Appendix I1
Accessibility Audit Report

National Transport Authority

Belfield / Blackrock to City Centre Scheme

Accessibility Audit Report

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1 Introduction

1.1 Introduction

Arup has been commissioned by the National Transport Authority to carry out an Accessibility Audit of the existing Belfield / Blackrock to City Centre Scheme (hereinafter referred to as 'the Proposed Scheme') as part of their BusConnects Core Bus Corridor (CBC) programme. 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 Proposed Scheme, identifies any areas not complying with standards or guidance, and makes recommendations to address these issues. The report sets out design criteria considered imperative to facilitating people with disabilities as they interact with the external environment, including structures, people and services.

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

- **Section 1:** Stradbrook Road to Booterstown Avenue;
- **Section 2:** Booterstown Avenue to Nutley Lane;
- **Section 3:** Merrion Road (Nutley Lane to Ballsbridge);
- **Section 4:** Ballsbridge to Merrion Square (Pembroke Road, Baggot Street and Fitzwilliam Street); and
- **Section 5:** Nutley Lane (R138 to Merrion Road).

The extents of each of these Scheme sections are indicated in **Figures 1-5** below. The information relating to each of these sections has been included in the assessment in Chapters 2 to 6 of this report.

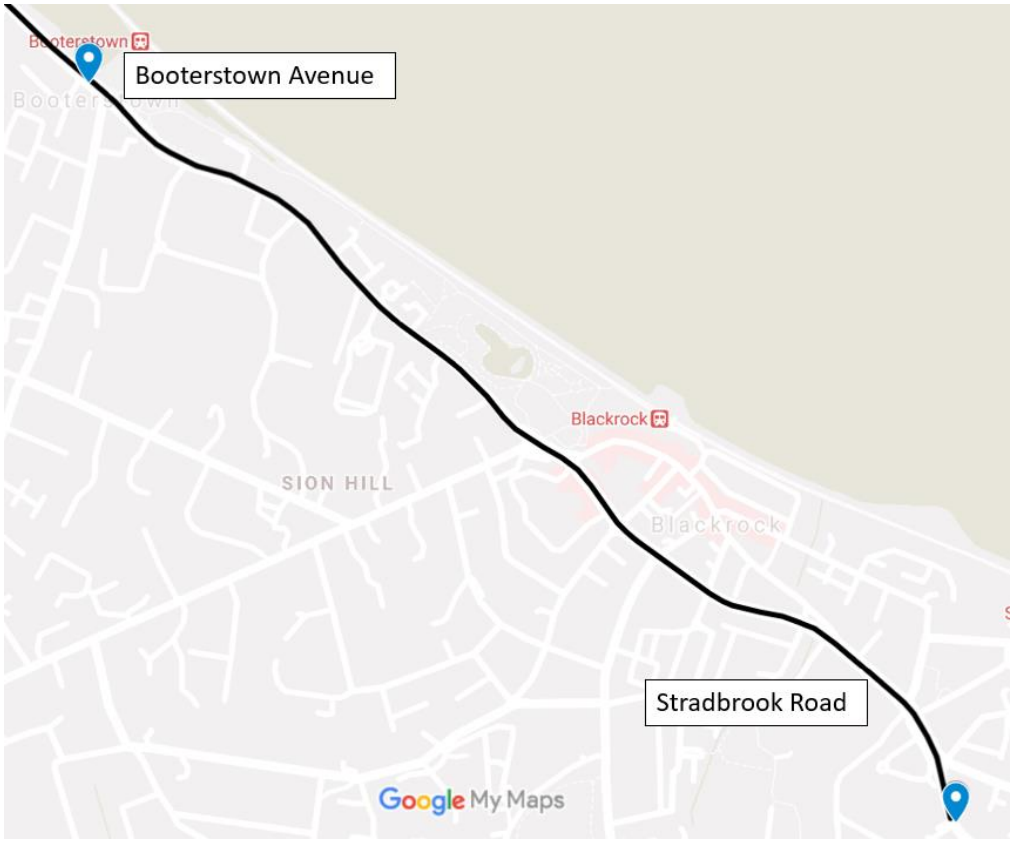

Figure 1: Section 1 - Stradbrook Road to Booterstown Avenue (Google ©)

Figure 2: Section 2 - Booterstown Avenue to Nutley Lane (Google ©)

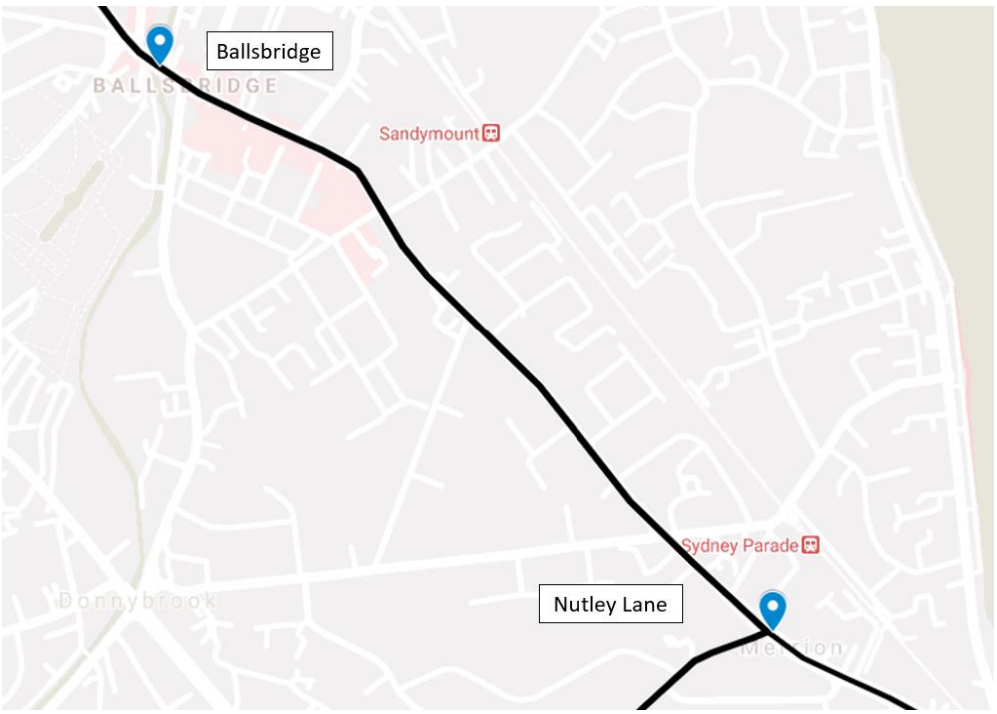

Figure 3: Section 3 – Merrion Road (Nutley Lane to Ballsbridge) (Google ©)

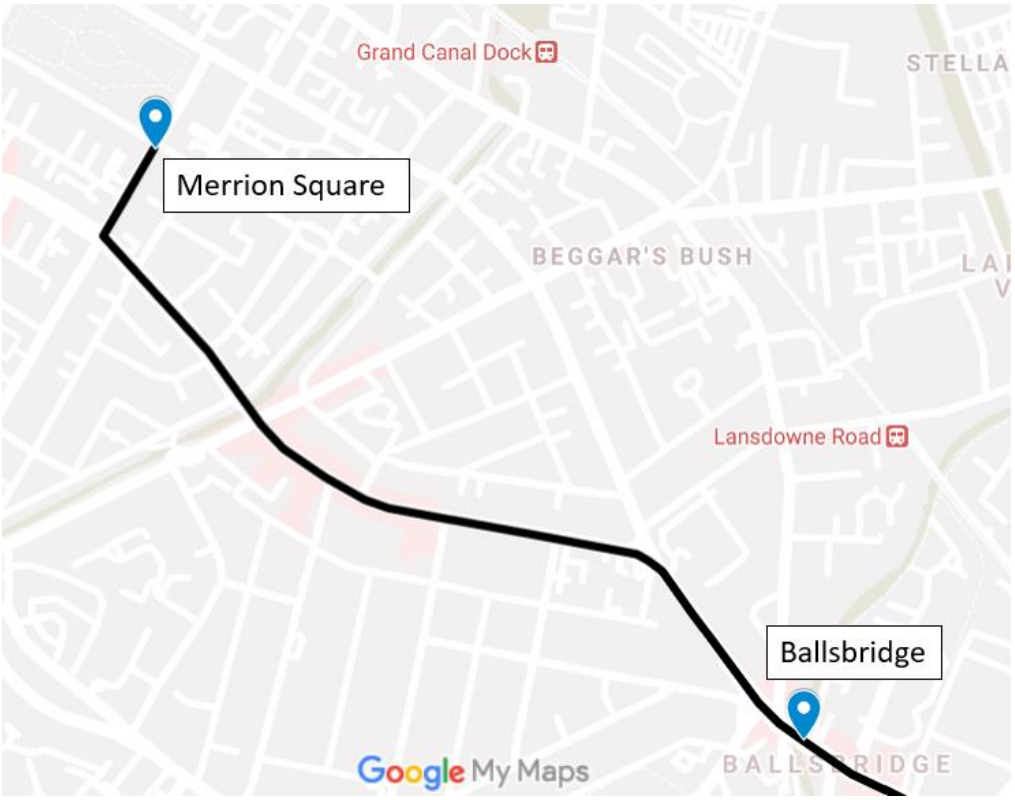

Figure 4: Section 4 – Ballsbridge to Merrion Square (Google ©)

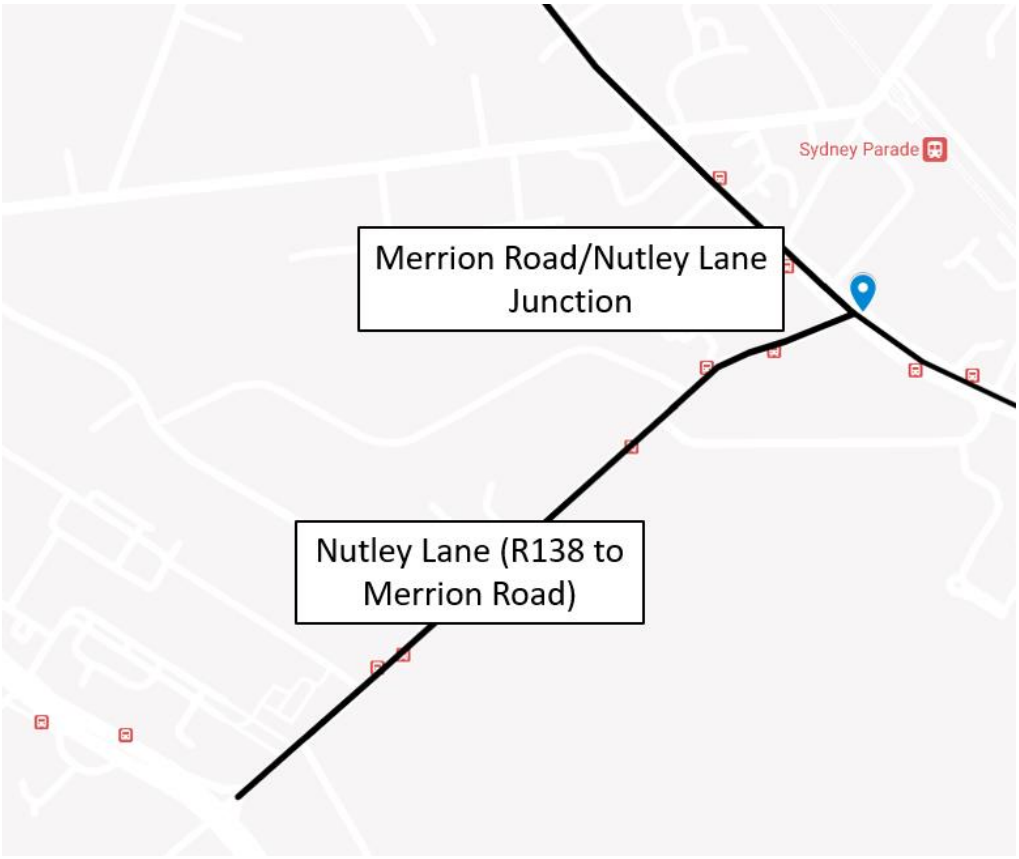

Figure 5: Section 5 – Nutley Lane (R138 to Merrion Road) (Google ©)

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 a list of recommended global design considerations to be adopted for the detailed design of the Proposed Scheme.

2 Section 1 - Stradbrook Road to Booterstown Avenue

2.1 Description of the Route

The Proposed Scheme commences on Stradbrook Road, south of the junction of Temple Hill and Monkstown Road, in a largely suburban area. It continues north through Blackrock Village along Frascati Road, fronted either side by commercial developments such as the Frascati and Blackrock Shopping Centres (both recently redeveloped).

The Proposed Scheme follows the Rock Road passing the amenity areas of Blackrock Park and the education centres of Blackrock College and Willow Park, as well as Blackrock Clinic.

2.2 Problem Identification

2.2.1 Accessible Parking – On-Street Disabled Parking Spaces

There are no accessible parking spaces along this section of the route.

2.2.2 Access Routes – General

Footpaths along this section of the route vary from approximately 1.3m to 4.5m in width. Along the Rock Road, footpaths on both sides are generally wide, and largely unobstructed. The southern footpath adjacent to the entrance to Blackrock Clinic tapers to a minimum of approximately 1.3m as shown in **Figure 6**.

Figure 6: Footpath at Blackrock Clinic narrows, before rewidening

There are multiple areas along Rock Road where the narrow footpath runs alongside a strip of vegetation or a grassy verge.

Figure 7: Narrow footpath alongside area of vegetation offers opportunity to widen footpath - Rock Road

2.2.3 Access Routes – Drainage

Only minor drainage issues were identified along this section of the route. Local incidences of sunken gullies leading to ponding of rainwater and associated debris were observed. Replacement gullies were also observed along the route where this issue had likely occurred previously.

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

2.2.4 Access Routes – Guardrails

The central median of Frascati Road is fitted with a guardrail for approximately 95m. There is a significant difference in height between the eastbound and westbound carriageways. The guardrail is in the centre of the narrow island, which prevents pedestrians attempting to cross Frascati Road without the use of a designated pedestrian crossing. Guardrails are also in place at many of the refuge islands at major junctions.

2.2.5 Pedestrian Crossing Points

Pedestrian crossings along this section of the route are all over 2m wide, with painted road markings, dropped kerbs and audible pushbutton units. In most cases, the width of these crossings is considerably more than 2m, providing adequate room for pedestrian traffic to cross in both directions simultaneously.

The condition of the crossing on the eastern footpath at the junction between Frascati Road and Carysfort Avenue, as shown in **Figure 8**, shows evidence of consistent ponding during wet weather. This is indicative of a drainage issue at this location.

Figure 8: Pedestrian Crossing Point - junction of Frascati Road and Carysfort Avenue

Where crossings are divided into two by a refuge island, the islands at major intersections are all large enough to promote safe waiting for pedestrians as well as allow for enough room for the mobility or visually impaired to pass other pedestrians. However, three crossings along Frascati Road from Carysfort Avenue Junction to Blackrock Garda Station feature a narrow refuge island, approximately 1.5m wide as shown in **Figure 9**.

None of these islands have pedestrian guardrails installed, but the traffic signals and tactile paving set-up at each crossing suggests that the crossing movement is carried out in one single phase from one side of Frascati Road to the other through the central median, without the need to use the median as a landing.

Figure 9: Pedestrian Crossing Point - Frascati Road

Along Rock Road, from Booterstown Avenue to Emmet Square, there is approximately a 700m length without a pedestrian crossing. This encourages road users to cross the road at uncontrolled points to achieve pedestrian desire lines.

2.2.6 Controlled and Uncontrolled Crossings

All of the pedestrian crossings along this section of the route are controlled, fitted with audible pushbutton units and tactile paving.

2.2.7 Tactile Paving Surfaces

Red blistered paving slabs are installed at every signalised pedestrian crossing along this section of route.

The crossing at the Rock Road and Mount Merrion Avenue junction does not feature any tactile paving or pedestrian crossing traffic signals, at either of the two refuge islands as shown in **Figure 10**. Both islands feature a cast in-situ concrete surface, which again suggests that the crossing from one side of Rock Road to the other is carried out in one single phase of the traffic lights, without the need to use the medians as pedestrian landings.

Figure 10: Tactile Paving - Rock Road

The layout of the tactile paving at some crossing points did not meet the requirements or recommendations of the National Disability Authority (NDA) guidance, by not extending to the rear of the footpath or to building lines.

The crossing of Rock Road at Booterstown Avenue features multiple different surfaces as shown in **Figure 11**.

Figure 11: Tactile Paving - Rock Road / Booterstown Avenue

2.2.8 Changes in Level

The only significant change of level along this section of route is at the entrance plaza to the Frascati Centre on Frascati Road as shown in **Figure 12**.

The stepped change in level appears to be featured seating for the new public realm, but could be considered access steps, and could be used by pedestrians approaching the entrance from the north to ‘cut the corner’ to the ramped entrance.

Figure 12: Changes in Level - Frascati Centre

2.2.9 Shared Spaces, Shared Surfaces

There is minimal shared vehicular and pedestrian space along this section of route.

From the junction between Frascati Road and George’s Avenue as far as Montpellier Place at the end of the Proposed Scheme, there is a shared cycle/pedestrian facility on both sides of the road, segregated from the carriageway by a shallow kerb.

The facility is not continuous, becoming a separate footpath and cycle track through junctions and along stretches of Temple Road and Frascati Road. The average width of the cycle facility is approximately 1.5m.

2.2.10 Surface Material

The surface material along this section of the route is predominantly cast in-situ concrete. Where there is a shared cycle/pedestrian facility, a layer of asphalt has been laid over the concrete footpath to represent the cycle track.

Due to construction activities, certain sections of these footpaths have been subjected to patch repairs.

2.2.11 Street Furniture

Street furniture was considered to be relatively sparse along this section of the route. The use of bollards along Rock Road, south-east of Booterstown Avenue as shown in **Figure 13** is considered unnecessary but may act as a boundary between private and public lands.

Figure 13: Street Furniture - Rock Road

Street lighting poles are, in general, to the back of footpaths and examples of negative interactions between multiple elements of street furniture is rare.

Figure 14: Street Furniture - Rock Road

3 Section 2 - Booterstown Avenue to Nutley Lane

3.1 Description of the Route

This section of the Proposed Scheme passes the residential areas along the Rock Road, as well as commercial developments such as the Elmpark Green Developments. It also runs adjacent to the Booterstown Marsh, with no encroachment proposed into the marsh. The Proposed Scheme continues past the Merrion Gates junction, along Merrion Road, which is fronted by residential properties, before passing through Merrion Village as far as the junction of Nutley Lane.

3.2 Problem Identification

3.2.1 Accessible Parking – On-Street Disabled Parking Spaces

There is one disabled parallel parking space along this section of the route, on the southern footpath of Rock Road, adjacent to the number 473 Bus Stop as shown in **Figure 15**. The space is approximately 5.7m long, and 2.1m wide. A large buffer zone, approximately 3.5m long separates the space and the designated stopping zone for buses.

Figure 15: Disabled Parking Space - Rock Road

3.2.2 Access Routes – General

The footpath widths along this section of the route vary but are predominantly a minimum of 2m. On the southern side of Merrion Road, the footpath narrows to approximately 1.8m for the length of the designated stopping zone for the Saint Vincent's University Hospital bus stop (Bus Stop number 478) before rewidening back to a width of 3.3m to the east and 4m to the west.

The northern footpath on Rock Road also narrows to approximately 1.8m in the same fashion, to accommodate bus stop number 426, tapering back out in both directions. The length of the tapered footpath is approximately 60m.

While these pinch points exist, both footpaths are relatively wide in general, and in good condition. Infrequent asphalt patch repairs were noted along the route as shown in **Figure 16**.

Figure 16: Example of poor-quality patch repair - Merrion Road

3.2.3 Access Routes – Drainage

The crossfall gradient of both footpaths is considered appropriate along this section of route. As a result of this, and a relatively good surface with minimal damage, no ponding was observed on either footpath.

No sunken or blocked gullies were observed along this section of the route, however, areas of damaged road surface can lead to drainage problems, as rainwater that ponds in damaged areas cannot drain away. This poses a threat to all road-users, in particular cyclists, who may be unaware of damaged or pot-holed road surfacing as they travel through the ponding. An area of damaged surface can be seen in **Figure 17**.

Figure 17: Drainage - St. John's House, Merrion Road

3.2.4 Access Routes – Guardrails

Pedestrian Guardrails were observed at the junction of Merrion Road and the entrance to Landaff Terrace – at each of the 3 refuge islands at the junction. Immediately north of the junction, the central median of Merrion Road is fitted with a guardrail for approximately 150m as shown in **Figure 18**. The guardrail is in the centre of the narrow island, which prevents pedestrians attempting to cross Merrion Road without the use of a designated pedestrian crossing.

Figure 18: Guardrail - Merrion Road

3.2.5 Pedestrian Crossing Points

Pedestrian crossings are provided at every major intersection along this section of the route. However, there are no crossing facilities at either end of St. Helen's Road to cross Rock Road. Bus Stop number 426 is located on the northern footpath of Rock Road, between the two access junctions to St Helen's Road.

This should be considered part of a desire line for residents of St Helen's Road using the southbound bus service.

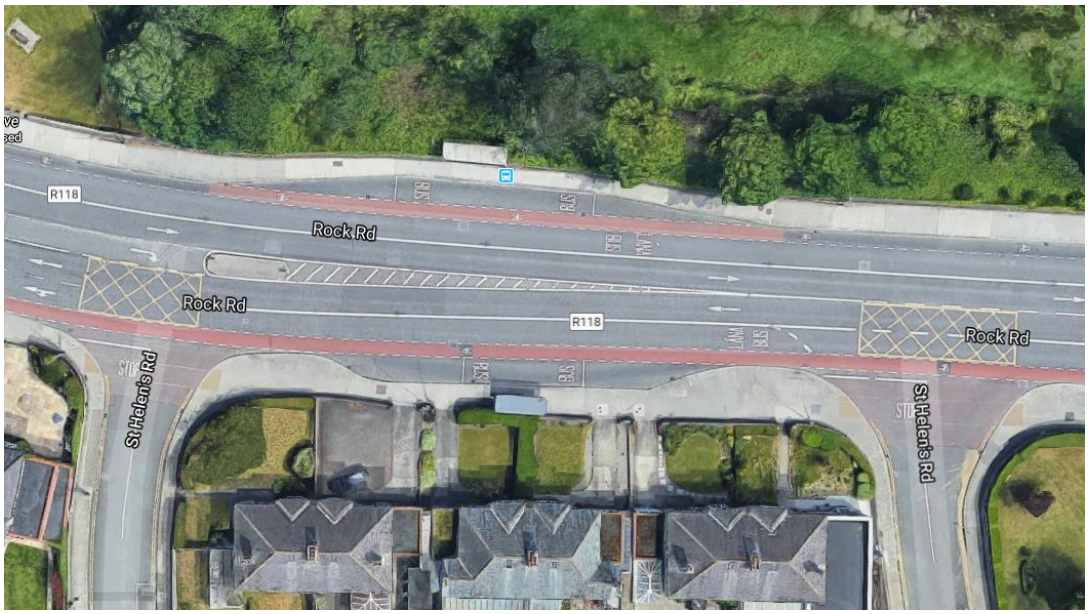

Figure 19: Pedestrian Crossings - No Pedestrian Crossing at either end of St Helen's Road

Pedestrian crossings along this section of route are all over 2m wide and feature dropped kerbs.

Where refuge islands are in place, the majority are wide enough for the mobility impaired to navigate and safely wait to complete their crossing. The refuge island at the junction between Merrion Road and Strand Road is 1.6m wide. Similarly, the refuge island at junction of Rock Road and Trimleston Avenue is 1.6m wide. The traffic signals arrangement for both pedestrian crossings suggest that pedestrians cross from one side of the road to the other in one single crossing phase.

3.2.6 Controlled and Uncontrolled Crossings

There are a total of 7 pedestrian crossings along this section of the route, all of which are controlled crossings, fitted with audible pushbutton units and tactile paving. Asphalt patch repair was noted on the tactile paving at the crossing on Merrion Road, near Nutley Lane as shown in **Figure 20**.

Figure 20: Controlled Crossing - Merrion Road, Nutley Lane junction

Due to the lack of pedestrian crossing at either end of St Helen's Road, it is likely that the existing island, in place to alert motorists to the end of the central reserve as shown in **Figure 21**, is used by pedestrians as an unofficial crossing point, instead of walking approximately 70m to the closest controlled crossing at Trimleston Avenue.

Figure 21: Uncontrolled Crossing - St. Helen's Road

3.2.7 Tactile Paving Surfaces

Appropriate tactile paving has been used at every pedestrian crossing along this section of the route, however the refuge island at the Rock Road/Trimleston Avenue Junction has no surface discernible from that of the carriageway as shown in **Figure 22**. The island is not signalled, and it therefore probably acts as a single crossing phase, but could pose a challenge to the visually impaired to detect.

Figure 22: Controlled Crossing - Rock Road / Trimleston Avenue

3.2.8 Changes in Level

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

3.2.9 Shared Spaces, Shared Surfaces

Areas where pedestrians and vehicles share the same space is at a minimum along this section of route. There are also no shared pedestrian and cyclist facilities along the route.

3.2.10 Surface Material

The majority of the footpath along this section of route is cast in-situ concrete. There are multiple examples of patch repairs throughout this section of route, where surface material has cracked or where the concrete has been cut out to install underground services. Asphalt indicates that the surface forms part of the vehicular carriageway and thus including asphalt on the footpath may incorrectly indicate that the area is subject to vehicular priority.

Figure 23: Surface Material - Merrion Road

3.2.11 Street Furniture

Street furniture is prominent throughout this section of the route. Examples are shown in **Figure 24** & **Figure 25** below. Generally, wide footpaths mean that street furniture does not cause too many pedestrian pinch points or overly obstruct travel along the footpath.

From Nutley Lane to Strand Road, street lighting poles and traffic signalling poles are located to the edge of the kerb of Merrion Road. This section of Merrion Road is lined with trees, in some cases narrowing the footpath considerably.

Figure 24: Street Furniture - Merrion Road

The remainder of this section of the route features street lighting at the back of kerb on the road side of the footpath.

Figure 25: Street Furniture - Merrion Road

4 Section 3 – Merrion Road (Nutley Lane to Ballsbridge)

4.1 Description of the Route

This section of the Proposed Scheme is fronted by the Merrion Shopping Centre and St. Michael's College and is then primarily fronted by residential properties and a number of embassies as far as the junction with Serpentine Avenue, from whence is enters Ballsbridge Village. This section runs along the Royal Dublin Society (RDS). There is a newly developed commercial site opposite the RDS.

4.2 Problem Identification

4.2.1 Accessible Parking – On-Street Disabled Parking Spaces

One disabled parking facility has been identified along this section of the route. It was observed on the southbound lane of Merrion Road, immediately after the junction with Granite Place in Ballsbridge. Refer to **Figure 26**.

The parking space is approximately 5m in length and 2m in width. The parking space is located in a 'pay and display' area and provides access to nearby retail outlets.

No further disabled parking spaces were identified along this section of the route.

Figure 26: Disabled Parking Space – Merrion Road/Granite Place, Ballsbridge (southbound)

4.2.2 Access Routes – General

Existing footpaths along this section of the route vary depending on the location. The footpath widths along both sides of the street on this section of the route provide adequate space for disabled users.

Along Merrion Road, the footpath width ranges from 2.5m to 4.5m.

While footpath widths are generally adequate for disabled users along this section of the route, there are some locations where street furniture and trees result in physical constraints. Refer to examples along Merrion Road in **Figure 27** and **Figure 28**.

Figure 27: Constrained Footpath – Merrion Road

Figure 28: Constrained Footpath – Merrion Road

4.2.3 Access Routes – Drainage

Only minor drainage issues were noted along this section of the route. Local incidences of sunken gullies leading to ponding of rainwater and associated debris were observed.

The surfaces of most footpaths were 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. 2 no. guardrails were observed in Ballsbridge while 1 no. guardrail was observed along Merrion Road. Refer to **Figure 29** to **Figure 31**.

Each of the guardrails are located at or adjacent to intersections. Two of the guardrails along Pembroke Road are adjacent to pedestrian crossings. At both 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.

Figure 29: Guardrails – Ballsbridge

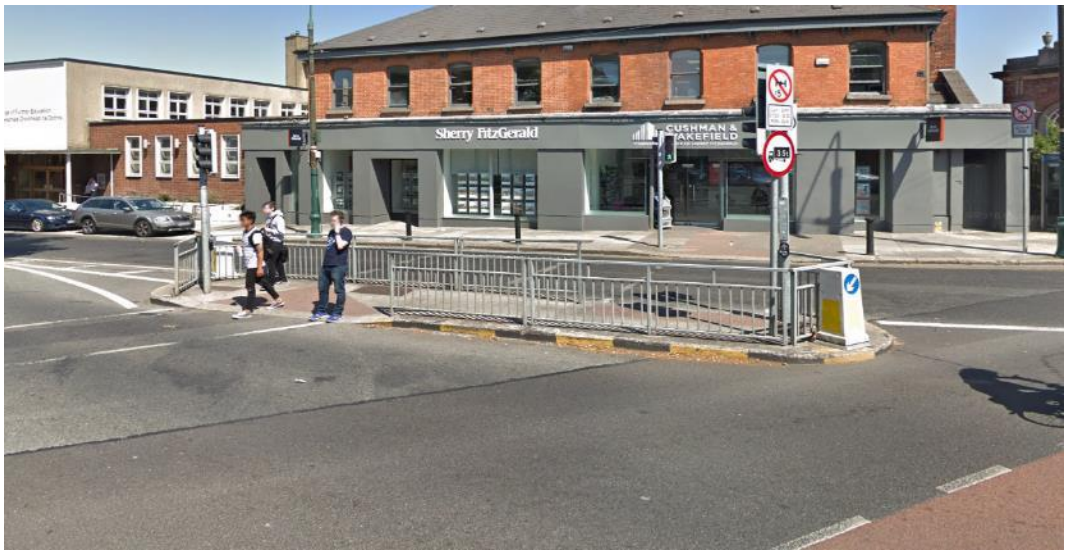

Figure 30: Guardrails – Ballsbridge

Figure 31: Guardrails – Merrion Road

4.2.5 Pedestrian Crossing Points

All pedestrian crossings along this section of the route 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 of the route, a pedestrian island is provided in the road median. All but three of these pedestrian islands did not have pedestrian guardrails and had limited space for safe waiting to cross the road. Refer to **Figure 32** to **Figure 36** for examples of pedestrian crossing points along Ballsbridge and Merrion Road.

Figure 32: Pedestrian Crossing Point with Pedestrian Island – Ballsbridge

Figure 33: Pedestrian Crossing Point with Pedestrian Island – Merrion Road

Figure 34: Pedestrian Crossing Point – Merrion Road

Figure 35: Pedestrian Crossing Point – Merrion Road

Figure 36: Pedestrian Crossing Point – Merrion Road

4.2.6 Controlled and Uncontrolled Crossings

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

There are a number of uncontrolled crossings along this section. Most of these are of a reasonably good standard. However, some are noticeably of poor standard particularly when catering for the mobility and visually impaired. For instance, at the junction of Merrion Road and Ballsbridge Park, there are two instances of dropped kerbs being located on the curve of the road and not in the direct line of travel at the junction. Refer to **Figure 37** and **Figure 38**. Locating the dropped kerbs on the curve of a road can cause a risk of visually impaired users being misdirected by the orientation of the kerb.

Figure 37: Uncontrolled Crossing Point with Dropped Kerb on Curve of Road – Merrion Road / Ballsbridge Park Junction

Figure 38: Uncontrolled Crossing Point with Dropped Kerb on Curve of Road – Merrion Road / Ballsbridge Park Junction

4.2.7 Tactile Paving Surfaces

The majority of controlled crossings feature tactile paving surfaces on both footpaths. The pedestrian islands along Merrion Road also feature tactile paving. Refer to **Figure 39** and **Figure 40** for examples.

One controlled crossing along Merrion Road did not feature any tactile paving surfaces. Refer to **Figure 41**.

Figure 39: Tactile Paving Surface – Merrion Road

Figure 40: Tactile Paving Surface at Pedestrian Island – Merrion Road

Figure 41: Controlled Junction without Tactile Paving Surface – Merrion Road

4.2.8 Changes in Level

There are no significant changes in level along this section.

4.2.9 Shared Spaces, Shared Surfaces

There are no shared spaces or shared surfaces along this section.

4.2.10 Surface Material

The footpath surface material along this section is generally cast in-situ concrete, often with precast concrete kerbs. There are instances of concrete or natural stone 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 patch repair material. This is a hazard to pedestrians and cyclists alike. Damage to concrete kerbs and footpaths was also observed at locations where trees were positioned, and this was most likely due to the growth of the tree roots.

Refer to **Figure 42** to **Figure 45** for examples of damaged footpaths and poor-quality surface material.

Figure 42: Surface Material – Footpath along Merrion Road

Figure 43: Surface Material – Footpath along Merrion Road

Figure 44: Surface Material – Footpath along Merrion Road

Figure 45: Surface Material – Footpath along Merrion Road

4.2.11 Street Furniture

Street furniture is present at varying densities throughout the length of this section. Street furniture observed included traffic signage and signalling poles, bollards, refuse bins, post office boxes, telephone boxes, flower boxes, 'pay and display' parking kiosks, bus stops, cycle stands and electrical kiosks. The street furniture observed was in most cases located towards the edge of the footpath. Examples of the street furniture observed are presented in **Figure 46** to **Figure 48**.

Figure 46: Street Furniture – Merrion Road

Figure 47: Street Furniture – Merrion Road

Figure 48: Street Furniture – Merrion Road

In some instances, street furniture did not appear at the edge of the footpath. An example is presented in **Figure 49**, below, where traffic signage is positioned centrally on the footpath of Merrion Road. This greatly reduces the effective width of the footpath, making passage difficult for the mobility impaired.

Figure 49: Street Furniture – Merrion Road

While not street furniture as such, a number of trees are located within footpaths along the route. Some of these along Merrion Road reduce the effective width of the footpath considerably, thereby making passage difficult for the mobility impaired. Refer to **Figure 50** as an example.

Figure 50: Tree reducing footpath effective width – Merrion Road

Street furniture positioned along the footpath on the eastern side of Ballsbridge results in this location being particularly constrained for the mobility impaired. The number of bollards positioned at this point (refer to **Figure 51**) are likely to cause difficulty to the mobility impaired.

Figure 51: Street Furniture – Merrion Road

5 Section 4 – Ballsbridge to Merrion Square (Pembroke Road, Baggot Street and Fitzwilliam Street)

5.1 Description of the Route

This section of the Proposed Scheme commences in Ballsbridge Village and continues northwards along Pembroke Road, fronted by commercial properties, a hotel, and a number of embassies as far as the Lansdowne Road junction, from whence it is largely fronted by residential properties. It then passes through Baggot Village, followed by Baggot Street Lower and Fitzwilliam Street Lower (both consisting largely of commercial and residential properties). This section includes the newly developed Miesian Plaza commercial site.

5.2 Problem Identification

5.2.1 Accessible Parking – On-Street Disabled Parking Spaces

Along this section of the route, 5 no. on-street disabled parking facilities have been identified. 4 no. disabled parking spaces were identified along Baggot Street Upper (2 no. together on the eastbound lane and 2 no. together on the westbound lane). Refer to

Figure 52 and **Figure 53**.

These parking spaces are approximately 6m in length and 2m in width. The parking spaces are located in ‘pay and display’ areas and provide access to nearby retail outlets.

Figure 52: Disabled Parking Spaces – Baggot Street Upper (eastbound)

Figure 53: Disabled Parking Spaces – Baggot Street Upper (westbound)

A fifth disabled parking space is located along Pembroke Road, adjacent to the eastbound lane. This parking space is approximately 10m in length and 2m in width and is located in a 'pay and display' area. Refer to **Figure 54**.

Figure 54: Disabled Parking Space – Pembroke Road

No further disabled parking spaces were identified along this section of the route. However, vehicles parked during the audit may have occupied dedicated disabled parking spaces.

5.2.2 Access Routes – General

Existing footpaths along this section of the route vary depending on the location.

Along Fitzwilliam Street Lower, the footpath width ranges from 2m to 2.5m. The footpath width along the western side of this street provides adequate space for disabled users. Construction works along the eastern side of this street mean that a temporary, constrained footpath of only 2m width is currently in place. Refer to **Figure 55**.

Figure 55: Temporary Footpath – Fitzwilliam Street Lower

Along Baggot Street Lower, the footpath width ranges from 3.5m to 5m depending on the side of the street and specific location. The footpaths provide adequate space for disabled users. However, there are some physical constraints at certain areas, including inappropriately placed street furniture. The footpath on the southern side of Baggot Street Lower, immediately after the junction with Fitzwilliam Street Lower is particularly constrained. Refer to **Figure 56**.

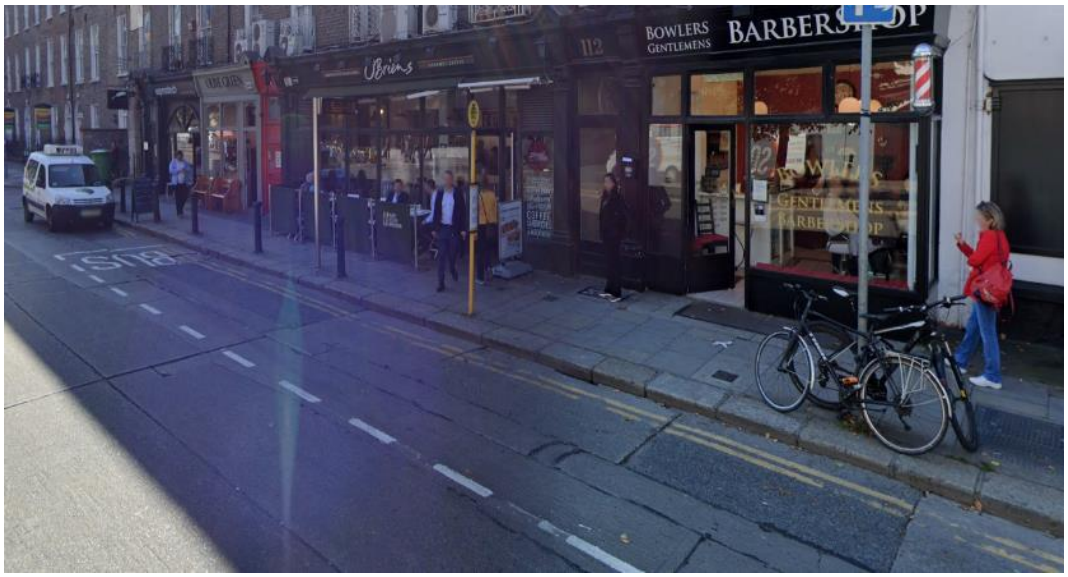

Figure 56: Constrained Footpath – Baggot Street Lower

The MacCartney Bridge (Baggot Street Bridge), where Baggot Street Lower meets Baggot Street Upper, is a particularly constrained location, with the footpath width at this point being approximately 1.4m on both sides of the bridge.

Footpath widths widen once more along Baggot Street Upper. This street has some of the widest footpaths of this section, with widths ranging from 4.5m to 5m. The northern footpath along this section of the route is slightly less constrained than the southern footpath.

Along Pembroke Road, the footpath width ranges from 2.7m to 3.5m, depending on the side of the street and specific location. The footpaths provide adequate space for disabled users along the majority of this section, however, in some locations, in particular in the vicinity of existing trees, narrow widths and poor surfaces on footpaths are present. Along Pembroke Road (from Northumberland Road to Anglesea Road), the footpath width ranges from 2m to 4.5m.

5.2.3 Access Routes – Drainage

Only minor drainage issues were noted along this section of the route. Local incidences of sunken gullies leading to ponding of rainwater and associated debris were observed. Drainage channels were also noticed along the footpath on Baggot Street Upper. Refer to **Figure 57**.

The surfaces of most footpaths were in good condition, with an appropriate crossfall gradient.

Figure 57: Drainage Channels – Baggot Street Upper

5.2.4 Access Routes – Guardrails

Pedestrian Guardrails have been observed along this section of the route. 2 no. permanent guardrails and 1 no. temporary guardrail have been observed.

The 2 no. permanent guardrails observed are located at intersections, adjacent to pedestrian crossings, at Baggot Street Lower and Pembroke Road, respectively. Refer to **Figure 58** and **Figure 59**. At both 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.

Figure 58: Guardrails – Baggot Street Lower

Figure 59: Guardrails – Pembroke Road

The 1 no. temporary guardrail observed is located along Fitzwilliam Street Lower and is positioned here due to the construction works along the eastern side of this street. Refer to **Figure 60**. This guardrail is positioned at a tight geometry which could prove difficult for disabled users to navigate.

Figure 60: Temporary Guardrails – Fitzwilliam Street Lower

5.2.5 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 two of these pedestrian islands had no pedestrian guardrails and had limited space for safe waiting to cross the road. Refer to **Figure 61** to **Figure 65** for examples of pedestrian crossing points along Fitzwilliam Street Lower, Baggot Street Lower, Baggot Street Upper and Pembroke Road.

Figure 61: Pedestrian Crossing Point with Pedestrian Island – Fitzwilliam Street Lower

Figure 62: Pedestrian Crossing Point with Pedestrian Island – Baggot Street Lower

Figure 63: Pedestrian Crossing Point – Mespil Road

Figure 64: Pedestrian Crossing Point with Pedestrian Island – Baggot Street Upper

Figure 65: Pedestrian Crossing Point with Pedestrian Island – Pembroke Road

5.2.6 Controlled and Uncontrolled Crossings

Controlled crossings have dropped kerbs, orientated in the direction of the crossing. Some controlled crossings have been divided into two, with a central median provided for pedestrians to wait on. This approach is generally taken where the crossing is too long to accommodate the mobility impaired during one pedestrian signal stage. Where an island is provided, measures should be taken to ensure pedestrian safety with adequate space to wait in.

There are a number of uncontrolled crossings along this section. Some of the crossing facilities at side roads are of a poor standard, particularly in terms of catering for the mobility and visually impaired. For instance, on Baggot Street Lower, the dropped kerb at the uncontrolled crossing at the junction of James Street East is located on the curve of the road and not in the direct line of travel at the junction. Refer to **Figure 66**. Locating the dropped kerbs on the curve of a road can cause a risk of visually impaired users being misdirected by the orientation of the kerb.

Figure 66: Uncontrolled Crossing Point with Dropped Kerb on Curve of Road – Baggot Street Lower

5.2.7 Tactile Paving Surfaces

All controlled crossings feature tactile paving surfaces on both footpaths. The pedestrian islands along Baggot Street Lower and Pembroke Road also feature tactile paving. Refer to **Figure 67** and **Figure 68**.

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.

Figure 67: Tactile Paving Surface at Pedestrian Island – Baggot Street Lower

Figure 68: Tactile Paving Surface at Pedestrian Island – Pembroke Road

5.2.8 Changes in Level

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

However, the MacCartney Bridge (Baggot Street Bridge), where Baggot Street Lower meets Baggot Street Upper, represents a noticeable incline.

Refer to **Figure 69**. The gradient of the slope of this bridge is approximately 1:19 at its steepest point, on the eastern side of the bridge, adjacent to Baggot Street Upper. As per Technical Guidance Document M of The Building Regulations 2010[1], a slope with a gradient of 1:20 or steeper is considered to be a ramp.

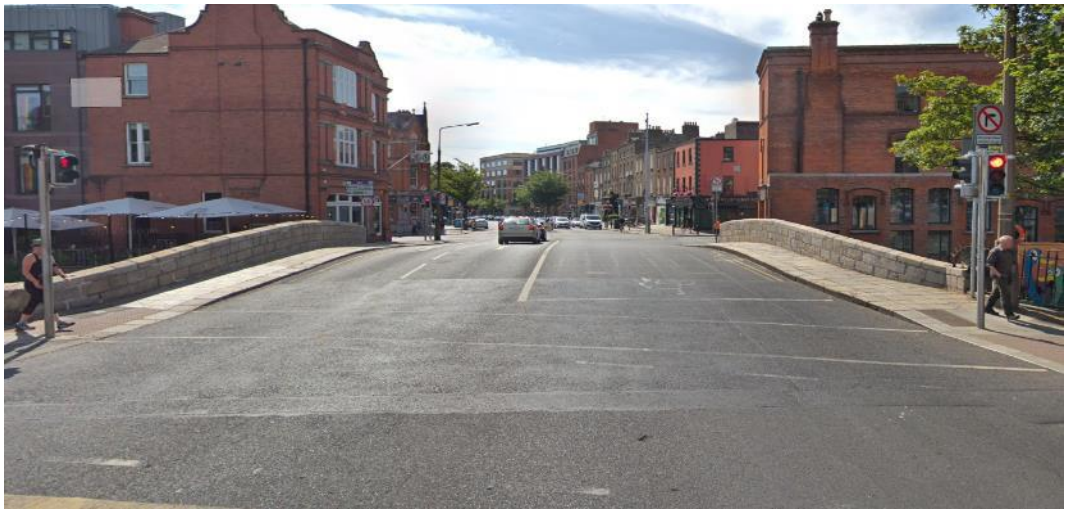

Figure 69: Level Change – MacCartney Bridge (Baggot Street Bridge)

5.2.9 Shared Spaces, Shared Surfaces

There is a shared cyclist/pedestrian surface adjacent to the MacCartney Bridge (Baggot Street Bridge). Refer to **Figure 70**. A dedicated 2-way cycle track passes adjacent to the canal along Wilton Terrace and Herbert Place. A controlled crossing point for pedestrians passes through this cycle track.

Figure 70: Shared Surface – MacCarthy Bridge (Baggot Street Bridge)

[1] Government of Ireland, 2010. *Building Regulations 2010. Technical Guidance Document M, Access and Use.*

5.2.10 Surface Material

The footpath surface material along this section can be divided into two. Along Pembroke Road the footpaths are generally in-situ concrete, often with precast concrete kerbs. There are instances of concrete and natural stone paving or asphalt. However, in-situ concrete is the predominant material. Along Fitzwilliam Street, Baggot Street Lower and Baggot Street Upper the footpaths are generally paving slabs of either concrete or natural stone.

Asphalt and concrete have both been used as materials to make patch repairs along some footpaths. In some instance this has led to undulating, uneven surfaces caused by settlement of patch repair material. This is a hazard to pedestrians and cyclists alike. The junction between Baggot Street Lower and Pembroke Row 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. Refer to **Figure 71**.

A damaged concrete kerb was also observed at the junction between Pembroke Road and Wellington Road, representing a further potential danger to pedestrians and cyclists. Refer to **Figure 72**.

Figure 71: Surface Material – Baggot Street Lower / Pembroke Row Junction

Figure 72: Surface Material – Pembroke Road / Wellington Road Junction

5.2.11 Street Furniture

Street furniture is present at varying densities throughout the length of this section of the route. Street furniture observed included traffic signage and signalling poles, bollards, refuse bins, post office boxes, telephone boxes, bus stops, cycle stands, 'pay and display' parking kiosks, electrical kiosks and advertisement boards. The street furniture observed was in most cases located towards the edge of the footpath. Examples of the street furniture observed are presented in **Figure 73** to **Figure 78**.

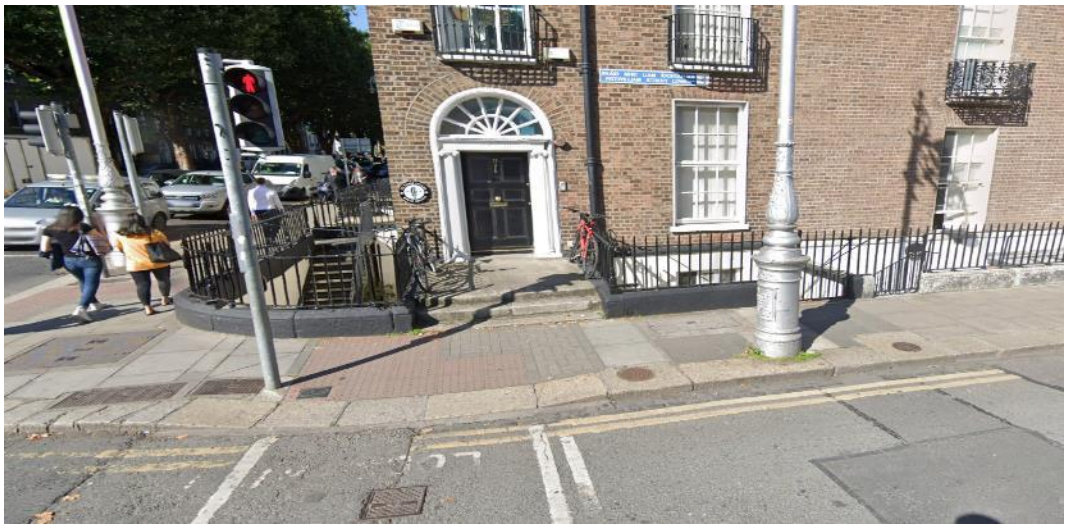

Figure 73: Street Furniture – Fitzwilliam Street Lower

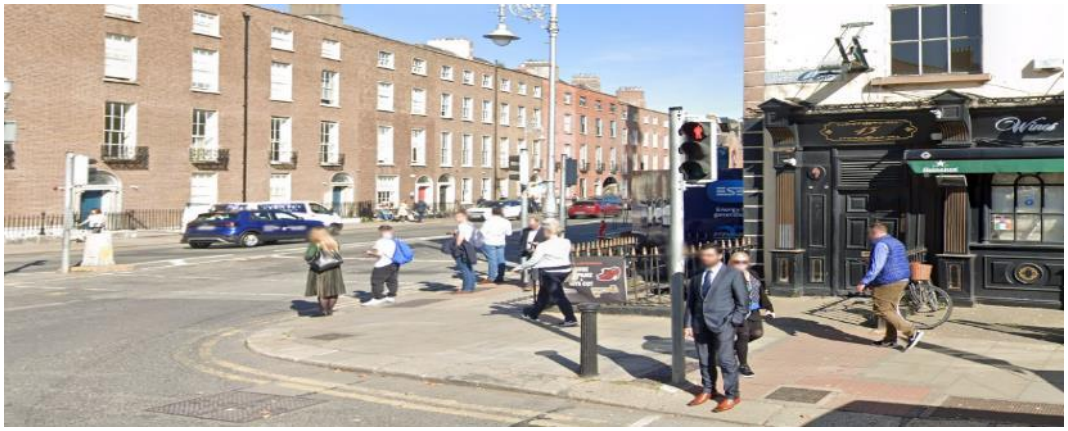

Figure 74: Street Furniture – Baggot Street Lower

Figure 75: Street Furniture – Baggot Street Lower

Figure 76: Street Furniture – Baggot Street Upper

Figure 77: Street Furniture – Baggot Street Upper

Figure 78: Street Furniture – Pembroke Road

In some instances, street furniture did not appear at the edge of the footpath. An example is presented in **Figure 79**, below, where a ‘pay and display’ parking kiosk is positioned almost centrally on the footpath of Fitzwilliam Street Lower. This greatly reduces the effective width of the footpath, making passage difficult for the mobility impaired.

Figure 79: Street Furniture – Fitzwilliam Street Lower

While not street furniture as such, a tree located along Pembroke Road, is also positioned centrally in the footpath, thereby reducing the effective width of the footpath. Refer to **Figure 80**. The footpath is also damaged in this location, most likely due to the effect of the tree roots. This is likely providing a further issue for the mobility impaired.

Figure 80: Street Furniture – Pembroke Road

Street furniture positioned along the footpath on southern side of Baggot Street Lower, immediately after the junction with Fitzwilliam Street Lower, results in this location being particularly constrained for the mobility impaired. Refer to **Figure 81**. The footpath is narrow at this point and the combined effect of café seating and street furniture, including bollards and bus stop poles, are likely to cause difficulty to the mobility impaired.

Figure 81: Street Furniture – Baggot Street Lower

6 Section 5 – Nutley Lane (R138 to Merrion Road)

6.1 Description of the Route

The section of the Proposed Scheme runs along Nutley Lane, which is largely a residential road, as well as being fronted onto by RTÉ Studios, Elm Park Golf and Sports Club, St. Vincent's University Hospital and The Merrion Shopping Centre.

6.2 Problem Identification

6.2.1 Accessible Parking – On-Street Disabled Parking Spaces

Along this section of the route, 4 no. on-street disabled parking facilities have been identified on Nutley Lane. Refer to **Figure 82** and **Figure 83**.

These parking spaces are approximately 5m in length and 2m in width. The parking spaces are located in 'pay and display' areas and provide access to nearby retail and commercial outlets.

No further disabled parking spaces were identified along this section of the route.

Figure 82: Disabled Parking Spaces – Nutley Lane

Figure 83: Disabled Parking Spaces – Nutley Lane

6.2.2 Access Routes – General

Existing footpaths along this section of the route vary depending on the location. They range from 3.25m close to the Stillorgan Road (R138) to 8.5m directly outside the Merrion Shopping Centre (refer to **Figure 84**).

The footpath widths along both sides of the street on this section of the route provide adequate space for disabled users.

Figure 84: Wide Footpath – Nutley Lane (entrance to Merrion Shopping Centre)

6.2.3 Access Routes – Drainage

Only minor drainage issues were noted along this section of the route. Local incidences of sunken gullies leading to ponding of rainwater and associated debris were observed.

The surfaces of most footpaths were in good condition, with an appropriate crossfall gradient.

6.2.4 Access Routes – Guardrails

Pedestrian Guardrails have been observed along this section of the route. 1 no. guardrail was observed at the junction of Nutley Lane and Merrion Road. Refer to **Figure 85**. This guardrail is located at the island of a pedestrian crossing. The width of the footpath in this location is sufficient to accommodate disabled users, even with the reduced effective width caused by the pedestrian guardrails.

Figure 85: Guardrails – Nutley Lane

6.2.5 Pedestrian Crossing Points

All pedestrian crossings along this section have dropped kerbs installed with painted road markings in some 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 did not have pedestrian guardrails and had limited space for safe waiting to cross the road. Refer to **Figure 86** to **Figure 88** for examples of pedestrian crossing points along Nutley Lane.

Figure 86: Pedestrian Crossing Point – Nutley Lane

Figure 87: Pedestrian Crossing Point with Pedestrian Island – St. Vincent's University Hospital

Figure 88: Pedestrian Crossing Point – Nutley Lane

6.2.6 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 stage. Where an island is provided, measures should be taken to ensure pedestrian safety, such as adequate space to wait in.

There are a number of uncontrolled crossings along this section. Most of these are of a reasonably good standard. However, some are noticeably of poor standard particularly when catering for the mobility and visually impaired. There are two instances of dropped kerbs along Nutley Lane being located on the curve of the road and not in the direct line of travel at the junction. Refer to **Figure 89**. Locating the dropped kerbs on the curve of a road can cause a risk of visually impaired users being misdirected by the orientation of the kerb.

Figure 89: Uncontrolled Crossing Point with Dropped Kerbs on Curve of Road – Nutley Lane

6.2.7 Tactile Paving Surfaces

All controlled crossings feature tactile paving surfaces on both footpaths. The pedestrian island at the junction of Nutley Lane and Merrion Road also features tactile paving. Refer to **Figure 90**.

The other pedestrian island along Nutley Lane has had its paving removed entirely to lower it to road level.

Figure 90: Tactile Paving Surface at Pedestrian Island – Nutley Lane

6.2.8 Changes in Level

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

6.2.9 Shared Spaces, Shared Surfaces

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

6.2.10 Surface Material

The footpath surface material along this section is generally either in-situ concrete, often with precast concrete kerbs, or an asphalt material surface. There are some instances of concrete paving. However, in-situ concrete is the predominant material on the western side of the road while concrete and asphalt are the predominate materials on the eastern side of the road.

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

Refer to **Figure 91** to **Figure 93** for examples of damaged footpaths and poor quality surface material.

Figure 91: Surface Material – Nutley Lane / Nutley Avenue Junction

Figure 92: Surface Material – Nutley Lane

Figure 93: Surface Material – Nutley Lane

6.2.11 Street Furniture

Street furniture is present at varying densities throughout the length of this section of the route. Street furniture observed included traffic signage and signalling poles, bollards, refuse bins, post office boxes, bus stops, cycle stands, 'pay and display' parking kiosks and electrical kiosks. The street furniture observed was in most cases located towards the edge of the footpath. Examples of the street furniture observed are presented in **Figure 94** to **Figure 96**.

Additionally, some of the bus stops located along this section result in a reduced effective width of the footpath, making passage difficult for the mobility impaired. Refer to **Figure 97** for an example.

Figure 94: Street Furniture – Nutley Lane

Figure 95: Street Furniture – Nutley Lane

Figure 96: Street Furniture – Nutley Lane

Figure 97: Street Furniture – Nutley Lane

7 Conclusions

An audit has been undertaken to identify existing issues and problems for people with mobility impairment who currently use the Belfield / Blackrock to City Centre Scheme 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:

7.1 Accessible Parking

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

7.2 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.

7.3 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.

7.4 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.

7.5 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 the crossing of carriageways.

7.6 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.

7.7 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.

7.8 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.

7.9 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.

7.10 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.