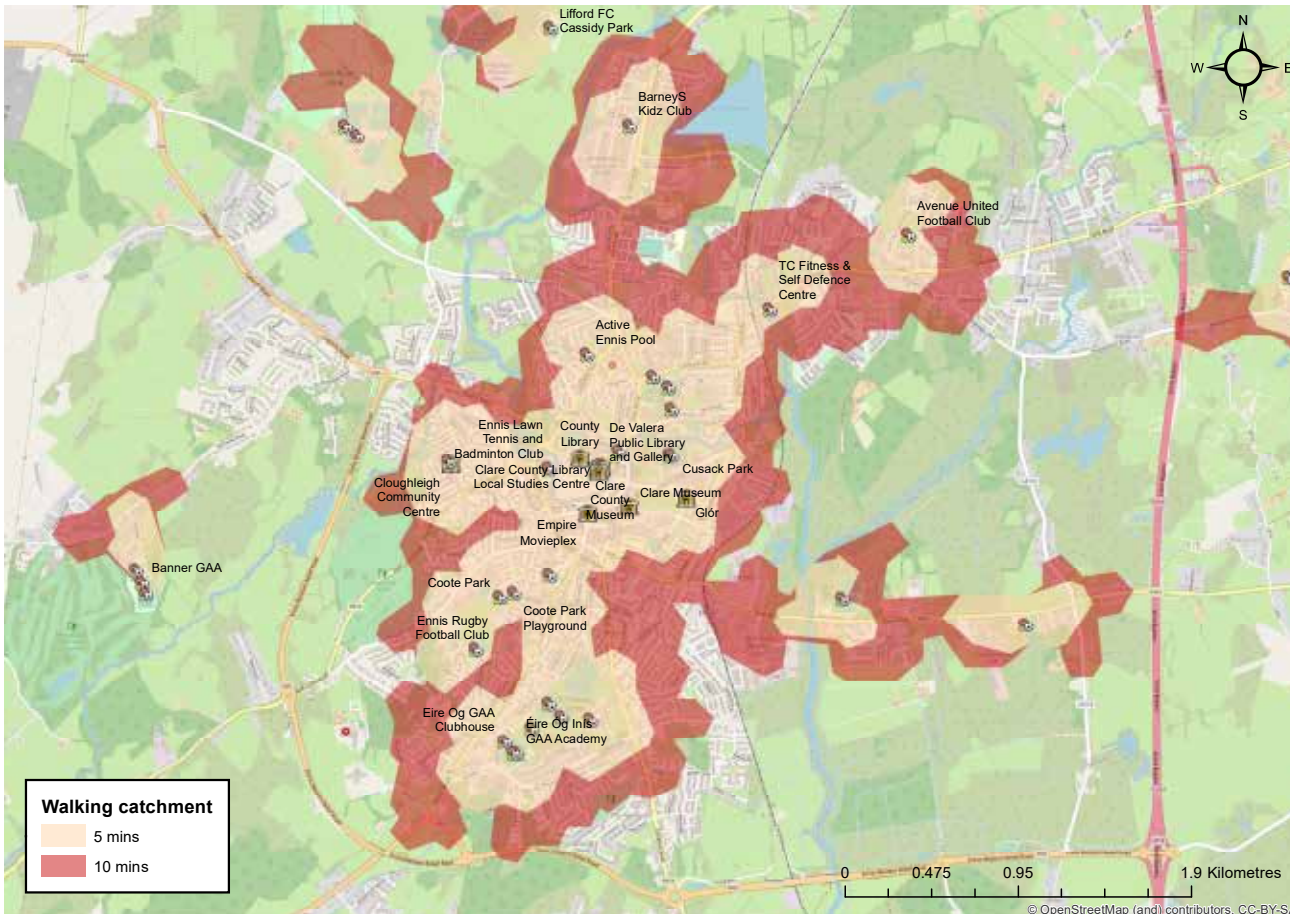


Figure 26 - Ennis Catchment Analysis - Leisure

Public Transport

Bus stops are primarily located in the town centre and along the Clare Road to the south and the Tulla Road to the northeast. Existing bus services link Ennis with regional destinations as well as smaller towns and villages in its hinterland, as detailed in Section 4.4.2.2. Most routes are infrequent and would rarely be availed of by the majority of the town's population. Although approximately half the town is within a 10-minute walking catchment of a bus stop (as shown in Figure 27), the 10-minute service principle applied to bus services would be more applicable to local bus services, which may for instance link suburban residential areas with the town centre.

Ennis Railway Station is within a 5-10-minute walking catchment of the town centre; however, the majority of the town falls outside of this catchment area. Its catchment would be improved somewhat by adding additional pedestrian links in its vicinity.

Services on this railway line are regional, and therefore it would not be desirable to add additional stations within Ennis due to their impact on journey times. There may be potential for local bus services to connecting suburban areas to the railway station and the town centre. The principle of a 10-minute walking catchment can be utilised to identify suitable locations for the placement of bus stops.

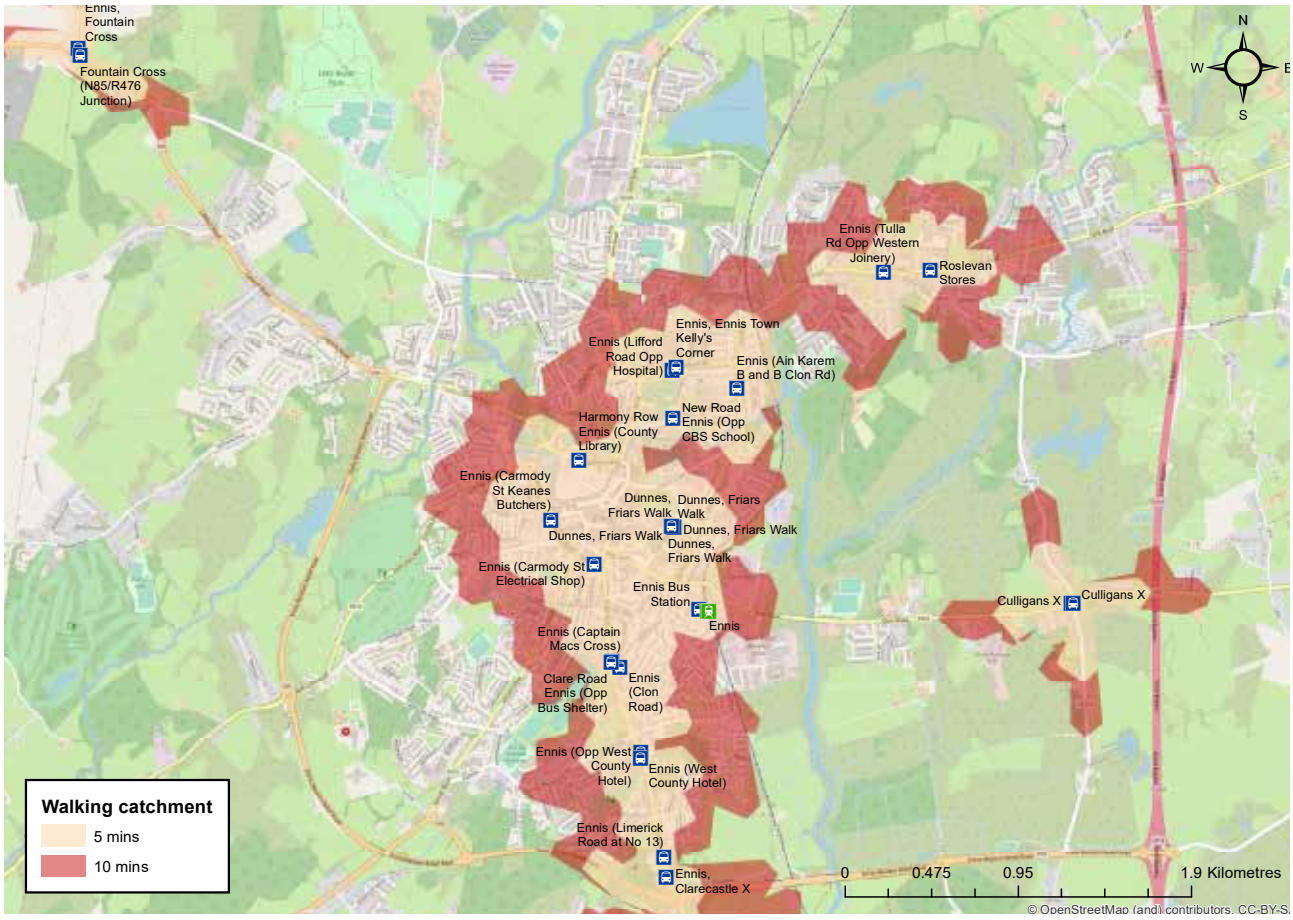


Figure 27 - Ennis Catchment Analysis - Public Transport

4.3 Tralee

4.3.1 Demographics

Preliminary demographic analysis was undertaken to understand the current population statistics in Tralee. The population of Tralee at the time of the 2016 census was 23,691, with little change between 2011 and 2016.

Residential car ownership statistics were also extracted from CSO to understand if there is a trend in car ownership, which may have an adverse effect on the '10 Minute Town' concept. Car ownership in 2016 has slightly increased in Tralee in comparison to 2011, with 76% of households owning one or more cars in 2016, compared to 75% in 2011.

4.3.2 Location of services

It is important to understand the location of services (i.e. healthcare, education, leisure and public transport) to establish if there is a general trend. As mentioned in Section 3, the locations of services were identified through desktop analysis and were verified by Local Authority contacts as well as colleagues who are resident in Tralee.

"The population of Tralee at the time of the 2016 census was 23,691, with little change between 2011 and 2016"

Healthcare

Figure 28 to Figure 30 show all the healthcare services (i.e. hospitals, health centres GPs, dentists, pharmacies and nursing homes) in Tralee. Healthcare services are predominantly located within the town centre, with dentists, GPs and pharmacies on Oakpark Road. Immediately south-west of Oakpark Road, there are also healthcare services on Prince's Street, Boherbee, Basin Road, and Ashe Street. There is a public hospital, University Hospital Kerry, to the east of Tralee which is accessed from Quill Street, and a private hospital to the west, Bon Secours, that has a staff entrance on Matt Talbot Street and a public entrance on Strand Street.

There are two nursing homes in Tralee, with one in the town centre, namely Tralee Community Nursing Centre, and another to the north of the town on Oakpark Road.

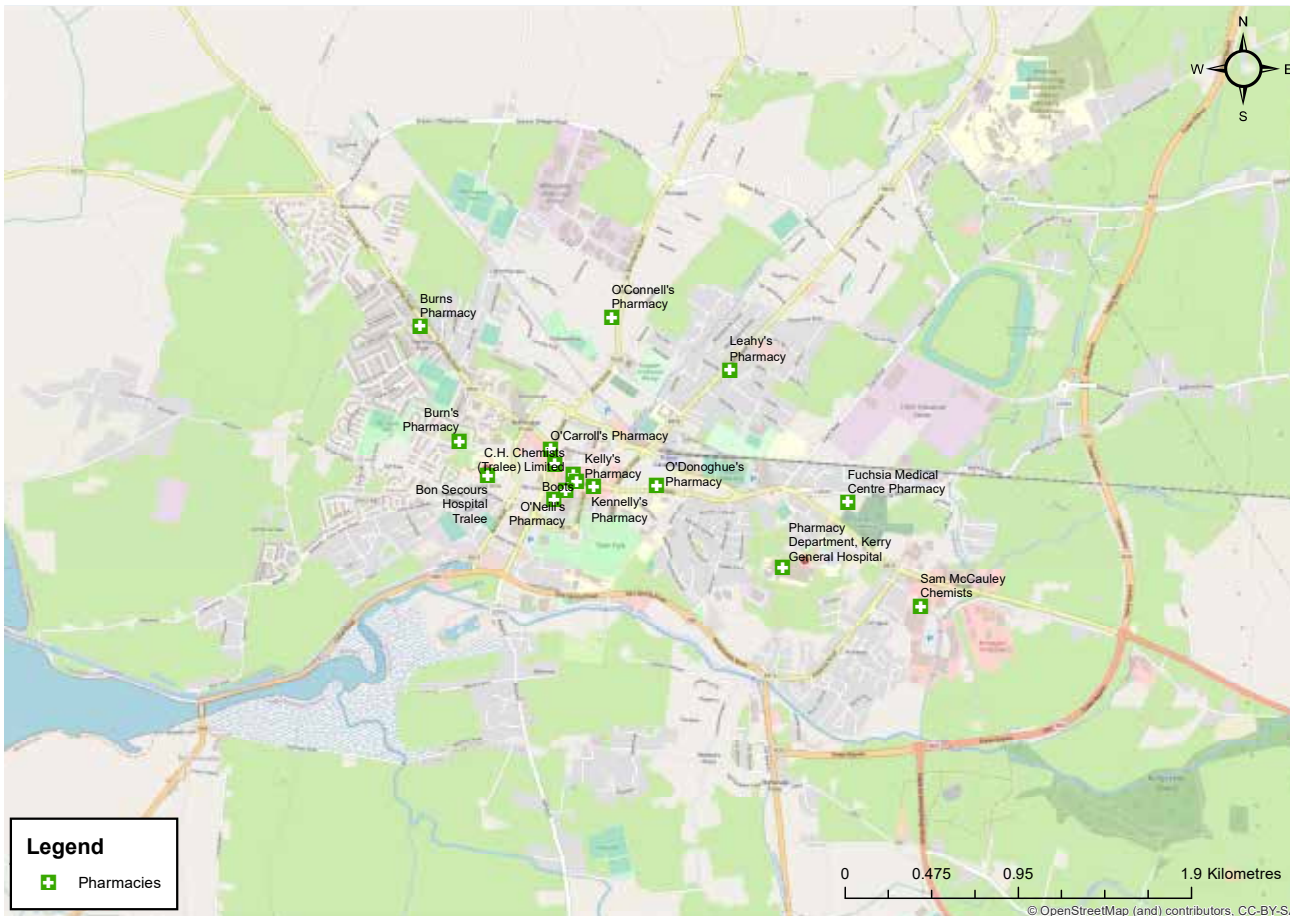


Figure 28: Pharmacies in Tralee

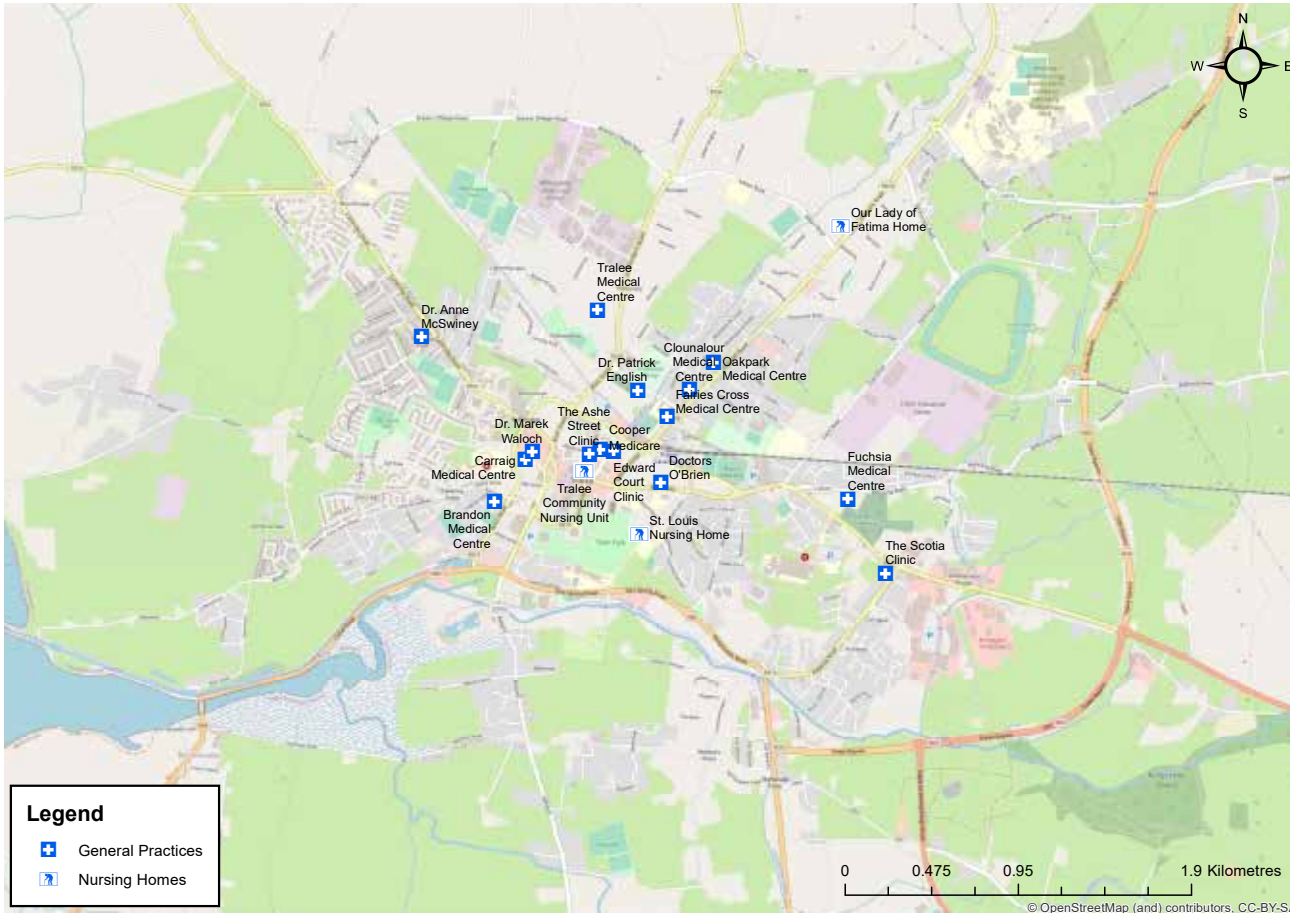


Figure 29: General Practices and Nursing Homes in Tralee

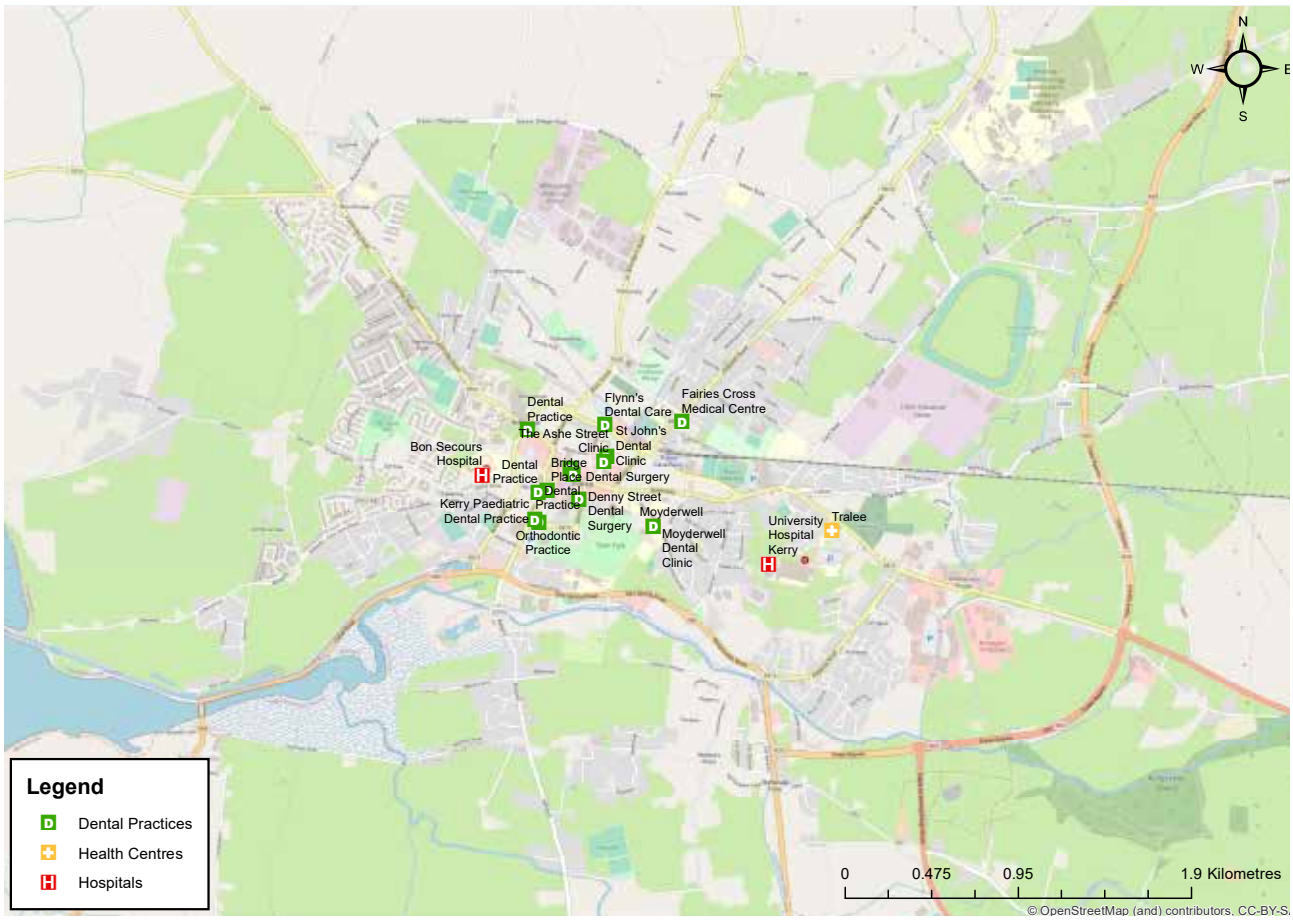


Figure 30: Dentists, Health Centres and Hospitals in Tralee

Education

The majority of primary schools are located on the northern side of Tralee with four schools. Residents on the southern and western parts of Tralee have access to three primary schools in total. Secondary schools are located mostly on the southern part of Tralee with one school, Mercy Secondary School, located in the northwest.

Saint Ita's and St. Joseph's National School, located to the west of the town centre, contains a special needs unit.

There are two campuses of Institute of Technology Tralee in the town. The main campus is on the northeastern edge of the town and the smaller southern campus is on Clash Road. Therefore, there is a trend that educational facilities are predominantly located in the town centre or on the northern side of Tralee, with few in the southeastern side of the town in particular.

Figure 31 shows all the education services (i.e. special needs, primary, secondary and colleges) in Tralee.

Retail

As shown in Figure 32, retail services are generally located along a northwest-southeast axis through Tralee. Popular chain shops and supermarkets such as Dunnes Stores, Tesco, Costcutter, Aldi and Lidl are located in Tralee, with smaller shops and convenience stores such as Centra and Spar serving various parts of the town.

It should be noted that there are residential areas that do not have retail services conveniently located nearby, particularly the southern and north-eastern part of Tralee.

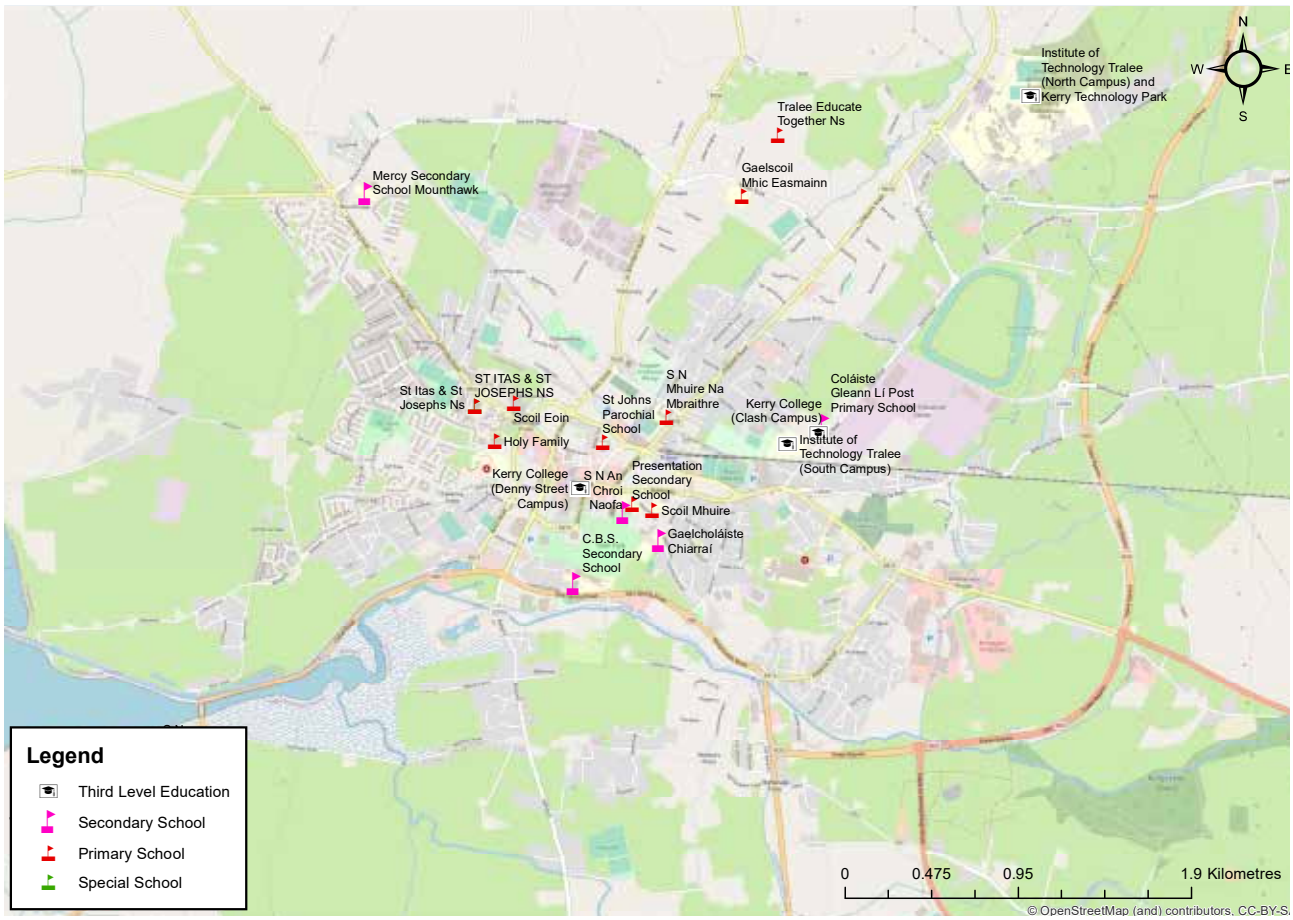


Figure 31: Education in Tralee

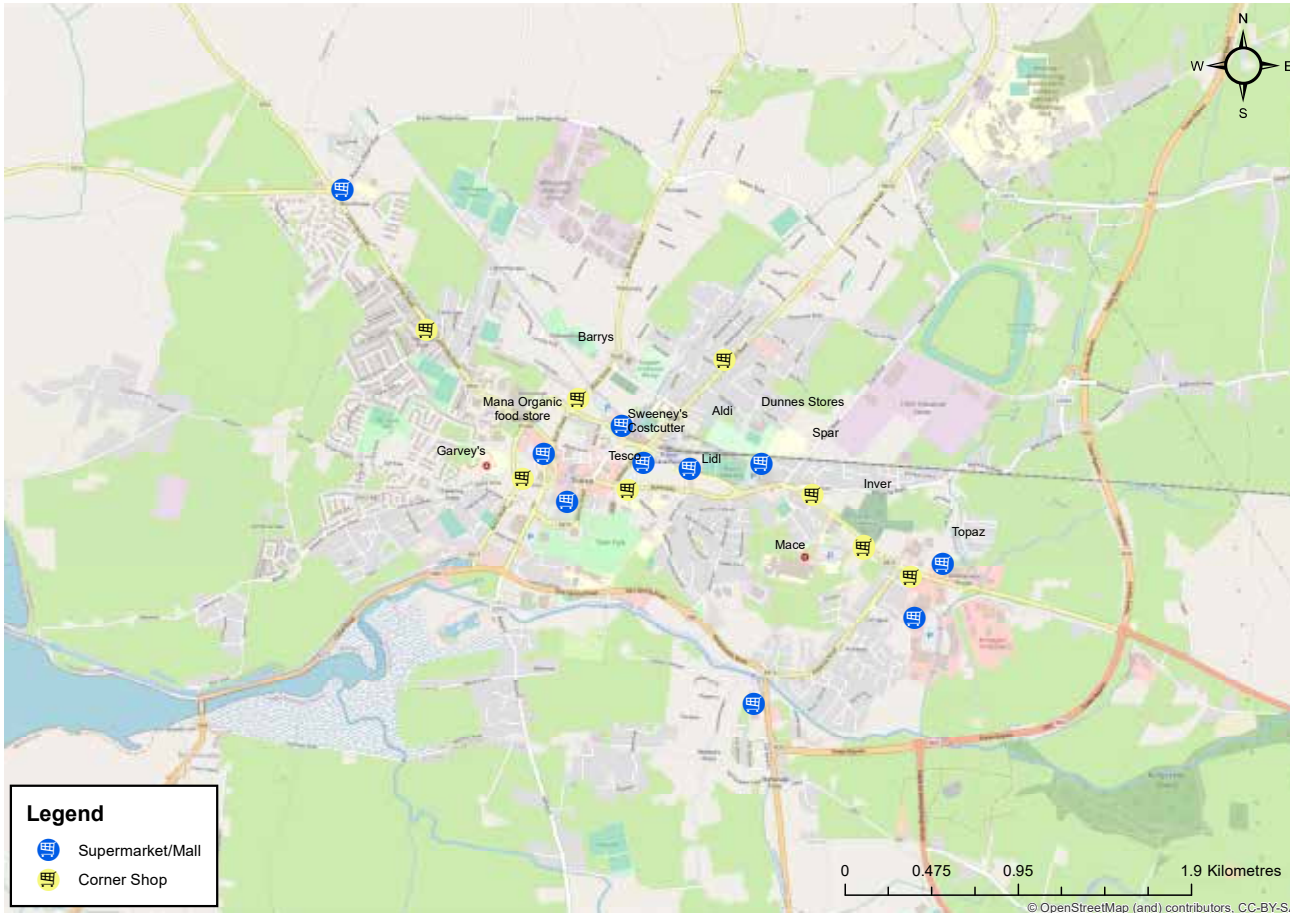


Figure 32: Retail in Tralee

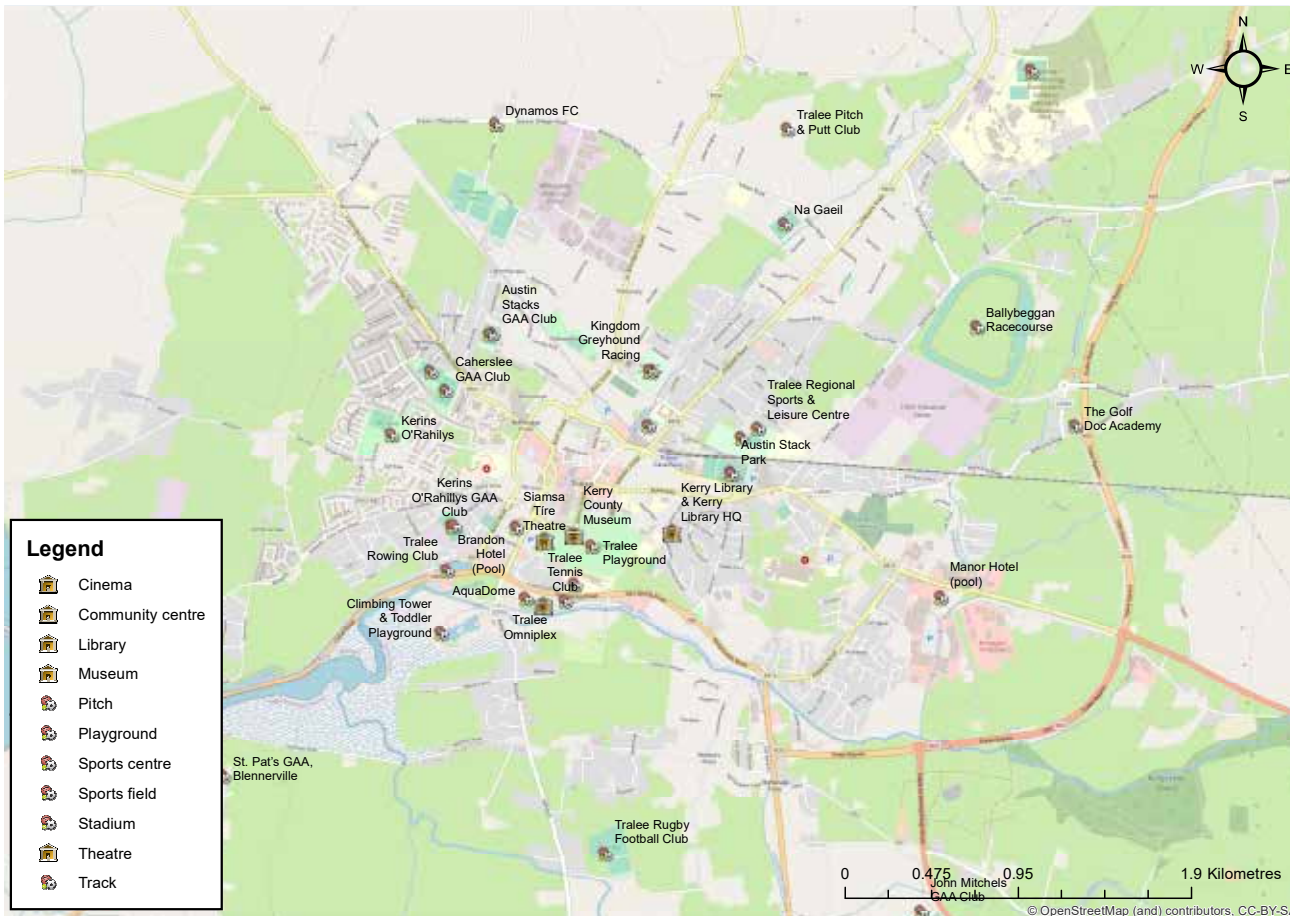


Figure 33: Leisure in Tralee

Leisure

Figure 33 illustrates the leisure services (such as theatres, cinemas, museums and sports and recreation facilities) available to residents and visitors in Tralee.

Theatre, cinemas and museums are generally clustered within the southern side of the town centre and therefore residents and visitors would generally need to travel to access these services. Sports and recreation facilities, such as sports fields, are located throughout Tralee.

Public Transport

Figure 34 shows the public transport services available in Tralee.

Tralee Railway Station is located east of the town via John Joe Sheehy Road. The station is the terminus of the Mallow-Tralee line, with connections at Mallow for onward travel to Cork and Dublin, and in turn at Limerick Junction for onward travel to Limerick, Galway, and Waterford. Services from the station are detailed in Section 4.4.3.1.

Several bus routes connect Tralee to national, regional, and local destinations, and details of these are discussed in Section 4.4.3.2. Two town bus routes serve the town, and bus stops for these are located throughout the town.

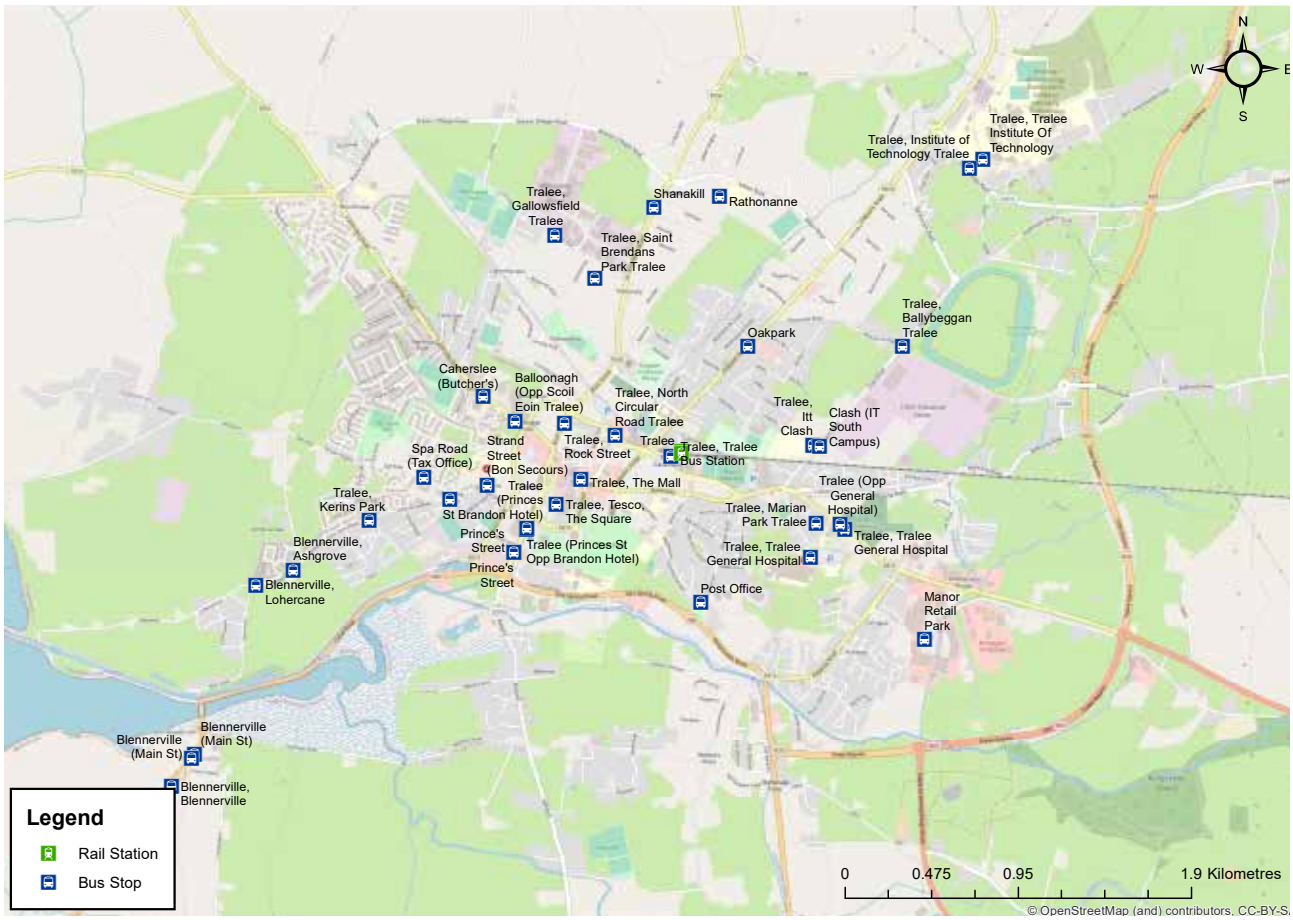


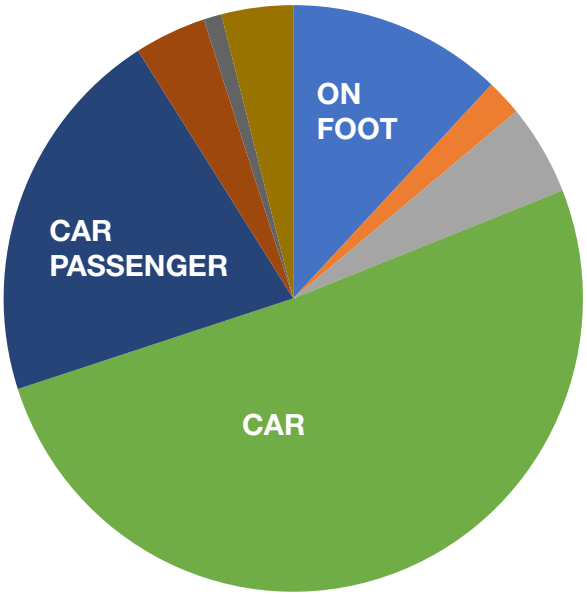
Figure 34: Public Transport in Tralee

4.3.3 Current travel patterns

Analysis was been undertaken to understand the means of travel for those working or studying in Tralee, as presented in Figure 35.

The majority of people travelling to Tralee for work or education purposes do so by car, accounting for 72%. This is followed by walking (12%) and by bus (5%). Only 2% of people commute by bike .

Figure 25 - Means of Travel – Tralee



12%	On Foot
2%	Bicycle
5%	Bus, Minibus or Coach
0%	Train, DART or LUAS
0%	Motorcycle or scooter
51%	Car Driver
21%	Car Passenger
4%	Van
1%	Other (incl. lorry or working at home, school or college
4%	Not stated or not at work, school or college

4.3.4 Catchment Analysis

Following the methodology outlined above, maps were produced to understand the current accessibility conditions for walking and cycling within Tralee. These catchment maps and our analysis for each service can be found within Appendix C.

Overall, the catchment analysis for cycling showed that all services in Tralee are within a 10-minute cycle catchment area and therefore complying to the 10-minute service objective. However, census data show that there is a need to further improve cycle facilities to encourage greater usage in Tralee. This section primarily discusses the walking catchments.

Healthcare

Healthcare services (i.e. GPs, dentists and pharmacies) are predominantly located within the centre of Tralee and therefore many suburban residential areas are outside their 10-minute walking catchment. As such, adding additional pedestrian links will not materially change the accessibility of the healthcare services. Access to healthcare facilities within 10 minutes of many suburban areas, including Alderwood Court, Mounthawk, Ballyrickard, Caherina, An Choill, Clahane and Manor Village, can only be achieved by cycling at present. An example is shown in Figure 36 where the majority of GPs can be accessed by cycling.

Hospitals have a regional function and the majority of patient, staff and visitors will access this facility by car or public transport. Generally, there is potential to improve pedestrian access to University Hospital Kerry through provision of additional links to neighbouring residential areas.

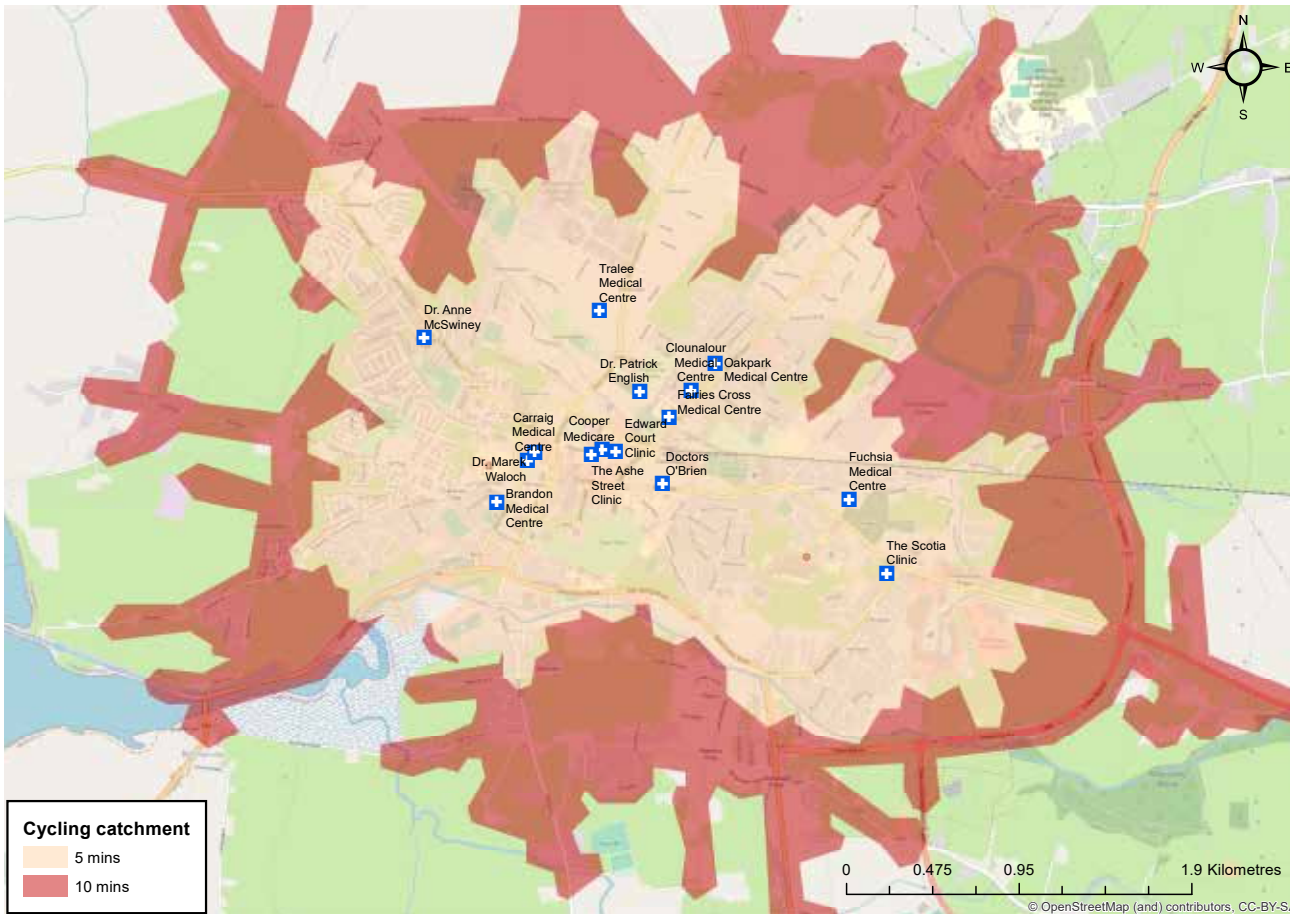


Figure 36: Tralee Catchment Analysis - GPs

Education

Primary schools in Tralee are predominantly located in the centre of the town, with the exception of Gaelscoil Mhic Easmainn and Tralee Educate Together National Schools to the north of the town. Similarly, secondary schools are generally within the town centre and therefore, most of the residential areas on the outskirts of the town are outside the walking catchment.

The special schools are also located close to the town centre and therefore, the majority of the residential areas are outside the walking catchment. However, only a small percentage of the population requires access to special schools and unlike primary and secondary schools these facilities would generally have limited provision across a town.

The IT Tralee North Campus is on the edge of the town, and is thus beyond the 10-minute walking catchment of most of the town, as shown in Figure 37. Town bus services help to link IT Tralee with the rest of the town.

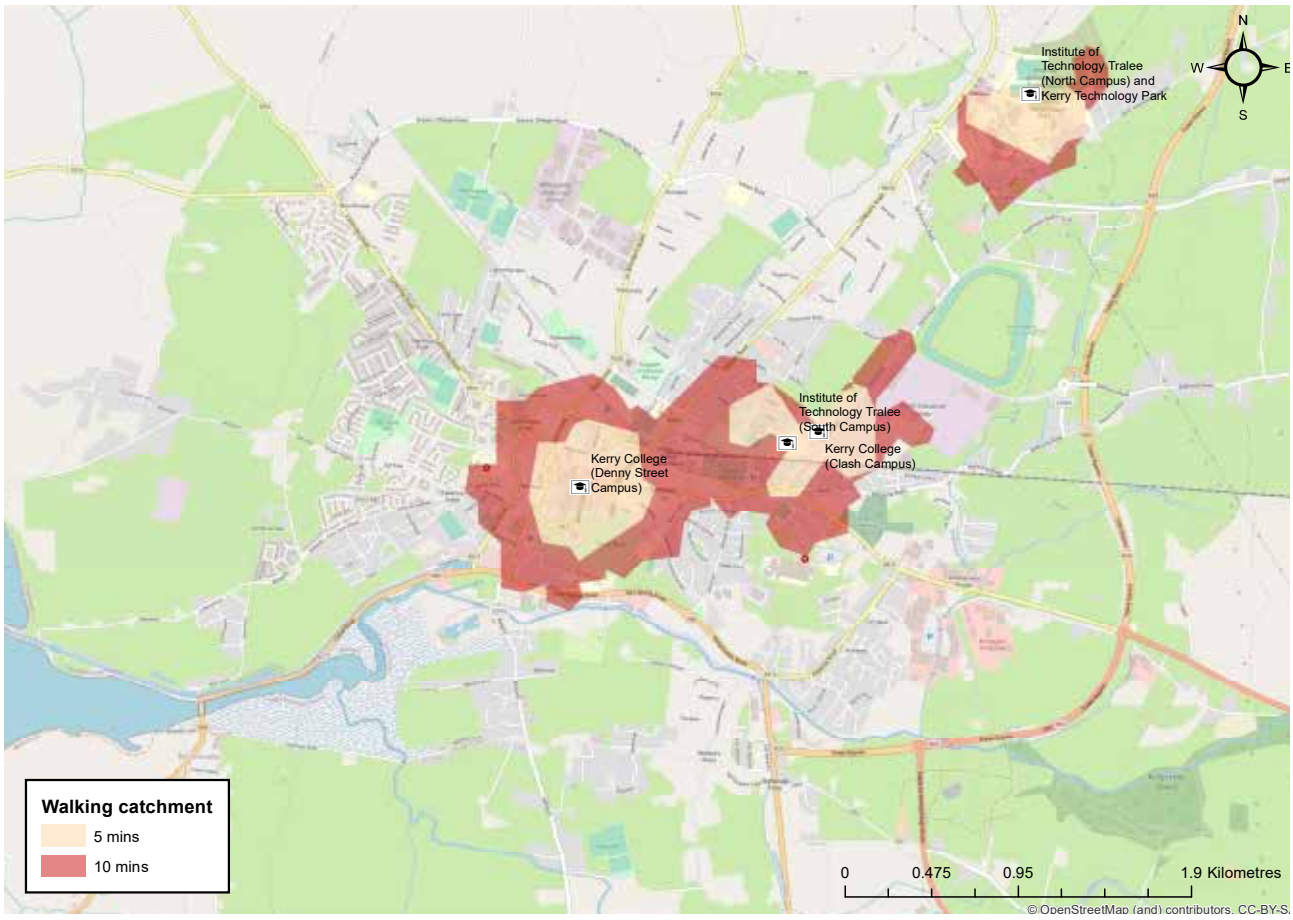


Figure 37: Tralee Catchment Analysis - Tertiary Education

Retail

Most areas of Tralee are within a 10-minute walk of a supermarket or corner shops, with the exception of certain areas to the north and south of the town, as shown in Figure 38. Residents in areas outside this catchment would most likely drive to supermarkets or walk distances longer than 10 minutes. Residents on the outskirts would typically drive to retail facilities as parking are conveniently available (e.g. Tesco Superstore on Abbey Street or Manor West Retail Park, SuperValu on Rock Street or Aldi on John Joe Sheehy Road).

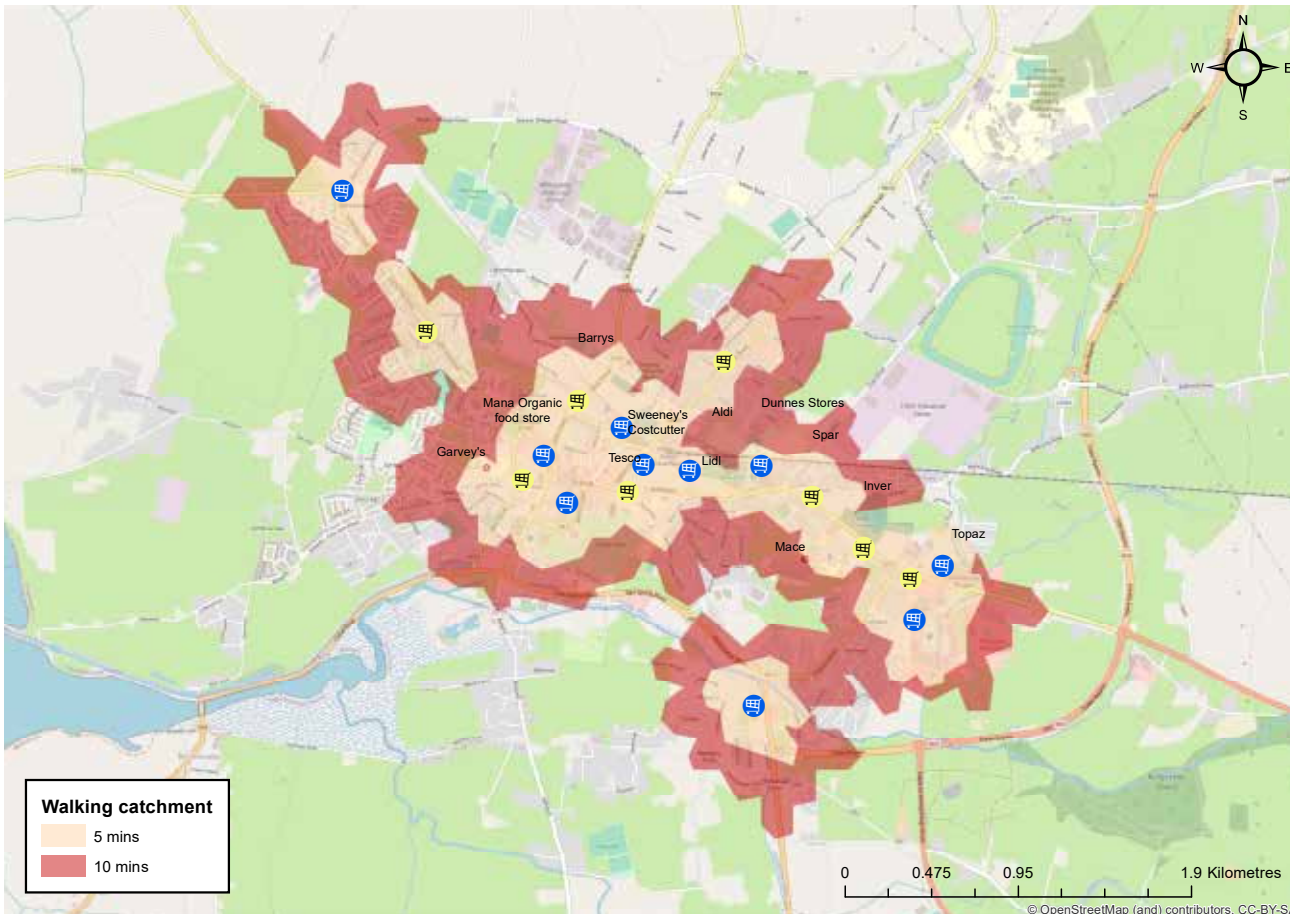


Figure 38: Tralee Catchment Analysis - Tertiary

Leisure

Leisure services such as theatres, museums and libraries are generally within the centre of Tralee and therefore residents and visitors would typically travel to them by different modes of transport.

Sports and recreational facilities are scattered throughout Tralee. Although the walking catchment maps indicate that majority of residents are within 10 minutes' walk of these facilities, sports fields would generally cater for groups of people with interests in specific sports or clubs. Therefore, people who use these facilities may travel longer distances and across town despite a local facility being available.

Figure 39 shows the walking catchment of leisure (including sports and recreational) services.

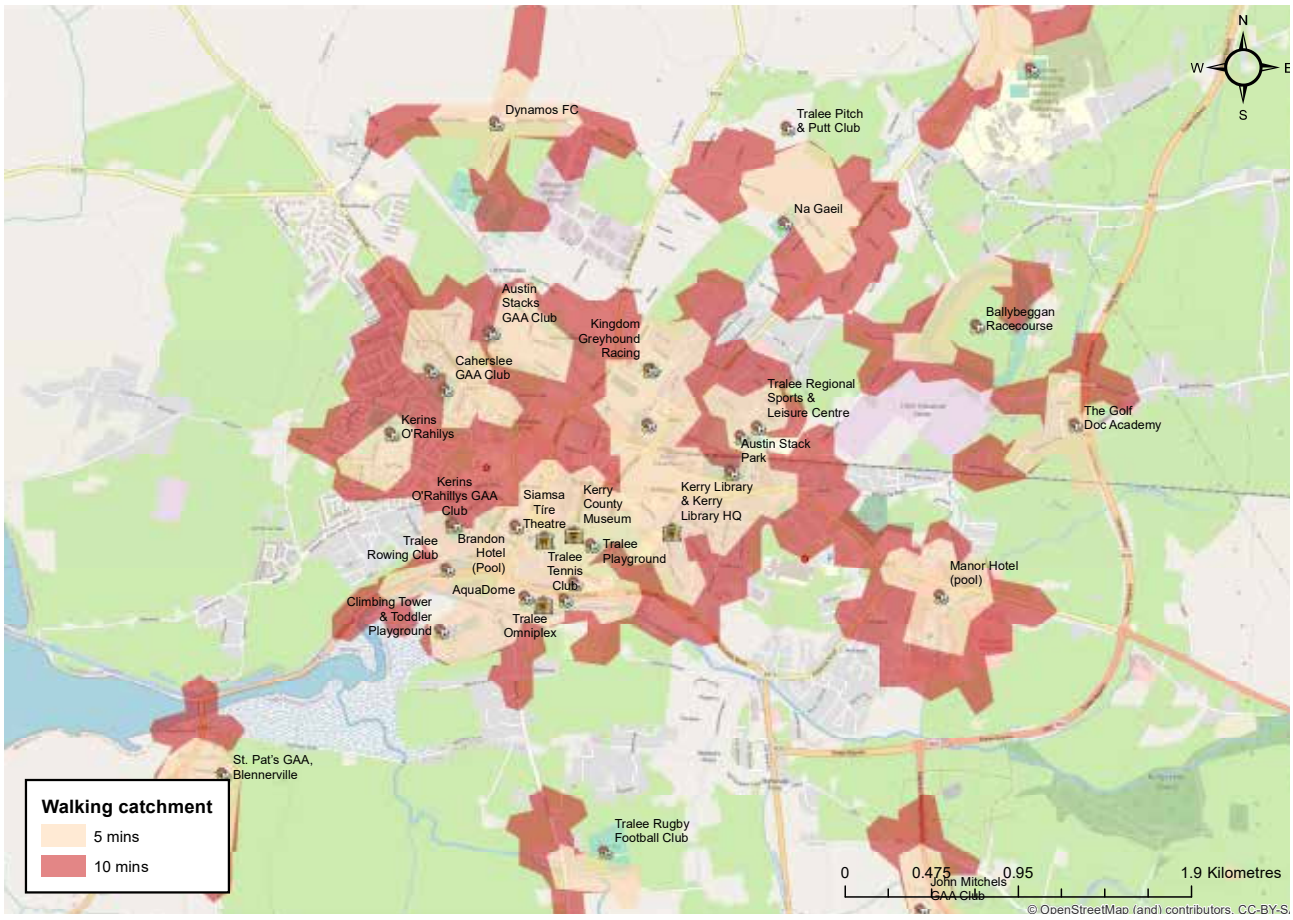


Figure 39: Tralee Catchment Analysis - Leisure

Public Transport

Bus stops are located throughout Tralee, most of which are served by the two town bus routes and their walking catchment are shown in Figure 40. Other existing bus services link Tralee with regional destinations as well as smaller towns and villages in its hinterland, as detailed in Section 4.4.3.2. Most services are infrequent, and as such are designed to facilitate those who cannot drive rather than encourage modal shift.

Tralee Railway Station is within a 5-10-minute walking catchment of the town centre; however, the majority of the town falls outside of this catchment area. While the town bus routes link the station with the rest of the town, more integration of timetabling and/or fares between the modes may encourage uptake of public transport in the town.

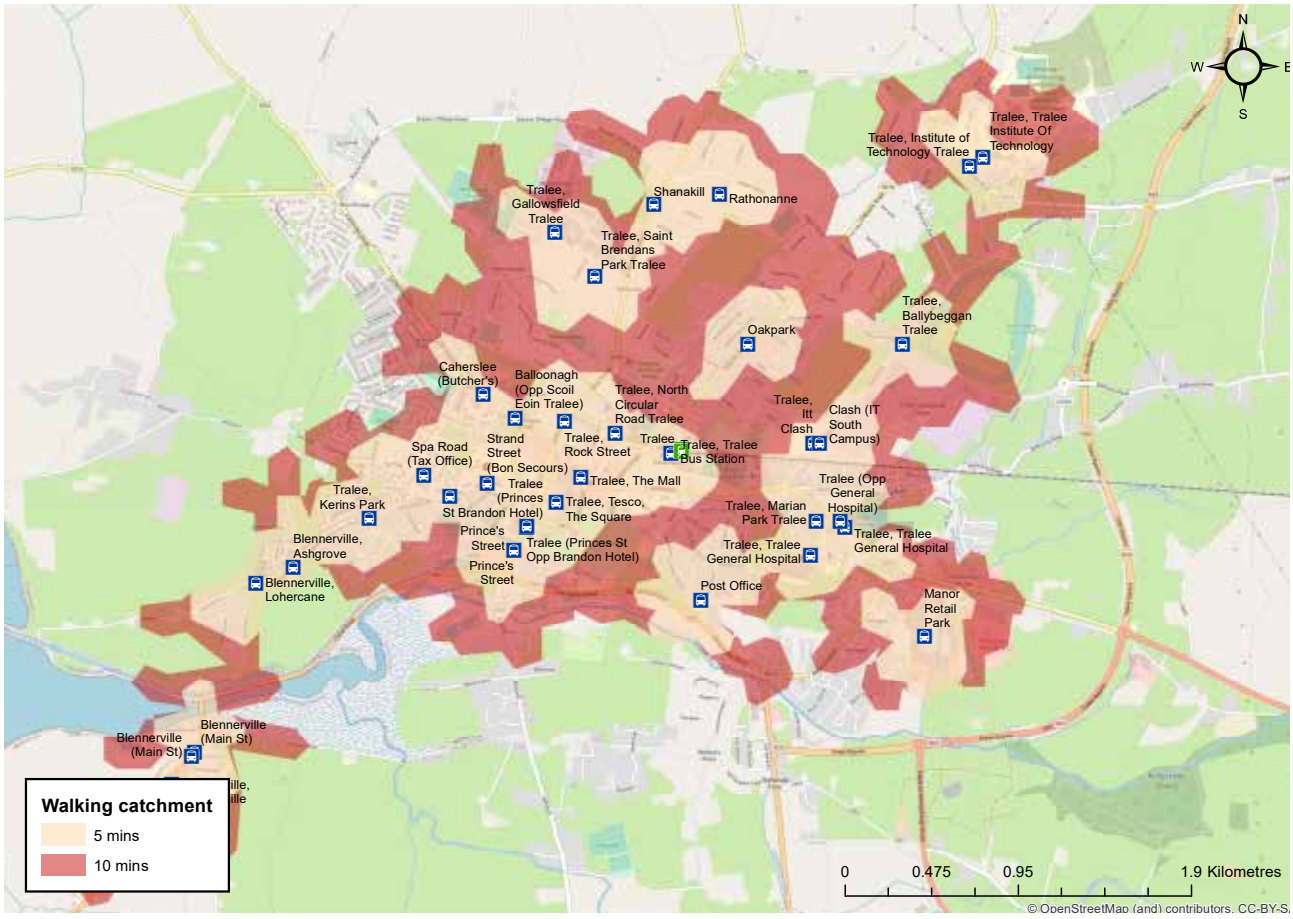


Figure 40: Tralee Catchment Analysis - Public Transport

4.4 Wider Public Transport Connectivity

The concept of a 10-minute town is important not only for those living and working within a given town, but also for facilitating access to public transport routes to a wider range of destinations. The three towns of Carlow, Ennis, and Tralee are each situated on national rail and bus routes, and convenient access for residents to these routes opens connections to a wider range of employment, services, and social and leisure activities in other towns and cities such as Cork, Limerick, Waterford, Kilkenny, Killarney, Galway, and Dublin. In addition, each town serves as a hub for its hinterland, and public transport routes between larger towns and their surrounding area can both open access to services and activities that are not available in the smaller towns and villages and facilitate onward connections to regional and national destinations.

4.4.1 Carlow

4.4.1.1 Rail

Carlow Railway Station is located at the junction of Railway Road and Saint Joseph's Road, approximately 1km to the northeast of the town centre. It is situated on the Dublin to Waterford line, which also passes through Athy, Muine Bheag, Kilkenny, and Thomastown.

"The three towns of Carlow, Ennis, and Tralee are each situated on national rail and bus routes,"

Services from Carlow are infrequent, with an hourly frequency at peak times and gaps of up to three hours between services during the day. The earliest arrival to Waterford from Carlow on weekdays is at 09:39, making the service impractical for commuting. Rail services also terminate relatively early, with the final train from Waterford to Carlow departing at 18:25 and the final service from Dublin at 20:15. Improvements to frequency and timetabling would improve Carlow's rail connectivity with the rest of the region.

Connections with the Dublin-Cork line are available at Kildare, and with the Waterford-Limerick line at Waterford. As relatively few intercity services stop in Kildare and only two services per day run on the Limerick-Waterford line, the actual potential for interchange is limited. Improvements to services on the Limerick-Waterford line and timetable adjustments to facilitate interchange between lines at Kildare would greatly enhance Carlow's connections with the wider region.

The rail service schedule for Carlow is presented in Table 1.

Table 1: Daily rail services, Carlow

Service	Mon-Thu	Friday	Saturday	Sunday
To Dublin	9	10	8	4
From Dublin	8	9	7	4
To Waterford	7	8	7	4
From Waterford	7	8	8	4

4.4.1.2 Bus

Most bus services connect Carlow to Dublin and Waterford at either end of the M9 corridor. Both Bus Éireann and JJ Kavanagh operate on the Dublin-Waterford route, with a total of 25 services daily. Year-round services exist to other destinations including Wexford, Port Laoise, Tullamore, Athlone, and Naas, although no more than three services per day run to any of these locations. Local Link run a number of demand-responsive services that connect Carlow with towns and villages in its hinterland, although their low frequencies restrict their usefulness to the general population.

Many more bus routes serve Carlow during the college term. Most of these connect Carlow, and Carlow IT in particular, with other parts of the southeast, while services to Limerick and Galway enable students in those cities to return to Carlow at weekends. These services are designed around the college calendar and timetable, and are thus of limited utility to the wider public.

The bus service schedule for Carlow is presented in Table 2

Table 2: Daily bus services, Carlow

Operator	Route	Mon-Thu	Friday	Saturday	Sunday
Bus Éireann	4, Dublin-Waterford	9	9	9	9
Bus Éireann	X4, Dublin-Waterford-New Ross	3	3	3	3
Bus Éireann	73, Waterford-Kilkenny-Carlow-Port Laoise-Tullamore-Athlone	2	2	2	2/1
JJ Kavanagh	736, Dublin-Carlow-Waterford	13	13	13	13
JJ Kavanagh	*736A, Carlow-Naas	3	3	-	-
JJ Kavanagh	*825, Carlow-Port Laoise-Abbeyleix	2	2	-	-
JJ Kavanagh	*873, Kilkenny-Muine Bheag-Carlow	2	2	-	-
JJ Kavanagh	*874, Carlow-Tullow-Hacketstown	2	2	-	-
JJ Kavanagh	*ITC4, Carlow-Portarlington-Mountmellick	1	1	-	-
JJ Kavanagh	*ITC5, Carlow-Monasterevin-The Curragh	1	1	-	-
JJ Kavanagh	*N12, Kilkenny-Carlow-Naas-Maynooth	2/3	2/3	-	-
JJ Kavanagh	*C204, Galway-Kilkenny-Carlow	-	1/-	-	-/1
JJ Kavanagh	*CRLM – Limerick-Kilkenny-Carlow	-	1	-	1
Local Link	**400, Carlow-Hacketstown	1 (Wed)	-	-	-
Local Link	**469/473, Carlow-Graiguecullen	2 (Thu)	1	-	-
Local Link	**481, Carlow-Borris-Graiguenamanagh	1 (Mo/We)	-	-	-
Local Link	**484, Carlow-Tullow-Bunclody	1 (Thu)	1	-	-
Local Link	**487, Carlow-Bilboa-Killeshin	1 (Mon)	-	-	-
Local Link	880, Carlow-Kilcullen-Naas	3	3	-	-
Wexford Bus	376, Wexford-Carlow	2	3	2	1
Dunnes Coaches	*Carlow IT-Gorey	1	1	1	1
Dunnes Coaches	*Carlow IT-Kilkenny	1	1	1	1
Dunnes Coaches	*Carlow IT-Wexford	-	1	-	1

Note: values with a slash (/) indicate different numbers of services in the inbound and outbound directions
* College term only

** Demand responsive

4.4.2 Ennis

4.4.2.1 Rail

Ennis Railway Station is located adjacent to the Quin Road, approximately 1km to the southeast of the town centre. It is situated on the Limerick to Galway line, which also passes through Sixmilebridge, Gort, Ardrahan, Craughwell, and Athenry.

Services from Ennis are infrequent, with services running at approximately two-hour intervals during the day. Rail services also terminate relatively early, with the final train from Galway to Ennis departing at 18:40 and the final service from Limerick at 20:30. Improvements to frequency and timetabling would improve Ennis's rail connectivity with the rest of the region.

Connections are available with the Limerick-Ballybrophy line at Limerick, with the Dublin-Cork and Limerick-Waterford lines at Limerick or Limerick Junction, and with the Dublin-Galway line at Athenry. As frequencies on the Limerick-Waterford and Limerick-Ballybrophy lines are limited to two to three services on weekdays, and line speeds on both are low, rail connectivity from Ennis to many parts of the region is limited. Improvements to services on the Limerick-Waterford and Limerick-Ballybrophy lines and timetable adjustments to facilitate interchange between lines at Limerick and Athenry would greatly enhance connections between Ennis and the wider region.

The rail service schedule for Ennis is presented in Table 3.

Table 3: Daily rail services, Ennis

Service	Mon-Thu	Friday	Saturday	Sunday
To Limerick	9	9	9	9
From Limerick	9	9	9	8
To Galway	5	5	5	4
From Galway	5	5	5	4

4.4.2.2 Bus

Most bus services connect Ennis with destinations along the M18 corridor, including Shannon, Limerick, and Galway, as well as Dublin and Cork beyond. National routes are operated by both Bus Éireann and Dublin Coach. A number of routes connect Ennis with other towns and villages in County Clare, including regularly-scheduled Bus Éireann services and demand responsive services operated by Local Link, although these services are very infrequent, and only three services operate more than once a day throughout the week.

The bus service schedule for Ennis is presented in Table 4.

Table 4: Daily bus services, Ennis

Operator	Route	Mon-Thu	Friday	Saturday	Sunday
Bus Éireann	51, Cork-Limerick-Shannon Airport-Ennis-Galway	15/14	15/14	14	14
Bus Éireann	333, Ennis-Ennistymon-Doonbeg	1	1	1	-
Bus Éireann	334, Ennis-Kilmaley-Crosses of Annagh	-	1	-	-
Bus Éireann	336, (Limerick)-Ennis-Kilrush-Kilkee	3	4/3	3	2
Bus Éireann	338, Ennis-Labasheeda	-	2/1	-	-
Bus Éireann	343, Limerick-Shannon-Ennis	18/17	18/17	17	9
Bus Éireann	343X, Limerick-Newmarket-on-Fergus-Ennis	1	1	-	-
Bus Éireann	348, Ennis-Feakle-Scariff	1 (Thu)	-	-	-
Bus Éireann	350, Galway-Ballyvaughan-Lisdoonvarna-Ennistymon-Ennis	5	5	5	5
Dublin Coach	300, Dublin-Limerick-Ennis	18	18	18	18
Local Link	**C1, Ennis-Tulla-Scarriff-Feakle	3	3	3	-
Local Link	**C3, Ennis-Doonbeg-Kilkee-Kilrush	2/1	2/1	-	-
Local Link	**C4, Ennis-Newmarket on Fergus-Shannon	3	3	-	-
Local Link	**C6, Ennis-Kildysart	1	1	-	-
Local Link	**C9, Ennis-Quin-Feakle	-/1 (Thu)	-	-	-
Local Link	**C11, Flagmount-Feakle-Tulla-Ennis-Corofin	-	-	1	-
Local Link	**C12, Ennis-Miltown Malbay-Corofin	-	-	1	-
Local Link	**C12, Ennis- Corofin	-	-	2	-

Note: values with a slash (/) indicate different numbers of services in the inbound and outbound directions
** Demand responsive

4.4.3 Tralee

4.4.3.1 Rail

Tralee Railway Station is located on John Joe Sheehy Road, approximately 600m to the northeast of the town centre. It is the terminus of the Tralee to Mallow line, which also passes through Banteer, Millstreet, Rathmore, Killarney, and Farranfore.

Services from Tralee are infrequent, with services running at two hour intervals during the day. Rail services also terminate relatively early, with the final train from Tralee departing at 19:05 and the final service from Mallow at 21:17. Improvements to frequency and timetabling would improve Tralee's rail connectivity with the rest of the region.

Connections with the Dublin-Cork line are available at Mallow, and while interchange is generally required to proceed to Cork or Dublin a number of services run from Tralee directly to both cities. Additional connections to the Limerick-Galway, Limerick-Waterford, and Limerick-Ballybrophy lines are available from Limerick Junction, although limited frequencies, especially on the latter two lines, limit the potential for rail connectivity to the wider region. Improvements to services on the Limerick-Waterford and Limerick-Ballybrophy lines would greatly enhance connections between Tralee and destinations across the broader region.

The rail service schedule for Tralee is presented in Table 5.

Table 5: Daily rail services, Tralee

Service	Mon-Thu	Friday	Saturday	Sunday
To Mallow	8	8	8	7
From Mallow	8	8	8	7
To Dublin (direct)	1	1	1	3
From Dublin (direct)	1	1	1	2
To Cork (direct)	3 (2 on Mon)	3	2	3
From Cork (direct)	3	3	3	4

4.4.3.2 Bus

The majority of bus services serving Tralee connect the town with Limerick, Cork, Waterford, and Dublin. Bus Éireann operate routes to all of these destinations, while Dublin Coach operate a route to Dublin via Limerick. Bus Éireann and Local Link operate a number of routes connecting Tralee with other towns and villages in County Kerry, although only the routes to Killorglin and Dingle have a significant daily frequency.

The services to other towns and villages in the hinterland are very infrequent, and most do not run at the weekend. A town bus service, operated by Tralee People's Bus, runs on two routes within the town.

The service schedule is presented in Table 6. In addition to these routes, a small number of Local Link services run fortnightly or monthly between Tralee and destinations such as Knocknagoshel, Finuge, Beaufort, Moyvane, Brosna, Lixnaw, and Derrymore.

The bus service schedule for Tralee is presented in Table 6.

Table 6: Daily bus services, Tralee

Operator	Route	Mon-Thu	Friday	Saturday	Sunday
Bus Éireann	13, Limerick-Abbeyfeale-Listowel-Tralee	8/7	8/7	8/7	8/7
Bus Éireann	40, (Rosslare)-Waterford-Cork-Tralee	11	11	11	9
Bus Éireann	271, Tralee-Castleisland-Farranfore-(Killarney)	4	4	4/3	-
Bus Éireann	272, Tralee-Listowel-Ballybunion	3	3	3/2	-
Bus Éireann	273, Tralee-Camp-Castlegregory-Cloghane	-	2	-	-
Bus Éireann	274, Tralee-Ardfert-Ballyheigue	1/2	1/2	-	-
Bus Éireann	275, Tralee-Annascaul-Dingle	5	6/5	5	4
Bus Éireann	278, Tralee-Fenit	1/2	1/2	-	-
Bus Éireann	279, Tralee-Castlemaine-Killorglin	5/6	5/6	4/5	4
Bus Éireann	284, Tralee-Farranfore-Killarney	1/2	1/2	-	-
Bus Éireann	314, Limerick-Askeaton-Foynes-(Tarbert-Tralee)	-	1/-	-	-/1
Dublin Coach	300, Dublin-Limerick-Tralee	9	9	9	9
Local Link	283, Tralee-Farranfore-Currans-Tralee	2	2	2	-
Local Link	**R2, Tralee-Firies-Farranfore-Currow	1 (Tue)	-	-	-
Local Link	**R13, Tralee-Castlemaine-Inch	1 (Mon)	-	-	-
Local Link	**R17/S211, Tralee-Kielduff-Ballymac	1 (Tue)	1	-	-
Local Link	**R21, Tralee-Spa-Fenit	1 (Wed)	-	-	-
Local Link	**R22, Tralee-Ardfert-Ballyheigue-Kerry Head	1 (Mo/We)	1	-	-
Local Link	**R25, Tralee-Abbeydorney-Ballyduff	-	1	-	-
Local Link	**R26, Tralee-Ardfert-Causeway-Ballyduff	1 (Thu)	-	-	-
Local Link	**R27, Tralee-Ballybunion-Lisselton	-	1	-	-
Local Link	**R37, Tralee-Caherciveen-Ballinskelligs-The Glen	1 (Thu)	-	-	-
Local Link	**R39, Tralee-Abbeydorney-Kilflynn	-	1	-	-
Local Link	**R49, Tralee-Camp-Castlegregory-Brandon Point	1 (Mo/We)	-	-	-
Local Link	**R58, Tralee-Annascaul-Camp	-	1	-	-
Local Link	**R59a, Tralee-Curraheen-Derrymore	-	1	-	-
Local Link	**R72, Tralee-Ballyseedy-Ballymacelligott	-	1	-	-
Local Link	**S204, Tralee-Ardfert-Ballyheigue	1 (Wed)	-	-	-
Local Link	**C419, Tralee-Ardfert-Ballyheigue-Causeway-Ballyduff	1	1	-	-
Tralee People's Bus	290A, Tralee Town Service	10	10	10	-
Tralee People's Bus	290B, Tralee Town Service	10	10	10	-

Note: values with a slash (/) indicate different numbers of services in the inbound and outbound directions
** Demand responsive

SECTION 5

Accessibility Assessment and Recommendations

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5 Accessibility Assessment and Recommendations

Having conducted the baseline analysis discussed in Section 4 of this report, a range of accessibility constraints have been established. From the baseline information and catchment analysis of the three towns, there are common constraints that need to be addressed in order to achieve the 10 Minute Town concept.

There is generally a lack of direct walk/cycle access from residential estates to main roads. Generally, residential estates are separated from local and regional roads, either by fences or vegetation and therefore do not have direct access to footpaths and/or cycleways that are in place along these local and regional roads. Figure 41 below is an example of a residential estate (Southern Gardens) having no immediate walk/cycle access to Kilkenny Road in Carlow.

Figure 41: Example of residential estates with no direct access to local and regional roads in Carlow

Additionally, residential estates tend to be built separate from each other, as well as other services through the use of cul-de-sacs and fences, therefore residents do not have direct access to other areas.

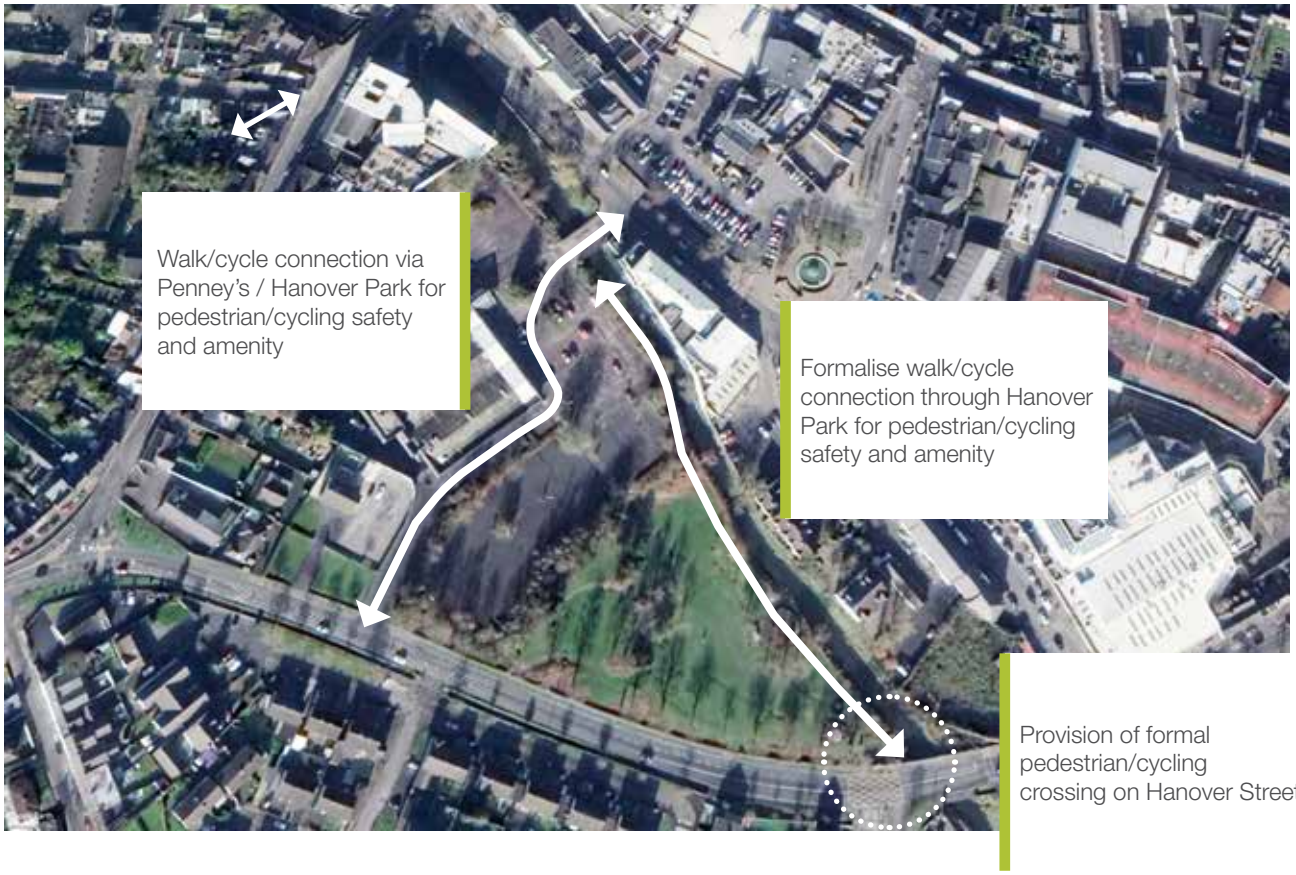
In the case of one example in Tralee, there are limited access points to the Fenit Greenway (shown in Figure 42), which means residential areas have accessibility issues between each other and limited access to safe pedestrian and cycle routes and leisure amenities.

Figure 42: Example of limited access points to Fenit Greenway in Tralee

Another constraint is the need to improve existing footpaths/walkways, not only for safety reasons, but also to encourage residents and visitors to walk within their 10-minute catchment rather than rely on cars. There is an opportunity to provide formal pedestrian/cycling facilities for residents/visitors to safely access services nearby.

An example is in Carlow where the catchment analysis indicated a gap between the residential housing south of Hanover Street to access Kennedy Avenue. Therefore, this issue may be solved by providing a formal pedestrian/cycle crossing on Hanover Street to lead through Hanover Park and Penney's carpark for pedestrian and cycling safety and amenity, as shown in Figure 43.

Figure 43: Example of an opportunity to provide formal walk/cycle connections in Carlow



Although almost all residents of the three towns have access to all services within a 10-minute cycle, census data indicate that only 1% of those working or studying in each town commute by bike. There is potential to promote cycling as a means of transport within the three towns, as well as providing adequate cycle facilities (such as new cycle lanes and secure parking) in order to assist in increasing the cycling demand in the three towns. However, the realisation of increased cycling will require the delivery of additional cycle infrastructure and possible introduction of additional demand management measures in the towns themselves.

It was observed that bus services tend to only cover specific corridors, as seen in the location of bus stops in the three towns. Therefore, the lack of bus service coverage limits the demand for residents to take public transport, as it would generally cater for residents who are within a 10-minute walk to the bus stop(s).

Additionally, bus services in the three towns are infrequent and the majority cater for regional services rather than local. Therefore, there is potential for new local bus routes and/or increases in frequency for existing routes. Based on consultation with Carlow County Council and Clare County Councils, they are currently planning new local bus services within the towns of Carlow and Ennis, respectively.

Another opportunity that may be considered is the provision of services, such as retail and healthcare, to cater for local needs. Provision of small shops (e.g. convenience stores), pharmacies, a local GP and dentist may assist the delivery of the 10-minute town concept without undermining the respective town centres.

Sections 5.1, 5.2 and 5.3 summarise the constraints and opportunities that have been established during the analysis and are supported by maps in Appendices D, E and F.

5.1 Carlow

Table 7 is a summary of the constraints and opportunities that were established in Carlow, following the baseline walk and cycling analysis. The map references for each item of constraint and opportunity can be found in Appendix D.

Table 7 - Carlow - Constraints and Opportunities

Constraint	Opportunity	Map Reference
Lack of direct accessibility from residential estates to main roads.	Provision of a connection to North Relief Road to follow desire lines. This would provide quicker access to retail services north of the residential area (e.g. Dunnes).	C1
	Provision of a connection to Dublin Road from residential area which is currently fenced.	C3
	Provision of walking and cycling connection(s) from residential estates to Eire Og Road.	C15
Lack of accessibility from residential areas to River Burrin (north)	Provision of connection(s) between residential streets along River Burrin Walk.	C2
Lack of formal pedestrian/ cycle crossings	Provision of a formal pedestrian crossing on Dublin Road for pedestrians to access the retail precinct south of the roundabout.	C4
	Provision of formal pedestrian/cycle crossing on Hanover Street. This includes a formalised walk/cycle path through Hanover Park for pedestrian/cycle safety and amenity.	C10
	Provision of formal crossings and signage to guide pedestrians to cross to the eastern side of College Street.	C6
Lack of direct accessibility NE and SW of Carlow Rail Station	Provision of walk/cycle connection between Green Lane and Carlow Station via Glendale Avenue.	C7
	Provision of walk/cycle bridge over the railway line between Glendale Avenue and St Joseph's Road.	C7
	Provision of accessibility between St Joseph's Road and Carlow College via north of Carlow Cricket Club.	C6
Lack of accessibility on Feltham Road and Monacurragh	Provision of a walk/cycle path along River Burrin between Feltham Road and Monacurragh.	C14
	Provision of a walk/cycle bridge to connect to the Green Recreational Route to the east of River Burrin.	C14

Constraint	Opportunity	Map Reference
Lack of access between residential estates and other services	Provision of a direct walk/cycle access to SuperValu from residential area.	C8
	Provision of a formal walk/cycle access between Riverside and Kennedy Avenue (near Hanover Park).	C10
	Provision of new links to Presentation College to residential estates on Sand Hill and Green Hills Estate.	C8, C11
	Provision of a connection between Browneshill Wood and Sand Hills.	C12
	Provision of a connection between The Orchards residential estates.	C16
Lack of connectivity south of Kilkenny Road to the town centre	Extension of cycle lanes between Burger King and immediately south of Carraig Abhainn.	C14
	Provision of walking/cycling access points from Southern Gardens to Kilkenny Road.	C14, C17
Lack of cycling connectivity to the outskirts of Carlow	Provision of walking and cycling facilities if the proposed Southern Relief Road and Eire Og Road proceeds.	C15
Lack of local bus services within the town	Investigation of potential local bus routes that would connect the local residents and businesses, particularly in locations where there is a lack of services, such as healthcare, education, retail and leisure.	N/A
Lack of small retail services in parts of the area	Provision of small retail facilities (e.g. corner shops) in areas where they are currently unavailable.	N/A
Lack of cycle usage in the town	Improvement of current and provision of future of cycling facilities throughout the town to encourage residents to use cycling as a mode of transport.	N/A
	Promotion of cycling use to residents as majority of services are within a 10-minute cycle.	
	Provision of secured cycle parking where there is a cluster of services, as well as near bus stops.	

5.2 Ennis

Table 8 is a summary of the constraints and opportunities that were established in Ennis, following the baseline walk and cycling analysis. The map references for each item of constraint and opportunity can be found in Appendix E.

Table 8 - Ennis - Constraints and Opportunities

Constraint	Opportunity	Map Reference
Lack of direct accessibility from residential estates to main roads and other services	• Provision of a walk/cycle link to green route from residential development on Ballycoree Road. • Provision of a direct connection from residential properties on Ard Caoin to Lidl. • Provision of steps linking Ashfield Park residential estate to Gort Road for direct access. • Provision of routes from residential estate on Aughanteeroe to a 'Green Route' along River Fergus • Provision an interconnection between 'Green Route' and Ennis National School to provide route choice and shorten walking distances. • Provision of widening of existing bridge on Drumcliffe Road for pedestrians and cyclists • Provision of additional walk/cycle connection between Cottage Gardens and Friar's Walk • Provision of connections between neighbourhoods in Cahercalla Estate and in Tobarteascain. • Provision of connections between residential neighbourhoods to the west of Limerick Road.	E4 E1 E1 E2 E3 E5 E12 E14 E17
Lack of green ways	• Provision of a green way along River Fergus • Provision of links to connect green way to residential areas	E7 E7
Lack of river connections	• Provision of a walk/cycle bridge between east and west of Inch River for direct accessibility, particularly to Scoil Chríost Rí.	E8
Lack of formal pedestrian/ cycle crossings	• Provision of zebra crossings in front of Ennis National School	E3
Parking transgressions	• Provision of policing of road in front of Scoil Chríost Rí to reduce parking transgressions • Provision of policing of parking on Carmody Street	E8 E12
Lack of pedestrian and/or cycling links	• Provision of a north-south extension of existing walkway long River Fergus to connect to bridge on Drumcliffe Road • Provision of cycle lanes on Gloughleigh Road • Extension of pedestrian linkage along the northern banks of River Fergus • Provision of pedestrian paths through St Flannan's College fields • Provision of a connection between Riverside and Springfield	E5 E8 E9 E14 E16

5.3 Tralee

Table 9 is a summary of the constraints and opportunities that were established in Tralee, following the baseline walk and cycling analysis. The map references for each item of constraint and opportunity can be found in Appendix F.

Table 9 - Tralee - Constraints and Opportunities

Constraint	Opportunity	Map Reference
Limited access to Fenit Greenway from adjacent residential areas	Provision of additional accesses to the greenway from Rock Park Avenue, Highfield Grove, Cahermoneen, Gort na Gréine, and Mounthawk Park.	T7, T12,
Few cycle facilities on roads connecting IT Tralee to the rest of the town	Provision of cycle facilities along Oakpark Road, Killeen Road, Clash Road, and Dromthacker Road, which would make sustainable travel to IT Tralee more feasible	T4, T8, T9, T14
Limited accessibility to University Hospital Kerry	Provision of pedestrian/cycle connections to/from University Hospital Kerry	T18, T23
Lack of accessibility between residential estates, particularly cul-de-sacs	Provision of pedestrian/cycling access by removing walls in between estates	T7, T8, T12, T27, T28, T29
Lack of cycle facilities in the town, those that do exist are discontinuous	Provision of a comprehensive cycle network in the town	N/A
No walk/cycle connection along River Lee east of Castlemaine Road	Extension of existing walk/cycle connection east of Castlemaine Road to Manor Avenue	T23, T28
The two local bus services in the town only operate hourly, and have indirect routes	Consider increasing the frequency of services, and modifying the routes to make services more direct	N/A

SECTION 6

Recommended Improvements Catchment Analysis

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6 Recommended Improvements Catchment Analysis

The recommendations for improved connections discussed in Section 5 were included in the street network to understand the changes between baseline and proposed walking and cycling catchments. It gives an understanding if the recommendations for improved connections would widen the overall walking and cycling catchments within the three towns due to improved permeability and accessibility.

It should be noted that the quantitative analysis showed negligible to minor changes in cycling catchment for both population and workplaces; however, this is primarily due to all three towns being generally within a 10-minute cycle to services, as discussed in Section 4.1.4.

The catchment analysis maps of the proposed improvement network for Carlow, Ennis and Tralee are in Appendix G, H and I.

6.1 Carlow

The 10-minute walking and cycling catchments would increase with the recommended improvement links in place throughout Carlow. These are illustrated in Appendix G. The additional connections surrounding Carlow Railway Station would increase the walking catchment for residents and visitors east of the railway line to access services in the town centre.

Additionally, the proposed connections (shown in Figure 44) between residential estates in Browneshill would improve the walking catchment of services, such as education (particularly to Presentation College), retail and leisure.

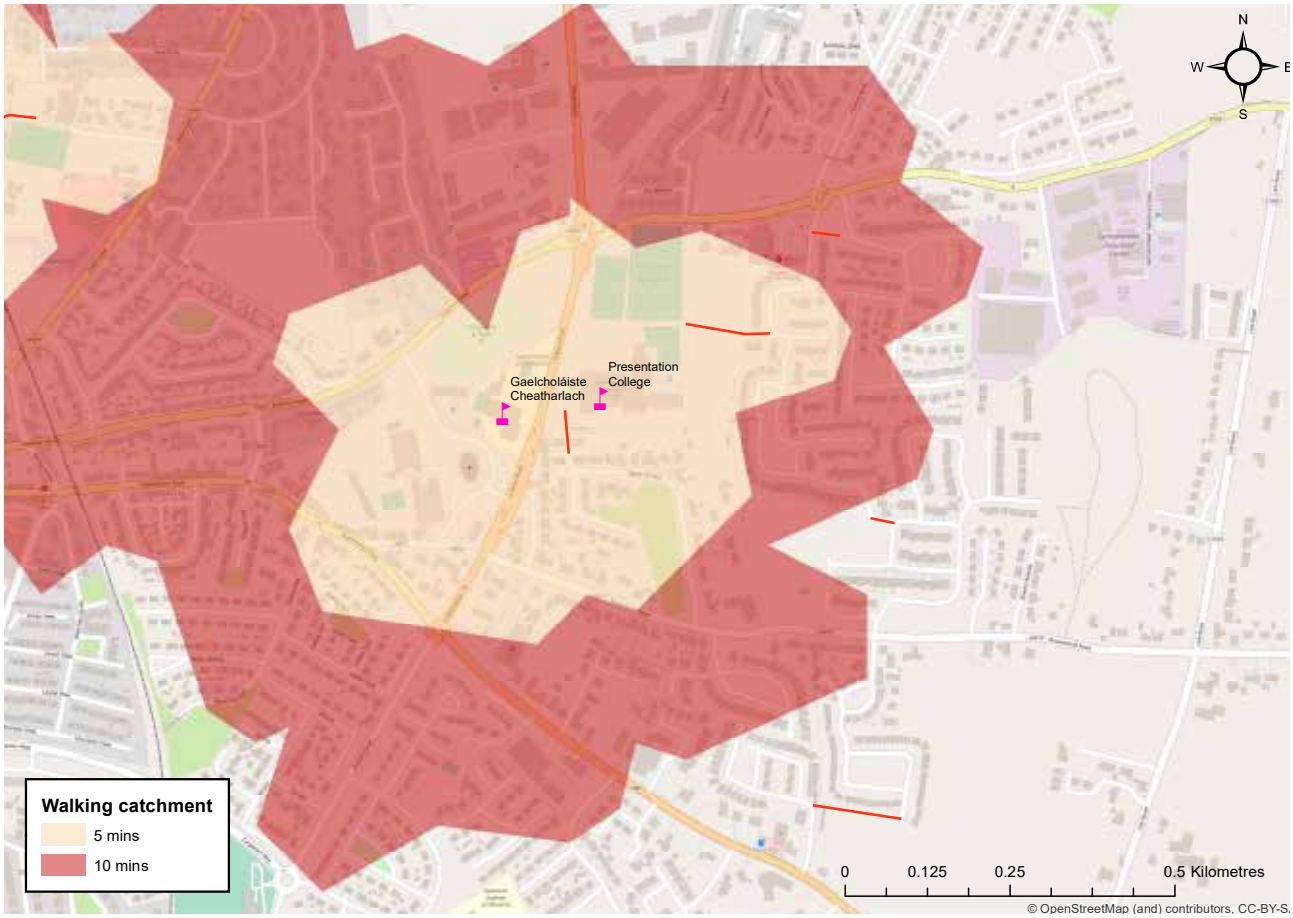

Figure 44: Proposed improvement connections to and from Presentation College

The 5 to 10-minute cycling catchment would improve with the additional links particularly southwest of the town, such as Willow Park, Poachers Gate and Tullow Road.

A quantitative analysis was undertaken to understand the difference in population and workplace between the baseline and proposed improvement catchments and this is summarised in Appendix J1.

The 10-minute walking catchment has the greatest potential for expansion of existing catchments to a wider population in Carlow, with increases of 14% and 10% for secondary schools and special school, respectively. The proposed improvements within close proximity to St Dympna's Hospital and Sacred Heart Catholic Hospital, particularly a new connection via Carlow Railway Station has the potential to expand the walking population catchment of hospitals by 8%. The potential expansion of the hospital services' walking catchment is shown in Figure 45.

Additionally, potential new connections via Carlow Railway Station show that workplace catchment for colleges would increase by 7%, together with hospitals and secondary schools, with increases of 5% each.

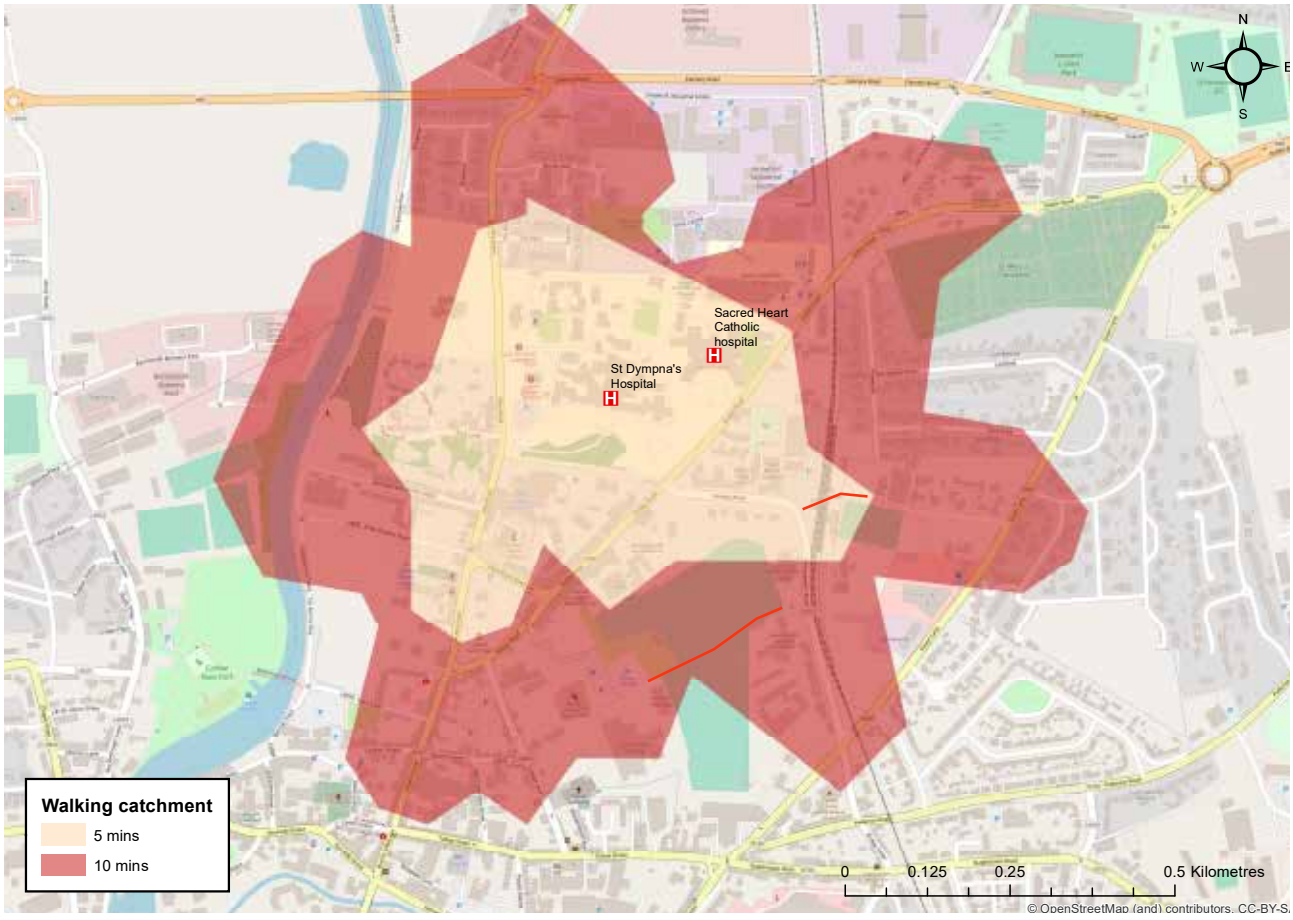

Figure 45: Potential expansion of walking catchment for hospitals with new connections around Carlow Railway Station

6.2 Ennis

The 10-minute walking and cycling catchments would generally expand with the proposed improvement links in place throughout Ennis. The catchment analysis maps for the proposed improvement connections are illustrated in Appendix H. Additionally, a quantitative analysis was undertaken to understand the difference in population and workplace between the baseline and proposed improvement catchments and they are shown in Appendix J2.

The proposed walk/cycle bridge over Inch River would bring the areas of Brookville and Dun Na Hinse to be within part of the 10-minute walking capacity for most services, particularly to Ennis Health Centre and Scoil Chríost Rí. This is illustrated in Figure 46.

The proposed connections between residential estates would increase the catchments. For example, the residential estates in College Green and The Hawthorn, south of Ennis would be within a 10-minute walk to retail services along Kilrush Road and Limerick Road.

Another example is the proposed walk/cycle bridge over the River Fergus to the east of Cusack Park. Certain service catchments would become available within 5-minute walk, instead of 10 minutes. As a result, Rice College would have better accessibility for residents south of the River Fergus, which would assist in increasing the population catchment for secondary schools by 5%. This is also reflected in Figure 47.

Additionally, the increase in population catchment for secondary schools is also due to the proposed formalised connection between St Flannan's College and Clonroadbeg (shown in Figure 48).

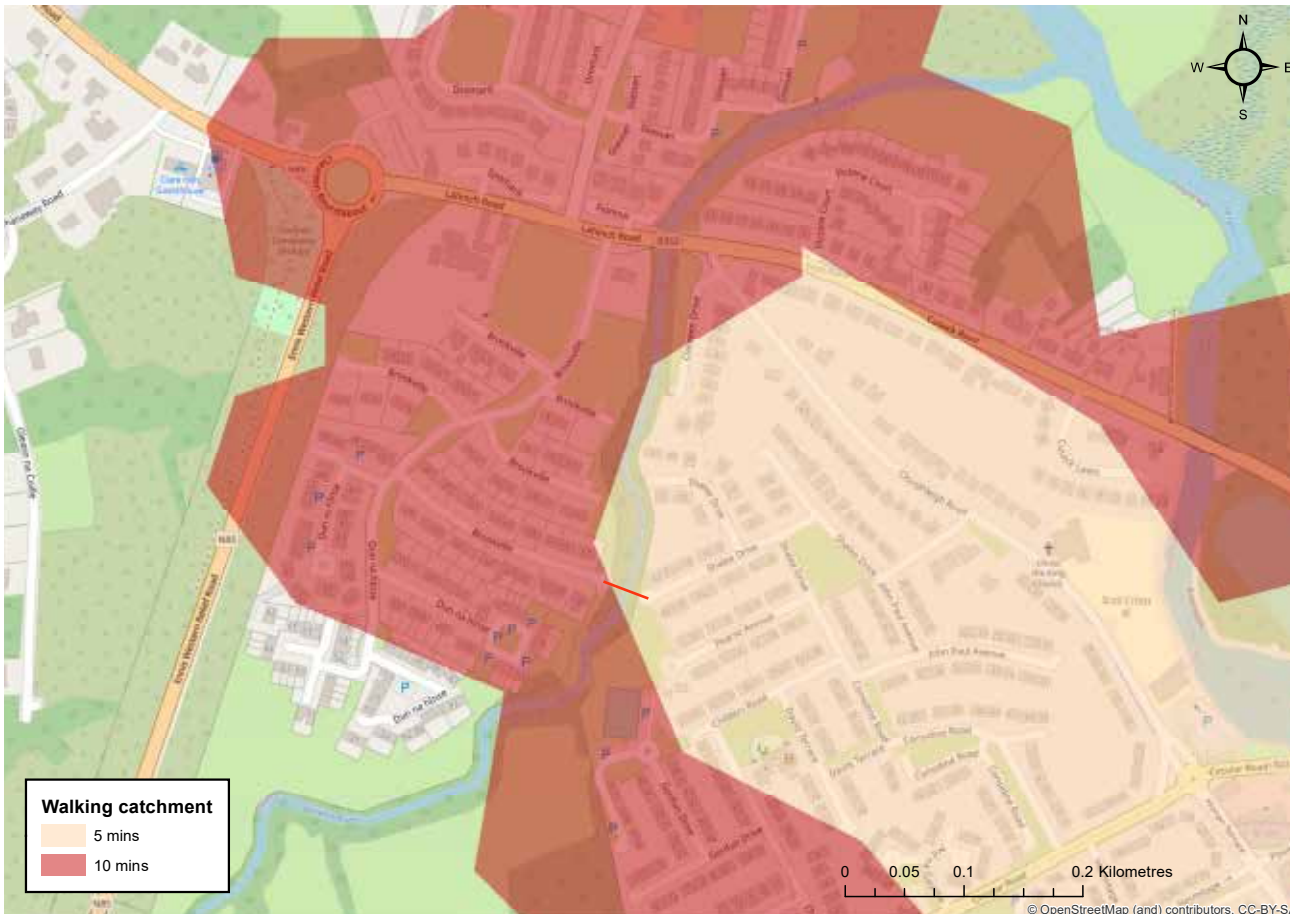

Figure 46: Expansion of walking catchment from residential estates to Chriost Ri Primary School

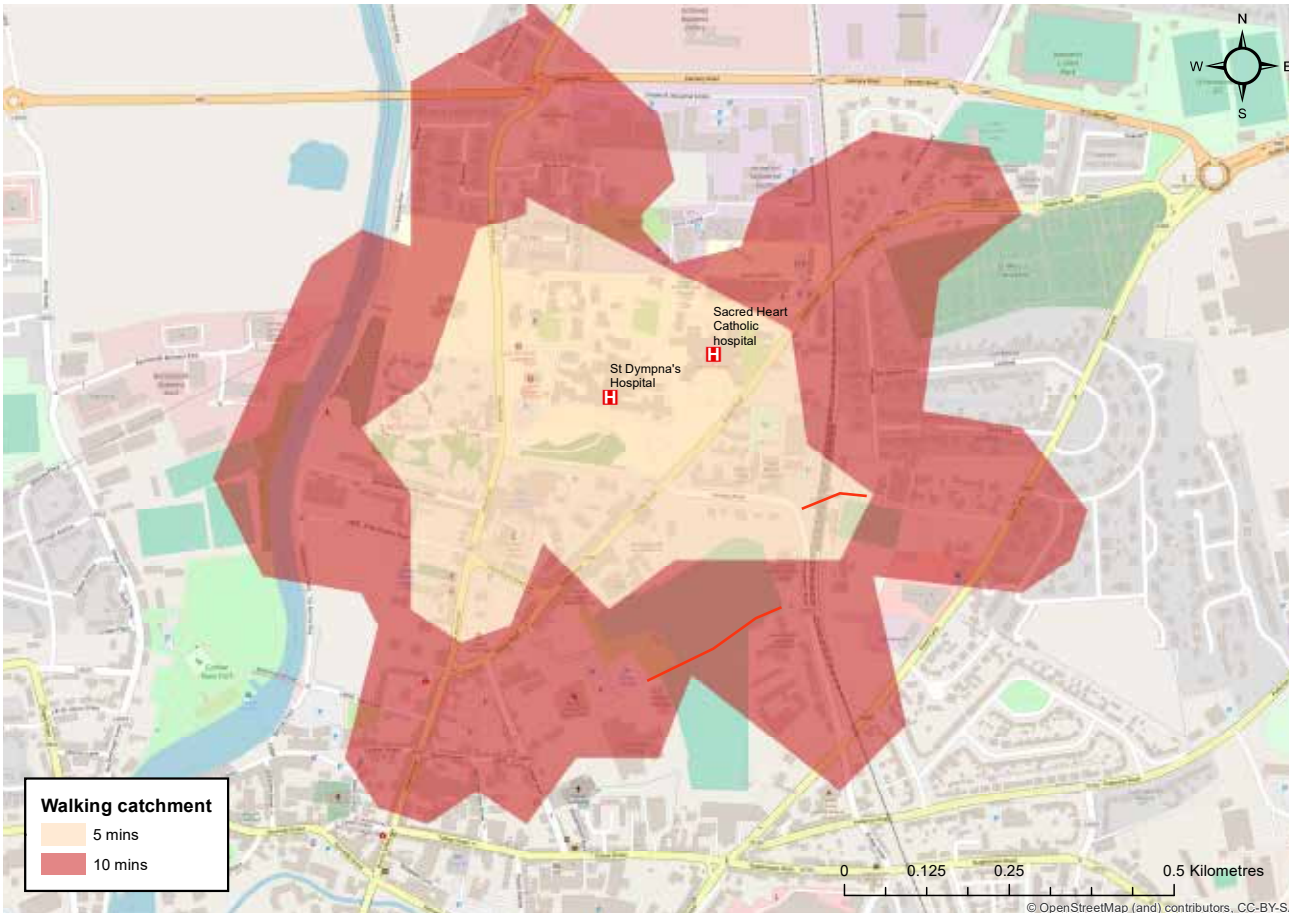

Figure 47: Secondary school proposed walking catchment

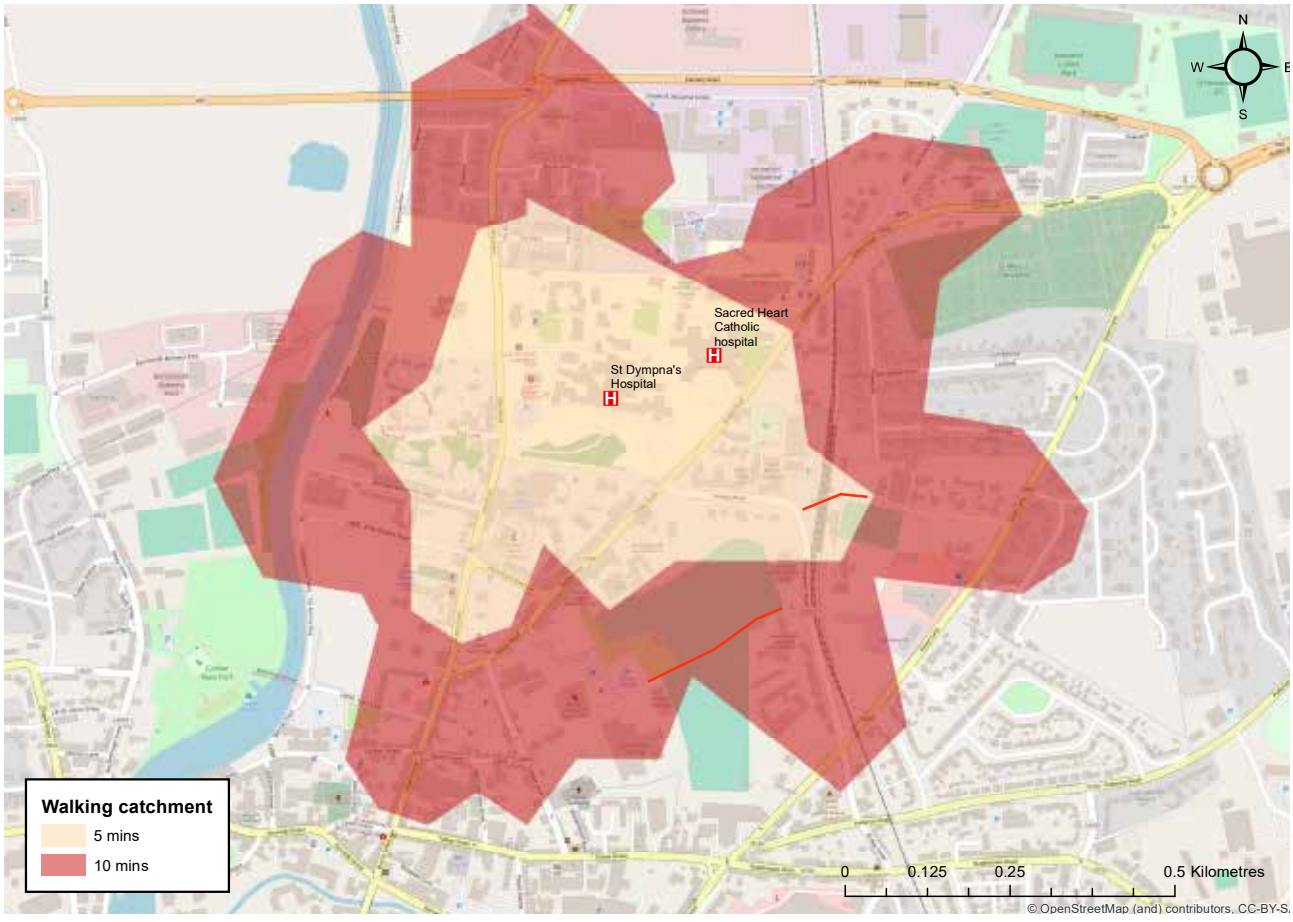

Figure 48: Expanded walking catchment around St Flannan's College

6.3 Tralee

The 10-minute walking and cycling catchments would expand with the proposed improvement links in place throughout Tralee. The catchment analysis maps for the proposed improvement connections are illustrated in Appendix I. Additionally, a quantitative analysis was undertaken to understand the difference in population and workplace between the baseline and proposed improvement catchments and they are shown in Appendix J3.

The proposed connections at University Hospital Kerry would result in improved walking and cycling accessibility to the hospital, but also to services such as retail and education. This illustrated by the potential increase in population and workplace catchment for hospitals with increases of 7% and 2%, respectively. This is reflected in Figure 49.

The additional connections from residential estates to Tralee to Fenit Cycle and Walkway would assist in increasing the walking catchment between these estates to services particularly leisure and healthcare (GP). This is illustrated in Figure 50.

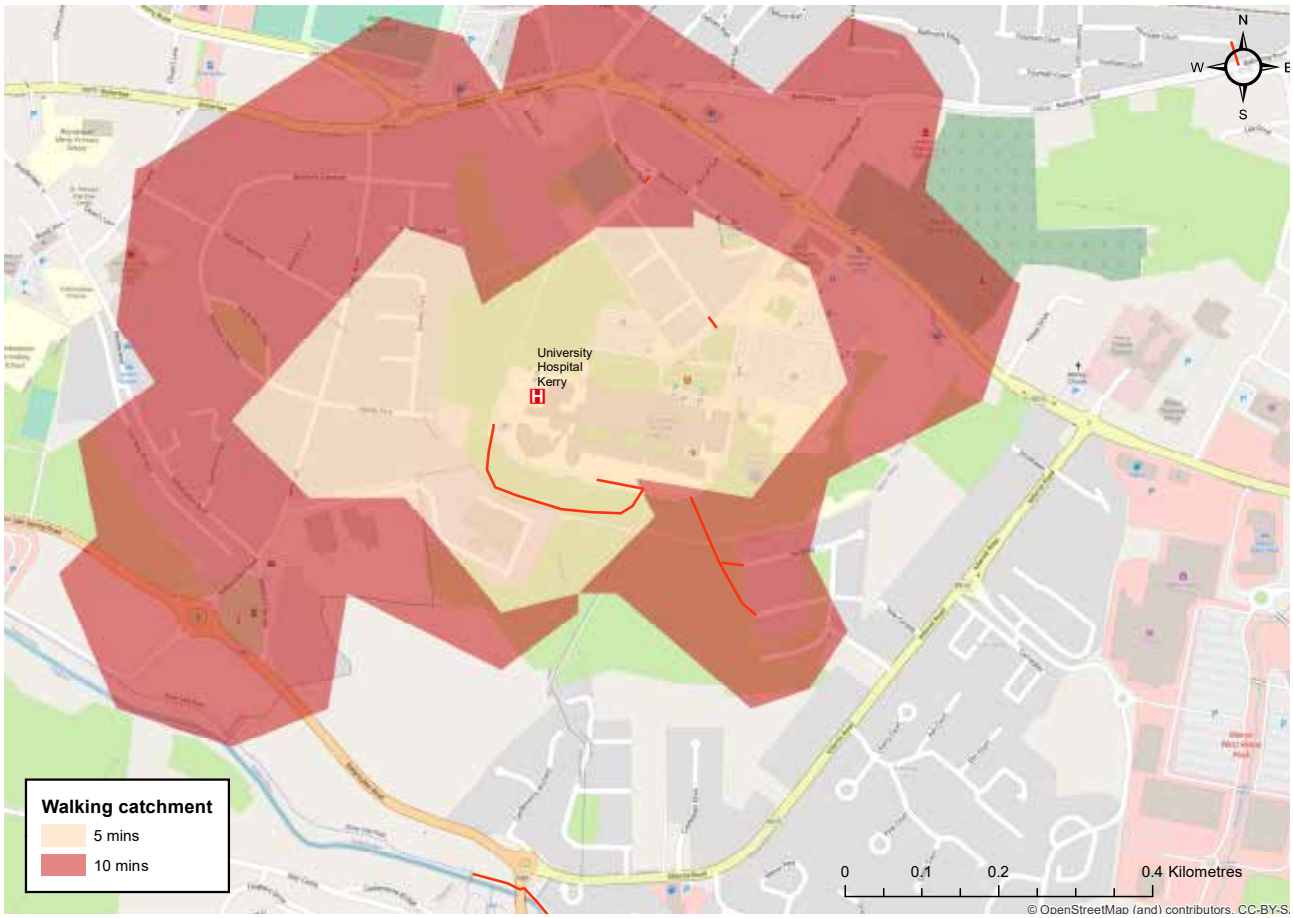

Figure 49: Potential expansion of walking catchment to and from University Hospital Kerry

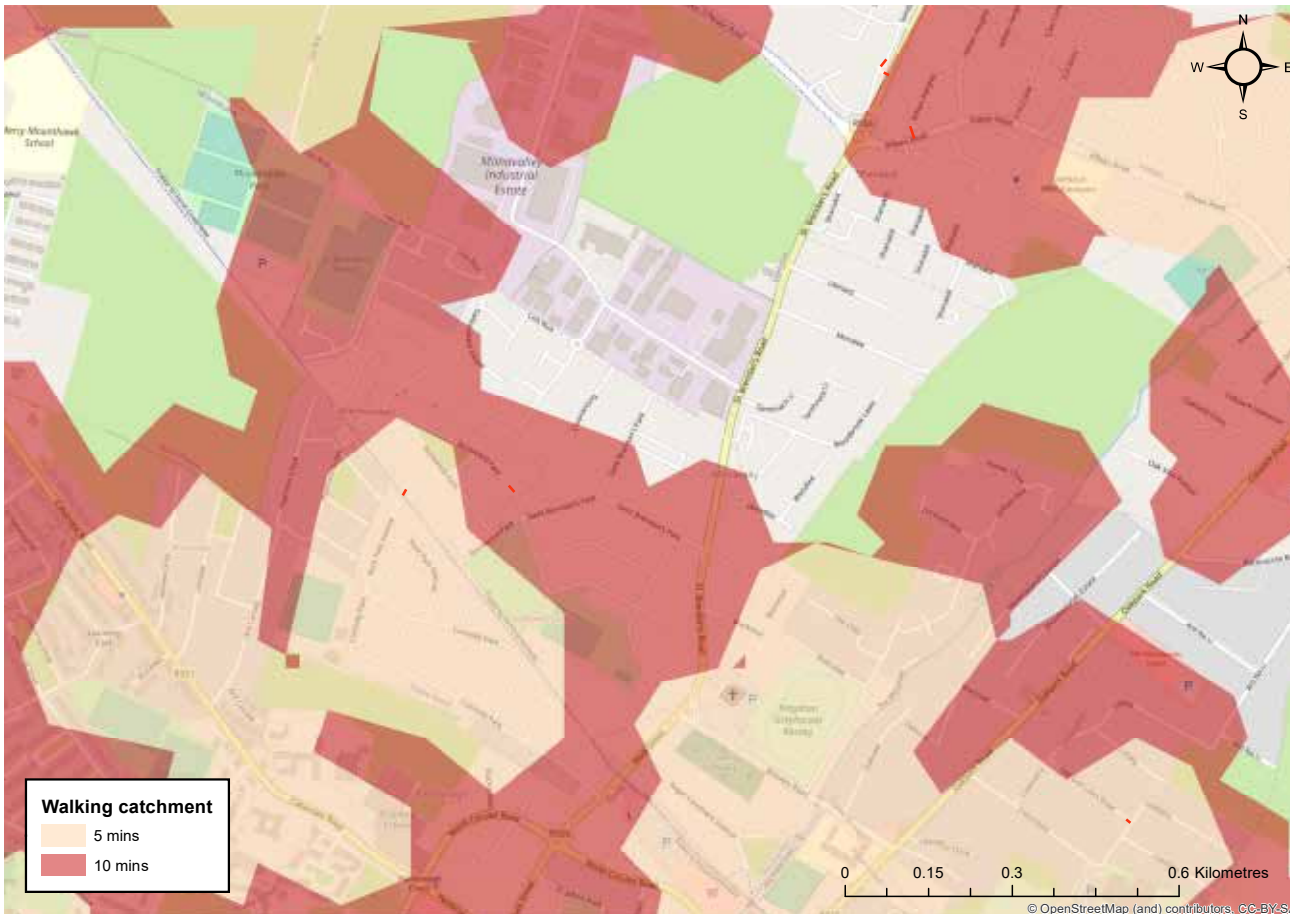

Figure 50: Potential expansion of walking catchment to and from residential estates to Fenit Cycle and Walkway

SECTION 7

10-Minute Town Framework

10 Minute Towns

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Carlow
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Stanton Road
Bus Stop
for L & D Hospital

7 10-Minute Town Framework

The overall aim of this study is to create a framework for and/or good practice guidance for mapping the '10 Minute Town' concept, which can be used by other towns to adapt the same concept. Therefore, through the analysis undertaken, a "10 Minute Town Framework" has been prepared to assist in in the implementation of RPO 176 "10-minute city and town concepts". This framework provides guidance for Local Authorities which can in turn be adapted to other towns.

7.1 Methodology

The methodology is divided into two main strands: establishment of baseline conditions; and accessibility and infrastructural requirements. The overall methodology of the implementation tool is illustrated in Figure 51 below.

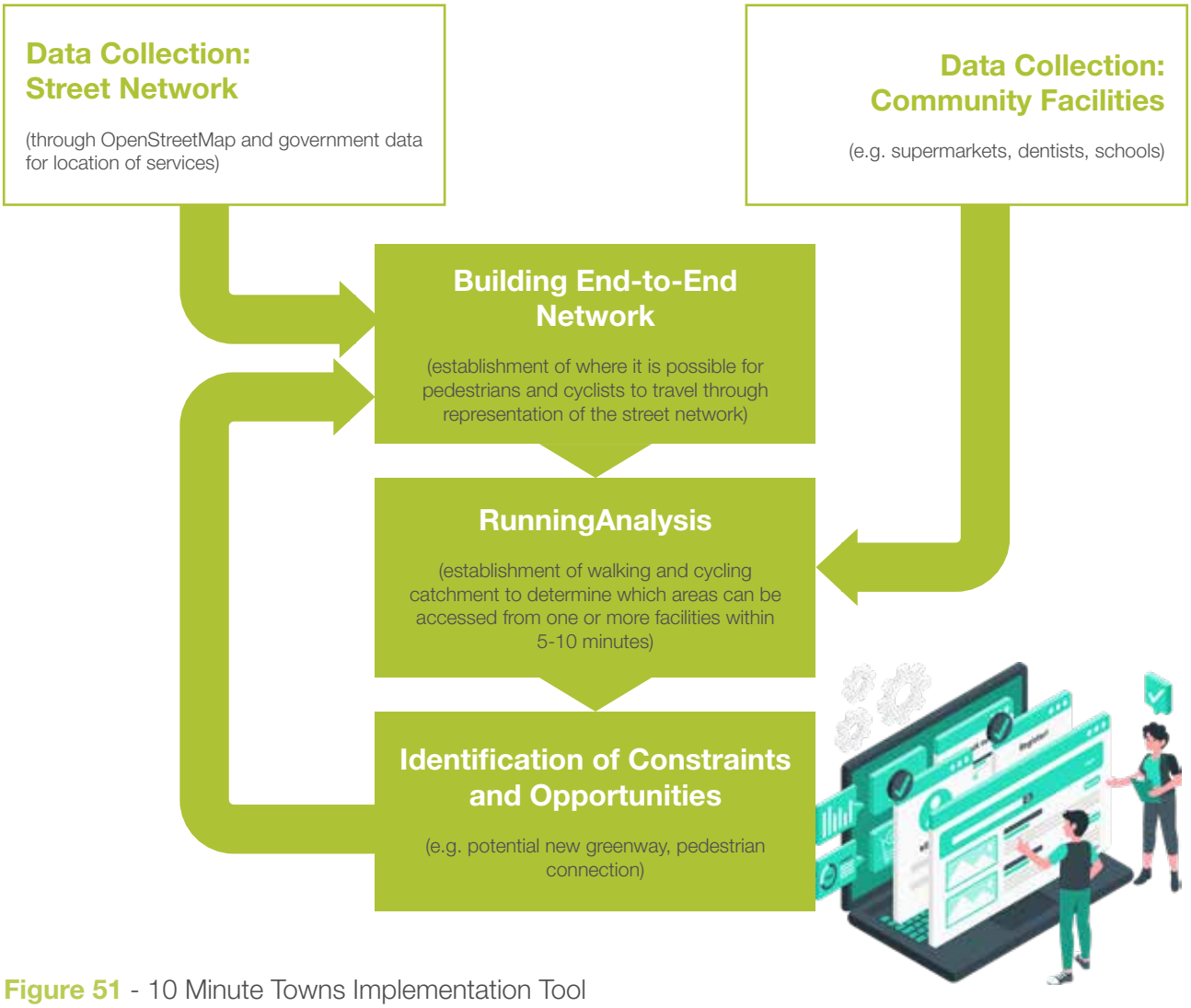

Figure 51 - 10 Minute Towns Implementation Tool

7.1.1 Data Collection and Validation

Two main pieces of geographic data are required to conduct the analysis, namely:

- The street network of the town; and
- The location of facilities in the town, such as healthcare, education, retail, public transport and leisure.

The analyses have indicated the key importance of obtaining comprehensive information for the existing street network and facilities in the town, as the desktop analyses were only based on information from government open data portal (i.e. data.gov.ie), as well as OpenStreetMap (OSM) data. It is important to obtain the most up-to-date data from site visits or from Local Authorities to compile robust data and avoid multiple updates of the street network and location of facilities.

If OpenStreetMap (OSM) is to be used for the existing street network, it is recommended that a detailed review of the network is undertaken through a combination of local knowledge, site visit(s) and desktop analysis (e.g. Google StreetView).

It is also important to obtain information on future infrastructure schemes for the town from sources such as local plans and county development plans. Adding future infrastructure schemes to the existing road network helps to inform understanding of the maximum potential that could be achieved for the 10-Minute Town concept.

7.1.2 Wider Public Transport Connectivity Analysis

The value of integrating analysis of public transport interchanges and connections to the wider region within the 10 Minute Town should be noted. It is important to understand the wider public transport connectivity as the concept of a 10-minute town is important not only for those living and working within a given town, but also for facilitating access to public transport routes to a wider range of destinations.

For example, the three towns of Carlow, Ennis, and Tralee are each situated on national rail and bus routes, and convenient access for residents to these routes opens connections to a wider range of employment, services, and social and leisure activities in other towns and cities such as Cork, Limerick, Waterford, Kilkenny, Killarney, Galway, and Dublin.

In addition, each town serves as a hub for its hinterland, and public transport routes between larger towns and their surrounding area can both open access to services and activities that are not available in the smaller towns and villages and facilitate onward connections to regional and national destinations.

7.1.3 Understanding Baseline Conditions

The study included an analysis of the baseline conditions which are as follows:

- Demographics (population and car ownership);
- Location of existing services (i.e. healthcare, education, retail, leisure and public transport);
- Current travel patterns (i.e. means of travel for the town); and
- Catchment analysis (i.e. 10-minute walking and cycling catchment for each existing service or facility).

The analysis above gives an understanding of the existing situation, as well as any trends in the town regarding demographics, travel patterns and walking and cycling catchment.

Additionally, it gives an indication of underlying issues that may act as a constraint to achieve the “10-Minute Town” concept. An example during the analysis was that Carlow appeared to have an adequate cycling catchment overall; however, census data showed that only 1% of the population travel by bike. Therefore, it appears that although the physical infrastructure may be adequate, there may be underlying issues that need to be addressed which may need potential interventions such as promotion of cycling usage in the town.

7.2 Geographic Information System (GIS)

It is recommended that Geographic Information System (GIS) is used in the analysis as mapping adds value to the study. The majority of work undertaken in this study was through the use of GIS, in which an end-to-end walking and cycling network was created from the polylines (street network) and points (location of facilities) collected for the study. The package used in this study was the Network Analyst extension within the Esri ArcGIS package.

7.2.1 Building a Routable Network

The routable network defines where it is possible to travel (indicated by the polylines representing streets), where it is possible to move between streets (indicated by the nodes where streets intersect), and how fast it is possible to move through the network (by defining an average speed for walking and cycling). Once these parameters are defined, the GIS package will be able to determine both the range that can be traversed and the time taken to do so within the extent of the network. Given that this is a pedestrian and cycle study, it is important to remove roads on which pedestrians and cyclists are not permitted (such as motorways) before creating the routable network.

It is also possible to include public transport accessibility in the routable network using timetable information in General Transit Feed Specification (GTFS) format, which is useful for locations with frequent public transport services.

7.2.2 Running the Catchment Analysis

Once the routable network has been created, the catchment analysis of facilities in the given town can be conducted. The points representing the facilities of interest are defined, and then the parameters for the catchment analysis are specified, such as the time intervals (5 and 10 minutes in this case) and the modes (walking and cycling). The analysis is then run, determining which areas can be accessed from one or more facilities within the given time interval by the given mode, and polygons representing the catchment are produced. These can then be inserted into maps for visualisation or used to calculate the number of people resident or employed within the catchment. The latter is conducted by using the catchment areas to clip 2016 Census data for Small Areas and Workplace Zones, available from the Central Statistics Office.

The catchment analysis will indicate areas of a town which are not within the catchment of facilities despite being close ‘as the crow flies’. These are areas where it is possible to improve accessibility by adding new links. Polylines representing these links can be added to the street network, and a new routable network can be created. The process can then be repeated to assess how the catchment of facilities improves with the addition of new links.

7.3 Incorporation of Good Practices

While the "10 Minute Town Framework" analysis presented in this document assists in identifying opportunities for increasing the permeability of a town, it is important to consider good practices in the design of new links to ensure that they are welcoming spaces. Guidance on how best to deliver new links in existing urban areas is set out in the document 'Permeability: Best Practice Guide' (National Transport Authority 2015)[1] and the Design Manual for Urban Roads and Streets (Department of Housing, Planning and Local Government 2019)[2].

Similar concepts have been outlined in many locations internationally, with the aim of creating more sustainable and vibrant communities with diverse land uses, discouraging short journeys by car, and reducing the negative impacts associated with car dependency such as pollution, unhealthy lifestyles, traffic collisions, and lengthy commuting times. Places investigating and adopting such strategies include Paris in France[3], Vitoria-Gasteiz in Spain[4], Ottawa in Canada[5], Portland in the United States[6], and Queensland in Australia[7].

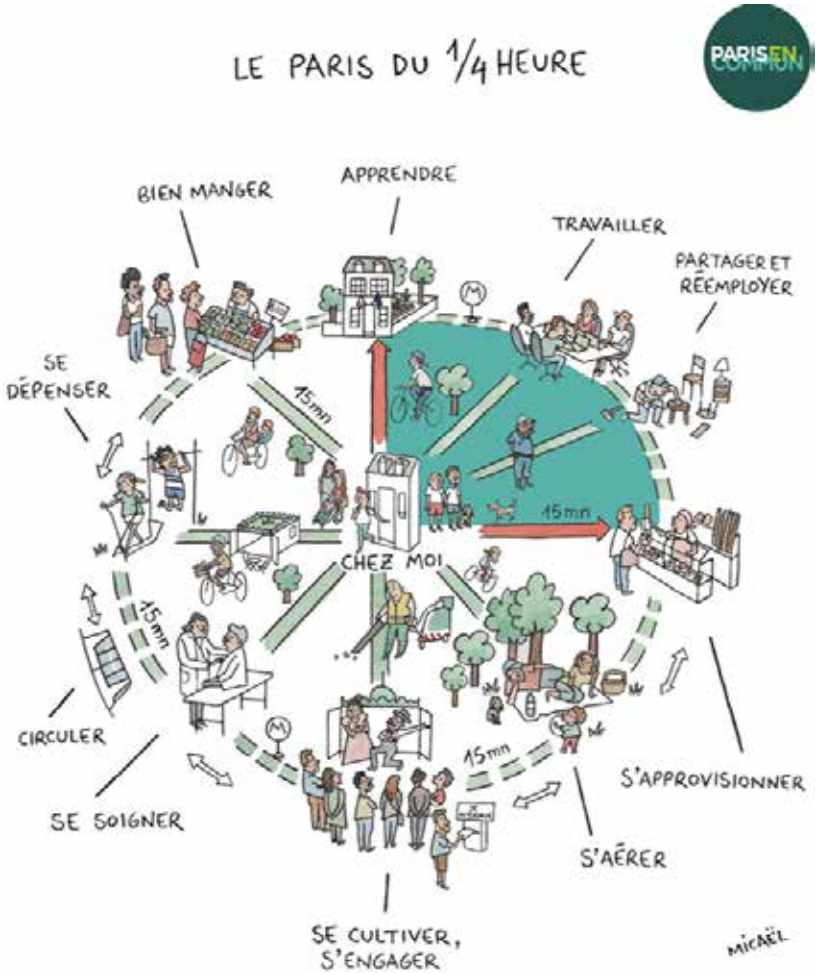

Figure 52: 15 Minute Town Concept, Paris (Paris en Commun 2020)

1. http://www.nationaltransport.ie/wp-content/uploads/2015/07/NTA_Permeability_Report_-_Web.08.2015.pdf
2. https://www.housing.gov.ie/sites/default/files/publications/files/design_manual_for_urban_ streets_version_1.1_low_res.pdf
3. https://annehidalgo2020.com/thematique/ville-du-1-4h/
4. https://www.vitoria-gasteiz.org/wb021/was/contenidoAction.do?lang=en&locale=en&idioma=en &uid=_5e2b2877_120d224e518__7fe7
5. https://engage.ottawa.ca/8204/documents/18759
6. https://www.portlandonline.com/portlandplan/index.cfm?a=288098&c=52256
7. https://dsdmipprd.blob.core.windows.net/general/model-code-for-neighbourhood-design.pdf

Among the key points to consider when implementing new links in existing urban areas are:

- Consultation with residents and local elected representatives, among others, to ensure support for interventions within the local community;
- Highlight reduction in journey times and distances to quantify the benefits of the intervention;
- New links should focus on pedestrians and cyclists, and in areas with potential for higher levels of cycle use, they should be sufficiently wide for the segregation of pedestrians and cyclists;
- Focus on areas with the maximum gain in permeability for the minimum degree of intervention. Consider locations where informal routes already exist, which are often impassable for people with impaired mobility;
- To mitigate anti-social behaviour, ensure new links are short, sufficiently wide, are overlooked, are well lit, and have clear sightlines. Good quality surfacing and landscaping should be used to enhance the attractiveness of the space, and regular maintenance should be carried out to ensure, for instance, that tree branches do not become an obstruction. Longer links should only be considered through open spaces.

Junction design should also cater to pedestrians and cyclists by, for example, avoiding wide-flared junctions, only using large multi-lane roundabouts where necessary, and carrying footpaths at-grade through minor road junctions.

Figure 53: Quantifying benefit of intervention (Design Manual for Urban Road and Streets 2019)

Figure 54: Regularising informal routes (Permeability: Best Practice Guide 2015)

Figure 55: Wide access to high-quality link (Permeability: Best Practice Guide 2015)

7.4 Common Trend in Constraints

Throughout the analysis, it was found that there is a common trend in constraints, which are as follows:

Lack of direct walk/cycle access from residential estates to local and regional roads, thus limiting their connectivity between important education, employment, leisure, healthcare and retail services;

- Severance between residential estates (e.g. cul-de-sacs and fences);
- Low cycle usage from census data;
- Bus services are generally limited (e.g. infrequent and does not cover parts of the towns) and tend to only cover specific corridors within the towns;
- Poor infrastructure, particularly for cycling; and
- Lack of services, particularly on the outskirts of the towns.

Therefore, for future "10-Minute Town" concept analyses, the main challenges above may help at the early stage to establish supportive measures which can be undertaken to achieve change or improvements. Proactive initiatives by Local Authorities, transport stakeholders and communities to market a town's improved walking, cycling and public transport facilities and initiatives that promote the benefits of 10-minute towns for place-making and a high-quality of life offer within a town could assist awareness and modal change.

SECTION 8

Conclusion

10 Minute Towns

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8 Conclusion

The "10 Minute Town" concept is about creating connected communities – understanding how our neighbourhoods work and to map out how a more compact and permeable urban form can provide high quality and safe links to public transport, shops, services, green spaces and to other neighbourhoods. This will in turn reduce the need to travel by car and therefore reduce carbon emissions.

An implementation tool was used to assess the three towns – Carlow, Tralee and Ennis to identify the existing walking and cycling catchment to different services. A variety of constraints were identified for the three towns which are potentially the reasons why services/facilities cannot be accessible within 10-minutes. It was found that there is a common trend in constraints, which are as follows:

- Lack of direct walk/cycle access from residential estates to local and regional roads, thus limiting their connectivity between important education, employment, leisure, healthcare and retail services;
- Severance between residential estates (e.g. cul-de-sacs and fences);
- Low cycle usage from census data (1% mode share for each of the three towns);
- Bus services are generally limited (e.g. infrequent and does not cover parts of the towns) and tend to only cover specific corridors within the towns;
- Poor infrastructure, particularly cycling; and
- Lack of services, particularly in the outskirts of the town centres.

Through this, a range of recommended improvement schemes were identified which would assist in increasing the 10-minute catchment areas in the three towns. Some of the recommended improvements include:

- Provision of walk/cycle bridges across rivers to connect areas currently deprived of services;
- Provision of connections between residential estates, for example, through knocking down walls and fences, as well as providing paths between cul-de-sacs;
- Provision of connections to existing walking and cycling facilities;
- Improvement to bus services with provision of local services within the town, increase in frequency and widening the public transport catchment through additional bus stops and new bus services.

The recommended physical improvements incorporated in the implementation tool and results have shown that the walking and cycling catchment areas for most services could be increased.

It is important to note that infrastructure interventions alone will not necessarily result in improved sustainable mobility. The baseline catchment analysis has shown that almost all towns are within a 10-minute cycle to services and yet census data indicate that only 1% of those working or studying in each town commute by bike.

A range of supporting initiatives to change travel behaviour, such as, promotion of the use of new walking and cycling routes, such as public awareness campaigns and increased use of wayfinding and signage will be needed for a greater uptake in using the physical infrastructure. Therefore, there is a need for a twin track approach to support the provision of facilities (e.g. new cycle lanes and secure parking) and the promotion of the use of sustainable modes of transport to the residents and visitors of the three towns.


ALLEN GARE
THE GOOD GUYS
DISCOUNT WAREHOUSES
THE GOOD GUYS

Tionól Réigiúnach an Deiscirt
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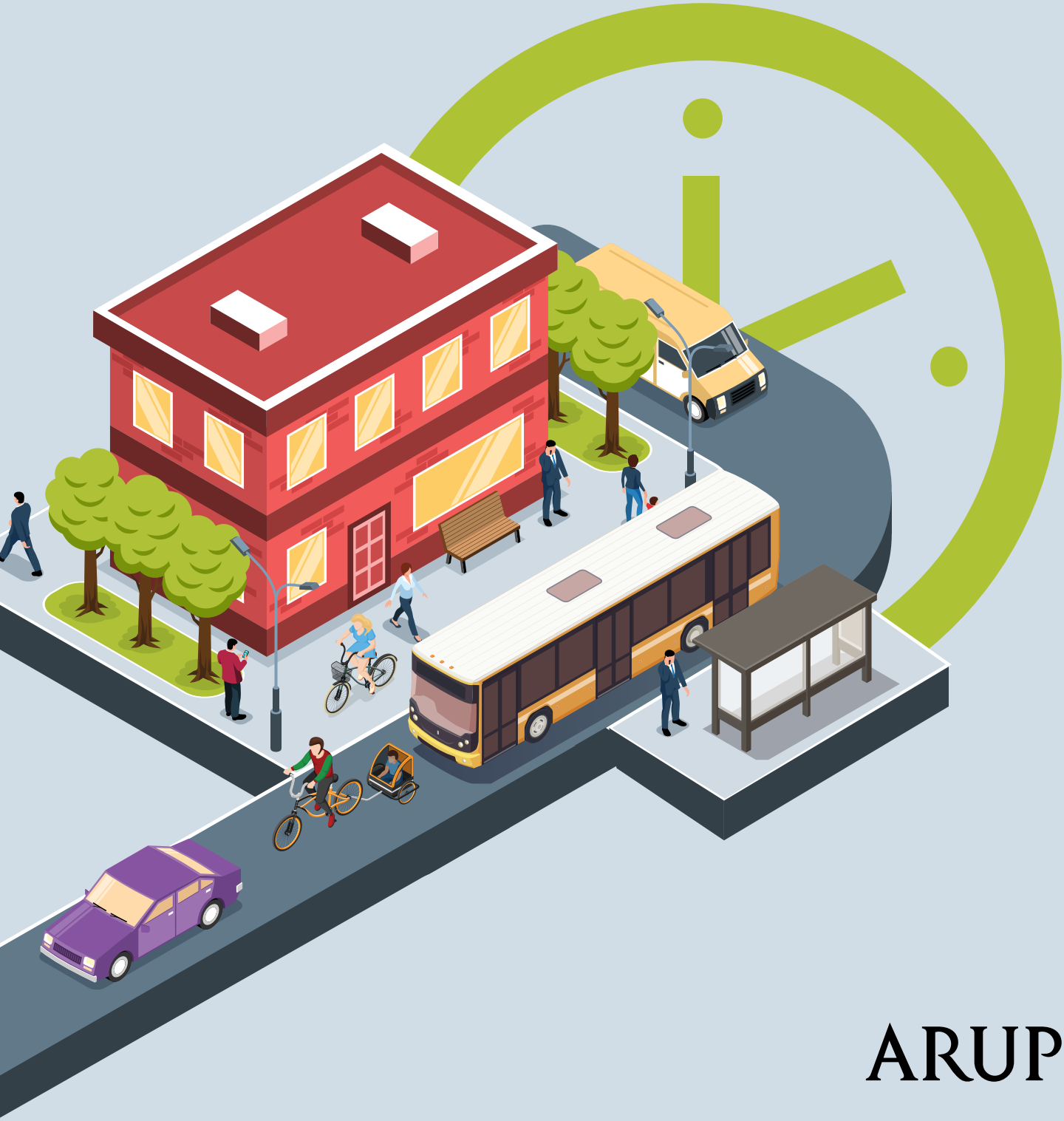

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