Project title	Knocklyon to Ballyboden Active Travel Scheme
Job number	284940-00
File reference	
cc	
Prepared by	Jakub Radomski
Date	26 June 2025
Subject	Stage 1 - Quality Audit

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1. Stage 1 Quality Audit

PMCE was appointed in November 2025 to complete a Stage 1 Quality Audit for the Knocklyon to Ballyboden Active Travel Scheme. Following the completion of the audit and a subsequent review of the project by the National Transport Authority (NTA), a decision was made to enhance public transport infrastructure along Ballyboden Way.

This enhancement involved narrowing the general traffic lanes and utilizing the remaining space to construct an alternating bus lane, replacing the previously proposed two-way cycle track. Due to the scale of these changes, it was decided that another Stage 1 Quality Audit should be carried out, specifically for the revised section of Ballyboden Way and the two adjacent roundabouts.

Arup invited three separate auditors to submit proposals for this follow-up audit, and PMCE was once again appointed to carry it out. The updated audit was completed in June 2025.

Please refer to Appendix A for the original audit and Appendix B for the follow-up audit concerning Ballyboden Way.

Job number	284940-00
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APPENDIX A

OVE Arup & Partners Ireland Ltd

Knocklyon to Ballyboden Active Travel Scheme

Stage 1 Quality Audit

P·M·C·E

January 2025

OVE Arup & Partners Ireland Ltd

Knocklyon to Ballyboden Active Travel Scheme

Stage 1 Quality Audit

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Rev	Prepared By	Reviewed By	Approved By	Issue Date	Reason for Revision
2.0	AOR	AP	AOR	7th January 2025	Final Report
1.0	XY	AOR	AOR	29th Nov. 2024	Draft Report

P·M·C·E

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1 Quality Audit Report

1.1 Introduction

This report was prepared in response to a request from Mr. Jakub Radomski of OVE Arup & Partners Ireland Ltd to provide a Stage 1 Quality Audit of the proposed Knocklyon to Ballyboden Active Travel Scheme.

Quality Audits consist of a number of overlapping audits, as described in the Design Manual for Urban Roads and Streets (Ireland). Table 1-1 identifies the transport related audits undertaken by PMCE and includes a brief overview of the purpose or goal of each report.

TABLE 1-1 QUALITY AUDIT REPORT CONTENTS

Access Audit	The purpose of this Access Audit is to review the proposed Scheme to assess if it can be accessed, understood, and used to the greatest extent possible by all people regardless of their age, size, or disability.
Cycle Audit	The purpose of this Cycle Audit is to review the proposed Scheme/Development to assess if it will cater comfortably for cyclists, of all ages and abilities, and that the needs of cyclists have been prioritised over vehicular traffic.
Walking Audit	The purpose of this Walking Audit is to review the proposed Scheme to assess if it can be readily and comfortably traversed by pedestrians, that the needs of pedestrians have been prioritised over cyclists & vehicles, and that footpaths are continuous and wide enough to cater for the anticipated number of pedestrians.
Road Safety Audit	The purpose of a Road Safety Audit is to identify problems that may lead to road safety collisions, material damage or personal injury, and to offer recommendations that mitigate identified safety risks.
Non-Motorised User Audit[1]	The purpose of a Non-Motorised User (NMU) Audit is to review the proposed Scheme to assess if it will cater comfortably for all non-motorised road users, of all ages and abilities, and that the needs of these vulnerable road users have been prioritised over vehicular traffic.
Street Design Audit	The purpose of a Street Design Audit is to review the proposed Scheme, and ensure that the relevant issues contained within DMURS have been duly considered. It concerns four major aspects, Connectivity, Self-regulating Street Environment, Pedestrian and Cycling Environment and Visual Quality.

A Quality Audit is not intended to pass or fail a design, rather it is intended as an assessment tool that highlights the strengths and weaknesses of a design.

1.2 Site Visit

A site visit was undertaken on Tuesday the 12th of November 2024. Weather conditions during the site visit were dry and the road surface was dry. Traffic volumes during the site visit were moderate, pedestrian and cyclist volumes were low and traffic speeds were considered to be generally within the posted speed limit.

1.3 Local Environment

The proposed Knocklyon to Ballyboden Active Travel Scheme would be located in the Knocklyon and Ballyboden area in south Dublin (see Figure 1-1), primarily extending along Knocklyon Road, Scholarstown Road, Templeroan Road and Ballyboden Way, for a total distance of approximately 4km, although a number of secondary links through other minor roads are also proposed. It would consist of new, and upgrades to existing, pedestrian and cycle links to residential, educational, leisure and commercial areas, to provide a safer and more attractive environment for non-motorised road users.

The majority of the route would run along existing footpaths and cycle facilities, however new cycle facilities are proposed on roads that currently have no such facilities. As part of the design development a number of secondary links have been identified along existing roads and footpaths to better connect the primary route to the surrounding areas. The secondary links will comprise small interventions, such as installation of new, and

[1] A separate Non-motorised User (NMU) Audit has not been prepared. For the proposed scheme/development, separate Access, Walking & Cycling Audits have been undertaken, and these should be referred to for findings in relation to NMUs.

upgrading existing, crossings and upgrading existing footpaths to shared paths to improve permeability and access onto the primary route.

Knocklyon Road, is a two-way single carriageway ring road terminating at its two junctions with Firhouse Road, and includes a number of controlled, and uncontrolled, crossings, intermittent footpaths on both sides of the road and public lighting on one side. The posted speed limit on Firhouse Road is 50kph.

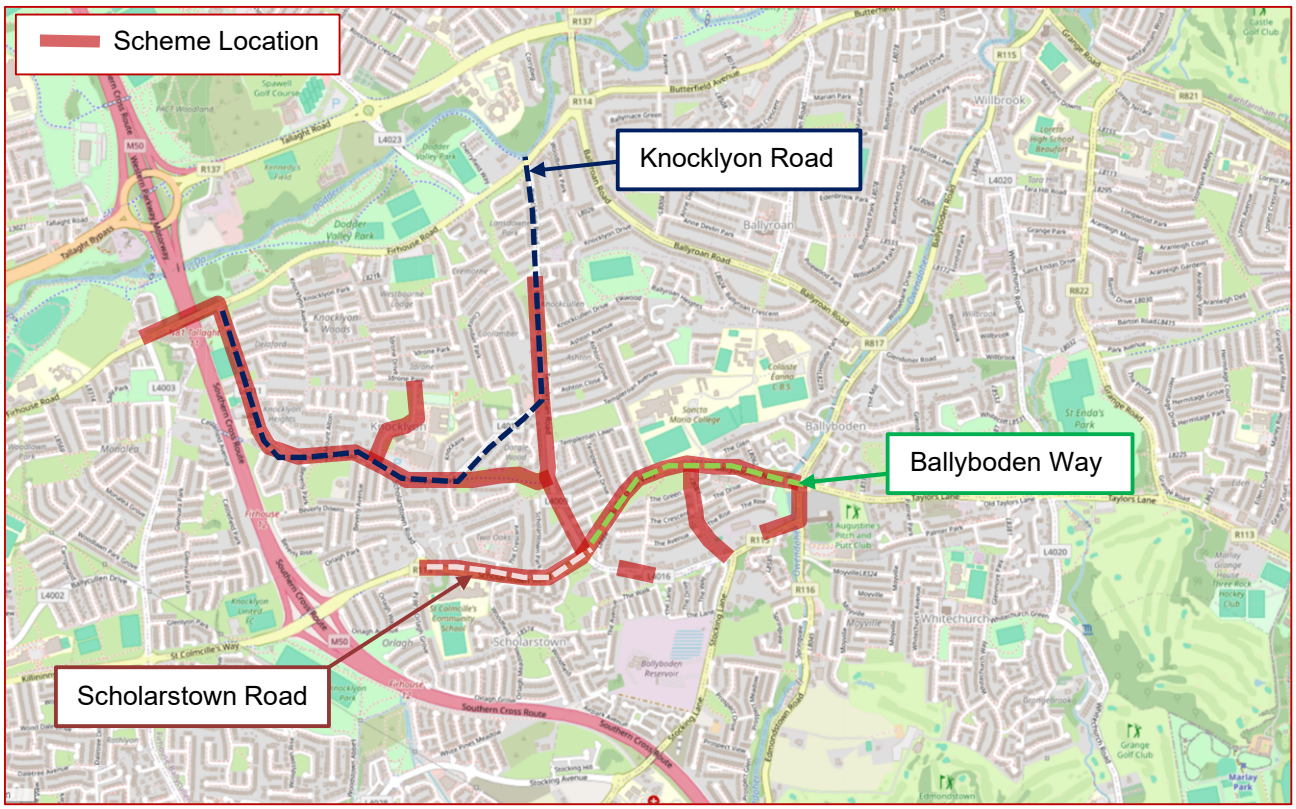


FIGURE 1-1: SCHEME LOCATION (SOURCE: WWW.OPENSTREETMAP.ORG)

1.3.1 Existing Pedestrian & Cycle Facilities

Segregated footpaths are currently provided along both sides, or one side at a minimum, of all roads within the extents of the scheme in most sections.

There are currently no cycling facilities within the proposed scheme extents, with the exception of Scholarstwon Road and Ballyboden Way which include a shared path or one-way cycle track on each side of the road. Cyclists are currently required to share the carriageway with motorised vehicles in the remaining sections of the scheme. Public bicycle stands are also provided within, or near, the scheme (see Figure 1-2).

FIGURE 1-2: BICYCLE STANDS WITHIN, OR NEAR THE PROPOSED SCHEME (SOURCE: WWW. DATA.SMARTDUBLIN.IE)

1.3.2 Public Transport

There are existing bus stops on Scholarstown Road, Ballyboden Way and Firhouse Road in close proximity to the residential streets within the scheme extents. The nearest bus stops that can be accessed by road users within the proposed scheme are listed in Table 1-2 including the bus routes which serve these bus stops.

Figure 1-3 illustrates the bus routes and the location of these bus stops in relation to the proposed scheme.

TABLE 1-2: BUS ROUTES WITHIN PROPOSED SCHEME

Route No.	Bus Stop (number)	Bus Stop (Name)	Travelling between	Frequency
15	Stop 1151	Knocklyon Road	Clongriffin - Ballycullen Road.	One bus per 30mins
	Stop 1144	Dargle Wood		
	Stop 1152	Knockaire		
	Stop 1143			
S8	Stop 7968	Ballyboden St Endas	Kingswood Avenue - Dun Laoghaire Station	One bus per 20 mins
	Stop 7974			
	Stop 7443	Templeroan Estate		
	Stop 7446			
	Stop 10154	Scholarstown Park		
	Stop 10105			
	Stop 7444	The Glen		
	Stop 7909			
15B	Stop 7442	St Enda's GAA Club	Merrion Square - Stocking Avenue	One bus per 15 mins
	Stop 7444	The Glen		
	Stop 7443	Templeroan Estate		

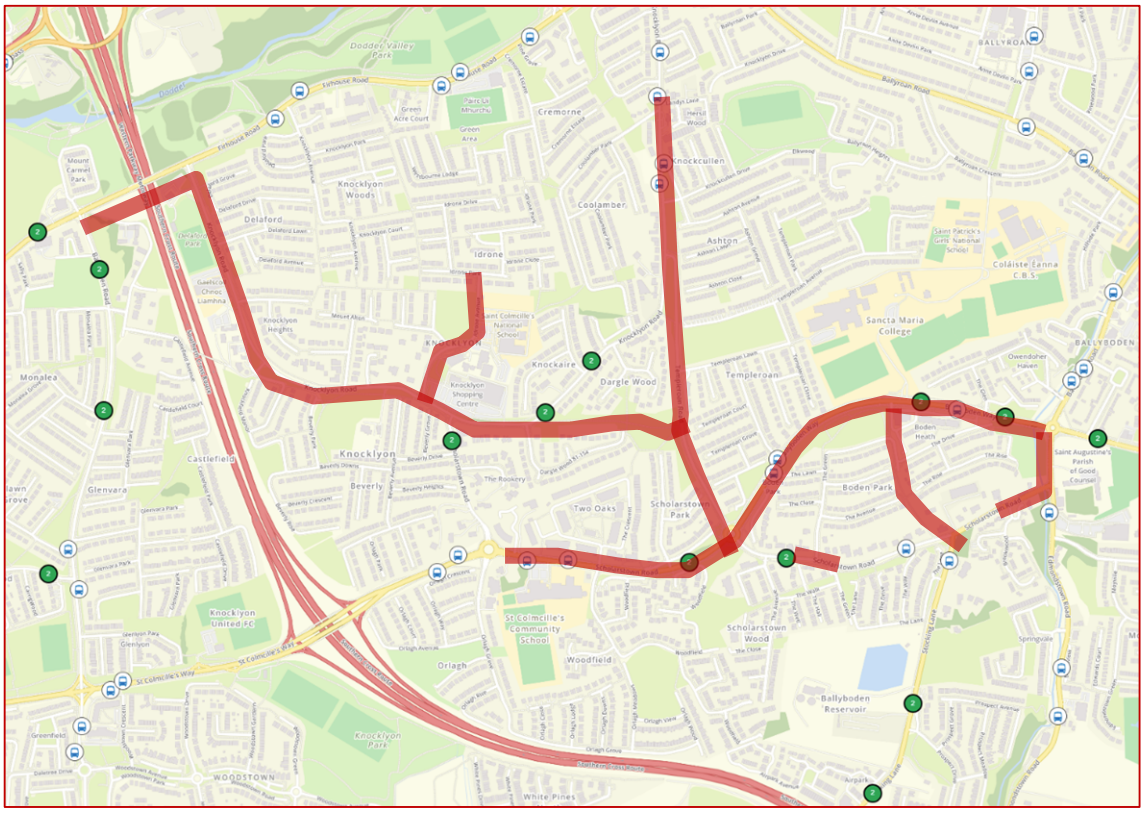


FIGURE 1-3: NEARBY BUS STOPS AND LUAS STOPS (SOURCE: WWW.TRANSPORTFORIRELAND.IE)

1.4 Summary of Individual Audit Findings

The following table summarises the issues identified by the component audits of this Quality Audit, and the Design Team's response to the issues raised.

#	♿	🚲	🚶	⚠	Summary of Audit Issue	Design Team Response/Action
1				✓	It is unclear if the reduced extents of the carriageway at revised signalised junctions and roundabouts within the scheme will safely accommodate the swept path of all vehicles.	A vehicle tracking exercise was complete for all junctions to ensure that all required turning movements can be achieved. A follow up exercise will be complete for constraint movements.
2				✓	Information regarding the proposed signal phasing at the amended junctions have not been indicated and it is, therefore, unclear how all road users will be accommodated within the junctions.	Traffic signal design will be complete at the detail design stage of the project. Traffic signals will be designed in accordance with the TSM and CDM. Signal phasing will be designed in accordance with guidelines of the CDM for each junction type.
3	✓			✓	The absence of tactile paving within the footpath at the cycle track crossings at island bus stops may lead to difficulties for visually impaired pedestrians in locating the crossing when boarding a bus.	Noted, the recommendation will be implemented into the design.
4	✓			✓	The stem of the tactile paving on the carriageway-side of cycle track crossings at bus stops does not extend sufficiently to intercept visually impaired pedestrians when alighting from a bus.	Noted, the recommendation will be implemented into the design.
5				✓	The continuous footpath layout proposed across side roads within the scheme may be unsuitable for the volume of vehicles entering/exiting the side roads, increasing the risk of vehicle-pedestrian collisions.	Noted, the junction treatment types will be reviewed against guidelines of DMURS and Advice Note 6 *Priority Junction Tightening Measures*.
6				✓	Horizontal curves have been indicated at some locations on Knocklyon Road and Ballyboden Way and it is unclear if large vehicles would be able to travel through these curves without encroaching into the opposing traffic lane.	Vehicle tracking will be complete for the identified location.
7			✓	✓	The footpath reduces in width at the commencement of the verge and continues for a short distance resulting in a pinch-point which may lead	Noted, footpath will be widened.

#	♿	🚲	🚶	⚠	Summary of Audit Issue	Design Team Response/Action
					to pedestrians having to enter the verge to pass opposing pedestrians resulting in an increased risk of trips and falls.	
8				✓	Measures have not been indicated for vehicle occupants to travel between the parking spaces at the school set-down area and the adjacent footpath on the southern side of Knocklyon Road at Gaelscoil Chnoc Liamhna.	It is the opinion of the design team that use of shared spaces should be minimised where practical. The design team suggest relocating the cycle track closer to the boundary wall and provide crossing of the cycle track either by continuous footpath or zebra crossing on either end of the set-down. Appropriate tactile paving and road markings will be provided.
9				✓	Visibility for exiting drivers at the setback Stop line on Delaford Avenue may be restricted by the property boundaries.	The raised priority junction arrangement functions with a two stage stop for vehicles. Vehicles are expected to stop at the stop line, observe for any incoming pedestrians, cyclists and traffic, and continue towards the edge of the road where they come to a stop again to observe for incoming traffic. Visibility splays will be checked at the junction in accordance with section 4.4.5 of DMURS.
10		✓		✓	The guardrail may present a hazard to cyclists as they move from the carriageway to the shared path at Gaelscoil Chnoc Liamhna.	Noted, the recommendation will be implemented into the design.
11				✓	Yield control has been indicated at some side roads within the scheme and it is unclear if all these locations will provide the more onerous sightline requirements for this type of junction-control.	Noted, upon review it was determined to update yield control junctions to stop control to align with recommendation outlined in DMURS section 4.4.5.
12				✓	Drivers on Knocklyon Road are directed into the right-turn lane at the junctions with Idrone Avenue and Scholarstown Road where there is a risk of sudden lane changing manoeuvres and side swipe collisions.	Noted, the recommendation will be implemented into the design.

#					Summary of Audit Issue	Design Team Response/Action
13				✓	The kerb line on Knocklyon Road, travelling westbound, is not aligned on either side of the junction with Scholarstown Road resulting in an increased risk of kerb strikes downstream of the junction.	Noted, the recommendation will be implemented into the design.
14	✓			✓	Tactile paving has not been indicated at the Zebra crossings across the accesses to the St. Colmcille's National School and Junior National School.	Noted, the recommendation will be implemented into the design.
15			✓	✓	No pedestrian crossing, including dropped kerbs and tactile paving, has been indicated across the Dargle Wood side road.	Noted, the recommendation will be implemented into the design.
16	✓			✓	A 1m wide footpath has been indicated on Templeroan Lawn which is too narrow for pedestrians.	Noted, the recommendation will be implemented into the design.
17	✓			✓	The uncontrolled pedestrian crossing on Templeroan Lawn, which links the footpaths on Templeroan Avenue and Knocklyon Road, would not be accessible by visually impaired pedestrians.	It is proposed to provide a controlled pedestrian crossing 120m south of the location which will serve as the main crossing point to the Sancta Maria College. The design team do not think it is appropriate to provide another crossing within such proximity. The existing crossing facility identified in Issue 3.18 consists of a road level uncontrolled crossing with a yellow box. The design team proposed that current arrangement is retained with improvements. The crossing will be retained on road level and uncontrolled. The cycle track at the crossing will terminate to a shared space, creating an environment for pedestrians to wait prior to crossing the road. This layout also reduced the crossing length for pedestrians. Appropriate road marking and tactile paving will be provided.
18				✓	A stone wall has been indicated within the footpath on the western side of Templeroan Road at the exit from Dargle Wood Park, however the details of the wall (height, colour etc.) have not been indicated and it	Noted, the recommendation will be implemented into the design.

#					Summary of Audit Issue	Design Team Response/Action
					is, therefore, unclear if it will present a hazard to cyclists exiting the park.	
19	✓			✓	The stem of the tactile paving does not extend to the rear of the footpath.	Noted, the recommendation will be implemented into the design.
20				✓	The bus shelters at the northbound bus stop on Ballyboden Way adjacent to Templeroan Drive and the eastbound bus stop on Ballyboden Way adjacent to the access to the Ballyboden St. Enda's All Weather Pitches at Sancta Maria College may restrict visibility for southbound and westbound cyclists, respectively, towards a pedestrian commencing a crossing from the carriageway side of the cycle track crossing at the island bus stops.	Noted, the recommendation will be implemented into the design.
21				✓	The continuous footpath across Boden Heath transitions to a shared path on the western side without sufficient warning for visually impaired pedestrians.	Noted, the recommendation will be implemented into the design.
22		✓		✓	It is unclear how cyclists exiting the shared path from The Drive and The Rise, onto the southern side of Ballyboden Way, would access the two-way cycle track on the northern side of the road.	Noted, the recommendation will be implemented into the design.
23				✓	The tie-in between the narrower carriageway at the revised junction mouth on Boden Park Green and the wider existing cross-section upstream may lead to kerb strikes for drivers as they approach the junction with Ballyboden Way.	Noted, the recommendation will be implemented into the design.
24	✓			✓	The stem of the tactile paving on the southern side of the Zebra crossing on Ballyboden Way, upstream of the roundabout junction with Ballyboden Road and Taylor's Lane, does not extend to the back of the footpath.	Noted, the recommendation will be implemented into the design.

#					Summary of Audit Issue	Design Team Response/Action
25				✓	The proposed and existing road layouts at the scheme tie-in on Scholarstown Road are not consistent.	The proposed arrangement is designed so that cyclists do not need to give way to general traffic, additionally a physical barrier in the form of a raised protection kerb is provided to protect cyclists until they are safely established on the road.
26		✓	✓	✓	The width of the proposed shared paths on the western side of Boden Heath and on the southern side of Boden Park Green, directly adjacent to the proposed pedestrian crossing, do not appear to be wide enough to safely accommodate pedestrians and cyclists.	Noted, the recommendation will be implemented into the design.
27				✓	Cyclists may overshoot the uncontrolled pedestrian crossing on Boden Park Green resulting in an increased risk of vehicle-cyclist collisions.	Noted, the recommendation will be implemented into the design.
28			✓	✓	Three footpath links through the grass verge between Scholarstown Road and Scholarstown Park terminate at the Scholarstown Park carriageway with no crossings indicated to access the footpath on the opposite side of Scholarstown Park.	Noted, the recommendation will be implemented into the design.
29	✓			✓	No tactile paving has been indicated on either side of the access to the recently constructed residential development on the northern side of Scholarstown Road.	Noted, the recommendation will be implemented into the design.
30	✓		✓	✓	The natural boulders indicated within the footpath at the entrance to the M50 pedestrian overbridge may reduce the effective width of the footpath.	Noted, the recommendation will be implemented into the design.
31	✓				Incorrect tactile paving layout indicated at the retained signalised crossing on Knocklyon Road located to the east of the Knocklyon Shopping Centre.	Noted, the recommendation will be implemented into the design.

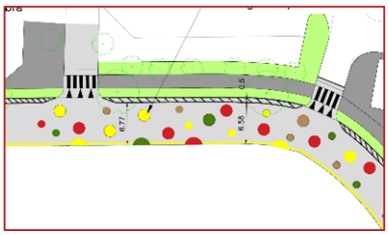
#	♿	🚲	🚶	⚠	Summary of Audit Issue	Design Team Response/Action
32	✓				Tactile paving has not been indicated at the transitions between the different road users facilities in all instances throughout the scheme.	Noted, the recommendation will be implemented into the design.
33	✓				The tactile paving indicated at the western end of Scholarstown Park where the shared path transitions to the carriageway is incorrect.	Noted, the recommendation will be implemented into the design.
34	✓				The offset between the bus shelter and where the door of a stopped bus would be located may lead to mobility impaired pedestrians taking a longer route, or being exposed to adverse weather, when waiting for the bus.	Noted, the recommendation will be implemented into the design.
35	✓				The parking provision near the of Creche does not include an accessible parking space.	Noted, the recommendation will be implemented into the design.
36			✓		No seating indicated along the proposed shared path through the Dargle Wood open space which may cause difficulties for elderly pedestrians.	Noted, the recommendation will be implemented into the design.
37			✓		It is unclear if the guardrails at the end of the footpath with downhill gradient are proposed to be retained.	It is intended to retain the existing guardrails at the end of the downhill gradient.
38			✓		Lack of pedestrian crossing adjacent to the bus stops on Ballyboden Way, to the east of Templeroan Lodge, may lead to bus passengers crossing at unsafe locations.	Crossing facilities will be provided at the roundabout approximately 70m east of the bus stops.
39		✓			It is unclear if push-button units for cyclists will be provided within arm's reach of a cyclist stopped in the right-turn pocket on Knocklyon Road to trigger a pedestrian/cyclist phase at the crossing.	Dedicated push buttons will be provided for cyclists in accordance with the CDM where right-turn pockets are provided.

Appendix A: Access Audit

The purpose of this Access Audit is to review the proposed Scheme to assess if it can be accessed, understood, and used to the greatest extent possible by all people regardless of their age, size, or disability.

2 Access Audit Findings

2.1 No Tactile Paving at Crossing of Cycle Track at Island Bus Stops



The proposed island bus stops, indicated at a number of locations within the Scheme, require pedestrians to cross the cycle track at Zebra crossings when boarding/alighting a bus. Tactile paving has not been indicated within the footpath at these crossings in all instances, including at the following locations:

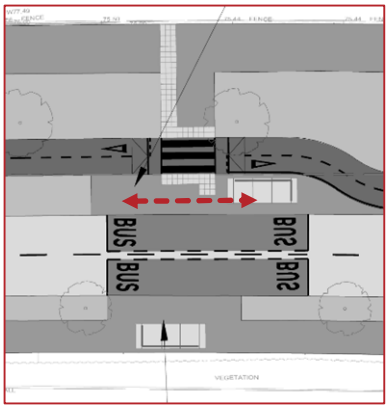
1. The eastbound bus stop on Firhouse Road to the east of the Firhouse Road/Knocklyon Road signalised junction.
2. The eastbound bus stop on Ballyboden Way to the east of the junction with Boden Park Green.
3. The eastbound bus stop on Scholarstown Road to the west of the roundabout junction between Scholarstown Road, Ballyboden Way and Templeroan Lawn.

The absence of tactile paving within the footpath at these Zebra crossings may lead to difficulties for visually impaired pedestrians in locating the crossing when boarding a bus resulting in them being unable to independently navigate the road.

Recommendation

'L-shaped' red-coloured tactile paving should be provided on the footpath side of the crossings. The bus shelter may need to be relocated in some instances to facilitate the tactile paving stem.

2.2 Tactile Paving Stem



Pedestrian crossings of the cycle track have been indicated at the proposed island bus stops within the scheme. The stems of the tactile paving do not extend sufficiently in all instances on the carriageway-side of the crossing and may, therefore, not be intercepted by visually impaired pedestrians after alighting from a bus.

Visually impaired pedestrians may, therefore, unintentionally continue past the pedestrian crossing leading to them being unable to locate the crossing and thus being unable to independently navigate the road layout.

Recommendation

The tactile paving stem should extend to the Kassel kerb at these bus stops.

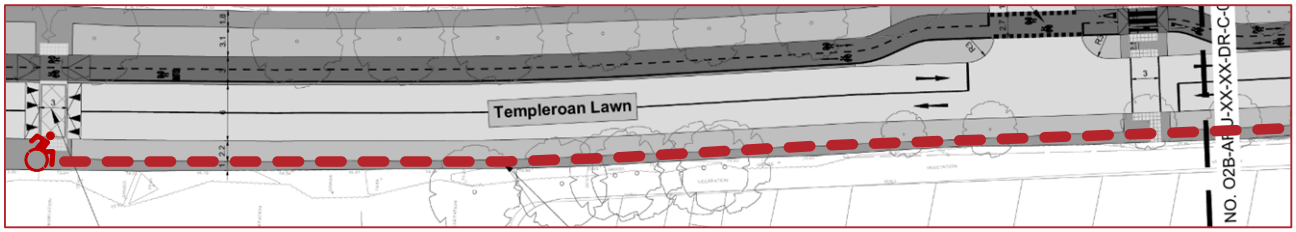
2.3 No Tactile Paving at Zebra Crossings

Zebra crossings have been indicated across the accesses/egresses to/from the St. Colmcille's National School and Junior National School on Idrone Avenue. Tactile paving has not been indicated on either side of the Zebra crossings. This may lead to visually impaired pedestrians being insufficiently aware of the type of crossing at the accesses resulting in them being unable to independently navigate the road layout.

Recommendation

'L-shaped,' red-coloured tactile paving, with the stem on the right-hand side, should be provided on both sides of the Zebra crossings at the school accesses/egresses.

2.4 Narrow Footpath



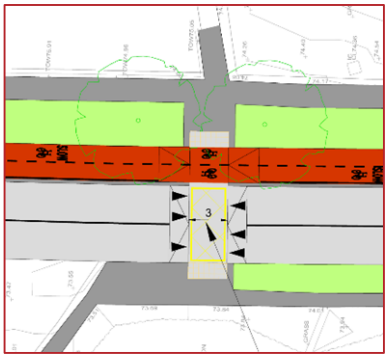
A 1m wide footpath has been indicated on the western side of Templeroan Lawn between the existing uncontrolled pedestrian crossing and just upstream of the entrance to Dargle Wood. 1m is not a sufficient width for wheelchair users, or pedestrians pushing prams/strollers to travel within the footpath, in particular should they have to enter the adjacent verge to pass opposing pedestrians.

Recommendation

The footpath in this location should be widened to 1.8m.

2.5 Pedestrian Crossing Inaccessible for Visually Impaired Pedestrians

The existing uncontrolled pedestrian crossing on Templeroan Lawn, which links the footpaths on Templeroan Avenue and Knocklyon Road, is proposed to be realigned, raised, and widened to 3m. The crossing would be 9m wide in total and would require pedestrians to cross two traffic lanes and a two-way cycle track. The uncontrolled crossing would be inaccessible for, and, therefore, be unable to be used, by visually impaired pedestrians, without assistance, resulting in them being unable to independently navigate the road layout.



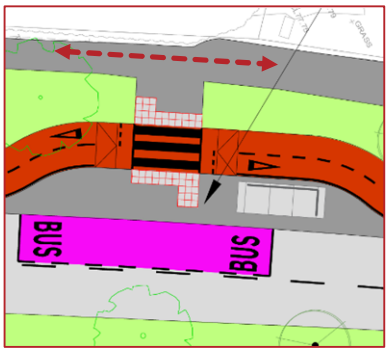
Recommendation

The uncontrolled crossing should be replaced with a controlled crossing.

2.6 Tactile Paving Stem

A crossing of the cycle track has been indicated at the island bus stop on Ballyboden Way adjacent to Templeroan Drive. The stem of the tactile paving on the northern side of the crossing does not extend to the rear of the footpath.

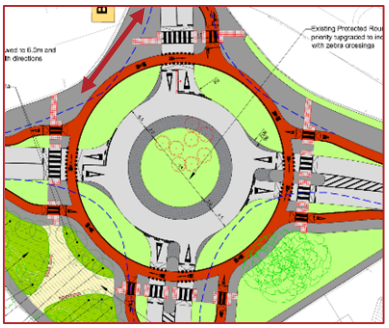
This may lead to visually impaired pedestrians continuing past the tactile paving and failing to detect the crossing, and thus the bus stop, resulting in them being unable to independently navigate the road layout.



Recommendation

The stem of the tactile paving should extend to the rear of the footpath.

2.7 Tactile Paving Stem



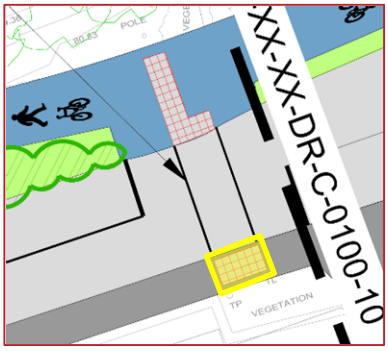
A Zebra crossing has been indicated on Ballyboden Way upstream of the roundabout junction with Ballyboden Road and Taylor's Lane. The stem of the tactile paving on the southern side of the crossing does not extend to the rear of the footpath.

This may lead to visually impaired pedestrians, approaching from the south on Ballyboden Road, continuing past the tactile paving and failing to detect the crossing resulting in them being unable to independently navigate the road layout.

Recommendation

The stem of the tactile paving should extend to the rear of the footpath.

2.8 Inconsistent Tactile Paving Arrangement at Existing Controlled Crossing

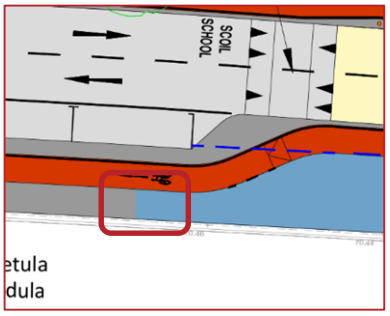


It is proposed to retain the existing signalised crossing on Knocklyon Road located to the east of the Knocklyon Shopping Centre. The tactile paving indicated on the southern side of this crossing, however, does not contain a stem and is, therefore, not the correct type of tactile paving for use at a controlled crossing. This may lead to confusion for visually impaired pedestrians or to them being unable to locate the push-button at the crossing.

Recommendation

The tactile paving on the southern side of the crossing should include a stem on its right-hand side.

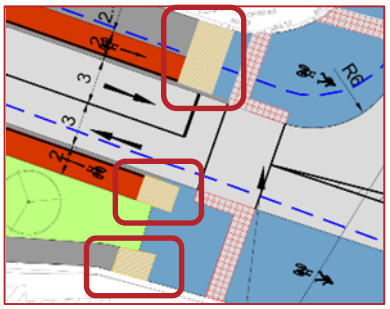
2.9 Tactile Paving at Transition between Different Road User Facilities



Tactile paving has not been indicated at the transitions between shared paths and segregated pedestrian and cycle facilities, or between shared paths and pedestrian-only footpaths, in all instances throughout the scheme, resulting in a lack of consistency in the tactile paving provision within the drawings.

A failure to provide appropriate tactile paving at the transitions between different non-motorised road user facilities may lead to visually impaired pedestrians being insufficiently aware that they are moving between areas that may be shared with cyclists.

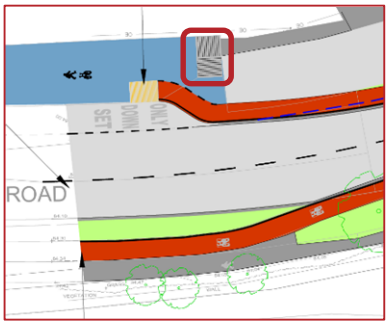
Recommendation



During the detail design stage, tactile paving, as necessary for the type of transition and adjacent surfaces, should be provide at all necessary locations within the scheme.

Care should be taken to also provide tactile paving at locations where existing footpaths, which are proposed to be upgraded to shared paths, transition back to the existing footpaths at the scheme's extents (e.g. on Boden Park Green (Sheet 25 of 30)).

2.10 Incorrect Tactile Paving Arrangement

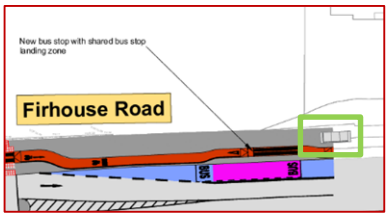


The existing tactile paving layout, which is indicated as greyed-out on the drawing provided, at the western end of Scholarstown Park where the shared path transitions to the carriageway would become incorrect in the revised layout indicated at this location. It is unclear if this tactile paving will be retained. If retained, it may provide incorrect information to visually impaired pedestrians regarding the road layout leading to confusion.

Recommendation

The existing 'Tramline' tactile paving should be removed while the 'Ladder' tactile paving, located where the shared path transitions to the footpath on Scholarstown Park, should be replaced with hazard warning tactile paving (corduroy).

2.11 Bus Shelter offset from Bus Bay

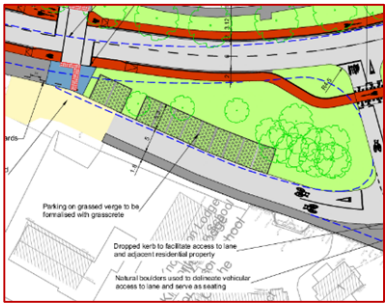


A shared bus stop landing zone has been indicated on the northern side of Firhouse Road adjacent to its junction with Knocklyon Road. The offset between the bus shelter and the location where the doors of a stopped bus would be positioned within the bus cage may lead to mobility impaired pedestrians having to take a longer route between the shelter and a bus when boarding, or choosing to wait closer to the bus cage where they would be exposed to adverse weather when waiting for the bus.

Recommendation

The bus shelter should be relocated to the rear of the footpath and in line with the Zebra crossing.

2.12 Accessible Parking Space at Creche

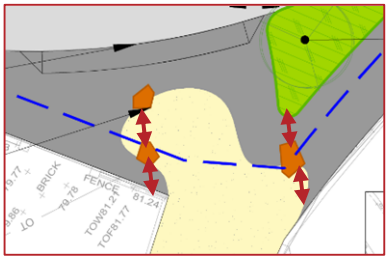


It is proposed to formalise the existing informal parking on the grass verge adjacent to the Knocklyon Lodge: Creche & Montessori through the provision of eleven. standard-size car parking spaces. An accessible parking space has not been indicated at this location. A failure to provide an accessible parking space may cause difficulties for mobility impaired vehicle occupants when travelling between the creche and their vehicle.

Recommendation

An accessible car parking space should be provided near the Creche entrance.

2.13 Pinch-Point in Footpath



Natural boulders have been indicated within the proposed footpath where the M50 pedestrian overbridge exits onto Knockfield Manor. The location of the boulders may reduce the effective width of the footpath for pedestrians approaching from the east or west. If the space between the boulders is too narrow it may restrict a wheelchair user, or pedestrian pushing a pram/stroller from continuing their journey.

Recommendation

The space between the boulders should be a minimum of 1.2m wide.

2.14 Lack of Pedestrian Crossing at Access

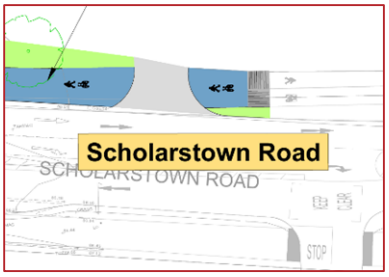
No tactile paving has been indicated on either side of the access to the recently constructed residential development on the northern side of Scholarstown Road opposite the Ballycullen Community Church and Olympian Gymnastics gym. The access does not appear to be currently in use by motorised vehicles due to bollards located within the development.

Dropped kerbs are currently provided at the access however no tactile paving has been provided. It is unclear if it is proposed to amend this layout as part of the proposed scheme however no pedestrian crossing has been indicated at this location.

If the access layout is amended, this may lead to pedestrians having to mount/dismount a full height kerb when crossing the side road resulting in difficulties, particularly for mobility impaired pedestrians.

If the access is retained in its current layout, the lack of tactile paving may lead to visually impaired pedestrians being insufficiently aware that they are crossing an access, which may be used by cyclists.

Recommendation



Should this access ever be open to motorised vehicles in the future, a pedestrian crossing, including dropped kerbs and appropriate tactile paving, should be provided across the access.

If the access is to be retained in its current form, the shared path should be continuous across the access.

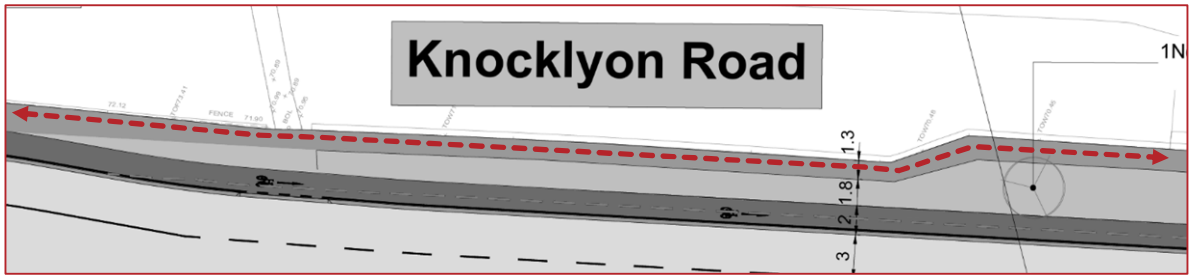
Appendix B: Walking Audit

The purpose of this Walking Audit is to review the proposed Scheme to assess if it can be readily and comfortably traversed by pedestrians, that the needs of pedestrians have been prioritised over cyclists & vehicles, and that footpaths are continuous and wide enough to cater for the anticipated number of pedestrians.

3 Walking Audit Findings

3.1 Pinch-Point in Footpath

The footpath on the eastern side of Knocklyon Road opposite its junction with Delaney's Public House reduces in width at the commencement of the verge and continues with a relatively narrow cross-section for a short distance. This creates a pinch-point within the footpath which may lead to pedestrians having to enter the verge to pass opposing pedestrians.



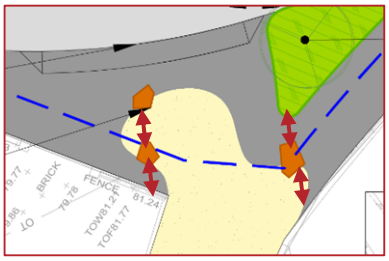
In addition, the footpath travels through two horizontal curves in quick succession within this narrow section such that the adjacent boundary hedge may restrict a pedestrian's forward visibility to oncoming pedestrians.

Recommendation

The footpath should be widened throughout this section such that there is sufficient space for opposing pedestrians to pass each other.

3.2 Pinch-Point in Footpath

Natural boulders have been indicated within the proposed footpath where the M50 pedestrian overbridge exits onto Knockfield Manor. The location of the boulders may reduce the effective width of the footpath for pedestrians approaching from the east or west. This could lead to pedestrians colliding with the boulders or having to enter the verge to pass the boulders, or an opposing pedestrian.

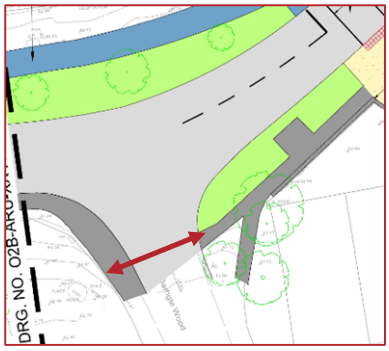


Recommendation

The space between the boulders should be a minimum of 1.2m wide.

3.3 Lack of Pedestrian Crossing

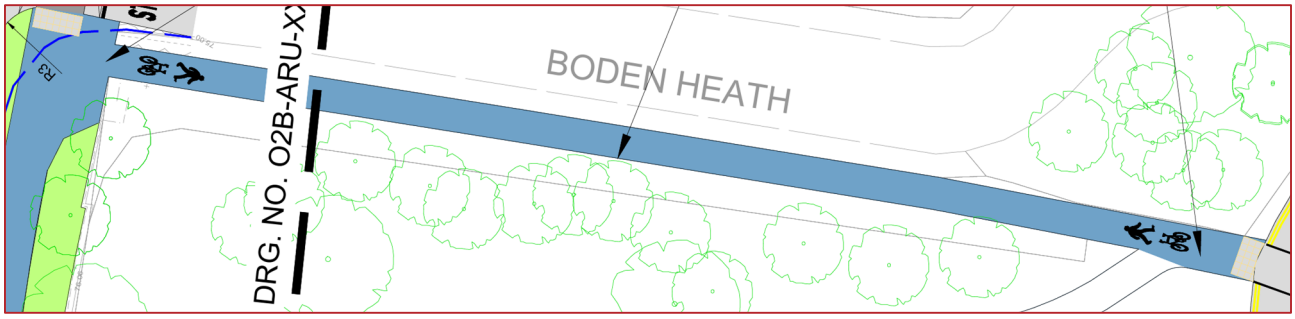
No pedestrian crossing, including associated infrastructure such as dropped kerbs and tactile paving, has been indicated across the Dargle Wood side road at its junction with Knocklyon Road. This may lead to pedestrians having to mount/dismount a full height kerb when crossing the side road resulting in difficulties, particularly for mobility impaired pedestrians.



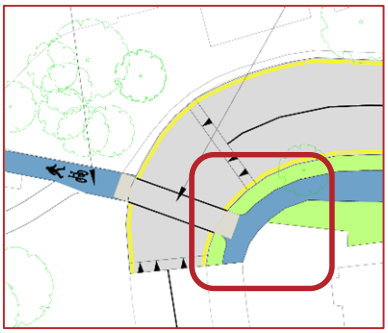
Recommendation

A pedestrian crossing, including dropped kerbs and appropriate tactile paving, should be provided across the Dargle Wood side road.

3.4 Width of Shared Paths



It is proposed to retain the existing footpath on the western side of Boden Heath in its current form but to convert it to a shared path and, similarly, to widen the existing footpath on the western side of Boden Park Green to 3m and convert it to a shared space.



The proposed shared paths on the western side of Boden Heath and directly adjacent to the southern side of the uncontrolled pedestrian crossing on Boden Park Green, do not appear to be wide enough such that they would sufficiently accommodate both pedestrians and cyclists.

Recommendation

The shared paths should be a minimum of 3m wide throughout their length.

3.5 Seating Provision in Dargle Wood

A new shared path has been indicated through the area of open space in Dargle Wood. However, there is no seating indicated within the open space. A failure to provide seating at intervals where pedestrians are likely to rest, may lead to long walking distances resulting in fatigue and difficulties for elderly pedestrians.

Recommendation

Public seating should be provided at sufficient intervals along the proposed shared path.

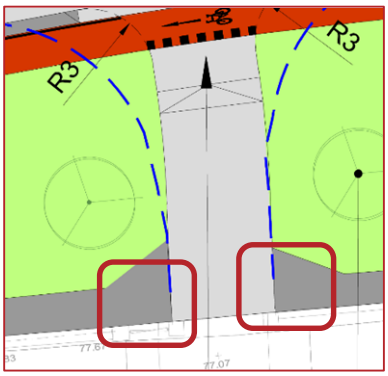
3.6 Lack of Crossings at Pedestrian Desire Line

Three footpath links have been indicated through the grass verge between Scholarstown Road and Scholarstown Park. The three footpath links terminate at the Scholarstown Park carriageway with no measures provided for pedestrians to cross to the footpath on the opposite side of Scholarstown Park.

Recommendation

Uncontrolled pedestrian crossings, including dropped kerbs and tactile paving, should be provided on Scholarstown Park where these footpaths exit onto the carriageway.

3.7 Pedestrian Guardrail

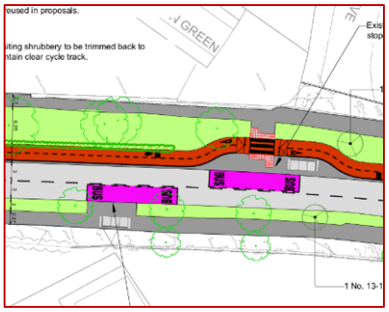


A pedestrian guardrail is currently provided at the end of the footpath on both sides of the access to the Rutland Centre. It is unclear if these guardrails are proposed to be retained. There is a slight incline in the footpath on approach to the crossing of the access and removal of these guardrails may, therefore, lead to pedestrians, particularly a child, entering the access without due care and consideration to entering or exiting vehicles.

Recommendation

The guardrail should be retained.

3.8 Absence of Crossing between Bus Stops



Two bus stops have been indicated on Ballyboden Way to the east of Templeroan Lodge, and located approximately 150m away from the nearest pedestrian crossing. This may lead to bus passengers taking a shorter route and crossing the road away from designated pedestrian crossings when travelling to/from the bus stops where they would be required to cross the verge and traverse a full height kerb.

Recommendation

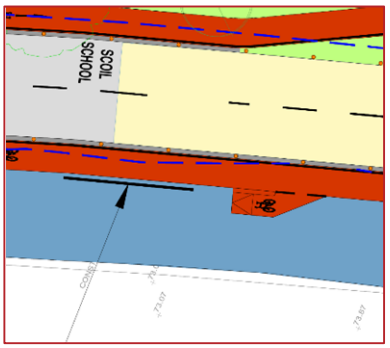
A pedestrian crossing should be provided adjacent to the bus stops.

Appendix C: Cycle Audit

The purpose of this Cycle Audit is to review the proposed Scheme/Development to assess if it will cater comfortably for cyclists, of all ages and abilities, and that the needs of cyclists have been prioritised over vehicular traffic.

4 Cycle Audit Findings

4.1 Guardrail Blocks Cyclist Route

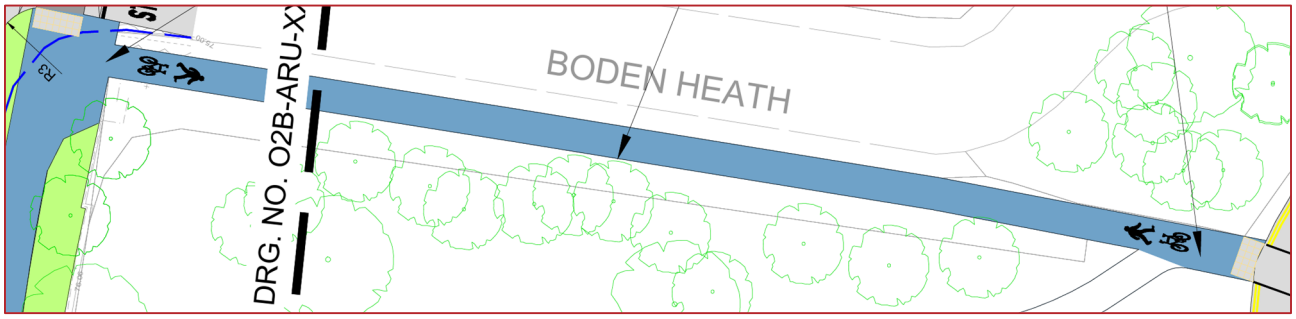


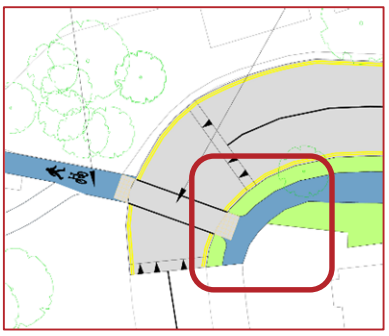
A guardrail is located at the edge of the carriageway on the western side of Knocklyon Road adjacent to Gaelscoil Chnoc Liamhna which is proposed to be retained. The guardrail is located close to the ramp from the northbound cycle track such that it may present an obstacle to cyclists, particularly schoolchildren, exiting the cycle track and entering the shared path.

Recommendation

If the guardrail is not required, it should be removed. If it is required, it should be relocated where it would not present an obstacle to cyclists.

4.2 Width of Shared Paths





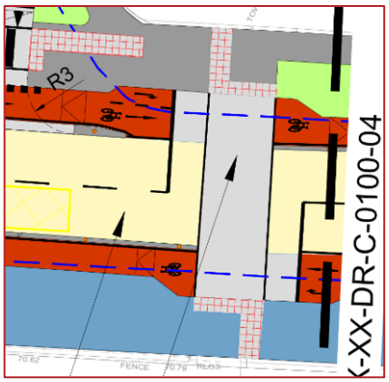
It is proposed to retain the existing footpath on the western side of Boden Heath in its current form but to convert it to a shared path and, similarly, to widen the existing footpath on the western side of Boden Park Green to 3m and convert it to a shared space.

The proposed shared paths on the western side of Boden Heath and directly adjacent to the southern side of the uncontrolled pedestrian crossing on Boden Park Green, do not appear to be wide enough such that they would safely accommodate both pedestrians and cyclists.

Recommendation

The shared paths should be a minimum of 3m wide throughout their length.

4.3 Push-Button Unit for Cyclist



Right-turn pockets have been indicated within the cycle tracks at the proposed Toucan crossing on Knocklyon Road adjacent to its junction with Delaford Avenue and within the eastbound cycle track at the proposed Toucan crossing on Knocklyon Road at the Knocklyon Lodge Creche & Montessori.

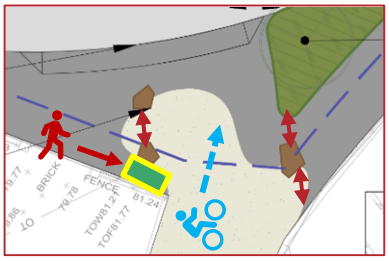
It is unclear, however, at this early design stage if push-button units for cyclists will be provided within arm's reach of a cyclist stopped in the right-turn pocket to trigger a pedestrian/cyclist phase at the crossing.

Recommendation

During the detail design stage care, should be taken to provide a push-button unit for cyclists at these crossings that can be easily reached from the right-turn pocket.

4.4 Pinch-Point in Footpath

Natural boulders have been indicated within the proposed footpath where the M50 pedestrian overbridge exits onto Knockfield Manor, such that pedestrians are directed to travel adjacent to the boundary line. It is unclear if cyclists would have sufficient visibility towards pedestrians approaching the exit from the overbridge and, if sufficient visibility is not available, cyclists may exit onto Knockfield Manor without due care and consideration for pedestrians.



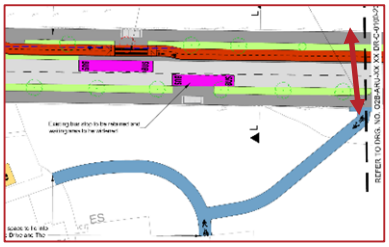
Recommendation

Low-height planting should be provided adjacent to the boundary on both sides of the exit from the overbridge to direct pedestrians away from the boundary, thus improving visibility towards them for cyclists exiting from the M50 pedestrian overbridge.

4.5 Access to Two-Way Cycle Track from Side Road

A shared path has been indicated linking The Drive and The Rise residential developments with the footpath on the southern side of Ballyboden Way to the west of the roundabout junction between Ballyboden Way, Ballyboden Road and Taylor's Lane. A two-way cycle track has been indicated on the northern side of Ballyboden Way.

However no measures have been indicated for cyclists to cross Ballyboden Way to access this facility after exiting the shared path. This may lead to cyclists crossing the verge and dismounting a full height kerb to enter the carriageway and then travelling to the Boden Park Glen side road junction to the west to access the two-way cycle track.



Recommendation

The footpath between the location where the shared path exits onto Ballyboden Way and the Zebra crossing at the roundabout to the west should be converted to a shared path and cyclists directed to this crossing to access the two-way cycle track on the northern side of Ballyboden Way.

Appendix D: Road Safety Audit

The purpose of a Road Safety Audit is to identify problems that may lead to road safety collisions, material damage or personal injury, and to offer recommendations that mitigate identified safety risks.

Appendix E: Street Design Audit

The purpose of a Street Design Audit is to confirm if the proposed schemes align with DMURS, focusing on Connectivity, Self-regulating Environment, Pedestrian/Cycling, and Visual Quality.

Design Manual for Urban Roads and Streets

Street Design Audit

Prepared in respect of: *Phase 2-SDCC/24/0016 Knocklyon to Ballyboden Active Travel Scheme*

Prepared by: *Arup on behalf of South Dublin County Council*

Date: *25.11.2024*

Connectivity		
Key Issues	**Key DMURS Reference.**	**Design Response**
Strategic routes/major desire lines been identified and are clearly incorporated into the design.	3.1 – Integrated Street Network 3.2.1 – Movement Function 3.3.1 – Street layouts 3.3.4 - Wayfinding	The design sets out to improve active travel and public transport connectivity in the Knocklyon and Ballyboden area area by improving the continuity, legibility and safety of existing infrastructure. The project will link existing and proposed active travel routes, contributing towards a comprehensive network connecting residential, recreation and places of employment. The project is primarily located along established link and local roads. Several schools, recreational centres and shopping districts are located along this route. The roads that make up the scheme, include strong connectivity along desire lines, with established accesses to local parks, shopping districts and housing estates. A number of desire lines have been identified that are not facilitated along the scheme. The design includes for a new walking and cycling link from the Taylor's Lane roundabout and The Rise, this new permeability link will consist of opening an existing wall and constructing a new shared pathway. This new link will provide a new route between Ballyboden Way and Scholarstown Road, as well as improving connectivity between the aforementioned roads and residential streets, The Rise, Boden Park Rise and Boden Park Green. A new permeability will also be established between the residential development Two Oaks and Dargle Wood Park by opening the existing wall. Additionally, walking and cycling connectivity between the main link roads that compose the scheme and adjacent residential streets, has been upgraded by tightening and raising junctions and upgrading and providing new crossing facilities. Existing crossing facilities have also been upgraded and new crossings

		provided at strategic locations allowing pedestrians and cyclists access to more destinations in a safe and controlled manner.
Multiple points of access are provided to the site/place, in particular for sustainable modes.	3.3.1 – Street Layouts 3.3.3 – Retrofitting[1]	Connectivity between the main route and side roads have been given consideration. Existing crossings have been upgraded to toucan where appropriate and suitable arrangements have been provided for right-turning cyclists to ensure efficient movement of people between side roads, school etc. and both sides of the main road. As part of the design process, an assessment was complete to determine where crossing was in high demand. Following this assessment new crossing facilities have been provided. There was no opportunity observed in the project for retrofitting.
Accessibility throughout the site is maximised for pedestrians and cyclists, ensuring route choice.	3.3.1 – Street Layouts 3.3.2 – Block Sizes 3.4.1 – Vehicle Permeability	The design sets out to improve active travel and public transport connectivity in the Knocklyon and Ballyboden area by improving the continuity, legibility and safety of existing infrastructure. The design maximises active travel movement through the following measures; pedestrian and cyclists priority through side roads by means of raised crossings with continuous footpath and cycle track pavement; upgrading of existing signal-controlled junctions to fully kerb protected junctions with separated pedestrian and cycle crossings on each arm; removal of bus stop laybys and provision of cycle bypasses; continuity of cycle tracks and footpaths through driveway, utilising short ramps for drivers and upgrading and providing new signal-controlled pedestrian crossings. The route is primarily along link roads with a posted speed limit of 50km/h, therefore there was limited opportunity to integrate self-regulating street measures. The street already contains a large

[1] *When connecting with existing communities a detailed analysis and extensive community consultation should be carried out to identify the optimal location for connections (refer also to the NTA Permeability in Existing Urban Areas: Best Practice Guide)*.

		number of roadside trees and there are additional trees proposed as part of this project. Pencil bollards and school zone marking have been provided along a section of Knocklyon Road and Idrone Avenue. These measures have been implemented to reduce vehicular speeds. The secondary links on this project are located along local roads, at these locations quiet street treatment has been provided. Measures in these locations include road markings on the road to indicate shared nature of the road, raised entry treatment with corner tightening and continuity of footpath pavement and landscape measures.
Through movements by private vehicles on local streets are discouraged by an appropriate level of traffic calming measures.	3.2.1 – Movement Function 3.2.2 – Place Context 3.4.1 – Vehicle Permeability	Local roads off the scheme have been treated with raised entry treatment consisting of reduction to corner radii and continuity of footpath and cycle track pavement through the junction providing pedestrian and cyclists with priority through the junction. Reversing priority through the side roads will discourage unnecessary trips through local streets. Self-regulating street measures have been provided along secondary links that provide active travel links from the main route to local schools. These links are along local streets with a posted speed limit of 30km/h. Measures include road markings on the road to indicate shared nature of the road, raised entry treatment with corner tightening and continuity of footpath pavement and landscape measures. The streets contain speed bumps, mature roadside trees and on-street parking contributing to slow vehicular speeds. The measures intend to provide safe and convenient active travel links and discourage unnecessary car journeys through these streets.

Self-Regulating Street Environment		
Key Issues	**Key DMURS Reference.**	**Design Response**
A suitable range of design speeds have been applied with regard to context and function.	3.2.1 – Movement Function. 3.2.3 – Place Context. 4.1.1 – A Balanced Approach to Speed[2]	The project is primarily along link roads with a posted speed limit of 50km/h and to the lesser extent along local roads with a speed limit of 30km/h. The project scope did not include changes to the road alignment and geometry. The project sets out to improve walking and cycling infrastructure along an existing established road. To moderate speeds from the main route into side roads raised entry treatment was provided, pencil bollards and street art has been provided outside schools to increase driver awareness of the school zone and the sensitivity of the area. A shared street environment was provided along secondary links on local roads with a posted speed limit of 30km/h, where cyclists will share space with drivers on the road. To ensure the 85th percentile remains below 30km/h, raised entry treatments have been provided with junction corner tightening. Cycle symbol road markings have also been provided on the street to communicate the shared nature of the street. There are existing speed ramps, roadside trees and on street parking, which are contributing factors for self-regulating streets.
The street environment will facilitate the creation of a traffic clamed environment via the use of 'softer' or passive measures.[3]	4.2.1 – Building Height and Street Width 4.2.2 – Street Trees 4.2.3 – Active Street Edges 4.2.4 – Signage and Line Marking	Controlled access points with low radii and raised crossing will ensure vehicles entering or leaving the carriageway can only do so at low speed to generate a softer traffic calmed

[2] *Refer also to the National Speed Limit Guidelines*
[3] *In retrofit situations a detailed analysis should be carried out to establish what measures exist, what their likely effectiveness is and level of intervention required to achieve the designed design speed.*

	4.2.7 – Planting 4.4.2 – Carriageway Surfaces 4.4.9 - On-Street Parking Advice Note 1 – Transitions and Gateways	environment. Proposed trees will provide a height element and moderate sense of enclosure to aid visual calming measures. Along the secondary links, on-street parking and roadside trees are present creating a sense of enclose to aid visual calming measures. At Gaelscoil Chnoc Liamhna and St. Colmcilles SRTS markings and pencil bollards will help communicate to drivers that they're within a school zone. Existing school set-down are also maintained
A suitable range of design standards/measures have been applied that are consistent with the applied design speeds.	4.4.1 - Carriageway Widths 4.4.4 – Forward Visibility 4.4.5 – Visibility Splays 4.4.6 – Alignment and curvature 4.4.7 – Horizontal and Vertical Deflections Advice Note 1 – Transitions and Gateways	The road width along the main route has been reduced to 6.0m, for two directional traffic, in accordance with guidance provided in section 4.4.1 of DMURS. Forward visibility along the secondary links have already been reduced by the presence of roadside streets and on-street parking. Additional trees have been provided to create a sense of enclosure. On the main roads composing the scheme (50km/h) forward visibility and visibility splays were checked against requirements of DMURS section 4.4.4 and 4.4.5. Priority and signal-controlled junctions have been designed in accordance with DMURS requirements. Horizontal deflection has been provided at priority junctions with reduced corner radii aligning with figure 4.43 of DMURS. Similarly, at signalised junctions corner radii have been made constraint to promote slower turning speeds.
Pedestrian and Cycling Environment		
Key Issues	**Key DMURS Reference.**	**Design Response**

The built environment contributes to the creation of a safe and comfortable pedestrian environment.	4.2.1 – Building Height and Street Width 4.2.3 – Active Street Edges 4.2.5 – Street Furniture 4.4.9 - On-Street parking	The project scope did not include for changes to the building height, street width and street edges. The design includes raised crossing over side roads with continuity of the footpath pavement. Additional lighting, low level landscaping and benches have been provided to enhance pedestrian comfort and safety. The existing footpath is largely separated from the carriageway by landscape verges, cycle track or school-set down, creating a buffet between the pedestrians and vehicles, positively contributing towards pedestrian comfort and safety. The design set out to avoid creating enclosures along the roads that would obstruct the view and create areas with limited visibility.
Junctions been designed to ensure the needs of pedestrians and cyclists are prioritised[4].	4.3.2 - Pedestrian Crossings 4.3.3 – Corner Radii 4.4.3 - Junction Design 4.4.7 - Horizontal and Vertical Deflections	Priority junctions have been designed in accordance with DMURS and the CDM. All junctions have been raised with a ramp on either end to ensure drivers slow down at approach. Corner radii have been reduced to align with requirements of figure 4.43. Continuous footpath and cycle track pavement was provided across the junctions to provide pedestrians and cyclists with priority. Signal-controlled junctions have been designed to include single stage crossing on all arms for pedestrians and cyclists. Corner radii are designed to be tight to slow turning speeds. Separate crossing facilities have been provided for cyclists and pedestrians.
Footpaths are continuous and wide enough to cater for the	3.2.1 – Movement Function. 3.2.3 – Place Context.	The project sets out to provide continuity of footpaths across priority junctions, improve mid-block crossings and upgrade

[4] *Refer also to the National Cycle Manual (2011)*

anticipated number of pedestrian movements.	4.2.5 – Street Furniture 4.3.1 - Footways, Verges and Strips 4.3.2 - Pedestrian Crossings	signal-controlled junctions to include pedestrian crossing on all arms. The design also sets out to separate pedestrians and cyclists, shared spaces have been removed and replaced with dedicated footpath and cycle tracks. Where a high volume of pedestrians was expected, such as outside schools, the footpath width has been increased.

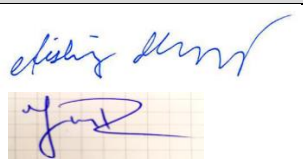
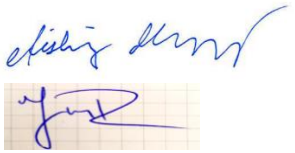
Pedestrian and Cycling Environment (cont)		
Key Issues	**Key DMURS Reference.**	**Response**
The particular needs of visually and mobility impaired users been identified and incorporated in the design.	4.2.5 - Street Furniture 4.3.1 - Footways, Verges and Strips 4.2.5 - Street Furniture 4.3.2 - Pedestrian Crossings 4.3.4 - Pedestrianised and Shared Surfaces	Street furniture has been positioned to avoid obstructing movement through the footpaths, signs and lighting have been either provided at the back of footpaths or in grassed verges. A decluttering exercise has been complete to combine signage on a singular pole and pedestrian guardrails were removed in many locations, especially around signalised crossings. Appropriate footpath widths have been provided to ensure mobility impaired users can navigate comfortably. Priority junctions have been designed to include continuous footpaths through the junction at level with the adjacent footpaths. Abrupt kerbs have been avoided. Priority junctions have also been narrowed, resulting in shorter crossing widths. Appropriate buff tactile paving has been provided. Signal-controlled junctions have been designed to include single stage crossing of the road on all arms for pedestrians and cyclists. Where pedestrians are required to cross the cycle track to access the pedestrian landing, a raised zebra crossings giving pedestrians priority is used. The crossing from footpath to pedestrian landing will be at level, abrupt kerbs have been avoided. Appropriate red tactile paving has been provided at each location. The design also sets out to separate pedestrians and cyclists, shared spaces have been removed and replaced with dedicated footpath and cycle tracks. Due to space constrains, a short length of shared space remains, at this location appropriate corduroy tactile paving and signage has been provided. Shared

		spaces are also avoided at mid-block crossings, the conflict between pedestrians is either signal controlled or through raised zebra crossings.
Cycling facilities will cater for cyclists of all ages and abilities.[5]	3.2.1 – Movement Function. 3.2.3 – Place Context. 4.3.5 - Cycle facilities.	Priority junctions have been designed in accordance with DMURS and the CDM. All junctions included with the scope have been raised with a ramp on either end to ensure drivers slow down at approach. Corner radii have been reduced to align with requirements of figure 4.43. Continuous footpath and cycle track pavement was provided across the junctions to provide pedestrians and cyclists with priority. A landscape buffer has been provided between the cycle tracks and footpaths where feasible. At locations where the cycle tracks are adjacent to the road, the cycle track is raised above the road and a protection kerb is used. Junctions and crossings have been designed to avoid ambiguity, cyclists and pedestrians are separated at priority and signal-controlled junctions. Signal-controlled crossings have been designed to include push buttons for cyclists without having to leave the cycle lane and separate signal phases have been used for cycle and vehicular movements. Cyclists are only expected to share space with vehicles on local roads where the posted speed limit is 30km/h. The existing conditions, include narrow roads with roadside trees and on-street parking contributing towards a sense of enclosure and slower driving speeds. The design also includes raised entry treatments and cycle symbol markings on the street to indicate the shared nature of the street.

[5] *Refer also to the National Cycle Manual (2011)*

Visual Quality		
Key Issues	**Key Considerations and DMURS Ref:**	**Design Response**
The landscape plan responds to the street hierarchy and the value of the place.	3.2.1 – Movement Function. 3.2.3 – Place Context. 4.2.2 – Street Trees 4.2.7 – Planting Advice Note 1 – Transitions and Gateways	The landscape plan was developed to complement the existing environment. The primary function of Firhouse Road, Knocklyon Road, Templeroan Road, Ballycullen Road and Scholarstown Road is to move people, the landscape design was complete with that in mind, providing grass and clover mixes on new grassed verges to reduce maintenance and to allow for local flora to establish itself in the verges over time. Several landscape focal nodes have been identified at Knockfield Manor, Dargle Wood park, green adjacent to Knockcullen Rise and Taylor's Lane roundabout. At these locations the landscape proposals include public realm upgrades consisting of new tree and shrub planting, architectural pavement and new seating. The design also includes for new native trees through the scheme. The intent of the landscape design is to complement the local environment, create a comfortable and pleasant environment for pedestrians and users and create a sense of enclosure to promote slower driver speeds.
Street furniture is orderly placed.	3.2.1 – Movement Function. 3.2.3 – Place Context. 4.2.5 - Street Furniture. 4.3.1 Footways, Verges and Strips	Seating is provided at regular intervals throughout the scheme to facilitate resting points, considering the linear nature of the scheme it was deemed necessary to provide a comfortable environment for less able users. Positioning of street furniture, new and existing, has been considered in the context of its impact on mobility. Signs, lighting, bus shelters, bins etc. have been positioned at the

		back of footpaths or in grassed verges to avoid obstruction of the footpath. Bollards have been positioned as to provide sufficient clearance for wheelchairs, trailers and bicycles to pass. A decluttering exercise was also carried out, to identify and remove redundant signs and combine existing signage onto the same pole. Pedestrians' guardrails have also been removed in several locations.
The use of signage and line marking has been minimised.	3.2.1 – Movement Function. 3.2.3 – Place Context. 4.2.4 - Signage and Line Marking.	As part of the detail design for the scheme a decluttering exercise will be carried out, to identify and remove redundant signs and combine existing signage onto the same pole. Signage and road marking will be provided in accordance with the Traffic Signs Manual (TSM) and Cycle Design Manual (CDM), only road markings and signage that are deemed necessary to provide clarity and safety will be included as part of the proposals.
Materials and finishes used throughout the scheme have been selected from a limited palette and respond to the value of the place?	3.2.1 – Movement Function. 3.2.3 – Place Context. 4.2.6 – Materials and Finishes 4.2.8 – Historic Contexts. 4.3.2 – Pedestrian Crossings 4.4.2 – Carriageway Surfaces Advice Note 2 – Materials and Specifications	Materials and finishes have been carefully chosen to facilitate movement by providing visual distinction between surfaces. Red asphalt finish is used on cycle tracks along full length of the scheme and concrete finish is used on footpath. Buff High friction surface finish will be used on the carriageway at approach to signalised junctions to indicate to drivers that they have to exert extra care and to enhance the skid resistance of the road. Outside Gaelscoil Chnoc Liamhna and St. Colmcille SRTS markings and Safe Routes to School (SRTS) has been used to communicate to drivers that they are entering a school zone. The surface finish and colour has been chosen from the palette provided in the SRTS Design Guide.
Additional Comments		

Personnel Information			
	Name	**Date**	**Signature**
Report Prepared By:	**Jakub Radomski** **Aisling Murphy**	**25.11.2024**	
Principle Designers	**Jakub Radomski** **Aisling Murphy**	**25.11.2024**	

OVE Arup & Partners Ireland Ltd

Knocklyon to Ballyboden Active Travel Scheme

Stage 1 Road Safety Audit

P·M·C·E

January 2025

OVE Arup & Partners Ireland Ltd

Knocklyon to Ballyboden Active Travel Scheme

Stage 1 Road Safety Audit

Document Ref:	P24204-PMCE-XX-XX-RP-SA-3_0001

Rev	Prepared By	Reviewed By	Approved By	Issue Date	Reason for Revision
2.0	AOR	AP/TAG	AOR	7th January 2025	Final Report
1.0	AOR	AP/TAG	AOR	29th Nov. 2024	Draft Report

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Table of Contents

1 Introduction

1.1 General

This report results from a Stage 1 Road Safety Audit on the proposed Knocklyon to Ballyboden Active Travel Scheme carried out at the request of Mr. Jakub Radomski of OVE Arup & Partners Ireland Ltd.

The members of the Road Safety Audit Team are independent of the design team, and include:

Mr. Alan O'Reilly
(BA, BAI, MSc, PGDip(PM), RSACert, CEng, MIEI)
Road Safety Audit Team Leader

Mr. Antonis Papadakis
(EUR ING, BSc (Hons), MSc, MIEI, MTCG)
Road Safety Audit Team Member

The Road Safety Audit took place during November 2024 and comprised an examination of the documents provided by the designers (see Appendix A). In addition to examining the documents supplied the Road Safety Audit Team visited the site of the proposed measures on the 12th of November 2024. Weather conditions during the site visit were dry and the road surface was dry. Traffic volumes during the site visit were moderate, pedestrian and cyclist volumes were low, and traffic speeds were considered to be generally within the posted speed limit.

Where problems are relevant to specific locations these are shown on drawing extracts within the main body of the report and their locations are shown in Appendix B. Where problems are general to the proposals sample drawing extracts are within the main body of the report, where considered necessary.

This Stage 1 Road Safety Audit has been carried out in accordance with the requirements of GE-STY-01024 - Road Safety Audit (December 2017), contained on the Transport Infrastructure Ireland (TII) Publications website.

The scheme has been examined and this report compiled in respect of the consideration of those matters that have an adverse effect on road safety and considers the perspective of all road users. It has not been examined or verified for compliance with any other standards or criteria. The problems identified in this report are considered to require action in order to improve the safety of the scheme and minimise collision occurrence.

If any of the recommendations within this road safety audit report are not accepted, a written response is required, stating reasons for non-acceptance. Comments made within the report under the heading of Observations are intended to be for information only. Written responses to Observations are not required.

1.2 Items Not Submitted for Auditing

Details of the following items were not submitted for audit; therefore, no specific problems have been identified at this stage relating to these design elements, however where the absence of this information has given rise to a safety concern it has been commented upon in Section 3:

- Vehicle Swept Paths.
- Visibility Splays.

2 Project Description

The proposed Knocklyon to Ballyboden Active Travel Scheme would be located in the Knocklyon and Ballyboden area in south Dublin (see Figure 2.1), primarily extending along Knocklyon Road, Scholarstown Road, Templeroan Road and Ballyboden Way, for a total distance of approximately 4km, although a number of secondary links through other minor roads are also proposed. It would consist of new, and upgrades to existing, pedestrian and cycle links to residential, educational, leisure and commercial areas, to provide a safer and more attractive environment for non-motorised road users.

The majority of the route would run along existing footpaths and cycle facilities, however new cycle facilities are proposed on roads that currently have no such facilities. As part of the design development a number of secondary links have been identified along existing roads and footpaths to better connect the primary route to the surrounding areas. The secondary links will comprise small interventions, such as installation of new, and upgrading existing, crossings and upgrading existing footpaths to shared paths to improve permeability and access onto the primary route.

FIGURE 2.1: LOCATION PLAN (SOURCE: WWW.OPENSTREETMAP.ORG)

The proposed works would include:

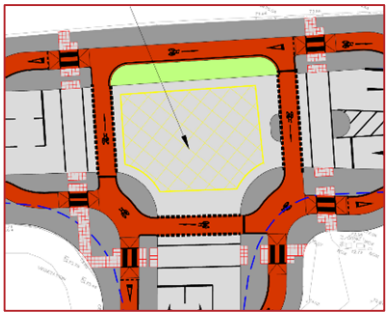
- Crossing facilities in the form of raised tables, and continuous footpaths, on side roads and minor access roads.
- Amendments to existing bus stops.
- Amendments to existing junction layouts, including upgrading two signalised junctions to protected junctions and two roundabouts to protected roundabouts with cycle priority.
- Amendments of the existing kerb line.
- Zebra crossings to replace existing crossings and also at new locations.
- Widening of existing footpaths.
- New cycle facilities including one-way cycle tracks on each side of Knocklyon Road and sections of Scholarstown Road, a two-way cycle track on the eastern side of Templeroan Road/Lawn and a two-way cycle track on the northern side of Ballyboden Way.

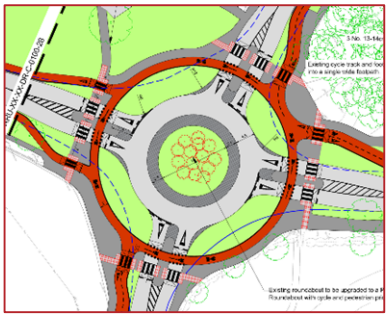
3 Items Arising from the Audit

3.1 Swept Paths at Junctions

Location: *Protected Signalised Junctions and Protected Roundabouts within the scheme*

Example: *Drawing no. O2B-ARU-XX-XX-DR-C-0100-02 (Rev. P01)*
Drawing no. O2B-ARU-XX-XX-DR-C-0100-18 (Rev. P01)
Drawing no. O2B-ARU-XX-XX-DR-C-0100-23 (Rev. P01)
Drawing no. O2B-ARU-XX-XX-DR-C-0100-24 (Rev. P01)





Summary: *It is unclear if the reduced extents of the carriageway at revised signalised junctions and roundabouts within the scheme will safely accommodate the swept path of all vehicles.*

Information regarding the swept path of vehicles at junctions, including priority-controlled, signalised and roundabouts, within the scheme have not been provided to the Audit Team.

It is, therefore, unclear if the revised road layout at junctions, and the reduced carriageway space due to the amended kerbs, will sufficiently accommodate the swept path of all vehicles where turning drivers may be restricted by the revised kerb line, for example at the Firhouse Road and Knocklyon Road junction. If drivers cannot complete turning manoeuvres within the extents of the carriageway there is a risk of kerb strikes and vehicles potentially entering the cycle lanes or mounting the footpath, increasing the risk of collisions with items of roadside furniture or with other road users.

Recommendation

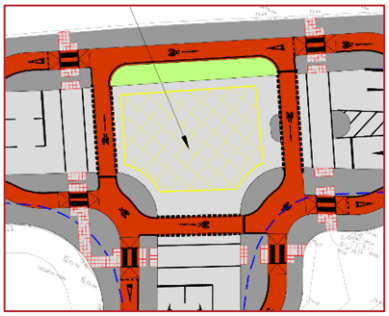
The swept path of all vehicles should be accommodated safely at all junctions within the scheme.

3.2 Revised Traffic Signal Phasing/Layout

Location: *Throughout the Scheme*

Example: *Drawing no. O2B-ARU-XX-XX-DR-C-0100-02 (Rev. P01)*
Drawing no. O2B-ARU-XX-XX-DR-C-0100-07 (Rev. P01)
Drawing no. O2B-ARU-XX-XX-DR-C-0100-08 (Rev. P01)
Drawing no. O2B-ARU-XX-XX-DR-C-0100-24 (Rev. P01)

Summary: *Information regarding the proposed signal phasing at the amended junctions have not been indicated and it is, therefore, unclear how all road users will be accommodated within the junctions.*



Information regarding the proposed traffic signal phasing at junctions, where the existing traffic lanes on the approach are to be removed/amended, has not been provided. The existing traffic signal phasing, if unchanged, may be insufficient to safely accommodate all movements at the revised junctions.

If the traffic signal phasing is not amended to reflect the new layout of the junctions there is a risk of road users being given a green signal during the same phase as opposing vehicle, or cyclist, movements which could lead to conflicts between left-turning vehicles and straight-ahead cyclists and also between straight-ahead vehicles and right-turning cyclists.

Recommendation

The traffic signal heads at the junctions should reflect the revised lane configuration and the signal phasing should be designed to separate conflicting manoeuvres ensuring all movements can be undertaken safely, while minimising potential conflict points.

3.3 No Tactile Paving at Crossing of Cycle Track at Island Bus Stops

Location: *Throughout the Scheme*

Example: *Drawing no. O2B-ARU-XX-XX-DR-C-0100-02 (Rev. P01)*
Drawing no. O2B-ARU-XX-XX-DR-C-0100-22 (Rev. P01)
Drawing no. O2B-ARU-XX-XX-DR-C-0100-28 (Rev. P01)

Summary: *The absence of tactile paving within the footpath at the cycle track crossings at island bus stops may lead to difficulties for visually impaired pedestrians in locating the crossing when boarding a bus.*

The proposed island bus stops, indicated at a number of locations within the Scheme, require pedestrians to cross the cycle track at Zebra crossings when boarding/alighting a bus. Tactile paving has not been indicated within the footpath at these crossings in all instances, including at the following locations:

1. The eastbound bus stop on Firhouse Road to the east of the Firhouse Road/Knocklyon Road signalised junction.
2. The eastbound bus stop on Ballyboden Way to the east of the junction with Boden Park Green.
3. The eastbound bus stop on Scholarstown Road to the west of the roundabout junction between Scholarstown Road, Ballyboden Way and Templeroan Lawn.

The absence of tactile paving within the footpath at these Zebra crossings may lead to difficulties for visually impaired pedestrians in locating the crossing when boarding a bus resulting in them being unable to safely and independently navigate the road layout, or to them inadvertently entering the cycle track at the crossing and being struck by a cyclist.

Recommendation

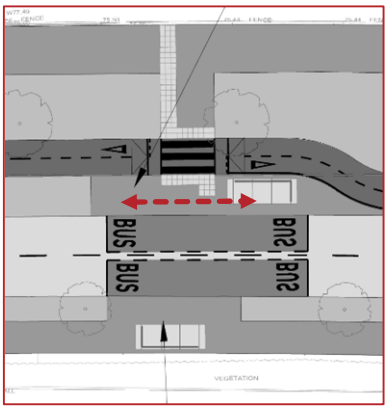
'L-shaped' red-coloured tactile paving should be provided on the footpath side of the crossings. The bus shelter may need to be relocated in some instances to facilitate the tactile paving stem.

3.4 Tactile Paving Stem

Location: *Throughout the Scheme*

Example: *Drawing no. O2B-ARU-XX-XX-DR-C-0100-02 (Rev. P01)*
Drawing no. O2B-ARU-XX-XX-DR-C-0100-19 (Rev. P01)
Drawing no. O2B-ARU-XX-XX-DR-C-0100-21 (Rev. P01)
Drawing no. O2B-ARU-XX-XX-DR-C-0100-28 (Rev. P01)

Summary: *The stem of the tactile paving on the carriageway-side of cycle track crossings at bus stops does not extend sufficiently to intercept visually impaired pedestrians when alighting from a bus.*



Pedestrian crossings of the cycle track have been indicated at the proposed island bus stops within the scheme. The stems of the tactile paving do not extend sufficiently in all instances on the carriageway-side of the crossing and may, therefore, not be intercepted by visually impaired pedestrians after alighting from a bus.

Visually impaired pedestrians may, therefore, unintentionally continue past the pedestrian crossing leading to them being unable to locate the crossing and thus being unable to safely and independently navigate the road layout.

Recommendation

The tactile paving stem should extend to the Kassel kerb at these bus stops.

3.5 Continuous Footpath Across Side Roads

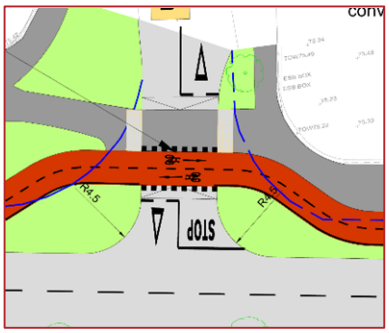
Location: *Priority-controlled junctions within the scheme where continuous footpaths are proposed*

Example: *Drawing no. O2B-ARU-XX-XX-DR-C-0100-03 (Rev. P01)*
Drawing no. O2B-ARU-XX-XX-DR-C-0100-07 (Rev. P01)
Drawing no. O2B-ARU-XX-XX-DR-C-0100-15 (Rev. P01)
Drawing no. O2B-ARU-XX-XX-DR-C-0100-19 (Rev. P01)
Drawing no. O2B-ARU-XX-XX-DR-C-0100-22 (Rev. P01)

Summary: *The continuous footpath layout proposed across side roads within the scheme may be unsuitable for the volume of vehicles entering/exiting the side roads, increasing the risk of vehicle-pedestrian collisions.*

A continuous footpath is indicated across a number of side roads within the scheme.

The Design Manual for Urban Roads and Streets (DMURS) Advice Note 6 advises that continuous footpaths could be considered at side roads where vehicle flows are low, between 30 and 40 vehicle movements in the peak hour. Information regarding the volume of traffic turning into and out of these junctions has not been provided to the Audit Team.



If the volume of vehicles entering and exiting these side roads during the peak hour is greater than this, a continuous footpath would not be suitable at these locations and may result in an increased risk of vehicle-pedestrian collisions.

Recommendation

Junction turning count surveys should be undertaken at these locations to determine if the peak hour traffic volumes are within the threshold where a continuous footpath would be appropriate.

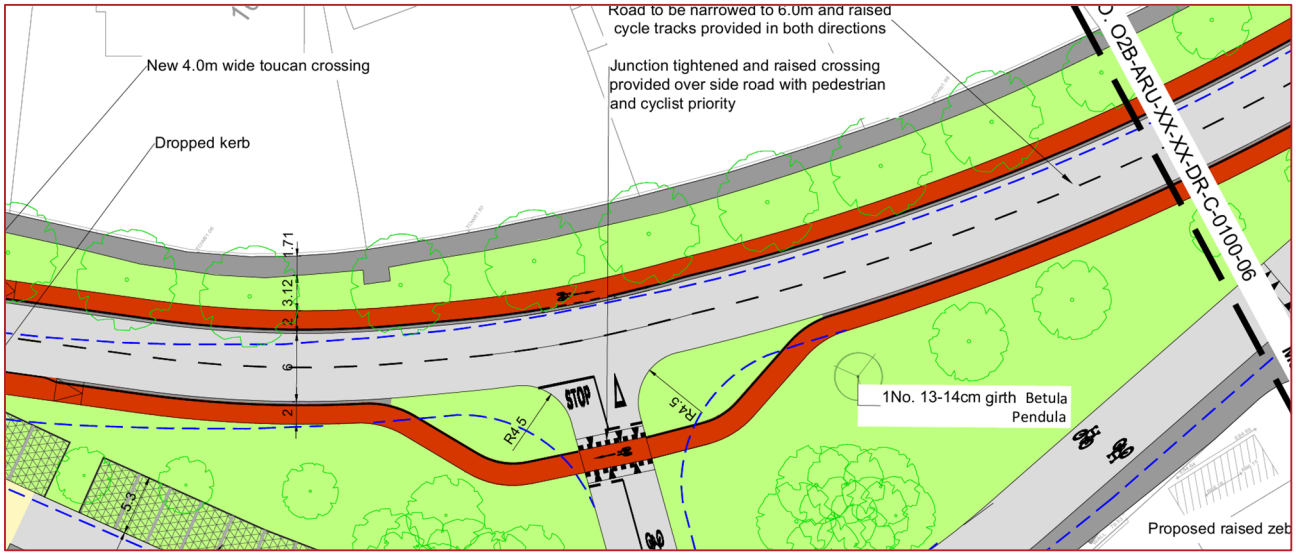
If the traffic volumes at these locations exceed this threshold, then the footpath at these side roads should be discontinuous with an appropriate crossing provided.

3.6 Swept Path of Opposing Large Vehicles

Location: *Throughout the Scheme*

Example: *Drawing no. O2B-ARU-XX-XX-DR-C-0100-05 (Rev. P01)*
Drawing no. O2B-ARU-XX-XX-DR-C-0100-06 (Rev. P01)
Drawing no. O2B-ARU-XX-XX-DR-C-0100-07 (Rev. P01)
Drawing no. O2B-ARU-XX-XX-DR-C-0100-21 (Rev. P01)

Summary: *Horizontal curves have been indicated at some locations on Knocklyon Road and Ballyboden Way and it is unclear if large vehicles would be able to travel through these curves without encroaching into the opposing traffic lane.*



Horizontal curves have been indicated at some locations on Knocklyon Road and Ballyboden Way. It is proposed to reduce the carriageway cross-section of these roads through the provision of widened footpaths and cycle tracks. Swept paths of large vehicles, such as buses and HGVs, travelling through these curves have not been provided to the Audit Team and it is, therefore, unclear if these vehicles can travel through these curves without encroaching into the adjacent traffic lane where there would be a risk of side swipe or head-on collisions with opposing vehicles.

Recommendation

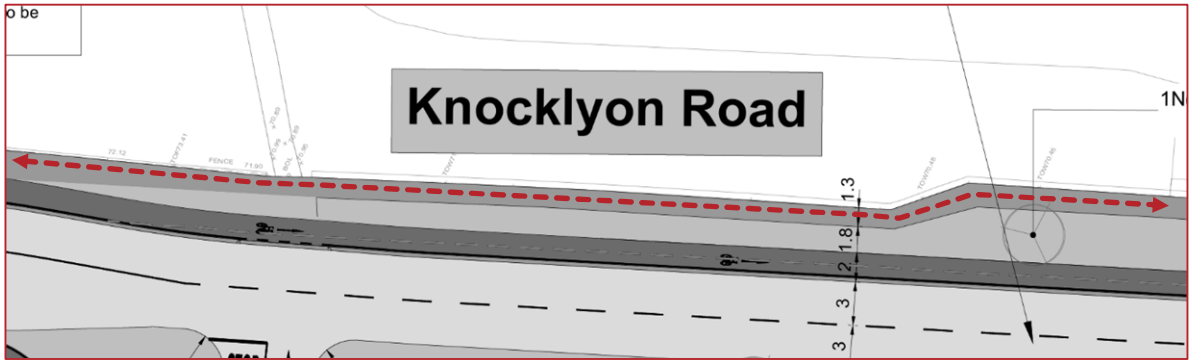
A swept path analysis should be undertaken to determine that all vehicles expected to use these roads can safely travel through these curves within the extent of their traffic lane. If this is not possible, median widening may be required through these horizontal curves.

3.7 Pinch-Point in Footpath

Location: *Drawing no. O2B-ARU-XX-XX-DR-C-0100-03 (Rev. P01)*

Summary: *The footpath reduces in width at the commencement of the verge and continues for a short distance resulting in a pinch-point which may lead to pedestrians having to enter the verge to pass opposing pedestrians resulting in an increased risk of trips and falls.*

The footpath on the eastern side of Knocklyon Road opposite its junction with Delaney's Public House reduces in width at the commencement of the verge and continues with a relatively narrow cross-section for a short distance. This creates a pinch-point within the footpath which may lead to pedestrians having to enter the verge to pass opposing pedestrians where there is an increased risk of trips and falls, and personal injuries.



In addition, the footpath travels through two horizontal curves in quick succession within this narrow section such that the adjacent boundary hedge may restrict a pedestrian's forward visibility to oncoming pedestrians resulting in conflicts.

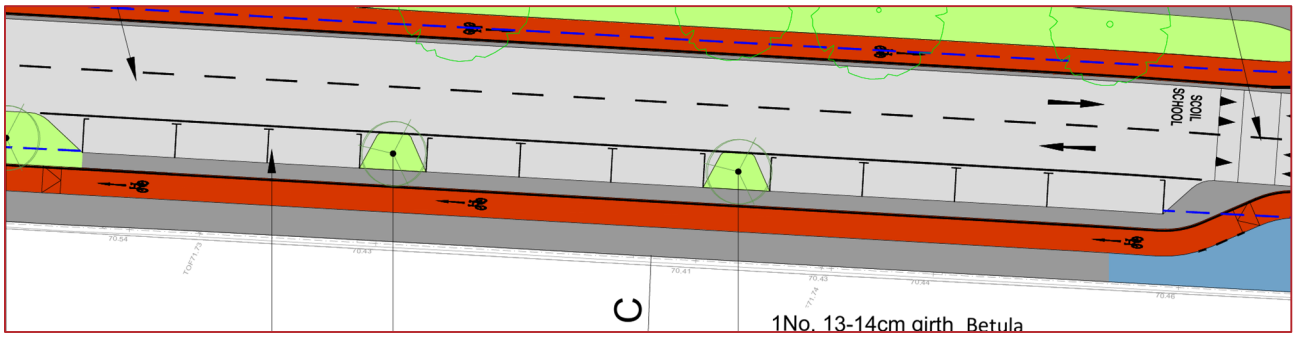
Recommendation

The footpath should be widened throughout this section such that there is sufficient space for opposing pedestrians to pass each other.

3.8 No Crossing of Cycle Track at School Set-Down Area

Location: *Drawing no. O2B-ARU-XX-XX-DR-C-0100-03 (Rev. P01)*

Summary: *Measures have not been indicated for vehicle occupants to travel between the parking spaces at the school set-down area and the adjacent footpath on the southern side of Knocklyon Road at Gaelscoil Chnoc Liamhna.*



Ten parking spaces have been indicated on the western side of Knocklyon Road at the school set-down area adjacent to Gaelscoil Chnoc Liamhna. The proposed northbound cycle track is indicated between the set-down area and the footpath at this location. No connection between the footpath and the set-down area has been indicated across the cycle track at this location which may lead to vehicle occupants, particularly schoolchildren, experiencing difficulty when travelling from their vehicle to the footpath, resulting in a potential increased risk of pedestrian-cyclist collisions.

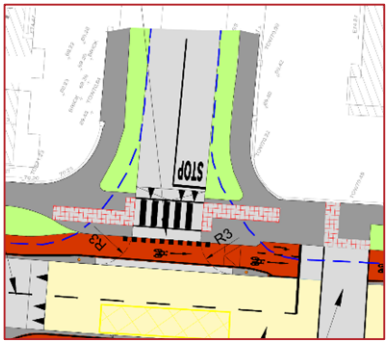
Recommendation

The shared path further south of the set-down area should be extended throughout the length of the set-down area and the cycle track removed. Appropriate tactile paving should be provided where the shared path transitions back to the footpath to the north of the set-down area.

3.9 Visibility Exiting Side Road

Location: *Drawing no. O2B-ARU-XX-XX-DR-C-0100-03 (Rev. P01)*

Summary: *Visibility for exiting drivers at the setback Stop line on Delaford Avenue may be restricted by the property boundaries.*



A raised Zebra crossing is proposed on Delaford Avenue at its junction with Knocklyon Road such that the Stop line would be setback into Delford Avenue. It is unclear if sufficient visibility would be available for drivers exiting Delaford Avenue from the setback Stop line due to the boundary walls and hedges of the properties on the corners of the junction. If sufficient visibility is not available from the Stop line this could lead to drivers entering Knocklyon Road when it is unsafe to do so and an increased risk of side-on collisions.

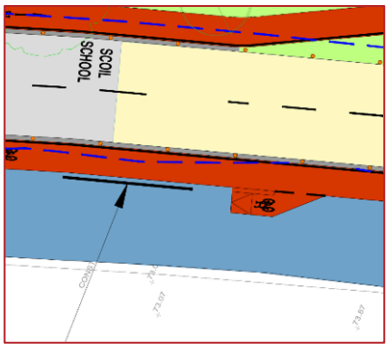
Recommendation

Confirm that the required visibility can be achieved from the Stop line on Delaford Avenue.

3.10 Guardrail Blocks Cyclist Route

Location: *Drawing no. O2B-ARU-XX-XX-DR-C-0100-04 (Rev. P01)*

Summary: *The guardrail may present a hazard to cyclists as they move from the carriageway to the shared path at Gaelscoil Chnoc Liamhna.*



A guardrail is located at the edge of the carriageway on the western side of Knocklyon Road adjacent to Gaelscoil Chnoc Liamhna which is proposed to be retained. The guardrail is located close to the ramp from the northbound cycle track such that it may present a hazard to cyclists, particularly schoolchildren, exiting the cycle track and entering the shared path. This could lead to cyclists colliding with the guardrail, and suffering personal injuries, or losing control of, and falling from, their bicycle.

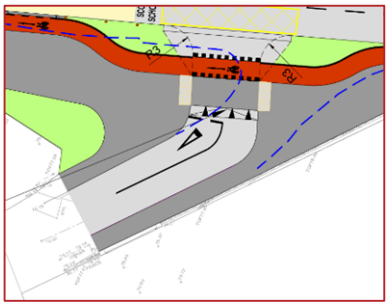
Recommendation

If the guardrail is not required, it should be removed. If it is required, it should be relocated where it would not present a hazard to cyclists.

3.11 Visibility Requirement at Yield-Control Junctions

Location: *Drawing no. O2B-ARU-XX-XX-DR-C-0100-04 (Rev. P01) & Drawing no. O2B-ARU-XX-XX-DR-C-0100-15 (Rev. P01)*

Summary: *Yield control has been indicated at some side roads within the scheme and it is unclear if all these locations will provide the more onerous sightline requirements for this type of junction-control.*



Yield control has been provided at some side road junctions within the scheme, including the access road to Gaelscoil Chnoc Liamhna and the Church of Christ Catholic Church, Templeroan Way, Templeroan Drive and Templeroan Crescent. Yield control junctions have more onerous sightline requirements, particularly on approach to the Yield line, which are unlikely to be met in all instances. This is a particular concern where visibility is restricted by adjacent building boundaries or proposed trees.

This may lead to drivers proceeding through the junctions without due care and consideration to approaching traffic, resulting in a risk of side-on collisions.

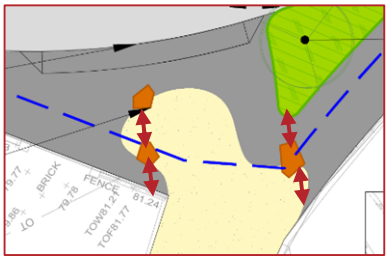
Recommendation

Stop-control junctions should be used at locations where the required visibility cannot be achieved for Yield-control. These junctions should include a Stop line and Stop text road marking. Where the junction may not be conspicuous, a Stop sign should also be used to supplement the road markings.

3.12 Pinch-Point in Footpath

Location: *Drawing no. O2B-ARU-XX-XX-DR-C-0100-05 (Rev. P01)*

Summary: *The natural boulders indicated within the footpath at the entrance to the M50 pedestrian overbridge may reduce the effective width of the footpath.*



Natural boulders have been indicated within the proposed footpath where the M50 pedestrian overbridge exits onto Knockfield Manor. The location of the boulders may reduce the effective width of the footpath for pedestrians approaching from the east or west. This could lead to pedestrians colliding with the boulders and suffering personal injuries or having to enter the verge to pass the boulders, or an opposing pedestrian, where there is a risk of trips and falls and personal injuries.

In addition, if the space between the boulders is too narrow it may restrict a wheelchair user, or pedestrian pushing a pram/stroller from continuing their journey.

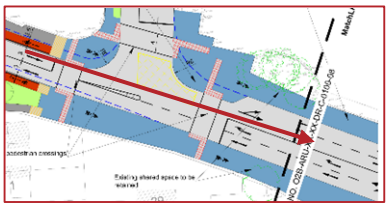
Recommendation

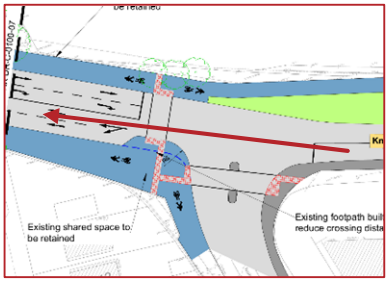
The space between the boulders should be a minimum of 1.2m wide.

3.13 Drivers Directed into Right-Turn Lanes at Junctions

Location: *Drawing no. O2B-ARU-XX-XX-DR-C-0100-07/8 (Rev. P01)*

Summary: *Drivers on Knocklyon Road are directed into the right-turn lane at the junctions with Idrone Avenue and Scholarstown Road where there is a risk of sudden lane changing manoeuvres and side swipe collisions.*





The Knocklyon Road/Idrone Avenue and Knocklyon Road/Scholarstown Road signalised junctions are located in close proximity to each other with a distance of approximately 40m between the two junctions. Drivers on Knocklyon Road approaching each junction are directed into the right-turn lane within this short section as they travel through each upstream junction. This may lead to sudden lane changing manoeuvres by drivers wishing to continue straight on Knocklyon Road resulting in an increased risk of side swipe collisions with following vehicles in the straight-ahead lane.

Recommendation

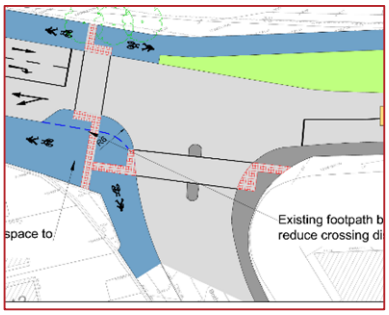
Drivers should be directed into the straight-ahead lane downstream of each junction and then enter the right-turn lane if desired.

Alternatively, at the detail design stage, measures should be provided (e.g. direction signage, text road markings etc.) to clearly advise drivers of the road layout, and the destinations accessed from each lane, in good advance of when they are required to make a decision.

3.14 Kerb Lines Misaligned on Either Side of Junction

Location: *Drawing no. O2B-ARU-XX-XX-DR-C-0100-08 (Rev. P01)*

Summary: *The kerb line on Knocklyon Road, travelling westbound, is not aligned on either side of the junction with Scholarstown Road resulting in an increased risk of kerb strikes downstream of the junction.*



Knocklyon Road intersects Scholarstown Road at a signalised junction at the Knocklyon Shopping Centre. Travelling westbound, the nearside kerb lines on Knocklyon Road on either side of the junction do not align with each other. This may lead to westbound drivers continuing into the widened footpath on the western side of the junction, particularly during the hours of darkness, resulting in an increased risk of kerb strikes and material damage, or vehicles mounting the kerb and collisions with items of roadside furniture or pedestrian/cyclists waiting at the crossing.

Recommendation

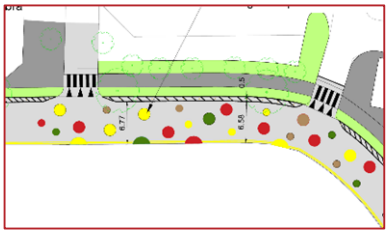
The kerb line should be amended such that it is aligned on both sides of the junction.

Alternatively, during detail design, measures should be provided to increase a driver's awareness of the widened footpath on the western side of the junction.

3.15 No Tactile Paving at Zebra Crossings

Location: *Drawing no. O2B-ARU-XX-XX-DR-C-0100-09 (Rev. P01)*

Summary: *Tactile paving has not been indicated at the Zebra crossings across the accesses to the St. Colmcille's National School and Junior National School.*



Zebra crossings have been indicated across the accesses/egresses to/from the St. Colmcille's National School and Junior National School on Idrone Avenue. Tactile paving has not been indicated on either side of the Zebra crossings. This may lead to visually impaired pedestrians being insufficiently aware of the type of crossing at the accesses resulting in them being unable to safely and independently navigate the road layout.

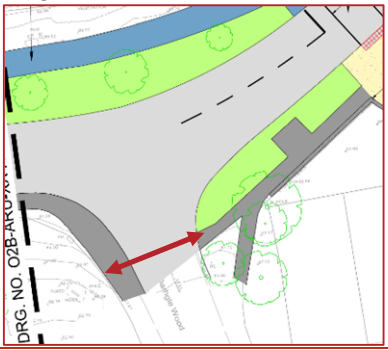
Recommendation

'L-shaped,' red-coloured tactile paving, with the stem on the right-hand side, should be provided on both sides of the Zebra crossings at the school accesses/egresses.

3.16 Lack of Pedestrian Crossing

Location: *Drawing no. O2B-ARU-XX-XX-DR-C-0100-10 (Rev. P01)*

Summary: *No pedestrian crossing, including dropped kerbs and tactile paving, has been indicated across the Dargle Wood side road.*



No pedestrian crossing, including associated infrastructure such as dropped kerbs and tactile paving, has been indicated across the Dargle Wood side road at its junction with Knocklyon Road. This may lead to pedestrians having to mount/dismount a full height kerb when crossing the side road resulting in difficulties, particularly for mobility impaired pedestrians, where there is an increased risk of trips and falls and personal injuries.

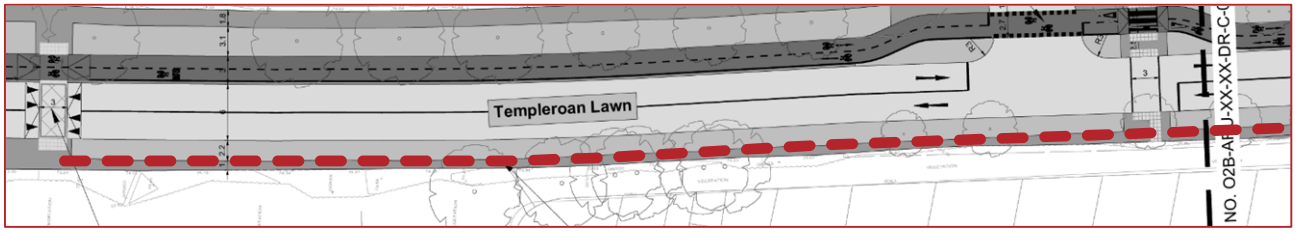
Recommendation

A pedestrian crossing, including dropped kerbs and appropriate tactile paving, should be provided across the Dargle Wood side road.

3.17 Narrow Footpath

Location: *Drawing no. O2B-ARU-XX-XX-DR-C-0100-14 (Rev. P01) & O2B-ARU-XX-XX-DR-C-0100-16 (Rev. P01)*

Summary: *A 1m wide footpath has been indicated on Templeroan Lawn which is too narrow for pedestrians.*



A 1m wide footpath has been indicated on the western side of Templeroan Lawn between the existing uncontrolled pedestrian crossing and just upstream of the entrance to Dargle Wood. 1m is not a sufficient width for pedestrians to travel safely within the footpath. This could lead to wheelchair users, or pedestrians pushing prams/strollers, experiencing difficulty in travelling on the footpath, or to pedestrians having to enter the adjacent verge to pass opposing pedestrians resulting in an increased risk of trips and falls and personal injuries.

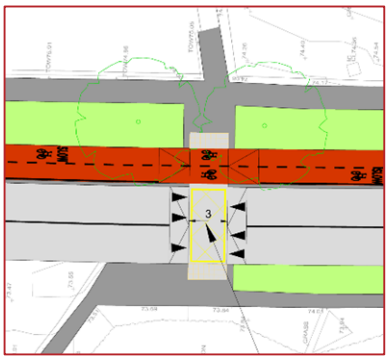
Recommendation

The footpath in this location should be widened to 1.8m.

3.18 Pedestrian crossing Unsafe for Visually Impaired Pedestrians

Location: *Drawing no. O2B-ARU-XX-XX-DR-C-0100-14 (Rev. P01)*

Summary: *The uncontrolled pedestrian crossing on Templeroan Lawn, which links the footpaths on Templeroan Avenue and Knocklyon Road, would not be accessible by visually impaired pedestrians.*



The existing uncontrolled pedestrian crossing on Templeroan Lawn, which links the footpaths on Templeroan Avenue and Knocklyon Road, is proposed to be realigned, raised, and widened to 3m. The crossing would be 9m wide in total and would require pedestrians to cross two traffic lanes and a two-way cycle track. The uncontrolled crossing would be inaccessible for, and, therefore, be unable to be used safely, by visually impaired pedestrians, without assistance, resulting in them being unable to safely and independently navigate the road layout.

Recommendation

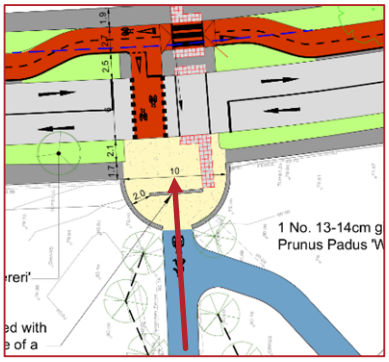
The uncontrolled crossing should be replaced with a controlled crossing.

3.19 Stone Wall may be a Hazard

Location: *Drawing no. O2B-ARU-XX-XX-DR-C-0100-16 (Rev. P01)*

Summary: *A stone wall has been indicated within the footpath on the western side of Templeroan Road at the exit from Dargle Wood Park, however the details of the wall (height, colour etc.) have not been indicated and it is, therefore, unclear if it will present a hazard to cyclists exiting the park.*

A stone wall has been indicated within the footpath on the western side of Templeroan Road at the exit from Dargle Wood Park, presumably to act as a traffic calming measure to slow cyclists as they exit the park and prevent them from overshooting onto the Templeroan Lawn carriageway.



The properties of the stone wall (i.e. its height, colour, material, etc.), however, have not been indicated and it is unclear if the wall would present a hazard to cyclists exiting the park. If cyclists cannot clearly see the wall on approach it may lead to them approaching at speed and colliding with the wall, however if the wall is too high, such that cyclists cannot see the carriageway and crossing on the other side, it may appear to them that they are presented with a cul de sac leading to confusion.

Recommendation

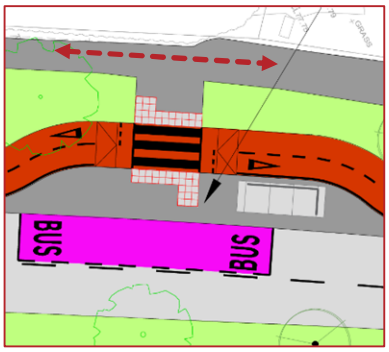
The wall should be clearly visible to cyclists approaching from the park, particularly during the hours of darkness but should not completely restrict an approaching cyclist's visibility to the crossing on the other side.

3.20 Tactile Paving Stem

Location: *Drawing no. O2B-ARU-XX-XX-DR-C-0100-19 (Rev. P01)*

Summary: *The stem of the tactile paving does not extend to the rear of the footpath.*

A crossing of the cycle track has been indicated at the island bus stop on Ballyboden Way adjacent to Templeroan Drive. The stem of the tactile paving on the northern side of the crossing does not extend to the rear of the footpath.



This may lead to visually impaired pedestrians continuing past the tactile paving and failing to detect the crossing, and thus the bus stop, resulting in them being unable to safely and independently navigate the road layout.

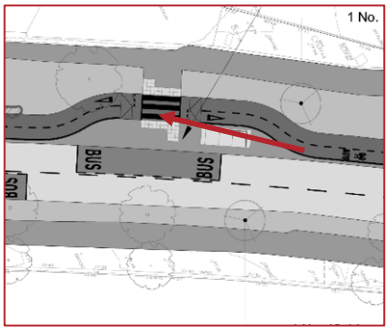
Recommendation

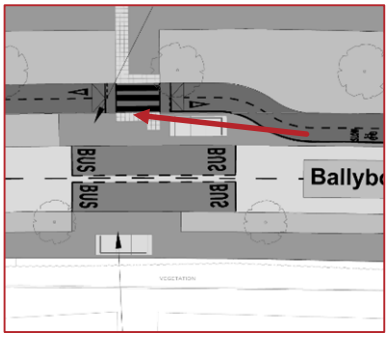
The stem of the tactile paving should extend to the rear of the footpath.

3.21 Bus Shelter Restricts Visibility for Cyclists

Location: *Drawing no. O2B-ARU-XX-XX-DR-C-0100-19 (Rev. P01) & Drawing no. O2B-ARU-XX-XX-DR-C-0100-21 (Rev. P01)*

Summary: *The bus shelters at the northbound bus stop on Ballyboden Way adjacent to Templeroan Drive and the eastbound bus stop on Ballyboden Way adjacent to the access to the Ballyboden St. Enda's All Weather Pitches at Sancta Maria College may restrict visibility for southbound and westbound cyclists, respectively, towards a pedestrian commencing a crossing from the carriageway side of the cycle track crossing at the island bus stops.*





Bus shelters have been indicated within the island bus stops at the northbound bus stop on Ballyboden Way adjacent to Templeroan Drive and the eastbound bus stop on Ballyboden Way adjacent to the access to the Ballyboden St. Enda's All Weather Pitches at Sancta Maria College. A Zebra crossing of the cycle track has been indicated at both bus stops to allow pedestrians to travel between the footpath and island when boarding/alighting a bus. The location of the bus shelters is such that they may restrict visibility for southbound and westbound cyclists, respectively, towards a pedestrian commencing a crossing from the carriageway side of the cycle track crossing at the island bus stops. If cyclists do not have sufficient visibility towards a pedestrian commencing a crossing at the Zebra crossing it may lead to them approaching at speed resulting in them having insufficient time to react safely resulting in an increased risk of pedestrian-cyclist collisions.

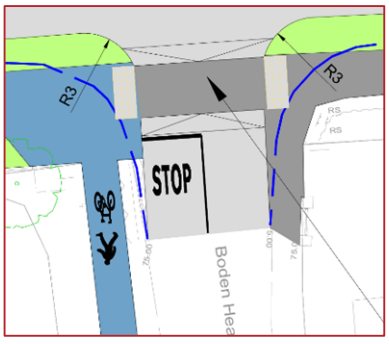
Recommendation

Review the location of the bus shelters relative to the cycle track crossings and if they restrict visibility towards the crossings for approaching cyclists then they should be relocated.

3.22 Different NMU Facilities on Either Side of Uncontrolled Pedestrian Crossing

Location: *Drawing no. O2B-ARU-XX-XX-DR-C-0100-21 (Rev. P01)*

Summary: *The continuous footpath across Boden Heath transitions to a shared path on the western side without sufficient warning for visually impaired pedestrians.*



A continuous footpath is indicated across Boden Heath at its junction with Ballyboden Way. On the eastern side of the side road a footpath is indicated while on the western side a shared path is indicated. The shared path commences immediately to the west of the continuous footpath, and it is, therefore, unclear how a visually impaired pedestrian would be advised of the transition between the footpath and shared path at this location. This could lead to visually impaired pedestrians being insufficiently aware that they are entering an area shared with cyclists resulting in an increased risk of conflicts between pedestrians and cyclists.

Recommendation

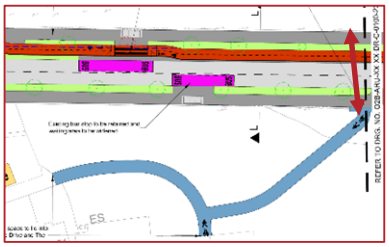
A shared path should be provided on the eastern side of Boden Heath, and this continued across the side road. Appropriate tactile paving should be provided at the transitions between this shared path and the footpaths on the eastern side of Boden Heath.

3.23 Access to Two-Way Cycle Track from Side Road

Location: *Drawing no. O2B-ARU-XX-XX-DR-C-0100-22 (Rev. P01)*

Summary: *It is unclear how cyclists exiting the shared path from The Drive and The Rise, onto the southern side of Ballyboden Way, would access the two-way cycle track on the northern side of the road.*

A shared path has been indicated linking The Drive and The Rise residential developments with the footpath on the southern side of Ballyboden Way to the west of the roundabout junction between Ballyboden Way, Ballyboden Road and Taylor's Lane. A two-way cycle track has been indicated on the northern side of Ballyboden Way however no measures have been indicated for cyclists to cross Ballyboden Way to access this facility after exiting the shared path.



This may lead to cyclists crossing the verge and dismounting a full height kerb to enter the carriageway and then travelling to the Boden Park Glen side road junction to the west to access the two-way cycle track where there is an increased risk of loss of control type incidents and falls from their bicycle as they cross the verge and descend the kerb, or a risk of vehicle-cyclist collisions as they travel within the carriageway to the side road junction.

Recommendation

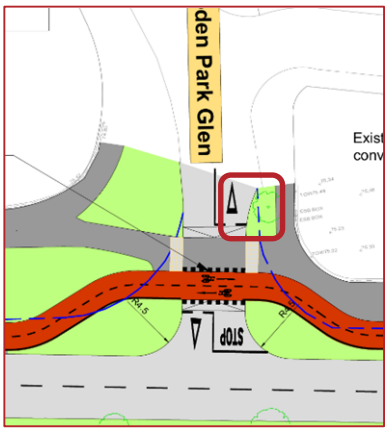
The footpath between the location where the shared path exits onto Ballyboden Way and the Zebra crossing at the roundabout to the west should be converted to a shared path and cyclists directed to this crossing to access the two-way cycle track on the northern side of Ballyboden Way.

3.24 Tie-In between Proposed and Existing Cross-Sections

Location: *Drawing no. O2B-ARU-XX-XX-DR-C-0100-22 (Rev. P01)*

Summary: *The tie-in between the narrower carriageway at the revised junction mouth on Boden Park Green and the wider existing cross-section upstream may lead to kerb strikes for drivers as they approach the junction with Ballyboden Way.*

It is proposed to reduce the width of the Boden Park Green carriageway at its junction with Ballyboden Way through the provision of a kerbed build-out at the junction. The tie-in between this proposed narrower cross-section and the wider existing cross-section on Boden Park Green, upstream of the junction, is unclear and this could lead to drivers being insufficiently aware of the carriageway narrowing at the junction on approach, particularly during the hours of darkness, resulting in a risk of kerb strikes and material damage.



Recommendation

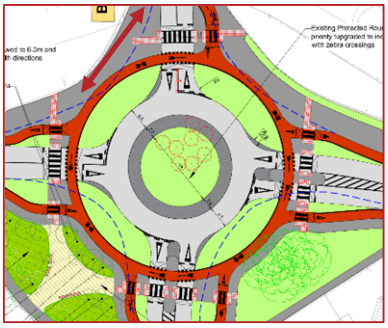
Measures should be provided to increase an approaching driver's awareness of the reduced carriageway cross-section at the junction.

3.25 Tactile Paving Stem

Location: *Drawing no. O2B-ARU-XX-XX-DR-C-0100-23 (Rev. P01)*

Summary: *The stem of the tactile paving on the southern side of the Zebra crossing on Ballyboden Way, upstream of the roundabout junction with Ballyboden Road and Taylor's Lane, does not extend to the back of the footpath.*

A Zebra crossing has been indicated on Ballyboden Way upstream of the roundabout junction with Ballyboden Road and Taylor's Lane. The stem of the tactile paving on the southern side of the crossing does not extend to the rear of the footpath.



This may lead to visually impaired pedestrians, approaching from the south on Ballyboden Road, continuing past the tactile paving and failing to detect the crossing resulting in them being unable to safely and independently navigate the road layout.

Recommendation

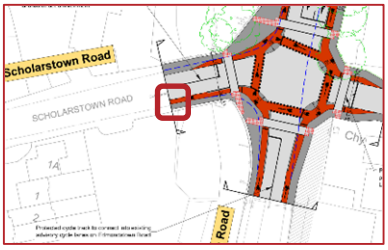
The stem of the tactile paving should extend to the rear of the footpath.

3.26 Proposed and Existing Road Layout at Tie-In

Location: *Drawing no. O2B-ARU-XX-XX-DR-C-0100-24 (Rev. P01)*

Summary: *The proposed and existing road layouts at the scheme tie-in on Scholarstown Road are not consistent.*

The scheme is indicated as tying-into the existing road layout on Scholarstown Road to the west of its junction with Edmondstown Road and Ballyboden Road. The proposed road layout includes an advisory westbound cycle lane however there is currently no cycle facilities, in either direction, on Scholarstown Road at this location. This may, therefore, lead to westbound drivers on Scholarstown Road being insufficiently aware of a cyclist suddenly entering the traffic lane resulting in an increased risk of vehicle-cyclist collisions.



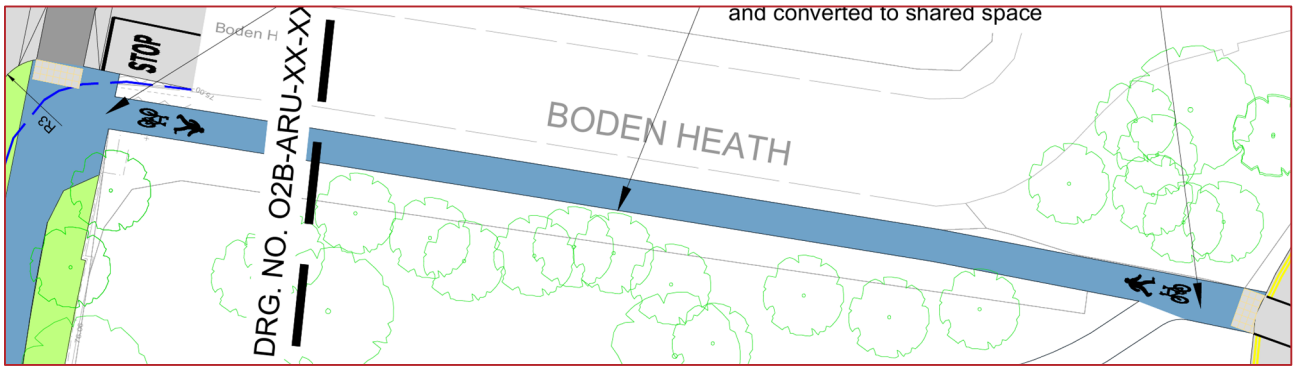
Recommendation

Measures should be provided to gradually merge westbound cyclists into the westbound traffic lane at the tie-in and to increase a westbound driver's awareness of cyclists joining the traffic lane on their nearside.

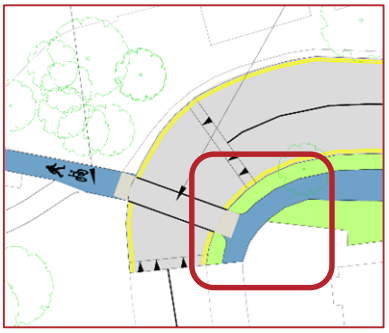
3.27 Width of Shared Paths

Location: *Drawing no. O2B-ARU-XX-XX-DR-C-0100-25 (Rev. P01)*

Summary: *The width of the proposed shared paths on the western side of Boden Heath and on the southern side of Boden Park Green, directly adjacent to the proposed pedestrian crossing, do not appear to be wide enough to safely accommodate pedestrians and cyclists.*



It is proposed to retain the existing footpath on the western side of Boden Heath in its current form but to convert it to a shared path and, similarly, to widen the existing footpath on the western side of Boden Park Green to 3m and convert it to a shared space.



The proposed shared paths on the western side of Boden Heath and directly adjacent to the southern side of the uncontrolled pedestrian crossing on Boden Park Green, do not appear to be wide enough such that they would safely accommodate both pedestrians and cyclists which could lead to an increased risk of conflicts between these road users.

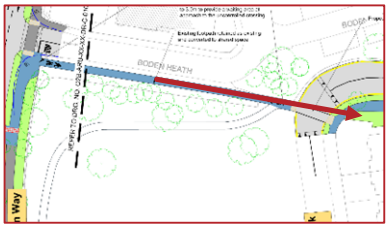
Recommendation

The shared paths should be a minimum of 3m wide throughout their length.

3.28 Overshoot Incidents at Pedestrian Crossing

Location: *Drawing no. O2B-ARU-XX-XX-DR-C-0100-25 (Rev. P01)*

Summary: *Cyclists may overshoot the uncontrolled pedestrian crossing on Boden Park Green resulting in an increased risk of vehicle-cyclist collisions.*



An uncontrolled pedestrian crossing has been indicated on Boden Park Green linking the shared paths on Boden Heath and Boden Park Green. The shared path approach to the crossing on the western side of Boden Heath is relatively straight which may encourage cyclists to travel at high speeds on approach to the crossing. No measures have been indicated at the southern end of the shared path, adjacent to the crossing, to encourage cyclists to reduce their speed. This may lead to cyclists failing to slow down, or stop, at the crossing resulting in overshoot incidents into the Boden Park Green carriageway and an increased risk of vehicle-cyclist collisions.

Recommendation

Measures should be provided at the southern end of the shared path, upstream of the uncontrolled crossing, to passively control cyclist speeds on approach to the crossing.

3.29 Lack of Crossings at Pedestrian Desire Line

Location: *Drawing no. O2B-ARU-XX-XX-DR-C-0100-28 (Rev. P01)*

Summary: *Three footpath links through the grass verge between Scholarstown Road and Scholarstown Park terminate at the Scholarstown Park carriageway with no crossings indicated to access the footpath on the opposite side of Scholarstown Park.*

Three footpath links have been indicated through the grass verge between Scholarstown Road and Scholarstown Park. The three footpath links terminate at the Scholarstown Park carriageway with no measures provided for pedestrians to cross safely to the footpath on the opposite side of Scholarstown Park, or to advise pedestrians, particularly the visually impaired, that they are entering a carriageway.

This could lead to visually impaired pedestrians inadvertently continuing into the carriageway where they are at risk of being struck by a vehicle.

In addition, as no formal pedestrian crossings are indicated at these locations, drivers on Scholarstown Park may be less attentive to pedestrians entering the carriageway at these locations resulting in them having insufficient time to react safely and an increased risk of vehicle-pedestrian collisions.

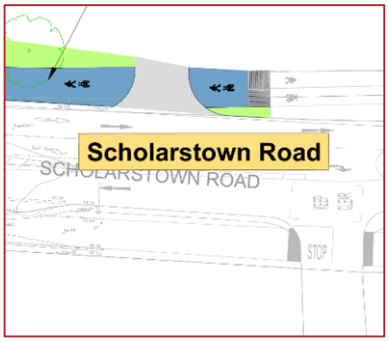
Recommendation

Uncontrolled pedestrian crossings, including dropped kerbs and tactile paving, should be provided on Scholarstown Park where these footpaths exit onto the carriageway.

3.30 Lack of Pedestrian Crossing at Access

Location: *Drawing no. O2B-ARU-XX-XX-DR-C-0100-30 (Rev. P01)*

Summary: *No tactile paving has been indicated on either side of the access to the recently constructed residential development on the northern side of Scholarstown Road.*



No tactile paving has been indicated on either side of the access to the recently constructed residential development on the northern side of Scholarstown Road opposite the Ballycullen Community Church and Olympian Gymnastics gym. The access does not appear to be currently in use by motorised vehicles due to bollards located within the development. Dropped kerbs are currently provided at the access however no tactile paving has been provided. It is unclear if it is proposed to amend this layout as part of the proposed scheme however no pedestrian crossing has been indicated at this location.

If the access layout is amended, this may lead to pedestrians having to mount/dismount a full height kerb when crossing the side road resulting in difficulties, particularly for mobility impaired pedestrians, where there is an increased risk of trips and falls and personal injuries.

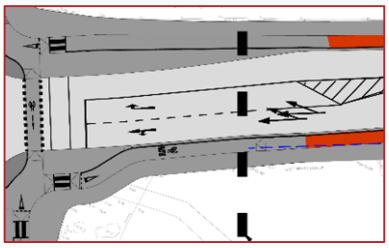
If the access is retained in its current layout, the lack of tactile paving may lead to visually impaired pedestrians being insufficiently aware that they are crossing an access, which may be used by cyclists, resulting in an increased risk of pedestrian-cyclist collisions.

Recommendation

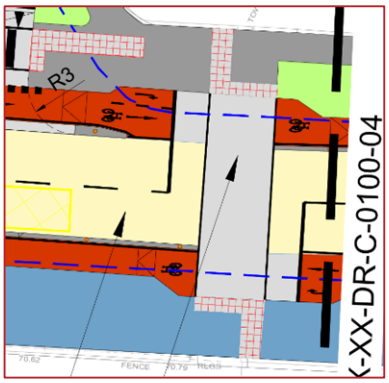
Should this access ever be open to motorised vehicles in the future, a pedestrian crossing, including dropped kerbs and appropriate tactile paving, should be provided across the access.

If the access is to be retained in its current form, the shared path should be continuous across the access.

4 Observations

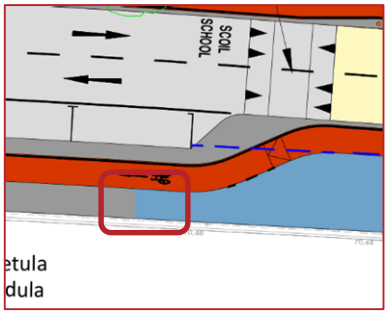


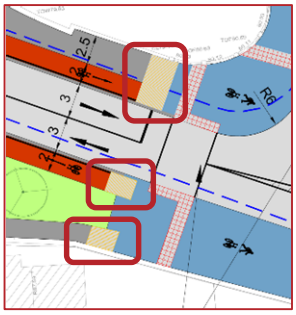
4.1 Two bi-furcation arrows are indicated as overlapping each other at the start of the right-turn lane on Firhouse Road at its signalised junction with Ballycullen Road. This is assumed to be a CAD error however one of the bi-furcation arrows should be removed.



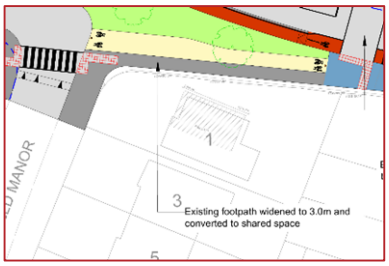
4.2 Right-turn pockets have been indicated within the cycle tracks at the proposed Toucan crossing on Knocklyon Road adjacent to its junction with Delaford Avenue and within the eastbound cycle track at the proposed Toucan crossing on Knocklyon Road at the Knocklyon Lodge Creche & Montessori. It is unclear, however, at this early design stage if push-button units for cyclists will be provided within arm's reach of a cyclist stopped in the right-turn pocket to trigger a pedestrian/cyclist phase at the crossing. During the detail design stage care should be taken to provide a push-button unit for cyclists at these crossings that can be easily reached from the right-turn pocket.

4.3 Tactile paving has not been indicated at the transitions between shared paths and segregated pedestrian and cycle facilities, or between shared paths and pedestrian-only footpaths, in all instances throughout the scheme, resulting in a lack of consistency in the tactile paving provision within the drawings. A failure to provide appropriate tactile paving at the transitions between different non-motorised road user facilities may lead to visually impaired pedestrians being insufficiently aware that they are moving between areas that may be shared with cyclists. During the detail design stage, tactile paving, as necessary for the type of transition and adjacent surfaces, should be provide at all necessary locations within the scheme. Care should be taken to also provide tactile paving at locations where existing footpaths, which are proposed to be upgraded to shared paths, transition back to the existing footpaths at the scheme's extents (e.g. on Boden Park Green (Sheet 25 of 30)).

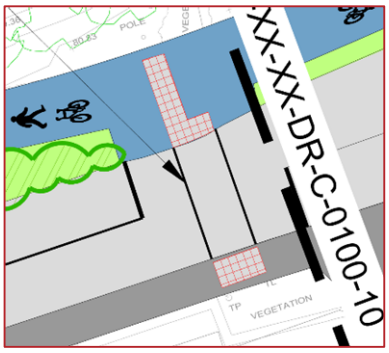




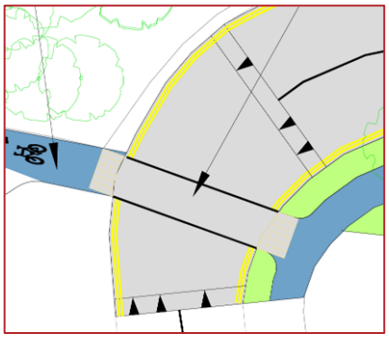
4.4 A note on drawing no. O2B-ARU-XX-XX-DR-C-0100-06 (Rev. P01) indicates that the existing footpath between the proposed Zebra crossing on Knockfield Manor and the existing signalised crossing on Knocklyon Road would be widened to 3m and converted to a shared space. The layout indicated on the drawing, however, appears to indicate a segregated footpath and two-way cycle track at this location, which contradicts the note provided. The drawing should be amended to indicate the intended road layout at this location such that the layout is consistent with the note.



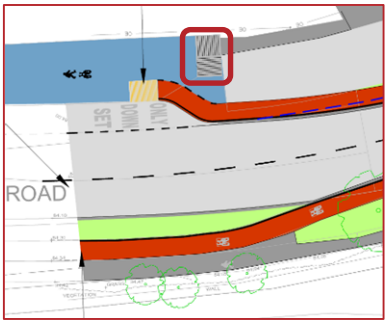
4.5 It is proposed to retain the existing signalised crossing on Knocklyon Road located to the east of the Knocklyon Shopping Centre. The tactile paving indicated on the southern side of this crossing, however, does not contain a stem and is, therefore, not the correct type of tactile paving for use at a controlled crossing. This may lead to confusion for visually impaired pedestrians or to them being unable to locate the push-button at the crossing. The tactile paving on the southern side of the crossing should include a stem on its right-hand side.



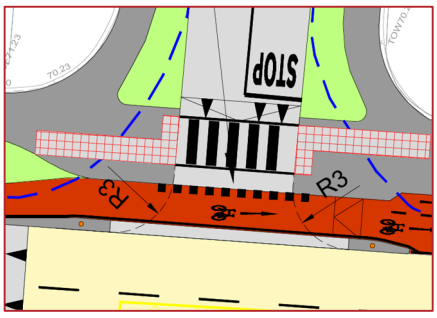
4.6 An uncontrolled pedestrian crossing has been indicated on Boden Park Green linking the shared paths on Boden Heath and Boden Park Green. Continuous line road markings have been indicated on both sides of the crossing. These are not required at uncontrolled pedestrian crossings where drivers have priority as these are typically used at locations where drivers are required to stop and give way to pedestrians. The provision of these road markings at this location may lead to driver confusion regarding priority at the crossing. The lines should be removed from both sides of the crossing.

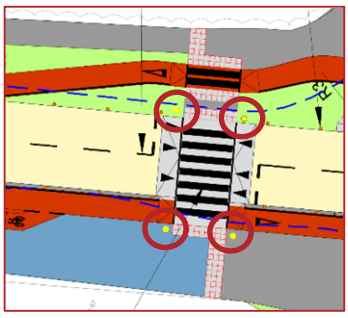


4.7 The existing tactile paving layout, which is indicated as greyed-out on the drawing provided, at the western end of Scholarstown Park where the footpath transitions to the shared path would become incorrect in the revised layout indicated at this location. It is unclear if this tactile paving will be retained. If retained, it may provide incorrect information to visually impaired pedestrians regarding the road layout leading to confusion. The existing 'Tramline' tactile paving should be removed while the 'Ladder' tactile paving, located where the shared path transitions to the footpath on Scholarstown Park, should be replaced with hazard warning tactile paving (corduroy).

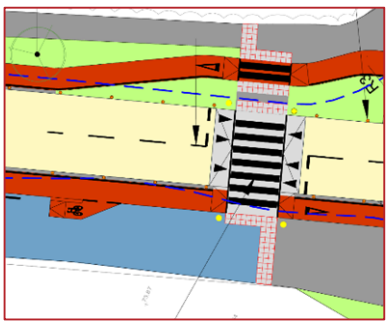


4.8 Belisha beacons have been indicated at some Zebra crossings within the scheme but not in all instances, resulting in a lack of consistency in its provision throughout the scheme. Belisha beacons should be provided at all Zebra crossings within the scheme.



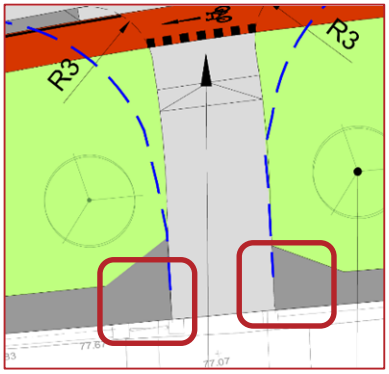


4.9 The layout of the transition between the shared path and footpath on the western side of the Zebra crossing on Knocklyon Road adjacent to Gaelscoil Chnoc Liamhna is such that there would be no obvious location where the appropriate tactile paving could be provided to advise visually impaired pedestrians of the transition between the footpath and shared path.



During the detail design stage, this location should be amended to provide hazard warning tactile paving (corduroy) within the footpath where it transitions to the shared path. This should be located such that it does not directly abut the tactile paving at the Zebra crossing.

4.10 A pedestrian guardrail is currently provided at the end of the footpath on both sides of the access to the Rutland Centre. It is unclear if these guardrails are proposed to be retained as they have not been indicated on the drawing provided. There is a slight incline in the footpath on approach to the crossing of the access and removal of these guardrails may increase the risk of a pedestrian, particularly a child, running across the access without due care and consideration to a vehicle entering or exiting the access. The guardrail should be retained.



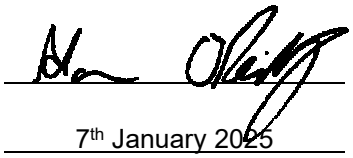
5 Audit Team Statement

We certify that we have examined the drawings referred to in this report. The examination has been carried out with the sole purpose of identifying any features of the design that could be removed or modified in order to improve the safety of the scheme.

The problems identified have been noted in this report together with associated safety improvement suggestions, which we would recommend should be studied for implementation.

No one on the Road Safety Audit Team has been involved with the design of the scheme.

ROAD SAFETY AUDIT TEAM LEADER

Alan O'Reilly Signed: 

Dated: 7th January 2025

ROAD SAFETY AUDIT TEAM MEMBER

Antonis Papadakis Signed: 

Dated: 7th January 2025

6 Road Safety Audit Feedback Form

Road Safety Audit Feedback Form

Scheme: Knocklyon to Ballyboden Active Travel Scheme

Route No.: Knocklyon Road, Firhouse Road, Scholarstown Road, Templeroan Road, Ballyboden Way

Audit Stage: 1 **Date Audit Completed:** 7th January 2025

	To be Completed by Designer			To be Completed by Audit Team Leader
Paragraph No. in Safety Audit Report	**Problem Accepted (Yes/No)**	**Recommended Measure(s) Accepted (Yes/No)**	**Describe Alternative Measure(s). Give reasons for not accepting recommended measure. Only complete if recommended measure is not accepted**	**Alternative Measures or Reasons Accepted by Auditors (Yes/No)**
3.1	Yes	Yes		
3.2	Yes	Yes		
3.3	Yes	Yes		
3.4	Yes	Yes		
3.5	Yes	Yes		
3.6	Yes	Yes		
3.7	Yes	Yes		
3.8	Yes	No	It is the opinion of the design team that use of shared spaces should be minimised where practical. The design team suggest relocating the cycle track closer to the boundary wall and provide crossing of the cycle track either by continuous footpath or zebra crossing on either end of the set-down. Appropriate tactile paving and road markings will be provided.	Yes
3.9	Yes	Yes		
3.10	Yes	Yes		
3.11	Yes	Yes		
3.12	Yes	Yes		
3.13	Yes	Yes		
3.14	Yes	Yes		
3.15	Yes	Yes		

Road Safety Audit Feedback Form

Scheme: Knocklyon to Ballyboden Active Travel Scheme

Route No.: Knocklyon Road, Firhouse Road, Scholarstown Road, Templeroan Road, Ballyboden Way

Audit Stage: 1 **Date Audit Completed:** 7th January 2025

	To be Completed by Designer			To be Completed by Audit Team Leader
Paragraph No. in Safety Audit Report	**Problem Accepted (Yes/No)**	**Recommended Measure(s) Accepted (Yes/No)**	**Describe Alternative Measure(s). Give reasons for not accepting recommended measure. Only complete if recommended measure is not accepted**	**Alternative Measures or Reasons Accepted by Auditors (Yes/No)**
3.16	Yes	Yes		
3.17	Yes	Yes		
3.18	Yes	No	It is proposed to provide a controlled pedestrian crossing 120m south of the location which will serve as the main crossing point to the Sancta Maria College. The design team do not think it is appropriate to provide another crossing within such close proximity. The existing crossing facility identified in Issue 3.18 consists of an road level uncontrolled crossing with a yellow box. The design team proposed that current arrangement is retained with improvements. The crossing will be retained on road level and uncontrolled. The cycle track at the crossing will terminate to a shared space, creating an environment for pedestrians to wait prior to crossing the road. This layout also reduced the crossing length for pedestrians. Appropriate road marking and tactile paving will be provided.	Yes
3.19	Yes	Yes		
3.20	Yes	Yes		
3.21	Yes	Yes		
3.22	Yes	Yes		
3.23	Yes	Yes		
3.24	Yes	Yes		

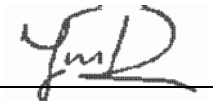
Road Safety Audit Feedback Form

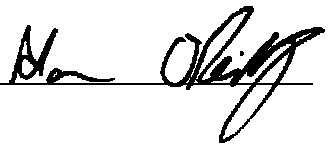
Scheme: Knocklyon to Ballyboden Active Travel Scheme

Route No.: Knocklyon Road, Firhouse Road, Scholarstown Road, Templeroan Road, Ballyboden Way

Audit Stage: 1 **Date Audit Completed:** 7th January 2025

	To be Completed by Designer			To be Completed by Audit Team Leader
Paragraph No. in Safety Audit Report	**Problem Accepted (Yes/No)**	**Recommended Measure(s) Accepted (Yes/No)**	**Describe Alternative Measure(s). Give reasons for not accepting recommended measure. Only complete if recommended measure is not accepted**	**Alternative Measures or Reasons Accepted by Auditors (Yes/No)**
3.25	Yes	Yes		
3.26	Yes	Yes		
3.27	Yes	Yes		
3.28	Yes	Yes		
3.29	Yes	Yes		
3.30	Yes	Yes		

Signed:  Designer **Date** 2.1.2025

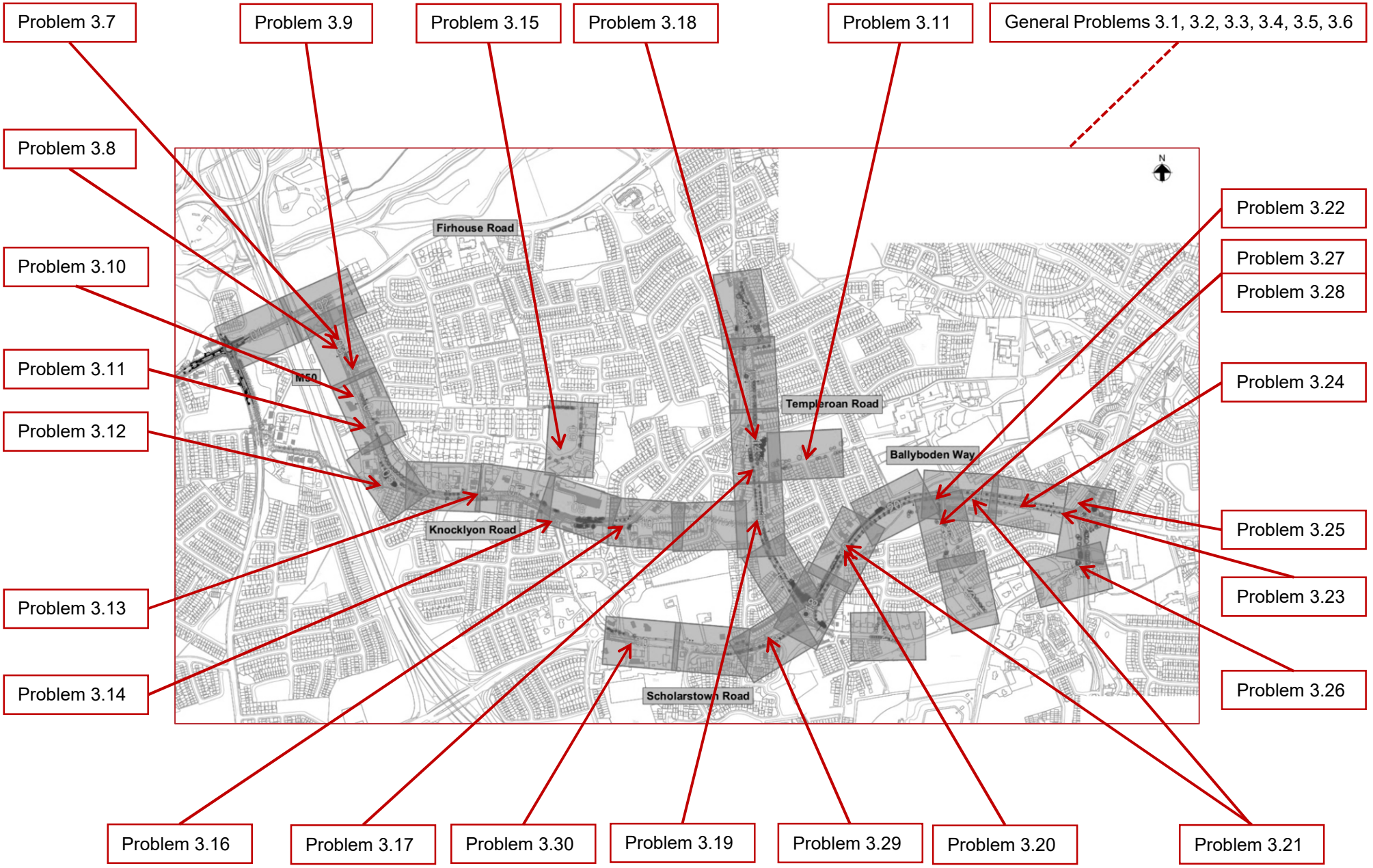
Signed:  Audit Team Leader **Date** 7th January 2025

Signed:  Employer **Date** 10/01/2025

Appendix A - Documents Submitted to the Road Safety Audit Team

DOCUMENT/DRAWING TITLE	DOCUMENT/DRAWING NO.	REVISION
General Arrangement Keylan	02B-ARU-XX-XX-DR-C-0100-00	P01
General Arrangement Sheet 01 of 30	02B-ARU-XX-XX-DR-C-0100-01	P01
General Arrangement Sheet 02 of 30	02B-ARU-XX-XX-DR-C-0100-02	P01
General Arrangement Sheet 03 of 30	02B-ARU-XX-XX-DR-C-0100-03	P01
General Arrangement Sheet 04 of 30	02B-ARU-XX-XX-DR-C-0100-04	P01
General Arrangement Sheet 05 of 30	02B-ARU-XX-XX-DR-C-0100-05	P01
General Arrangement Sheet 06 of 30	02B-ARU-XX-XX-DR-C-0100-06	P01
General Arrangement Sheet 07 of 30	02B-ARU-XX-XX-DR-C-0100-07	P01
General Arrangement Sheet 08 of 30	02B-ARU-XX-XX-DR-C-0100-08	P01
General Arrangement Sheet 09 of 30	02B-ARU-XX-XX-DR-C-0100-09	P01
General Arrangement Sheet 10 of 30	02B-ARU-XX-XX-DR-C-0100-10	P01
General Arrangement Sheet 11 of 30	02B-ARU-XX-XX-DR-C-0100-11	P01
General Arrangement Sheet 12 of 30	02B-ARU-XX-XX-DR-C-0100-12	P01
General Arrangement Sheet 13 of 30	02B-ARU-XX-XX-DR-C-0100-13	P01
General Arrangement Sheet 14 of 30	02B-ARU-XX-XX-DR-C-0100-14	P01
General Arrangement Sheet 15 of 30	02B-ARU-XX-XX-DR-C-0100-15	P01
General Arrangement Sheet 16 of 30	02B-ARU-XX-XX-DR-C-0100-16	P01
General Arrangement Sheet 17 of 30	02B-ARU-XX-XX-DR-C-0100-17	P01
General Arrangement Sheet 18 of 30	02B-ARU-XX-XX-DR-C-0100-18	P01
General Arrangement Sheet 19 of 30	02B-ARU-XX-XX-DR-C-0100-19	P01
General Arrangement Sheet 20 of 30	02B-ARU-XX-XX-DR-C-0100-20	P01
General Arrangement Sheet 21 of 30	02B-ARU-XX-XX-DR-C-0100-21	P01
General Arrangement Sheet 22 of 30	02B-ARU-XX-XX-DR-C-0100-22	P01
General Arrangement Sheet 23 of 30	02B-ARU-XX-XX-DR-C-0100-23	P01
General Arrangement Sheet 24 of 30	02B-ARU-XX-XX-DR-C-0100-24	P01
General Arrangement Sheet 25 of 30	02B-ARU-XX-XX-DR-C-0100-25	P01
General Arrangement Sheet 26 of 30	02B-ARU-XX-XX-DR-C-0100-26	P01
General Arrangement Sheet 27 of 30	02B-ARU-XX-XX-DR-C-0100-27	P01
General Arrangement Sheet 28 of 30	02B-ARU-XX-XX-DR-C-0100-28	P01
General Arrangement Sheet 29 of 30	02B-ARU-XX-XX-DR-C-0100-29	P01
General Arrangement Sheet 30 of 30	02B-ARU-XX-XX-DR-C-0100-30	P01
Knocklyon to Ballyboden Active Travel Scheme Part 8 Planning Report	284399-00	1

Appendix B – Problem Locations


Problem 3.7
Problem 3.9
Problem 3.15
Problem 3.18
Problem 3.11
General Problems 3.1, 3.2, 3.3, 3.4, 3.5, 3.6
Problem 3.8
Problem 3.22
Problem 3.10
Problem 3.27
Problem 3.28
Problem 3.11
Problem 3.24
Problem 3.12
Problem 3.25
Problem 3.13
Problem 3.23
Problem 3.14
Problem 3.26
Problem 3.16
Problem 3.17
Problem 3.30
Problem 3.19
Problem 3.29
Problem 3.20
Problem 3.21
Firhouse Road
M50
Templeroan Road
Ballyboden Way
Knocklyon Road
Scholarstown Road
N

Job number	284940-00
Date	26 June 2025

APPENDIX B

OVE Arup & Partners Ireland Ltd

Knocklyon to Ballyboden Active Travel Scheme - Ballyboden Way

Stage 1 Quality Audit

June 2025

OVE Arup & Partners Ireland Ltd

Knocklyon to Ballyboden Active Travel Scheme - Ballyboden Way

Stage 1 Quality Audit

Document Ref:	P25084-PMCE-XX-XX-RP-QA-3_0001

Rev	Prepared By	Reviewed By	Approved By	Issue Date	Reason for Revision
2.0	XY	AOR/TAG	AOR	26th June 2025	Final Report
1.0	XY	AOR/TAG	AOR	20th June 2025	Draft Report

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Table of Contents

1 Quality Audit Report

1.1 Background

This report was prepared in response to a request from OVE Arup & Partners Ireland Ltd to provide a Stage 1 Quality Audit of the revised design of the Ballyboden Way section of the Knocklyon to Ballyboden Active Travel Scheme.

Quality Audits consist of a number of overlapping audits, as described in the Design Manual for Urban Roads and Streets (Ireland). Table 1 outlines the transport-related audits undertaken by PMCE and includes a brief overview of the purpose or goal of each report.

TABLE 1 QUALITY AUDIT REPORT CONTENTS

Access Audit	The purpose of the Access Audit is to review the proposed Scheme to assess if it can be accessed, understood, and used to the greatest extent possible by all people regardless of their age, size or disability.
Cycle Audit	The purpose of the Cycle Audit is to review the proposed Scheme/Development to assess if it will cater comfortably for cyclists, of all ages and abilities, and that the needs of cyclists have been prioritised over vehicular traffic.
Walking Audit	The purpose of the Walking Audit is to review the proposed Scheme to assess if it can be readily and comfortably traversed by pedestrians, that the needs of pedestrians have been prioritised over cyclists & vehicles, and that footpaths are continuous and wide enough to cater for the anticipated number of pedestrians.
Road Safety Audit	The purpose of a Road Safety Audit is to identify problems that may lead to road safety issues, collisions or injuries, and to offer recommendations that would mitigate identified safety risks.
Non-Motorised User Audit[1]	The purpose of the Non-Motorised User (NMU) Audit is to review the proposed Scheme to assess if it will cater comfortably for all non-motorised road users, of all ages and abilities, and that the needs of these vulnerable road users have been prioritised over vehicular traffic.

A Quality Audit is not intended to pass or fail a design, rather it is intended as an assessment tool that highlights areas for potential improvements.

[1] A separate Non-motorised User (NMU) Audit has not been prepared. For the proposed scheme/development, separate Access, Walking & Cycling Audits have been undertaken, and these should be referred to for findings in relation to NMUs.

1.2 Local Environment

1.2.1 Site Location

The proposals on Ballyboden Way, between its junction with Templeroan Road and Scholarstown Road and its junction with Ballyboden Road (see Figure 1 1), form part of the wider Knocklyon to Ballyboden Active Travel Scheme which would be located in the Knocklyon and Ballyboden area in south Dublin, primarily extending along Knocklyon Road, Scholarstown Road, Templeroan Road and Ballyboden Way.

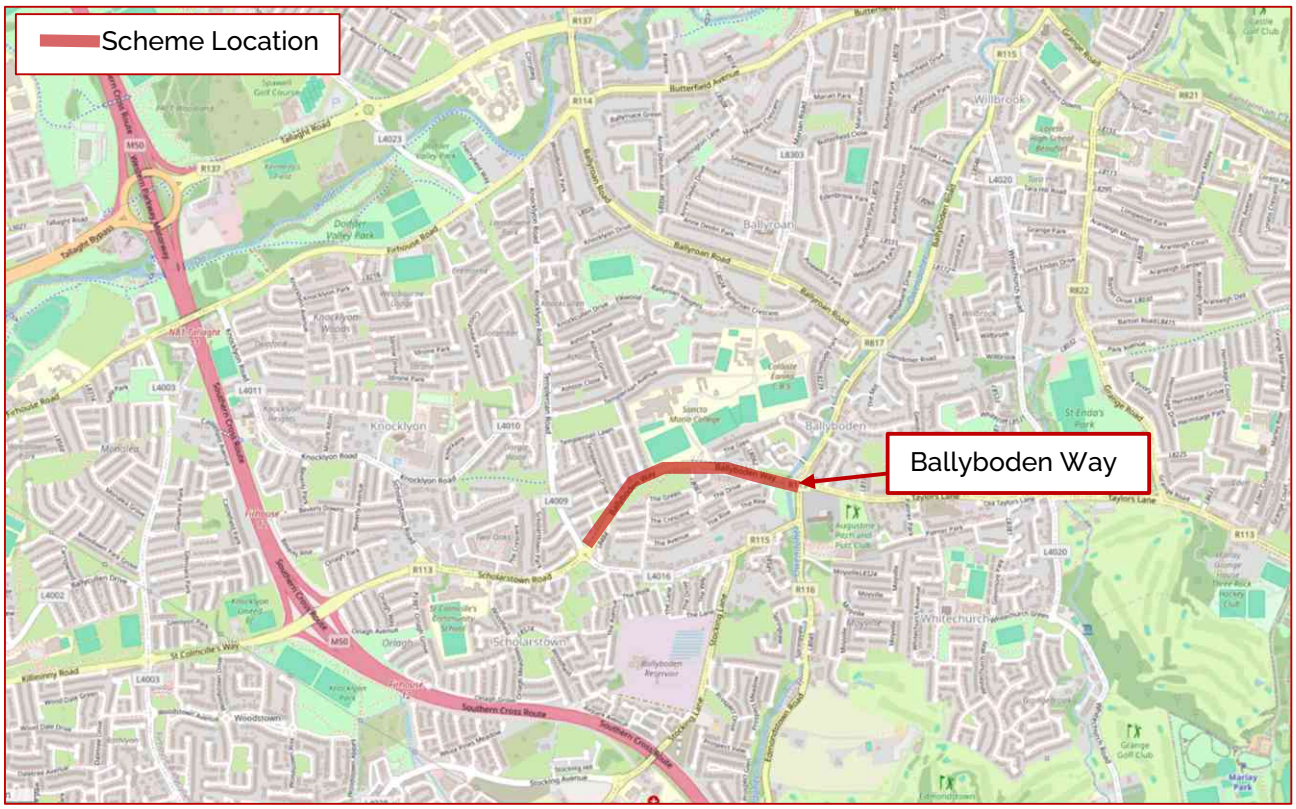


FIGURE 1.1: SITE LOCATION (SOURCE: WWW.OPENSTREETMAP.ORG)

1.3 Existing Pedestrian & Cyclist Facilities

Ballyboden Way currently includes a segregated footpath and cycle track on both sides, and public lighting on the northern side, however much of the existing cycle track is blocked by vegetation in places and not useable.

A signalised pedestrian crossing is located on Ballyboden Way to the west of its junction with Boden Heath, providing access to the Ballyboden St Enda's All-Weather Pitch from the southern side of the road.

1.4 Public Transport

There are existing bus stops on Ballyboden Way in close proximity to the residential streets within the scheme extents. The nearest bus stops that can be accessed by road users within the proposed scheme are listed in Table 1 2 including the bus routes which serve these bus stops.

Figure 1.2 illustrates the bus routes and the location of these bus stops in relation to the proposed scheme.

TABLE 1.1: BUS ROUTES WHICH SERVE THE BALLYBODEN WAY

Route No.	Bus Stop (number)	Travelling between	Travelling between	Frequency
S8	Stop 7968	Ballyboden St Endas	Kingswood Avenue - Dun Laoghaire Station	One bus per 20 mins
	Stop 7974			
	Stop 7443	Templeroan Estate		
	Stop 7446			
	Stop 7444	The Glen		
	Stop 7909			
15B	Stop 7442	St Enda's GAA Club	Merrion Square - Stocking Avenue	One bus per 15 mins
	Stop 7444	The Glen		
	Stop 7443	Templeroan Estate		
	Stop 7446			

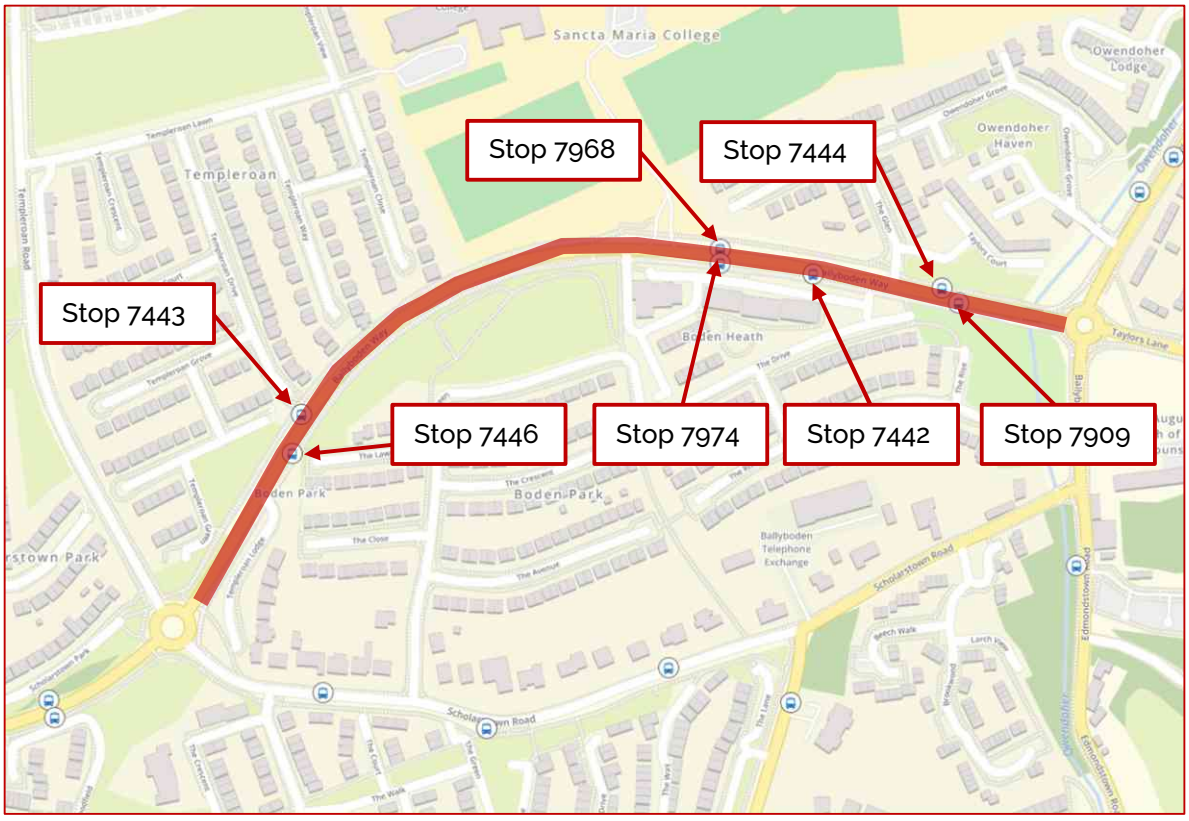


FIGURE 1.2: BUS STOPS LOCATED ON BALLYBODEN WAY (SOURCE: WWW.TRANSPORTFORIRELAND.IE)

1.5 Proposed Development Description

The majority of the route would run along existing footpaths and cycle facilities, however new cycle facilities are proposed on roads that currently have no such facilities. As part of the design development a number of secondary links have been identified along existing roads and footpaths to better connect the primary route to the surrounding areas. The secondary links will comprise small interventions, such as installation of new, and upgrading existing, crossings and upgrading existing footpaths to shared paths to improve permeability and access onto the primary route.

The proposed works would include:

- Crossing facilities in the form of raised tables, and continuous footpaths, on side roads and minor access roads.
- Amendments to existing bus stops.
- Amendments to existing junction layouts, including upgrading two roundabouts to protected roundabouts with cycle priority.
- Amendments to the existing kerb line.
- Zebra crossings to replace existing crossings and also at new locations.
- Widening of existing footpaths.
- New cycle facilities including one-way cycle tracks on sections of Scholarstown Road, a two-way cycle track on the eastern side of Templeroan Road/Lawn and a cycle track on both sides of Ballyboden Way.

1.6 Summary of Individual Audit Findings

The following table summarises the issues identified by the component audits of this Quality Audit, and the Design Team's response to the issues raised.

#					Summary of Audit Issue	Design Team Response/Action
1	✓			✓	'Ladder' tactile paving indicated at the cycle track ramps where it transitions to the shared path may lead to visually impaired pedestrian misunderstanding the road layout.	Noted, tactile paving will be amended.
2	✓			✓	The stem of the tactile paving on the northern side of Ballyboden Way, where it intersects Templeroan Lawn at the roundabout, is indicated on the incorrect side.	Noted, tactile paving will amend.
3	✓			✓	Visually impaired pedestrians may inadvertently stray into the adjacent cycle track where there is an increased risk of being struck by a cyclist due to insufficient delineation between the pedestrian and cycle facilities.	The text in the legend is inaccurate and relates to the first iteration of the design that was deemed inappropriate. A delineator kerb will only be provided at approach to conflict points. It is not suitable to provide a delineator kerb between the existing cycle track and footpath along most of the scheme due to the existing footpath width being less than 1.8m, preventing two wheelchairs from comfortable passing each other. The delineator kerb would provide an obstruction for one of the wheelchairs to temporarily enter the cycle track to pass. It is also not feasible to widen the existing footpath and cycle track without significant tree feeling and vegetation clearance which goes against the objectives of the project. The proposed design responds to the need to improve bus infrastructure along the scheme, while also addressing existing site constraints that limit the potential for widening the parallel footpath and cycle track. As a result, the design intent is to carry out only maintenance works, specifically the removal of vegetation encroaching on the existing footpath and cycle track. Observations

#	♿	🚲	🚶	⚠	Summary of Audit Issue	Design Team Response/Action
						have shown that the footpath and cycle track operate effectively, and therefore, the design team, in consultation with the Local Authority and the NTA, has concluded that the most appropriate approach is to retain the existing layout.
4	✓			✓	Tactile paving has not been indicated at the crossing of the cycle track.	Noted, tactile paving will be shown on the drawings
5	✓			✓	The continuous footpath across Boden Heath transitions to a shared path on the western side without sufficient warning for visually impaired pedestrians.	Noted, appropriate tactile will be provided as described in the recommendation.
6	✓			✓	Insufficient connectivity indicated between the proposed shared paths and the footpaths on The Rise and The Drive.	Noted, appropriate measures and tactile paving will be provided.
7	✓			✓	The footpath on the northern side of Ballyboden Way transitions to a shared path on the southern side without sufficient warning for visually impaired pedestrians.	Noted, appropriate tactile paving will be provided.
8	✓		✓	✓	The width of the footpath on sections of Ballyboden Way is less than 1.2m which is too narrow for pedestrians.	The proposed design responds to the need to improve bus infrastructure along the scheme, while also addressing existing site constraints that limit the potential for widening the parallel footpath and cycle track. As a result, the design intent is to carry out only maintenance works, specifically the removal of vegetation encroaching on the existing footpath and cycle track. Clearing vegetation where it encroaches on the footpath will increase the available width to approximately 1.2 metres along most of the scheme. In locations where the existing footpath is narrower than 1.2 metres, the design team intends to retain it in its current condition. As previously noted, only maintenance works are proposed along this section. The design team does not intend to carry out upgrades where the footpath would still remain

#					Summary of Audit Issue	Design Team Response/Action
						below current standards, as such works would not result in a compliant or significantly improved facility. Observations have shown that the footpath and cycle track operate effectively, and therefore, the design team, in consultation with the Local Authority and the NTA, has concluded that the most appropriate approach is to retain the existing layout.
9	✓		✓	✓	The proposed footpath link between Ballyboden Way and Templeroan Green terminates at the carriageway on Templeroan Green with no measures indicated to access the footpath on the other side of Templeroan Green.	Templeroan Green is a quiet residential street and the proposed permeability link connects at the end of the cul-de-sac indicating that no through traffic will use that road. The permeability link is intended for local access only and therefor the design team deems appropriate not to provide a formal uncontrolled crossing, rather allow for the new footpath to tie into the existing carriageway at level. Additionally, there are no obvious location to provide a formal uncontrolled crossing at the cul-de-sac due to existing constraints imposed by the private driveways and public lighting column.
10		✓		✓	It is unclear if the proposed cycle facilities on Ballyboden Way will tie-in safely with the existing facilities at the scheme extents.	The proposals include short sections of delineator kerb at approach to conflict points between the existing cycle tracks and footpath, elsewhere it is proposed to repaint the white line. These measures, although not ideal, alongside improvements at junctions and bus stops significantly improve the safety for cyclists and pedestrians along Ballyboden Way. Transition kerbs will be provided at the end of the delineator kerbs.

#	♿	🚲	🚶	⚠	Summary of Audit Issue	Design Team Response/Action
11		✓		✓	No route has been indicated for cyclists wishing to travel between Boden Park Glen or the Sancta Maria All Weather Pitches and the cycle track on the southern side of Ballyboden Way.	It is the opinion of the design team that providing an opening in the grassed verge to allow cyclists on Boden Park Glen to access the westbound cycle track is inappropriate from a safety perspective, as it would require cyclists to cross a bus lane and two lanes of general traffic. Inter-visibility would also be obstructed between cyclists crossing the road and westbound traffic if a bus is stopped on the adjacent eastbound bus stop. Cyclists wishing to join the westbound cycle track can do so safely by accessing it via the roundabout.
12			✓		It is unclear if the proposed bus shelters at the transitions between segregated footpaths and cycle tracks and shared paths within the scheme include side panels, which may restrict pedestrians travelling along the footpath.	Side panels will not be provided in constraint spaces such as those located on Ballyboden Way.
13			✓		No pedestrian link has been indicated between Ballyboden Way and Templeroan Drive.	The permeability link has been considered during the design process; however, the removal of the existing boundary wall is likely to generate local opposition, which could jeopardise the successful delivery of the planning application. Additionally, residents of Templeroan Drive can access Ballyboden Way via the proposed permeability link at Templeroan Green.
14			✓	✓	The absence of a bus shelter at Bus Stop No.7968 would fail to provide protection from severe weather for bus passengers, and seating for the elderly.	Noted, cantilever bus shelter will be provided.
15				✓	It is unclear if the reduced extents of the carriageway at revised junctions and roundabouts within the scheme will safely accommodate the swept path of all vehicles.	Vehicle tracking was complete at all junctions and links to ensure that the geometry facilitates swept path of all vehicles.

#	♿	🚲	🚶	⚠	Summary of Audit Issue	Design Team Response/Action
16				✓	The continuous footpath layout proposed across side roads within the scheme may be unsuitable for the volume of vehicles entering/exiting the side roads, increasing the risk of vehicle-pedestrian collisions.	The continuous footpath layouts are only proposed across side roads that are expected to receive low to moderate traffic volumes in alignment with DMURS Advise Note 6.
17				✓	A horizontal curve has been indicated on Ballyboden Way and it is unclear if large vehicles would be able to travel through this curve without encroaching into the opposing traffic lane.	The horizontal alignment was tracked using large vehicles to ensure vehicles did not encroach onto the opposite lane.
18				✓	Inter-visibility between drivers exiting the Santa Maria All Weather Pitches, and pedestrians or cyclists crossing the egress, may be restricted by the adjacent boundary wall and vegetation.	'STOP' road marking will be provided at approach to the pedestrian crossings to ensure drivers stop prior to continuing across the pedestrian and cycle crossing. Existing piers obstruct visibility for approaching vehicles, however, once a vehicle traverses through the piers inter-visibility is significantly improved. Given the narrow entrance between the stone pillars and steep ramp drivers will be approaching the crossings at low speeds.
19				✓	Inter-visibility between drivers exiting Boden Park Glen, and pedestrians or cyclists crossing Boden Park Glen, may be restricted by the vegetation and the existing ESB box located on the eastern side of the road.	It is the opinion of the design team that the electrical cabinet and the clear stem trees do not obstruct inter-visibility between drivers and pedestrians. Drivers are also required to stop in advance of the pedestrian crossing under the proposed layout – this will be enforced by stop line and signage.
20				✓	The absence of clear priority at cyclist intersections within roundabouts may lead to cyclists failing to stop and collisions with other cyclists.	Noted. A yield line will be provided to establish priority among conflicting cyclists' movements.
21				✓	A 'Yield' symbol is indicated upstream of the cycle crossing of the Sancta Maria All Weather Pitches access, however this is a cyclist priority crossing.	Noted. The yield symbol will be removed.

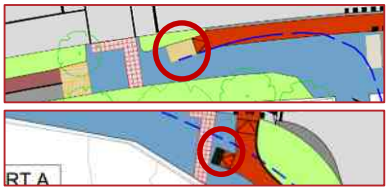
Appendix A: Access Audit

The purpose of this Access Audit is to review the proposed Scheme, and the existing surrounding environment, to assess if it can be accessed, understood, and used to the greatest extent possible by all people regardless of their age, size, or disability. The Audit considers a number of aspects of the proposed Scheme, including wayfinding, lighting, tonal contrast of proposed materials, gradients, the provision of kerbs and/or dropped kerbs as appropriate, etc.

A.1 List of Access Issues

A.1.1 Incorrect Tactile Paving at the Transition between Cycle Track and Shared Path

'Ladder' tactile paving is indicated at the cycle track ramps where the cycle track transitions to the shared path at the Toucan crossings to the west of Boden Heath and to the west of the protected roundabout junction with Ballyboden Road, which is the incorrect tactile paving for this location. This could lead to visually impaired pedestrians being insufficiently aware of the cycle track at these locations.

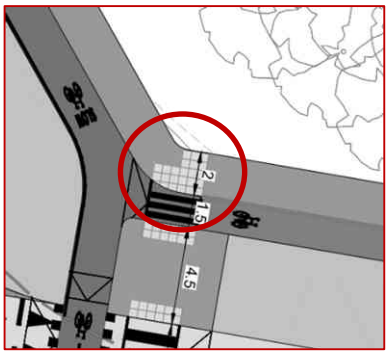


Recommendation

Appropriate tactile paving should be provided at these locations in accordance with the 'Guidance on the Use of Tactile Paving Surfaces' document.

A.1.2 Stem of Tactile Paving on Wrong Side of Crossing

The stem of the tactile paving on the northern side of Ballyboden Way, where it intersects Templeroan Lawn at the roundabout, is indicated on the incorrect side of the crossing. This may lead to visually impaired pedestrians misinterpreting the type of crossing, or being unable to locate the crossing of the cycle track.

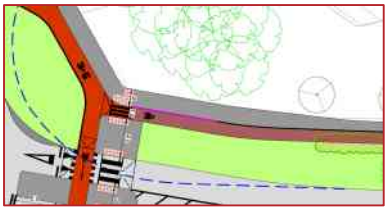


Recommendation

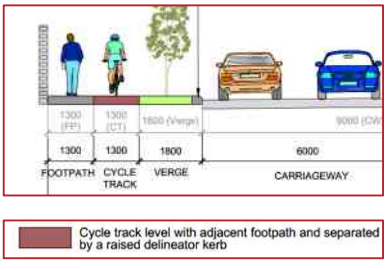
The tactile paving layout should be amended and the stem provided on the right-hand side of the crossing.

A.1.3 Delineation between Pedestrian and Cycle Facilities

The existing pedestrian and cycle facilities on Ballyboden Way are at the same level and include a continuous white line to delineate the two facilities. It is proposed to retain the existing parallel segregated footpath and cycle track on Ballyboden Way, to repaint the existing white line, and remove vegetation to reinstate the full width of the existing cycle track with a raised delineator kerb indicated between the footpath and the adjacent cycle track on short sections of Ballyboden Way at the scheme's extents.



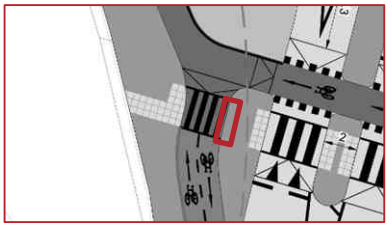
However, the hatch used for the existing cycle tracks on both sides of Ballyboden Way in the Legend indicates a 'cycle track level with adjacent footpath and separated by a raised delineator kerb'. It is, therefore, unclear if the raised delineator kerb will be provided for longer sections between the pedestrian and cycle facilities. It is also unclear if the cycle track will be of a different colour to promote increased contrast which would provide increased delineation between the two facilities.



Recommendation

The pedestrian and cycle facilities should be clearly delineated for all road users, particularly the visually impaired.

A.1.4 Absence of Tactile Paving at Crossing of Cycle Track



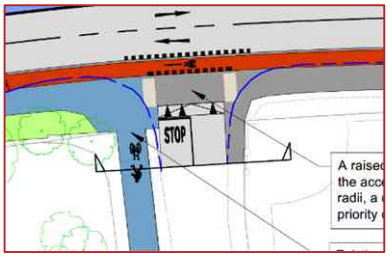
It is proposed to amend the layout of the existing junction between Scholarstown Road and Ballyboden Way, including upgrading the roundabout to a protected roundabout with cycle priority. The proposed arrangement would require pedestrians to cross the cycle track to access the opposing footpath.

Tactile paving, has not been indicated on the eastern side of the pedestrian crossing of the cycle track at the southeastern quadrant of the junction. The absence of tactile paving at this cycle track crossing may lead to difficulties for visually impaired pedestrians in locating the crossing resulting in them entering the cycle track without due care and consideration.

Recommendation

Tactile paving, should be provided at the pedestrian crossing of the cycle track.

A.1.5 Different NMU Facilities on Either Side of the Continuous Footpath on Boden Heath

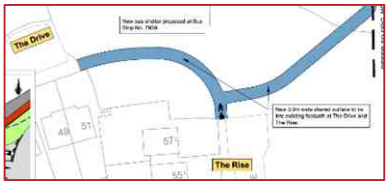


A continuous footpath is indicated across Boden Heath at its junction with Ballyboden Way. On the eastern side of the side road a footpath is indicated while on the western side a shared path is indicated. The shared path commences immediately to the west of the continuous footpath, and it is, therefore, unclear how a visually impaired pedestrian would be advised of the transition between the footpath and shared path at this location. This could lead to visually impaired pedestrians being insufficiently aware that they are entering an area shared with cyclists.

Recommendation

A shared path should be provided on the eastern side of Boden Heath and continued across the side road. Appropriate tactile paving should be provided at the transitions between this shared path and the footpaths on the eastern side of Boden Heath.

A.1.6 Insufficient Connectivity between the Shared Paths and the Footpaths



A shared path has been indicated connecting the shared path on Ballyboden Way with the existing footpaths on The Drive and The Rise. However, the existing footpaths at these locations appear to be too narrow to accommodate both cyclists and pedestrians.

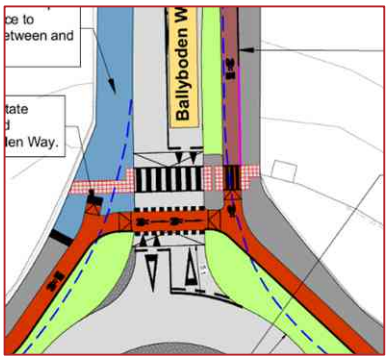
Also, tactile paving has not been indicated at the transition between the shared paths and the pedestrian only footpaths on The Drive and The Rise. This could lead to visually impaired pedestrians being insufficiently aware that they are entering a shared area where cyclists may also be present.

Recommendation

Measures should be provided at the tie-in with these cul de sacs for cyclists to enter the carriageway and not continue on the existing footpaths at these locations.

In addition, tactile paving should be provided at the interfaces between the shared, and pedestrian-only, footpaths.

A.1.7 Different NMU Facilities on Either Side of the Zebra Crossing on Ballyboden Way

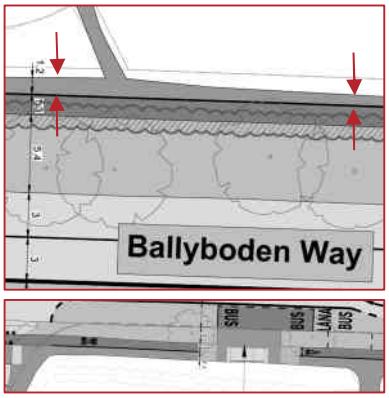


A Zebra crossing is indicated across Ballyboden Way on the western arm of the roundabout junction with Ballyboden Road. On the northern side of Ballyboden Way a footpath is indicated while on the southern side a shared path is indicated. The shared path commences immediately to the south of the crossing, and it is, therefore, unclear how a visually impaired pedestrian would be advised of the transition between the footpath and shared path at this location. This could lead to visually impaired pedestrians being insufficiently aware that they are entering an area shared with cyclists.

Recommendation

A shared path should be provided on the northern side of Ballyboden Way. Appropriate tactile paving should be provided at the transitions between this shared path and the pedestrian and cycle facilities on either side of the crossing point.

A.1.8 Narrow Footpath

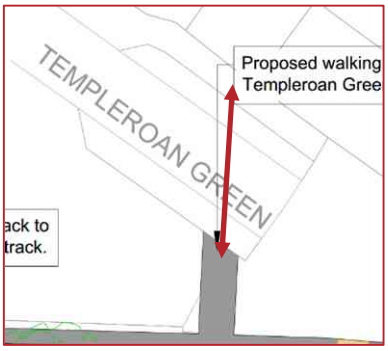


The width of the footpath indicated on the western side of Ballyboden Way to the north of its footpath connection with Templeroan Green and the eastern side of Ballyboden Way north of its junction with Templeroan Lodge is less than 1.2m, and it is, therefore, not a sufficient width for pedestrians to travel within the footpath. This could lead to wheelchair users, or pedestrians pushing prams/strollers, experiencing difficulty in travelling on the footpath.

Recommendation

The footpath in these locations should be widened to a minimum of 1.2m to sufficiently accommodate pedestrian movements.

A.1.9 Road Layout on Templeroan Green at Proposed Footpath Link



A proposed footpath link has been indicated between the footpath on the western side of Ballyboden Way and the Templeroan Green residential development. The proposed footpath link, however, terminates at the carriageway on Templeroan Green with no measures indicated for pedestrians to cross to the existing footpath on the other side of the Templeroan Green carriageway. This may lead to difficulties for pedestrians, particularly the mobility-impaired, who have to ascend/descend a full height kerb on the other side of the road.

Recommendation

A pedestrian crossing, including dropped kerbs and associated tactile paving, should be provided on Templeroan Green where the proposed footpath link terminates.

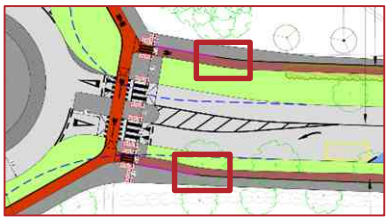
Appendix B: Cycle Audit

The purpose of this Cycle Audit is to review the proposed Scheme, and the existing surrounding environment, to assess if it will cater comfortably for cyclists, of all ages and abilities, and that the needs of cyclists have been prioritised over vehicular traffic.

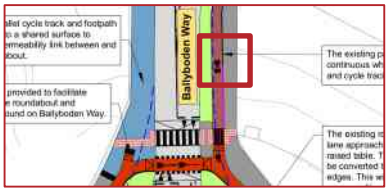
B.1 List of Cycle Issues

B.1.1 Tie-In between Proposed and Existing Cycle Facilities

A raised delineator kerb is proposed between the footpath and the adjacent cycle track on short sections of Ballyboden Way at the scheme extents. The existing facilities on Ballyboden Way, however, do not include a delineator kerb, with a continuous white line provided instead to delineate the two facilities.



Measures have not been indicated at the transitions between the two different means of delineation at the tie-ins, and this may lead to the kerb creating a vertical face hazard, or trip hazard, for pedestrians and cyclists, if not sufficiently terminated.

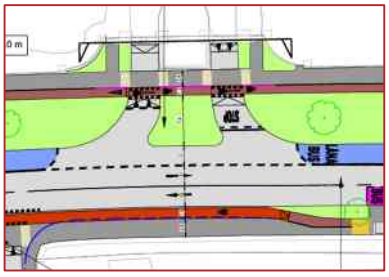


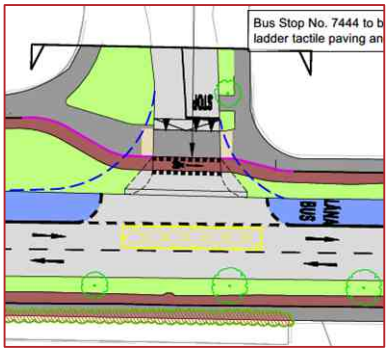
Recommendation

The proposed cycle facilities should safely transition at the scheme's tie-ins and, if necessary, measures should be provided to transition between the two different means of delineation.

B.1.2 Absence of Route for Cyclists to Boden Park Glen and the Sancta Maria All Weather Pitches

A grass verge has been indicated between the proposed cycle track and adjacent traffic lane on Ballyboden Way at its junctions with Boden Park Glen and the Sancta Maria All Weather Pitches. Cyclists travelling between this cycle track and Boden Park Glen or the Sancta Maria All Weather Pitches, on the opposite side of Ballyboden Way, would have to cross the grass verge and traverse a full height kerb to do so.





Recommendation

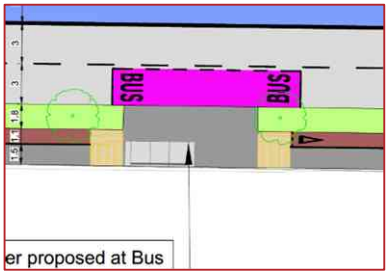
A crossing of the verge and carriageway should be provided on Ballyboden Way in the vicinity of Boden Park Glen and the Sancta Maria All Weather Pitches to allow cyclists to safely travel between this road and the cycle track.

Appendix C: Walking Audit

The purpose of this Walking Audit is to review the proposed Scheme, and the existing surrounding environment, to assess if it can be readily and comfortably traversed by pedestrians, that the needs of pedestrians have been prioritised over cyclists & vehicles, and that footpaths are continuous and wide enough to cater for the anticipated number of pedestrians.

C.1 List of Walk Issues

C.1.1 Bus Shelter

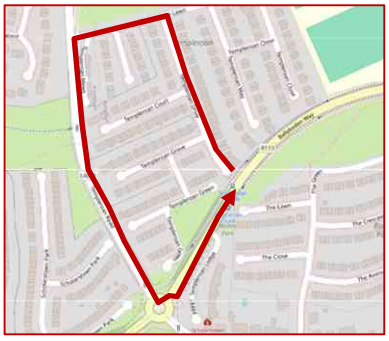


Bus shelters have been indicated within the proposed shared path at bus stops at various locations within the scheme. The type of bus shelter proposed is unclear however, and if it includes side panels it may restrict access for pedestrians when entering the shared path due to its proximity to the transition between the segregated footpath and cycle track and shared path.

Recommendation

Suitable bus shelters, that do not restrict access for pedestrians to the shared path at bus stops, should be provided during future design stages.

C.1.2 Pedestrian Connectivity between Ballyboden Way and Templeroan Drive

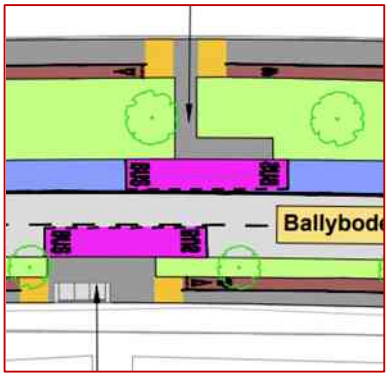


A pedestrian link has not been indicated between Ballyboden Way and Templeroan Drive where a boundary wall currently separates them. A failure to provide pedestrian permeability through the boundary wall at this location could lead to residents of Templeroan Drive having to walk for a minimum of one kilometre, or climb over the boundary wall, to access the immediately adjacent bus stops (Stop ID 7443 & Stop ID 7446) on Ballyboden Way.

Recommendation

Provide a pedestrian/cyclist link between Ballyboden Way and Templeroan Drive to facilitate pedestrian and cyclist access to the adjacent bus stops and cycle track on Ballyboden Way.

C.1.3 Lack of Bus Shelter at Bus Stop No.7968



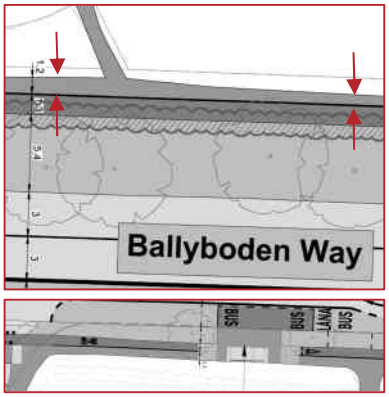
A bus shelter has not been indicated at the westbound bus stop on the northern side of Ballyboden Way, adjacent to the Sancta Maria All Weather Pitches (Bus Stop No. 7968). Bus passengers waiting for a bus at this bus stop would be exposed to severe weather conditions without any protection.

Also, no seating at the bus stop may lead to discomfort for the elderly, mobility impaired pedestrians, or bus passengers with children when waiting for a bus.

Recommendation

A bus shelter with seating should be provided at this location.

C.1.4 Narrow Footpath

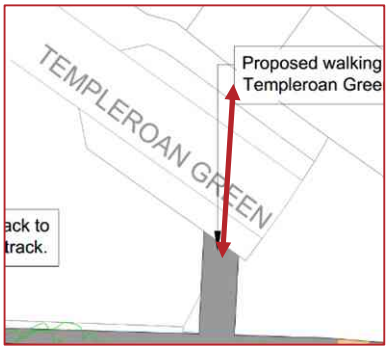


The width of the footpath indicated on the western side of Ballyboden Way to the north of its footpath connection with Templeroan Green and the eastern side of Ballyboden Way north of its junction with Templeroan Lodge is less than 1.2m, and it is, therefore, not a sufficient width for pedestrians to travel within the footpath. This could lead to pedestrians having to enter the adjacent cycle track, or grass verge, to pass opposing pedestrians.

Recommendation

The footpath in these locations should be widened to a minimum of 1.2m to sufficiently accommodate pedestrian movements.

C.1.5 Road Layout on Templeroan Green at Proposed Footpath Link



A proposed footpath link has been indicated between the footpath on the western side of Ballyboden Way and the Templeroan Green residential development. The proposed footpath link, however, terminates at the carriageway on Templeroan Green with no measures indicated for pedestrians to cross to the existing footpath on the other side of the Templeroan Green carriageway. This may lead to pedestrians being directed into the Templeroan Green carriageway and then having to ascend/descend a full height kerb on the other side of the road.

Recommendation

A pedestrian crossing, including dropped kerbs and associated tactile paving, should be provided on Templeroan Green where the proposed footpath link terminates.

Appendix D: Road Safety Audit

The purpose of a Road Safety Audit is to identify problems that may lead to road safety collisions, material damage or personal injury, and to offer recommendations that mitigate identified safety risks.

OVE Arup & Partners Ireland Ltd

Knocklyon to Ballyboden Active Travel Scheme (Ballyboden Way)

Stage 1 Road Safety Audit

June 2025

OVE Arup & Partners Ireland Ltd

Knocklyon to Ballyboden Active Travel Scheme (Ballyboden Way)

Stage 1 Road Safety Audit

Document Ref:	P25084-PMCE-XX-XX-RP-SA-3_0001

Rev	Prepared By	Reviewed By	Approved By	Issue Date	Reason for Revision
2.0	AP	AOR/TAG	AOR	26th June 2025	Final Report
1.0	AP	AOR/TAG	AOR	19th June 2025	Draft Report

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Table of Contents

1 Introduction

1.1 General

This report results from a Stage 1 Road Safety Audit on the revised design of the Ballyboden Way section of the Knocklyon to Ballyboden Active Travel Scheme carried out at the request of Mr Jakub Radomski of OVE Arup & Partners Ireland Ltd.

The members of the Road Safety Audit Team are independent of the design team, and include:

Mr. Alan O'Reilly
(BA, BAI, MSc, PGDip(PM), RSACert, CEng, MIEI)
Road Safety Audit Team Leader

Mr. Antonis Papadakis
(EUR ING, BSc (Hons), MSc, RSACert, MIEI, MTCG)
Road Safety Audit Team Member

The Road Safety Audit took place during November 2024 and June 2025 and comprised an examination of the documents provided by the designers (see Appendix A). In addition to examining the documents supplied the Road Safety Audit Team visited the site of the proposed measures on the 12th November 2024. Weather conditions during the site visit were dry and the road surface was dry. Traffic volumes during the site visit were moderate, pedestrian and cyclist volumes were low and traffic speeds were considered to be generally within the posted speed limit.

Where problems are relevant to specific locations these are shown on drawing extracts within the main body of the report and their locations are shown in Appendix B. Where problems are general to the proposals sample drawing extracts are within the main body of the report, where considered necessary.

This Stage 1 Road Safety Audit has been carried out in accordance with the requirements of GE-STY-01024 - Road Safety Audit (December 2017), contained on the Transport Infrastructure Ireland (TII) Publications website.

The scheme has been examined and this report compiled in respect of the consideration of those matters that have an adverse effect on road safety and considers the perspective of all road users. It has not been examined or verified for compliance with any other standards or criteria. The problems identified in this report are considered to require action in order to improve the safety of the scheme and minimise collision occurrence.

If any of the recommendations within this road safety audit report are not accepted, a written response is required, stating reasons for non-acceptance. Comments made within the report under the heading of Observations are intended to be for information only. Written responses to Observations are not required.

1.2 Items Not Submitted for Auditing

Details of the following items were not submitted for audit, therefore, no specific problems have been identified at this stage relating to these design elements, however where the absence of this information has given rise to a safety concern it has been commented upon in Section 3:

- Vehicle swept paths
- Visibility splays

2 Project Description

The proposals on Ballyboden Way, between its junction with Templeroan Road and Scholarstown Road and its junction with Ballyboden Road (see Figure 2.1), form part of the wider Knocklyon to Ballyboden Active Travel Scheme which would be located in the Knocklyon and Ballyboden area in south Dublin, primarily extending along Knocklyon Road, Scholarstown Road, Templeroan Road and Ballyboden Way. It would consist of new, and upgrades to existing, pedestrian and cycle links to residential, educational, leisure and commercial areas, to provide a safer and more attractive environment for non-motorised road users.

The majority of the route would run along existing footpaths and cycle facilities, however new cycle facilities are proposed on roads that currently have no such facilities. As part of the design development a number of secondary links have been identified along existing roads and footpaths to better connect the primary route to the surrounding areas. The secondary links will comprise small interventions, such as installation of new, and upgrading existing, crossings and upgrading existing footpaths to shared paths to improve permeability and access onto the primary route.

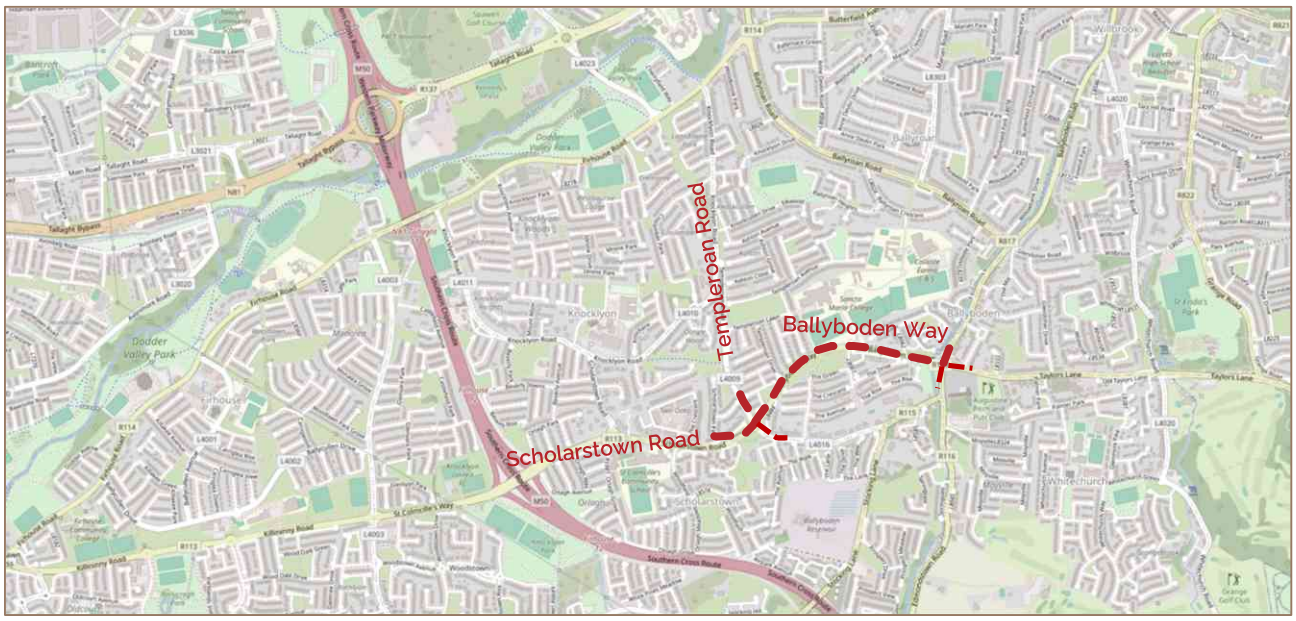


FIGURE 2.1: LOCATION PLAN (SOURCE: WWW.OPENSTREETMAP.ORG)

The proposed works would include:

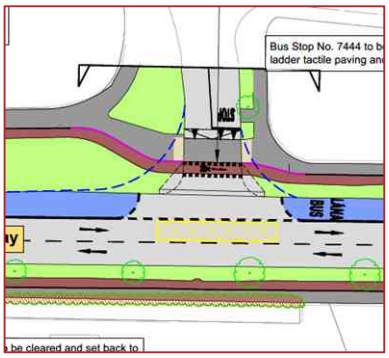
- Crossing facilities in the form of raised tables, and continuous footpaths, on side roads and minor access roads.
- Amendments to existing bus stops.
- Amendments to existing junction layouts, including upgrading two roundabouts to protected roundabouts with cycle priority.
- Amendments to the existing kerb line.
- Zebra crossings to replace existing crossings and also at new locations.
- Widening of existing footpaths.
- New cycle facilities including one-way cycle tracks on sections of Scholarstown Road, a two-way cycle track on the eastern side of Templeroan Road/Lawn and a cycle track on both sides of Ballyboden Way.

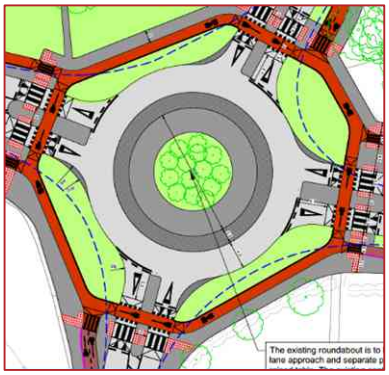
3 Items Arising from the Audit

3.1 Swept Paths at Junctions

Location: *Junctions within the scheme*

Summary: *It is unclear if the reduced extents of the carriageway at revised junctions and roundabouts within the scheme will safely accommodate the swept path of all vehicles.*





Information regarding the swept path of vehicles at junctions, including priority-controlled junctions, and roundabouts, within the scheme have not been provided to the Audit Team.

It is, therefore, unclear if the revised road layout at junctions, and the reduced carriageway space due to the amended kerbs, will sufficiently accommodate the swept path of all vehicles where turning drivers may be restricted by the revised kerb line, for example at the Boden Park Glen and Ballyboden Way T-Junctions. If drivers cannot complete turning manoeuvres within the extents of the carriageway there is a risk of kerb strikes and vehicles potentially entering the cycle lanes or mounting the footpath, increasing the risk of collisions with items of roadside furniture or with other road users.

Recommendation

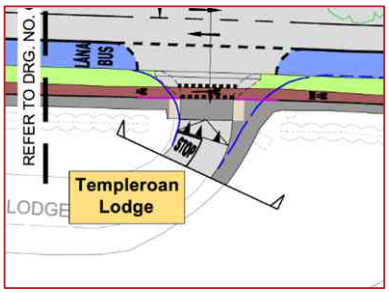
The swept path of all vehicles should be accommodated safely at all junctions within the scheme.

3.2 Continuous Footpath Across Side Roads

Location: *Priority-controlled junctions within the scheme where continuous footpaths are proposed*

Summary: *The continuous footpath layout proposed across side roads within the scheme may be unsuitable for the volume of vehicles entering/exiting the side roads, increasing the risk of vehicle-pedestrian collisions.*

A continuous footpath is indicated across a number of side roads within the scheme.



The Design Manual for Urban Roads and Streets (DMURS) Advice Note 6 advises that continuous footpaths could be considered at side roads where vehicle flows are low, between 30 and 40 vehicle movements in the peak hour. Information regarding the volume of traffic turning into and out of these junctions has not been provided to the Audit Team.

If the volume of vehicles entering and exiting these side roads during the peak hour is greater than this, a continuous footpath would not be suitable at these locations and may result in an increased risk of vehicle-pedestrian collisions.

Recommendation

Junction turning count surveys should be undertaken at these locations to determine if the peak hour traffic volumes are within the threshold where a continuous footpath would be appropriate.

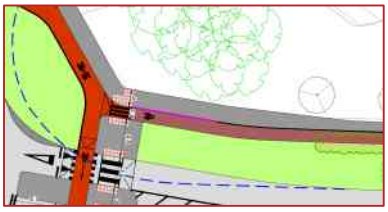
If the traffic volumes at these locations exceed this threshold, then the footpath at these side roads should be discontinuous with an appropriate crossing provided.

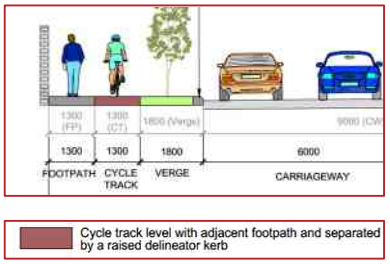
3.3 Delineation between Pedestrian and Cycle Facilities

Location: *Pedestrian and cycle facilities on Ballyboden Way*

Summary: *Visually impaired pedestrians may inadvertently stray into the adjacent cycle track where there is an increased risk of being struck by a cyclist due to insufficient delineation between the pedestrian and cycle facilities.*

The existing pedestrian and cycle facilities on Ballyboden Way are at the same level and include a continuous white line to delineate the two facilities. It is proposed to retain the existing parallel segregated footpath and cycle track on Ballyboden Way, to repaint the existing white line, and remove vegetation to reinstate the full width of the existing cycle track with a raised delineator kerb indicated between the footpath and the adjacent cycle track on short sections of Ballyboden Way at the scheme's extents.





However, the hatch used for the existing cycle tracks on both sides of Ballyboden Way in the Legend indicates a '*cycle track level with adjacent footpath and separated by a raised delineator kerb*'. It is, therefore, unclear if the raised delineator kerb will be provided for longer sections between the pedestrian and cycle facilities. It is also unclear if the cycle track will be of a different colour to promote increased contrast which would provide increased delineation between the two facilities.

Should the delineation between the two facilities be insufficient, it could lead to visually impaired pedestrians inadvertently straying into the cycle track where there is an increased risk of being struck by a cyclist.

Recommendation

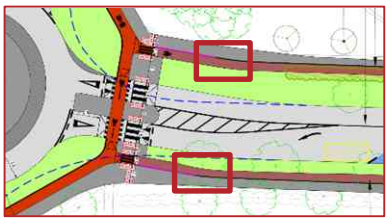
The pedestrian and cycle facilities should be clearly delineated for all road users, particularly the visually impaired.

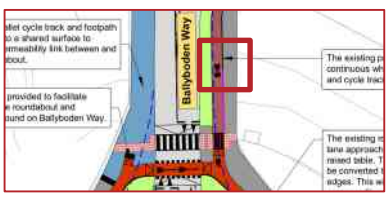
3.4 Tie-In between Proposed and Existing Cycle Facilities

Location: *Proposed cycle facilities tie-ins with existing cycle facilities*

Summary: *It is unclear if the proposed cycle facilities on Ballyboden Way will tie-in safely with the existing facilities at the scheme extents.*

A raised delineator kerb is proposed between the footpath and the adjacent cycle track on short sections of Ballyboden Way at the scheme extents. The existing facilities on Ballyboden Way, however, do not include a delineator kerb, with a continuous white line provided instead to delineate the two facilities.





Measures have not been indicated at the transitions between the two different means of delineation at the tie-ins, and this may lead to the kerb creating a vertical face hazard, or trip hazard, for pedestrians and cyclists, if not sufficiently terminated.

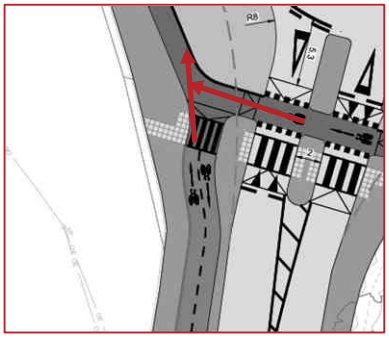
Recommendation

The proposed cycle facilities should safely transition at the scheme's tie-ins and, if necessary, measures should be provided to transition between the two different means of delineation.

3.5 Absence of Yield Marking at Cyclist Intersections

Location: *Cycle route through roundabouts within the scheme*

Summary: *The absence of clear priority at cyclist intersections within roundabouts may lead to cyclists failing to stop and collisions with other cyclists.*



A Yield symbol has not been indicated at the cycle track intersections within roundabouts within the scheme, where cyclists are required to give way to other cyclists. This may lead to confusion for cyclists regarding who has priority at these locations resulting opposing cyclists proceeding at the same time where there is an increased risk of collisions between cyclists.

Recommendation

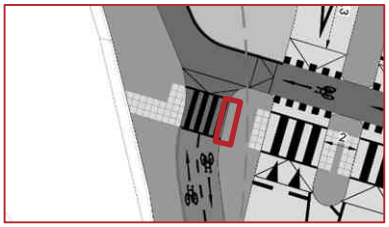
A Yield symbol should be provided at the locations where crossing cyclists enter the mainline cycle facility.

3.6 Absence of Tactile Paving at Crossing of Cycle Track

Location: *Drawing O2B-ARU-XX-XX-DR-C-0100-18 (Rev. P04)*

Summary: *Tactile paving has not been indicated at the crossing of cycle track.*

It is proposed to amend the layout of the existing junction between Scholarstown Road and Ballyboden Way, including upgrading the roundabout to a protected roundabout with cycle priority. The proposed arrangement would require pedestrians to cross the cycle track to access the opposing footpath.



Tactile paving, has not been indicated on the eastern side of the pedestrian crossing of the cycle track at the southeastern quadrant of the junction. The absence of tactile paving at this cycle track crossing may lead to difficulties for visually impaired pedestrians in locating the cycle track crossing resulting in them inadvertently entering the cycle track and being struck by a cyclist.

Recommendation

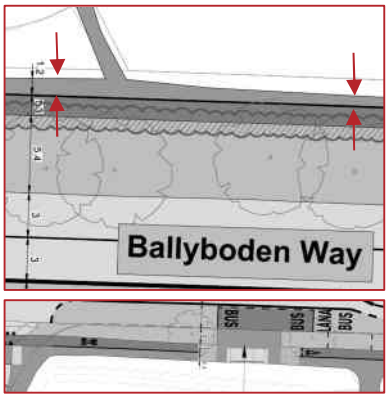
Tactile paving, should be provided at the pedestrian crossing of the cycle track.

3.7 Narrow Footpath

Location: *Drawing O2B-ARU-XX-XX-DR-C-0100-18 (Rev. P04) and Drawing O2B-ARU-XX-XX-DR-C-0100-19 (Rev. P04)*

Summary: *The width of the footpath on sections of Ballyboden Way is less than 1.2m which is too narrow for pedestrians.*

The width of the footpath indicated on the western side of Ballyboden Way to the north of its footpath connection with Templeroan Green and the eastern side of Ballyboden Way north of its junction with Templeroan Lodge is less than 1.2m, and it is, therefore, not a sufficient width for pedestrians to travel safely within the footpath.



This could lead to wheelchair users, or pedestrians pushing prams/strollers, experiencing difficulty in travelling on the footpath, or to pedestrians having to enter the adjacent cycle track, or grass verge, to pass opposing pedestrians resulting in an increased risk of pedestrian-cyclist collisions, or slips, trips and falls.

Recommendation

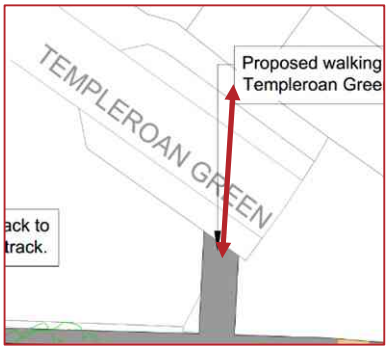
The footpath in these locations should be widened to a minimum of 1.2m to sufficiently accommodate pedestrian movements.

3.8 Road Layout on Templeroan Green at Proposed Footpath Link

Location: *Drawing O2B-ARU-XX-XX-DR-C-0100-19 (Rev. P04)*

Summary: *The proposed footpath link between Ballyboden Way and Templeroan Green terminates at the carriageway on Templeroan Green with no measures indicated to access the footpath on the other side of Templeroan Green.*

A proposed footpath link has been indicated between the footpath on the western side of Ballyboden Way and the Templeroan Green residential development. The proposed footpath link, however, terminates at the carriageway on Templeroan Green with no measures indicated for pedestrians to cross to the existing footpath on the other side of the Templeroan Green carriageway. This may lead to pedestrians being directed into the Templeroan Green carriageway and then having to ascend/descend a full height kerb on the other side of the road resulting in an increased risk of being struck by a vehicle or to difficulties for pedestrians, particularly the mobility-impaired, when accessing the footpath resulting in an increased risk of trips and falls.



Recommendation

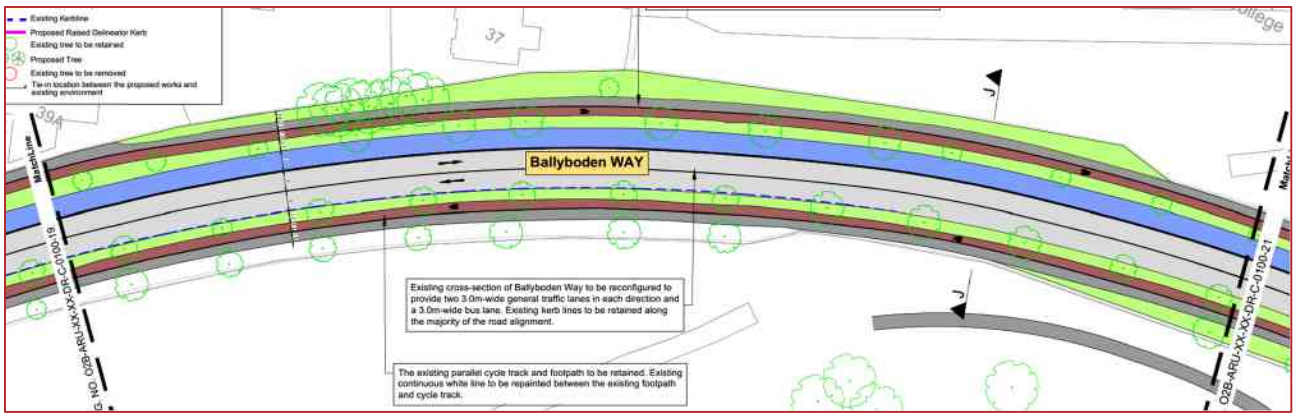
A pedestrian crossing, including dropped kerbs and associated tactile paving, should be provided on Templeroan Green where the proposed footpath link terminates.

3.9 Swept Path of Opposing Large Vehicles

Location: *Drawing O2B-ARU-XX-XX-DR-C-0100-20 (Rev. P04)*

Summary: *A horizontal curve has been indicated on Ballyboden Way and it is unclear if large vehicles would be able to travel through this curve without encroaching into the opposing traffic lane.*

A horizontal curve has been indicated on Ballyboden Way between the proposed Toucan crossing near Templeroan Drive and the existing Toucan crossing to the south of Sancta Maria All Weather Pitches.



It is proposed to reduce the carriageway cross-section of Ballyboden Way through the provision of widened footpaths and cycle tracks. Swept paths of large vehicles, such as buses and HGVs, travelling through this curve has not been provided to the Audit Team and it is, therefore, unclear if these vehicles can travel through this curve without encroaching into the adjacent traffic lane where there would be a risk of side swipe or head-on collisions with opposing vehicles.

Recommendation

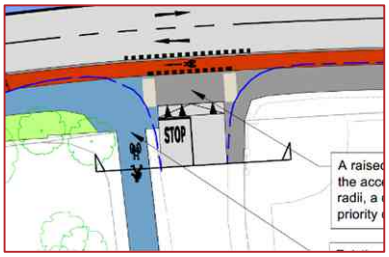
A swept path analysis should be undertaken to determine that all vehicles expected to use this road can safely travel through these curves within the extent of their traffic lane. If this is not possible, median widening may be required through these horizontal curves.

3.10 Different NMU Facilities on Either Side of the Continuous Footpath on Boden Heath

Location: *Drawing O2B-ARU-XX-XX-DR-C-0100-21 (Rev. P04)*

Summary: *The continuous footpath across Boden Heath transitions to a shared path on the western side without sufficient warning for visually impaired pedestrians.*

A continuous footpath is indicated across Boden Heath at its junction with Ballyboden Way. On the eastern side of the side road a footpath is indicated while on the western side a shared path is indicated. The shared path commences immediately to the west of the continuous footpath, and it is, therefore, unclear how a visually impaired pedestrian would be advised of the transition between the footpath and shared path at this location. This could lead to visually impaired pedestrians being insufficiently aware that they are entering an area shared with cyclists resulting in an increased risk of conflicts between pedestrians and cyclists.



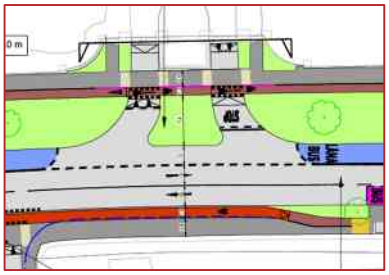
Recommendation

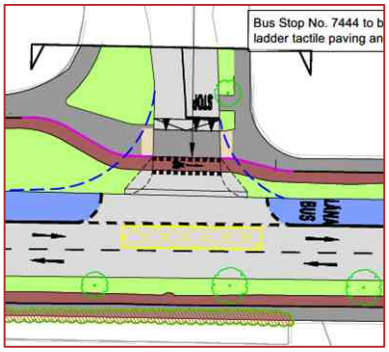
A shared path should be provided on the eastern side of Boden Heath and continued across the side road. Appropriate tactile paving should be provided at the transitions between this shared path and the footpaths on the eastern side of Boden Heath.

3.11 Absence of Route for Cyclists to Boden Park Glen and the Sancta Maria All Weather Pitches

Location: *Drawing O2B-ARU-XX-XX-DR-C-0100-21 (Rev. P04) and O2B-ARU-XX-XX-DR-C-0100-22 (Rev. P04)*

Summary: *No safe route has been indicated for cyclists wishing to travel between Boden Park Glen or the Sancta Maria All Weather Pitches and the cycle track on the southern side of Ballyboden Way.*





A grass verge has been indicated between the proposed cycle track and adjacent traffic lane on Ballyboden Way at its junctions with Boden Park Glen and the Sancta Maria All Weather Pitches. Cyclists travelling between this cycle track and Boden Park Glen or the Sancta Maria All Weather Pitches, on the opposite side of Ballyboden Way, would have to cross the grass verge and traverse a full height kerb to do so.

This may lead to an increased risk of loss of control and falls from their bicycle resulting in personal injuries, particularly as the grass verge may rut over time, or become slippery when wet.

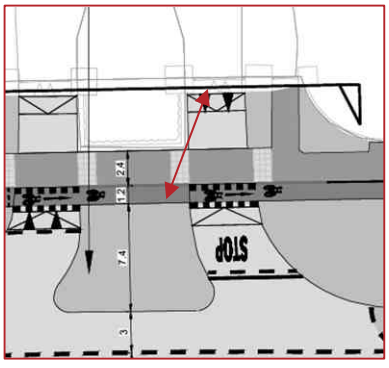
Recommendation

A crossing of the verge and carriageway should be provided on Ballyboden Way in the vicinity of Boden Park Glen and the Sancta Maria All Weather Pitches to allow cyclists to safely travel between this road and the cycle track.

3.12 Inter-visibility between Road Users at the Sancta Maria All Weather Pitch Egress

Location: *Drawing O2B-ARU-XX-XX-DR-C-0100-22 (Rev. P04)*

Summary: *Inter-visibility between drivers exiting the Santa Maria All Weather Pitches, and pedestrians or cyclists crossing the egress, may be restricted by the adjacent boundary wall and vegetation.*



A continuous footpath and cycle crossing are indicated across the access/egress to/from the Sancta Maria All Weather Pitches. It is unclear if there would be adequate inter-visibility between a driver exiting onto Ballyboden Way and a pedestrian or cyclist, approaching the crossing of the egress due to the boundary wall, and its piers, and the adjacent vegetation. Should there be insufficient inter-visibility, this could result in an exiting driver being insufficiently aware of a pedestrian or cyclist about to commence a crossing, leading to possible vehicle-pedestrian or vehicle-cyclist collisions.

Recommendation

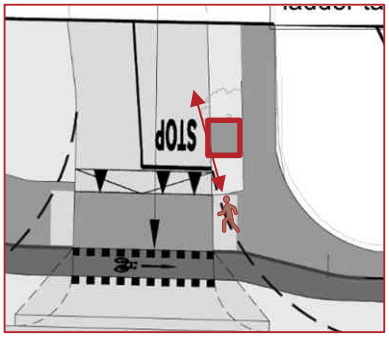
Adequate inter-visibility should be provided between drivers exiting the Sancta Maria All Weather Pitches and pedestrians or cyclists approaching the crossing of the egress.

3.13 Inter-visibility between Road Users at the Boden Park Glen/Ballyboden Way Junction

Location: *Drawing O2B-ARU-XX-XX-DR-C-0100-22 (Rev. P04)*

Summary: *Inter-visibility between drivers exiting Boden Park Glen, and pedestrians or cyclists crossing Boden Park Glen, may be restricted by the vegetation and the existing ESB box located on the eastern side of the road.*

A continuous footpath is indicated across Boden Park Glen at its junction with Ballyboden Way. It is unclear if there would be adequate inter-visibility between a driver exiting Boden Park Glen and a pedestrian, particularly children, approaching the crossing of Boden Park Glen due to the the vegetation and the existing ESB box located on the eastern side of the road.



Should there be insufficient inter-visibility, this could result in an exiting driver being insufficiently aware of a pedestrian about to commence a crossing, leading to possible vehicle-pedestrian collisions.

Recommendation

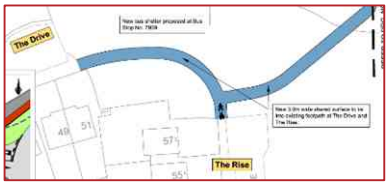
Adequate inter-visibility should be provided between drivers exiting Boden Park Glen and pedestrians approaching the continuous footpath on Boden Park Glen at its junction with Ballyboden Way.

3.14 Insufficient Connectivity between the Shared Paths and the Footpaths

Location: *Drawing O2B-ARU-XX-XX-DR-C-0100-22 (Rev. P04)*

Summary: *Insufficient connectivity indicated between the proposed shared paths and the footpaths on The Rise and The Drive.*

A shared path has been indicated connecting the shared path on Ballyboden Way with the existing footpaths on The Drive and The Rise. However, the existing footpaths at these locations appear to be too narrow to accommodate both cyclists and pedestrians, resulting in an increased risk of conflicts between these road users.



Also, tactile paving has not been indicated at the transition between the shared paths and the pedestrian only footpaths on The Drive and The Rise. This could lead to visually impaired pedestrians being insufficiently aware that they are entering a shared area where cyclists may also be present, resulting in an increased risk of pedestrian-cyclist collisions.

Recommendation

Measures should be provided at the tie-in with these cul de sacs for cyclists to enter the carriageway and not continue on the existing footpaths at these locations.

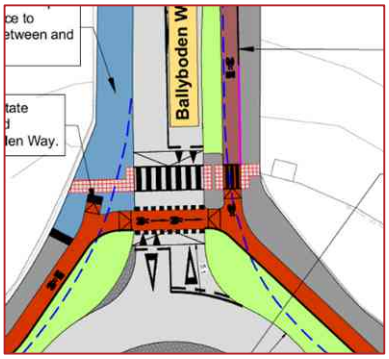
In addition, tactile paving should be provided at the interfaces between the shared, and pedestrian-only, footpaths.

3.15 Different NMU Facilities on Either Side of the Zebra Crossing on Ballyboden Way

Location: *Drawing O2B-ARU-XX-XX-DR-C-0100-23 (Rev. P04)*

Summary: *The footpath on the northern side of Ballyboden Way transitions to a shared path on the southern side without sufficient warning for visually impaired pedestrians.*

A Zebra crossing is indicated across Ballyboden Way on the western arm of the roundabout junction with Ballyboden Road. On the northern side of Ballyboden Way a footpath is indicated while on the southern side a shared path is indicated. The shared path commences immediately to the south of the crossing, and it is, therefore, unclear how a visually impaired pedestrian would be advised of the transition between the footpath and shared path at this location. This could lead to visually impaired pedestrians being insufficiently aware that they are entering an area shared with cyclists resulting in an increased risk of conflicts between pedestrians and cyclists.

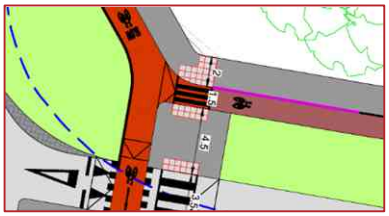


Recommendation

A shared path should be provided on the northern side of Ballyboden Way. Appropriate tactile paving should be provided at the transitions between this shared path and the pedestrian and cycle facilities on either side of the crossing point.

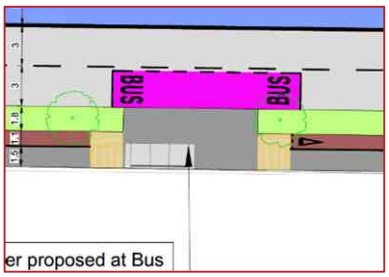
4 Observations

4.1 Drawing O2B-ARU-XX-XX-DR-C-0100-18 (Rev. P04) indicates the stem of the tactile paving on the left side of the controlled crossing on the western side of the crossing of the cycle track. The tactile paving layout should be amended and the stem provided on the right-hand side of the crossing.

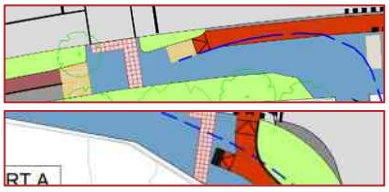


4.2 Bus shelters have been indicated within the proposed shared path at bus stops at various locations within the scheme. The type of bus shelter proposed is unclear however, and if it includes side panels it may restrict access for pedestrians and cyclists when entering the shared path due to its proximity to the transition between the segregated footpath and cycle track and shared path.

Suitable bus shelters, that do not restrict access for pedestrians to the shared path at bus stops and cyclists, should be provided during future design stages.

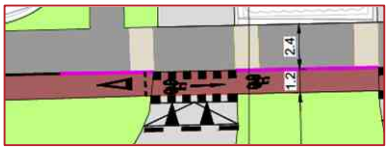


4.3 'Ladder' tactile paving is indicated at the cycle track ramps where the cycle track transitions to the shared path at the Toucan crossings to the west of Boden Heath and to the west of the protected roundabout junction with Ballyboden Road, which is the incorrect tactile paving for this location.



Appropriate tactile paving should be provided at these locations in accordance with the 'Guidance on the Use of Tactile Paving Surfaces' document.

4.4 A 'Yield' symbol is indicated upstream of the cycle crossing of the Sancta Maria All Weather Pitches access. However, this is a cyclist priority crossing and, therefore, the 'Yield' symbol should be removed.



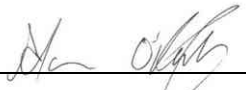
5 Audit Team Statement

We certify that we have examined the drawings referred to in this report. The examination has been carried out with the sole purpose of identifying any features of the design that could be removed or modified in order to improve the safety of the scheme.

The problems identified have been noted in this report together with associated safety improvement suggestions, which we would recommend should be studied for implementation.

No one on the Road Safety Audit Team has been involved with the design of the scheme.

ROAD SAFETY AUDIT TEAM LEADER

Alan O'Reilly Signed: 

Dated: 26.6.2025

ROAD SAFETY AUDIT TEAM MEMBER

Antonis Papadakis Signed: 

Dated: 26.6.2025

6 Road Safety Audit Feedback Form

Road Safety Audit Feedback Form

Scheme: Knocklyon to Ballyboden Active Travel Scheme - Ballyboden Way

Route No.: Ballyboden Way, Scholarstown Road, Templeroan Road

Audit Stage: 1 **Date Audit Completed:** 26.6.2025

	To be Completed by Designer			To be Completed by Audit Team Leader
Paragraph No. in Safety Audit Report	**Problem Accepted (Yes/No)**	**Recommended Measure(s) Accepted (Yes/No)**	**Describe Alternative Measure(s). Give reasons for not accepting recommended measure. Only complete if recommended measure is not accepted**	**Alternative Measures or Reasons Accepted by Auditors (Yes/No)**
3.1	Yes	Yes		
3.2	Yes	No	The continuous footpath layouts are only proposed across side roads that are expected to receive low to moderate traffic volumes in alignment with DMURS Advise Note 6. It is not intended to complete additional surveys as part of this project.	Yes
3.3	Yes	No	The text in the legend is inaccurate and relates to the first iteration of the design that was deemed inappropriate. A delineator kerb will only be provided at approach to conflict points. It is not suitable to provide a delineator kerb between the existing cycle track and footpath along most of the scheme due to the existing footpath width being less than 1.8m, preventing two wheelchairs from comfortably passing each other. The delineator kerb would provide an obstruction for one of the wheelchairs to temporarily enter the cycle track to pass. It is also not feasible to widen the existing footpath and cycle track without significant tree feeling and vegetation clearance which goes against the objectives of the project. The proposed design responds to the need to improve bus infrastructure along the scheme, while also addressing existing site constraints that limit the potential for widening	Yes

Road Safety Audit Feedback Form

Scheme: Knocklyon to Ballyboden Active Travel Scheme - Ballyboden Way

Route No.: Ballyboden Way, Scholarstown Road, Templeroan Road

Audit Stage: 1 **Date Audit Completed:** 26.6.2025

	To be Completed by Designer			To be Completed by Audit Team Leader
Paragraph No. in Safety Audit Report	**Problem Accepted (Yes/No)**	**Recommended Measure(s) Accepted (Yes/No)**	**Describe Alternative Measure(s). Give reasons for not accepting recommended measure. Only complete if recommended measure is not accepted**	**Alternative Measures or Reasons Accepted by Auditors (Yes/No)**
			the parallel footpath and cycle track. As a result, the design intent is to carry out only maintenance works, specifically the removal of vegetation encroaching on the existing footpath and cycle track. Observations have shown that the footpath and cycle track operate effectively, and therefore, the design team, in consultation with the Local Authority and the NTA, has concluded that the most appropriate approach is to retain the existing layout.	
3.4	Yes	Yes		
3.5	Yes	Yes		
3.6	Yes	Yes		
3.7	Yes	Yes		
3.8	No	No	Templeroan Green is a quiet residential street and the proposed permeability link connects at the end of the cul-de-sac indicating that no through traffic will use that road. The permeability link is intended for local access only and therefore the design team deems appropriate not to provide a formal uncontrolled crossing, rather allow for the new footpath to tie into the existing carriageway at level.	Yes

Road Safety Audit Feedback Form

Scheme: Knocklyon to Ballyboden Active Travel Scheme - Ballyboden Way

Route No.: Ballyboden Way, Scholarstown Road, Templeroan Road

Audit Stage: 1 **Date Audit Completed:** 26.6.2025

	To be Completed by Designer			To be Completed by Audit Team Leader
Paragraph No. in Safety Audit Report	**Problem Accepted (Yes/No)**	**Recommended Measure(s) Accepted (Yes/No)**	**Describe Alternative Measure(s). Give reasons for not accepting recommended measure. Only complete if recommended measure is not accepted**	**Alternative Measures or Reasons Accepted by Auditors (Yes/No)**
			Additionally, there are no obvious locations to provide a formal uncontrolled crossing at the cul-de-sac due to existing constraints imposed by the private driveways and public lighting column.	
3.9	Yes	Yes		
3.10	Yes	Yes		
3.11	Yes	Yes		
3.12	Yes	No	'STOP' road marking will be provided on approach to the pedestrian crossings to ensure drivers stop prior to continuing across the pedestrian and cycle crossing. Existing piers obstruct visibility for approaching vehicles, however, once a vehicle traverses through the piers inter-visibility is significantly improved. Given the narrow entrance between the stone pillars and steep ramp drivers will be approaching the crossings at low speeds.	Yes
3.13	Yes	Yes		
3.14	Yes	Yes		

Road Safety Audit Feedback Form

Scheme: Knocklyon to Ballyboden Active Travel Scheme - Ballyboden Way

Route No.: Ballyboden Way, Scholarstown Road, Templeroan Road

Audit Stage: 1 **Date Audit Completed:** 26.6.2025

	To be Completed by Designer			To be Completed by Audit Team Leader
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3.15	Yes	Yes		

Signed: _____ Designer **Date** 26.06.2025

Signed: _____ Audit Team Leader **Date** 26.6.2025

Signed: _____ Employer **Date** _____

Appendix A - Documents Submitted to the Road Safety Audit Team

DOCUMENT/DRAWING TITLE	DOCUMENT/DRAWING NO.	REVISION
General Arrangement Keyplan	O2B-ARU-XX-XX-DR-C-0100-00	P04
General Arrangement Sheet 18 of 30	O2B-ARU-XX-XX-DR-C-0100-18	P04
General Arrangement Sheet 19 of 30	O2B-ARU-XX-XX-DR-C-0100-19	P04
General Arrangement Sheet 20 of 30	O2B-ARU-XX-XX-DR-C-0100-20	P04
General Arrangement Sheet 21 of 30	O2B-ARU-XX-XX-DR-C-0100-21	P04
General Arrangement Sheet 22 of 30	O2B-ARU-XX-XX-DR-C-0100-22	P04
General Arrangement Sheet 23 of 30	O2B-ARU-XX-XX-DR-C-0100-23	P04

Appendix B – Problem Locations

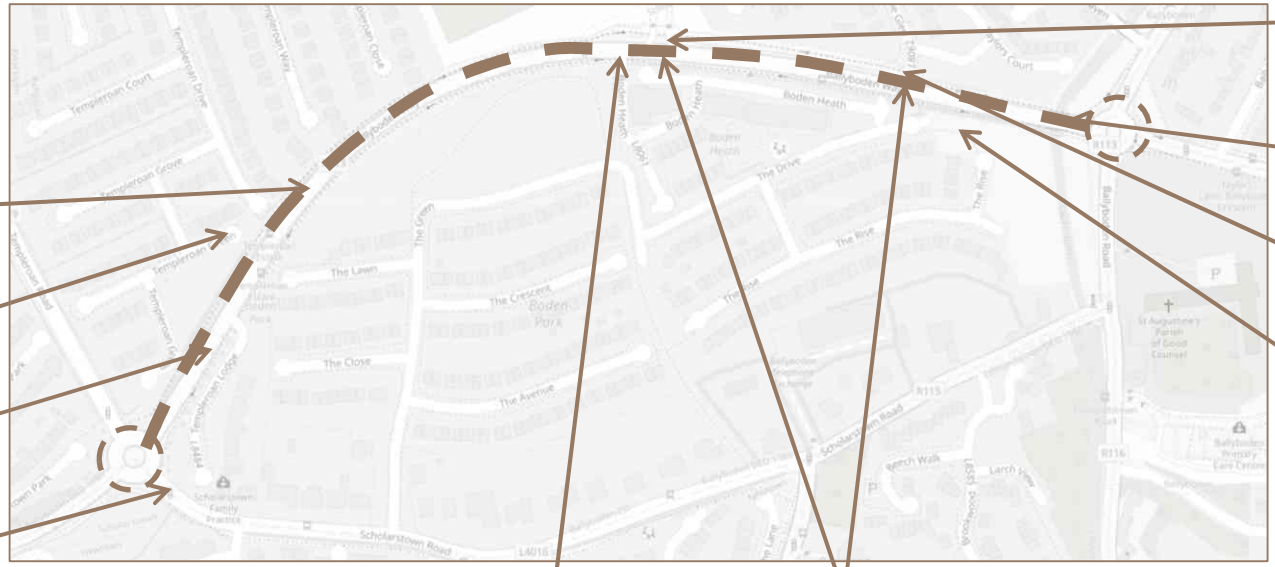
General Problem 3.1

General Problem 3.2

General Problem 3.3

General Problem 3.4

General Problem 3.5



Problem 3.9

Problem 3.8

Problem 3.7

Problem 3.6

Problem 3.12

Problem 3.15

Problem 3.13

Problem 3.14

Problem 3.10

Problem 3.11