

Cork County Council

Carrigaline Phase 1B

Part 8 Planning Report

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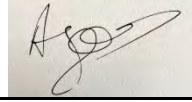

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1. Introduction

1.1 Objective of Report and Scheme Overview

The Carrigaline Transportation and Public Realm Plan (TPREP) has been prepared by Cork County Council to provide the framework for an integrated transport network for Carrigaline with the purpose of rejuvenating the town centre, improving and encouraging a significant increase in the number of people using sustainable modes of transport and enhancing cycle and pedestrian amenities for residents.

Carrigaline TPREP is an integrated transportation framework focused on addressing the transportation infrastructure and public realm enhancement required to support the sustainable development of the town. This plan was developed in 2020 and 2021 and was endorsed by the Elected Members at the Carrigaline Municipal District meeting on 19 July 2021.

This report represents the Part VIII Planning Report for the second implementation phase, Phase 1B, which includes Strand Road, Rose Hill, Ballea Road, Church Road and Lower Kilmoney Road. The objective of the report is to provide background to the project, outline the extent of the scheme and to provide a brief summary of accompanying documentation and drawings.

The combined works included for in Phase 1B will provide enhanced connectivity between the town centre and the residential areas in the surrounding Carrigaline area. It allows for attractive routes for pedestrians and cyclists between residential estates, schools and the town centre creating the change needed in Carrigaline to deliver on the sustainable transport vision for the town.

Some of the benefits of the scheme includes:

- Better connection between residential estates, schools and the town centre, reducing the need for car journeys;
- Encouraging sustainable modes of transport by expanding high quality walking, cycling and public transport routes and improve the priority of these transport modes in Carrigaline;
- Reduction of the dominance of the car on Main Street and providing a safer pedestrian and cycling environment in the heart of the town;
- Introduction of native trees and pollinator friendly green space; and

1.2 Part 8 Documents

The following is a list of documents and drawings contained in the Part 8 Planning application:

- Carrigaline Transportation and Public Realm Plan;
- Appropriate Assessment Screening Report;
- Environmental Impact Assessment Screening Report;
- Ecological Impact Assessment;
- Planning Report;
- Photomontages;
- Site Notice; and
- Press Notice.

1.3 Inspection of Plans and Particulars

Plans and particulars of the proposed development are available for inspection and/ or purchase for a fee of €15 per set from November 10th, 2023 until December 8th, 2023 between the hours of 09:00 to 17:00 at the following venues:

- Planning Counter, Ground Floor, County Hall, Cork;
- Carrigaline Municipal District Office, Church Road, Carrigaline Middle, Carrigaline, Co. Cork P43 E281

A virtual exhibition will be available online November 8th, 2023 until December 8th, 2023. This will provide the general public with access to view the plans and documentation in an exhibition-style setting. The link for the virtual exhibition is:

<https://www.corkcoco.ie/en/planning/traffic-transport/statutory-processes>

1.4 Submissions and Observations

Submissions or observations with respect to the proposed development may be made on or before 5pm on Friday December 22nd, 2023 as follows:

- Online at Cork County Council's website at www.yourcouncil.ie or
- In writing clearly marked: Part 8 CTPREP - Phase 1b, Senior Engineer, Traffic and Transportation, Cork County Council, Floor 3, County Hall, Carrigrohane Road, Cork, T12 R2NC.

It should be noted that the Freedom of Information Act applies to all records held by Cork County Council.

2. Background

2.1 Carrigaline Transportation and Public Realm Enhancement Plan

The Carrigaline TPREP is a strategic transportation plan for the town which outlines the required infrastructure to encourage more walking, cycling and public transportation use. The vision of the TPREP is to provide a framework for an integrated transport network for Carrigaline with the purpose of rejuvenating the town centre, enhancing cycle and pedestrian amenities for residents and promoting connectivity with surrounding destinations by sustainable travel modes.

The vision will be achieved by:

- Creating an attractive town centre and reducing the presence of cars in the centre of the town;
- Developing a transport hierarchy focussed on pedestrians, cyclists and public transport;
- Connecting schools, the town centre and other community facilities to residential areas with a comprehensive active mode network;
- Providing routes on the outskirts of towns to accommodate vehicular traffic, and
- Reducing the volume of traffic on Main Street.

The starting point in the development of the Carrigaline TPREP was to review the existing travel patterns, identify the available transport infrastructure within and serving the town and identify opportunities for enhancement particularly with respect to public realm. In conjunction, with this existing information, future travel demand projections were made based on national policy expectations and existing trends. A local traffic model, based on the National Transportation Authority's South Western Regional Model (SWRM) was developed to represent future year travel patterns.

The above base information was used to develop an understanding of current transportation issues, along with future constraints and opportunities. While travel demand is expected to grow over the next two decades, it was identified that the current, high vehicle reliance is not sustainable and that change in travel modes will need to be adopted in Carrigaline to ensure future mobility is maintained in and through the town.

The Plan developed eight transport strategy options. Each strategy included enhancements for pedestrians, cyclists and public transport users in Carrigaline.

The transportation strategy options were assessed individually based on established key criteria to allow a comparison between the options and to identify an emerging preferred transportation strategy. This strategy was further developed to include additional detail with respects to active and sustainable modes.

The emerging preferred transportation strategy as identified in the Carrigaline TPREP included an elaborate pedestrian and cycle network divided into ‘strategic’, ‘primary’, ‘secondary’ and ‘feeder’ routes. This strategy also included traffic management measures on Main Street to reduce the impact traffic has on the enjoyment of this street by other users (i.e. pedestrians, shoppers, etc..) and interventions to divert traffic to other more appropriate routes using the proposed Western, Eastern and Southern Outer Distributor Roads. Insets 1 and 2 on Figure 1 shows the proposed strategic, primary and secondary pedestrian and feeder cycle network for Carrigaline while Insets 3 and 4 shows the traffic management measures on Main Street and on the periphery of the town.

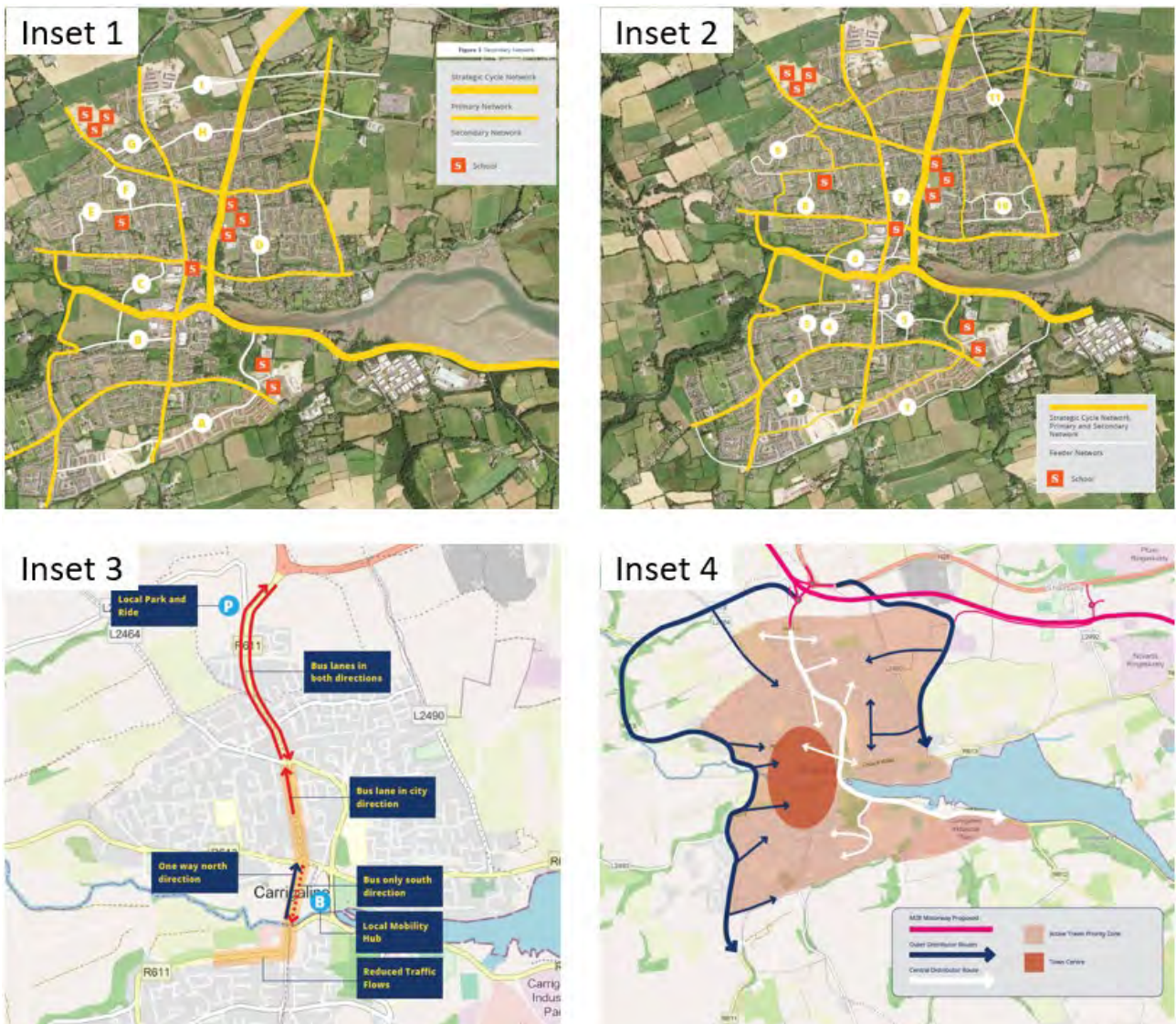


Figure 1 Strategic Transportation Interventions proposed by Carrigaline TPREP

2.2 Scheme Objectives

The projects identified under Phase 1B will assist delivery on the Carrigaline TPREP vision and include the following key objectives:

The Carrigaline TPREP is an integrated transportation framework focused on addressing the transportation infrastructure and public realm enhancement required to support sustainable development in Carrigaline. The TPREP includes for comprehensive cycle and pedestrian networks in Carrigaline, as well as the prioritisation of public transportation and enhancement of public realm infrastructure in the town. The key objectives identified in the TPREP are:

1. Rejuvenate the Carrigaline town centre;
2. Ease congestion and the dominance of private car in Carrigaline through the provision of sustainable transport infrastructure; and
3. Create new public realm opportunities with increased accessibility for all.

Phase 1B will assist in delivering these objectives for Carrigaline TPREP as outlined in Table 1.

Table 1 Proposed objectives for Carrigaline TPREP Phase 1B.

| Carrigaline TPREP Objectives | Proposed Phase 1B Objectives |
|---|---|
| <ul style="list-style-type: none"> • Rejuvenate the Carrigaline town centre | <ul style="list-style-type: none"> • To support retail and economic activity in Carrigaline |
| <ul style="list-style-type: none"> • Ease congestion and the dominance of private car in Carrigaline through the provision of sustainable transport infrastructure | <ul style="list-style-type: none"> • To reduce congestion in the town centre by managing access to Main Street |
| | <ul style="list-style-type: none"> • To encourage a modal shift by providing high-quality, priority pedestrian, cycle and public transport networks in Carrigaline |
| | <ul style="list-style-type: none"> • To ensure active travel and public transport in Carrigaline are accessible for all users |
| <ul style="list-style-type: none"> • Create new public realm opportunities with increased accessibility for all. | <ul style="list-style-type: none"> • To ensure the safety of pedestrians and cyclists |
| | <ul style="list-style-type: none"> • To connect residential estates to Carrigaline town centre |
| | <ul style="list-style-type: none"> • To improve the connectivity of schools and other community facilities to residential estates and Carrigaline town centre |

3. Planning Context

3.1 National and Local Policy

As noted in the sections above, the Carrigaline TPREP was completed and endorsed by the Carrigaline Municipal District Elected members in July 2021. The Carrigaline Transportation and Public Realm Enhancement Plan (TPREP) is an integrated transportation framework focused on addressing the transportation infrastructure and public realm enhancement required to support the sustainable development of Carrigaline. The TPREP included a comprehensive pedestrian and cycle network for Carrigaline. Cork County Council identified a number of key routes as critical infrastructure to be implemented in the short term. These routes, which are included within the Phases 1B project, provide the first building block in the desired transformation towards an increased active travel mode share and a corresponding reduction in car use in Carrigaline.

The Carrigaline TPREP and supporting infrastructure is in line with the 2040 National Planning Framework and National Development Plan 2018 – 2027 and its National Strategic Outcomes including Sustainable Mobility and Enhanced Regional Mobility.

It is also in line with the Cork Metropolitan Area Strategic Strategy (CMATS) principles which includes, for example, the provision of an efficient and safe transport network, to prioritise sustainable transport and reduce car dependency, to provide a high level of public transport connectivity and to enhance the public realm through traffic management and transport interventions.

4. Options Assessment

This section outlines the options that were considered in the development of the Phase 1B proposals.

4.1 Options Development & Appraisal Methodology

4.1.1 Options Development

The primary focus of the option development is to explore opportunity to provide more priority to pedestrians and cyclists and to reduce the dominance of vehicles by maintaining vehicular flow in each direction but reducing the width of lanes where possible. The major constraint in the options development is the availability of space to provide infrastructure and limiting potential impact on adjacent properties.

There are currently no or limited cycle routes or priority measures available along the routes and all of the options developed introduces some form of cycle facility or priority to the road. To facilitate this additional function requires that existing space allocated to cars and pedestrians is somewhat reduced to provide additional space for cyclists. An important consideration in the development of the options was to comply to DMURS standards where possible to ensure that the options provide quality infrastructure.

4.1.2 Appraisal Methodology

The Public Spending Code (PSC) is designed to ensure that the government gets the best value for resources at its disposal. The PSC determines that Multi-Criteria Analysis (MCA) should be carried out at a minimum for projects valued between €5million and €20 million. This project is valued above €5 million and therefore, an MCA is required. The MCA has been carried out on the principles set out in the Common Appraisal Framework (CAF). Each route option has been assessed against the six appraisal criteria set out in the CAF, as shown in Table 2.

Table 2 MCA Appraisal Criteria.

| Key Criteria | Sub-Criteria |
|-------------------|--|
| Environmental | <ul style="list-style-type: none"> • Air Quality: The assessment included the evaluation of the receiving air quality taking into account the quality of the environment for future users of the pedestrian/ cycleway facility; • Noise / Vibration: The assessment was carried out in a similar manner to the Air Quality assessment with a particular focus on noise and the enjoyment of the proposed infrastructure by future users; • Archaeology & Cultural Heritage: The assessment was based on the impact the proposed works will have on the built heritage along each of the routes and the potential impact on archaeology; • Flora and Fauna: The assessment was based on the potential impact on natural environment along each of the options; • Landscape & Visual: The assessment was based on the potential impact the proposed options will have on the receiving landscape character of each of the routes; and • Land Use Character: The assessment was based on ensuring compatibility between the options proposed and the existing land use character of the surrounding area. |
| Safety | <ul style="list-style-type: none"> • Collisions/ Incidents: The assessment was based on the potential increases in vehicular conflicts with resulting collisions associated with each option. • Personnel Security: The assessment was based on the perceived reduction in personnel safety associated with using the facilities proposed as part of each of the route options. |
| Economy | <ul style="list-style-type: none"> • Capital Costs: The assessment included a comparison of the relative cost of each option; • Transport Network Efficiencies: The assessment included a review of potential impact on journey times associated with each of the options; |
| Accessibility | <ul style="list-style-type: none"> • Vulnerable Groups: young, elderly and those with mobility or other disabilities |
| Integration | <ul style="list-style-type: none"> • Policy Integration: compatibility with current transport planning policy • Transport Network Integration: integration of transport networks in Carrigaline. |
| Physical Activity | <ul style="list-style-type: none"> • Health Benefits: directly and indirectly |

Each option has been scored against the criteria using the seven-point scale specified in TII’s Project Appraisal Guidelines for Multi Criteria Analysis (Table 3). This scale indicates the level of impact that a particular option will have on the specified criteria. A lower overall score indicates a negative outcome while a higher score indicates a positive outcome.

Table 3 Scale for scoring Phase 1B Options against MCA appraisal criteria.

| Score | Description |
|-------|---|
| 1 | Highly Negative relative to the other options |
| 2 | Negative to the other options |
| 3 | Slightly Negative to the other options |
| 4 | Neutral all options have very similar impacts |
| 5 | Slightly Positive relative to the other options |
| 6 | Positive relative to the options |
| 7 | Highly Positive relative to the other options |

4.2 Cork Road Optioneering

4.2.1 Route Appraisal of Cork Road

The Cork Road section between Ballea Road and Ballinrea Road is approximately 600m in length and links the northern residential estates of Carrigaline to Main Street. Cork Road forms part of the primary route linking Cork City to Carrigaline and therefore carries high peak hour traffic volumes. The road is also a key bus route through the town.

Due to the high traffic volumes that this road carries, it is an attractive location for businesses. Evidence of this is seen along the northern section of the road where vehicle related businesses, such as garages and car dealerships are established. Some small private businesses have also been established along Cork Road including private medical practices, small retail and professional consultants.

Cork Road provides the most direct link between Carrigaline's northern residential areas, i.e. Glenwood, Ferndale and Heronswood, and the town centre. The route performs an important pedestrian and cycle linkage function that must be enhanced. Footpaths are provided generally on both sides of the road through a predominantly residential area.

For purposes of appraisal, Cork Road can be viewed in two sections as shown in Figure 3. The northern section, which includes approximately the first 280m of the road from the Cork Road / Ballinrea Roundabout towards the south, has vehicle related businesses on the eastern side of the road and an approximately 10m wide green strip to the west of the road and residential estates beyond that. The green strip is a part of the road servitude and provides space within which future road reconfigurations can be considered. Within this section of the road, footpaths are only provided on the eastern side as shown in the street view in Figure 4.

Along the southern section of the road, which includes the section of the road to the south of the Maxol garage up to the Cork Road / Ballea Road / Church Road roundabout, there is no green strip adjacent to the road. Footpaths are available on both sides of the road with property boundaries on the edges of it. Generally, the road width within this area is 11 – 12 metres and therefore the southern section is more limited in width compared to the northern section. Figure 5 shows a street view of the southern section of the road.

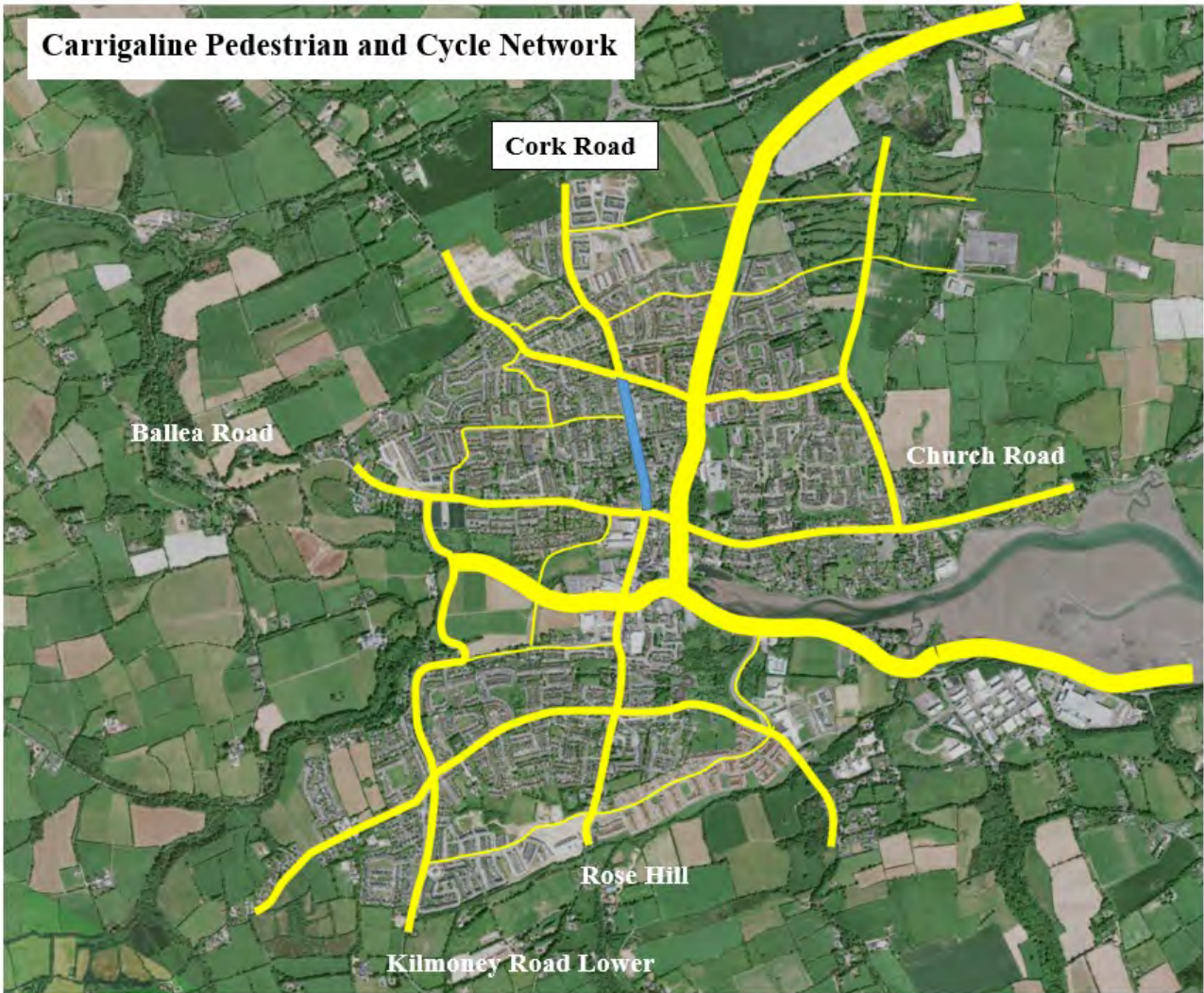


Figure 2 Cork Road in the context of the proposed Carrigaline TPREP pedestrian and cycling network



Figure 3 Cork Road Northern and Southern sections



Figure 4 Cork Road - Northern Section



Figure 5 Cork Road - Southern Section

4.2.2 Proposed Options for Cork Road

Five potential options have been identified for Cork Road. A concept outline of each option was identified along with the required infrastructure elements and potential land take required to accommodate them. The northern and southern sections of the road differ distinctly in terms of available space and therefore the cross sections for both sections are provided to outline proposals.

4.2.2.1 Cork Road Option 1

Option 1 is similar to the option that was presented in the Carrigaline TPREP (Figure 6). This option includes some slight land take from the park located in the south-eastern quadrant of the Cork Road / Ballinrea roundabout.

Figure 7 and Figure 8 provide cross sections of the northern and southern sections of the road (respectively) for Option 1. The northern section of the road includes two 3.0m traffic lanes and 2.0m footpaths and 2.0m cycle lanes on both sides of the road. This infrastructure can be provided in line with DMURS standards due to land take from the linear park adjacent to the road which currently segregates Glenwood Estate from Cork Road.

The same space is not available along the southern section of the road which is 11.0m – 12.0m wide. It is only possible to include for two 3.0m traffic lanes, 2.0m footpaths on both sides of the road and a 1.5m cycle lane in the northbound direction, without any significant land take.

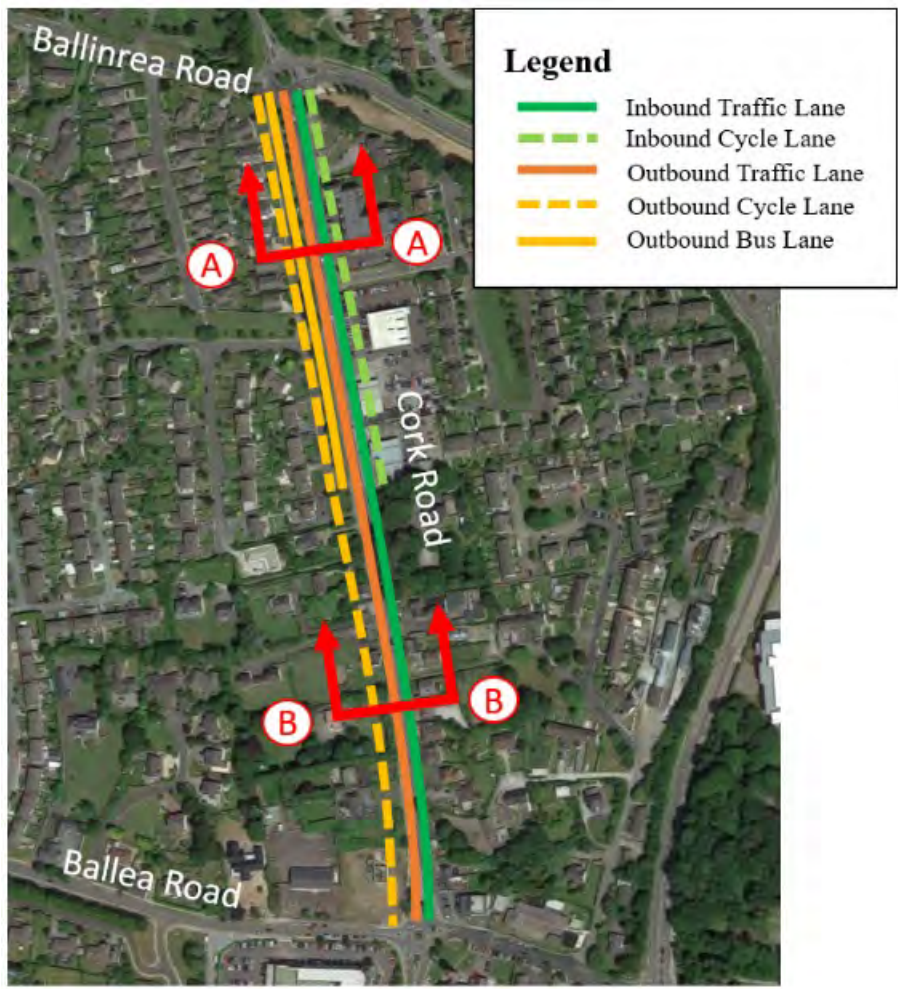


Figure 6 Cork Road Option 1 – Infrastructure elements

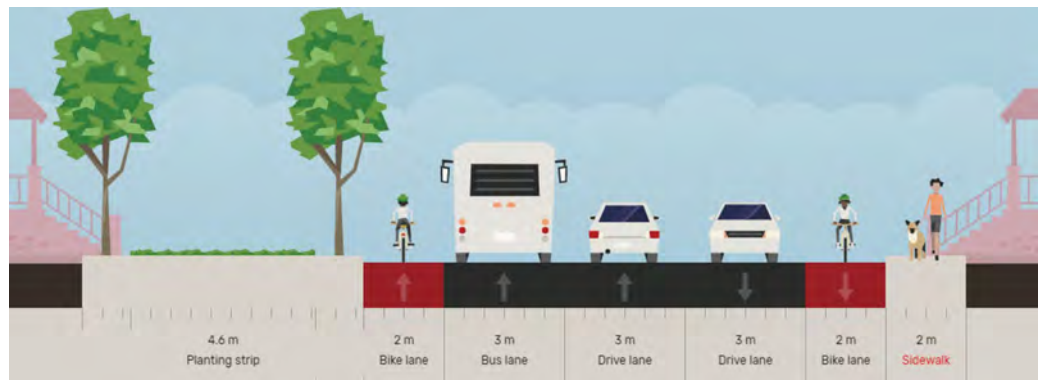


Figure 7 Cork Road Option 1 – Northern cross-section (A-A)

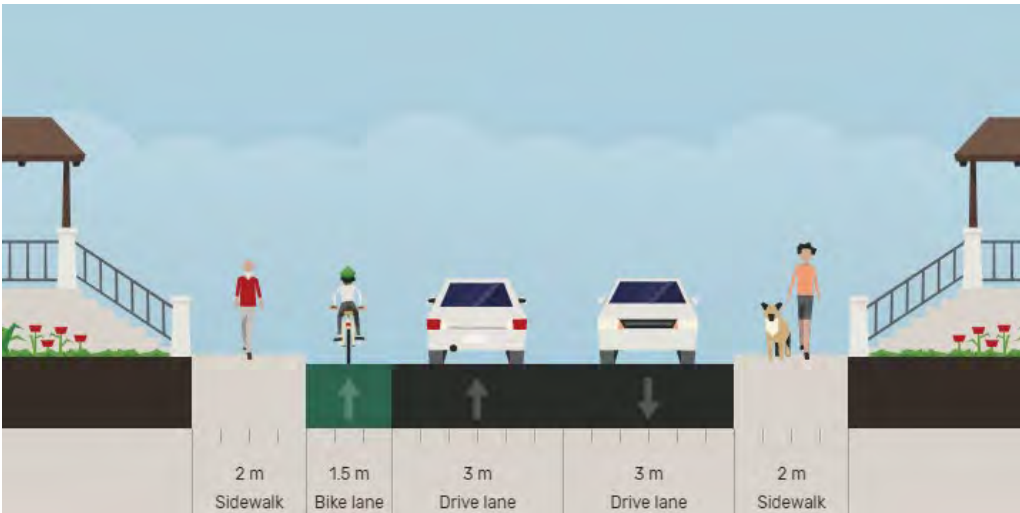


Figure 8 Cork Road Option 1 – Southern cross-section (B-B)

4.2.2.2 Cork Road Option 2

Option 2 uses a “quiet street treatment” along Glenwood estate on the northern section to accommodate local traffic and cyclists travelling northbound (Figure 9). The layout of Cork Road would include two general traffic lanes, a northbound bus-lane, a southbound cycle-track and a footpath on the eastern side of the carriageway (Figure 10).

The southern section of the road includes two general traffic lanes, 2.0m footpaths on both sides of the road and a two-way cycle lane on the eastern side of the road (Figure 11). The two-way cycle lane provides a reduced combined width therefore minimising the potential land take along this section of the road. Land take of 2.0m to 3.0m is required to facilitate this cross section, which will bring the roadway very close to existing buildings and will require the regrading of driveways.

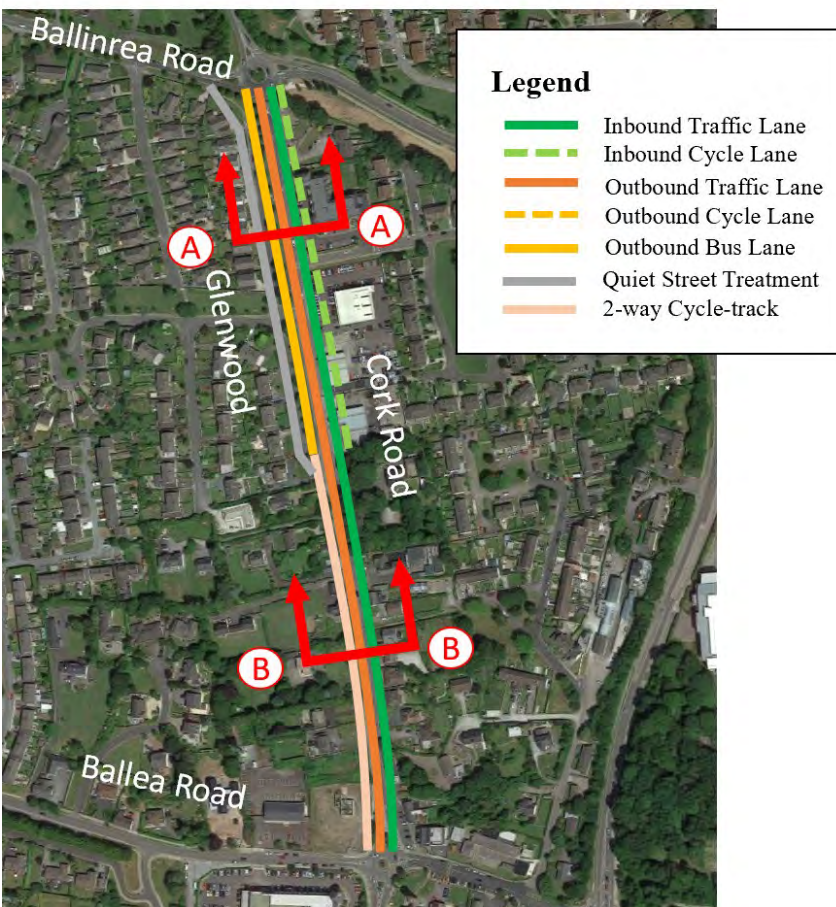


Figure 9 Cork Road Option 2 – Infrastructure elements

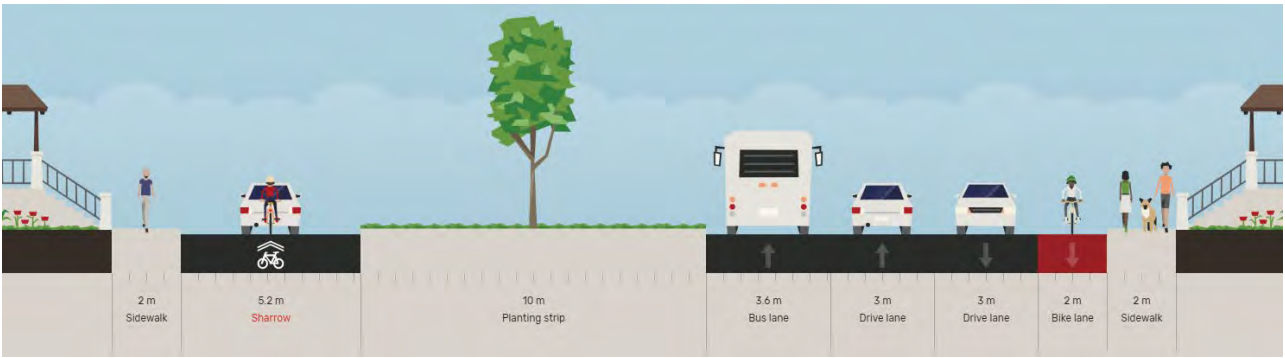


Figure 10 Cork Road Option 2 – Northern Cross-section (A-A)

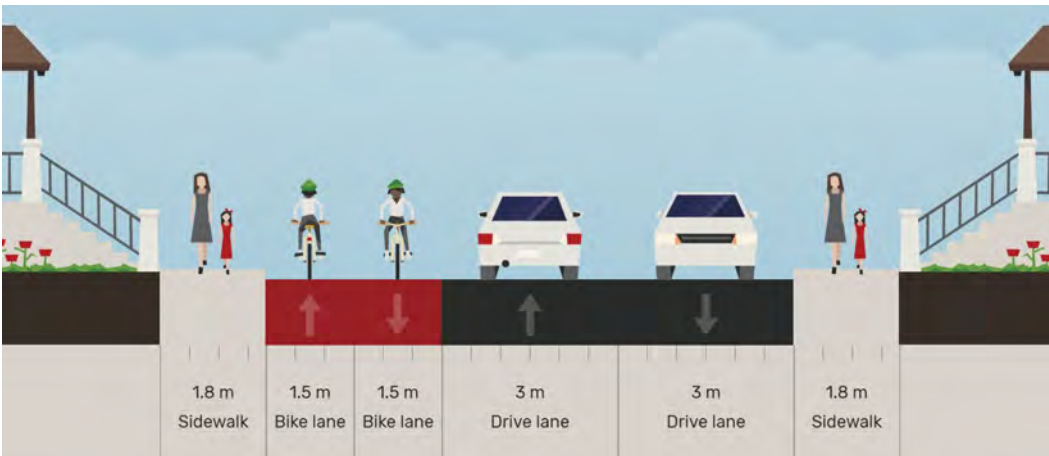


Figure 11 Cork Road Option 2 – Southern Cross-section (B-B)

4.2.2.3 Cork Road Option 3

Option 3 is a combination of Options 1 and 2 (Figure 12). The layout for the northern section is similar to that of Option 2 (Figure 13) and the layout of the southern section is similar to Option 1 (Figure 14). This option makes optimum use of the space available in both sections of the road and limits land take from private properties.

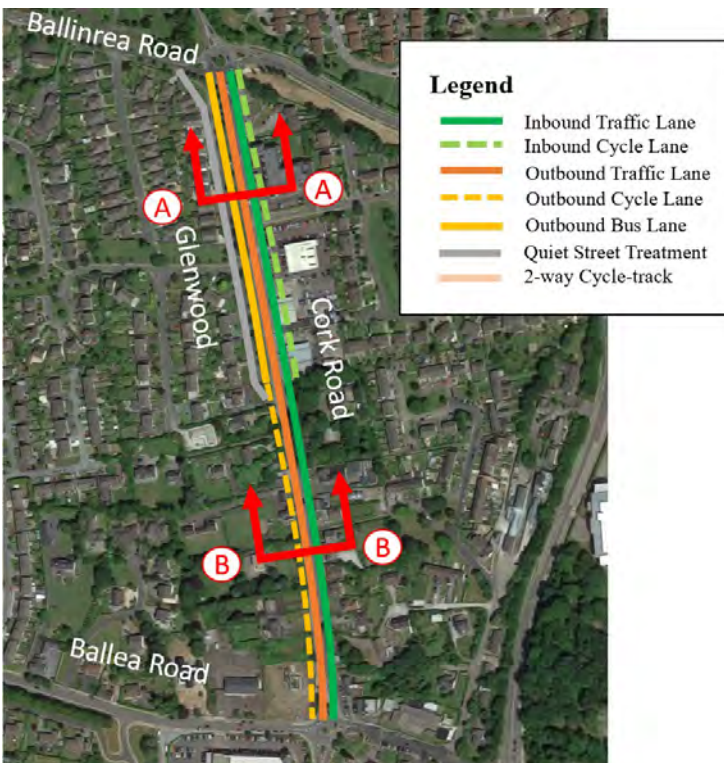


Figure 12 Cork Road Option 3 – Infrastructure elements



Figure 13 Cork Road – Northern Cross-section (A-A)

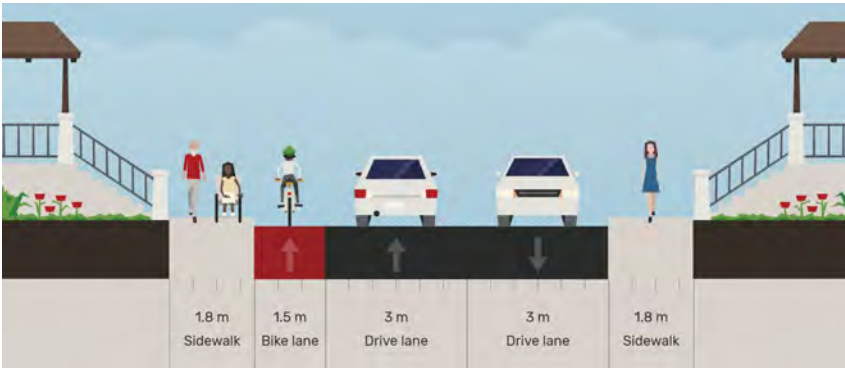


Figure 14 Cork Road – Southern Cross-section (B-B)

4.2.2.4 Cork Road Option 4

Option 4 is shown in Figure 15. This option has the same road layout for its northern section as Option 2, apart from the inbound cycle-track in the northern section (Figure 16) but has a new configuration for the southern section (Figure 17). Instead of providing a segregated footpath and cycle facilities on the southern section, a 3.0m shared facility is provided in the interest of optimising the available space. This option therefore does not require any significant land take from private properties.

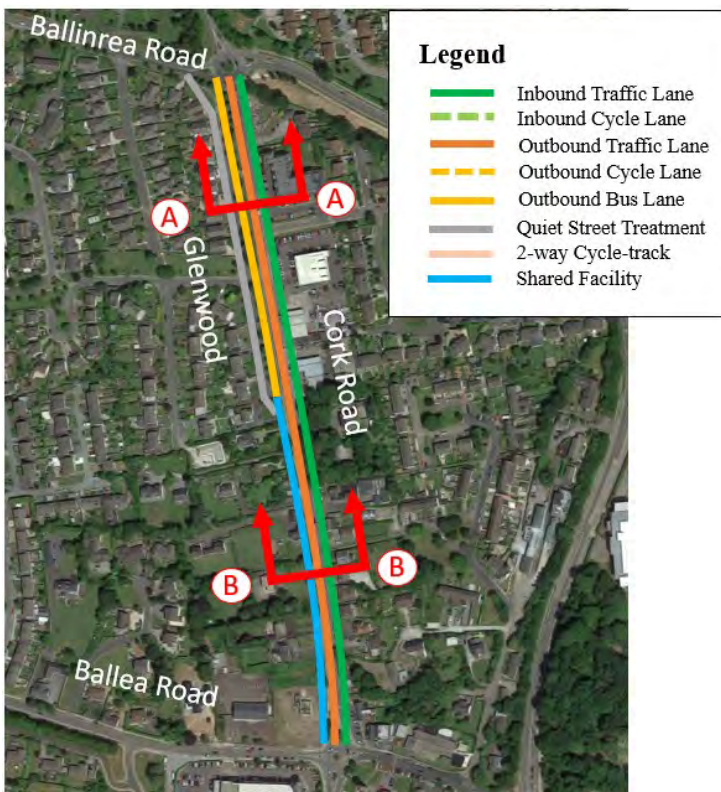


Figure 15 Cork Road Option 4 – Infrastructure elements

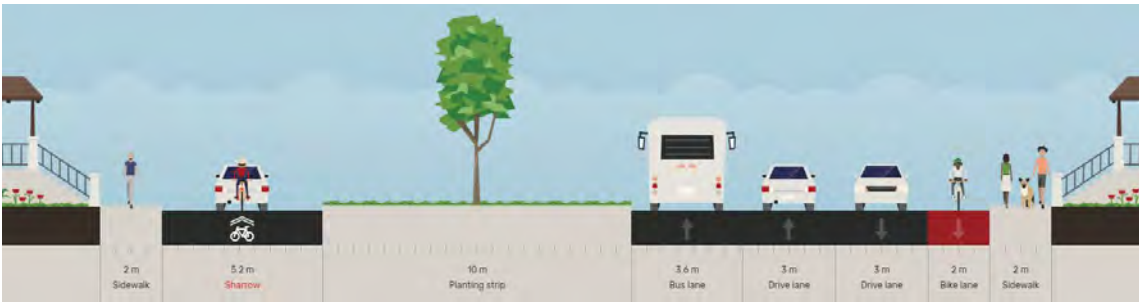


Figure 16 Cork Road Option 4 – Northern Cross-section (A-A)

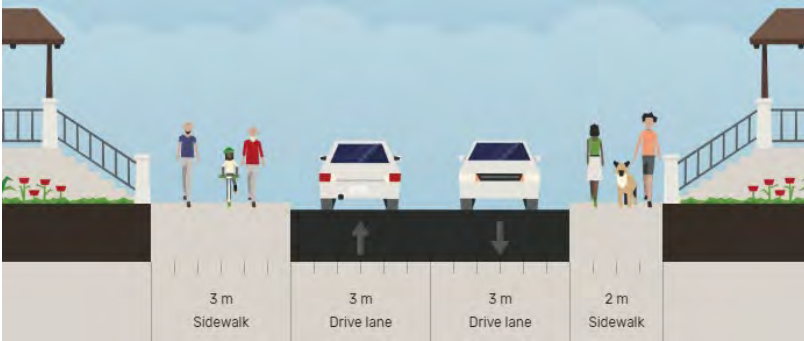


Figure 17 Cork Road Option 4 – Southern Cross-section (B-B)

4.2.2.5 Cork Road Option 5

Figure 18 provides an overview of Option 5. This option includes a similar configuration for the northern section as Option 2, i.e. “quiet street treatment” along Glenwood estate and two general traffic lanes, a northbound bus-lane, a southbound cycle-track and a footpath on the eastern side of the carriageway (Figure 19). For the southern section, the existing layout is retained, i.e. two general traffic lanes and 2.0m footpaths on both sides of the road (Figure 20). There is no additional provision for cyclists on the southern section.

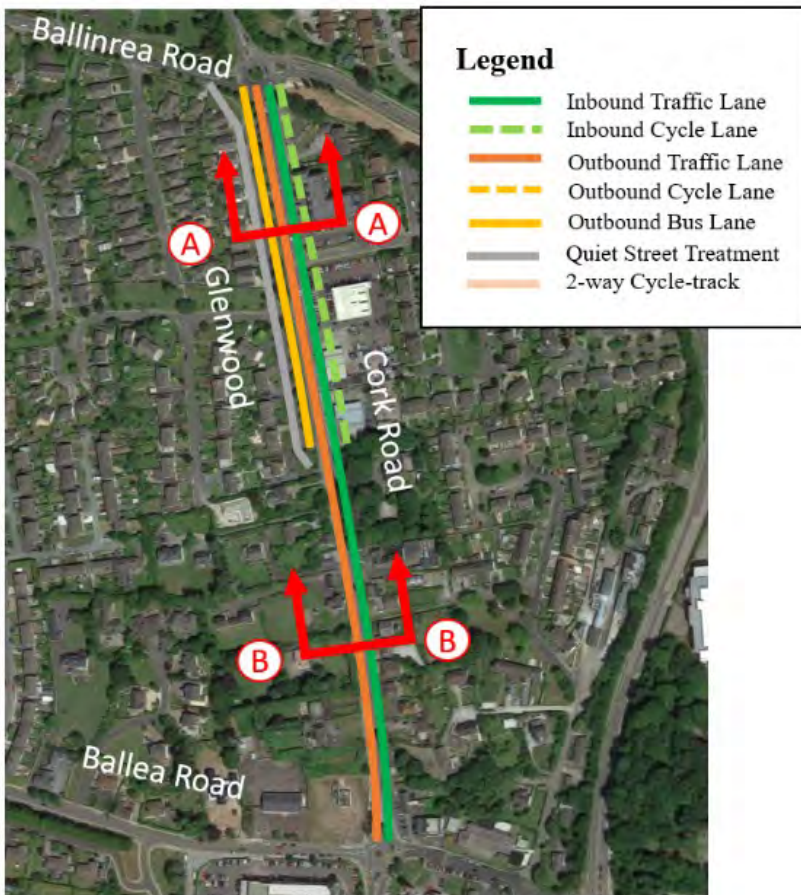


Figure 18 Cork Road Option 5 – Infrastructure elements

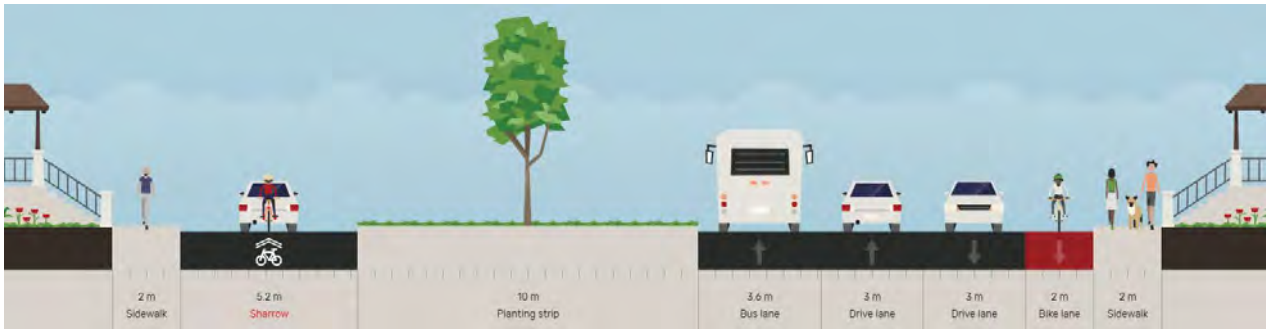


Figure 19 Cork Road Option 5 – Northern Cross-section (A-A)

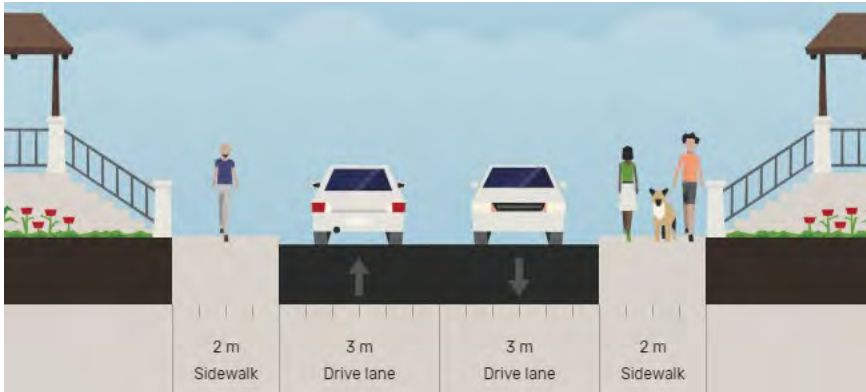


Figure 20 Cork Road Option 5 – Southern Cross-section (B-B)

4.2.3 Appraisal of Proposed Options for Cork Road

An MCA for the five options identified for Cork Road has been carried out in line with the appraisal methodology described in Section 4.1.2.

The preferred option for Cork Road is Option 4, which combines a shared space facility for the southern section of the road with a quiet street treatment for the northern section of the road. The shared space facility for the southern section has been chosen due to land acquisition difficulties regarding level difference on either side of the footpath for this section. A quiet street treatment is deemed the most appropriate intervention on the northern section due to the proximity of the new school to the west of the junction at the northern section of the Cork Road, this would provide a safe facility for schoolchildren to use without removing greenspace from the Glenwood estate.

4.3 Church Road / Rock Road Optioneering

4.3.1 Route Appraisal of Church Road / Rock Road

The Church Road and Rock Road route is a section of road to the east of Carrigaline between the Cork Road and Castle Hill Estate (Figure 21). This route is approximately 1,600m in length and runs through a mainly residential area. There is a Community Centre and Montessori on the approach to the junction with Cork Road.

The western area of this study area begins at the Bothar Guidel Junction adjacent to the Carrigaline playground and Community centre which are located on the southern side of the carriageway, and a Family Support Centre to the north (Figure 22).

Continuing east along the route, Church Road/Rock Road is largely constrained on both sides by private residential properties, with large grass verges occasionally on both sides throughout. The length of the carriageway and footpaths from boundary to boundary is generally 8-12m along this section of the Church Road/Rock Road.

This section ends adjacent to the Castle Hill residential estate on Rock Road. Rock Road is largely constrained on both sides by private residential properties with a large gradient difference sloping downwards to the carriageway. The length of the carriageway and footpaths from boundary to boundary is generally 9-11m along this section of Rock Road.

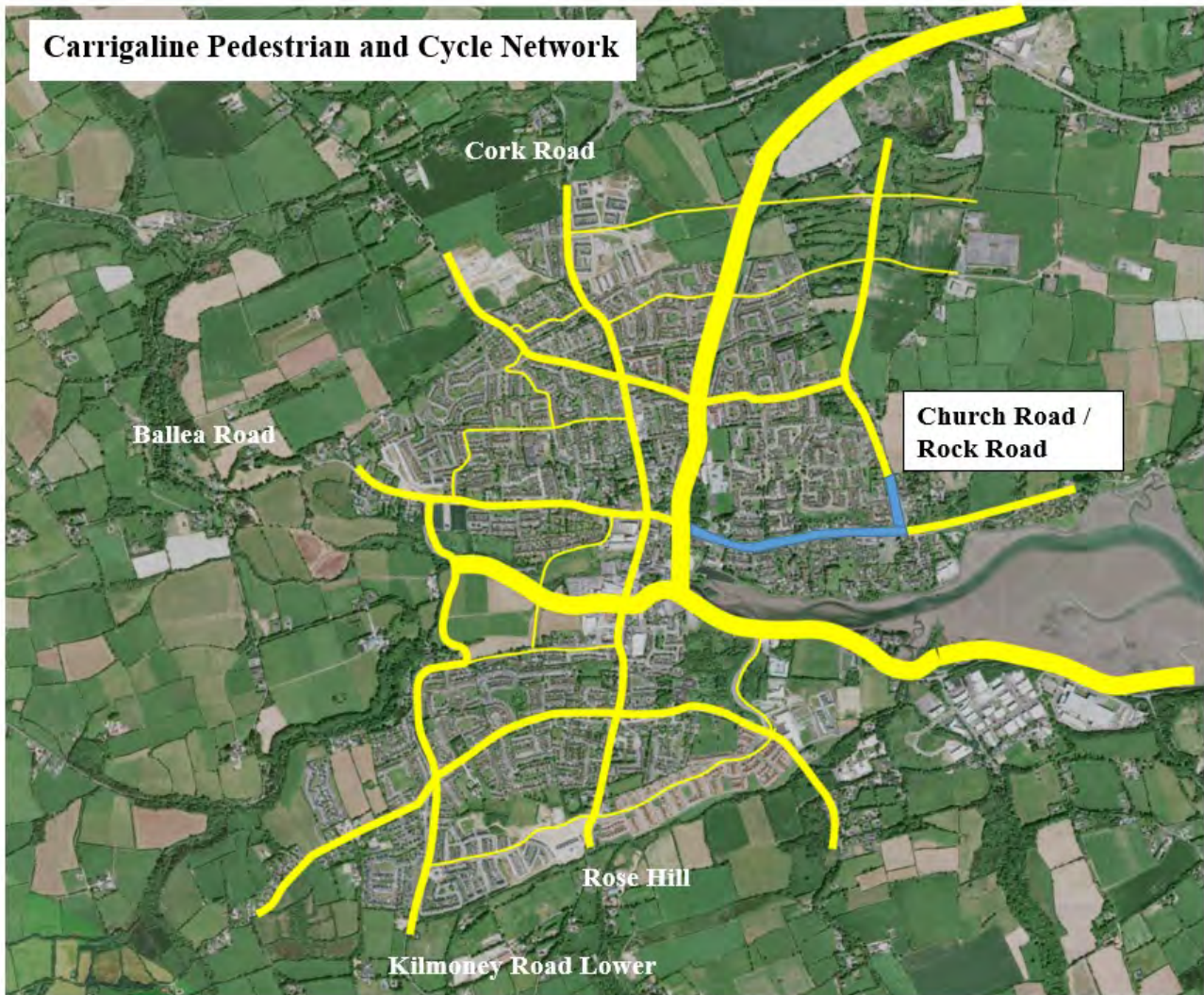


Figure 21 Church Road / Rock Road in the context of the proposed Carrigaline TPREP pedestrian and cycling network



Figure 22 Carrigaline playground and Community Centre to the left and Family Support Centre to the right

4.3.2 Proposed Options for Church Road

The following section outlines three options that have been identified for Church Road/Rock Road. The options are outlined in concept and infrastructure elements has been identified together with potential land take to accommodate them.

4.3.2.1 Church Road/Rock Road Option 1

Option 1 is the option that was presented in the TPREP report for Carrigaline. It consists of a cycle-track in both directions, two general traffic lanes, and footpaths in both directions. This option would likely need some public and private land take. There is land take needed on the northern and southern sides of the road, with the possible need for land take from six properties.

Figure 23 shows the proposed infrastructure elements for this option and Figure 24 shows the cross-section.



Figure 23 Church Road/Rock Road Option 1 – Infrastructure elements

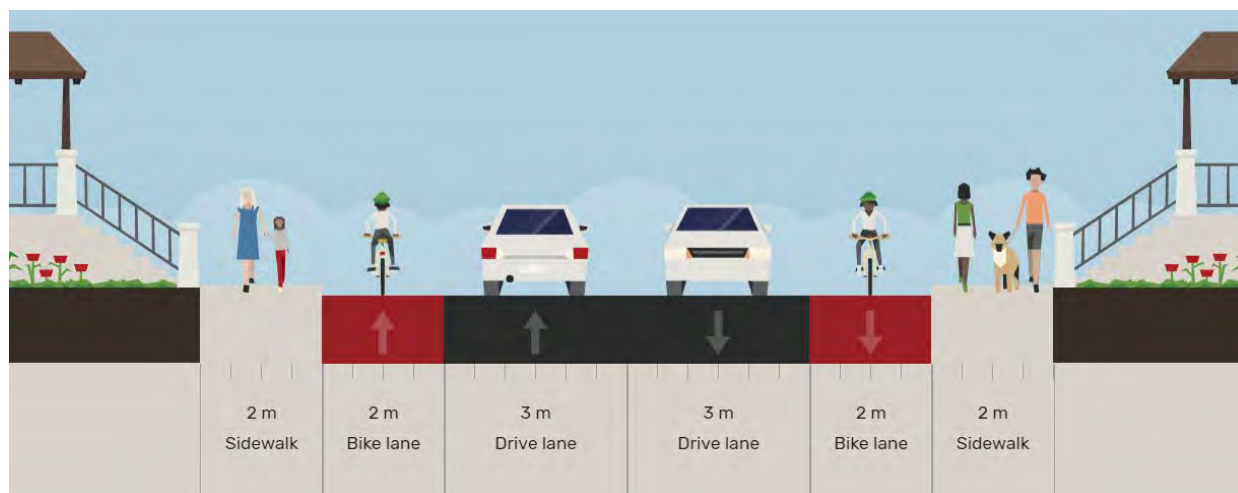


Figure 24 Church Road/Rock Road Option 1 - Cross-section

4.3.2.2 Church Road/Rock Road Option 2

The layout for Option 2 is a two-way cycle-track on the southern side of the road, two general traffic lanes and footpaths in both directions. This option would likely need some public and private land take. This option would likely need some public and private land take. There is landtake needed on the northern and southern sides of the road, with the possible need for land take from six properties.

Figure 25 shows the proposed infrastructure elements for this option and Figure 26 shows the cross-section.



Figure 25 Church Road/Rock Road Option 2 – Infrastructure elements

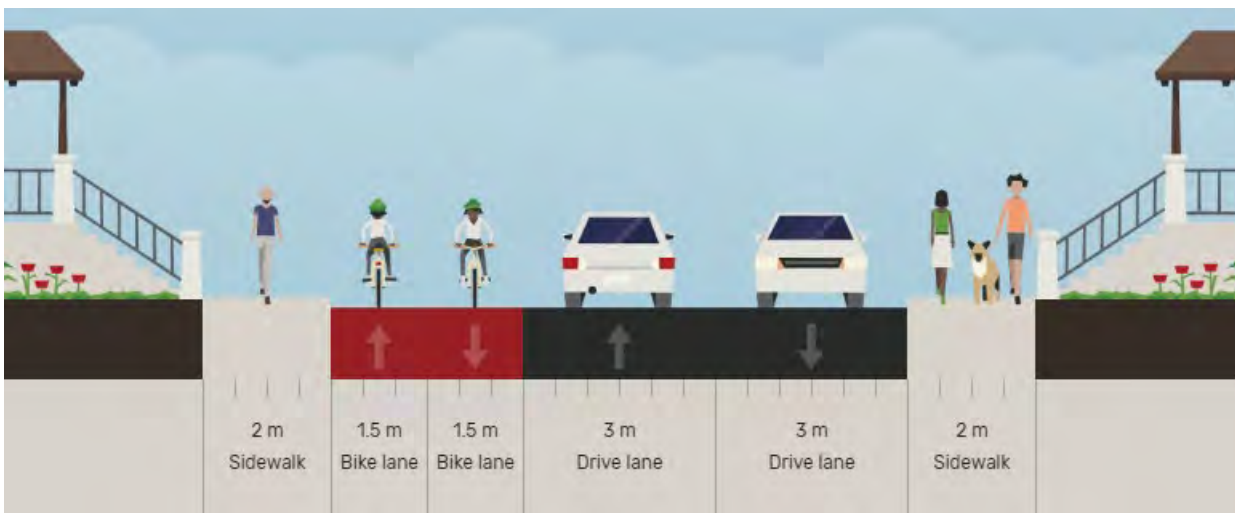


Figure 26 Church Road/Rock Road Option 2 – Cross-section

4.3.2.3 Church Road/Rock Road Option 3

The layout for Option 3 consists of a cycle-track in both directions, two general traffic lanes, and footpaths in both directions (Figure 27 and Figure 28). Where a pinch point exists, the cycle tracks are replaced by the provision of a short section of shared facility (Figure 29). This option would likely need some public and private land take. There is land take needed on the northern and southern sides of the road, with the possible need for land take from six properties.



Figure 27 Church Road/Rock Road Option 3 – Infrastructure elements

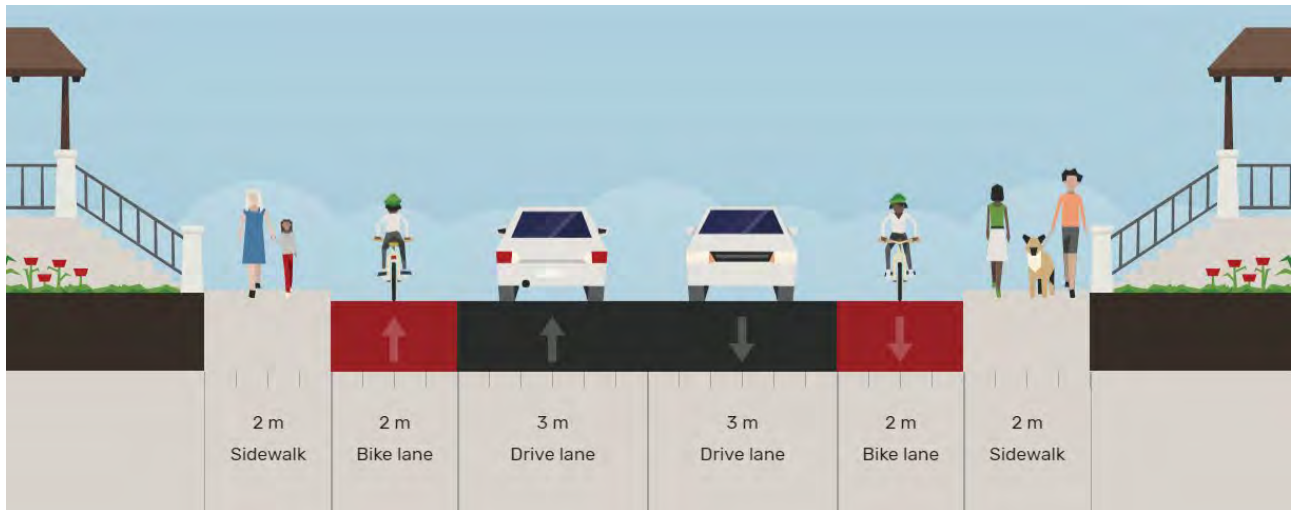


Figure 28 Church Road/Rock Road Option 3 - Cross-section



Figure 29 Church Road/Rock Road Option 3 - Cross-section (Pinch points)

4.3.3 Appraisal of Proposed Options for Church Road/Rock Road

An MCA for the three options identified for Church Road/Rock Road has been carried out in line with the appraisal methodology described in Section 4.1.2.

Option 3 is the preferred option for Church Road/Rock Road as it combines improvements to cycling and pedestrian infrastructure whilst minimising landtake along the route.

4.4 Rose Hill Optioneering

4.4.1 Route Appraisal of Rose Hill

The Rose Hill route between the junction at Church Hill and the roundabout at Castle Heights is a short section of road, approximately 400m in length. This route is located to the south of Carrigaline in a mainly residential area (Figure 30).

The northern section of Rose Hill begins at the junction with Church Hill, where there are residential properties located on both sides of the carriageway and a small number of businesses established on the eastern side of the carriageway. A footpath is provided for a short section of this route on the western side of the road only (Figure 31).

The southern section of Rose Hill is largely constrained on both sides by private residential properties, as well as two residential estates. The length of the carriageway and footpaths from boundary to boundary is generally 6-8m along this section of Rose Hill. There is no footpath on either side of the route on the approach to the roundabout at the south (Figure 32).

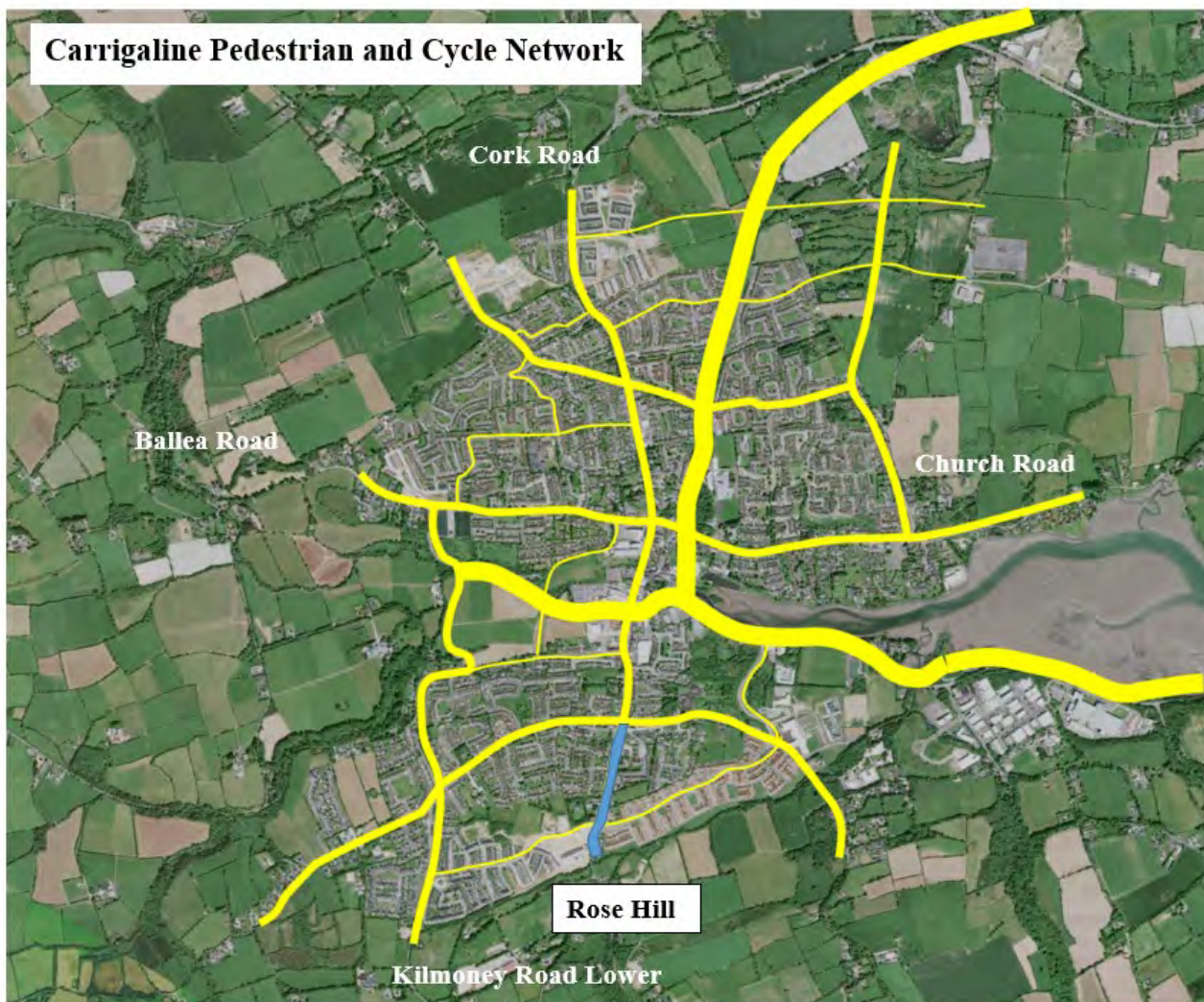


Figure 30 Rose Hill in the context of the proposed Carrigaline TPREP pedestrian and cycling network



Figure 31 Northern section of Rose Hill



Figure 32 Southern section of Rose Hill

4.4.2 Proposed Options for Rose Hill

Four options have been identified for Rose Hill. A concept outline of each option has been identified along with the required infrastructure elements and potential land take required to accommodate them.

4.4.2.1 *Rose Hill Option 1*

Option 1 is the option that was presented in the TPREP report for Carrigaline. It consists of a cycle-track in both directions, two general traffic lanes with a short section of outbound only on approach to the junction with Church Hill, and footpaths in both directions. This option would likely need some public and private land take. There is land take needed on the eastern and western sides of the road, with the possible need for land take from 12 properties. Figure 33 shows the proposed infrastructure elements for this option and Figure 34 shows the cross sections for the northern and southern sections of the road.

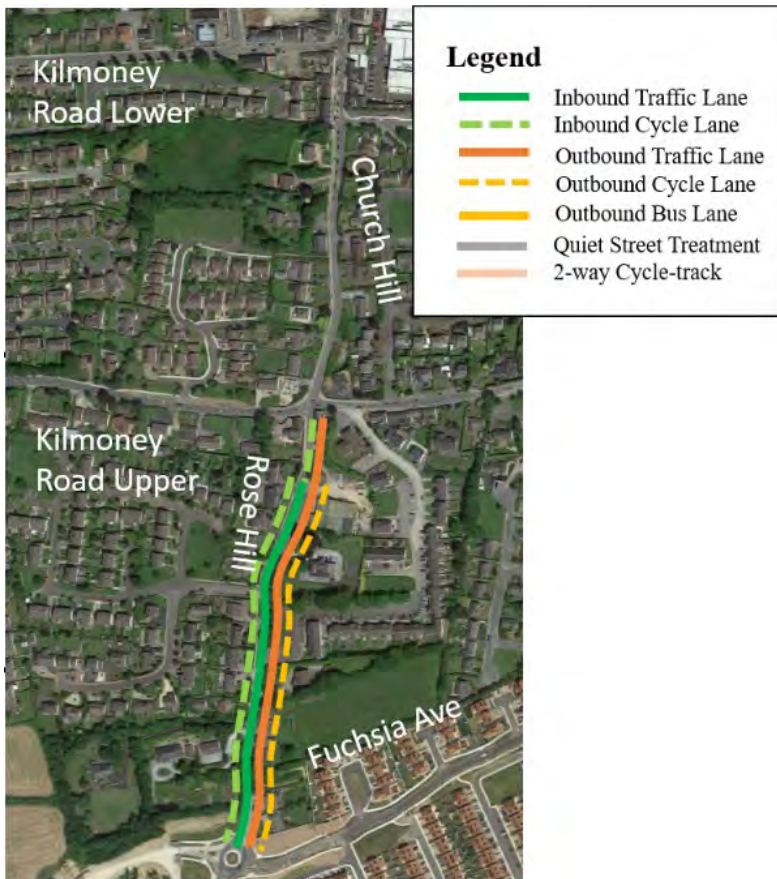


Figure 33 Rose Hill Option 1 – Infrastructure elements



Figure 34 Rose Hill Option 1 – Cross-section

4.4.2.2 *Rose Hill Option 2*

The layout for Option 2 is a two-way cycle-track on the western side of the road, two general traffic lanes and footpaths in both directions with a short section of outbound only on approach to the junction with Church Hill. This option would likely need some public and private land take. There is land take needed on the northern and southern sides of the road, with the possible need for land take from 12 properties. Figure 35 shows the proposed infrastructure elements for this option and Figure 36 shows the proposed road layout for Option 2.

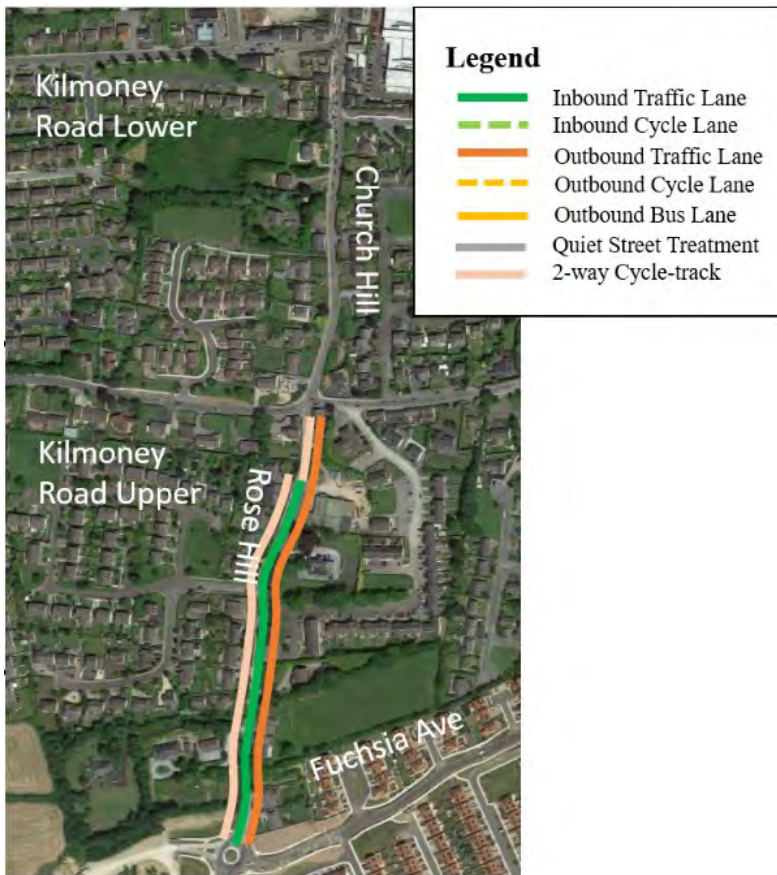


Figure 35 Rose Hill Option 2 – Infrastructure elements

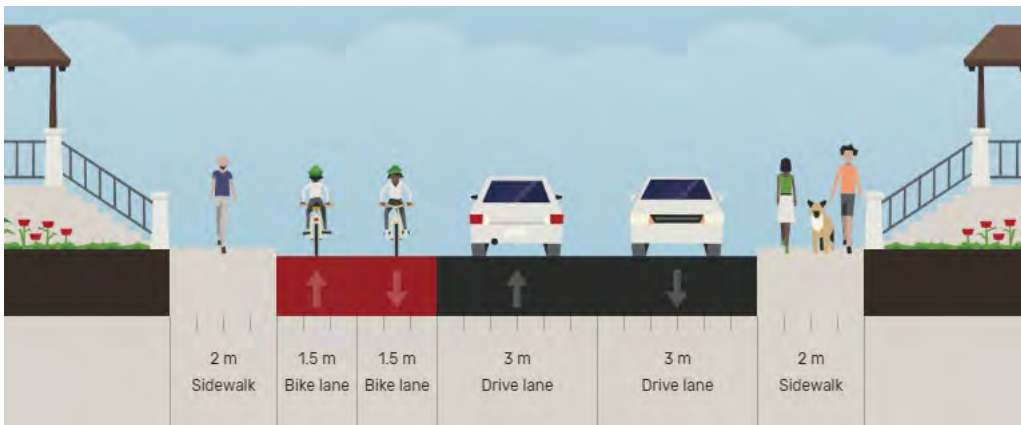


Figure 36 Rose Hill Option 2 – Cross-section

4.4.2.3 *Rose Hill Option 3*

The layout for Option 3 is a cycletrack beginning slightly south of the Rose Hill / Church Hill Junction, two general traffic lanes and footpaths in both directions with a short section of outbound only on approach to the junction with Church Hill. This option would likely need some public and private land take. There is also a quiet street treatment proposed on Whiteoaks / Clover Hill in this option. There is land take needed on the northern and southern sides of the road, with the possible need for land take from 7 properties. Figure 37 shows the proposed infrastructure elements for this option and Figure 38 shows the proposed road layout for Option 3.

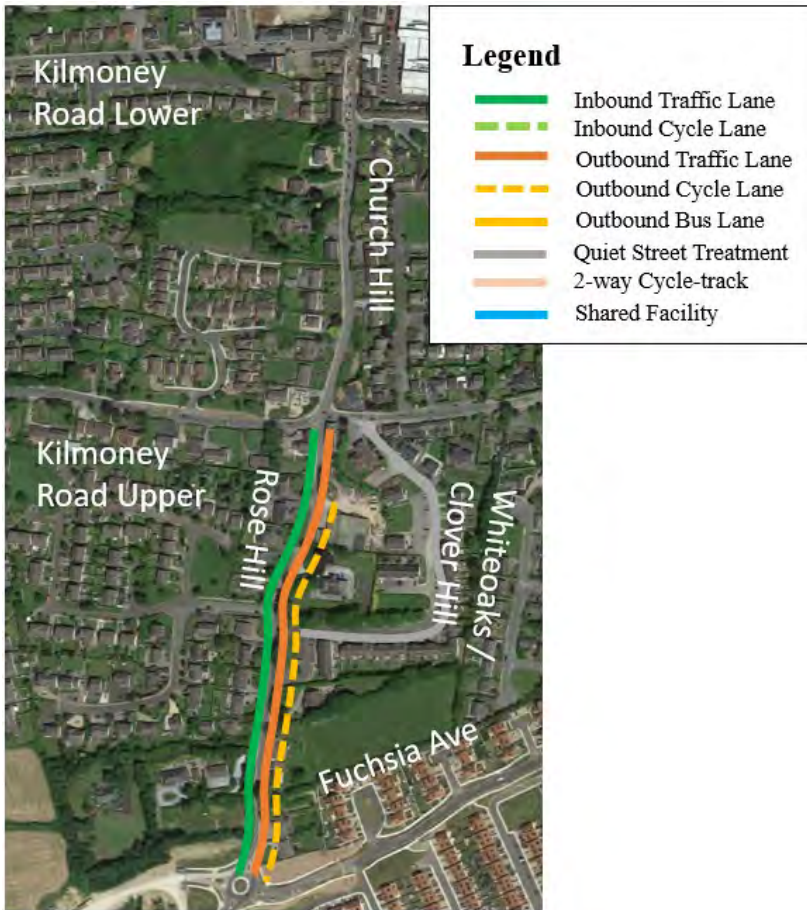


Figure 37 Rose Hill Option 3 – Infrastructure elements

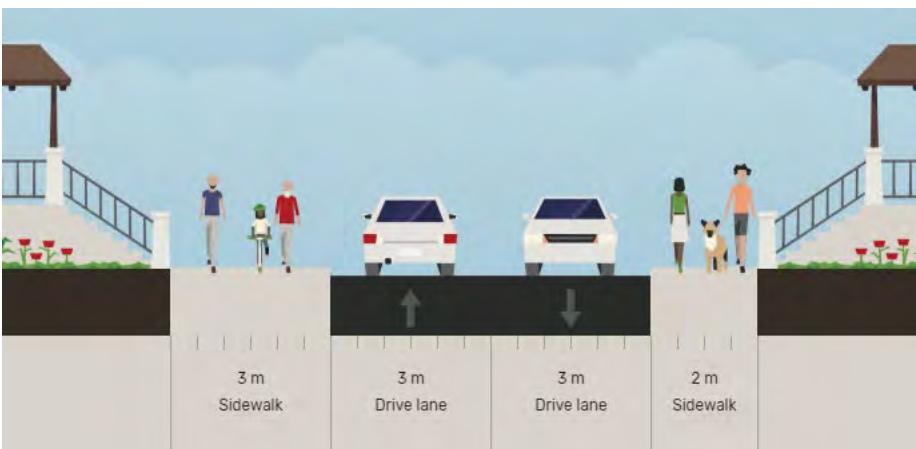


Figure 38 Rose Hill Option 3 – Cross-section

4.4.3 Appraisal of Proposed Options for Rose Hill

An MCA for the three options identified for Rose Hill has been carried out in line with the appraisal methodology described in Section 4.1.2.

Option 3 is the preferred option for Rose Hill as it combines improvements to cycling and pedestrian infrastructure whilst minimising landtake along the route. The quiet street treatment through Whiteoaks and Clover Hill as well the proposed outbound cycle track will greatly improve cycling and pedestrian facilities in the area. This coupled with the traffic management measure of not allowing traffic to travel northbound through the Rose Hill / Fuchsia Avenue roundabout will allow for a safer environment for pedestrians and cyclists alike.

4.5 Kilmoney Road Lower from Kilmoney Road Upper to Main Street Optioneering

4.5.1 Route Appraisal of Kilmoney Road Lower

The Kilmoney Road Lower section between the Main Street and the roundabout adjacent to Castle Heights is approximately 1,750m in length linking the southern residential estates of Carrigaline to Main Street (Figure 39). Footpaths are provided, generally on one side of the road only, through a predominantly residential area, with a footpath provided on both sides at the east of the route on the approach to Main Street, and at the south of the road on approach to the roundabout. Due to the high traffic volumes that this road carries, it is attractive for some businesses to be established here and evidence of this is seen along the eastern section of the road where there is a GP Practice, Service Station and multiple food and retail businesses.

Kilmoney Road Lower provides the most direct link between southern residential areas within Carrigaline such as Wrenville, Upper Clevedon, Lower Clevedon and Abbey View and the town centre. The route performs an important pedestrian and cycle linkage function, despite carrying high levels of traffic. The road is also a key bus route through the town.

The eastern section of the route has multiple sections of approximately 6-15m wide green strip to the south of the carriageway and residential estates beyond that. The green strip is a part of the road servitude and provides space within which future road reconfigurations can be considered. To the north are a number of residential properties and green fields. Within this section of the road, footpaths are provided on both sides or only the southern side of the road.

Within the southern section of the road there is a large green strip along the east of the road adjacent to both Lower and Upper Clevedon Estates and another large green strip along the east of the road adjacent to Wrenville. Footpaths are available generally on one side of the road throughout. The length of the carriageway and footpaths from boundary to boundary is generally 8-12m along this section of Kilmoney Road Lower.

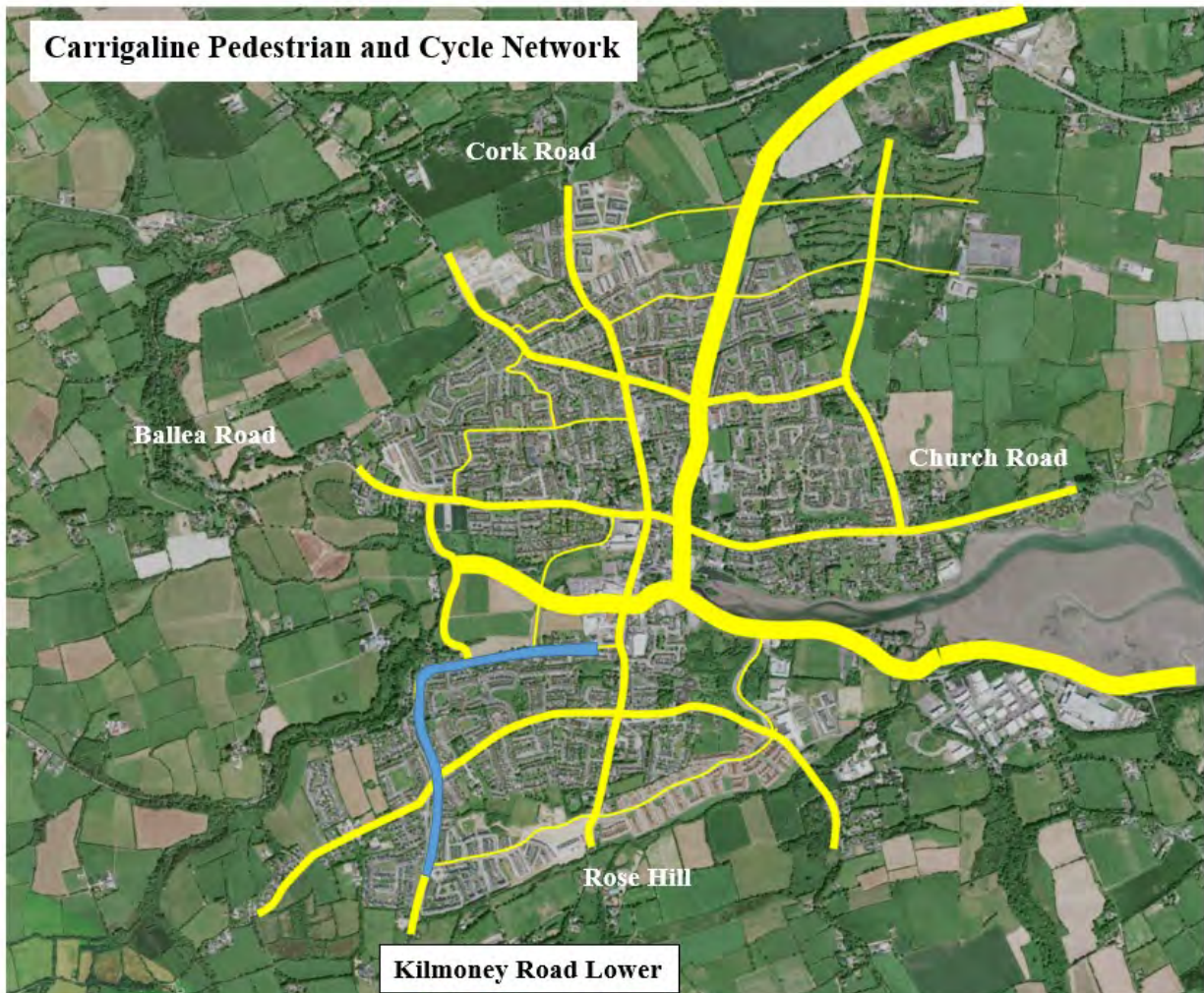


Figure 39 Kilmoney Road Lower in the context of the proposed Carrigaline TPREP pedestrian and cycling network

4.5.2 Proposed Options for Kilmoney Road Lower

Five options have been identified for Kilmoney Road Lower. The options are outlined in concept and infrastructure elements has been identified together with potential land take to accommodate them. Since the northern and southern section of the road differs distinctly in terms of available space, cross sections for both sections are provided to outline proposals.

4.5.2.1 Kilmoney Road Lower Option 1

Option 1 is the option that was presented in the TPREP report for Carrigaline. It consists of a short section cycle-track in both directions, two general traffic lanes, and footpaths in both directions, as well as quiet street treatment in Lower Clevedon and Upper Clevedon. This option would likely need some public and private land take. There is land take needed on the northern and southern sides of the road, with the possible need for land take from 12 properties. Figure 40 shows the proposed infrastructure elements for Option 1 and Figure 41 shows the cross-section.

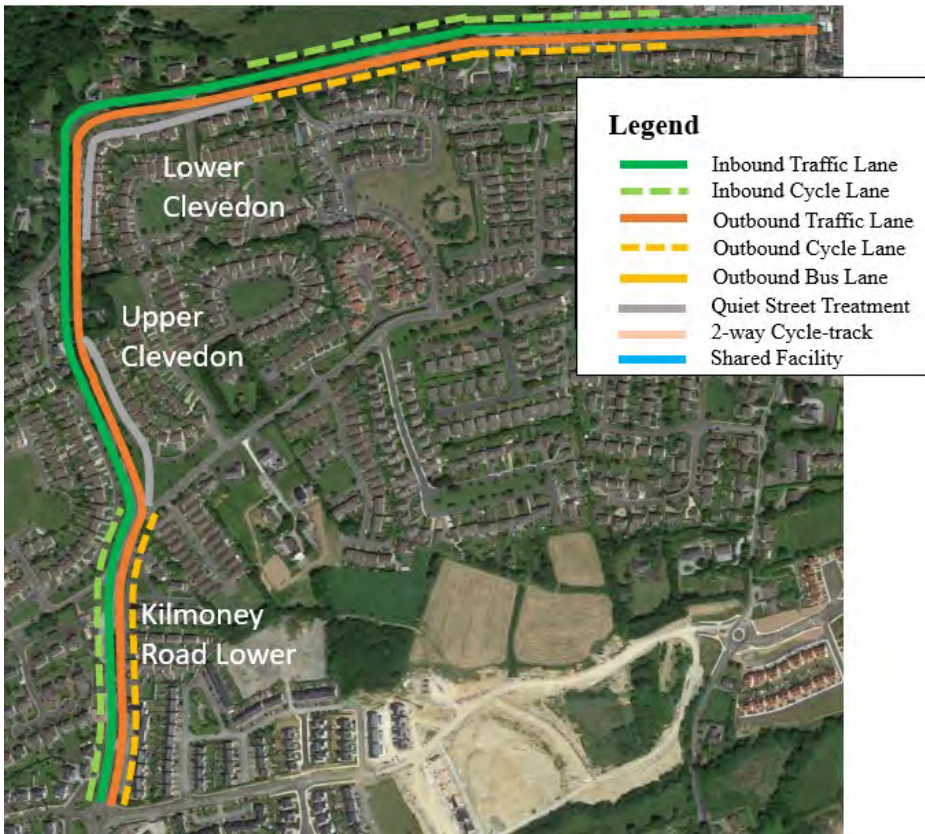


Figure 40 Kilmoney Road Lower Option 1 – Infrastructure elements

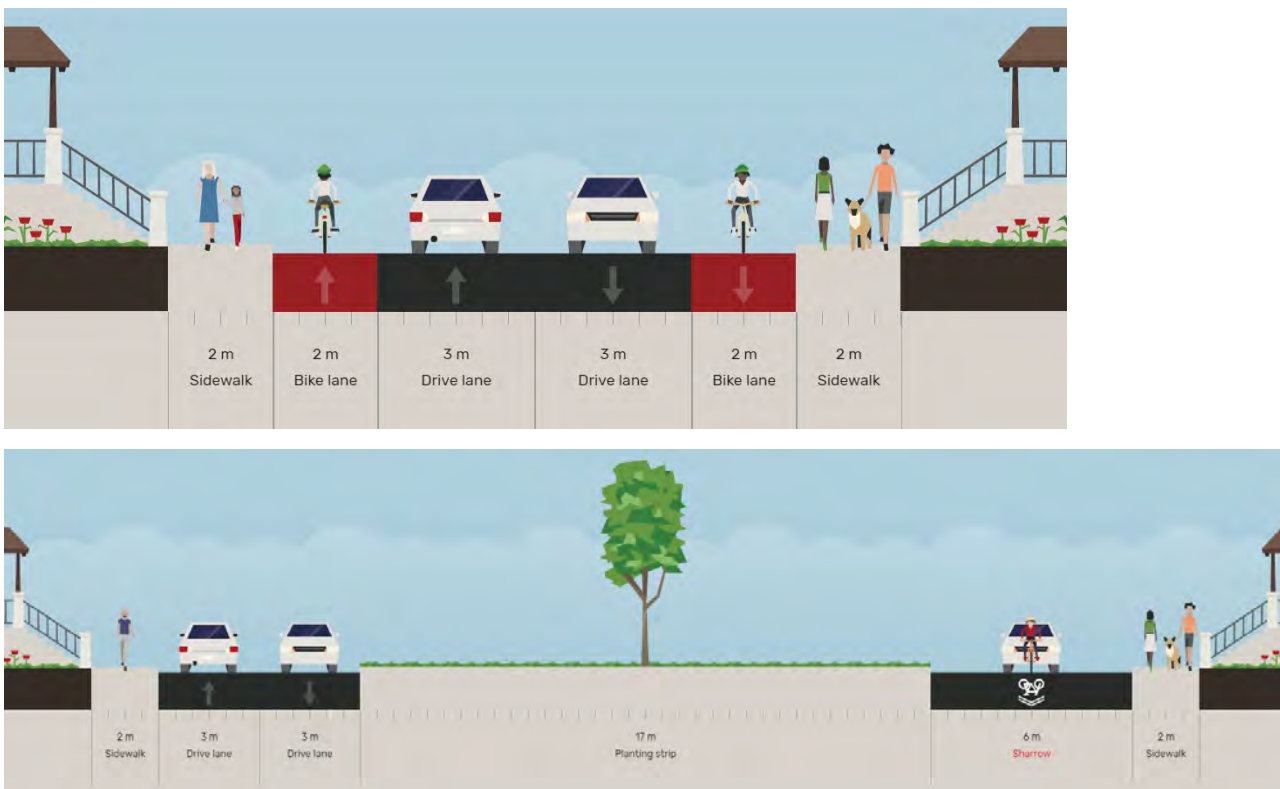


Figure 41 Kilmoney Road Lower Option 1 - Cross-sections

4.5.2.2 Kilmoney Road Lower Option 2

The layout for option 2 is a two-way cycle-track on the northern and western side of the road, two general traffic lanes and footpaths in both directions. This option would likely need some public and private land take. There is land take needed on the northern and southern sides of the road, with the possible need for land take from 16 properties. Figure 42 shows the proposed infrastructure elements for this option and Figure 43 shows the proposed cross-section.

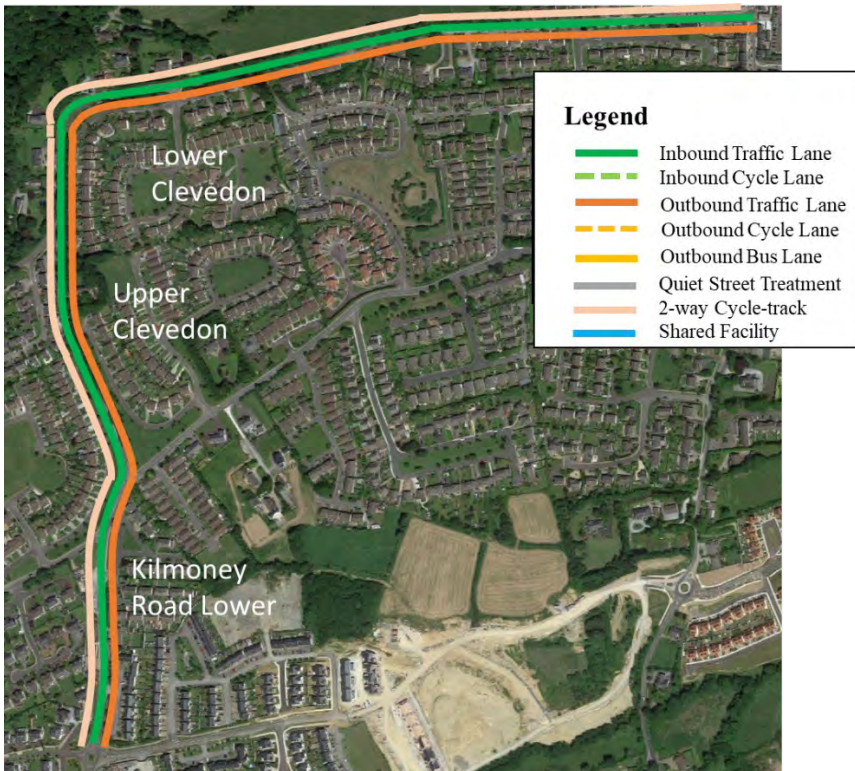


Figure 42 Kilmoney Road Lower Option 2 – Infrastructure elements

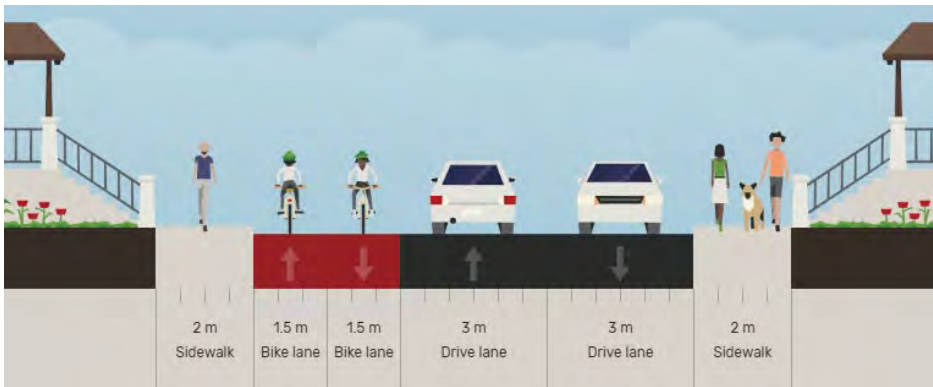


Figure 43 Kilmoney Road Lower Option 2 - Cross-section

4.5.2.3 Kilmoney Road Lower Option 3

The layout for option 3 is the provision of a shared facility along the northern and western side of the road, two general traffic lanes and footpaths in both directions. This option would likely need some public and private land take. There is land take needed on the northern and southern sides of the road, with the possible need for land take from 12 properties. Figure 44 shows the proposed infrastructure elements for Option 3 and Figure 45 shows the cross-section.



Figure 44 Kilmoney Road Lower Option 3 – Infrastructure elements

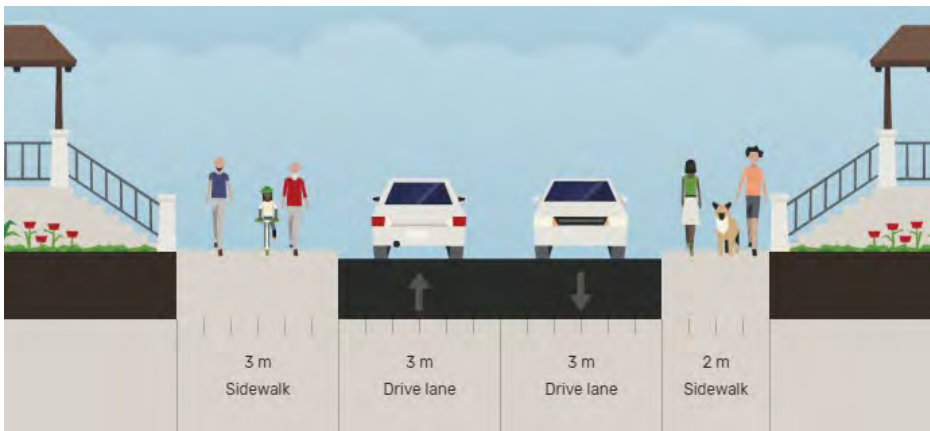


Figure 45 Kilmoney Road Lower Option 3 - Cross-section

4.5.2.4 Kilmoney Road Lower Option 4

The layout for option 4 consists of a short section cycle-track in both directions at both the south and the east of the route, in the centre of the route there is the provision of a shared facility along the northern and western side of the road, two general traffic lanes and footpaths in both directions are provided throughout. This option would likely need some public and private land take. There is land take needed on the northern and southern sides of the road, with the possible need for land take from 12 properties. Figure 46 shows the proposed infrastructure elements for Option 4 and Figure 47 shows the cross-section.

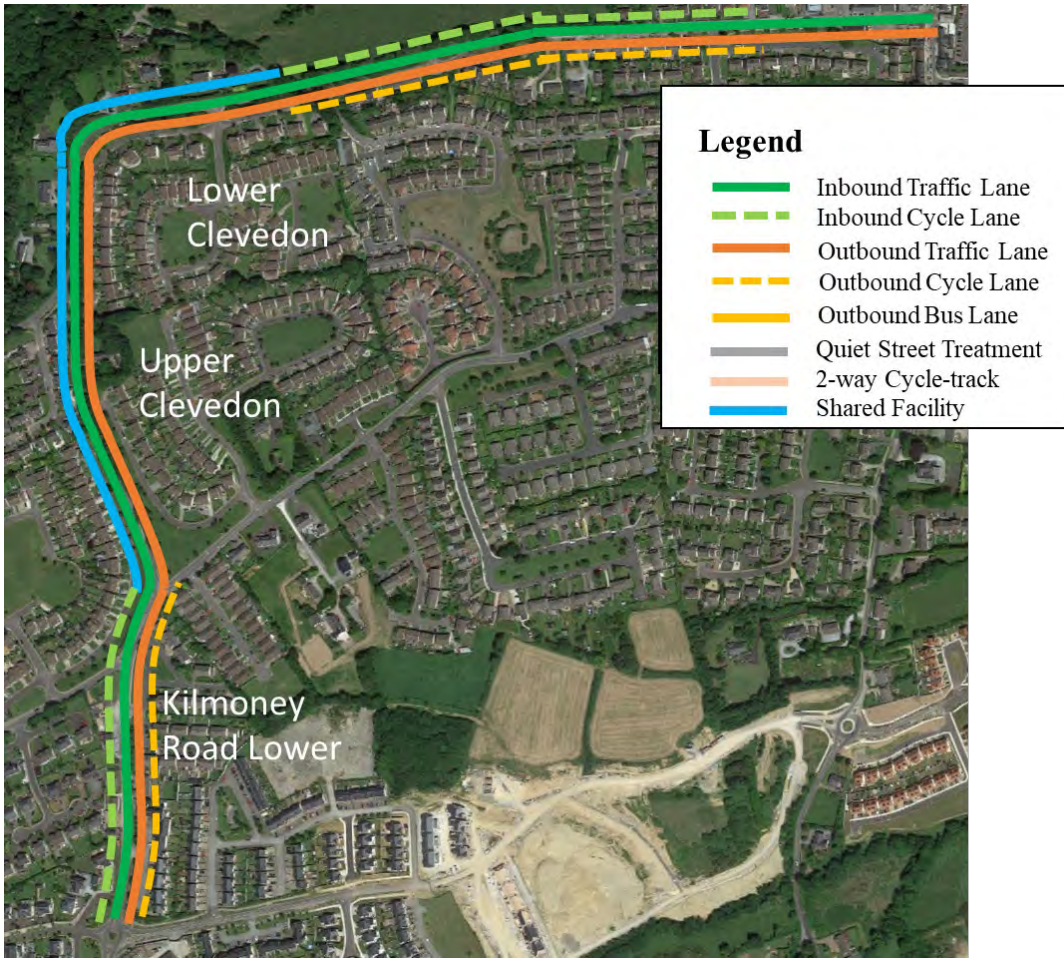


Figure 46 Kilmoney Road Lower Option 4 – Infrastructure elements

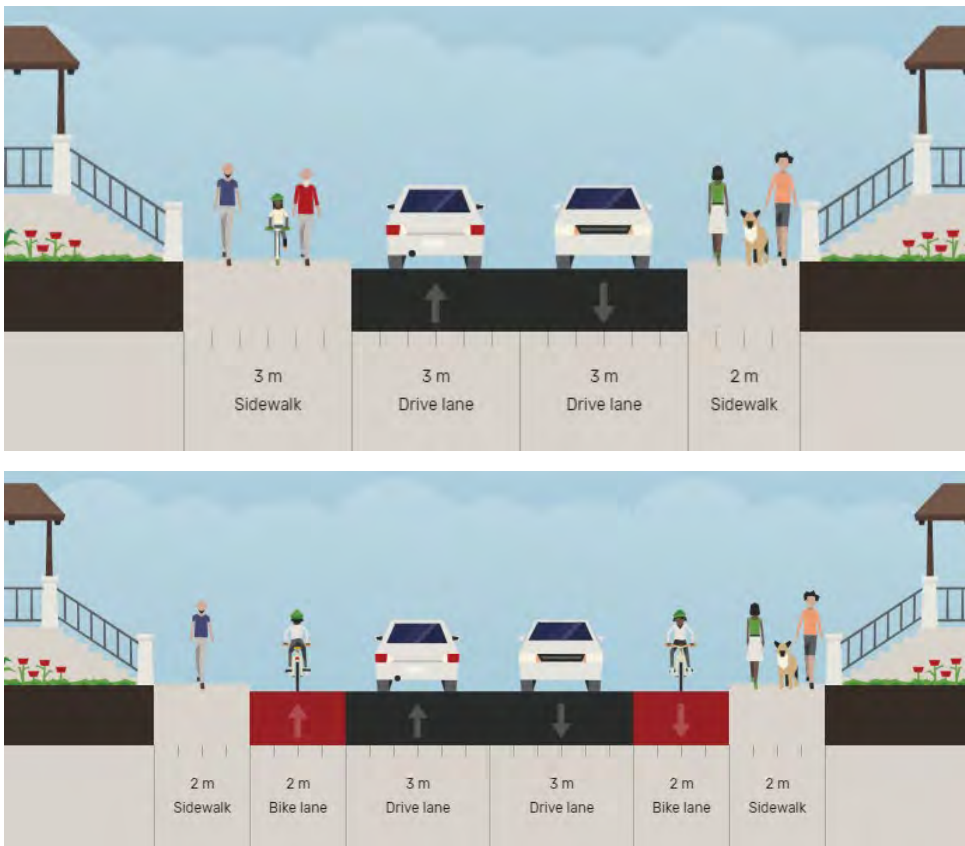


Figure 47 Kilmoney Road Lower Option 4 – Cross-sections

4.5.2.5 Kilmoney Road Lower Option 5

The layout for Option 5 consists of a cycle-track in both directions throughout the route, where pinch points exist adjacent to Forest Road and The Stables, re of the route there is the provision of a shared facility along the northern and western side of the road, two general traffic lanes and footpaths in both directions are provided throughout. This option would likely need some public and private land take. There is land take needed on the northern and southern sides of the road, with the possible need for land taken from 16 properties. Figure 48 shows the proposed infrastructure elements for Option 5 and Figure 49 shows the cross-section.



Figure 48 Kilmoney Road Lower Option 5 – Infrastructure elements

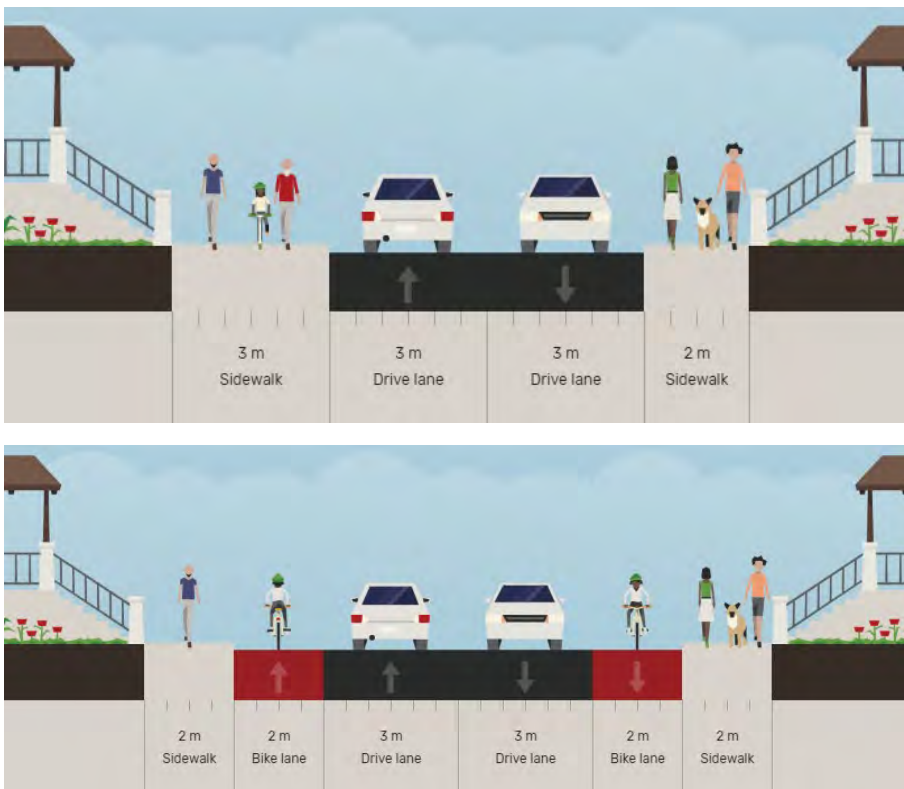


Figure 49 Kilmoney Road Lower Option 5 – Cross-sections

4.5.3 Appraisal of Proposed Options for Kilmoney Road Lower

An MCA for the five options identified for Kilmoney Road Lower has been carried out in line with the appraisal methodology described in Section 4.1.2.

Option 5 is the preferred option for Kilmoney Road Lower, as it combines the best facilities and has minimal landtake in constrained areas.

However, following the environmental and ecological assessment of the preferred option, a sixth option, option 5a has been identified in order to reduce the extent of works required of the option between the junction of Kilmoney Road Lower and Pottery Road and the junction of Kilmoney Road Upper and Kilmoney Road Lower. This was to avoid impact on sensitive surrounding environmental receptors, in particular hedgerow and treeline habitat. Removing this section of the project has prevented the removal of c.400m of treeline and hedgerow habitat.

The layout for Option 5a includes the provision of segregated cycle tracks on both sides of the road from the entrance to Dairygold Co Op Superstore to Abbey View and from Castle Heights to Upper Kilmoney Road, including provision of shared space infrastructure at pinch points on Kilmoney Road Lower. The option also includes a protected style junction on Kilmoney Road Lower / Pottery Road, the preferred option 5a is outlined below in Figure 50.

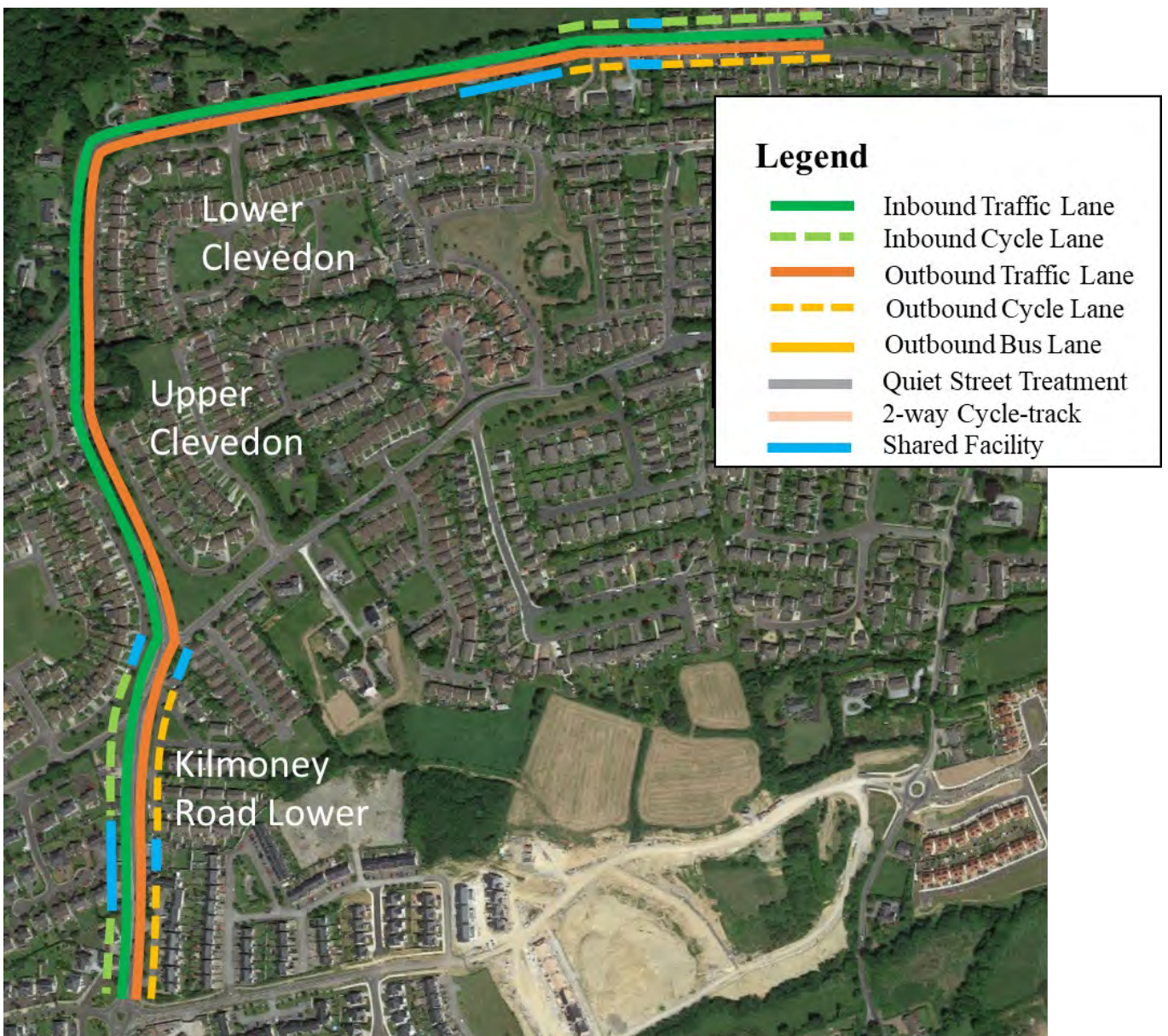


Figure 50 Kilmoney Road Lower Option 5a – Infrastructure elements

4.6 Ballea Road Optioneering

4.6.1 Route Appraisal of Ballea Road

The Ballea Road section between Pottery Road and the roundabout adjacent to Carrigaline United AFC is a section of road to the west of Carrigaline of approximately 800m in length (Figure 51). This route runs through a mainly residential area. There is a medical centre and Carrigaline Court Hotel on approach to the junction with Main Street.

The western area of this study area begins at the roundabout adjacent to Carrigaline United AFC, where there are pitches located on the southern side of the carriageway, and a walled residential area to the northern side (Figure 52).

Continuing along the eastern section of the Ballea Road is largely constrained on both sides by private residential properties with a large gradient difference sloping downwards to the carriageway on the southern aspect of the route. The length of the carriageway and footpaths from boundary to boundary is generally 11-12m along this section of the Cork Road.

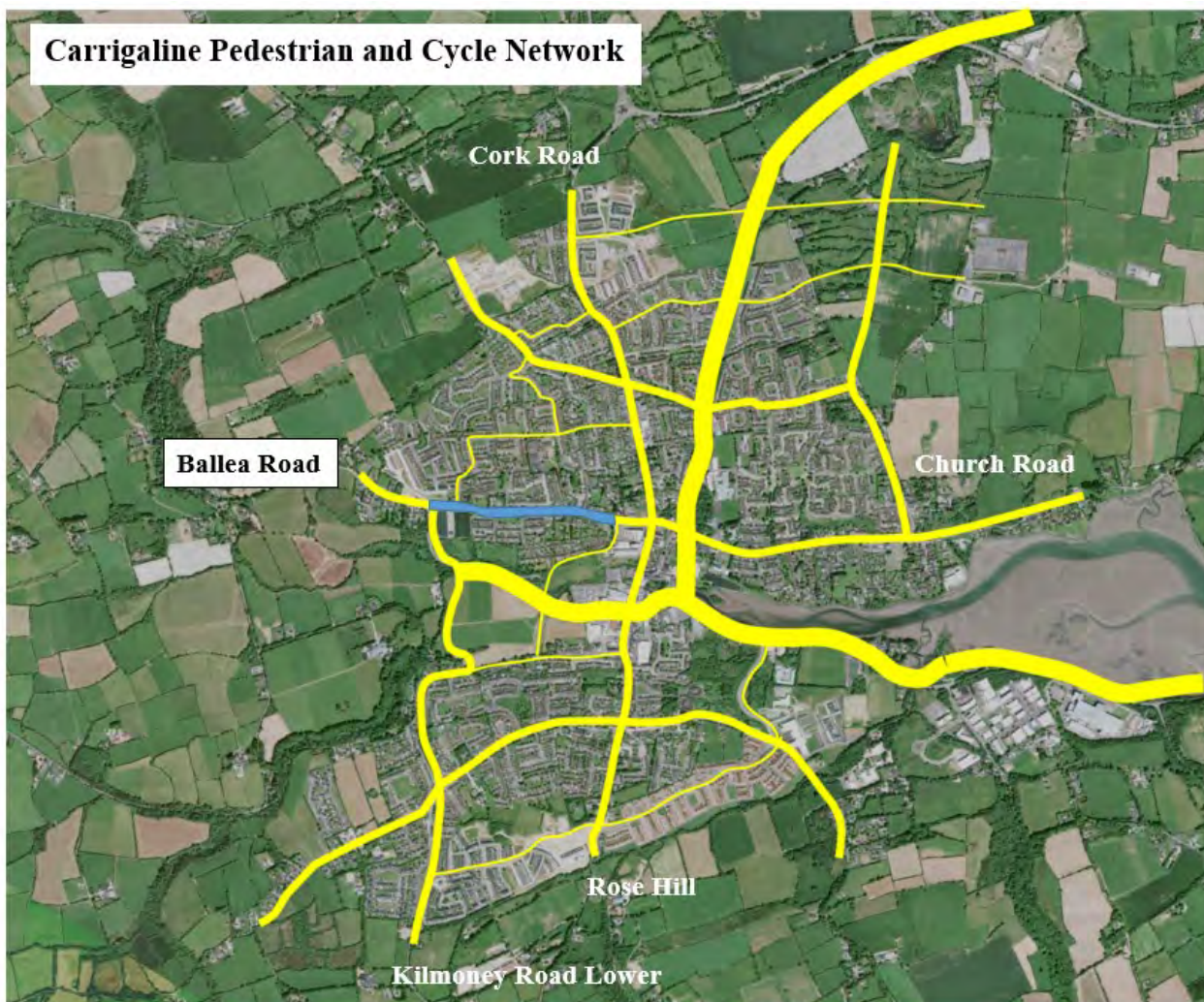


Figure 51 Ballea Road in the context of the proposed Carrigaline TPREP pedestrian and cycling network



Figure 52 Ballea Road roundabout at Carrigaline United AFC

4.6.2 Proposed Options for Ballea Road

4.6.2.1 Ballea Road Option 1

Option 1 is the option that was presented in the TPREP report for Carrigaline. It consists of a cycle-track in both directions, two general traffic lanes, and footpaths in both directions. This option would likely need some public and private land take. There is land take needed on the northern and southern sides of the road, with the possible need for land take from 2 properties.

Figure 53 shows the proposed infrastructure elements for Ballea Road Option 1 and Figure 54 shows the proposed cross-section through the road.



Figure 53 Ballea Road Option 1 – Infrastructure elements

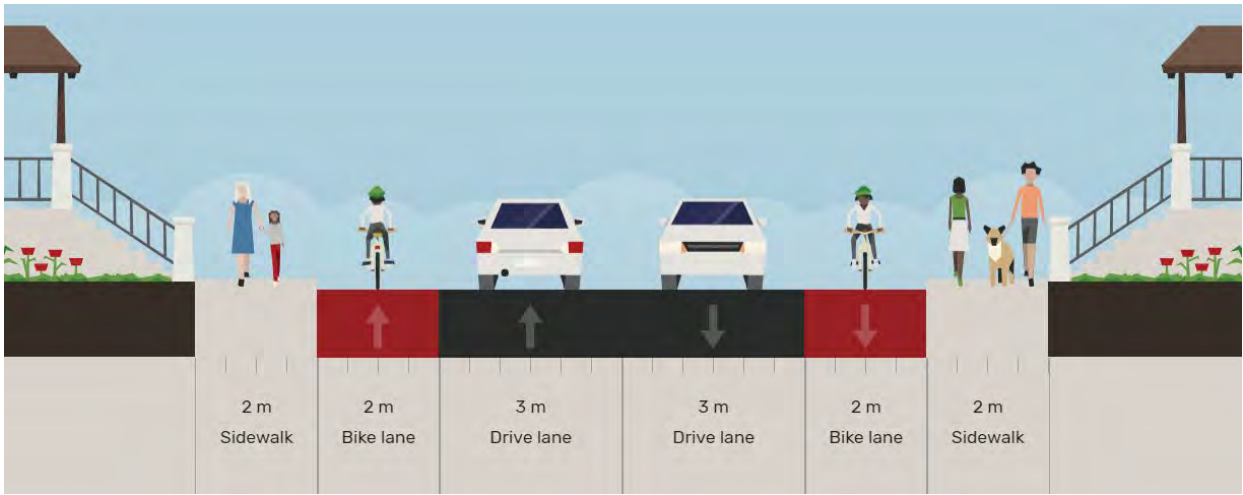


Figure 54 Ballea Road Option 1 – Cross-section

4.6.2.2 Ballea Road Option 2

The layout for option 2 is a two-way cycle-track on the southern side of the road, two general traffic lanes and footpaths in both directions. This option would likely need some public and private land take. There is land take needed on the northern and southern sides of the road, with the possible need for land take from 2 properties. Figure 55 shows the proposed infrastructure elements for Ballea Road Option 2 and Figure 56 shows the proposed cross-section through the road.



Figure 55 Ballea Road Option 2 – Infrastructure elements

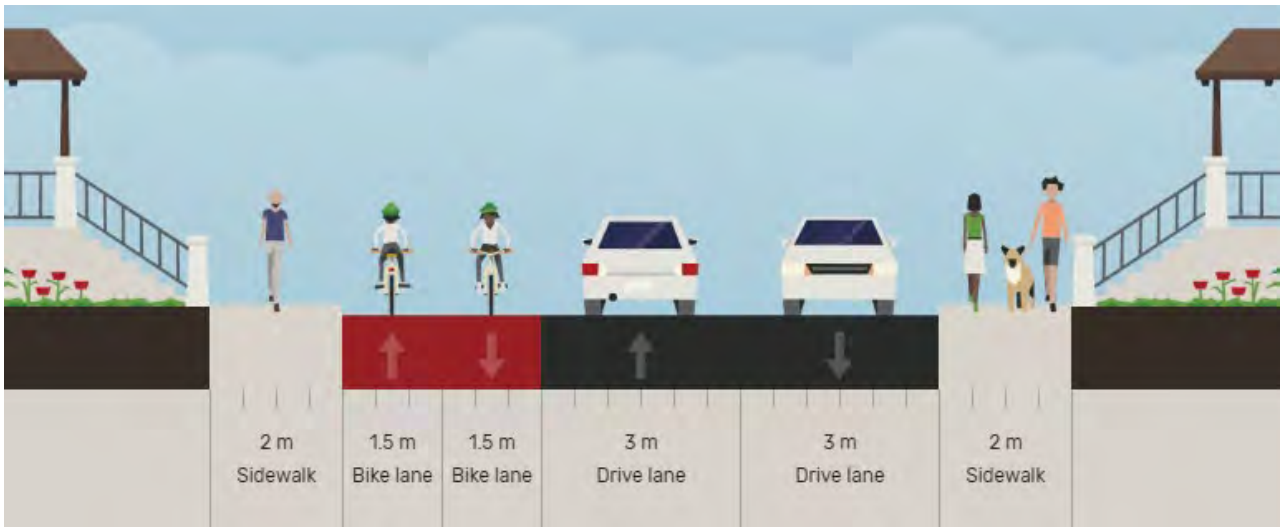


Figure 56 Ballea Road Option 2 – Cross-section

4.6.3 Appraisal of Proposed Options for Ballea Road

An MCA for the two options identified for Ballea Road has been carried out in line with the appraisal methodology described in Section 4.1.2.

Option 1 is the preferred option for Ballea Road as it is deemed to provide the best facilities, especially in terms of connectivity to the rest of the Carrigaline cycling and pedestrian network.

4.7 Strand Road Optioneering

4.7.1 Route Appraisal of Strand Road

The Strand Road section between Main Street, extending past the existing roundabout eastbound, and including the Owenabue Bridge, is approximately 360m in length (Figure 57). This route runs mainly through a commercial area.

The western area of this study area begins just before the intersection of Strand Road and Main Street, with Dunnes Stores, the Carrigaline Fire Station and Lidl on the southern side of the carriageway, and the Owenabue River to the north of the carriageway (Figure 58). The eastern end of the study area finishes circa 70m after the existing roundabout at this location (Figure 59). The study area also includes the extents of the Owenabue Bridge (Figure 60).

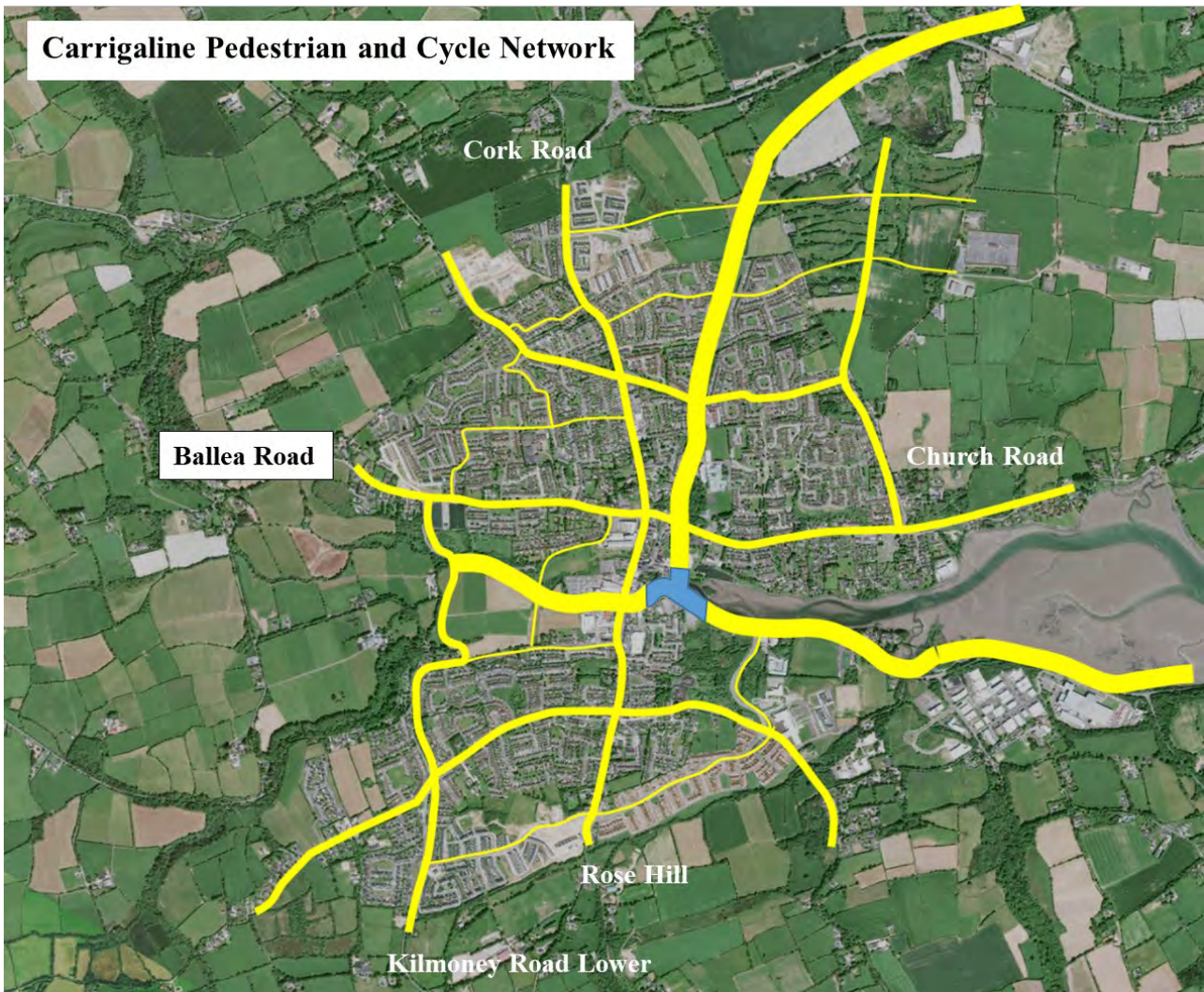


Figure 57 Strand Road in the context of the proposed Carrigaline TPREP pedestrian and cycling network



Figure 58 Strand Road western section – Dunnes Stores entrance



Figure 59 Strand Road – Existing roundabout



Figure 60 Strand Road – Owenabue Bridge

4.7.2 Proposed Options for Strand Road

4.7.2.1 Strand Road Option 1

Option 1 consists of a two-way cycle-track on the northern side of the carriageway, two general traffic lanes, and footpaths in both directions. The two-way cycle-track transitions into a shared space on approach to Strand Road. This option would likely need some public and private landtake. There is landtake needed on the southern side of the road, with the possible need for landtake from 3 properties.

Figure 61 shows the proposed infrastructure elements for Strand Road Option 1 and Figure 62 shows the proposed cross-section through the road.

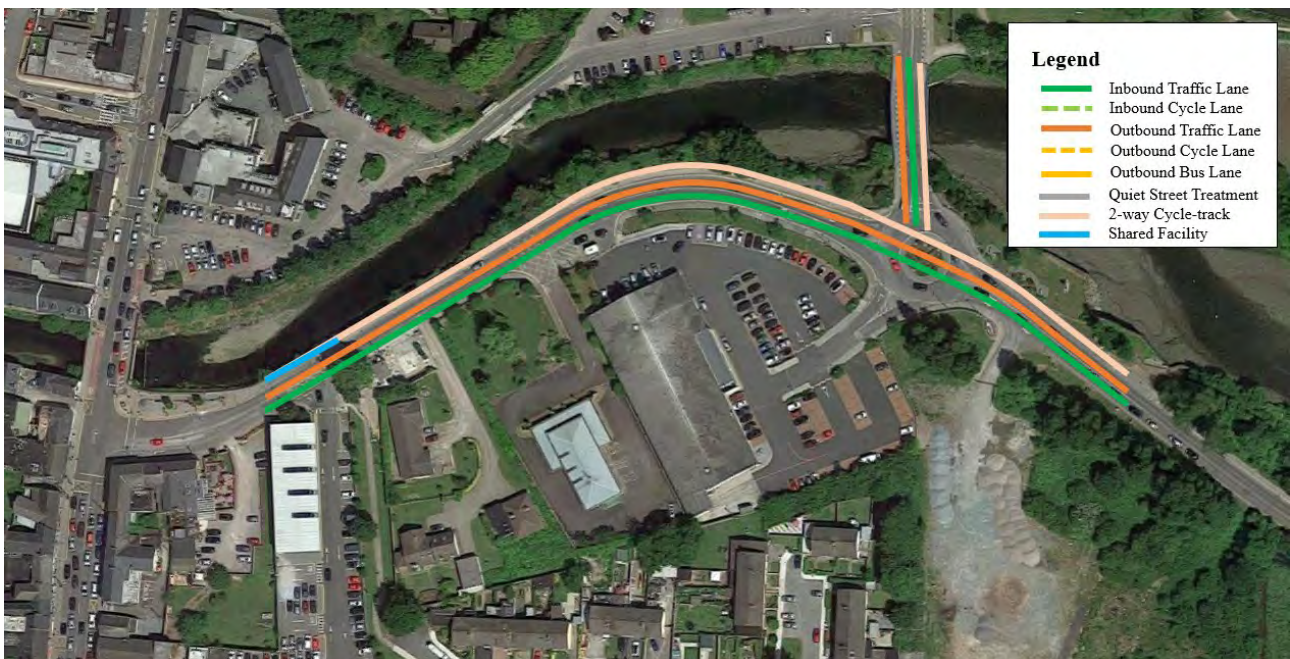


Figure 61 Strand Road Option 1 – Infrastructure elements

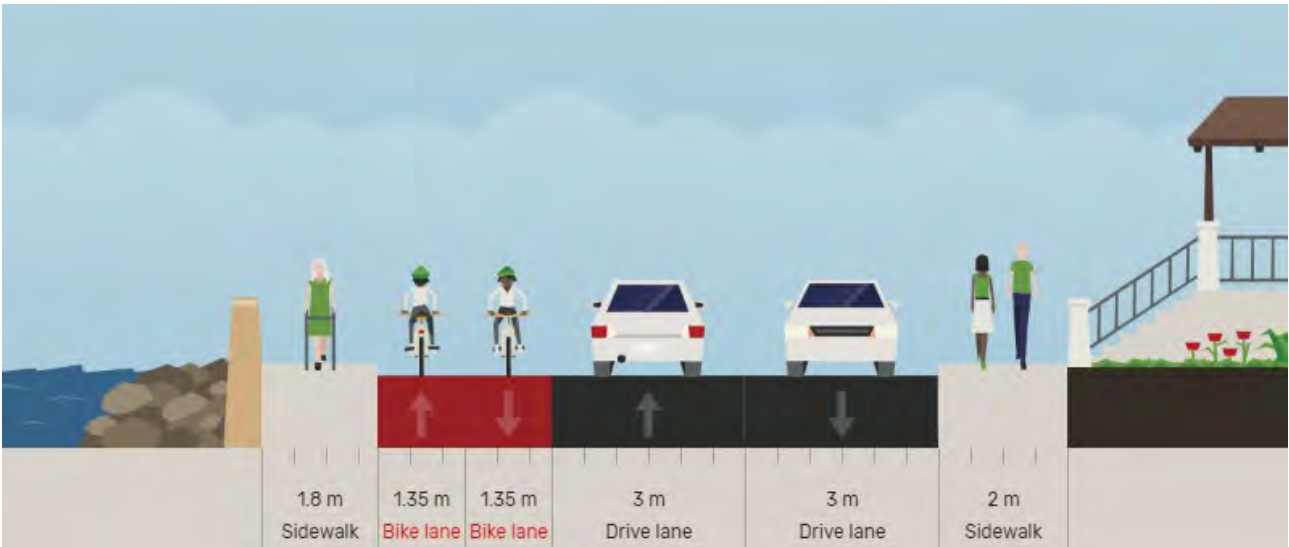


Figure 62 Strand Road Option 1 – Cross-section

4.7.2.2 Strand Road Option 2

The layout for Option 2 is a shared space on the northern side of the road, two general traffic lanes and a footpaths on the southern side of the carriageway. This option would likely need some public and private landtake. There is landtake needed on the southern side of the road, with the possible need for landtake from 3 properties. Figure 63 shows the proposed infrastructure elements for Strand Road Option 2 and Figure 64 shows the proposed cross-section through the road.

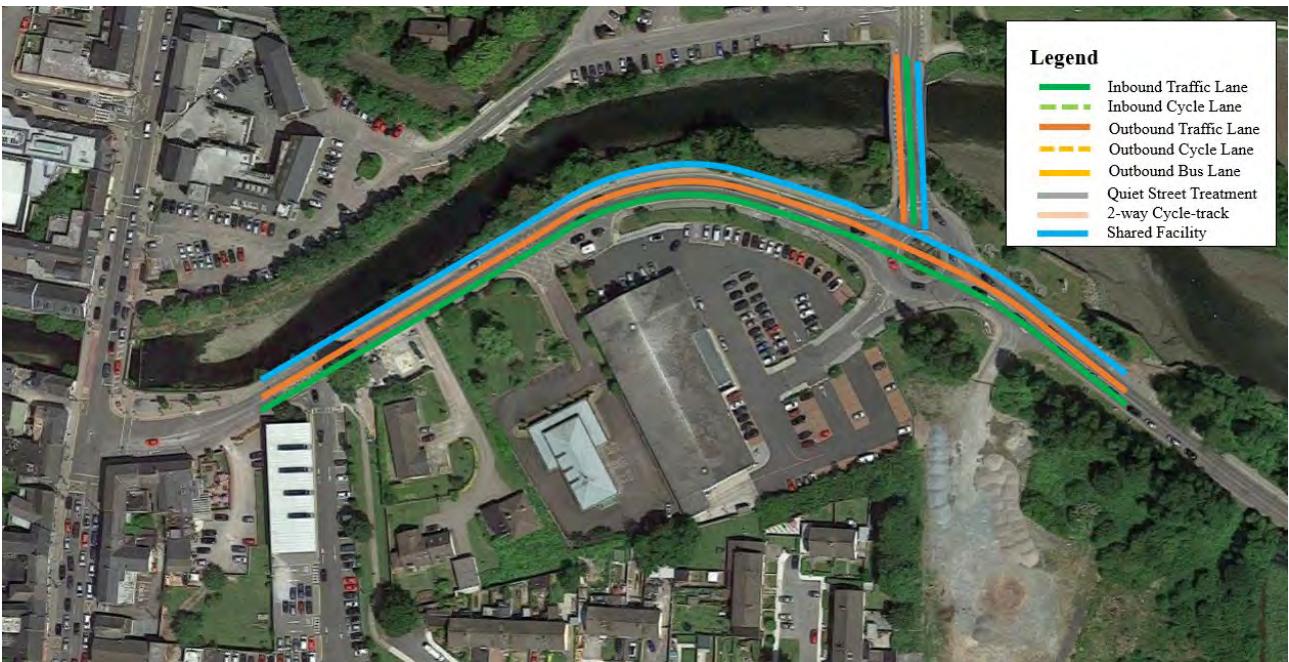


Figure 63 Strand Road Option 2 – Infrastructure elements



Figure 64 Strand Road Option 2 – Cross-section

4.7.3 Appraisal of Proposed Options for Strand Road

An MCA for the two options identified for Strand Road has been carried out in line with the appraisal methodology described in Section 4.1.2.

Option 1 is the preferred option for Strand Road. The two-way cycle track will provide better cycling facilities in the area. The short section of shared space on the approach to Main Street to slow cyclists down and let them know they are entering an area containing more pedestrians.

5. Description of the Proposed Scheme

5.1 Project Description

The proposed development at the locations identified consists of street and public realm improvements as follows:

5.2 Emerging Preferred Route Options

In summary, the emerging preferred option for each route is shown in Table 4. A brief description of the emerging preferred option for each route is provided below.

Table 4 Emerging preferred option for each route.

| Route | Emerging Preferred Option |
|-----------------------|---------------------------|
| Cork Road | Option 4 |
| Church Road/Rock Road | Option 3 |
| Rose Hill | Option 3 |
| Kilmoney Road Lower | Option 5 |
| Ballea Road | Option 1 |
| Strand Road | Option 1 |

Cork Road

- Provision of a quiet street treatment along Glenwood Estate;
- Provision of a segregated shared space on the western side of the road;
- Provision of entry treatment at the junction of Main Street / Ballea Road / Church Road and Cork Road; and
- Provision of raised entry treatments along Cork Road.

Church Road/Rock Road

- Provision of segregated cycle tracks on both sides of the road for majority of route, including provision of shared space infrastructure at pinch points on Church Road;
- Provision of continuous footpaths on both sides of road for Church Road section and majority of Rock Road section;
- Introduction of formalised and reconfigured car parking outside Church and School on Church Road;
- Provision of raised entry treatments along Church Road / Rock Road; and
- Introduction of formalised parking along Kilmoney Road Lower.

Rose Hill

- Provision of a segregated cycle track southbound on Rose Hill;
- Adjustment to roundabout to negate northbound traffic from travelling on to Rose Hill;
- Provision of raised entry treatments along Rose Hill; and
- Provision of a quiet street treatment along Whiteoak's / Clover Hill

Kilmoney Road Lower

- Provision of segregated cycle tracks on both sides of the road from the entrance to Dairygold Co Op Superstore to Abbey View and from Castle Heights to Upper Kilmoney Road, including provision of shared space infrastructure at pinch points on Kilmoney Road Lower;
- Provision of continuous footpaths on both sides of road along Kilmoney Road Lower from the entrance to Dairygold Co Op Superstore to Abbey View and from Castle Heights to Upper Kilmoney Road;
- Provision of raised entry treatments along Kilmoney Road Lower from the entrance to Dairygold Co Op Superstore to Abbey View and from Castle Heights to Upper Kilmoney Road; and
- Provision of protected style junction on Kilmoney Road Lower / Pottery Road

Ballea Road

- Provision of segregated cycle tracks on both sides of the road;
- Introduction of formalised car parking outside Carrigaline AFC;
- Provision of raised entry treatments along Ballea Road; and
- Provision of continuous footpaths on both sides of road for entire Ballea Road section.

Strand Road

- Provision of segregated cycle track on north side of the road for majority of route, including provision of shared space infrastructure upon entry on to Main Street; and
- Provision of signalised junction at Owenabue Bridge / Strand Road junction.

6. Design Statement

6.1 Introduction

This section sets out the concepts and standards supporting and informing design decisions and describes the manner in which the proposed development responds to the project objectives.

6.2 Design Context

6.2.1 Environmental Context

The proposed development has been designed with careful consideration to minimise negative impacts on the environment, and with an aim of overall positive impacts. None of the proposals are considered to have any significant long-term negative impact on the environment, and any impact will be short-term during the construction stage.

An EIA Screening and AA Screening have been carried out on the proposed development. In addition an Ecological Impact Assessment was carried out. The associated reports form part of this planning documentation.

6.2.2 Design Standards

The proposed development has been designed with reference to, and in compliance with, the Design Manual for Urban Roads and Streets (DMURS) in terms of the overall principles of design.

Where applicable, the National Cycle Manual has also been consulted for best practice guidance. In addition, emerging design guidance arising from the national BusConnects programme has been applied regarding details of bus lanes, cycle tracks and footway.

6.2.3 Parking

There are currently no formal car parking along Ballea Road however cars are parked informally along this road. It is proposed to introduce formalised car parking outside Carrigaline AFC will result in a total of 15 new car parking spaces to serve patrons of the soccer club.

Along Church Road/Rock Road, the introduction of formalised and reconfigured car parking outside the Church and School on Church Road will result in a total of 14 car parking spaces.

Along Kilmoney Road Lower, the introduction of formalised parking opposite Top Oil Service Station will result in a total of 10 car parking spaces.

There will be no net loss of parking spaces throughout the Proposed Development.

6.2.4 Pavement

The footpaths on Cork Road, Ballea Road, Rose Hill, Kilmoney Road Lower and Church Road will be generally constructed with in-situ concrete and both cycle lanes and traffic lanes will have a bituminous surface.

6.2.5 Trees

Construction best practice, such as hand digging around trees, will be undertaken to ensure as many trees as possible can be retained in their current location. Works will be undertaken in accordance with the Transport Infrastructure Ireland (TII) Guidance for the Protection and Preservation of Trees, Hedgerows and scrub prior to, during and post construction of National Road Schemes.

6.2.6 Public Lighting

Public lighting is currently available along the routes mounted on high masts and on ESB masts. These existing public will largely be maintained and where required slightly relocated to create clear and clutter free footways and cycleways.

6.2.7 Utilities

Existing utilities will be maintained at their existing location and where requires will slightly be relocated to allow clear and clutter free footpaths and cycleways.

6.2.8 Drainage

Surface water run-off will be managed as is currently in place. Any surface run-off that is generated will be minor and will enter the existing surface water drainage system and will be diluted before eventual discharge to the Owenabue River or Estuary, or treatment at Shanbally WwTP and ultimate discharge of treated effluent in Cork Lower Harbour. The design of the Proposed Development includes upgrades to the existing drainage system including the provision of additional gullies where required.

6.2.9 Earthworks

Construction works for the Proposed Development will include excavation of the street surfacing and sub-base, removal of existing surface materials and repaving of the street to include installation of new footpaths and cycle-tracks. This will also enable the installation of new utilities including additional drainage into the existing drainage network, street lighting, and the planting of trees and native plants to enhance biodiversity.

The maximum depth of excavation will be 1,000mm below existing surface level, with the majority of the excavations approximately 500mm below the existing surface level. The detailed design stage will inform the exact location of trees and structural supports (i.e., for street lighting). This will ensure that existing utilities or other underground structures are not impacted during the installation of the necessary foundations.

The earthworks will be designed to try and ensure equal measures of cut and fill to prevent to need for either the import or disposal of excessive quantities of fill.

7. Land Acquisition

The majority of the scheme lies within the existing public right of way, however there are locations where it will be necessary to acquire land or property in order to implement the scheme. Land acquisition is required for Church Road/Rock Road, Rose Hill and Strand Road.

Where land or property has been identified as necessary to facilitate the scheme, Cork County Council have contacted and will continue to liaise with the relevant impacted landowners directly. Through this liaison, Cork County Council will seek to acquire the relevant lands as outlined above to facilitate the implementation of the proposed scheme through agreement with the relevant landowners in question, or via Compulsory Purchase Order (CPO).

8. Receiving Natural Environment

8.1 Appropriate Assessment Screening

The Appropriate Assessment (AA) Screening report was prepared by Arup.

The aims of this report were as follow:

- Determine whether the proposed development is directly connected with, or necessary to the conservation management of any Natura 2000 sites.
- Provide information on and assess the potential for the proposed development to significantly impact on Natura 2000 Sites (also known as European sites).
- Determine whether the proposed development, alone or in combination with other projects and plans, is likely to have significant effects on Natura 2000 sites in view of their conservation objectives.

It has been objectively concluded that:

- The proposed project is not necessary to the conservation objectives and/or management of any Natura 2000 sites.
- The Proposed Scheme, individually or in-combination with other plans or projects, would not have likely significant effects on any European site, in view of sites' conservation objectives.

Cork County Council, as a/the local authority, have reviewed this report and has determined that an Appropriate Assessment is not, required.

8.2 Environmental Impact Assessment Report Screening

The Preliminary Environmental Impact Assessment Screening Report contains necessary information to enable the local authority, in this case CCC, to undertake a preliminary examination and screening, of the proposed scheme to determine if an EIA is required.

The conclusion of Arup's preliminary examination is that the nature, scale and location of the proposed development is such that there is no real likelihood of significant effects on the environment arising from the proposed development and that there is no doubt regarding the likelihood of significant effects. Following the preliminary examination, the report's findings are that neither a screening determination nor an EIA is required for the proposed development.

Cork County Council have reviewed this report and has determined that an Environmental Impact Assessment Report is not required.

8.3 Ecological Impact Assessment

An Ecological Impact Assessment was prepared as part of the project to develop an understanding of the potential ecological impacts associated with the delivery of the proposed development.

8.3.1 Designated Sites

The EcIA recognises that the proposed development is located immediately adjacent to Cork Harbour SPA, however an Appropriate Assessment Report has been carried out that concluded that there was no potential for the Proposed Development site to significantly impact on Natura 2000 sites.

The findings from the ecological impact assessment clearly note that the development does not have any significant residual impacts although it is acknowledged that there will be some localised effects associated with the loss of trees and nesting habitats for bird species. The Ecological Impact Assessment has identified the following mitigation measures to offset the potential localised impacts. The conclusion in the Habitat Regulation Assessment (HRA) also allows the conclusion that there will not be significant effects to the Cork Harbour SPA and this can also be applied to the Owenboy River and associated habitats.

8.3.2 Habitats

Two EU Annex I habitats were recorded immediately adjacent to the site. These were:

- Estuaries (1140)
- Tidal Mudflats (1130)

The conclusion in the Habitat Regulation Assessment (HRA) also allows the conclusion that there will not be significant effects to the Cork Harbour SPA can also be applied to associated EU Annex I habitat (mudflats (1130) and estuaries (1140).

A total of 11 habitats, none of which are considered notable habitats, within the Proposed Developments RLB. Habitats that are identified for removal / degradation include:

- Dry meadows and grassy verges (GS2) (137m²);
- Hedgerow (120m) (WL1);
- Treeline (80m) (WL2); and
- Ornamental non-native shrub (120m) (WS3).

Mitigation for habitats on site include planting of 200m of new treelined hedgerow. BNG for habitats on the site shall comprise an additional 150m new species rich treelined hedging using plants at least 2 years old, or 75m of new species rich treelined hedging using whips at least 2 years old with mature trees no more than 15m apart.

The 67 trees demarcated for felling shall be replaced by 287 new native trees to mitigate tree removal. Dry Grassy Meadows and Verges habitat will be replaced to benefit notable invertebrates, BNG can be achieved through modifying the mitigation measures by creating species rich habitat consisting of species reflective of native Lowland Hay Meadow (6510).

8.3.3 Protected and Notable Species

8.3.3.1 Birds

The proposed development is anticipated to remove c.550m of suitable breeding and foraging habitat for three priority bird species. These being the red listed house sparrow and amber listed starling and grey wagtail.

Recommendations have been made for mitigating the effects of the proposed development for priority bird comprising of:

- Installation of nesting boxes for house sparrow, startling and grey wagtail on a like for like basis (i.e. using boxes with a minimum of 25 year span in the field) under the direction of an Ecological Clerk of Works;
- Reinstating treeline and hedgerow habitat to benefit breeding and foraging breeding birds; and
- Vegetation removal works will be undertaken outside of the breeding birds season (1st March to 1st August).

8.3.3.2 Common Frog

Habitat was identified on site that is suitable for foraging and commuting common frog.

Recommendations to mitigate the impacts of the development on this species consist of:

- Habitat removed will be reinstated to mitigate the impact of the project on foraging and commuting common frog.
- Identify options to create habitat piles using deciduous woodland felled by the project within urban green space, potential sites include the green space outside of Carrigaline Youth Centre.

8.3.3.3 *Invertebrates*

The site is deemed suitable for gatekeeper, moss carder bee, large red-tailed bumblebee, patchwork leafcutter bee and various mining bee species.

- 2 (3 for BNG) Bee posts⁵⁰ will be installed to replace Patchwork Leafcutter Bee nesting habitat. Bee banks will be installed in suitable sites to replace mining bee colonies. Suitable sites for both these features include the green space at Carrigaline Youth Centre.
- 137m² of Dry Meadows and Grassy Verge habitat will be replaced to mitigate the loss of this habitat, BNG can be achieved by creating species rich habitat instead of the mitigation measures consisting of species reflective of native Lowland Hay Meadow (6510).
- Identify options to create 15 m² (30m² for BNG) dead wood habitat piles using deciduous woodland felled by the project within urban green space.

8.3.3.4 *Bats*

Trees on site are not considered to be suitable for roosting bats. However, the site is considered suitable for foraging and commuting bats. Various potential roost features were identified immediately adjacent the Proposed Development, though these are not anticipated to be affected.

Recommendations have been made for mitigating the effects of the proposed development for bat species most likely to be impacted. These being:

- Leisler's bat;
- Soprano pipistrelle;
- Brown long-eared bat;
- Common pipistrelle;
- Daubenton's bat;
- Whiskered bat; and
- Natterer's bat.

The following mitigation measures are recommended:

- Habitat removed will be reinstated as outlined in Table 28 to mitigate the impact of the project on foraging and commuting bats.
- Lighting plans for the operational phase will ensure accordance with the "Bats and Artificial Lighting at Night" guidance notes⁵¹.
- 16 (21 for BNG) bat boxes will be erected on a like for like basis under the supervision of a SQE to create future roosting habitat for bats. These boxes will have a life span of 25 years and be suitable for the species noted above.

8.3.3.5 *Red Squirrel*

The construction phase will result in the removal of c.550m² habitat suitable for foraging and commuting red squirrels.

Habitat removed will be reinstated as outlined in Table 28 to mitigate the impact of the project and in accordance with Section 7 to achieve BNG.

8.3.3.6 *Pine Marten*

The construction phase will result in the removal of c.550m² habitat suitable for foraging and commuting pine marten.

Habitat removed will be reinstated as outlined in Table 28 to mitigate the impact of the project and in accordance with Section 7 to achieve a BNG.

8.3.3.7 West European Hedgehog

The construction phase will result in the removal of c.550m² habitat suitable for foraging and commuting west European hedgehog.

Habitat removed will be reinstated as outlined in Table 28 to mitigate the impact of the project and in accordance with Section 7 to achieve a BNG. In addition, options should be identified to create habitat piles using deciduous woodland felled by the project within the red line boundary, in particular in the urban footprint of the town where suburban gardens offer suitable habitat and low road speeds decrease the risk of collision.

8.4 Flood Risk Assessment

The Flood Risk Assessment (FRA) was undertaken in accordance with the ‘The Planning System and Flood Risk Management Guidelines for Planning Authorities’ published in November 2009, jointly by the Office of Public Works (OPW) and the then Department of Environment, Heritage and Local Government (DoEHLG), herein referred to as ‘the Guidelines’.

Carrigaline town has historically been prone to tidal flooding with significant events occurring in recent years. The area is at risk of both fluvial and tidal flooding from the Owenabue River. The risk of pluvial and groundwater flooding to the area is considered high and moderate, respectively.

The proposed development supporting the delivery of the Public Realm Enhancement of Main Street consists of upgrading approximately 1200m of existing street infrastructure to include enhanced pedestrian and cycle and changes in traffic and parking management. The existing street infrastructure along Main Street passes over the Owenabue River in the centre of Carrigaline.

Having reviewed the various sources of flooding in Stage 1 it was determined that the site of the proposed works on Strand Street is at risk of flooding, with much of the site being within Flood Zones A and B and hence Stage 2 FRA has been carried out.

Stage 2 identified the flood extents within Flood Zones A and B from tidal flood source up to a maximum flood depth of 1m are encountered within the site of the proposed development. Additional flood extents are seen from pluvial and fluvial sources. The proposed development along the existing Strand Street is considered ‘highly vulnerable’ as it involves street infrastructure and therefore a Justification Test was required. The Justification Test for the development was completed as part of the site-specific Flood Risk Assessment (FRA) and it was determined that the development proposal satisfied all the requirements.

The scope of the proposed development is in keeping with the existing road profile and does not increase the risk of flooding elsewhere.

During construction, staff on site will maintain awareness of flood and weather forecasts on an ongoing basis as well as receiving warnings from Cork County Council and Met Eireann as appropriate. During operation, roadway, bike, and pedestrian users will have sufficient notice through social media and news reports as part of weather warnings to avoid affected areas in advance of a possible flood.

This FRA has demonstrated that the risks relating to flooding can be managed and mitigated to acceptable levels and therefore comply with DoEHLG / OPW and Cork County Council planning guidance.

9. Summary and Conclusion

This report supports the Part VIII Planning Application for the proposed Carrigaline Transportation and Public Realm Enhancement Plan Phase 1B scheme. Phase 1B is the second part of the TPREP Implementation Phase. The first part, Phase 1A, includes the traffic management changes and public realm works on Main Street in tandem with the provision of a new pedestrian and cycle link connecting Bridgemount and Heron's Wood. The appraisal of Phase 1A is dealt with in separate reports.

Phase 1B comprises the integrated pedestrian and cycle network proposed for Carrigaline under TPREP. This network will be connected to the existing cycle and pedestrian facilities on Bóthar Guidel, which will be further enhanced as part the TPREP programme of works.

Phase 1B includes six routes as outlined above and as follows:

- Cork Road between Ballinrea Road and Ballea Road;
- Church Road between Fernhill Road and Cork Road;
- Rose Hill between Forrest Hill and Ferney Road;
- Lower Kilmoney Road from the entrance to Dairygold Co Op Superstore to Abbey View and from Castle Heights to Upper Kilmoney Road;
- Ballea Road from Ballea Woods to Cork Road; and
- Strand Road from Main Street to the southern edge of Bothar Guidel Bridge.

The delivery of the Carrigaline Transportation and Public Realm Enhancement Plan Phase 1B scheme is consistent with national, regional and local planning policies to encourage greater use of active and sustainable travel modes and will assist in delivering on the nation's targeted reduction in carbon emissions.

The proposed development will result in a substantial improvement to the existing sustainable transport infrastructure in Carrigaline and will be the catalyst for change in Carrigaline to encourage more trips to be taken by sustainable travel modes. The proposed Carrigaline TPREP Phase 1B scheme is the next stage in the continued role out of sustainable transport infrastructure that will transform the town in terms of enhanced accessibility creating a sustainable town for the future.

The proposed development is in accordance with the proper planning and sustainable development of the area and is in accordance with local planning policies and objectives. The potential environmental and ecological impacts, arising from the scheme have been reviewed and assessed. The proposed landscaping of the route to include native trees to replace any trees being removed which will mitigate any loss of tree habitat broadening the biodiversity enhancements of the area when operational. The proposed development will not result in significant environmental or ecological residual effects.