# **Appendix I1**
# Accessibility Audit Report

National Transport Authority

# Blanchardstown to City Centre Core Bus Corridor Scheme

## Accessibility Audit Report

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# Contents

# 1 Introduction

## 1.1 Introduction

Arup has been commissioned by the National Transport Authority to carry out an Accessibility Audit of the existing Blanchardstown to City Centre Core Bus Corridor Scheme (hereinafter referred to as 'the Proposed Scheme') of the BusConnects Core Bus Corridor (CBC) network. 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 guidance, and makes recommendations to address these issues. The report sets out design criteria considered imperative to maintaining the dignity of people with disabilities as they interact with the external environment, including structures, people, and services.

The assessment of the existing street infrastructure and its ability to support access for disabled users have been based mainly on 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 audit has also taken cognisance of guidance given in the '*Design Manual for Urban Roads and Streets'* (DMURS).

The Proposed Scheme, for the purpose of this audit, has been split into three main sections, as follows:

- **Section 1:** N3 Blanchardstown Junction to N3/M50 Junction (which in the Preliminary Design Report this section is further subdivided into two smaller sections, namely N3 Blanchardstown Junction to Snugborough Road, and Snugborough Road to N3/M50 Junction).
- **Section 2:** N3/M50 Junction to Navan Road / Old Cabra Road Junction (which in the Preliminary Design Report this section is further subdivided into two smaller sections, namely N3 / M50 Junction to Navan Road / Ashtown Road Junction; and Navan Road / Ashtown Road Junction to Navan Road / Old Cabra Road Junction); and
- **Section 3:** Navan Road / Old Cabra Road Junction to Ellis Quay.

The extents of each of these scheme sections are indicated in **Figure 1-3** below.

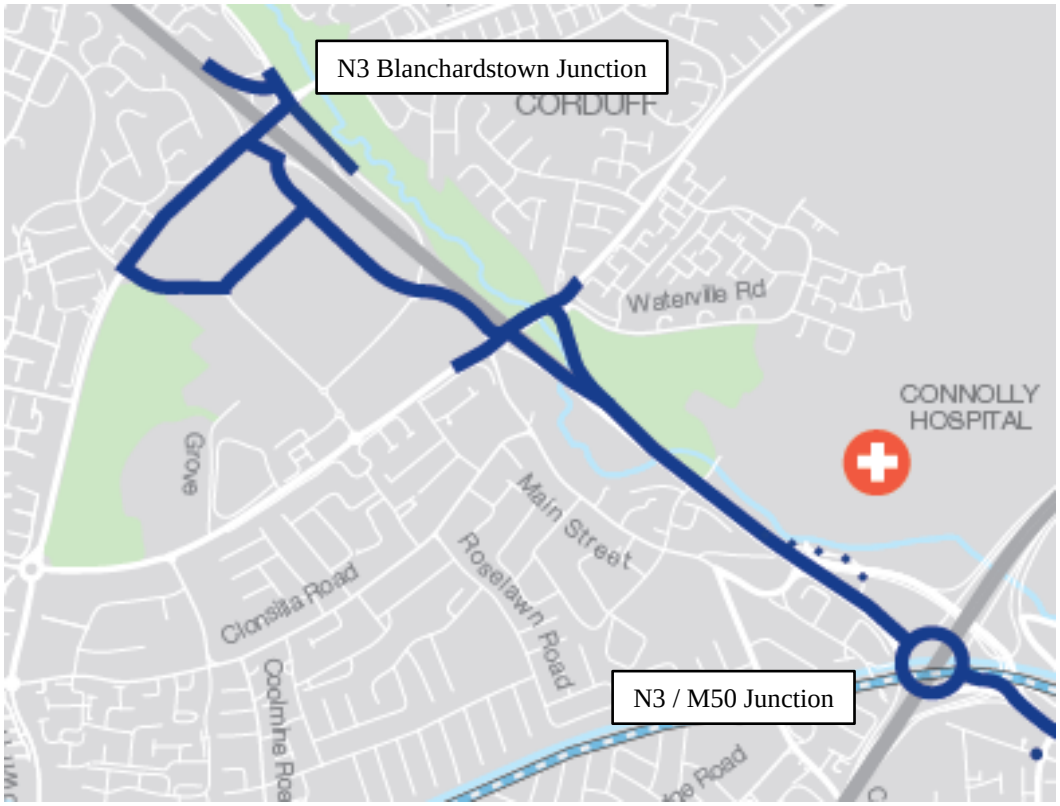


**Figure 1: Section 1 – N3 Blanchardstown Junction to N3/M50 Junction**

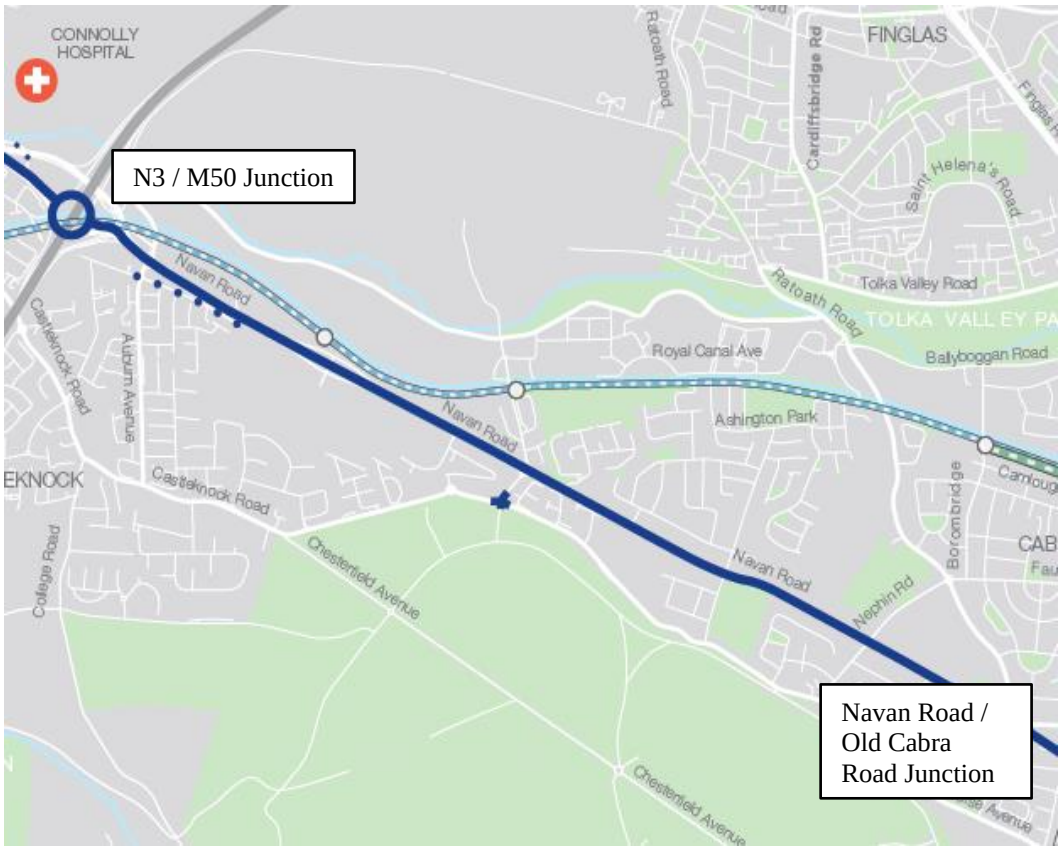


**Figure 2: Section 2 – N3/M50 Junction to Navan Road/Old Cabra Road Junction**


**Figure 3: Section 3 – Navan Road /Old Cabra Junction to Ellis Quay / Arran Quay**

## 1.2 Report Structure

The audit report has been set out with information relating to each of the corridor sections 1, 2 and 3 included in Chapters 2, 3 and 4 respectively. The issues noted are typical of each section of route and are intended to provide a representative sample of the current standard of facility for disabled persons using footpath areas along the corridor.

The report concludes with overall design considerations to be adopted for the detailed design of the proposed scheme.

# 2 N3 Blanchardstown Junction to N3/M50 Junction

## 2.1 Description of the Route

The Proposed Scheme would commence at Junction 3 (Blanchardstown / Mulhuddart) eastbound off-slip from the N3. The proposed layout consists of altering the existing off-slip road from the N3 from two general traffic lanes to one general traffic lane and one bus lane. It is proposed to modify Blanchardstown Road North / Navan Road Junction to a protected style junction to enhance safety for cyclists. Immediately to the south of this junction, the N3 on-slip junction would be modified to accommodate a left turn filter lane with the northbound cycle track being moved to alongside the verge.

The proposed lane configuration along the R121 Blanchardstown Road North over the N3 is to maintain its current layout of three general traffic lanes in each direction.

After crossing the overbridge, a bus lane is proposed along the southern side of the Blanchardstown Road South towards the Blanchardstown Shopping Centre via the Blakestown Way junction. It is also proposed that the Blakestown Way Roundabout be modified to a four-arm signalised junction to maximise bus priority and manage peak congestion flows.

To the east of Blakestown Way junction, it is proposed to provide a new general traffic access from Blanchardstown Road South into the northern car park of the shopping centre.

South of Blanchardstown Road South, it is proposed that the West Street/ Blakestown Way roundabout junction be modified to a signal-controlled junction in order to maximise bus priority directly into and out of the bus interchange, located just to the east of the junction.

On Blakestown Way, it is proposed to provide two general traffic lanes and a bus lane on approach to the bus interchange.

Within the Blanchardstown Centre site, it is proposed to upgrade the existing bus stops on West Street area to a more formal bus terminus/interchange with associated improved passenger waiting facilities. The proposed layout would have eastbound and westbound general traffic lanes routed to the north and south of the interchange respectively.

A northbound bus lane on the Blanchardstown north-eastern link road towards Blanchardstown Road South is proposed for buses travelling north from Blanchardstown Interchange, and a new bus-stop for inter-urban buses is proposed on the Northbound N3 off-slip adjacent to Crowne Plaza. The bus lane alongside the Northbound N3 off-slip would be an additional lane and would not reduce traffic, pedestrian or cycle provision.

It is also proposed that a bus layover 'layby' is to be located north of the shopping centre on Blanchardstown Road South, which would meet bus operational needs in terms of providing flexibility in the operation of Blanchardstown Bus Interchange. A driver welfare facility is also proposed in close proximity to the bus layby.

South of the Shopping Centre, buses would then be routed along the existing North Street running to the north-east of the Blanchardstown Centre. It is proposed to provide dedicated bus lanes on North Street.

It is also proposed to modify the existing roundabout at the southeastern edge of Blanchardstown (at the Old Navan Road junction) to a fully signalised crossroads; and to provide a bus lane each side of this junction.

Following this section, it is proposed to route bus lanes through the Snugborough Road junction. The works, which are being undertaken on behalf of Fingal County Council under a separate project, involve the widening of the Snugborough Road bridge and provision of additional general traffic lanes on the L3020.

Following the Snugborough Road junction, bus lanes would be routed on to the N3 Navan Road via the south-facing on and off-slip roads. On the N3, it is proposed to construct a continuous bus lane on the outer extremities of the corridor in both directions.

It is also proposed to provide continuous bus lanes in both directions along the N3 route across the M50 / N3 interchange via the main junction roundabout.

## 2.2 Problem Identification

### 2.2.1 Accessible Parking – On-Street Disabled Parking Spaces

There are no on-street disabled parking spaces along this section of the route.

### 2.2.2 Access Routes on footpaths

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

The width of the existing footpaths varies from approximately 2m along Blanchardstown Road South to 1.5m along the L3020 and 1.6m along the Navan Road. An example of a constrained width on a footpath is show in **Figure 4**.

Overall, the existing footpath width provision is sufficient to cater for disabled users.

**Figure 4: Effective width of footpath reduced due to lamppost placement. – Blanchardstown Shopping Centre**

### 2.2.3 Access Routes – Drainage

The crossfall gradient of the footpaths for the majority of this section of the scheme was not considered too steep at any particular point.

The crossfall gradient for the northern footpath on the N3 eastbound diverge overbridge has a gradient that does not achieve the recommended limits.

### 2.2.4 Access Routes – Guardrails

Some guardrails were noted in certain locations among this route. Guardrails are located on the northern side of the L3020, on the rear edge of the footpath, with crash barriers on the road edge as shown in **Figure 5**.


**Figure 5: Guardrails - L3020**

At the Snugborough Junction, guardrails are in place at all pedestrian crossing points. Certain pinch areas may prove difficult for mobility-impaired users to manoeuvre freely as shown in **Figure 6**.

**Figure 6: Guardrails - Snugborough Junction**

Guardrails were also noted around Blanchardstown Shopping Centre at pedestrian links to prevent visually impaired users from straying onto junctions as shown in **Figure 7**.

**Figure 7: Guardrails - Blanchardstown Shopping Centre**

### 2.2.5 Pedestrian Crossing Points

The standard of existing pedestrian crossing points through this section of the scheme varies with dropped kerbs not provided in some locations and dropped kerbs with inadequate width preventing wheelchair users and pushchairs from navigating the crossings comfortably. **Figures 8-10** show some examples of pedestrian crossing points in this section.


**Figure 8: Pedestrian Crossing Point - N3**

**Figure 9: Pedestrian Crossing Point with no dropped kerb - Navan Slip Road**

**Figure 10: Pedestrian Crossing Point with no dropped kerb on curve of road.**

There are currently poor crossing facilities at the Blakestown Way roundabout, as shown in **Figure 11**, with dropped kerbs missing at one of the three traffic islands, thus providing a misleading layout for mobility impaired users.

**Figure 11: Pedestrian Crossing Point with poor layout – Blakestown Way Junction**

### 2.2.6 Controlled and Uncontrolled Crossings

There is a mixture of controlled and uncontrolled crossings along this section of the scheme. Some of the crossing facilities at junctions are of poor standard particularly when considering the mobility impaired and visually impaired. At Blakestown Way junction, the dropped kerbs at the uncontrolled crossings are located on the curve of the road. Locating the dropped kerbs on the curve of a road can cause a risk of visually impaired users being mis-directed by the orientation of the kerb.

### 2.2.7 Tactile Paving Surfaces

Various crossing locations along this section have no tactile paving surfaces at dropped kerb areas. An area missing tactile paving is show in **Figure 12**.

**Figure 12: Tactile Paving - Missing tactile paving – L3020**

The layout of the tactile paving at some crossing points does 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. In other instances where service chambers are located within the tactile paving, stick-on tactile paving is not applied. The number of rows of tactile paving required across the full width of the dropped kerbs in some instances do not follow the required standards. An area with insufficient tactile paving is show in **Figure 13**.

**Figure 13: Insufficient tactile paving – Junction at Blanchardstown Shopping Centre**

### 2.2.8 Changes in Level

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

### 2.2.9 Shared cycle / pedestrian areas

Footpaths on Blanchardstown Road South are effectively shared between cyclists and pedestrians as shown in **Figure 14** and **Figure 15**. 2m – 4m widths are provided for both the cycle track and the footpath.

**Figure 14: Shared Spaces - Blanchardstown Road South**

**Figure 15: Shared Spaces - Blanchardstown Road South**

### 2.2.10 Surface Material

The footpath surface material within this section of the scheme varies between paving flags, paviours, and concrete where footpaths are alongside the carriageway. Some repairs within concrete footpaths were performed using asphalt material. An example of some of the surface material is shown in **Figure 16**.

**Figure 16: Surface Material - Blanchardstown Shopping Centre**

A section of footpath on Blanchardstown Road South (of around 200m length) has been repaired using asphalt material creating a visually inconsistent and uneven surface which may cause difficulties for mobility-impaired users as shown in **Figure 17**.

**Figure 17: Surface Material - Blanchardstown Road South**

### 2.2.11 Street Furniture

From Blanchardstown Shopping Centre to the Snugborough Junction, some street furniture may prove a hindrance to wheelchair users. As seen in the images in **Figure 18** and **Figure 19**, lamp-post and bus stop locations need to be cognisant of possible interactions with wheelchair users in areas with narrow footpaths.


**Figure 18: Street Furniture – L3020**


**Figure 19: Street Furniture – L3020**

# 3 N3/M50 Junction to Navan Road / Old Cabra Road Junction

## 3.1 Description of the Route

The Proposed Scheme has additional bus stops at the Auburn Avenue junction, with a proposed Quiet Street Treatment proposed for cyclists via Castleknock Manor to integrate with secondary route 4A of the GDA Cycle Network Plan. The Auburn Avenue / Castleknock Manor roundabout is proposed to be modified to provide enhanced pedestrian and cyclist facilities.

East of Castleknock Manor, the two-way cycle track would then continue along the outer edge of the R147 western (outbound) carriageway, serving through movement and existing and planned residential areas.

A bus lane is proposed along the existing inner lane of the inbound and outbound R147 carriageway, with the inbound bus lane intermittent over a short section between Morgan Place and Navan Parkway off-slip to allow for left-off / left-in traffic movements. At the Navan Road Parkway junction, it is proposed that buses be routed off the mainline and along the on and off slip roads (widened where necessary to carry bus lanes), and through the junctions at either end of the overbridge.

From the Phoenix Park Avenue junction to the Ashtown Road junction a bus lane and general traffic lane in each direction is proposed, with the existing central median removed. The existing signal-controlled pedestrian crossing between Ashtown Road and Phoenix Park Avenue is to be retained.

At the Navan Road/Ashtown Road junction, the existing roundabout would be modified to a signal-controlled crossroads, with segregated pedestrian and cycle crossings. At Ashtown Road junction, it is proposed to terminate the two-way cycle track on the R147, west of the junction, and to transition to a one-way cycle track on each side of the Navan Road carriageway (east of the junction, and within the 50 Km/h speed limit). A general traffic lane and bus lane in both directions is generally proposed along Navan Road (i.e. a minimum of four lanes in total) to the Cabra Road junction, with a one-way cycle track on both sides of the road.

From the traffic modelling analysis, it was noted that the proposed scheme may cause some general traffic to divert from Navan Road to Blackhorse Avenue. To mitigate against this, the junction of Blackhorse Avenue/Ashtown Gate Road is proposed to be modified and signalised – such that signal green times from Blackhorse Avenue can be minimised to limit outbound through traffic, and straight-ahead traffic from Castleknock Road will be banned from turning into Blackhorse Avenue

At the junction of Navan Road / Kinvara Avenue / Baggot Road, the previously proposed southbound right turn lane into Baggot Road has been removed (although the right-turn movement is allowed).

On the approach to the Old Cabra Road/Cabra Road junction, the south side of Navan Road has been modified to two one-way cycle tracks (on either side of the road).

## 3.2 Problem Identification

### 3.2.1 Accessible Parking – On-Street Disabled Parking Spaces

There are no disabled on-street parking spaces along this section of the route.

### 3.2.2 Access Routes on footpaths

The section from the M50 Roundabout to the Ashtown Road / Navan Road junction is not an appealing pedestrian route due to the relatively high speeds and volumes of traffic and the limited footpath connectivity. The footpath width is approximately 1.7m. throughout the majority of this area.

Along the Navan Road east of Ashtown Road the effective footpath width varies from 1.7m to 2m approximately. However, parking on the footpath is common and may impede mobility impaired users, especially wheelchair users due to constrained widths.

The combined width of the two-way shared cycle track and pedestrian footpath is approximately 3m, and does not provide enough width for its required function along the Navan Road as shown in **Figure 20**.


**Figure 20: Cycle and Pedestrian facility – Ashtown Road / Navan Road**

### 3.2.3 Access Routes – Drainage

The crossfall gradient of the footpaths within this section of the scheme is generally not steep and hence does not create undue difficulties for mobility-impaired road users.

### 3.2.4 Access Routes – Guardrails

Guardrails are provided at various controlled crossing points – for example on the Navan Road slip-road next to the Navan Parkway train station and on the Navan Road pedestrian crossing adjacent to Castleknock Manor, as shown in **Figure 21**.

**Figure 21: Guardrails - Navan Road**

There are also guardrails provided at intermittent locations on the section of route east of Ashtown Road, such as at the Aura swimming pool access and at an exit point at Darling Estate; these guardrails protect visually impaired users from traffic on the nearby carriageway as shown in **Figure 22**.

**Figure 22: Guardrails - Navan Road**

### 3.2.5 Pedestrian Crossing Points

Island widths on the Navan Road vary and are often restrictive for wheelchair users and / or have no tactile paving present; for example, at the Baggot Road / Kinvara Avenue Junction (1.25m) shown in **Figure 23**.

**Figure 23: Pedestrian Crossing Point - Navan Road**

Dropped kerbs at many crossings have a significant level difference between the road and the kerb – such that their use by mobility impaired users is made more difficult. For example, the dropped kerbs at St. Vincent's National School are insufficiently low and may impede wheelchair users as shown in **Figure 24**.

**Figure 24: Pedestrian Crossing Points - Navan Road**

### 3.2.6 Controlled and Uncontrolled Crossings

The uncontrolled crossings at the Navan Road / Ashtown Road roundabout are effectively diagonal crossings which are not perpendicular with the kerbs, and do not follow direct desire lines across the junction - as shown in **Figure 25**.


**Figure 25: Uncontrolled Crossing - Ashtown Road / Navan Road Roundabout**

Another example of poor facilities for mobility-impaired people is at the controlled crossing at Navan Road near the Navan Road Parkway Station. This has a crossing point on the corner radius. narrow footpath widths and traffic lights placement which create difficulties for wheelchair users (as shown in **Figure 26**).

**Figure 26: Controlled Crossing - Navan Road**

### 3.2.7 Tactile Paving Surfaces

A number of uncontrolled crossings do not have tactile paving adjacent to the dropped kerbs. The layout of the tactile paving at some crossing points does not meet the requirements or recommendations of the NDA guidance, by not extending to the rear of the footpath or to building lines. In other instances, where service chambers are located within tactile paving, stick-on tactile paving has not been applied. The number of rows of tactile paving required across the full width of dropped kerbs, in some instances, do not meet the required standards. Examples are shown in **Figure 27** and **Figure 28**.

**Figure 27: Limited or Missing Tactile Paving - Kempton Avenue**

**Figure 28: Limited or Missing Tactile Paving - Navan Road**

### 3.2.8 Changes in Level

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

### 3.2.9 Shared cycle / pedestrian areas

A combined two-way cycle track and footpath begins west of the Navan Road Parkway Station and slip roads adjacent to St. Brigid's GAA grounds with a combined width of approximately 3.7m reducing to approximately 3m at the Ashtown Road Roundabout as shown in **Figure 29** and **Figure 30**.

The lines of demarcation are poor for the majority of this track, and 3m overall width for a two-way cycle-track and footpath is not in accordance with standards.


**Figure 29: Shared Cycle track / footpath - Navan Road**


**Figure 30: Shared Cycle Track / Footpath - Navan Road**

### 3.2.10 Surface Material

The majority of this section is comprised of concrete footpaths, with cracking of footpaths in many locations due to upheaval caused by tree roots. Some areas have been repaired using asphalt material creating an undulating surface which would cause difficulties for mobility- impaired users as shown in **Figure 31**.

**Figure 31: Poor Surface Material – Navan Road**

**Figure 32: Poor Surface Material - Navan Road**

### 3.2.11 Street Furniture

The majority of this section does not have much interference from street furniture. Street furniture locations are noted in **Figure 33** and **Figure 34**, along the Navan Road.

**Figure 33: Street Furniture and grassed area - Navan Road**

**Figure 34: Street Furniture and grassed area - Navan Road**

# 4 Navan Road / Old Cabra Road Junction to Ellis Quay

## 4.1 Description of the Route

A bus gate is proposed in the southbound direction at the northern end of Old Cabra Road (at its junction with Navan Road). This allows only buses, taxis and cyclists to travel from Navan Road towards Stoneybatter along Old Cabra Road.

A bus gate is also proposed in the northbound direction at the railway overbridge on the Old Cabra Road. This would only allow buses, taxis and cyclists to travel along Old Cabra Road through to Navan Road.

It is proposed that there would be new traffic signal controls at the Old Cabra Road/ Glenbeigh Road junction. This junction alteration would enable general traffic flows turning left or right onto Old Cabra Road to be controlled and minimised (to avoid general traffic taking short-cuts along Glenbeigh Road and Old Cabra Road). The general layout of the junction would be unchanged except for signals and a pedestrian crossing.

On Old Cabra Road northbound, there would be a dedicated bus lane for an approximate 100m section south of the Navan Road junction.

It is proposed to provide two one-way cycle tracks on either side of the Old Cabra Road.

On Prussia Street, between North Circular Road and the entrance to the Park Shopping Centre, the proposed road layout is one southbound general traffic lane, one northbound ‘straight-ahead only’ lane (for local traffic and buses travelling to Old Cabra Road), and one left turn lane from Prussia Street to North Circular Road. The straight-ahead movement from Prussia Street to Old Cabra Road would be signposted as ‘no through road except for buses, taxis, cyclists and local access traffic’, and right-turns from Prussia Street to North Circular Road would be banned.

To provide an alternative route to and from the city centre (along Cabra Road, North Circular Road, Infirmary Road and Conyngham Road) the proposals include an alteration to an offline junction at St Peter’s Church (where Cabra Road meets the North Circular Road). This signalised junction would be modified to allow right-turns from Cabra Road to North Circular Road and left-turns from North Circular Road onto Cabra Road.

Through traffic travelling between Navan Road and the Quays would also be able to travel from Cabra Road via the North Circular Road, Berkeley Road (southbound) or Phibsborough Road/Constitution Hill (northbound).

Two one-way cycle tracks on each side of the road are proposed at the northern end of Prussia Street. The southbound cycle track would merge into the general traffic lane just north of the Park Shopping Centre. The northbound cycle track commences approximately 115m from the Aughrim Street junction.

On Prussia Street south of the Park Shopping Centre, the proposal would provide a general traffic lane in both directions which would allow local traffic to access this area as at present. The proposal has been modified to reduce the possibility of through traffic using St Joseph's Road, by including a short one-way section (in an eastbound direction) at its eastern end (at the junction with Prussia Street).

At the junction of Aughrim Street / Manor Street / Prussia Street, the route includes a bus gate arrangement in both directions at the junction, which would effectively limit through movement between Prussia Street and Manor Street to buses and taxis – as well as cyclists.

In the northbound direction, the bus gate would be located on Prussia Street just north of the Aughrim Street junction, such that northbound general traffic would need to turn left onto Aughrim Street.

In the southbound direction, a bus gate would be located on Prussia Street/Manor Street just south of the Aughrim Street junction, and any general traffic travelling southbound on Prussia Street at this location would have to turn right onto Aughrim Street. This change would provide improved bus priority southbound, better facilities for cyclists, and greater scope for public realm improvements. These arrangements would allow for local traffic access, but effectively discourage through traffic.

The junction design also includes provision for a signal controlled 'bus only' phase from Aughrim Street to Manor Street (which would be activated by southbound buses on Aughrim Street). A signal-controlled cycle-crossing would be included at the junction of Manor Street and Aughrim Street.

South of this junction, the proposal includes introducing signal control at the Manor Street/Kirwan Street/Manor Place junction. The signal-controlled junction would also include a pedestrian crossing of Manor Street within the junction. It is also proposed to restrict movements out of Kirwan Street to left turns only to limit the ability of general traffic to short-cut along local roads, and to make Manor Place one-way only (towards Manor Street).

On Manor Street south of the Manor Place junction, the proposals include a general traffic lane and cycle track in both directions.

The proposals include retention of a number of parking bays where feasible on Manor Street and Aughrim Street. The loading bays next to Kavanagh's Public house on Aughrim Street near the junction of Manor Street and Prussia Street, and at the Stoneybatter would be retained. Under the proposed layout, a loading bay would also be provided on the west side of Manor Street, south of Manor Place junction.

At Stoneybatter, a northbound bus-only section between the junctions of King Street North and Brunswick Street North is proposed – with northbound general traffic having to turn right into King Street North, and then travel anti-clockwise along George's Lane and Brunswick Street North to reach Manor Street.

This proposal will provide an ability to control and discourage northbound through-traffic while also ensuring reliability for bus movement through Stoneybatter. Wider footpaths on Manor Street and Stoneybatter would also be achieved by narrowing the carriageway to a single lane in both directions.

Brunswick Street North is proposed as a westbound one-way street, with two one-way cycle tracks – which would link to the one-way cycle tracks on Stoneybatter (to the north), and two-way cycle tracks on George's Lane and Queen Street (to the south). The cycle track on George's Lane has been aligned to connect with Grangegorman Lower which is considered to be an increasingly important cycle route to/from the TU Dublin campus at Grangegorman.

Local vehicular traffic on Brunswick Street North would be able to exit to the south and the north. General traffic exiting Arbour Hill would be required to turn right only at the Stoneybatter junction. General traffic into Arbour Hill would only be allowed from Stoneybatter or Brunswick Street North.

Southbound general traffic would travel on Manor Street/Stoneybatter in a single lane; and would be required to turn left into King Street North (which would remain one-way eastbound), but with buses allowed to continue travelling straight ahead to a southbound bus lane on Blackhall Place. A loading bay is proposed to be introduced on King Street North.

The proposed road layout for Blackhall Street includes one lane for general traffic, a two-way cycle track, and angled parking.

General traffic movements from Blackhall Place to the east would be via King Street North. Westbound general traffic on the eastern section of King Street North (east of George's Lane) would be restricted to left turns only, into Queen Street.

In the proposed layout, George's Lane would have one northbound lane, and a two-way cycle track, with proposed new signal controls at the junction of Grangegorman Street Lower and Brunswick Street North. This layout would provide additional pedestrian space and the opportunity for enhanced urban realm.

On Blackhall Place between Blackhall Street and Ellis Quay, a bus lane and general traffic lane are proposed in each direction.

On Queen Street the layout would be modified to allow for a reduction from two southbound general traffic lanes to one southbound general traffic lane from Blackhall Street to Ellis Quay / Arran Quay, which would allow for footpath widening in this area, with a two-way cycle track on the eastern side of Queen Street.

Traffic management measures in the form of sections of one-way street and / or turn bans have been devised to minimise traffic impacts on roads adjacent to the proposed core bus corridor due to any rerouting of traffic (which may occur due to the priority given on the bus corridor scheme to pedestrians, cyclists and buses).

These are:

- Short one-way northbound sections are proposed on Annamoe Road at its junction with Annamoe Terrace and on Charleville Road at its junction with North Circular Road.
- Access from Phisborough Road onto Phibsborough and Monck Place in a westbound direction is being restricted, along with the introduction of right turn bans onto Phibsborough Road from these two side streets.
- Short one-way southbound sections are proposed at the northern end of Cowper Street and Aughrim Place, along with a short one-way westbound section at the western end of Swilly Road.

## 4.2 Problem Identification

### 4.2.1 Accessible Parking – On-Street Disabled Parking Spaces

Two on-street disabled parking spaces were identified during the audit on Manor Street. For both disabled parking spaces there is no dropped kerb on the adjacent footpath – to allow for ease of access from a parked car to the footpath. (One example of this is shown in **Figure 35**).


**Figure 35: On-Street Disabled Parking - Manor Street**

### 4.2.2 Access Routes on footpaths

The footpath on the Navan Road has a width of 2m to 2.5m for the majority of this section. However, illegal parking on footpaths is common in this area, which results in difficulty for wheelchair users as seen in **Figure 36**.


**Figure 36: Illegal Parking - Navan Road**

Old Cabra Road has a footpath width of approximately 1.6m on the western side of the carriageway near the Lidl shop, which creates a difficult environment for wheelchair users to navigate. The footpath width becomes narrower on Prussia Street (approximately 1.4m in width in places). The footpath width is also constrained on Stoneybatter, Brunswick Street North and King Street North.

### 4.2.3 Access Routes – Drainage

Local drainage issues on footpaths were identified, particularly where concrete footpaths have failed, resulting in localised ponding.

The crossfall of the footpaths within this section of the scheme were not considered to be excessive at any particular point.

Some drainage channels were noted in certain areas along Old Cabra Road and Manor Street as seen in **Figure 37** and **Figure 38**. These channels are aligned along the footpath and hence can create difficulties for wheelchair travel.


**Figure 37: Footpath - Old Cabra Road**


**Figure 38: Footpath - Manor Street**

### 4.2.4 Access Routes – Guardrails

Guardrails are located at a number of locations, such as the Holy Family Parish Centre on Prussia Street and on Blackhall Place as shown in **Figure 39** and **Figure 40**; they are also located at the junctions of King Street and Brunswick Street with George's Lane. These guardrails are located to prevent vulnerable pedestrians such as children or the visually impaired from erroneously stepping onto the road.


**Figure 39: Guardrail - Prussia Street**


**Figure 40: Guardrail - Blackhall Place**

### 4.2.5 Pedestrian Crossing Points

The uncontrolled crossing point at Skreen Road / Navan Road junction as shown in **Figure 41** is located on a bend and does not proceed in a straight line to the opposite dropped kerb. This arrangement is also noted at a number of other areas along this section. Locating the dropped kerbs at a bend in a road can cause a risk of visually impaired users being mis-directed due to the orientation of the kerb.


**Figure 41: Pedestrian Crossing Point - Skreen Road / Navan Road junction**

Multiple crossings on the Old Cabra Road do not include fully dropped kerbs and thus present a barrier to comfortable use by wheelchair and visually impaired users. An example of a pedestrian crossing point with no drop-kerb is show in **Figure 42**.

**Figure 42: Pedestrian Crossing Point - Old Cabra Road**

### 4.2.6 Controlled and Uncontrolled Crossings

Pedestrian crossing lines are provided at all controlled crossing points, as required.

The uncontrolled crossing at Hampton Green on the Navan Road has no differentiation in level from the footpath to the carriageway as shown in **Figure 43** thus creating a risk for visually impaired users as there is no hazard warning in the form of tactile paving. In addition, pedestrians may interpret pedestrian crossing lines at uncontrolled crossings as giving priority to pedestrians across the junction.

**Figure 43: Uncontrolled Crossing – Navan Road**

The uncontrolled crossing at Glenbeigh Road as shown in **Figure 44** does not have any dropped kerbs or tactile paving.

**Figure 44: Uncontrolled Crossing - Glenbeigh Road**

### 4.2.7 Tactile Paving Surfaces

A number of uncontrolled crossings do not have tactile paving at the dropped kerbs. The layout of the tactile paving at some crossing points does not meet the requirements or recommendations of the NDA guidance, by not extending to the rear of the footpath or to building lines. In other instances, where service chambers are located within the tactile paving, stick-on tactile paving was not applied. The number of rows of tactile paving required across the full width of the dropped kerbs in some instances are not in accordance with the required standards. **Figure 45** and **Figure 46** show some examples of tactile paving in this section of the scheme.


**Figure 45: Tactile Paving - Navan Road**


**Figure 46: Tactile Paving - Prussia Street**

### 4.2.8 Changes in Level

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

### 4.2.9 Shared cycle / pedestrian areas

There is a short section of shared space on George's Lane at its junction with Brunswick Street as shown in **Figure 47**. The lines of demarcation are poorly laid out.

**Figure 47: Shared Spaces - George's Lane / Brunswick Street**

### 4.2.10 Surface Material

The footpath surface material along the Navan Road section is generally in-situ concrete, often with precast concrete kerbs. There are also areas of concrete paving and asphalt surfacing.

Asphalt and concrete have both been used for patch repairs along both footpaths. In some instance this has led to undulating surfaces. This is a hazard to pedestrians and cyclists alike. Damage to concrete kerbs was also observed at locations where trees were positioned, and this is most likely due to tree roots.

Along Prussia Street, Manor Street, Stoneybatter and Blackhall Place, surface materials vary between granite, concrete paving flags, and concrete. Manor Street and Stoneybatter has also some cobbled surfacing. Some examples of the different types of surface material along this section are shown in **Figure 48, Figure 49** and **Figure 50**.

Cobbles and setts can create an uneven and uncomfortable surface for wheelchair users.

**Figure 48: Surface Material - Navan Road**


**Figure 49: Surface Material - Prussia Street**


**Figure 50: Surface Material - Manor Street**

Brunswick Street North has an uncontrolled crossing containing disused or historic tram lines and cobbles as shown in **Figure 51**.

**Figure 51: Surface Material - Brunswick Street North**

### 4.2.11 Street Furniture

There are multiple street furniture items located in footpaths along this section of route, increasing in density in Stoneybatter. Along areas of narrow footpaths, such as Prussia Street and Queen Street, widths are often severely constrained and create difficulties for mobility-impaired users. Some examples of street furniture in this section are shown in **Figure 52-55** below:

**Figure 52: Street Furniture - Navan Road**

**Figure 53: Street Furniture - Old Cabra Road**

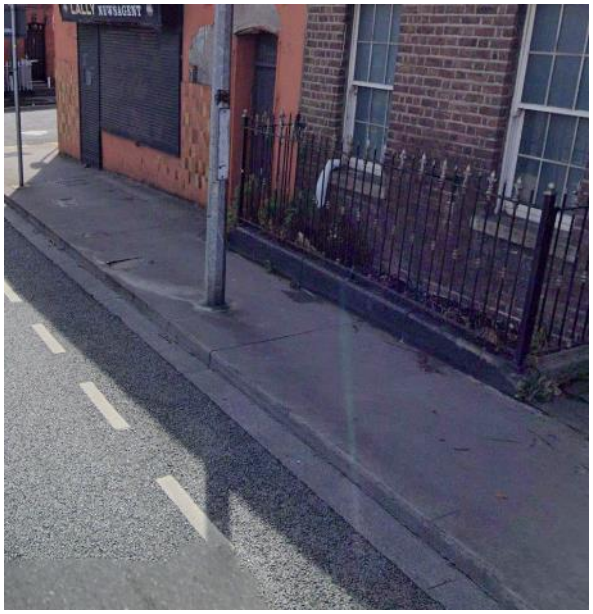

**Figure 54: Street Furniture - Prussia Street**

**Figure 55: Street Furniture - Queen Street**

# 5 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:

## 5.1 Accessible Parking

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

## 5.2 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.

## 5.3 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.

## 5.4 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.

## 5.5 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.

## 5.6 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.

## 5.7 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.

## 5.8 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.

## 5.9 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.

## 5.10 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.