

LIMERICK CITY AND COUNTY COUNCIL

ST PAULS TO BALLYKEEFFE ROUNDABOUT ACTIVE TRAVEL SCHEME

PART 8 PLANNING REPORT

AUGUST 2023

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1. INTRODUCTION

1.1 Background

MRG Consulting Engineers Limited prepared this report to accompany this Part 8 Planning Application by Limerick City & County Council for the upgrade of cycling facilities and cyclist/pedestrian crossing facilities along a length of the R526 St. Nessans Road from Saint Pauls Roundabout to Ballykeeffe Roundabout (SPR to BKR). The R526 SPR to BKR Scheme is located in the greater Raheen / Dooradoyle area which is a large residential area to the Southwest of Limerick City with a number of local schools and employers in the area. University Hospital Limerick is located on the R526 south of St. Pauls Roundabout. The Crescent Shopping Centre is situated off the R926 Dooradoyle Road adjacent to Ballykeeffe Roundabout and comprises the largest concentration of retail floor space outside of the City Centre and is adjacent to Limerick City & County Council's County Hall building and library.

Figure 1.1 below highlights the extents of the R526 SPR to BKR Scheme in red. There are completed cycle track installation works and further planned improvements to cycle facilities in the area of the Scheme on the R526, R926 and Father Russell Road as follows:

- To the north of Ballykeeffe Roundabout there are improvement works to the cycle facilities proposed on Ballincurra Road, South Circular Road and Henry Street into the City Centre at Bishops Quay with Part 8 Planning Approval granted in 2023.
- To the south of Ballykeeffe Roundabout, on the R926 Dooradoyle Road, opposite the Crescent Shopping Centre there is an inbound section of cycle lane linking to Ballykeeffe Roundabout which extends from a segregated cycle track constructed in 2021. The segregated cycle tracks are then provided on both sides of the road with improvements to existing cycle lanes at junctions with the works completed in 2021 extending to the 2nd signalised junction (playground junction) on the R916 Dooradoyle Road. The provision of the segregated facility was achieved by re-construction of areas of existing footpaths and narrowing of the existing road carriageway.
- To the west of St. Pauls Roundabout, the installation of segregated cycle tracks on a part of Father Russell Road and improvements to junctions received Part 8 Planning Approval granted in 2022. The Father Russell Road cycle scheme will provide a connection from the R510 to the R526 with the approved works currently at Tender Stage.

The intent of the project is to design and deliver high quality cycling facilities on sections of the R526 St. Nessans Road in the south Limerick environs. The provision of the cycling facilities will involve alterations to the current road corridor to provide for the cycling provisions and the review of upgrades to existing junctions to facilitate the provision of the cycling facilities and pedestrian crossing facilities.

The following documentation has been prepared in support of the proposed R526 (SPR to BKR) Scheme:

- Appropriate Assessment Screening Report
- Environmental Impact Assessment Screening Report
- Tree Survey & Arboricultural Impact Assessment
- Bat Roost Potential of Vegetation within the Scheme
- Biodiversity Plan
- Outline Resource & Waste Management Plan
- Data Protection Privacy Statement
- Road Safety Audit Stage I
- Flood Risk Assessment
- Photomontages
- Planning drawings (listed below).

Details of the proposed works are shown on the attached layout drawings which are contained within the Part 8 Planning Pack ;

- 120051-201 Site Location Map
- 120051-201 Site Layout Plan
- 120051-211 Layout Plan Sheet 1 of 2
- 120051-212 Layout Plan Sheet 2 of 2
- 120051-213 St. Pauls Roundabout Layout Plan
- 120051-214 Ballykeeffe Roundabout Layout Plan
- LP01 Landscaping Sheet 1 of 3
- LP02 Landscaping Sheet 2 of 3
- LP03 Landscaping Sheet 3 of 3

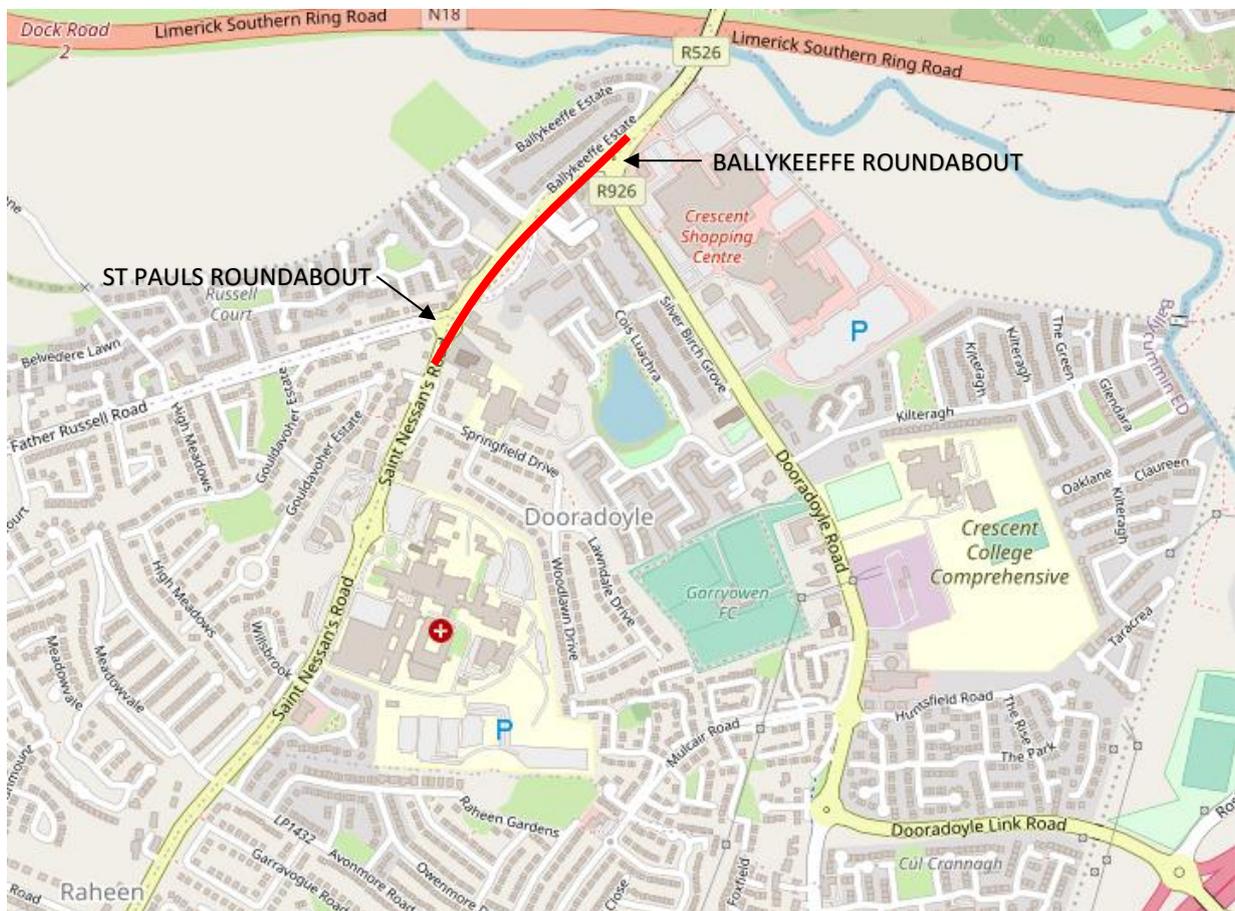


Figure 1.1 Site Location Map showing Proposed R526 SPR TO BKR Cycle Facility Scheme in red.

1.2 Policy Context and Relevant Design Standards

1.2.1 Smarter Travel – A Sustainable Transport Future 2009 – 2020

Smarter Travel - A Sustainable Transport Future, was published in February 2009 and represented a new transport policy for Ireland for the period 2009-2020. The policy recognised the vital importance of continued investment in transport to ensure an efficient economy and continued social development, but it also sets out the necessary steps to ensure that people choose more sustainable transport modes such as walking, cycling and public transport. The policy is a direct response to the fact that continued growth in demand for road transport is not sustainable due to the resulting adverse impacts of increasing congestion levels, local air pollution, contribution to global warming, and the additional negative impacts to health through promoting increasingly sedentary lifestyles.

The following five key goals form the basis of the Smarter Travel policy document:

- Improve quality of life and accessibility to transport for all;
- Improve economic competitiveness through maximising the efficiency of the transport system and alleviating congestion and infrastructural bottlenecks;
- Minimise the negative impacts of transport on the local and global environment through reducing localised air pollutants and greenhouse gas emissions;
- Reduce overall travel demand and commuting distances travelled by the private car;
- Improve security of energy supply by reducing dependency on imported fossil fuels;

These aims will be achieved through 49 specific actions listed within the Smarter Travel Policy, which can be broadly grouped into 4 key areas:

- Actions to reduce distance travelled by private car and encourage smarter travel;
- Actions aimed at ensuring that alternatives to the private car are more widely available;
- Actions aimed at improving the fuel efficiency of motorised transport through improved fleet structure, energy efficient driving and alternative technologies, and
- Actions aimed at strengthening institutional arrangements.

The Smarter Travel policy also includes for a comprehensive range of supporting 'actions' including mode specific (e.g. walking, cycling and public transport etc.) and behaviour change initiatives which both encourage and provide for sustainable travel practices for all journeys.

1.2.2 Limerick Development Plan 2022 – 2028

Chapter 7 - Sustainable Mobility and Transport of the Limerick Development Plan 2022 – 2028 outlines the Council's strategy to provide an effective, sustainable and accessible transport system. A functional and effective transport network is fundamental to the creation of a compact and connected place. The National Planning Framework (NPF) and the Regional Spatial and Economic Strategy (RSES) seek to reduce dependency on the private car and secure a shift towards sustainable modes of transport, including walking, cycling and public transport.

The Plan notes that a key project critical to enabling growth in Limerick includes the delivery of a comprehensive cycling and walking network for the Limerick City Metropolitan Area. The following policies and objectives are included in the plan.

Policy CS P6 – LSMATS (Refer to Section 1.2.3 below)

It is a policy of the Council to ensure that the Core Strategy is in line with the objectives of the final LSMATS and the integration of land use planning and transport in reducing the need to travel and

promote modal shift from the use of the private car.

Objective TR P3 – Integration of Land Use and Transport Policies

It is a policy of the Council to support and facilitate the integration of land use and transportation policies ensuring the delivery of sustainable compact settlements served by sustainable modes of transport.

Objective TR P4 – Promotion of Sustainable Patterns of Transport Use

It is a policy of the Council to seek to implement in a positive manner, in co-operation with the other relevant authorities and agencies, the policies of the NPF, RSES and the Department of Transport's Smarter Travel, A Sustainable Transport Future 2009 – 2020 (and any subsequent updates), to encourage more sustainable patterns of travel and greater use of sustainable forms of transport, including public transport, cycling and walking.

Objective TR P5 – Sustainable Mobility and Regional Accessibility

It is a policy of the Council to support sustainable mobility, enhanced regional accessibility and connectivity within Limerick, in accordance with the National Strategic Outcomes of the National Strategic Outcomes of the National Planning Framework and the Regional Spatial and Economic Strategy for the Southern Region.

Objective TR P6 – Delivery of Transport Infrastructure in line with National Policy

It is a policy of the Council to support the delivery of transport infrastructure identified within the National Planning Framework, National Development Plan 2021-2030 (and any update) and the Regional Spatial and Economic Strategy for the Southern Region and to support enhanced connectivity within Limerick and inter-urban connectivity within the regions.

Objective TR O2 – Design Manual for Urban Roads and Streets (Refer to Section 1.2.5 below)

It is an objective of the Council to support the appropriate road design standards of all roads and streets within the urban areas, including suburbs, towns and villages within the 60km/hr zone as per the Design Manual for Urban Roads and Streets and TII Publication Standards DN-GEO-03084 The Treatment of Transition Zones to Towns and Villages on National Roads.

Objective TR O5 – Limerick – Shannon Metropolitan Area Transport Strategy

It is an objective of the Council to facilitate the implementation and delivery of the proposals that will be contained in the final Limerick Shannon Metropolitan Area Transport Strategy, in conjunction with the National Transport Authority, Transport Infrastructure Ireland and Clare County Council and other relevant stakeholders. This partnership will achieve successful integration between land use and transport planning, and targeted growth along high-quality public transport corridors and sustainable higher densities.

Objective TR O6 – Delivering Modal Split

It is an objective of the Council to:

- a) Promote a modal shift away from the private car towards more sustainable modes of transport including walking, cycling, carpool and public transport in conjunction with the relevant transport authorities;
- b) Support investment in sustainable transport infrastructure that will make walking, cycling carpool and public transport more attractive, appealing and accessible to all.

Objective TR O7 – Behavioural Change Measures

It is an objective of the Council to:

- c) Continue to implement behavioural change initiatives and 'softer measures' aimed at enabling and promoting sustainable travel across Limerick's workplaces, campuses, schools and communities as

identified in LSMATS;

- d) Facilitate and implement school streets and school zones, including slow zones around schools, park and stride facilities and promote and facilitate active travel options for school children, to reduce the health and safety risk associated with traffic congestion, pollution and inactive lifestyles.

Objective TR O8 - Walking and Cycling Infrastructure - It is an objective of the Council to:

- a) Improve and provide clear, safe and direct pedestrian linkages, cycle networks as identified in the Limerick Shannon Metropolitan Area Transport Strategy (LSMATS), including the greenways and primary segregated cycle routes, between the employment zones, shopping areas and residential areas throughout Limerick;
- b) Maintain and expand the pedestrian route network, infrastructure and where possible retrofit cycle and pedestrian routes into the existing urban road network, to provide for accessible safe pedestrian routes within Limerick.

Objective TR O9 - Limerick Cycle Network

It is an objective of the Council to implement in full, the Cycle Network, which will be set out in the final LSMATS, with priority given in the short term to delivering the primary cycle network and cycle routes serving schools.

Objective TR O42 – Roads and Streets

It is an objective of the Council to secure improvements of the road network in Limerick, including improved pedestrian and cycle facilities, in conjunction and co-operation with relevant stakeholders, subject to resources becoming available.

1.2.3 Limerick Shannon Metropolitan Area Transport Strategy (LSMATS)

The National Transport Authority have published the Limerick Metropolitan Cycle Network Study. LSMATS has been developed by the National Transport Authority in collaboration with Limerick City and County Council, Clare County Council and Transport Infrastructure Ireland (TII). LSMATS sets out a framework for investment in transport for the Limerick Shannon Metropolitan Area for the next 20 years and includes proposals for the significant development of the cycle network.

Section 7 of LSMATS outlines the proposals to develop a consistent, clear and continuous network of urban and suburban cycle networks throughout the Limerick Metropolitan Area to ensure cycling becomes a realistic choice as a mode of transport. The Study has identified high-capacity corridors which includes the Crescent Shopping Centre and the residential areas in Dooradoyle which adjoin the Scheme under consideration in this report.

It is an objective of LSMATS to cultivate a cycling culture through the development of cycling facilities through the following:

- Identification of Primary, Secondary, Inter-Urban, Feeder and Greenway Routes, and Quiet Ways to develop a comprehensive cycle network across the Limerick-Shannon Metropolitan Area (LSMA);
- Provide cycle facilities designed to National Cycle Manual standards;
- Provide full or light segregation from other modes of transport to ensure safety and comfort of all road users;
- Provide local traffic calming, lower speed limits and junction treatments, particularly at complex junctions in an urban context; and
- Provide supporting measures including the public Bike Share Scheme, end-of-trip facilities, and behavioral change initiatives.

1.2.4 National Cycle Manual - 2023

The National Cycle Manual is a national guidance document that details the principles of sustainable safety that offers a safe traffic environment for all road user including cyclists. The manual provides guidance on integrating the bicycle in to the design of urban areas. The manual sets out five principle requirements for providing an adequate, safe cycle facility:

- **Road Safety:** Providing cycle infrastructure along a route should seek to maximise road safety for all road users, including cyclists. Any perception of a lack of safety could be a deterrent to cycling.
- **Coherence:** A cycling network should link all main origin and destination zones/centres for cyclists. Cycling routes should be logical and continuous.
- **Directness:** Cycling infrastructure should be as direct as possible and should minimise delays or detours. A well-designed urban cycle network should confer an advantage in terms of average distance or journey time when compared with other transport networks.
- **Attractiveness:** The cycling environment along a route should be pleasant and interesting.
- **Comfort:** Cycling infrastructure should be designed, built and maintained for ease of use and for comfort. This is particularly important for beginners, tourists and recreational cyclists. Providing adequate comfort includes design aspects such as width, gradients, surface quality, stopping and delays and shelter.

The width of a cycle facility as well as the type of facility proposed (Integrated or segregated) are two key factors for providing adequate, safe facilities and a sub-standard cycle lane/track is never recommended.

The width of a cycle facility as well as the type of facility proposed (Integrated or segregated) are two key factors for providing adequate, safe facilities and a sub-standard cycle lane/track is never recommended. The designed width of a cycle facility is comprised of the effective width as well as clearances that are required in different circumstances. The Width Calculator table provides details for determining the actual width required for cycle lanes and tracks. It comprises of three main factors, A,B and C, as well as an additional factor, D, which is only relevant in certain circumstances.

1.2.5 Design Manual For Urban Roads And Streets (DMURS)

DMURS provides guidance relating to the design of urban roads and streets. It presents a series of principles, approaches and standards that are necessary to achieve balanced, best practice design outcomes with regard to street networks and individual streets.

The manual places a significant emphasis on car dominance in Ireland and the implications this has had regarding the pedestrian and cycle environment. The document encourages more sustainable travel patterns and safer streets by proposing a hierarchy for user priorities. This hierarchy places pedestrians at the top, indicating that walking is the most sustainable form of transport and that by prioritising pedestrians first, the number of short car journeys can be reduced and public transport made more accessible.

Second in the hierarchy are cyclists with public transport third in the hierarchy and private motor vehicles at the bottom. By placing private vehicles at the bottom of the hierarchy, the document indicates that there should be a balance on street networks and cars should no longer take priority over the needs of other users.

The focus of the manual is to create a place – based sustainable street network that balances the pedestrian and vehicle movements. The manual references the different types of street networks, including arterial streets, link streets, local streets, and highlights the importance of movement.

1.2.6 Preliminary Design Guidance Booklet for BusConnects Core Bus Corridors

The NTA have published the Preliminary Design Guidance Booklet for BusConnects Core Bus Corridors and have notified Limerick City & County Council that the guidance included is to be adopted on Active Travel Schemes including the upgrade works to the R526 St. Nessans Road.

1.3 Scheme Objectives

This Active Travel Scheme aims to deliver improved safety, comfort and security for cyclists, along with pedestrians and the mobility impaired on the R526 SPR to BRK. The Scheme is proposed to encourage an uptake in cycling as a viable and safe travel mode. This objective is to be achieved through the delivery of facilities which are designed in compliance with the National Cycle Manual (NCM) and the Design Manual for Urban Roads and Streets (DMURS) along with National Transport Authority (NTA) input.

The design brief made particular reference to the following objectives to be met as part of the study outcome:

- To improve safety, comfort and security for cyclists, pedestrians and motorists;
- To provide safe cycling facilities in both directions;
- To improve cyclist/pedestrian crossing facilities;
- To promote and encourage cycling as a transport mode;
- The facilities shall provide appropriate integration or segregation in line with the principles of the National Cycle Manual. The overall vision for the route is to provide a segregated cycling facility where the existing road corridor permits;
- The facilities shall be to a target Quality of Service as specified in the National Cycle Manual. In the case of the R526 which is an existing road corridor with existing side road junctions and entrances it is agreed with Limerick City & County Council that the target Quality of Service is a Level B which will allow for a 1 + 1 cycle facility. The number of conflicts per 100m of the route which can comprise side roads and entrances will be in the range of 4 – 10 which is Level C, however 4 of the remaining 5 criteria will be designed to achieve a Level A or B Quality of Service which will allow an overall Level B Quality of Service to be assigned to the route;
- To tie into the Limerick Shannon Metropolitan Area Transport Strategy (LSMATS);
- To provide junction solutions in line with the Principles of Sustainable Safety, that meets with the five needs of cyclists and the target Quality of Services outlined in the National Cycle Manual (NCM);
- To design a facility that complies with the National Cycle Manual published by the National Transport Authority and the Design Manual for Urban Roads and Streets and any other relevant guidelines.
- To provide for bus priority at the St. Pauls Roundabout and Ballykeeffe Roundabout junctions.

The primary deliverables for the project are the provision of cycle facilities to the National Cycle Manual incorporating improvements to crossing facilities for pedestrians and cyclists particularly at junctions. It is proposed to provide segregated cycle facilities on both sides of the road where feasible with a minimum clear cycle track width of 1750mm for a one-way facility. The cycle track will be typically separated from the road carriageway by a minimum 250mm wide upstand kerb. A two-way cycle track is proposed in parts of the Scheme to provide for increased connectivity for cyclists. The Scheme will also include modifications to the footpath widths with a minimum footpath width of 1800mm proposed. Other elements to be delivered in conjunction with the above include junction improvements as required, works to bus lanes/stops, pedestrian facilities with associated modification to drainage, line markings and signage etc. Figure 1.2 shows the extents of the R526 SPR to BKR Scheme and Figure 1.3 shows the proposed typical cross section to be provided over part of the Scheme.

The current situation on the R526 is considered to be unsafe and unattractive for cyclists due to the non-segregation of cycle facilities and the absence of dedicated cycle facilities in parts and the traffic volumes on the road with multiple vehicular side roads and accesses that are designed with the prioritisation of motorised vehicles in mind. Existing side road junction arrangements are difficult for the vulnerable road user due to wide carriageway approach widths, large junction radii, wide circulating carriageway and resultant high vehicular speeds.

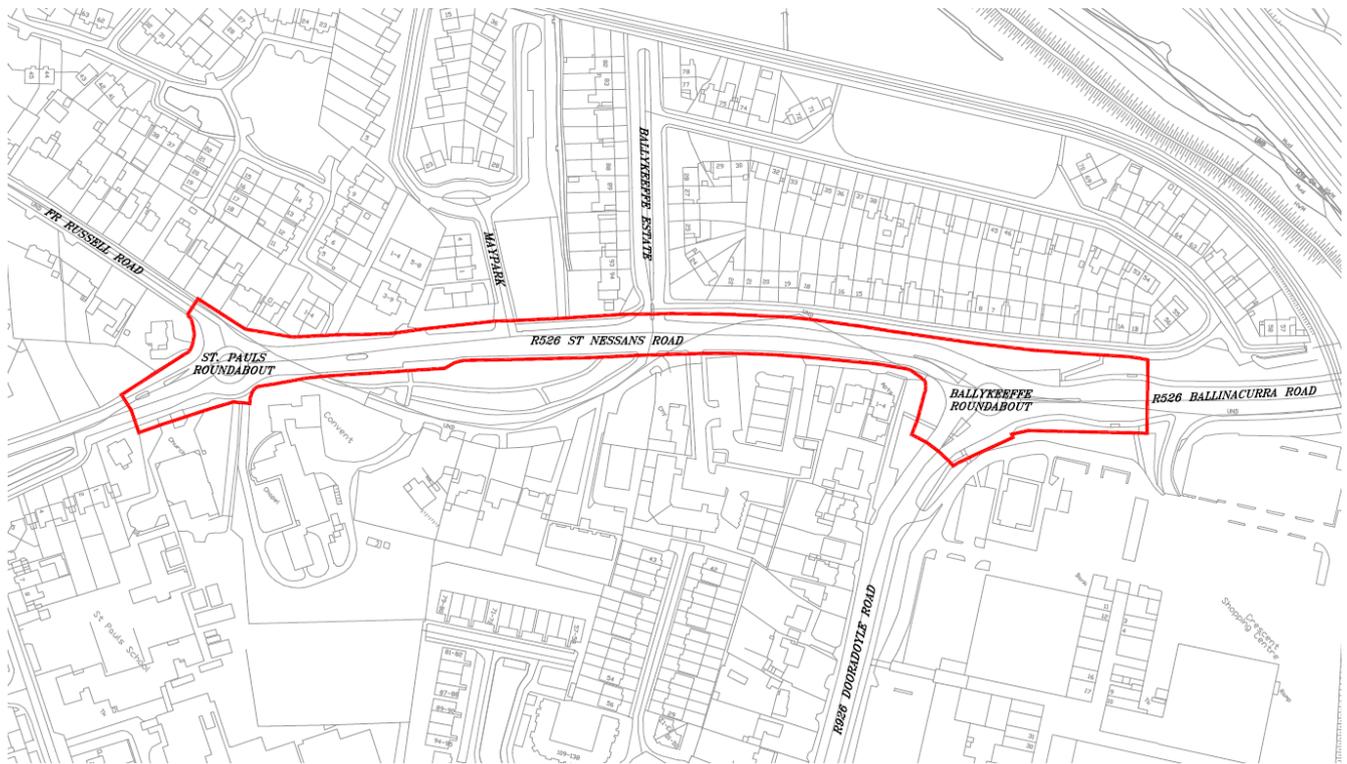


Figure 1.2 R526 Cycle Facilities Extents

The project is based on the recommendations of the Limerick Metropolitan Cycle Network Study (LMCNS) which identified the R526 St. Nessans Road as part of the primary cycle network and the connecting R926 Dooradoyle Road as part of the secondary cycle network in Limerick. The route is therefore part of the strategic urban and transport planning for Limerick and have been identified to provide safe, coherent, direct, attractive and comfortable facilities to encourage cycling as a sustainable transport option. The existing facilities are rated as grade D in the LMCNS report.

The primary deliverables for the project are the provision of cycle facilities with a target level of service of B to the National Cycle Manual incorporating improvements to crossing facilities for pedestrians and cyclists particularly at junctions. Other elements to be delivered in conjunction with the above include junction improvements as required, bus priority at junctions, works to bus lanes/stops, pedestrian facilities with associated modification to drainage, line markings and signage etc.

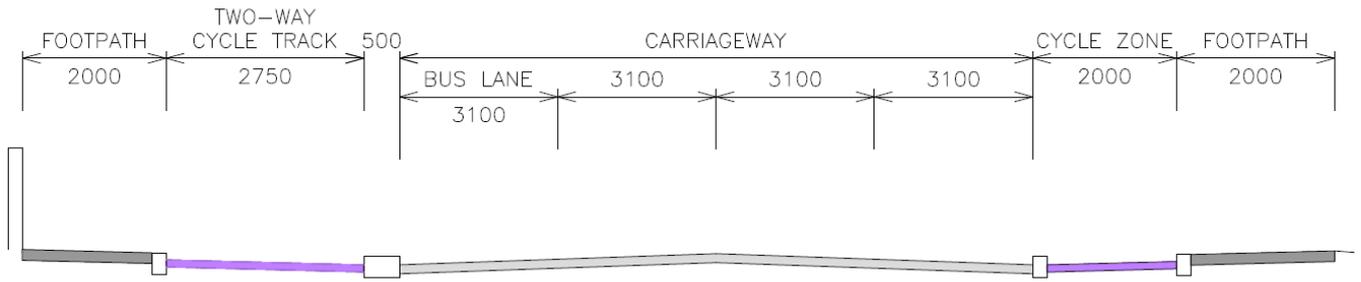


Figure 1.3 Typical Cross Section showing proposed footpath, cycle and road carriageway arrangement.

Landscaping layouts have been prepared for the Scheme and are included in the Planning Pack. The layouts show the locations of tree, shrub and hedge planting to be carried out in conjunction with the road corridor upgrade.

1.4 Proposed Design

The proposed cross section design is based on P65 of the National Cycle Manual (NCM) (2011) which relates to cycle facilities on collector roads with speed up to 50km/h with a continuous upstand to be provided between the cycle track and roadway. Refer to Figure 1.4 below. This arrangement is adapted in the BusConnects guidance with the upstand kerb arrangement.



Figure 1.4: Cycle Track on Collector Road – P65 NCM (2011)

The cycle facilities selection guide for determining the type of cycle facility extracted from the NCM 2023 is illustrated in Figure 1.5 and sets out speed limits and cyclist volumes against the type of facility to be provided. The AADT on the R526 is greater than 20,000 vehicles with the actual speed on the road being standard urban traffic speed between 30 and 50 km/ph within the 50 km/ph speed limit. The section guide indicates that a standard cycle track is permissible in this location.

The designed width of a cycle facility is comprised of the required width for cyclists (B) (eg. single file, or single file + overtaking etc.) widths as well as clearances that are required on the inside edge (A) and outside edge (C) of the facility. The Cycle Width Calculator from the NCM is shown in Figure 1.7 and was consulted in the preparation of the options.

Table 2.1 - Cycle facilities selection guide

Speed Limit ¹	Two-way traffic flow (peak hour pcus)	Remote Cycleway/ Greenway	Standard cycle track (incl. two-way tracks)	Stepped cycle track	Protected Cycle Lane	Mandatory Cycle Lane	Mixed Traffic
20 km/h	< 200	Green	Green	Green	Green	Green	Green
	200-400	Green	Green	Green	Green	Green	Green
	> 400	Green	Green	Green	Green	Orange	Orange
30 km/h	< 200	Green	Green	Green	Green	Green	Green
	200-400	Green	Green	Green	Green	Green	Orange
	> 400	Green	Green	Green	Green	Orange	Black
40 km/h	< 200	Green	Green	Green	Green	Orange	Pink
	200-400	Green	Green	Green	Green	Orange	Pink
	> 400	Green	Green	Green	Orange	Pink	Black
50 km/h	< 200	Green	Green	Green	Green	Orange	Pink
	200-400	Green	Green	Green	Green	Pink	Pink
	> 400	Green	Green	Green	Orange	Pink	Black
60 km/h	Any	Green	Green	Orange	Pink	Black	Black
≥ 80 km/h	Any	Green	Pink	Pink	Black	Black	Black

- Provision should be suitable for most users.
- Provision may not be suitable for all and may exclude some potential users (Departure required).
- Provision not recommended as it's unlikely to be suitable for a range of users (Departure required).
- Provision not suitable.

Notes:
1. If the 85th percentile motor traffic speed is more than 10% above the speed limit, the next highest speed limit should be applied.

Figure 1.5: Cycle Facilities Selection Guide (Source: NCM 2023)

The overall corridor width of the R526 along the extent of the Scheme is 18 – 19m with three to four traffic lanes. The existing carriageway width is typically 12m wide where there are 3 traffic lanes and increases to 13.7m where there are 4 traffic lanes on the southern approach to St. Pauls Roundabout. There are various side road priority junctions along the Scheme which access the residential housing areas with a number of private accesses to commercial, amenity, school and church properties along with some private driveways. The side road junctions/accesses/driveways are typically 50m apart.

The R526 can be classified as an Arterial Street which is a primary distributor road through an area using terminology in DMURS. DMURS includes guidance on carriageway widths and recommends that designers should minimise the width of the carriageway. Low to moderate speeds should be encouraged on the roadway with the recommended carriageway lane widths in DMURS being 3 – 3.25m.

BusConnects recommends a traffic lane width of 3.0m in areas with a speed limit of ≤ 60 km/hr. The minimum width of a bus lane should also be 3.0m. Taking account of the guidance in DMURS and BusConnects a minimum lane width of 3.0m is proposed for the R526 where there are 3 or more adjoining lanes, a width of 3.1m is achievable in areas.

DMURS also recommends reducing corner radii to improve pedestrian safety at junctions with low design speeds encouraged in the turning movements and where movements by larger vehicles are infrequent. This recommendation would apply to Father Russell Road with the side roads accessing mostly residential areas. Maximum corner radii of 1 to 3m are recommended. In view that cycle tracks are also traversing the side road junctions it is proposed to adopt 1m radii to the footpath kerb. A minimum 3m turning radius is proposed to the outside cycle kerb.

Table 2.2 - Width Calculator

A. Inside Clearance				
Feature	Additional width required (m)			
Flush or near-flush surface including low and splayed kerbs up to 60mm high	0.00			
Kerbs 61mm to 150mm high	0.20			
Vertical feature from 151mm to 600mm high	0.25			
Vertical feature above 600mm high	0.50			

B. Central Width				
Type of Facility	Flow (cycles per peak hour)	Desirable minimum width (m)	Absolute minimum width (m)	
One-way cycle track	<300	2.00	1.50*	
	>300	2.50	2.00	
Two-way cycle track	<300	3.00	2.00	
	>300	4.00	3.00	
Cycle lane	All	2.00	1.50	
Shared Active Travel Facility	<300	4.00	3.00	
	>300	5.00	4.00	

*May not cater for comfortable overtaking or cycling two abreast

C. Outside Clearance	
Feature	Additional width required (m)
Flush or near-flush surface including low and splayed kerbs up to 60mm high	0.00
Kerbs 61mm to 150mm high	0.20
Vertical feature from 151mm to 600mm high	0.25
Vertical feature above 600mm high	0.50

D. Buffer Width	One-way cycle track		Two-way cycle track	
	Desirable min buffer (m)	Absolute min buffer (m)	Desirable min buffer (m)	Absolute min buffer (m)
Speed limit (kph)				
≤30	0.00	0.00	0.50	0.30
40/50	0.50	0.00	0.50	0.30
60	1.00	0.50	1.00	0.50
80	2.00**	1.50**	2.00**	1.50**
100	3.50***	1.50***	3.50***	1.50***

Including any hard strip * Excluding any hard shoulder

Notes:

i. Desirable minimum widths should be used when calculating required widths of facilities. Where desirable values cannot be achieved, incremental reductions towards absolute minimum values may be considered.

ii. The use of widths less than the above guidance should be avoided. In exceptional circumstances where widths cannot comply with the guidance, the designer should seek a departure from standard and this should be approved by the relevant Sanctioning Authority prior to incorporation into the design.

iii. On gradients greater than 3%, cycle track width should be increased by 0.25 m to allow for greater lateral movement.

iv. Where gullies are present on a cycle track that do not allow cycles to easily overrun, the cycle track width should be increased by the widths of the gully.

Figure 1.6: Cycle Width Calculator – National Cycle Manual (2023)

In terms of the R526 link between the Saint Pauls Roundabout Junction and the Ballykeeffe Junction where a cycle lane/track facility is proposed along a 50kph road with minimum 3.1m wide traffic lanes the proposed cycle facility width is calculated as follows in accordance with the National Cycle manual (2023) :

One-way outbound cycle track

A (inside clearance)	- 100mm kerb to be provided to adjoining footpath	=	0.20m
B (central width)	- One-way	=	1.50m
C (outside edge)	- raised segregated kerb to be provided to traffic lane with 125mm kerb face on cycle side and 125mm kerb face on traffic side	=	<u>0.20m</u>
Calculated minimum one-way cycle track width		=	1.90m

Generally, the clear width of the one-way cycle provisions will be 1.75m. Whilst this width is less than the calculated width the retro fit installation is a substantial improvement on the existing facility.

Two-way inbound/outbound cycle track

A (inside clearance)	- 100mm kerb to be provided to adjoining footpath	=	0.20m
B (central width)	- Two-Way	=	2.35m
C (outside edge)	- raised segregated kerb to be provided to traffic lane with 125mm kerb face on cycle side and 125mm kerb face on traffic side	=	<u>0.20m</u>
Calculated minimum two-way cycle track width		=	2.75m

Generally, the clear width of the two-way cycle provisions will be 2.75m with a minimum 0.50m buffer.

The proposed R526 SPR to BRK Scheme can be divided into three distinct sections as follows;

1.4.1 St. Pauls Roundabout

The proposed layout for Saint Pauls Roundabout includes for the provision of segregated cycle tracks with the cycle tracks separate to the footpaths. It is proposed to tighten the outside diameter kerbing to the roundabout to provide a buffer to cyclists and to act as a deterrent to high vehicular speeds. The zebra crossings on both approaches on the R526 would be replaced with signalised crossings which would include for bus detection and bus priority on the approaches to the roundabout. A toucan crossing would be provided on Fr Russell Road with a zebra crossing on the Scoil Phoil Naofa arm of the roundabout where there are single lane approaches to the roundabout and low traffic volumes.

The proposed improvement works to the Saint Pauls Roundabout junction requires land acquisition from Saint Pauls Church and Saint Pauls Nursing Home. The works required to the Church property to provide improved crossing facilities are within a green area to the rear of the existing boundary wall with limited impact on the property. The boundary wall section removed to facilitate the works will be re-constructed at the rear of the upgraded footpath. The works to Saint Pauls Nursing Home would require the permanent closure of an existing access gate which is currently used as a service access only. A section of the Convert boundary wall will be set-back to provide for improved visibility onto the R526 from the Scoil Phoil Naofa access road.

1.4.2 R526 Link Arrangement between Roundabout Junctions

The proposed arrangement for the R526 includes for the provision of a 1.75m clear width one-way segregated cycle track on the south side of the road with a 2.75m clear width two-way cycle track on the north side of the road between St. Pauls Roundabout and the Ballykeeffe Estate junction. The proposed two-way cycle track would link to a shared street arrangement through Ballykeeffe Estate and onto a new two-way cycle track to the north-west of Ballykeeffe Roundabout.

Physical segregation will be provided by a full height kerb between the cyclist and the carriageway. The existing carriageway width will be reduced to facilitate the cycle tracks with a minimum lane width of 3.1m to be maintained.

1.4.3 Ballykeeffe Roundabout

The proposed layout for the Ballykeeffe Roundabout includes for the provision of segregated cycle tracks separate to the footpaths. It is proposed to tighten the outside diameter to the roundabout to provide a buffer to cyclists and to act as a deterrent to high vehicular speeds. The zebra crossings on the north side off the roundabout on the R526 would be replaced with signalised crossings which would include for bus detection and bus priority on the outbound approach to the roundabout. A new stepped pedestrian access route from Ballykeeffe Estate and signalised road crossing is included on the western arm of the roundabout on the R526.

Island bus stop arrangements would be constructed on the inbound and outbound bus stops in line with the guidance included in BusConnects (Refer to Figure 1.7).

Two-way cycle tracks will provide a link to the Crescent Shopping Centre and the R926 Dooradoyle Road to the south and to the proposed South Circular Road link to the north. The existing zebra crossings on Dooradoyle Road would be replaced with widened signalised crossings with new segregated cycle tracks on the east and west side of Dooradoyle Road.

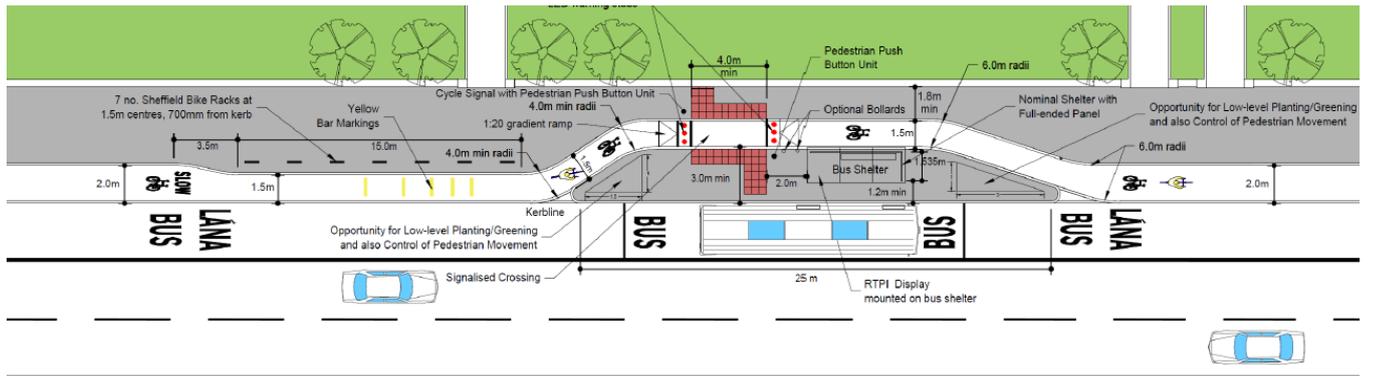


Figure 1.7: Island Bus Stop Arrangement – BusConnects

1.5 Part 8 Planning Process

All developments by a Local Authority of certain scale are subject to a public consultation process as set out in the Planning and Development Regulations. The process is referred to as a 'Part 8 Planning Process'. The process requires that a notice of the proposed development is given in the public press and that a site notice is erected. The notice will set out where the plans and details of the proposal are available for inspection by the public, the dates during which the plans and details are available and the dates for which written submissions have to be received by the Local Authority.

A non-statutory consultation was held from the 21st June 2023 to the 5th July 2023. Limerick City and County Council's Active Travel team presented five options for each of the three sections of the Scheme in June and July of 2023. An in-person Public Consultation Forum for the proposed St Paul's to Ballykeeffe Active Travel Scheme was held in the Training Room in Limerick City and County Council's Dooradoyle Offices on Wednesday, June 21st 2023 between 13:00 -15:00 and 17:00 - 19:00. A virtual public consultation room went live on June 21st 2023 and was available to the general public to access until July 5th 2023. An email address to contact Limerick City and County Council's Active Travel team [activetravel@limerick.ie] was made available to receive submissions/observations. These could also be submitted via a link in the Virtual Room and by Hard Copy on the day of the Public Consultation Forum.

Feedback received from the non-statutory consultation has been considered in the Part 8 design.

Submissions (or observations) which are received by the Local Authority are then considered in the preparation of a Part 8 'Chief Executives Report' which is subsequently presented to the Councilors for adoption. The 'Chief Executives Report' lists those who made a submission together with a summary of the points made in the respective submissions. The report then addresses each submission. Arising from consideration of the representations, the 'Chief Executives Report' sets out whether or not to proceed with the originally planning proposal or proceed with a modified proposal. It is then put to the members for their consideration and following consideration may be carried out as recommended in the Chief Executives Report, varied or modified, or not proceeded with.

In accordance with Part XI of the Planning & Development Acts 2000 (as amended) and Part 8, Article 81 of the Planning and Development Regulations 2001 (as amended), notice is hereby given that Limerick City & County Council proposes to carry of the following development:-

- Construction of dedicated cycle track facilities on both sides of the R526 St. Nessans Road over an approximate length of 600m between the St. Nessans Park entrance road (south of Saint Pauls Roundabout) and the Crescent Shopping Centre entrance road (north of Ballykeeffe Roundabout) to encompass Saint Pauls Roundabout and Ballykeeffe Roundabout and alterations to existing road carriageway widths;
- Provision of a shared street arrangement through Ballykeeffe Estate to facilitate cyclist access to/from Ballykeeffe Roundabout;
- Re-construction of pedestrian footpaths on both sides of the R526 where required to facilitate the upgrade works;
- Upgrade of the existing zebra crossings on the R526 adjacent Saint Pauls Roundabout to signalised pedestrian/cyclist crossings, upgrade of the existing crossing on the L-1429 Father Russell Road and provision of a new crossing on the Scoil Phoil Naofa access road;
- Provision of bus priority signals on the northbound and southbound approaches to Saint Pauls Roundabout on the R526 in conjunction with the crossing upgrades;
- Re-construction of a section of the boundary wall to Saint Pauls Nursing Home;
- Closure of an existing entrance off Saint Pauls Roundabout to Saint Pauls Nursing Home;
- Re-construction of a section of the low boundary wall to protected structure No. 1648 St. Pauls Church Dooradoyle;
- Alterations to the Ballykeeffe Estate junction with the R526;
- Upgrade of the existing zebra crossings on the R526 and the zebra crossings on the R926

adjoining Ballykeeffe Roundabout to signalised crossings;

- Provision of bus priority signals on the southbound approach to Ballykeeffe Roundabout on the R526 in conjunction with the crossing upgrade;
- Provision of a stepped pedestrian access route from Ballykeeffe Estate and road crossing on the western arm of the Ballykeeffe Roundabout on the R526;
- Re-construction of existing bus stop facilities including for the provision of island bus stop arrangements at four separate locations;
- Improvements to drainage, water and utility services where required;
- Road re-surfacing, road markings and coloured surfacing to cycle facilities where required;
- Existing trees to be removed / cut back as required for the construction of the footway and cycle facilities. New trees and landscaping to be provided to compensate for removal of trees;
- All associated site works.

2. IMPACT OF THE SCHEME

2.1 Ecological Constraints

2.1.1 AA Screening

The scheme is approximately 600m from the Lower River Shannon Special Area of Conservation and greater than 1 kilometer from the proposed National Heritage Area of the Inner Shannon Estuary Southern Shores. Any potential improvement options will need to be checked for potential downstream impact on the above sites arising from potential construction stage site works spillage or contaminated run-off. Water pathways will need to be checked for storm water road surface water runoff and collection system.

An Appropriate Assessment (AA) Stage I Screening Report has been completed in respect of the development works and has determined that a full Stage II Appropriate Assessment is not required.

Further detail is set out in the Minogue Environmental Consulting Ltd. AA Screening Report which is included with the Planning Documents.

2.1.2 EIA Screening

An Environmental Impact Assessment (EIA) Screening Report has been completed in respect of the development works and the evaluation undertaken has identified that the development works do not meet the thresholds for which preparation of an EIAR is a mandatory requirement. The EIA Screening Report recommends that the Local Authority takes account of the information provided in the Report and can conclude that the development works do not have the potential to have likely significant effects on the environment.

Further detail is set out in the Minogue Environmental Consulting Ltd. Report which is included with the Planning Documents.

2.1.3 Arboricultural Constraints

An Arboricultural Impact Assessment was completed in September 2022 by Veon including a survey of existing trees along the route of the Scheme. The survey included an assessment of the trees, their quality and value in accordance with BS 5837:2012. The survey identified that the trees are mainly of an early mature age class, with some semi-mature and young trees also present along the roadway.

A total of 131 trees and one hedgegrow were individually surveyed with no trees noted in Category A – High Quality, 62 trees noted in Category B – Good Quality and 68 trees and the hedgegrow noted in Category C – Low Quality. One tree was deemed to be in very poor condition (Category U). The Arboricultural Impact Assessment is included in are included with the Planning Documents.

The primary existing tree groupings within the Scheme include the following ;

- Group of hornbeams in the center of St. Pauls Roundabout which are deemed to be Category C - Low Quality. The trees are to be maintained as part of the proposed Scheme.
- Cluster of trees in park area adjoining St. Pauls Nursing Home which are a mixture of species and are deemed to be in Category B – Good Quality or Category C – Low Quality. Nine trees along the rear of the existing footpath are proposed to be removed as part of the works
- A line of lime trees located in the grass verge between Ballykeeffe Estate and the R526. The trees are deemed to be in Category B – Good Quality. One of the trees is proposed to be removed to facilitate a new pedestrian crossing at Ballykeeffe Roundabout.
- A line of Norway Maple trees on the R926 Dooradoyle Road in the grass verge adjoining the Crescent Shopping Centre. Seven of the trees in the verge are to be removed at this location as part of the works.
- A cluster of lime trees at the rear of the inbound bus stop north of Ballykeeffe Roundabout. The trees are to be maintained as part of the proposed Scheme.

Overall, it is proposed to remove 19 existing trees in the public area as identified on the accompanying layout drawings to facilitate the provision of the cycle tracks and improvements to the pedestrian

footpaths. A further hedgegrove at Ballykeeffe Roundabout is to be removed.

Landscaping works to be carried out with the development works will include for new tree and shrub planting to compensate for the removal of the existing trees along with new native hedge planting and sowing of wildflower meadows. Measures are also to be undertaken during the development works to protect the remaining tree vegetation. The proposed Landscape Layouts are included with the Planning Documents.

2.1.4 Flood Risk

A Site Specific Flood Risk Assessment has been prepared in support of the proposal which accompanies this Part 8 Planning Application. The proposed cycle route has been assessed in accordance with the 'Planning System and Flood Risk Management' Guidelines and LCCC's Development Plan 2022-2028.

Flood maps (CFRAMS Flood Extent Maps) from the OPW for both Fluvial and Coastal Flooding events were reviewed as part of identifying constraints. It is determined from the CFRAMS maps that the Scheme extents are partially within an area of Limerick which is defended by an embankment system. The Flood map zoning included in the LCCC Development Plan 2022-2028 shows that the northern extents of the Scheme are within Flood Zones A and B where the Ballinacurra Creek crossed beneath the R526. The proposed Active Travel facilities are within an existing road corridor and are classified as Water Compatible Development under the 'Planning System and Flood Risk Management' Guidelines and are considered appropriate for the location.

2.1.5 Bat Roost Potential

A bat roost potential evaluation survey was completed in May 2023 by Minogue Environmental Consultants Ltd. The survey was completed to identify the potential for trees and vegetation to be removed to allow construction of the Scheme to function as tree roost habitats for bats. The bat roost potential was assessed in accordance with the guidelines in Chapter 6 of the Bat Conservation Trust's Bat Surveys for Professional Ecologists (2016).

11 trees are proposed for removal on the R526 St. Nessan's Road, 7 trees are proposed for removal on the R926 Dooradoyle Road with a further 3 trees within the private grounds of St. Pauls Nursing Home proposed for removal as part of accommodation works. The survey notes that the trees in the area to be felled do not support preferred roost features for bat species and offer no potential roosting habitat for bat species. The felling of these trees is not predicted to result in the loss of any moderate to high potential roosting features.

2.1.6 Biodiversity Plan

A Biodiversity Plan was completed in May 2023 by Minogue Environmental Consultants Ltd. The Plan notes that overriding design intention is to improve the sense of space, create a variety of quality public spaces along existing residential developments to increase potential uses / improve the sense of ownership and to enhance the biodiversity in the area.

Additional specimen trees will be planted at selected locations to improve the character of the site, provide additional screening and compensate for loss of existing trees, whilst bands of native hedgerows and swaths of wildflowers along existing tree lines will create a linear green buffer strip.

Site biodiversity will be improved through the use of native and non-invasive adaptive planting, including landscape planting measures to protect and enhance pollinators as set out in the All Ireland National Pollinator Plan 2021-2025, through the provision of pollinator friendly planting, wildflower meadow and shade tolerant planting under trees and native hedges.

Bird and bat boxes will be installed on existing trees as part of this development to encourage nesting in the area and attract wildlife.

2.2 Artificial Constraints

Artificial Constraints affecting the project design proposals are as follows :

- Allowing for access to and from the residential estates and commercial premises.
- Allowing for vehicular access to the residential properties on both sides of the road. Levels to be carefully considered at the driveway tie-ins. Existing junction layouts to be reviewed against DMURS and NTA Guidance.
- Inclusion of existing bus stop provisions in the design.

2.3 Archaeological and Built Heritage Constraints

There are no recorded monuments impacted by the development works identified on the Recorded Monuments Map from the LCCC Development Plan 2022-2028.

Part of the proposal would be within the curtilage of protected structure No.1648 St Paul's Church. The proposal involves the taking down and setting back of a low ribbed blockwork wall adjacent to the road boundary, that would be re-constructed as is. As such, it is not considered that the proposal would materially affect the character or setting of the protected structure. The works at this location will provide for improved cycle, footpath and crossing facilities.

The proposed development works do not impact on any other structure or any known archaeological or built heritage constraints.

2.4 Public Utility Constraints

Existing Public Utility Constraints affecting the project design proposals are as follows :

St. Pauls Roundabout

- Two separate 225mm dia. foul sewers on the R526 passing through the junction with a 225mm dia. foul sewer branch to the Scoil Phoil Naofa access road.
- 225mm dia. surface water sewer in the footpath to the east of the junction.
- 300mm dia. asbestos cement watermain on the R526 on the west side of the road which passes through the junction.
- 175mm dia. cast iron watermain on the R526 on the east side of the road which passes through the junction.
- Low Pressure GNI distribution gasmain located in the northbound lane through the junction.
- Median Pressure GNI distribution gasmain located in the southbound lane which crosses the road through the central median of the roundabout and branches into two gasmains with one to Father Russell Road and a continuing gasmain on the R526.
- High pressure 200mm GNI transmission gasmain located in the southbound lane through the junction.
- Underground medium voltage ESB service running from a pole north west of the junction through the junction to service St. Paul's Church, Convent and Nursing Home.
- Eir ducting in the southbound lane through the junction.
- Eir ducting in the footpath to the west of the junction.
- Eir ducting crossing through the junction from the main service to Father Russell Road
- Virgin media ducting in the northbound lane through the junction with a branch to Father Russell Road.
- Virgin media ducting in the footpath to the west of the junction.
- Enet ducting in the northbound carriageway through the junction.
- Public lighting ducting in both footpaths.

- Foul sewer within the road carriageway alongside Crescent Court. The majority of the existing foul sewer is inside the line of the existing footpath on the southside of the road.
- 300mm dia. combined sewer within the roadway which collects the existing road drainage.
- 300mm dia. asbestos cement watermain located in the southbound lane adjacent to the existing kerb line.
- 125mm dia. cast iron watermain partly within the roadway alongside Crescent Court.
- Low Pressure GNI distribution gasmain located in the northbound lane.
- Median Pressure GNI distribution gasmain located in the footpath along the Crescent Court frontage.
- High Pressure 200mm GNI transmission gasmain located mostly in the footpath on the east of the road.
- Underground low voltage ESB service in the footpath to the west side of the road with road crossings at the Ballykeeffe Estate junction to Crescent Court.
- Eir ducting in the footpaths on both sides of the road.
- Virgin media ducting in the footpaths on both sides of the road with road crossings at the Ballykeeffe Estate junction to Crescent Court and to the footpath on the R926 south of the Ballykeeffe Roundabout.
- Enet ducting in the footpath on the west side of the road. The Enet services turns into the Ballykeeffe Estate with a road crossing to Crescent Court and a further road crossing to tie into the footpath on the R926.
- The existing public lighting is located on both sides of the road.

Ballykeeffe Roundabout

- 300mm dia. combined sewer located in the southbound lane of the R526 which runs through the junction.
- 300mm dia. asbestos cement watermain located in the southbound lane of the R526 which runs through the junction.
- 125mm dia. cast iron watermain located in the eastern footpath of the R526 which runs through the junction.
- Low Pressure GNI distribution gasmain located in the southern footpath and bus lay-by along the frontage of the Crescent Shopping Centre north of the junction.
- Median Pressure GNI distribution gasmain located in the southbound lane through the junction.
- High Pressure 200mm GNI transmission gasmain located mostly in the footpaths on both sides of the road.
- Underground 38kV ESB service in the roadway which run from the R926 through the junction turning northwards onto the R526.
- Eir ducting in the southbound lane of the R526 through the junction with a branch onto the R926 running from the center island of the roundabout to the east footpath of the R926.
- Eir ducting in the east footpath of the R526.
- The existing public lighting is located on both sides of the road.

The design of the scheme on the R526 will have to take particular account of the asbestos cement watermain and the High Pressure GNI gas main which runs through the full extents and the ESB 38kV service which passes through the Ballykeeffe junction. It is envisaged that the other public utilities listed above will not overly impact the design of the scheme.

Care will be required in the detailed design of any new kerbing and drainage installations which will have to take account of the existing below ground services. A Ground Penetrating Radar survey is complete which will facilitate this design work. Meetings on site with the utility providers are to be arranged at Preliminary Design Stage.

2.5 Outline Resource & Waste Management Plan

An Outline Resource & Waste Management Plan has been prepared for the Scheme. The appointed Contractor will adopt and update the Resource & Waste Management Plan with reference to the EPA's Best Practice Guidelines. The Resource & Waste Management Plan shall provide details of intended construction practices for the duration of the works, including hours of working, acceptable noise/vibration limits, traffic management measures and off-site disposal/recovery of construction/demolition waste.

2.6 Landscaping

The overriding design intention is to improve the sense of space, create a variety of quality public spaces along existing residential developments to increase potential uses / improve the sense of ownership and to enhance the biodiversity in the area. It is proposed to plant specimen trees at selected locations to improve the character of the road corridor, provide additional screening and compensate for loss of existing trees (refer to section 2.1.5 above), whilst bands of native hedgerows and swaths of wildflowers along existing tree lines will create a linear green buffer strip.

Site biodiversity will be improved through the use of native and non-invasive adaptive planting, including landscape planting measures to protect and enhance pollinators as set out in the All-Ireland National Pollinator Plan 2015, through the provision of pollinator friendly planting, wildflower meadow and shade tolerant planting under trees and native hedges. Bird and bat boxes will be installed on existing trees as part of this development to encourage nesting in the area and attract wildlife.

The proposed planting is considered consistent with Objective EH O10 Trees and Hedgerows of the Limerick Development Plan (2022-2028).

2.7 Storm/Surface Water Drainage / SuDS

Storm water flows can have a significant detrimental impact on the available capacity of combined sewer networks and at treatment plants. Inadequate treatment of surface waters can result in pollution of the receiving watercourses. There are many approaches to management of surface water that take account of water quantity (flooding), water quality (pollution), biodiversity (wildlife and plants) and amenity and these are collectively referred to as Sustainable Urban Drainage Systems (SuDS). The use of SuDS to address surface water and its diversion from combined sewers is encouraged, in particular in infill/brownfield sites and higher density areas as appropriate.

The existing surface water runoff from the R526 St. Nessans Road is collected by road gullies and discharges to a separate piped storm water network. There is negligible impact in overall hard areas associated with the Scheme with areas including splitter islands to be re-constructed from hard areas into soft areas. Green verge spaces are to be introduced around both Saint Pauls Roundabout and Ballykeeffe Roundabout with soft areas to be provided in the large splitter islands at Ballykeeffe Roundabout to compensate for cycle track areas to be constructed.

2.8 Public Lighting

The existing public lighting is provided on both sides of the R526 between St. Pauls Roundabout and the Ballykeeffe Estate junction in a staggered fashion with lighting on the east side of the road from that point to Ballykeeffe Roundabout as shown on the Planning Drawings. The existing standards are located at the rear of the existing footpath.

Re-location of lamp standards will be required on the east side of the road in conjunction with the footpath re-construction works. The proposed location for new public lighting standards are shown on the Planning Drawings. The new public lighting standards will typically be 10m high galvanised steel columns with 1 metre long bracket arms and LED lighting heads

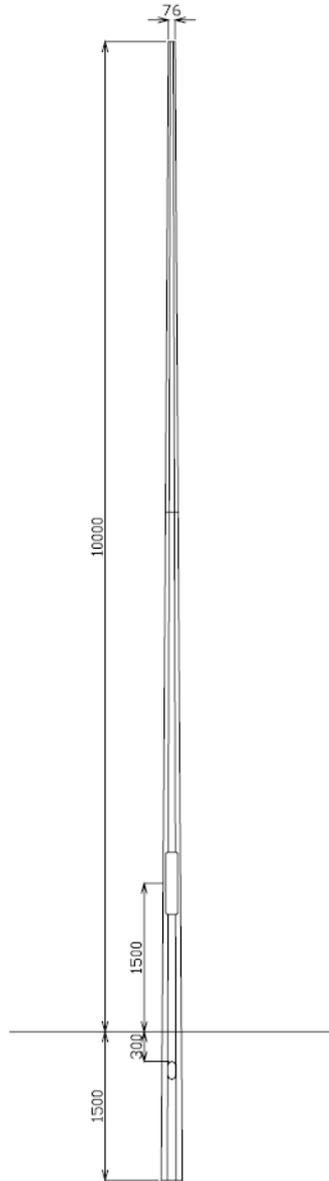


Figure 3.1 Typical Public Column and LED Head

3. SITE TRANSPORT CONTEXT

3.1 Local Road Network

The R526 St. Nessans Regional Road extends from Patrickswell to Limerick City Centre with a Link to the M20 via the R510 from the Raheen Exit. The R926 extends from its junction with the R526 at Ballykeeffe Roundabout to the Residential Areas in Dooradoyle and also to the M20. St. Nessans Road transfers commuter traffic to the City Centre and the large employers in the area at Raheen Industrial Estate, University Hospital Limerick, Crescent Shopping Centre and LCCC County Buildings.

The overall corridor width of the R526 along the extent of the Scheme is 18 – 19m with three to four traffic lanes. The existing carriageway width is typically 12m wide where there are 3 traffic lanes and increases to 13.7m where there are 4 traffic lanes on the southern approach to St. Pauls Roundabout. There are various side road priority junctions along the Scheme which access the residential housing areas with a number of private accesses to commercial, amenity, school and church properties along with some private driveways. The side road junctions/accesses/driveways are typically 50m apart.

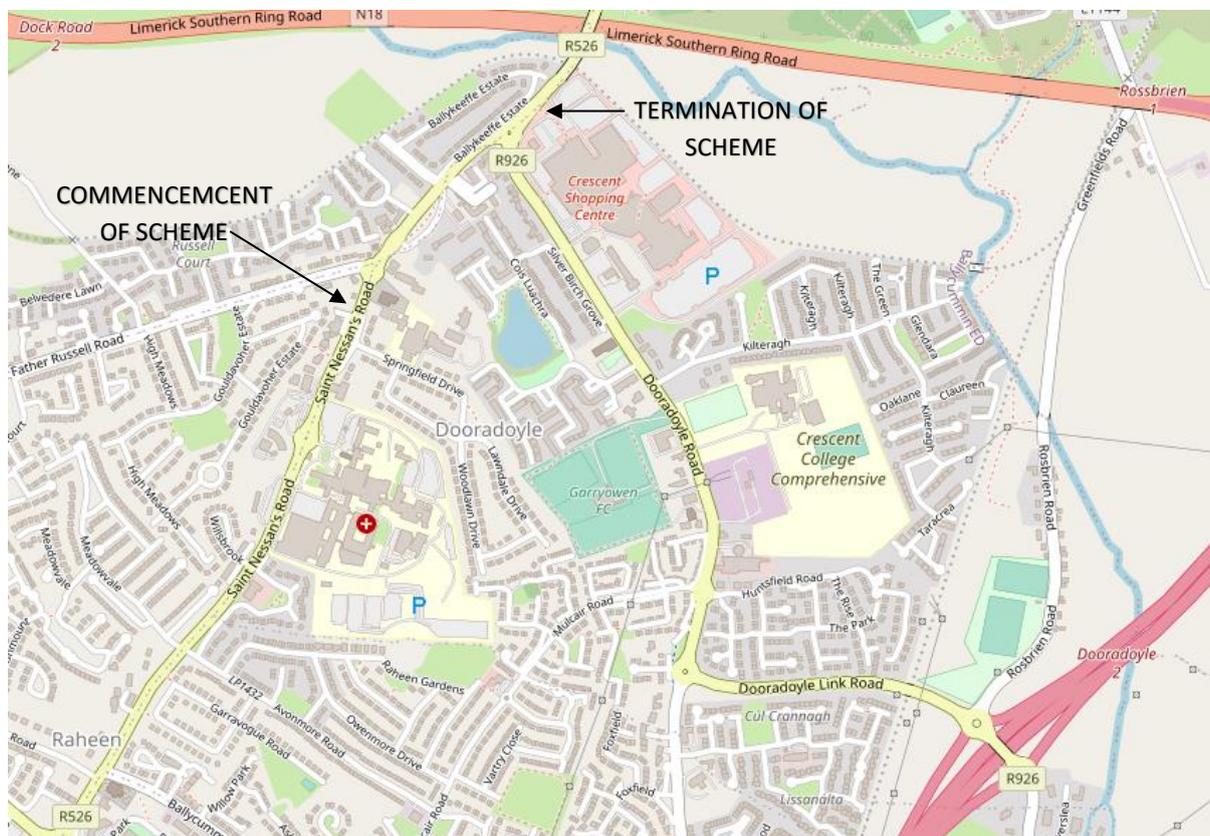


Figure 3.1 Local Road Network

3.2 Public Transport Network

There are three public transport routes through the general Dooradoyle Area. The 301 City Bus Route - Father Russell Road/Raheen to Westbury, Athlunkard, travels south west along Fr. Russell Road to Quinns Road, then southeast along the R510 to Raheen Roundabout from where it then follows the R526 St. Nessans Road towards the City Centre. The 304 and 304a also travel along the R526 St. Nessans Road, the 304 from Ballycummin to UL and the 304A from UHL to UL. The 301 & 304A buses run from 7.00am to midnight every 30 minutes, 7 days a week, with additional morning peak hour bus. The 304 runs from 7.00am to midnight every 10 to 15 minutes, 7 days a week. See Figure 2.2 below which shows an extract of the Limerick City Bus Route Plan with the 301 route shown in pink, the 304 route in orange and the 304A route in purple. The bus stops at located at Maypark (stop 607491 inbound, stop 607791 outbound)

The 314 Limerick to Tralee bus service passes through the R526 in each direction four times per day.

LSMATS also identifies as an objective the provision of a Park and Ride facility in the Raheen area which when provided may increase bus usage along the R526 St. Nessans Road with bus priority on this roadway to be examined in conjunction with the improved cycling facilities.

LSMATS includes for the delivery of the BusConnects programme which will include a review of the capacity, frequency, speed, directness, coverage and interchange on the bus network in Limerick. The R526 St. Nessans Road and R926 Dooradoyle Road will form part of this review and is included as part of the indicative future bus network for 2040 included in LSMATS.

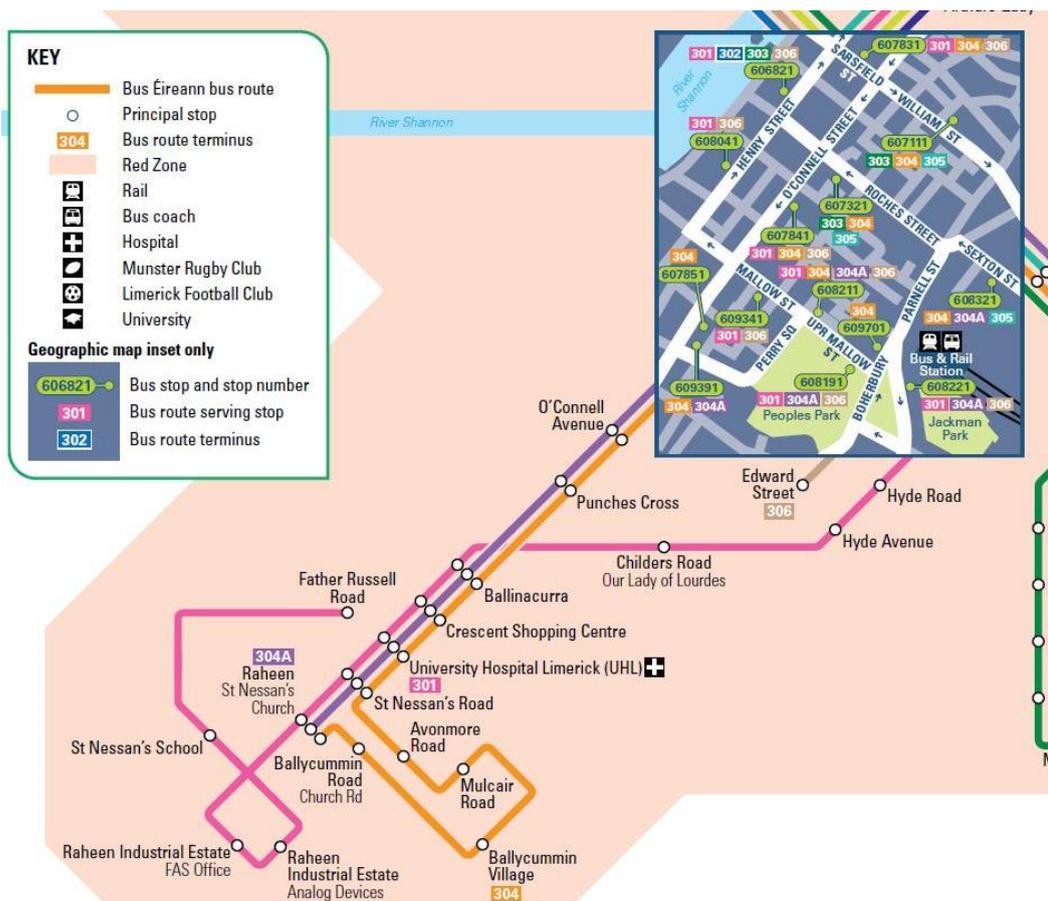


Figure 3.2 Extract of Limerick City Bus Transport Plan showing the 301 route to the City Centre in pink. The route commences on Father Russell Road at the Rosebrook Estate stop.

3.3 Existing & Proposed Cycle Network

Inbound cyclists on the R526 St. Nessans Road currently share the bus lane as far as the Church pedestrian crossing with a short length of segregated cycle lane provided as far as St. Pauls Roundabout. There is no dedicated cycle facility through the roundabout in the inbound direction or on the approach from Father Russell Road. Cyclists then share the bus lane as far as Ballykeeffe Roundabout with no dedicated cycle facility through this roundabout.

Outbound there is no dedicated cycle facility through Ballykeeffe Roundabout. There is an existing cycle lane running from the R926 Dooradoyle Road outbound onto the R526 St. Nessans Road through the roundabout located on the outside of the circulating carriageway. The outbound cycle lane continues through the Ballykeeffe Estate signalised junction with cyclists passing through the junction with a green signal. The cycle lane runs off-road to the rear of the bus-set down at the outbound Maypark bus stop prior to going on-road through the zebra crossing and then through the St. Pauls Roundabout on the outside of the circulating carriageway. The cycle lane is c.1.6m wide through the roundabout. The cycle lane red surfacing was recently removed during re-surfacing works, however this has now been reinstated in locations at junctions and through Saint Pauls Roundabout.

Limerick City & County Council published the Limerick Metropolitan Cycle Network Study in 2016 as part of their Limerick Smarter Travel project. See Figure 3.3 below which is an extract from the LMCNS showing the existing cycle infrastructure. The facilities on the R526 St. Nessans Road are rated as a Level of Service D. Level D is the lowest quality of service facility as it is not comfortable for most cyclists.

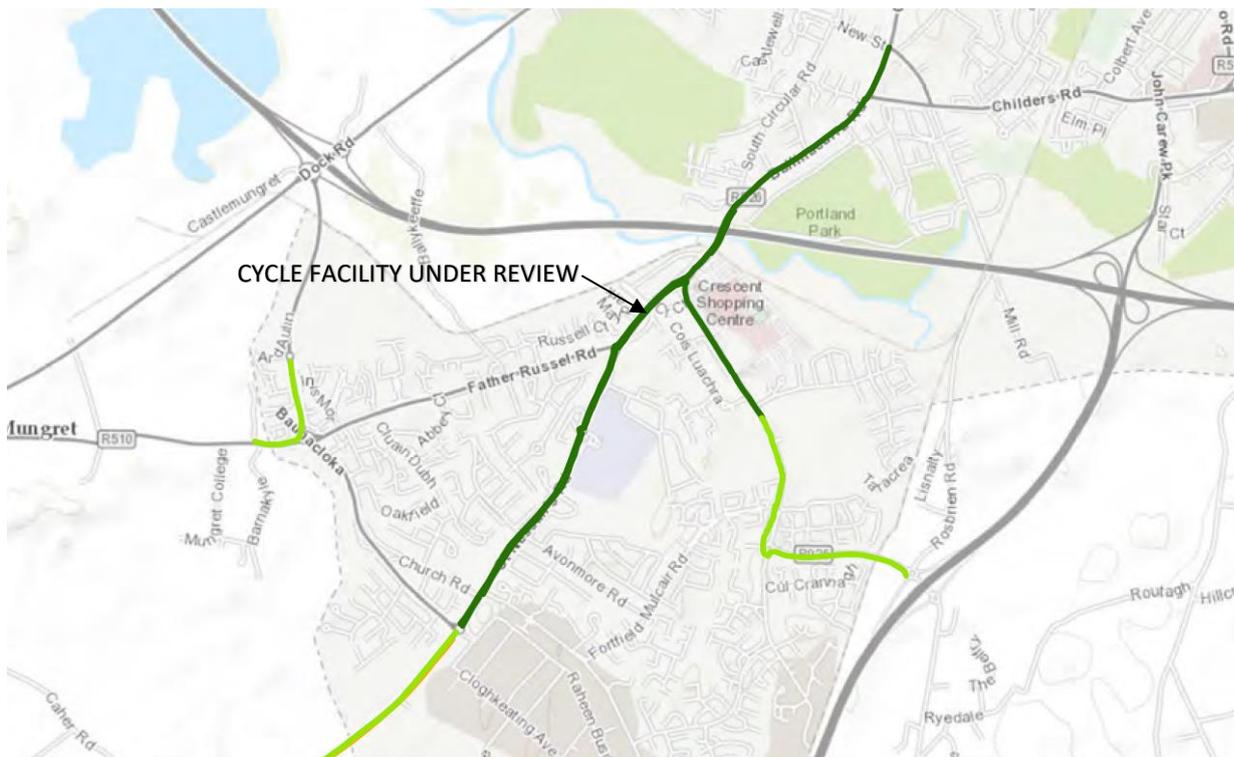


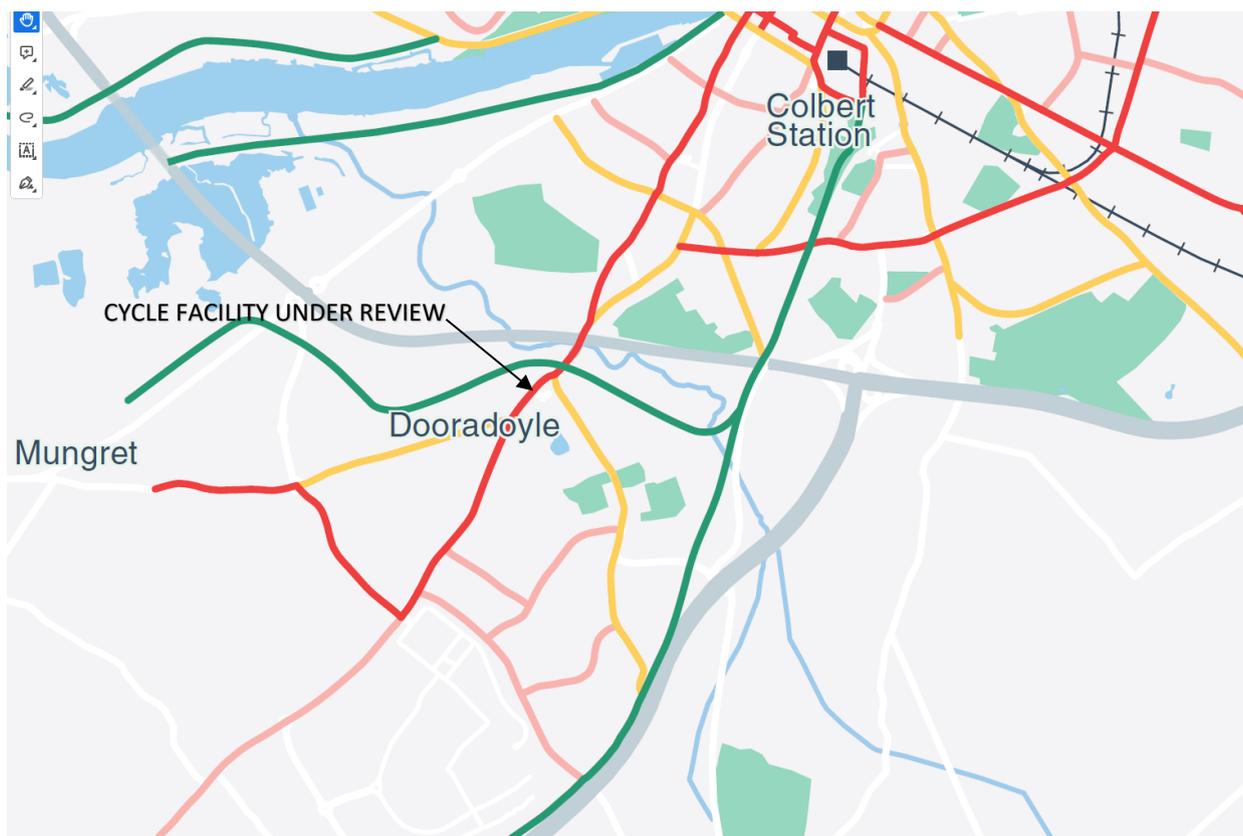
Figure 3.3 Existing Cycle Infrastructure showing designated Quality of Service (Ref.: Limerick Metropolitan Cycle Network Study 2016). Level C Service is indicated in light green with a Level D Service indicated in dark green

The Limerick Metropolitan Cycle Network Study (LMCN) proposed a Raheen Cycle Network as part of the city network given the importance of Raheen / Dooradoyle as a densely populated suburb and important economic hub. The cycle network was prepared taking cognisance of the major trip attractors, the major residential trip generators and the desire lines connecting the Raheen network area to the Limerick Metropolitan Area. The Limerick Shannon Metropolitan Area Transport Strategy 2040 (LSMATS) subsequently adopted the routes shown on the LMCN.

See Figure 3.4 below which shows the proposed Limerick Cycle Network which was extracted from the LSMATS. LSMATS outlines a primary cycle route (shown in red) which travels along the R526 from the City Centre via O'Connell Avenue, Ballinacurra Road and then St. Nessans Road to the Raheen Roundabout. Part of this primary route is the subject of this application.

A primary cycle route (shown in red) is also shown on the R859 Mungret Road leading onto the R510 and also to Raheen Roundabout which was partially completed as part of the Mungret Road works mentioned above. The proposed cycle facilities to be constructed on Father Russell Road under a separate Scheme will form a secondary route (shown in orange) which will provide access from the residential areas to the primary cycle network in the area and the Retail/Community facilities on the R526 St. Nessans Road and the R926 Dooradoyle Road at the Crescent Shopping Centre. Feeder routes to the primary and secondary cycle network are shown in pink.

Conflicts between vehicles and cyclists/pedestrians at left slip lanes present a significant risk and removal of such facilities is recommended in the National Cycle Manual.



*Figure 3.4 Proposed Limerick Cycle Network
(Ref.: Limerick Shannon Metropolitan Area Transport Strategy 2040)*

3.4 Existing & Proposed Pedestrian Facilities

Walking facilities are provided in the form of footpaths along both sides of the R526 St. Nessans Road. The existing footpaths vary in width from 1.8m wide where the footpath is separated from the carriageway by a grass verge to a width of greater than 2.0m where the footpaths are roadside on the west side of the R526. There is no roadside footpath on that section from the Ballykeeffe Estate junction to Ballykeeffe Roundabout with the footpath running in to the inside of the Ballykeeffe Estate Road. There is a level difference between the R526 and the Ballykeeffe Estate Road which becomes more pronounced as you approach the roundabout with an access ramp to bring pedestrians back up to the main footpath and bus stop. The overall gradient of the access ramp is c. 1 in 22.

The outbound footpath at Ballykeeffe Roundabout is segregated from the roadway by a railing due to level differences at this location with a 1.5m wide footpath. The footpath increases in width to 1.95m after the railing with this width maintained to St. Pauls Roundabout. A new section of footpath was constructed on the south-western quadrant of the roundabout which links to this outbound footpath.

There are controlled zebra crossings at the St. Pauls Roundabout and Ballykeeffe Roundabout. The pedestrian facilities will be reviewed in the context of providing new and improved cycling facilities. LSMATS study notes that strategic walking routes are to be developed in conjunction with BusConnects which will connect residential areas to key areas of employment and third level education. A route may include part of the R526 St. Nessans Road.

It is proposed to maintain footpath widths in conjunction with the provision of the cycle facilities. An absolute minimum footpath width of 1.8m with a 2.0m wide footpath to be provided where the road corridor width allows. The proposed footpath widths are in accordance with DMURS in view of the suburban setting of the Scheme.

3.5 Existing Traffic Conditions

The current speed limit on the R526 St. Nessans Road is 50km/hr. Traffic surveys were carried out in March & April 2022 on St. Nessans Road and at junctions within the extents of the Scheme. 24-hour Junction Turning Counts were undertaken on Wednesday 30th March & Thursday 31st March 2022 with Automatic Traffic Counts undertaken over 2 weeks from Wednesday 30th March to Tuesday 12th April 2022 inclusive. The vehicular traffic surveys were undertaken at the following locations :

- Ballykeeffe Roundabout - Junction Turning Count (JTC 1)
- St. Pauls Roundabout - Junction Turning Count (JTC 6)
- Midpoint of Scheme - Automatic Traffic Count (ATC 3)

Automatic Traffic Counts

The automatic traffic counts were undertaken on St. Nessans Road at ATC 3. The ATC surveys were required to record the two-way vehicular traffic flow and the classification of the traffic flow along with the speed of traffic on St. Nessans Road. An extract of the data recorded at ATC 3 for the 2nd week of the survey is shown in Figure 2.5 below. The location of ATC 3 corresponds with the mid-point of the Scheme.

The 7-day average daily traffic flow at ATC 2 was recorded as 21,765 vehicles with a week-day average of 22,987 vehicles. Traffic volumes are greater in the northbound direction (8%). Over the 7-day average 8% of vehicles exceeded the 50kmph speed limit with 0.5% of vehicles travelling at greater than 65kmph.

93.2% of vehicular traffic comprised of motor cars with only 0.4% comprising bus traffic. HGV volumes are low at 2.5%

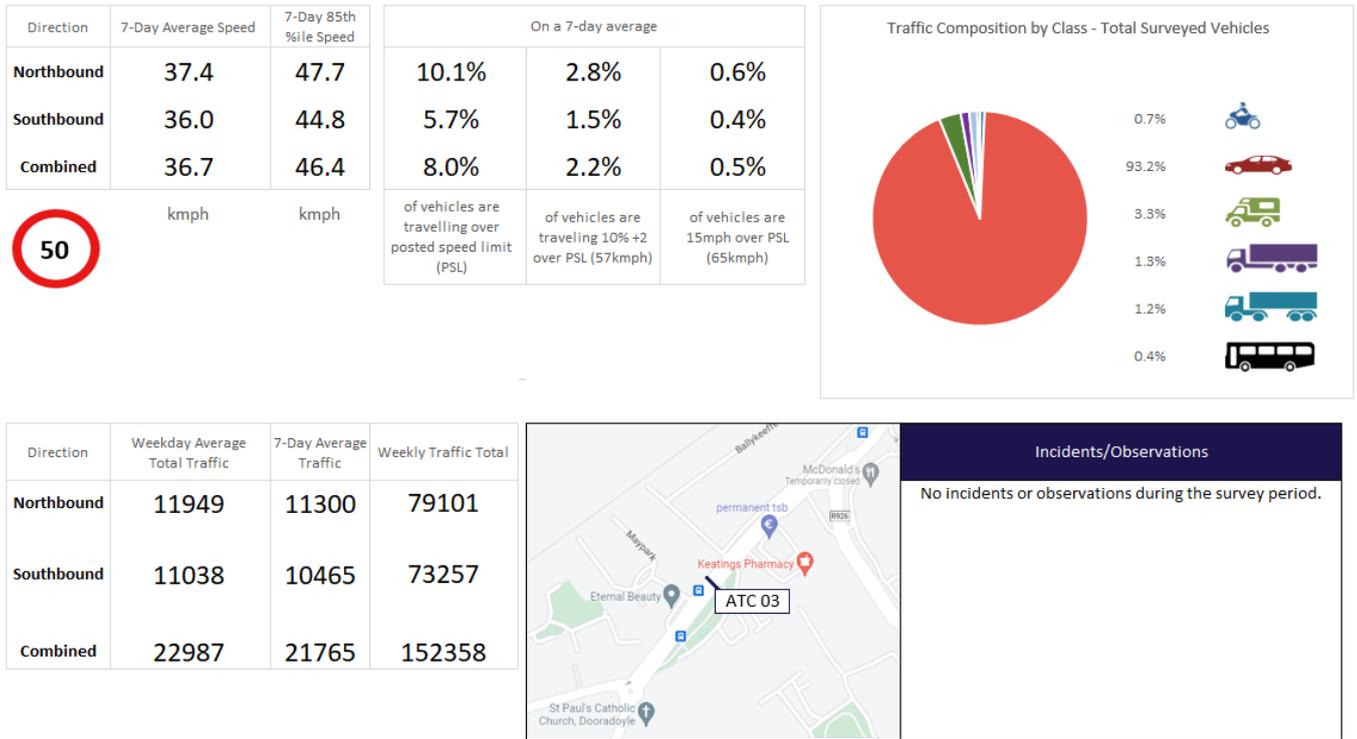


Figure 3.5 - Vehicular volumes and speeds on the R526 from 6 to 12th April 2022

The am peak hour (8.00 to 9.00am) traffic volume on Friday 8th April 2022 was 1,461 vehicles. The one-hour recorded traffic volumes in both directions at ATC 3 are shown in Figure 3.6 below. 816 of the 1,461 vehicles (56%) during the am peak hour comprised northbound (citybound) traffic. The traffic on that Wednesday, Thursday and Friday remains at a high level from 8.00am to 8.00pm with the traffic volumes being in the order of 80% of the peak volume.

The Monday 11th April and Tuesday 12th April 2022 survey information coincided with the Easter school holiday period with the am peak hour traffic volumes on these dates was 1,078 and 1,204 vehicles which represents a drop of 20% during the am peak hour compared to the dates when the schools were open. There was a significantly less noticeable reduction in afternoon traffic as a result of the school closures on the above dates with a reduction of less than 200 vehicles per hour.

The pm peak hour (5.00 to 6.00pm) traffic volume occurred on Thursday 8th April 2022 and was recorded as 1,772 vehicles. 810 of the 1,772 vehicles (46%) during the pm peak hour comprised southbound traffic with the slightly greater traffic flow in the northbound direction.

The distribution of vehicular traffic through the 24 period on each of the 7 days is shown in Figure 3.7 below. 7-day average 12 hour 7.00am to 7.00pm traffic flow at ATC 3 was recorded as 17,113 vehicles with a week-day average of 18,212 vehicles. The daily volumes reflect the mixed usage of the roadway with the shopping, hospital, church and recreational facilities on the roadway maintaining the traffic volumes through the weekend period.

Daily Volume Count

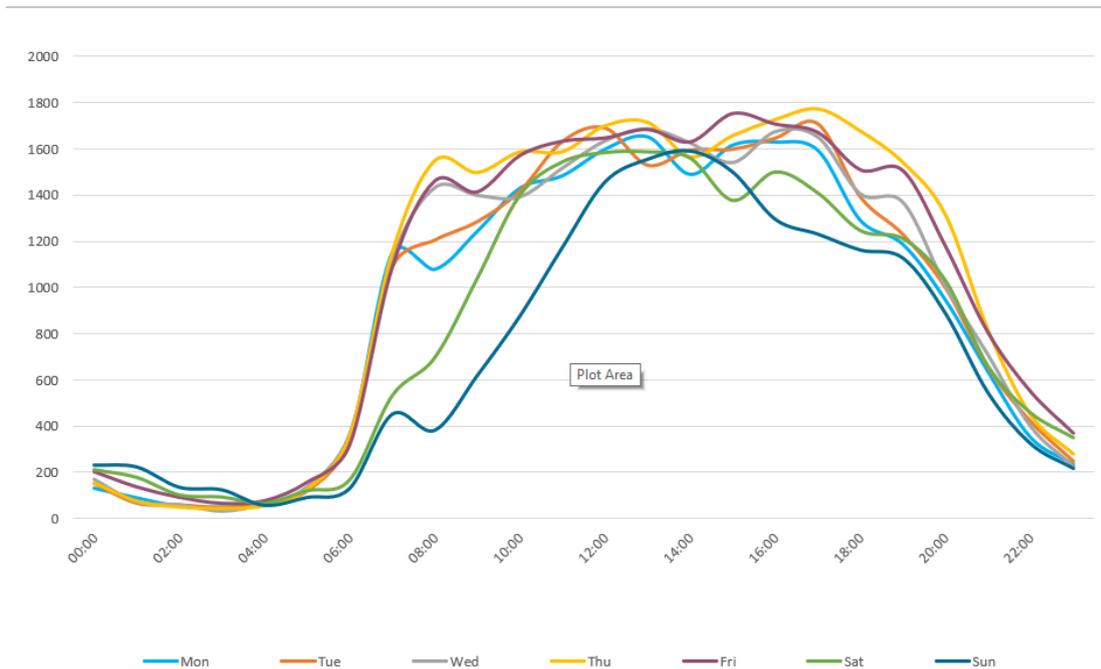


Figure 3.6 – One-hour traffic volumes on the R526 ATC 3 from 6 to 12th April 2022

Time	Combined							5 Day Avg	7 Day Avg
	Mon 11-Apr	Tue 12-Apr	Wed 06-Apr	Thu 07-Apr	Fri 08-Apr	Sat 09-Apr	Sun 10-Apr		
07-19	17257	17770	18091	19177	18766	15450	13281	18212	17113
06-22	20363	20985	21539	23198	22568	18507	15964	21731	20446
06-00	20944	21652	22162	23924	23485	19310	16502	22433	21140
00-00	21447	22159	22690	24426	24211	20068	17357	22987	21765

Figure 3.7 – Total vehicular traffic on the R526 from 6 to 12th April 2022

3.6 Road Safety Issues

As part of the proposed design a Stage I Road Safety Audit has been completed with the site visit undertaken on the 17th may 2023. The recommendations of the Audit are being implemented in the Scheme design.

3.7 Traffic Analysis of Saint Pauls Roundabout and Ballykeeffe Roundabout

Traffic analysis has been undertaken on the Saint Pauls Junction and Ballykeeffe Junction by Roadplan Consulting. The analysis of the junctions were undertaken for the Base 2022 Scenario and the Future 2032 Scenario to take account of bus priority controls at both junctions. The traffic analysis was undertaken using ARCADY and TRANSYT modelling software and took account of the traffic count information recorded in March & April 2022 including pedestrian and cyclist count data summarised in Section 2.4 of this report.

3.7.1 Saint Pauls Roundabout

For the Base 2022 scenario, in the AM peak period, the highest Ratio of Flow to Capacity was shown for the Father Russell Road arm of the roundabout at 0.48 with an average delay of 6.37 seconds for vehicles entering the roundabout. In the PM peak period, the highest Ratio of Flow to Capacity was again shown for Father Russell Road with an average delay of 5.35 seconds. The analysis showed that all arms of the roundabout are operating well within capacity with the results of the analysis shown in Table 3.1 below.

Year	Period	Approach	RFC	Avg Queue (vehicles)	Queue delay (secs./veh.)
2022 Base Flows	AM Peak	R526 St Nessian's Road(NE)	0.40	1	4
		Access	0.29	0	14
		R526 St Nessian's Road(SW)	0.39	1	4
		Father Russell Road	0.48	1	6
	PM Peak	R526 St Nessian's Road(NE)	0.53	1	5
		Access	0.04	0	12
		R526 St Nessian's Road(SW)	0.55	1	5
		Father Russell Road	0.43	1	6

Table 3.1 Existing Roundabout Base 2022 Scenario ARCADY summary

The Future 2032 scenario was modelled to shown the impact of the addition of signalized crossings to the roundabout and the implementation of bus priority in conjunction with the signals. The model included for controlled signalised crossings on the three major arms of the junction with a zebra crossing on the Scoil Phoil Naofa arm. The arrangement included for dedicated bus priority signals on the R526 allowing for bus movement in advance of traffic at the controlled crossings on the approaches to the roundabout junction.

The TRANSYT results for the Base 2022 scenario indicates that the upgraded junction will operate well within capacity. A summary of the results are shown in Table 3.2 below. In the 2022 AM peak hour the highest degree of saturation (DOS) is 58% on the R526 exiting the roundabout on the approach to the crossing on the approach to the City. In the 2022 PM peak hour the highest DOS is 66% again on the R526 exiting the roundabout on the approach to the signalised crossing. The modelled queuing delay is slightly increased on the existing scenario.

Year	Period	Approach	Degree of Saturation (%)	Avg Queue (vehicles)	Queue delay (secs./veh.)
2022 Base Flows	AM Peak	R526 St Nessian's Road(NE)	58	6	5
		Access	19	3+	14
		R526 St Nessian's Road(SW)	47	4	4
		Father Russell Road	44	5+	6
	PM Peak	R526 St Nessian's Road(NE)	66	8+	8
		Access	2	0	10
		R526 St Nessian's Road(SW)	59	14	14
		Father Russell Road	40	5+	7

Table 3.2: Roundabout with Controlled Crossing Base 2022 Scenario TRANSYT summary

TRANSYT results for the Future 2032 scenario indicates that the upgraded junction will continue to operate well within capacity. A summary of the results are shown in Table 3.3 below. In the 2022 AM peak hour the highest degree of saturation (DOS) is 64% on the R526 exiting the roundabout on the approach to the signalised crossing. In the 2022 PM peak hour the highest DOS is 73% on this arm of the roundabout.

Year	Period	Approach	Degree of Saturation (%)	Avg Queue (vehicles)	Queue delay (secs./veh.)
2032 Future Flows	AM Peak	R526 St Nessan's Road(NE)	64	7	6
		Access	23	4+	25
		R526 St Nessan's Road(SW)	52	4	5
		Father Russell Road	51	6+	8
	PM Peak	R526 St Nessan's Road(NE)	73	5	6
		Access	3	0	14
		R526 St Nessan's Road(SW)	65	17	15
		Father Russell Road	48	10+	12

Table 3.3: Roundabout with Controlled Crossing Future 2032 Scenario TRANSYT summary

The TRANSYT results for the Future 2032 scenario showed that queuing and delays on all arms of the proposed upgrade are minimal with a limited increase to that currently occurring at the junction.

3.7.2 Ballykeeffe Roundabout

For the Base 2022 scenario, in the AM peak period, the highest RFC is shown for the R526 West at 0.61 with an average delay of 5.70 seconds. In the PM peak period, the highest RFC on each arm of the existing roundabout is similarly low with the highest RFC again shown for the R526 West at 0.65 with an average delay of 6.00 seconds. The analysis showed that all arms of the roundabout are operating well within capacity with the results of the analysis shown in Table 3.4 below.

Year	Period	Approach	RFC	Avg Queue (vehicles)	Queue delay (secs./veh.)
2022 Base Flows	AM Peak	R526 St Nessan's Road(NE)	0.41	1	4
		R926 Dooradoyle Road	0.39	1	3
		R526 St Nessan's Road(W)	0.61	2	6
	PM Peak	R526 St Nessan's Road(NE)	0.49	1	4
		R926 Dooradoyle Road	0.44	1	3
		R526 St Nessan's Road(W)	0.65	2	6

Table 3.4: Existing Roundabout Base 2022 Scenario ARCADY summary

The Future 2032 scenario was modelled to show the impact of the addition of signalised crossings to the roundabout and the implementation of bus priority in conjunction with the signals. The model included for controlled signalised crossings on the three major arms of the junction. The arrangement included for dedicated bus priority signals on the R526 allowing for bus movement in advance of traffic at the controlled crossing on the outbound approach to the roundabout junction.

The TRANSYT results for the Base 2022 scenario indicates that the upgraded junction will operate well within capacity. A summary of the results are shown in Table 3.5 below. In the 2022 AM peak hour the highest degree of saturation (DOS) is 50% on the R526 West approaching the roundabout. In the 2022 PM peak hour the highest degree of saturation (DOS) is 56% again on the R526 West arm approaching the roundabout.

Year	Period	Approach	Degree of Saturation (%)	Avg Queue (vehicles)	Queue delay (secs./veh.)
2022 Base Flows	AM Peak	R526 St Nessan's Road(NE)	31	2	2
		R926 Dooradoyle Road	34	3+	3
		R526 St Nessan's Road(W)	50	7+	6
	PM Peak	R526 St Nessan's Road(NE)	45	9+	7
		R926 Dooradoyle Road	39	3+	4
		R526 St Nessan's Road(W)	56	8+	6

Table 3.5: Roundabout with Controlled Crossing Base 2022 Scenario TRANSYT summary

The TRANSYT results for the Future 2032 scenario indicates that the upgraded junction will continue to operate well within capacity. A summary of the results are shown in Table 3.6 below. In the 2032 AM peak hour the highest degree of saturation (DOS) is 56% on the R526 West. In the Future 2032 PM peak hour the highest DOS is 64% on the R526 West.

Year	Period	Approach	Degree of Saturation (%)	Avg Queue (vehicles)	Queue delay (secs./veh.)
2032 Future Flows	AM Peak	R526 St Nessan's Road(NE)	39	8	5
		R926 Dooradoyle Road	39	3+	3
		R526 St Nessan's Road(W)	56	7+	7
	PM Peak	R526 St Nessan's Road(NE)	49	9+	7
		R926 Dooradoyle Road	44	3+	4
		R526 St Nessan's Road(W)	64	10+	8

Table 3.6: Roundabout with Controlled Crossing Future 2032 Scenario TRANSYT summary

The TRANSYT results for the Base 2022 and Future 2032 scenarios shows that queuing and delays on all arms of the proposed Option 2 upgrade are minimal with a limited increase to that currently occurring at the junction.

4. CONCLUSIONS

This Part 8 Planning Report has been prepared in accordance with Part 8 of the Planning and Development Regulations 2001 as amended. The Report and associated drawings outlines the proposed Design of the R526 St. Pauls to Ballykeeffe Roundabout Active Travel Scheme.

The Scheme has been designed to improve road safety for vulnerable cyclists through the provision of dedicated cycle facilities which are mostly segregated from traffic through the provision of an upstand kerb. The Scheme would provide improved connectivity for residential areas, employment zones and public transport.

The Scheme has also been designed to improve road safety for vulnerable pedestrians with a minimum footpath width of 1800mm proposed with upgraded pedestrian crossings to be provided. The footpaths will be generally raised above the cycle track level by 100mm.

The Scheme as proposed, provides for safer active travel journeys to work, school or local businesses and conforms with national and regional policy and the policies of Limerick City & County Council to promote sustainable travel. The proposal has had regard to and is considered to be consistent with the policies and objectives of the Limerick Development Plan (2022 – 2028) and the proper planning and sustainable development of the area.