



Appendix I1
Accessibility Audit Report

National Transport Authority
**Templeogue/Rathfarnham to City
Centre Core Bus Corridor Scheme**
Accessibility Audit Report

268401-00

Issue | 06 January 2022

This report takes into account the particular instructions and requirements of our client.

It is not intended for and should not be relied upon by any third party and no responsibility is undertaken to any third party.

Job number 268401-00

Ove Arup & Partners Ireland Ltd

Arup
50 Ringsend Road
Dublin 4
D04 T6X0
Ireland
www.arup.com

ARUP

Contents

	Page	
1	Introduction	1
	1.1 Introduction	1
	1.2 Report Structure	5
2	Section 1 – Tallaght Road, Templeogue Road to Rathfarnham Road	6
	2.1 Description of the Route	6
	2.2 Problem Identification	7
3	Section 2 - Nutgrove Avenue to Terenure Road North – Grange Road, Rathfarnham Road	14
	3.1 Description of the Route	14
	3.2 Problem Identification	15
4	Section 3 - Terenure Road North to Charleville Road – (Including Terenure Road North Alternative Cycle Route);	23
	4.1 Description of the Route	23
	4.2 Problem Identification	23
5	Section 4 - Charleville Road to Dame Street	33
	5.1 Description of the Route	33
	5.2 Problem Identification	34
6	Conclusions	44
	6.1 Accessible Parking	44
	6.2 Access Routes on Footpaths	44
	6.3 Drainage	44
	6.4 Guardrails	44
	6.5 Pedestrian Crossing Points	44
	6.6 Controlled and Uncontrolled Crossings	44
	6.7 Changes in Level	44
	6.8 Shared pedestrian/cyclist areas	45
	6.9 Surface Material	45
	6.10 Street Furniture	45

1 Introduction

1.1 Introduction

Arup has been commissioned by the National Transport Authority to carry out an Accessibility Audit of the existing Templeogue/Rathfarnham to City Centre Core Bus Corridor Scheme (hereinafter referred to as ‘the Proposed Scheme’). An Accessibility Audit is an assessment of a building, the external environment, or a service to benchmark its accessibility for disabled people.

The Disability Act 2005 places a statutory obligation on public service providers to support access to services and facilities for people with disabilities. This report assesses the existing access support along the Scheme route, identifies any area not complying with standards or guidance, and makes recommendations to address these issues. The report sets out design criteria considered imperative to facilitate people with disabilities as they interact with the external environment, including structures, people and services.

The Proposed Scheme is broken down into four separate sections for the purpose of this report, these sections are listed below:

- **Section 1:** Tallaght Road to Rathfarnham Road;
- **Section 2:** Nutgrove Avenue to Terenure Road North;
- **Section 3:** Terenure Road North to Charleville Road (Including Terenure Road North Alternative Cycle Route); and
- **Section 4:** Charleville Road to Dame Street.

The extents of each of these Scheme sections are indicated in Figure 1-4 below.

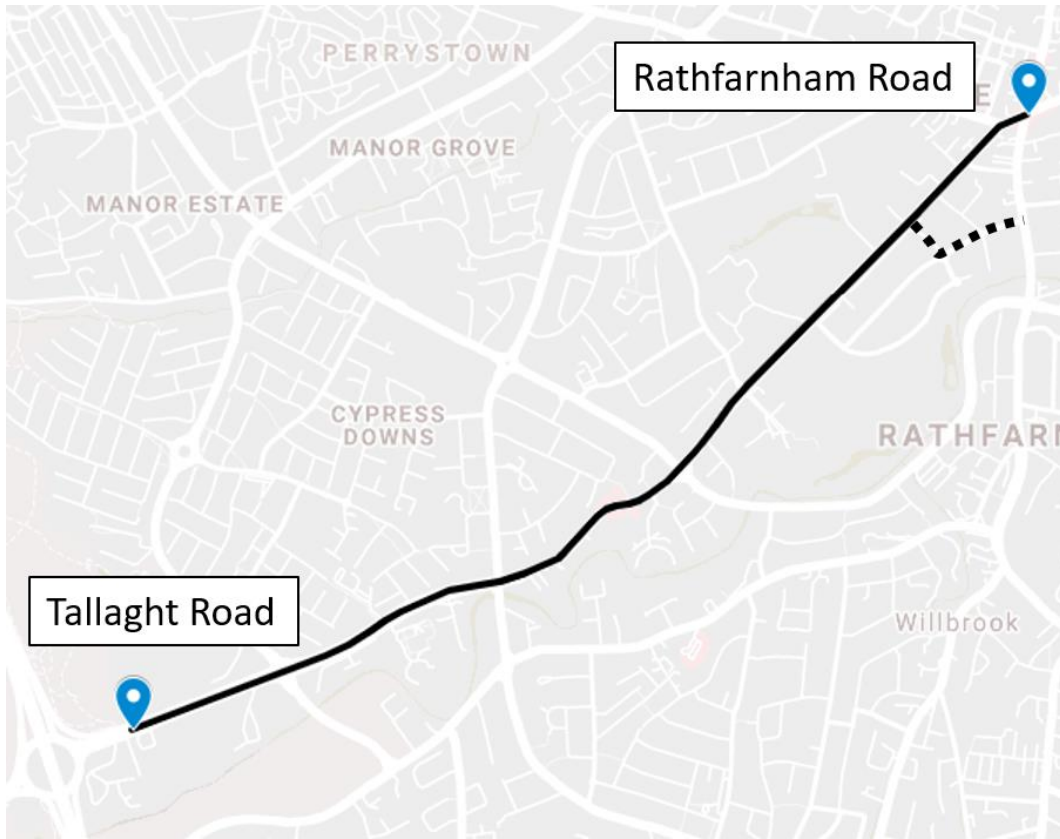


Figure 1: Section 1 - Tallaght Road to Rathfarnham Road (Google ©)

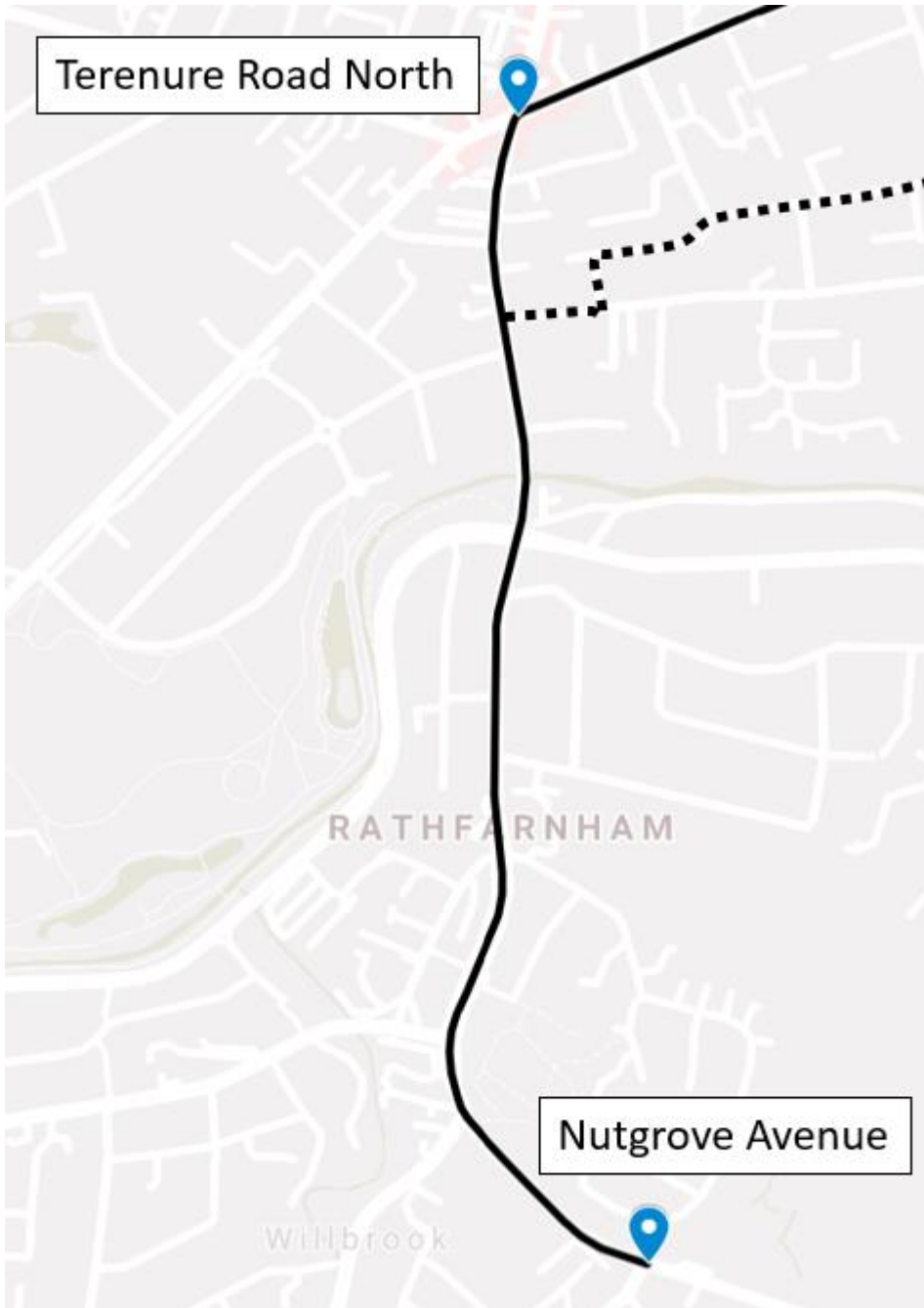


Figure 2: Section 2 - Nutgrove Avenue to Terenure Road North (Google ©)

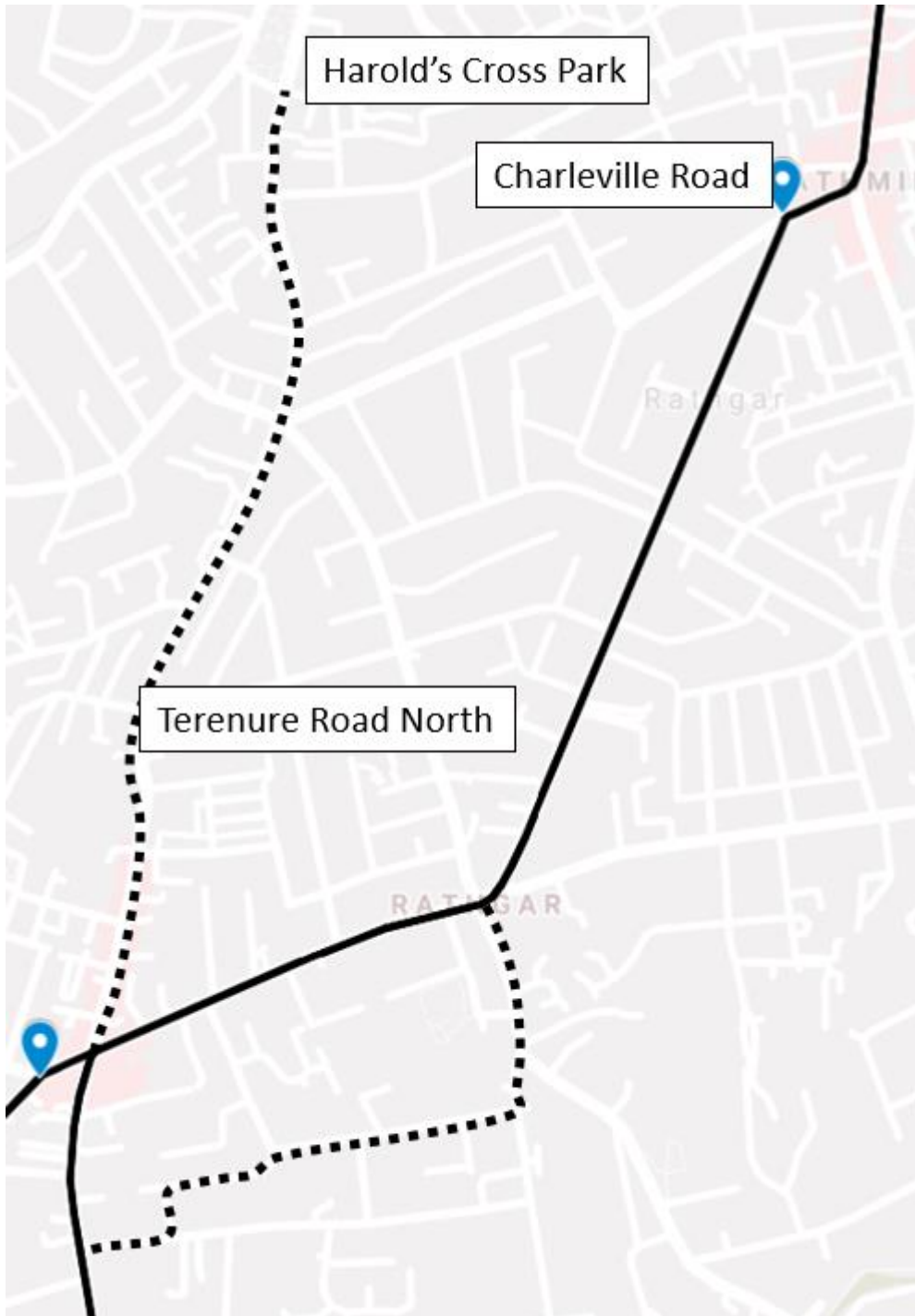


Figure 3: Section 3 - Terenure Road North to Charleville Road (Including Terenure Road North Alternative Cycle Route);(Google ©)

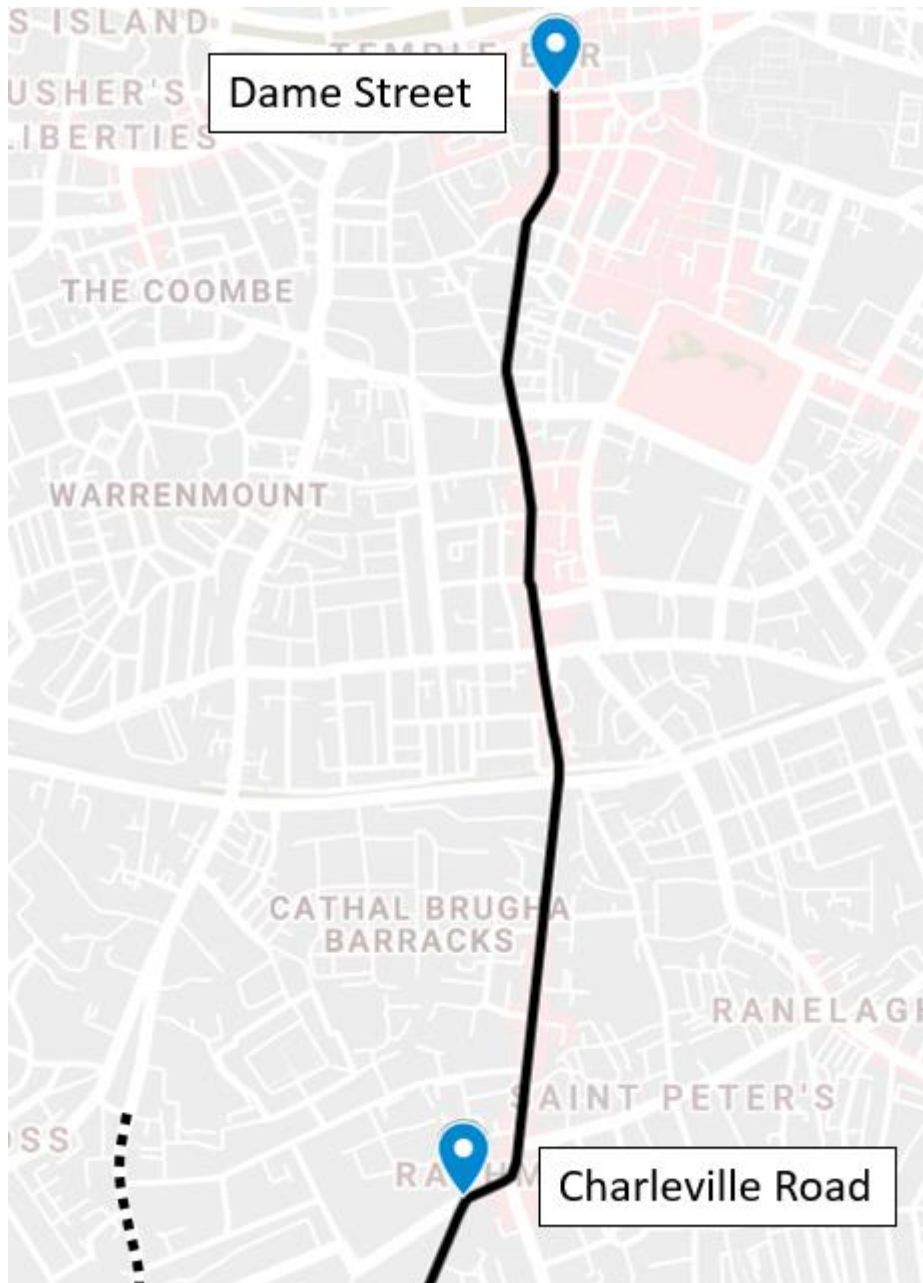


Figure 4: Section 4 - Charleville Road to Dame Street (Google ©)

1.2 Report Structure

Within each of the five sections the recommendations for assessing the existing street infrastructure and its ability to support access for disabled users have been adopted mainly from the Irish Wheelchair Association [IWA] 'Best Practice Guidelines, Designing Accessible Environments' and The National Disability Authority's [NDA] 'Building for Everyone: A Universal Design Approach'.

The report concludes with global design considerations to be adopted for the detailed design of the Proposed Scheme.

2 Section 1 – Tallaght Road, Templeogue Road to Rathfarnham Road

2.1 Description of the Route

The Templeogue to Terenure section commences on the Tallaght Road adjacent to D’Arcy McGee’s, east of the M50 interchange.

It is proposed to retain the existing bus lane configuration on the R137. It is proposed to provide the cycle track on the carriageway side of the footpath to better tie in with proposals at the Wellington Lane Roundabout. It is proposed to convert this junction to a signalised junction with kerb protection for cyclists.

Between the Wellington Lane Roundabout and Cypress Grove Road junction, a cycle track is proposed on the carriageway side of the footpath, with existing bus lane provision maintained through this section. At the Cypress Grove Road junction, general through traffic may divert to Old Bridge Road for access to the City Centre via the R114. Significantly enhanced cycle facilities are also provided at this junction with the introduction of kerb protection.

Between the Cypress Grove Road junction and the Ashfield Place development it is proposed to provide bus lanes and traffic lanes in each direction. Dedicated cycle facilities are provided on the approach to the Cypress Grove Road junction. To improve safety for cyclists, it is proposed to introduce a 30kph speed limit between Cypress Grove Road and Templeogue Village. Outside the Ashfield Place Development, there is insufficient space for a bus lane and a general traffic lane in each direction. Therefore, it is proposed to stop the outbound bus lane for a distance of approximately 200m and use Signal Controlled Priority along this section.

Between Ashfield Place and the Templeogue Tennis Club, it is proposed to provide a bus lane and a general traffic lane in each direction. It is proposed to utilise a limited amount of land-take within this section to achieve the desired cross-section.

Within Templeogue Village, between Templeogue Tennis Club and the Templeville Road junction, it is proposed to manage bus priority through the use of Signal Controlled Priority and tie into the Templeogue Village Improvement Scheme. As such no works are proposed in Templeogue Village.

North of Templeogue Village, the full cross section is resumed. It is proposed to utilise a limited amount of land-take within this section to achieve the desired cross-section.

At the junction with Templeville Road, general inbound through traffic may divert to the R112 and further to the R114. It is proposed to introduce kerb protection at this junction which will significantly improve cycle facilities and cyclist safety.

Between Templeville Road junction and Fortfield Road it is proposed to provide one bus lane, one general traffic lane and cycle tracks in each direction.

The Fortfield Road junction is intended to be upgraded to provide a direct cycle crossing for inbound cyclists to the two-way cycle facility on the eastern side of Templeogue Road north of the junction.

Between Fortfield Road and Terenure Road West, the Templeogue Road width is heavily constrained. On this section of the route, it is proposed to maintain one outbound bus lane, one outbound general traffic lane and one inbound general traffic lane. It is proposed to provide a footpath on the western side of Rathdown Drive which will provide a continuous footpath on the eastern side of Templeogue Road between Terenure and Templeogue.

It is intended to introduce the inbound bus lane for a section north of Olney Grove. Through the introduction of a Bus Gate with a short section of bus lane at the junction of Olney Grove, northbound general traffic on Templeogue Road will not be permitted to access Terenure Road West or Terenure Place during the hours of operation of the Bus Gate. A right turn ban is proposed from Fergus Road to Templeogue Road, and a left turn ban from Olney Grove to Templeogue Road.

Right turn bans are also proposed from Templeogue Road to Rathdown Park and to Rathdown Avenue. A quiet street treatment to Rathdown Crescent is intended to tie into the proposed quiet street treatment on Rathdown Park as part of the Rathfarnham to City Centre section.

The Templeogue to Terenure section ties into the Rathfarnham to City Centre section at the Rathfarnham Road/Terenure Road West junction.

2.2 Problem Identification

2.2.1 Accessible Parking – On-Street Disabled Parking Spaces

No accessible car parking bays were noted along the proposed scheme. It is however noted that one accessible parking bay is present in Templeogue Village but this area is not included within the proposed scheme extents.

2.2.2 Access Routes – General

The northern footpath along Tallaght Road and leading on to Templeogue Road is a shared bicycle/pedestrian facility. The shared facility is approximately 3.7m wide (2.2m for the cycle track and 1.5m for the footpath) and runs alongside the carriageway until the entrance to the Contract Bridge Association of Ireland, where it is split by a grassy verge. The cycle and pedestrian paths cross over twice more before the cycle track eventually ends and joins the vehicular carriageway, at the junction with Corrybeg. There is no footpath on the southern side of Tallaght Road until Bus Stop 2551. Thereafter, the footpath is approximately 5m wide before narrowing significantly to approximately 1.25m.

After the junction with Cypress Grove Road, the footpath on both sides of Templeogue Road is relatively wide, this continues as the road travels east as far as the junction with Springfield Avenue.

The northern footpath between Springfield Avenue and the end of this section of the scheme at Rathfarnham Road has a relatively constant width (1.5m approx.).

The southern footpath runs as far as Bus Stop 1124, before it ends. Pedestrians are redirected to use the footpath on Rathdown Drive, which runs parallel with Templeogue Road, for approximately 400m. before the footpath on Templeogue Road becomes wide enough for pedestrian use again, as shown in Figure 5.



Figure 5: Footpath at Templeogue Road becomes too narrow for pedestrians to navigate for approximately 400m

2.2.3 Access Routes – Drainage

Footpaths along the route have been constructed with reasonable crossfall and their surfaces are generally in good condition. Rainwater gullies were noted at regular intervals along the route. The quality of the road surface along the entire route is quite good, and in general gullies are in good condition. No blocked or sunken gullies were noted along the route. Evidence of replaced or repaired gullies was observed, in some cases the surrounding surface material, cut to fit a new gully, was in poor condition.

2.2.4 Access Routes – Guardrails

Pedestrian guardrails have been noted along this route, primarily at narrow sections of footpaths, or areas where pedestrians are likely to congregate such as bus stops. They are used on Templeogue Road, at the busy junctions with Springfield Avenue and Cypress Grove Road, on both footpaths and pedestrian islands. They are also located at pedestrian crossing points on Tallaght Road and Templeogue Road at the Contract Bridge Association of Ireland.

The guardrails along the southern footpath of Templeogue Road, west of the junction with Rathdown Park should be removed. The footpath at this location is relatively narrow and the guardrails reduce the effective width of the footpath to less than 1m. The guardrails do not appear to serve a specific function at this location, as there is no entrance/exit perpendicular to the footpath at this location.

Pedestrian guardrails are often located where the vehicular carriageway tapers to become wider or narrower however the carriageway remains constant width across the length of the guardrail.

Similar guardrails are located across the road on the northern footpath as seen in Figure 6, suggesting the locations were previously used as bus stops, for example.



Figure 6: Guardrails - Templeogue Road

2.2.5 Pedestrian Crossing Points

Pedestrian crossing points are present at all of the major intersections along the route – Wellington Lane, Cypress Grove Road, Springfield Avenue, Fortfield Road, Rathdown Avenue and Terenure Road West. All of these are controlled crossings, featuring dropped kerbs. The width of these crossings varies; however, most are greater than 2m wide. Tactile paving is present at each of these crossings however, the crossing on the southern footpath of Templeogue Road at the intersection with Cypress Grove Road/Old Bridge Road has been repaired with asphalt as shown in Figure 7. The asphalt has been used to adjust the height of the tactile paving surface, which has sunken below that of the surrounding concrete. The majority of the tactile surface is now covered by asphalt as a result.



Figure 7: Pedestrian Crossing - Templeogue Road

2.2.6 Controlled and Uncontrolled Crossings

There are a number of controlled crossings along the proposed scheme. The crossing of Templeogue Road near Templeogue Wood is divided by the central median, which acts as refuge island. Both sections of the crossing are signalled, with audible push button units and tactile paving installed. Pedestrian guardrails provide an enclosed area for waiting, with a minimum width of 2m, which provides sufficient room for the visually or mobility impaired to pass other pedestrians travelling in the opposite direction. Refuge islands are also noted at the Cypress Grove Road and Springfield Avenue, both are fitted with audible pushbutton units and tactile pavement. The pedestrian crossing at the junction with Fortfield Road features a refuge island, as shown in Figure 8. Unlike the other refuge islands along the route, the island itself is uncontrolled and is therefore intended for use by those who cannot make it across the road in a reasonable time. The width of the island, (1.35m approx.) does not provide enough comfort to the pedestrians who may be waiting there, many of them likely to be vulnerable road users.



Figure 8: Controlled Crossing - Templeogue Road

A controlled crossing on Templeogue Road near Lakelands Park provides access from the northern side of the road to Rathdown Drive, through a narrow gap in the masonry wall that separates Templeogue Road from the large grassy verge as shown in Figure 9. The southern footpath includes tactile paving and an audible pushbutton unit, as well as pedestrian guardrails which have been positioned to slow progress from Rathdown Drive to the crossing. Given the narrow footpath at this location, this is an important intervention.



Figure 9: Controlled Crossing - Templeogue Road

2.2.7 Tactile Paving Surfaces

As mentioned in sections 2.2.5 and 2.2.6, tactile pavement is used throughout the pedestrian crossings along this route. Red blister paving slabs are used at all controlled crossings. An asphalt patch repair was noted on the tactile paving at Cypress Grove Road, the surface of this repair is in poor condition.

2.2.8 Changes in Level

There are no significant changes in level along this route.

2.2.9 Shared Spaces, Shared Surfaces

A shared cyclist and pedestrian path runs along the northern footpath from the beginning of the scheme at the M50 interchange and runs for approximately 1km along Tallaght Road and Templeogue Road before the cycle track joins the vehicular carriageway as shown in Figure 10. The cycle track begins as two-way, before transitioning to single direction after the entrance to the Contract Bridge Association of Ireland. The combined width of the shared path is approximately 3.7m (2.2m width for the two-way cycleway and 1.5m width for the pedestrian walkway). The shared space is divided by a painted solid line. A red, non-slip surfacing has been applied on the cycle track section of the cast in situ concrete path. The concrete is left exposed on the pedestrian section of the path, providing a visual indication of the shared space's subdivisions.

A similar shared cyclist/pedestrian space runs along the southern footpath on Templeogue Road, from the junction with Old Bridge Road to the entrance to Cheeverstown (approximately 350m).



Figure 10: Shared Spaces - Tallaght Road

2.2.10 Surface Material

The surface material along the route is predominantly cast in-situ concrete. Both footpaths feature wide grassy verges from the beginning of the scheme up to Cypress Grove Road. Some parts of the footpath along this section have a concrete paving tiled surface, with concrete kerbs. Both the tiles and kerbs are in poor condition. The grout between kerb stones has deteriorated in many places.

The southern footpath immediately east of the Village is asphalt. The various surfaces are shown in the Figure 11 and Figure 12.



Figure 11: Surface Material - Templeogue Road



Figure 12: Surface Material - Templeogue Road

2.2.11 Street Furniture

The route from the M50 interchange as far as Templeogue village has relatively wide footpaths, with infrequent street furniture.

Street lighting and traffic sign poles are set within the grassy verge on Tallaght Road and Templeogue Road as far as Cypress Grove Road. Thereafter, poles are located to the back of the footpath, therefore having the least possible impact on the effective width of the footpath.

Beyond Templeogue Village, the density of street furniture is similar but when combined with narrow footpaths, pinch-points are created at regular intervals reducing the effective width and causing undue difficulty of passage to the mobility and visually impaired. An example is shown in Figure 13.



Figure 13: Street Furniture - Templeogue Road

3 Section 2 - Nutgrove Avenue to Terenure Road North – Grange Road, Rathfarnham Road

3.1 Description of the Route

The Rathfarnham to City Centre section commences at the junction of Grange Road and Nutgrove Avenue, where it will tie into the Grange Road Cycle scheme. Between this junction and the Castleside Drive junction it is intended to provide a single bus lane alongside general traffic lanes and cycle tracks in both directions.

On the section of Rathfarnham Road between Castleside Drive and Dodder Park Road, it is proposed to provide an inbound bus lane, two general traffic lanes and a 1.5m wide outbound cycle track, with outbound bus priority provided through signal-controlled priority. The inbound cycle track will be curtailed over an approximately 270m long section, with cyclists sharing with the bus. A section of inbound cycle track will be provided at either end of this section, on approach to junctions.

To maintain bus priority through the Dodder Park Road and Rathfarnham Road junction, it is intended to provide signal-controlled priority on the southern and northern approaches to the junction.

Between Dodder Park Road and Rathdown Park, it is proposed to provide bus priority through a combination of signal-controlled priority and partial bus lanes, with 1.5m wide cycle tracks provided on the CBC. Between Rathdown Park and Bushy Park Road, it is intended to maintain bus priority by providing signal-controlled priority in both directions and managing traffic queues in this area.

From Bushy Park Road to Terenure Road North it is proposed to provide cycle tracks, bus lanes and traffic lanes in both directions. At the Terenure Road North junction it is intended to extend the existing bus lane and proposed cycle track as far as the junction stop line. Bus movements through this junction will be managed with signal-controlled priority.

3.2 Problem Identification

3.2.1 Accessible Parking – On-Street Disabled Parking Spaces

Along this section of the route, an on-street disabled parking facility was identified at Rathfarnham Road (northbound) at the junction with Terenure Place. This was the only disabled parking space identified along this section of route however, vehicles parked during the audit may have occupied dedicated disabled parking spaces.

The parking space at Rathfarnham Road is approximately 4.9m in length and 1.9m wide. The parking space is ‘pay and display’ and provides access to nearby retail outlets.

3.2.2 Access Routes – General

Existing footpaths along this section of the route range from approximately 2m minimum width along Grange Road and Rathfarnham Road, increasing to a maximum of approximately 3.5m at the junction with Fergus Road, and reaching a minimum of approximately 1.6m at the junction with Westbourne Road. The existing footpath width along the western side of this section provides adequate space for disabled users, however there are physical constraints throughout this section including inappropriately placed street furniture, and vehicle restraint systems at busy intersections.

The eastern footpath along grange is a shared pedestrian and cyclist facility, approximately 3m wide.

This transitions to a 3m wide pedestrian footpath at Willbrook Road and retains this width until the junction with Mainstreet where it reduces to approximately 2m. The eastern footpath along this section of the route is less constrained than the western footpath, due to less on-street retail outlets and a generally wider path.



Figure 14: Street Furniture creating pinch point on narrow footpath, Rathfarnham Road

3.2.3 Access Routes – Drainage

Only minor drainage issues arose along this section of the route. Local incidences of sunken gullies leading to ponding of rainwater and associated debris were observed. As well as this, they are particularly hazardous for cyclists using the road.

The surface of both footpaths was generally in good condition, with an appropriate crossfall gradient.

3.2.4 Access Routes – Guardrails

Pedestrian Guardrails have been observed along this section of the route, primarily at intersections, adjacent to pedestrian crossings. Guardrails were also noted at the pedestrian entrance/exit to St Mary's Boys' National School on Grange Road, at the pedestrian entrance to Rathfarnham Castle Park as shown in Figure 15, and at the junction between Grange Road and Willbrook Road. These guardrails are at strategic locations to prevent errant vehicles from mounting the kerb and to prevent vulnerable pedestrians such as children or the visually impaired from erroneously stepping onto the road.



Figure 15: Guardrails -Rathfarnham Castle Park

At most of these locations, the width of the footpath is generous enough to accommodate disabled users, even with the reduced effective width caused by the pedestrian guardrails. The western footpath through the Grange Road – Willbrook Road Junction has guardrails and street furniture at a tight geometry which could prove difficult for disabled users to navigate as shown in Figure 16.



Figure 16: Guardrails – Grange Road

3.2.5 Pedestrian Crossing Points

All pedestrian crossings along this section have dropped kerbs installed with painted road markings in most instances indicating the route across the road.

At some of the wider crossings along this section, a pedestrian island is provided in the road's median. All but one of these pedestrian islands lacked pedestrian guardrails and sufficient space for safe waiting to cross the road. The pedestrian crossing to the north of Butterfield Avenue is the only example along this section where there is adequate space for pedestrians to wait in the central median.

The pedestrian island at the junction between Rathfarnham Road and Main Street is approximately 1.4m wide and has no pedestrian guardrail as shown in Figure 17. The narrow island has been dropped to road level at the intersection with the pedestrian crossing, further reducing the safety of waiting pedestrians. The dropped level section is approximately 2m wide. This same arrangement has been used in the intersection between Rathfarnham Road and Bushy Park Road.



Figure 17: Pedestrian Crossing Point - Rathfarnham Road

3.2.6 Controlled and Uncontrolled Crossings

Controlled crossings have dropped kerbs, orientated in the direction of crossing. Some controlled crossings have been divided into two, with a central median provided for pedestrians to wait on. This is generally done where the crossing is too wide to accommodate the mobility impaired during one pedestrian signal lighting.

There is only one uncontrolled crossing along this section, where Rathfarnham Road intersects with Terenure Place. Painted road markings and dropped kerbs are in place, however this crossing also features a narrow island (1.2m approx.) at a busy intersection. Inadequate space is provided for safe waiting for mobility impaired pedestrians.

3.2.7 Tactile Paving Surfaces

All controlled crossings feature tactile paving surfaces on both footpaths. The pedestrian island to the Rathfarnham Castle car park also features tactile paving as shown in Figure 18.

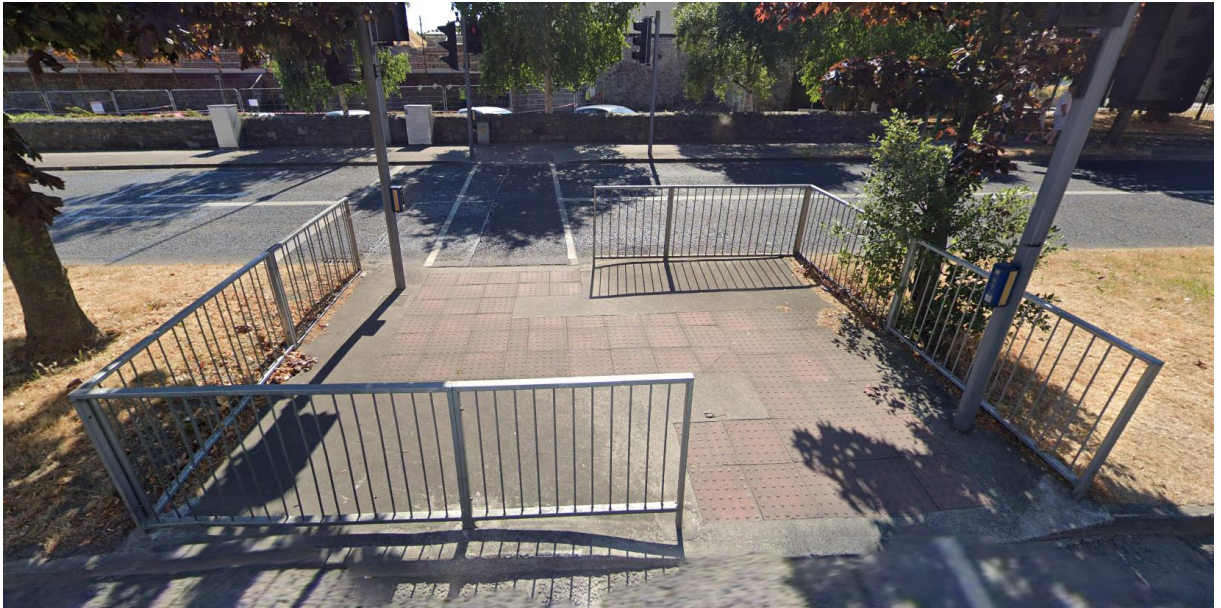


Figure 18: Tactile Paving - Rathfarnham Road

All other pedestrian islands feature either a standard in-situ concrete dropped kerb or have had their paving removed entirely to lower them to road level. Tactile paving tiles should be installed at all pedestrian crossings. Where the crossings are controlled, red blistered paving tiles should be installed across the entire width of footpath. Buff-coloured cobble lock should be installed at uncontrolled crossings.

3.2.8 Changes in Level

There are no significant changes in level along this section.

3.2.9 Shared Spaces, Shared Surfaces

There is a shared Cyclist/Pedestrian facility along the eastern footpath of the section between Rathfarnham Wood and the junction with Willbrook Road, approximately 2.8m wide and extending from the junction of Grange Road and Nutgrove Avenue north for approximately 230m. The shared facility is currently wide enough to accommodate a single file of cyclists and pedestrians. Further north, there is a dedicated on-street cycle lane. Cyclists using this lane before transitioning to the shared facility should be naturally slowed to a safer speed while using the shared facility.

3.2.10 Surface Material

The footpath surface material along this section is generally in-situ concrete, often with precast concrete kerbs. There are instances of concrete paving or asphalt however, in-situ concrete is the predominant material.

Asphalt and concrete have both been used as materials to make patch repairs along both footpaths. In some instance this has led to undulating, uneven surfaces caused by settlement of the patch repair material.

This is a hazard to pedestrians and cyclists. The junction between Rathfarnham Road and Crannagh Road is a particularly poor example of patch repair, where asphalt has been poured onto a raised kerb to produce the effect of a lowered kerb as shown in Figure 19.



Figure 19: Surface Material - Rathfarnham Road

3.2.11 Street Furniture

Street Furniture is present at varying densities throughout the length of this section. The most common street furniture is traffic signage and signalling poles, usually located toward the edge of the footpath. An example is shown in Figure 20.



Figure 20: Street Furniture – Grange Road

Public lighting poles usually appeared at the edge of the footpath or at the back of the footpath, though there were also instances where public lighting poles were closest to the centre of the footpath. This greatly reduces the effective width of the footpath, making passage difficult for the mobility impaired.

Bollards are used along Rathfarnham Road near the junction with Main Street to prevent vehicle access onto the footpath as shown in Figure 21. The footpath is suitably spacious, and the bollards are well spaced out, and would therefore be unlikely to cause difficulty to the mobility impaired. Bollards suitably spaced (over 1.8m) are appropriate.



Figure 21: Street Furniture – Rathfarnham Road

There are multiple instances of street furniture ‘clusters’ such as those shown in Figure 22 below. Often, these clusters coincide with a pedestrian crossing or busy intersection, or as in (b), the beginning of the shared cycle/pedestrian facility.



Figure 22: (a-d clockwise from top left): Examples of street furniture clusters. Where the footpath is wide enough, clusters do not obstruct passage, despite negative interactions (b,c). Elsewhere, the position of clusters of street furniture should be reconsidered (a,d)

Frequently, the street furniture alternates between being closer to the edge of the footpath and being closer to the back of the footpath, in quick succession (see Figure 23) which presents an added challenge for the mobility and visually impaired. This is an example of negative interaction between street furniture. Instances of negative interaction between street furniture should be rectified to ensure a clear path is maintained. Signage and street lighting poles should be placed either at the edge of the footpath or the back, not a combination of both.



Figure 23: Street Furniture – Rathfarnham Road

4 Section 3 - Terenure Road North to Charleville Road – (Including Terenure Road North Alternative Cycle Route);

4.1 Description of the Route

Between the Terenure Road North junction and St. Joseph's Church, it is proposed to provide a single general traffic lane in each direction. Bus priority will be provided through this section by signal-controlled priority. The proposed layout will allow for the footpaths to be widened and provide opportunity for urban realm improvements.

Between St. Joseph's Church and the Rathgar Avenue junction it is intended to provide a bus lane and general traffic lane in both directions. It is proposed to provide an alternative cycle facility consisting of cycle tracks in each direction along Terenure Road North and Harold's Cross Road, connecting to the Kimmage to City Centre CBC at Harold's Cross. An additional alternative cycle facility is proposed along Bushy Park Road, Wasdale Park, Wasdale Grove, Victoria Road, Zion Road and Orwell Road to provide a secondary east-west route for cyclists travelling between the CBC on Rathfarnham Road and Rathgar Road.

At Rathgar Avenue, it is proposed to maintain bus priority through the junction with signal-controlled priority.

Along Rathgar Road it is proposed to provide bus lanes and cycle tracks in each direction and a one-way inbound general traffic lane only. Local access for residents on Rathgar Road and adjoining streets can be maintained through the surrounding road network via Rathgar Avenue or Rathmines Road Upper including Frankfort Avenue, Leicester Avenue, Garville Avenue, Garville Road, and Highfield Road.

It is proposed to remove the current right turn ban from Rathmines Road Upper to Highfield Road as well as the right turn ban from Highfield Road onto Rathgar Road.

4.2 Problem Identification

4.2.1 Accessible Parking – On-Street Disabled Parking Spaces

Along this section of the route, an on-street disabled parking facility was identified on Terenure Road East (westbound) at the junction with Terenure Orwell Road. This was the only disabled parking space identified along this section of route however, vehicles parked during the audit may have occupied dedicated disabled parking spaces.

The parking space at Rathfarnham Road is approximately 5.7m in length (excluding chamfered region) and 1.4m wide as shown in Figure 24. The parking space is 'pay and display' and provides access to nearby retail outlets.

The angled chamfer of the footpath to accommodate the parking space facilitates easier entrance and exit into what is a relatively narrow space.



Figure 24: Disabled parking space with adjacent street furniture

Bollards and other street furniture surround the space and may cause difficulty exiting the vehicle on the side of the footpath. Exiting the vehicle on the driver's side is hazardous due to the narrow width of the space and the proximity to westbound traffic.

4.2.2 Access Routes – General

Existing footpaths range from a minimum of approximately 1.3m at the pinch point where Terenure Road East widens from 2 lanes to 3, to approximately 3.75m on the western footpath of Rathgar Road, before the junction with Garville Avenue.

4.2.3 Access Routes – Drainage

Along this section of the route, no drainage issues were observed. Gullies were generally in good condition and sat flush with the road surfacing. No excessive debris or blocked gullies were observed.

The surface of both footpaths was generally in good condition, with an appropriate crossfall gradient.

4.2.4 Access Routes – Guardrails

Pedestrian Guardrails have been observed along this section of the route, primarily at intersections, adjacent to pedestrian crossings. Guardrails were noted at the pedestrian entrance to St Joseph's Church on Terenure Road East, next to a pedestrian crossing.

The footpath is approximately 2.7m wide at this location, providing sufficient room for the mobility or visually impaired to pass pedestrians travelling in the opposite direction, within the confines of the guardrail. Similarly, Guardrails have been installed on the southern footpath of Terenure Road East, near the junction with Orwell Road, and on the western footpath of Rathgar Road close to the junction with Grosvenor Road as shown in Figure 25. The footpath is sufficiently wide at these locations (2.2m approx. and 2.4m approx. respectively).

Guardrails are also installed at the pinch point where Terenure Road East widens from 2 to 3 traffic lanes, tapering the footpath to a minimum width of approximately 1.3m. The guardrails at this location are necessary to protect pedestrians from errant westbound vehicles that do not slow to merge into the 2-traffic lane configuration and as a result, mount the kerb. However, there is insufficient room for the mobility or visually impaired to pass another pedestrian travelling in the opposite direction.



Figure 25: Guardrails – Rathgar Road

4.2.5 Pedestrian Crossing Points

Pedestrian crossings along this section of the route are all fitted with dropped kerbs however, the dropped kerb at the pedestrian crossing on Terenure Road East, at the junction with Rathfarnham Road is in poor condition as shown in Figure 26. The bevelled edge is damaged and poses a tripping hazard for all pedestrians, especially the mobility or visually impaired.



Figure 26: Pedestrian Crossing Point – Terenure Village

Two pedestrian crossings along this section of route feature pedestrian refuge islands. The island at the junction of Terenure Road East and Rathgar Road is approximately 1.5m wide and has no pedestrian guardrail. The narrow island has been dropped to road level at the intersection with the pedestrian crossing as shown in Figure 27. The dropped level section is approximately 2.3m wide.

The island provides minimal protection to waiting pedestrians from vehicles turning on to Rathgar Road from Rathgar Avenue or Orwell Road, particularly those with a mobility impairment that requires the use of a wheelchair.



Figure 27: Pedestrian Crossing Point – Rathgar Village

The pedestrian island at the crossing between Rathgar Road and Grosvenor Road is approximately 2.4m wide and features pedestrian guardrails as shown in Figure 28.

The longitudinal distance between the 2 sections of the crossing is approximately 6m, which provides sufficient space for the mobility impaired and other pedestrians to safely wait before completing the crossing however, the narrow channel this distance creates may prove difficult for the mobility impaired and other pedestrians travelling in opposite directions to navigate past each other.



Figure 28: Pedestrian Crossing Point – Rathgar Road

4.2.6 Controlled and Uncontrolled Crossings

Controlled crossings have dropped kerbs, orientated in the direction of crossing. Some controlled crossings have been divided into two, with a central median provided for pedestrians to wait on. This is generally done where the crossing is too wide to accommodate the mobility impaired during one pedestrian signal lighting.

One uncontrolled crossing was observed along this section of the route, on Terenure Road East, at the junction with Rathfarnham Road.

4.2.7 Tactile Paving Surfaces

All controlled crossings feature tactile paving surfaces on both footpaths. The pedestrian island at the junction between Rathgar Road and Grosvenor Road features tactile paving surfaces in both directions.

The uncontrolled crossing on Terenure Road East, at the junction with Rathfarnham Road does not feature tactile paving.

4.2.8 Changes in Level

There are no significant changes in level along this section of the route.

4.2.9 Shared Spaces, Shared Surfaces

There are no designated shared spaces along this section of the route.

4.2.10 Surface Material

Footpath surface material along this section of route is predominantly concrete – either precast paving tiles and kerbs or cast in situ concrete. There are multiple instances of patch repair work, where surface material has been broken out and replaced, either by in-situ concrete or asphalt. The quality of these patch repairs varies from acceptable to inadequate.

Poor-quality asphalt patch repairs were noted at Terenure Road East southern footpath), immediately west of the junction with Ferrard Road. The surface of the repair is uneven, with asphalt protruding past the raised kerb, forming a bevel that leads directly out onto the adjacent cycle track. This is a tripping hazard and could potentially cause a visually impaired person to mistake the bevel for a lowered kerb. Examples of surface material in this section are shown in Figure 29 (a-b) below.



Figure 29 (a-b): Surface Material

4.2.11 Street Furniture

Furniture was noted throughout this section of the route. Bollards are installed on both footpaths on Terenure Road East, adjacent to the junction with Terenure Road North and Rathfarnham Road. The footpath is approximately 2m wide on the northern side of the road, which provides enough room for the mobility impaired to pass, however the footpath is narrower on the southern side of the road, approximately 1.5m. The effective width of the footpath is reduced by the bollards. There are further bollards on the northern footpath adjacent to the entrance to the Aldi supermarket. The bollards are installed to the back of designated footpath, providing a 2.2m width between the edge of the kerb and the bollards.

Similar to the previous section of the route, there are multiple examples of street furniture clusters that unnecessarily crowd the footpath, reducing the effective width and causing undue difficulty of passage to the mobility and visually impaired. An example of street furniture in this section is shown in Figure 30.



Figure 30: Street Furniture – Terenure Road East

4.2.12 Bushy Park Road / Wasdale Park / Victoria Road / Zion Road and Orwell Road

This section of the scheme is proposed to cater for an alternative cycle route by means of a quiet street treatment which will consist of minor works to the road.

Footpaths along this section of the scheme are generally 1.5 - 2m in width but the width is restricted in places due to street furniture or mature trees as can be seen in Figure 31.



Figure 31: Footpath on Bushy Park Road

The condition of the footpath along this section varies in quality but is generally considered to be adequate.

The section of this scheme through Wasdale Park and Victoria Road is provided in a residential neighbourhood setting and the road is traffic calmed throughout by the use of raised tables and ramps to control speeds. There are a number of side road crossings along this section but no tactile paving has been provided to assist visually impaired users as can be seen in the example in Figure 32. There are similar instances of this at side road crossings on Orwell Road.



Figure 32: Uncontrolled Crossing on Victoria Road

4.2.13 Terenure Road North to Harold's Cross Park

There are areas along this section where the footpath width is narrow, and this coupled with a combination of poor street furniture placement can make these areas difficult for mobility impaired users to navigate safely as shown in Figure 33.



Figure 33: Street Furniture on Harold's Cross Road

Some crossings in this section are poorly laid out for mobility impaired users, with poor demarcation between footpath and carriageway as shown in Figure 34, or not at the correct angle as shown in Figure 35.



Figure 34: Uncontrolled Crossing on Terenure Road North



Figure 35: Uncontrolled crossing on Harold's Cross Road

The tactile paving, and space required at the central island on the Terenure Road North Junction with Terenure Road East as shown in Figure 36 does not allow for easy passage for mobility impaired users and pedestrians alike.



Figure 36: Tactile Paving on Terenure Road North

The surface material along this section is acceptable for the most part, however there are localised areas where cracking or asphalt replacement has occurred; leading to undulating, uneven surfaces for mobility impaired users to navigate as show in Figure 37 and Figure 38.



Figure 37: Surface Material on Harold's Cross Road



Figure 38: Surface Material on Terenure Road North

5 Section 4 - Charleville Road to Dame Street

5.1 Description of the Route

The current proposal consists of providing a single inbound bus lane, two general traffic lanes and cycle tracks between Charleville Road and Castlewood Avenue.

Between Castlewood Avenue and Grove Road, a general traffic lane and a cycle track in each direction are proposed, with the provision of a Bus Gate between Richmond Hill and Lissenfield which will restrict general traffic movements. This proposal also allows for some increase to footpath widths through Rathmines and the provision of 2m wide cycle tracks in each direction through the village.

On Richmond Street South, it is proposed to maintain the outbound traffic lane with a bus lane and cycle tracks in both directions. Immediately south of the junction of Harrington Street/Harcourt Road/Richmond Street South, it is intended to have bus lanes in both directions with no general traffic lanes.

On Camden Street between Harcourt Road and Charlotte Way, one bus lane in each direction and one inbound general traffic lane is proposed, with a cycle track provided in each direction.

Between Grantham Street and Cuffe Street it is proposed to provide bus lanes in each direction and a single outbound general traffic lane on Camden Street/Wexford Street. Under this proposal, inbound traffic would reroute to Harcourt Street to get to Cuffe Street and beyond.

Between Cuffe Street and Dame Street it is proposed to provide one general traffic lane and one cycle lane in both directions. No bus lanes will be provided on this section of the route. Where possible, on-street parking bays and loading bays will be retained. The CBC ties into the existing road network on Dame Street.

Traffic management measures such as turning restrictions at junctions or road closures will also be considered on adjoining residential streets along the corridor at suitable locations to prevent through traffic diverting inappropriately.

5.2 Problem Identification

5.2.1 Accessible Parking – On-Street Disabled Parking Spaces

An accessible parking space was observed on the western footpath of Wexford street, close to the intersection with Kevin Street Lower. The space is quite narrow at approximately 1.5m wide and is approximately 5.5m long as shown in Figure 39. This is the only accessible parking space along this section of the route. There are no obstacles obstructing passengers from entering or exiting a vehicle from the footpath side, however, accessing a vehicle from the roadside could be potentially dangerous due to the proximity with northbound traffic.



Figure 39: Disabled parallel parking space - Wexford Street

5.2.2 Access Routes – General

The footpath reaches approximately 7.2m wide on the eastern footpath of Camden Street Lower, at the intersection with Camden Court. The western footpath of Camden Street Upper reaches approximately 1.4m outside the Camden Court Hotel. At the time of audit, multiple properties were surrounded by temporary construction hoarding, narrowing the footpaths at these locations. The temporary widths of footpaths have not been considered here.

5.2.3 Access Routes – Drainage

Footpaths along this section of route generally have an appropriate crossfall, and street-level gullies were noted throughout this section of the route.

The condition of the road surface at the location of some gullies is poor, such as at the southern end of Aungier Street, at the junction with Digges Street Upper as shown in Figure 40. This can cause ponding at the location of the gully. There is evidence of deterioration of the grouting between kerb stones.



Figure 40: Drainage example of deterioration, both of the kerb and adjacent gully.

5.2.4 Access Routes – Guardrails

Pedestrian Guardrails were observed throughout this section of the route. Generally, they are positioned at locations where the footpath is relatively wide, and therefore are unlikely to cause difficulty for visually or mobility impaired pedestrians when passing. An example of guardrails in this section is shown in Figure 41.



Figure 41: Guardrails – Camden Street

5.2.5 Pedestrian Crossing Points

There are numerous pedestrian crossings along this section of the route. All crossings along the route feature dropped kerbs in good condition however, the crossing at Redmond's Hill, close to the intersection with Cuffe Street is particularly narrow, with a width of approximately 1.3m. Other crossings range in width from approximately 1.7m up to 2.9m, observed on Camden Street Lower near the junction with Camden Place.

Several crossings are divided into two by a pedestrian island in the middle of the road. The majority of the islands are wide enough to accommodate a mobility impaired person waiting to finish crossing the road, while other islands such as that at the junction between Camden Street and Charlotte Way (see Figure 42) serves as a three-direction crossing with ample room for the mobility or visually impaired to safely cross. In most instances, both the island and crossing are wide enough to accommodate safe waiting on the island.



Figure 42: Pedestrian Crossing Point – Camden St/Charlotte Way

The island that divides the southbound traffic into turning and straight-travelling at the junction between Camden Street and Charlotte Way tapers to follow the bus lane as shown in Figure 43. The island is 1.45m wide at its narrowest. A pedestrian waiting at this island could possibly be in danger due to the proximity with moving busses travelling on a horizontal curve through the junction.



Figure 43: Controlled Crossing Point – Charlotte Way

5.2.6 Controlled and Uncontrolled Crossings

The majority of crossings along this section of route are signalled. The majority of crossings are fitted with pushbutton units and feature painted pedestrian crossing lines on the road's surface. As mentioned previously, in some instances the painted lines create a relatively narrow pedestrian crossing passage, one which may cause difficulty for the mobility impaired and other pedestrians to pass each other in the opposite direction.

Some of controlled crossings, such as that at Rathmines Road Lower, close to the junction with Castlewood Avenue, feature an island that is not signalled, and does not feature a tactile paving surface as shown in Figure 44. This could potentially cause an issue with the visually impaired. Pedestrian pushbuttons can become inaudible over time and without a signal on the island, a visually impaired person may have difficulty in crossing, or in knowing to stop on the island when the signal changes to red for pedestrians.



Figure 44: Controlled crossing - Rathmines Village

Despite the number of controlled crossings along this section of route, the multiple loading bay parking areas along the route cause the footpath to often ‘protrude’ and become part of pedestrian desire lines to cross the street at an uncontrolled crossing. The particularly busy nature of the northern half of this section, means this is not advisable. Islands that are intended for traffic calming are used by pedestrians to wait to finish crossing the street at uncontrolled crossings.

5.2.7 Tactile Paving Surfaces

Tactile paving surfaces are used at every controlled crossing along this section of route, in the form of red blister paving slabs.

5.2.8 Changes in Level

No significant changes in level were observed along this section of route. Several Georgian-era buildings have stepped access between their entrance and the footpath. These usually include a handrail as part of the design, however, one stepped entrance was observed with no handrail on one side and no step hazard identification such as tactile pavement to alert the visually impaired to the hazard as shown in Figure 45.



Figure 45: Changes in Level – Camden Street

5.2.9 Shared Spaces, Shared Surfaces

There are no shared public spaces between vehicles and pedestrians along this section. There are no shared pedestrian/cyclist surfaces along the route, however the junction between Richmond row and Charlemont Mall includes pedestrian crossings, a southbound cycle lane and an east/west cycle track running parallel to Grand Canal as shown in Figure 46. The width of the footpath at this location, combined with the amount of pedestrian and cyclist traffic in this area during rush hour makes separation of pedestrians and cyclists difficult.



Figure 46: Shared Spaces – Richmond Bridge

5.2.10 Surface Material

The surface material used for the footpath along this section of the route varies. The footpath through Rathmines is predominantly composed of granite tiles and kerbs as shown in Figure 47. Some in-situ concrete was observed, as well as minor asphalt patch repairs to kerbs.

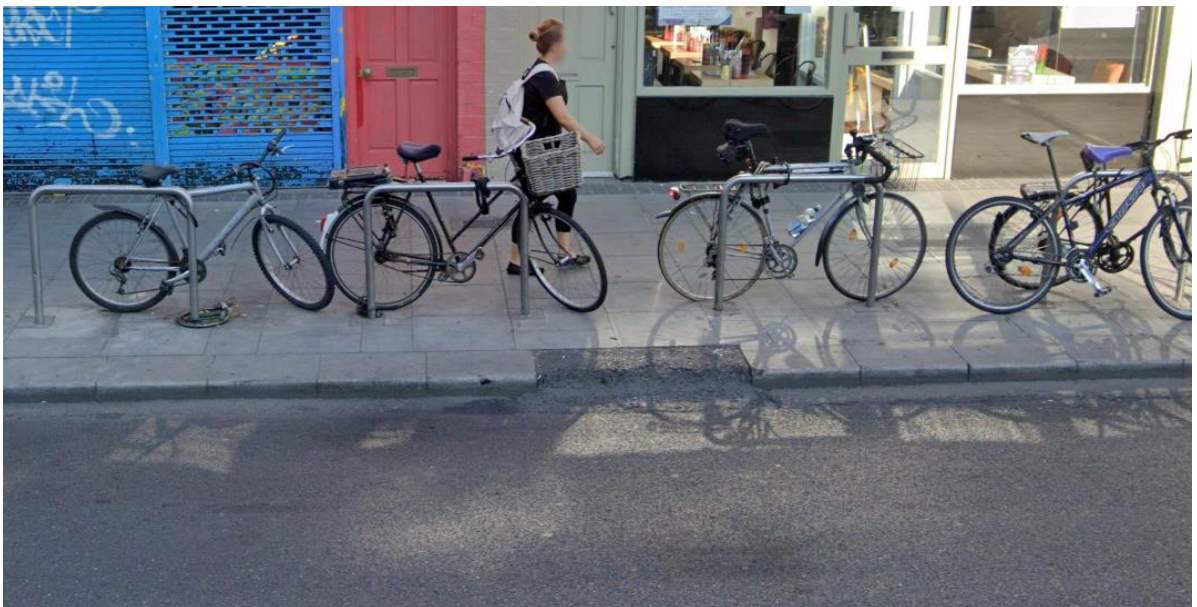


Figure 47: Surface Material – Rathmines Village

Concrete or asphalt patch repairs that later begin to deteriorate and spall can become uneven and lead to drainage problems and pose a tripping hazard. The majority of this section of route features stone paving tiles rather than cast in situ material and therefore concrete patch repairs are prevalent only along the Rathgar Road.



Figure 48: Surface Material – Rathmines Road

Instances of patch repair over stone paving tiles also occur, however. One asphalt patch repair work is a total of approximately 270m, suggesting a trench was cut through the paving tiles in order to lay services for the many businesses along this stretch on the eastern footpath of Rathmines Road Lower. The quality of the asphalt repair is generally good, however the repair work near the junction with Leinster Road is poor; three sheets of sheet-metal have been laid and set in place into wet asphalt. As well as being unsightly, the sudden changes to surface material may be disorientating to the visually impaired and surface undulations in this area pose a tripping hazard.



Figure 49: Surface Material – Rathmines Village

5.2.11 Street Furniture

Street furniture is prevalent throughout this section of the route. Beginning at Rathgar Road and continuing onto Rathmines Road Lower, street lighting and traffic signage poles are generally located towards the edge of footpaths. For the most part, the footpaths through this section are wide enough that the effective width at the locations of signage/lighting poles is still adequate for accommodating the mobility impaired passing other pedestrians in the opposite direction. Bollards are used throughout this section of the route as far as Swanville Place. Bollards are also located towards the edge of the footpath, preventing vehicles from mounting the kerb to park. Further north there are bicycle locking frames on the eastern footpath. The footpath at this location is especially wide and therefore they have very little impact on the navigability of the footpath at their location.

Signage poles are positioned centrally on the eastern footpath of the bridge that carries Richmond Road over the Grand Canal as shown in Figure 50.

Considering the relatively narrow footpath and the gradient over the length of the bridge, the mobility impaired may have difficulty safely crossing the bridge on the eastern footpath.



Figure 50: Street Furniture - Portobello

Electricity supply boxes are located throughout this section of the route but are generally positioned at the edge of wide footpaths except for one instance at Richmond Road South, where the box and public lighting pole are positioned in the centre of the footpath as shown in Figure 51. The footpath to the left of the unit (as shown in the figure below) is too narrow for the mobility impaired to pass comfortably.



Figure 51: Street Furniture - Portobello

'Clusters' of street furniture often pose the biggest obstacle to the mobility impaired, even where the footpath is quite wide. Various street furniture installed close together but at different times can greatly reduce the effective width of the footpath and make it difficult to pass.



Figure 52: Street Furniture – Camden Street

6 Conclusions

An audit has been undertaken in respect of issues and problems for people with mobility impairment to use the CBC in its present state. A number of issues have been identified along the corridor which result in a sub-optimal level of service; resulting in the following recommendations:

6.1 Accessible Parking

On-street Disabled Parking Space layout should be to the appropriate standard, with dropped kerb access between the parking space and footpath.

6.2 Access Routes on Footpaths

Width of footpaths should be clear of clutter, such as street furniture, and allow unimpeded access for the mobility impaired, and in doing so, meet the minimum standards for widths.

6.3 Drainage

All footpaths should have sufficient cross-fall for drainage purposes but without affecting the ability of mobility-impaired people to move safely along the corridor.

6.4 Guardrails

Guardrails should be located only where needed for safety purposes – and care should be taken not to create narrow spaces which create difficulties for movement.

6.5 Pedestrian Crossing Points

Pedestrian crossing points should be laid out in accordance with standards and make it convenient and safe for mobility impaired users to negotiate crossing of carriageways.

6.6 Controlled and Uncontrolled Crossings

Controlled and Uncontrolled Crossings should have tactile paving laid out correctly to provide tactile and visual assistance to mobility-impaired users approaching crossing points.

6.7 Changes in Level

Any changes in level should be addressed in the design process to ensure that all changes in level, where practicable, comply with standards.

6.8 Shared pedestrian/cyclist areas

Shared pedestrian/cyclist areas should be well laid out, with clear visual and tactile elements included, to ensure that these areas are safe for mobility-impaired users, pedestrians and cyclists.

6.9 Surface Material

Footpath materials should be selected to ensure surfaces are free of undulations, with no trip hazards where there is a transition between surface materials – or where the Proposed Scheme ties into the existing infrastructure.

6.10 Street Furniture

All poles for signs and street lighting should be carefully located to minimise the effect on the safe and convenient passage of pedestrians and cyclists, with due cognisance to the safe movement of mobility impaired users.