



Appendix A6.3
Junction Design
Report

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1 Introduction

This report has been prepared to document the evolution of the design of key junctions along the Blanchardstown to City Centre Core Bus Corridor Scheme (hereafter referred the Proposed Scheme) and is illustrated in Figure 1. In addition, the report presents the junction assessment results for the final scheme design which demonstrates the expected operation of the junction. Finally, a theoretical assessment has been carried out to demonstrate the theoretical capacity of the junctions for all modes. The methodology adopted is elaborated upon in the following sections.

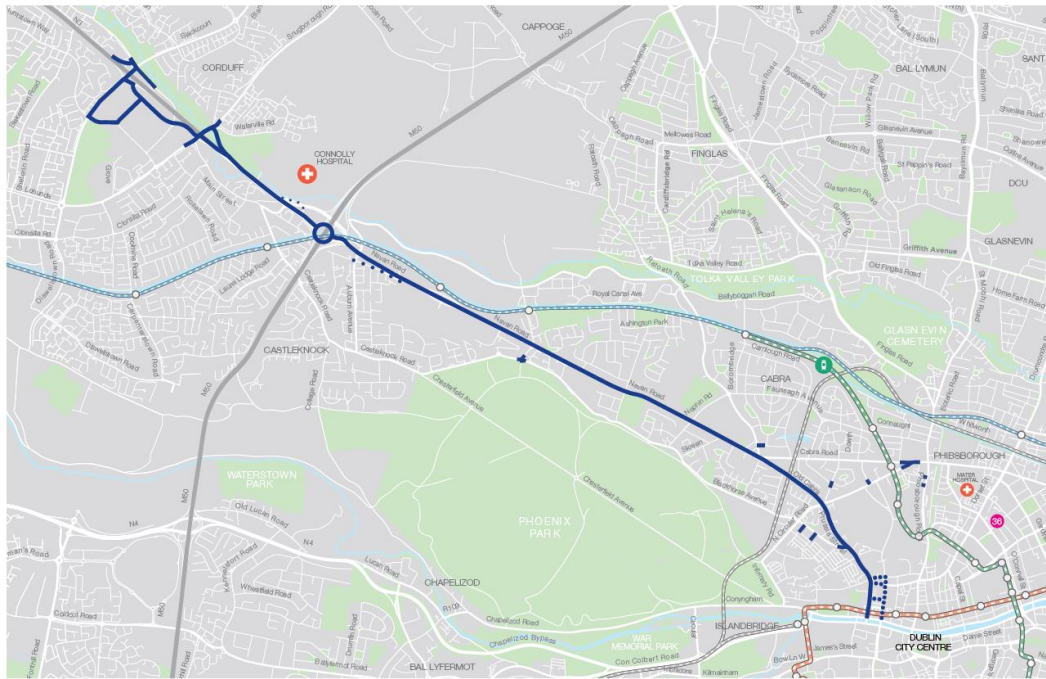


Figure 1: Blanchardstown to City Centre Core Bus Corridor Scheme

2 Methodology

2.1 Junction Design Evolution

The Proposed Scheme has been designed over the course of a number of years, and during this period the design principles have evolved to improve the movement of people through the junctions for all modes. The final design principles which guided the junction design are documented in the *BusConnects Preliminary Design Guidance Booklet* document. This document sets out the four typical junction arrangements adopted on the project as follows:

- **Junction Type 1** – Both bus lanes are dedicated lanes up to the junction stop line and general straight ahead and left-turning traffic is restricted to one lane;
- **Junction Type 2** – As per Junction Type 1 but with left turning traffic crossing the bus lane into a dedicated left turn lane in advance of the stopline;
- **Junction Type 3** – Bus lanes are terminated just short of the junction to allow left-turners to turn left from a short left-turn pocket in front of the bus lane. Buses can continue straight ahead from this pocket where a receiving bus lane is proposed; and
- **Junction Type 4** – This junction arrangement is similar to a ‘CYCLOPS’ junction (used in Manchester, UK) where cycle facilities are provided outside the pedestrian crossings at the junction as opposed to inside the pedestrian crossings as is the case for junction types 1-3 (i.e. cycle track is located between the pedestrian crossing landing area and the footpath); however, this version of the CYCLOPS proposes signalised pedestrian crossings across the cycle tracks to allow the pedestrian to cross from the footpath to the pedestrian crossing landing areas, thus avoiding any uncontrolled pedestrian-cyclist conflict. Bus lanes are terminated just short of the junction to allow left turners to turn left from a short left-turn pocket in front of the bus lane. Buses can continue straight ahead from this pocket where a receiving bus lane is proposed.

In addition to the evolution of the design principles, the design has been positively influenced through engagement with the public at various points in the process. The evolution of the design is documented in this report with a clear rationale provided for the changes at key points in the project as follows:

- Emerging Preferred Routes (EPR);
- Second Public Consultation (PC2);
- Third Public Consultation (PC3); and
- Final Proposed Scheme.

2.2 Transport Modelling

Transport modelling has been a key input to the scheme design throughout the project. Given the complexity of the scheme proposals and changes to existing traffic regimes, the design went through an iterative process which was

incorporated in the multi-tiered transport modelling approach consisting of strategic, local, and microsimulation modelling. The overall modelling methodology and information flow is summarised in Figure 2.

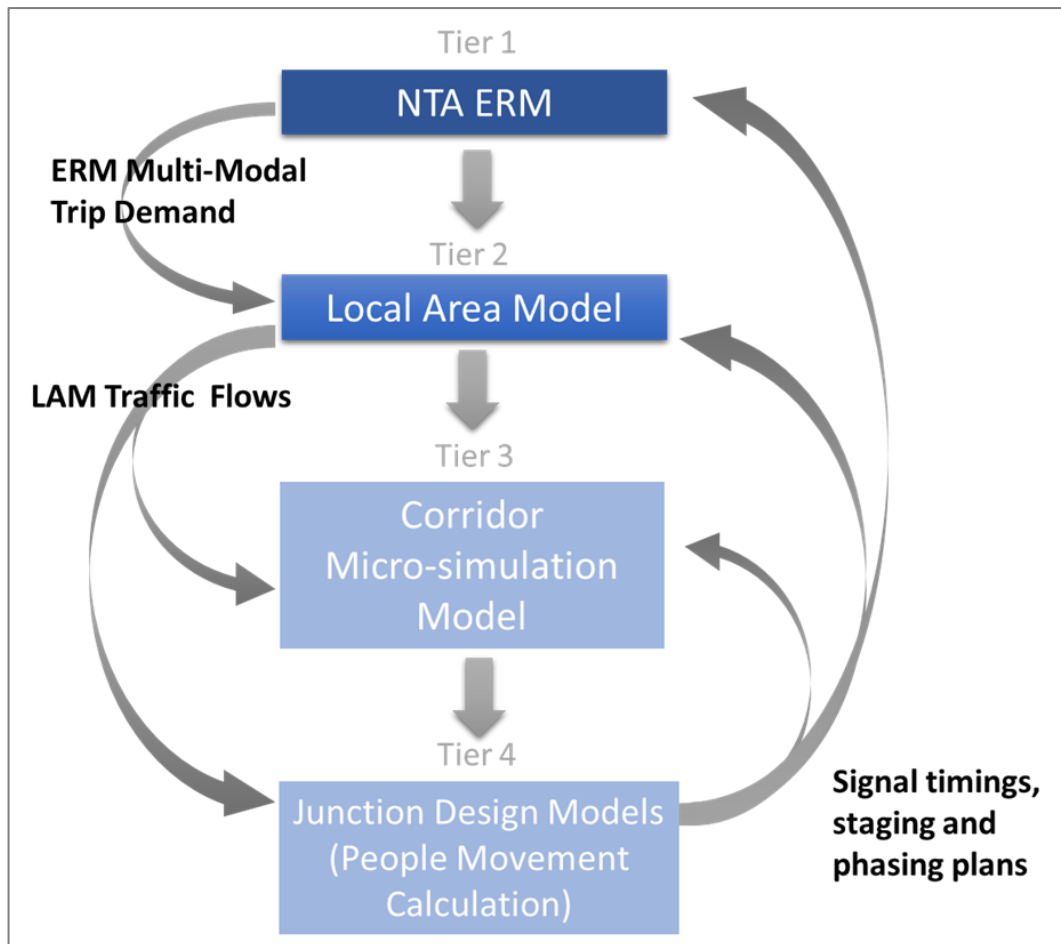


Figure 2: Transport Modelling Methodology and Information Flow

As shown in Figure 2, there are four tiers in the transport modelling hierarchy that were used for the purposes of assessing the Proposed Scheme:

- **East Regional Model (ERM):** the primary tool that provides the strategic multi-modal demand outputs for the proposed forecast.
- **Local Area Model (LAM):** a more refined road network model used to provide consistent road-based outputs to inform the TIA, EIAR, microsimulation model, junction design models and traffic management plan testing.
- **Microsimulation Model:** represents the end-to-end corridor model Proposed Scheme to assist in the operational validation of proposed designs with the visualisation of the potential Proposed Scheme impacts and benefits.
- **Local Junction Models:** each junction along the Proposed Scheme were developed to support local junction design development.

For the purposes of the Junction Design Report (JDR), results from the local junction models were extracted, which used LinSig, an industry-standard software

that provides comprehensive assessment and design of a junction or a network of junctions.

The local junction models were used to inform junction design considerations and ‘proof of concept’ demonstration of the Proposed Scheme. The signal staging, timing and phasing from LinSig were incorporated into the three tiers of transport modelling hierarchy and it should be noted that this was an iterative approach throughout the design process.

This report presents the results of the local junction modelling which was the primary tool used by the design team to design and refine junction layouts. The 2028 scenario modelling results are presented in this report which represent an assessment of the junction designs for the opening year.

Figure 3 presents an example of the local junction modelling results from LinSig presented in this report. A description of the images follows.

A shows the junction layout in LinSig and the results per lane, which are the following:

- **Average Delay per PCU (sec)** – this is the number located at the back of the lane in Figure 3 and is the average delay for each PCU per lane;
- **Degree of Saturation (%)** – this is the number located in the middle of the lane in Figure 3 and is the ratio of Flow to Capacity per lane. The theoretical capacity of a junction is 90% and anything less than this assumes that the junction is within capacity; and
- **Mean Max Queue (PCU)** – this is the number located at the front of the lane in Figure 3 and is maximum queue (per lane) within a typical cycle.

B is the Timing Dial that shows an overview of signal times for all Stage Streams.

C is the Stage Diagram that shows the staging, phasing and timings of the junction.

D shows the following Network Summary Results:

- **Cycle (seconds)** – Cycle time in seconds;
- **PRC (%)** – Practical Reserve Capacity, which is the available spare capacity at a junction (i.e. negative PRC = over-capacity; positive PRC = spare capacity);
- **Delay (PCUhr)** – the total aggregate delay on all lanes controlled by each Stage Stream; and
- **Bus delay (seconds)** – the average bus delay per direction on the Proposed Scheme per junction.

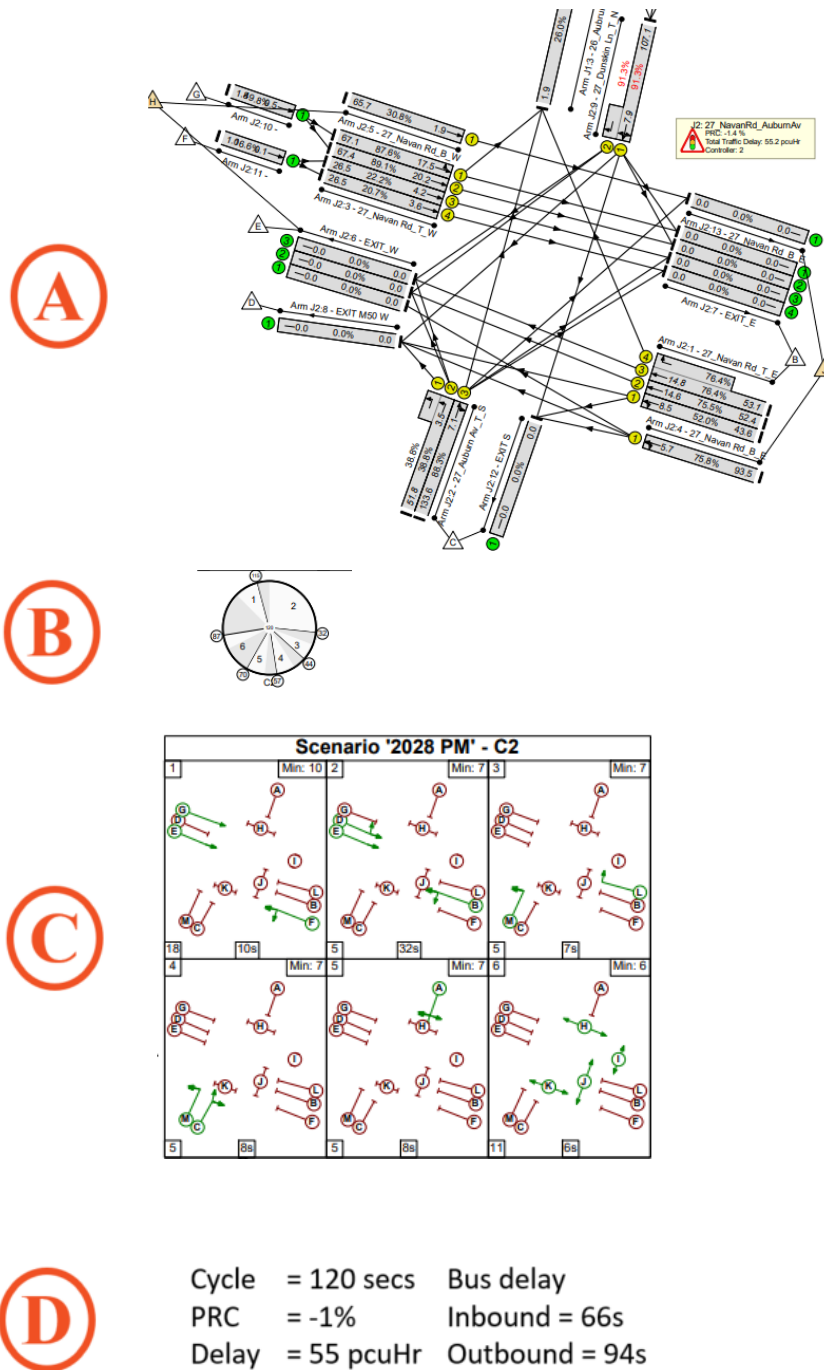


Figure 3: An example of the local junction modelling results in the JDR

It should be noted that modelling bus priority signals is not possible in LinSig due to its dynamic nature. However, this was modelled in the microsimulation model and is reported in the *Transport Impact Assessment Report* and *Transport Modelling Report*.

2.3 People Movement at Signals Calculator

The prioritisation of people movement and maximising the throughput of sustainable modes (i.e. walking, cycling and bus modes) in advance of the

consideration and management of general vehicular traffic (private car) movements at junctions were the policy led approach to the junction design for the Proposed Scheme. Therefore, in order to quantify this for the purposes of supporting this policy led approach, the People Movement at Signals (PMS) Calculator was developed. The PMS Calculator was used to validate the design and the assertion that the proposal would result in greater throughput of people.

The PMS Calculator provided an initial estimate of green time allocation for all movements at a 'typical' junction on the basis that sustainable mode movements should be accommodated foremost to maximise people movement, with the remaining green time allocated to general traffic movements. The PMS calculator was also set up to cater for the four junction types as proposed in the *BusConnects Preliminary Design Guidance Booklet*.

The information used for the purposes of PMS Calculator include the following:

- Number of buses required to be accommodated along the corridor (informed from the network re-design proposals);
- Estimated cycling demand (from early stage runs of the ERM);
- Pedestrian crossing width and resultant crossing timing requirements; and
- Vehicular capacity at each junction (derived by LinSig).

The bus demand and vehicular capacity per hour were converted to number of persons in order to calculate the total number of people (including pedestrians and cyclists) that can be accommodated at each junction in the Proposed Scheme per hour.

It should be noted that the PMS Calculator is based on theoretical capacity of the design and would generally be different from the local junction modelling results in LinSig, which is based on operational capacity or Practical Reserve Capacity (PRC) and future transport demands. Therefore the PMS Calculator results are shown in the JDR, in tandem with the LinSig results, to display both the movement of people (relative to the available capacity) and vehicles along the Proposed Scheme.

Additionally, the vehicular capacity per arm for each junction (as marked in the image below) is the capacity calculated in LinSig, which factors in parameters such as geometry and red time. Therefore, the vehicular capacity is dependent on each junction design. These vehicular capacities were directly extracted from LinSig for each traffic lane of all junctions and applied in the PMS Calculator.

The vehicular capacities were then converted to number of people using an assumed occupancy factor of 1.2 per vehicle.

Therefore, the percentage displayed in the Junction Design Report for General Traffic is the volume/capacity of people per junction. It should be noted that the capacity used for general traffic is based on the total volume and capacity for the junction overall (i.e. total of all arms) and therefore does not directly reflect the PRC results in LinSig, which reflects the maximum degree of saturation on the worst lane.

Below is an example image of PMS Calculator results, which shows the capacity used by mode (**blue**), as well as the combined capacity used for all modes (**black**).

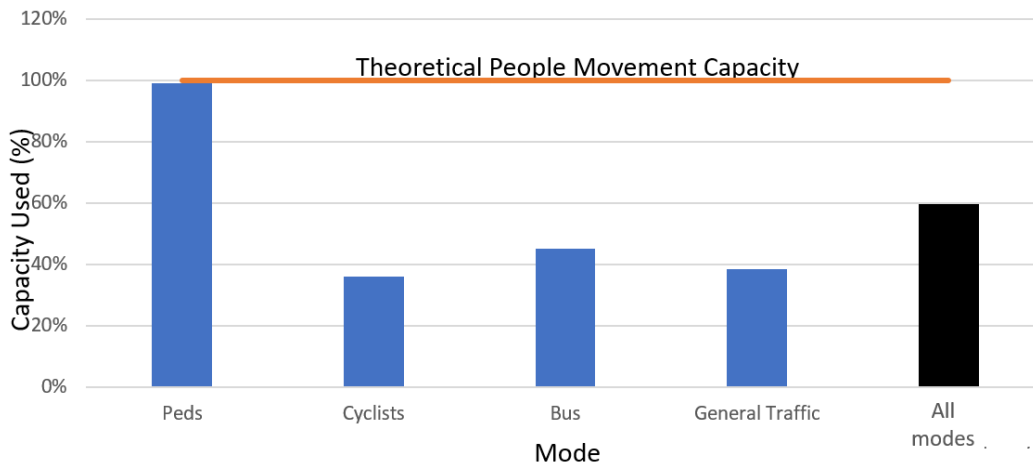


Figure 4: Example image of People Movement at Signals Calculator results

Each junction has a certain theoretical capacity for each mode based on green time and has been examined as to how this green time can cater for the anticipated demand through the junction. In the scenario described within Figure 4, due to high pedestrian volumes the junction has reached its theoretical capacity for pedestrians, as no additional green time can be applied to pedestrian phases. However, it is also the case in this example scenario that the volumes of cyclists, buses, and general traffic are below the theoretical capacity. As such, if there were an increased demand for any or all of these modes the junction could continue to cater for such a demand (up to the theoretical capacity for the relevant mode and/or the overall theoretical capacity for all modes).

3 Junctions Assessed

A total number of 42 junctions in the Proposed Scheme are presented in this report, which are as follows:

- Old Navan Road / Mulhuddart Slip Road;
- Blanchardstown Road North / Old Navan Road;
- Blanchardstown Road South / N3 off-slip;
- Blanchardstown Road South / Shopping Centre car park;
- Blanchardstown Road South / Blakestown Way;
- Bus Interchange Western Access;
- Bus Interchange Eastern Access;
- Crowne Plaza;
- Crowne Plaza / N3 off-slip
- L3020 / Liberty Insurance;
- Snugborough Road / L3020;
- Snugborough Road / N3 (Southbound on-ramp);
- Snugborough Road / Waterville Road;
- N3 Eastbound off-slip / Connolly Hospital Access;
- Navan Road / Old Navan Road;
- Navan Road / N3 Eastbound off-slip;
- Navan Road / M50 Junction 6;
- Navan Road / Auburn Avenue;
- R147 Westbound off-slip / Parkway Bridge;
- R147 Eastbound off-slip / Parkway Bridge;
- Navan Road / Phoenix Park Avenue;
- Navan Road / Ashtown Road;
- Navan Road / Kempton Avenue;
- Navan Road / Ashtown Grove;
- Navan Road / Baggot Road;
- Navan Road / Nephin Road;
- Navan Road / Skreen Road;
- Navan Road / Hampton Green;
- Navan Road / Cabra Library;
- Navan Road / Old Cabra Road;

- Old Cabra Road / Glenbeigh Road;
- Prussia Street / North Circular Road;
- Manor Street / Aughrim Street;
- Manor Street / Kirwan Street;
- Stoneybatter / Brunswick Street North;
- Brunswick Street North / Grangegorman Lower;
- Blackhall Place / King Street North;
- King Street North / Queen Street;
- Blackhall Place / Blackhall Street;
- Queen Street / Blackhall Street;
- Blackhall Place / Benburb Street; and
- Queen Street / Benburb Street.

The junctions design and modelling commentary and results are presented in similar order as above in the next section.

4 **Junction Design and Modelling Results**

Overview of Information Presented for Each Junction

Subject: BusConnects Core Bus Corridors Junction Design Rationale
 Date: December 2021
 Route: Blanchardstown to City Centre CBC Scheme Job No/Ref: 268401/00

Navan Road - Mulhuddart Slip Road

Summary: The signal-controlled junction where the R3 off slip meets Navan Road will be modified to reallocate the left lane as a bus lane, with a separate bus lane signal stage.

Signal Operation: A three stage signal operation is proposed. Mainline traffic in both directions will operate together with straight-ahead cyclists and pedestrians. The traffic from the slip road will operate in a separate stage, followed by the bus lane from the slip road.

Operation type 1: Bus delay 5 655

Change Made	Reason for Change	Impact of Change
1. Bus lane incorporated within slip road by reallocation of the offside traffic lane to a bus lane - with the nearside lane allocated as a bus lane on the initial approach along the slip road (with a yellow box to allow buses to switch bus lanes).	1. To provide bus priority from N3 southbound towards Blanchardstown.	1. Reduces traffic capacity at the slip road / Navan Road junction.
1. Bus lane proposal relocated to the nearside lane of the slip road to remove the need for buses to switch lanes.	1. To improve the reliability of bus priority by removing the yellow box switchover partway along the slip road.	1. Bus lane at the stop line has to operate during a separate stage than general slip road traffic to allow buses to turn right.
1. No change	1. No change	1. No change

ARUP

Page 1: Junction Design Evolution

- Summary
- EPR
- Draft PRO PC2
- Draft PRO PC3

Subject: BusConnects Core Bus Corridors Junction Design Rationale
 Date: December 2021
 Route: Blanchardstown to City Centre CBC Scheme Job No/Ref: 268401/00

Navan Road - Mulhuddart Slip Road

Change Made	Reason for Change	Impact of Change
1. No change	1. No change	1. No change

ARUP

Page 2: Junction Design Evolution (contd.)

- Other design iterations if applicable
- Final Design

Subject: BusConnects Core Bus Corridors Junction Design Rationale
 Date: February 2022
 Scheme: Blanchardstown to City Centre Scheme

Old Navan Road / Mulhuddart Slip Road

Capacity / Delay

1. Junction operates within capacity.
2. Bus delay is 455s on average.

Theoretical People Movement Capacity

Do Something : 2028 : AM

Cycle = 120 secs
 PRC = 270%

Delay = 2.3sec/rln

Bus delay
 Inbound = 63s
 Outbound = 4s

Do Something : 2028 : PM

Cycle = 120 secs
 PRC = 331%

Delay = 3.3sec/rln

Bus delay
 Inbound = 63s
 Outbound = 11s

ARUP

Page 3: Junction Modelling Results

- People Movement Calculator Outputs
- LinSig Traffic Modelling Results

Subject	BusConnects Core Bus Corridor Junction Design
Date	April 2022
Scheme	Blanchardstown to City Centre Core Bus Corridor Scheme

Old Navan Road / Mulhuddart Slip Road

Summary

The signal-controlled junction where the N3 off-slip meets Old Navan Road will be modified to reallocate the left lane as a bus lane, with a separate bus lane signal stage.

Signal Operation

A three stage signal operation is proposed. Mainline traffic in both directions will operate together with straight-ahead cyclists and pedestrians. The traffic from the slip road will operate in a separate stage, followed by the bus lane from the slip road.

Junction Type 1 Bus delay ≤ 65s

Change Made

Reason for Change

Impact of Change

1. Bus lane incorporated within slip road by reallocation of the offside traffic lane to a bus lane – with the nearside lane allocated as a bus lane on the initial approach along the slip road (with a yellow box to allow buses to switch bus lanes).

1. To provide bus priority from N3 southbound towards Blanchardstown.

1. Reduces traffic capacity at the slip road / Old Navan Road junction.

1. Bus lane proposal relocated to the nearside lane of the slip road to remove the need for buses to switch lanes.

1. To improve the reliability of bus priority by removing the yellow box switchover partway along the slip road.

1. Bus lane at the stop line has to operate during a separate stage than general slip road traffic to allow buses to turn right.

1. No change

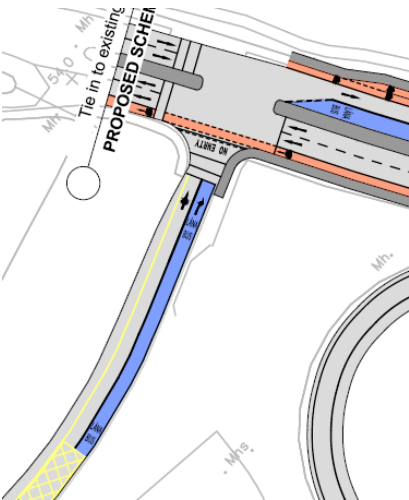
1. No change

1. No change

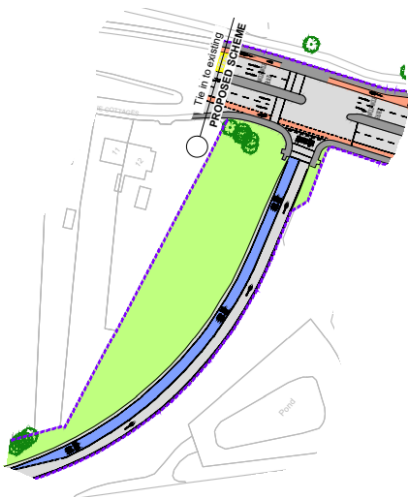
EXISTING



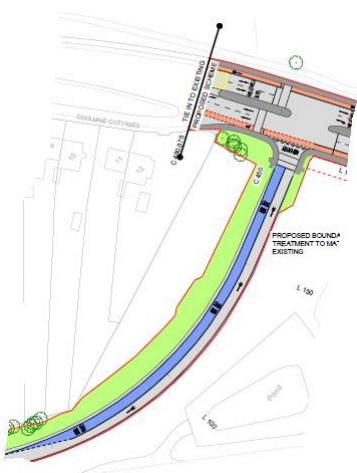
EPR



DRAFT PRO (PC2)



DRAFT PRO (PC3)



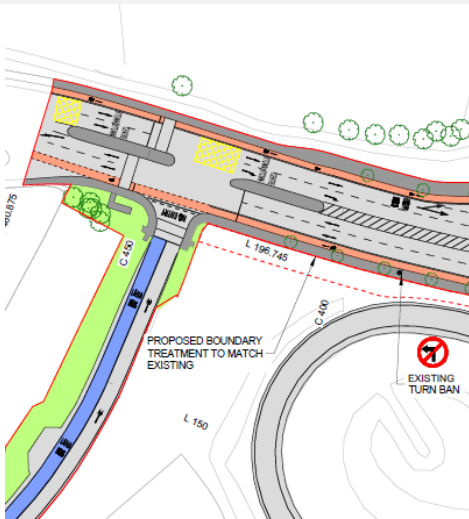
Subject	BusConnects Core Bus Corridor Junction Design
Date	April 2022
Scheme	Blanchardstown to City Centre Core Bus Corridor Scheme

Old Navan Road /
Mulhuddart Slip Road

EXISTING



FINAL DESIGN



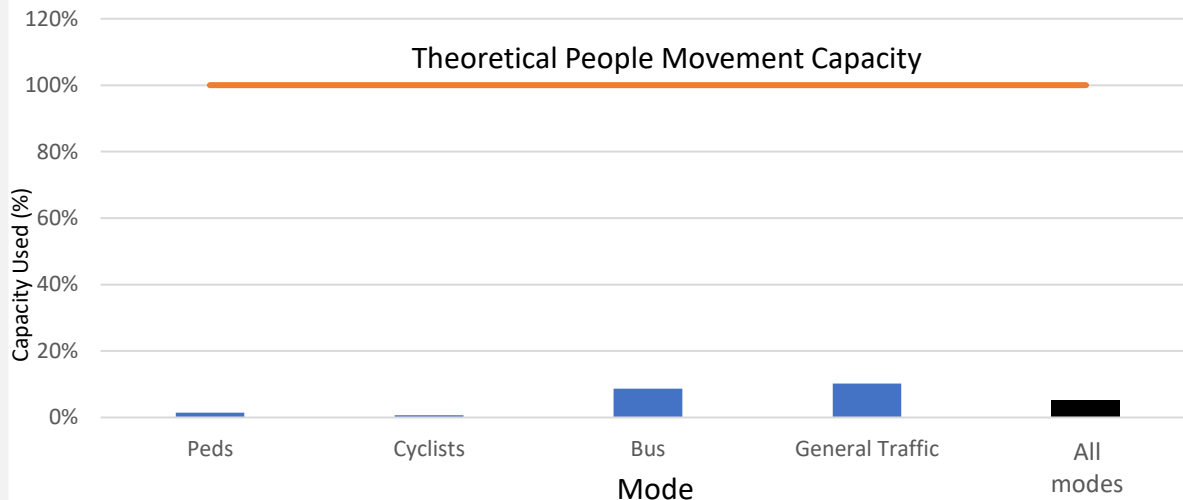
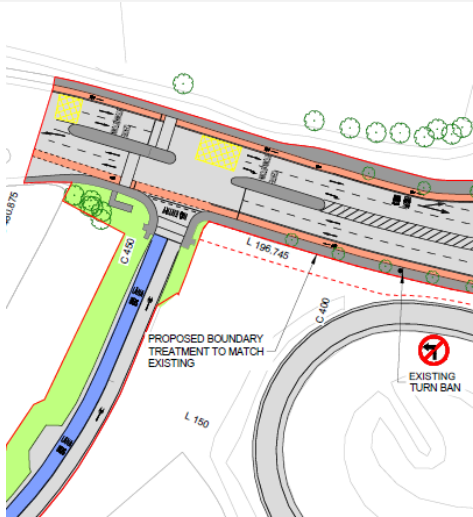
Change Made	Reason for Change	Impact of Change
1. No change	1. No change	1. No change

Subject	BusConnects Core Bus Corridor Junction Design
Date	April 2022
Scheme	Blanchardstown to City Centre Core Bus Corridor Scheme

Old Navan Road / Mulhuddart Slip Road

Capacity / Delay

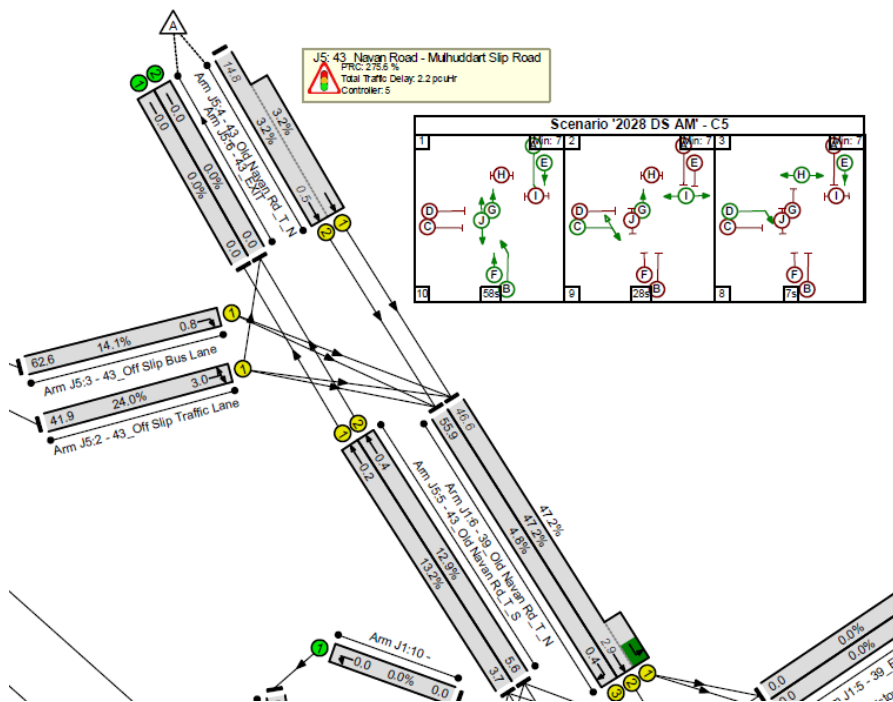
- Junction operates within capacity.
- Bus delay is <65s on average.



Do Something : 2028 : AM

Cycle = 120 secs
 PRC = 276%
 Delay = 2 pcuHr

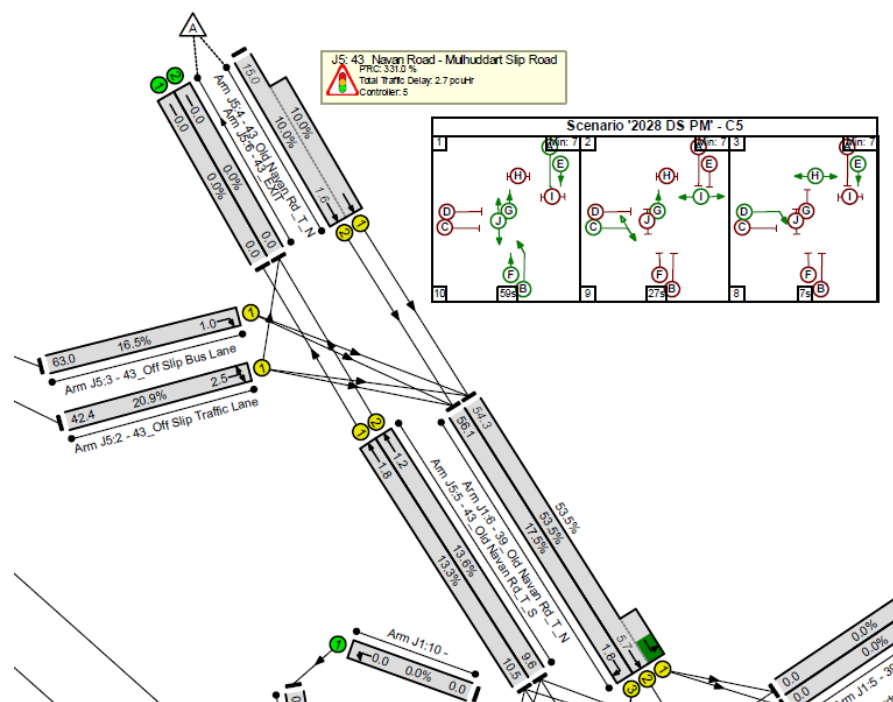
Bus delay
 Inbound = 63s
 Outbound = 4s



Do Something : 2028 : PM

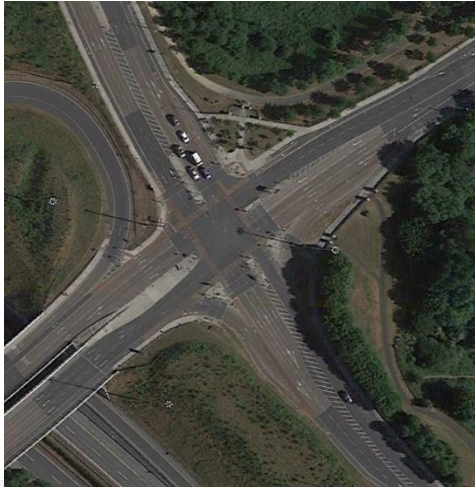
Cycle = 120 secs
 PRC = 331%
 Delay = 3 pcuHr

Bus delay
 Inbound = 63s
 Outbound = 11s



Subject	BusConnects Core Bus Corridor Junction Design
Date	April 2022
Scheme	Blanchardstown to City Centre Core Bus Corridor Scheme

Blanchardstown Road North / Old Navan Road



Summary

The existing signal-controlled junction will be modified by removing the left-turn slip lane from Old Navan Road, while retaining the segregated left-turn lane from Blanchardstown Road North towards the N3 slip road on Old Navan Road. Realigned cycle track crossings will be provided, with signal-controlled crossings across the left-turn slip roads. The flow of buses through the junction will be maintained by the presence of a bus lane on the Blanchardstown Road North approach, a bus lane on the access from Blanchardstown Bus Interchange past the Crowne Plaza Hotel, and allowing buses from the west (on Old Navan Road) to turn right from the straight-ahead traffic lane.

Signal Operation

A five stage signal operation is proposed. Each arm will operate in its own stage, with an additional stage for eastbound mainline cyclists operating with straight-ahead westbound traffic. The side roads will operate with left turning traffic giving way to cyclists on flashing ambers. Pedestrians crossings will be able to operate during non-conflicting traffic stages. This will maximise green time for buses and minimise delay.

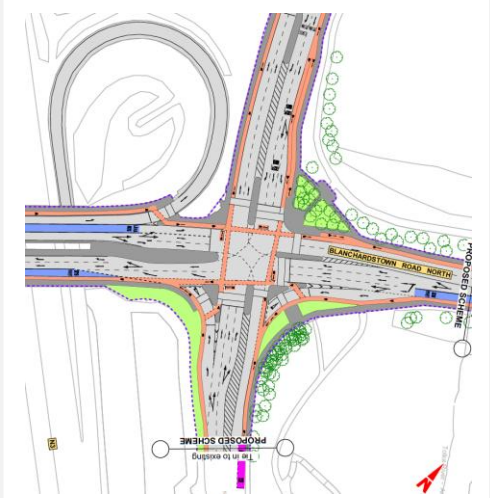
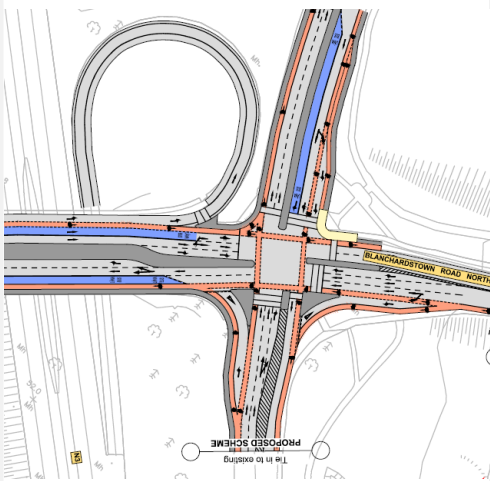
Junction Type 3
Bus delay ≤ 30s

EXISTING

EPR

DRAFT PRO (PC2)

DRAFT PRO (PC3)



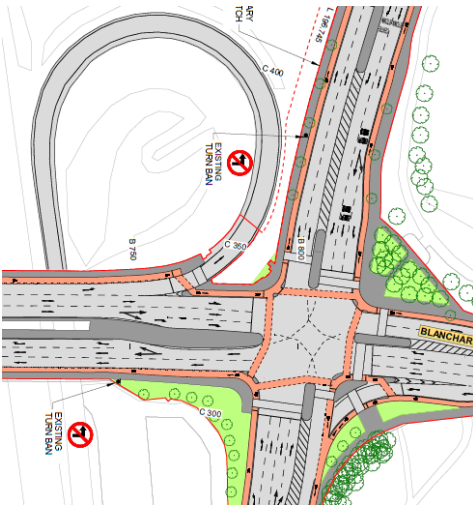
Change Made	Reason for Change	Impact of Change
1. Bus lanes are provided (to replace traffic lanes) on approaches to the junction.	1. To provide bus priority through the junction area.	1. Improved reliability for bus movements
1. No change	1. N/A	1. N/A
1. Bus lanes are reduced in length on the approach to the junction, with left turners able to cross the path of buses. 2. Cycle track facilities in mid carriageway are relocated to the edge of the road	1. To reduce the number of traffic stages and to maximise the green time allocated to bus movements. 2. To address consultation concerns with cycle tracks with traffic on both sides	1. Reduces overall delay to buses 2. Improves safety for cyclists

Subject	BusConnects Core Bus Corridor Junction Design
Date	April 2022
Scheme	Blanchardstown to City Centre Core Bus Corridor Scheme

Blanchardstown Road
North / Old Navan Road



EXISTING



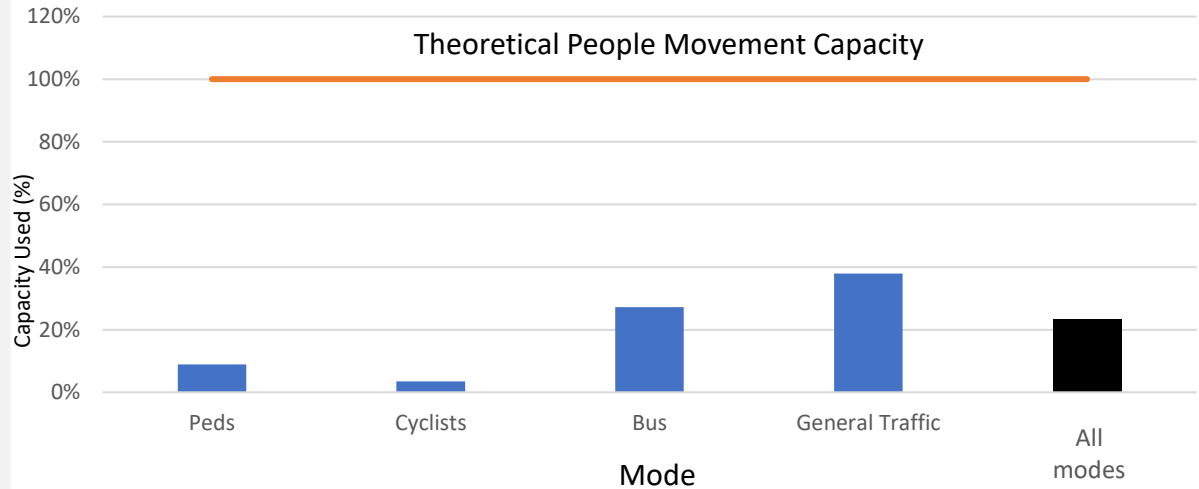
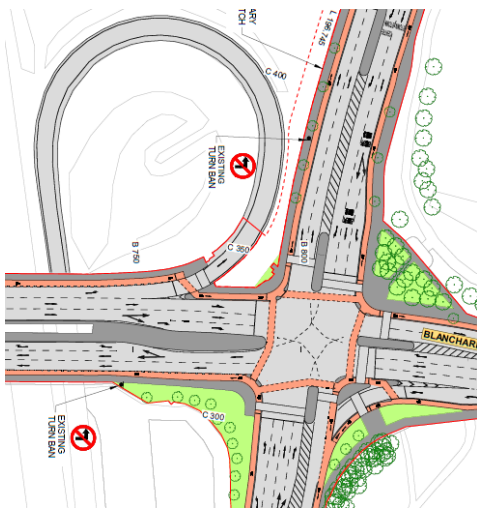
FINAL DESIGN

Change Made	Reason for Change	Impact of Change
<ol style="list-style-type: none"> 1. Bus lane omitted on Blanchardstown Road North approach. 2. Cycle tracks realigned to include deviation at the junction corners. 3. Removal of separate left turn traffic lane on Old Navan Road (east). 	<ol style="list-style-type: none"> 1. To improve overall traffic management conditions. 2. To improve provision for cyclists and to maintain consistency on the corridor. 3. To remove vehicle / cyclist conflict. 	<ol style="list-style-type: none"> 1. Improved overall junction performance 2. Improved cycle provision and safety 3. Improve cycle safety

Subject	BusConnects Core Bus Corridor Junction Design
Date	April 2022
Scheme	Blanchardstown to City Centre Core Bus Corridor Scheme

Blanchardstown Road North / Old Navan Road

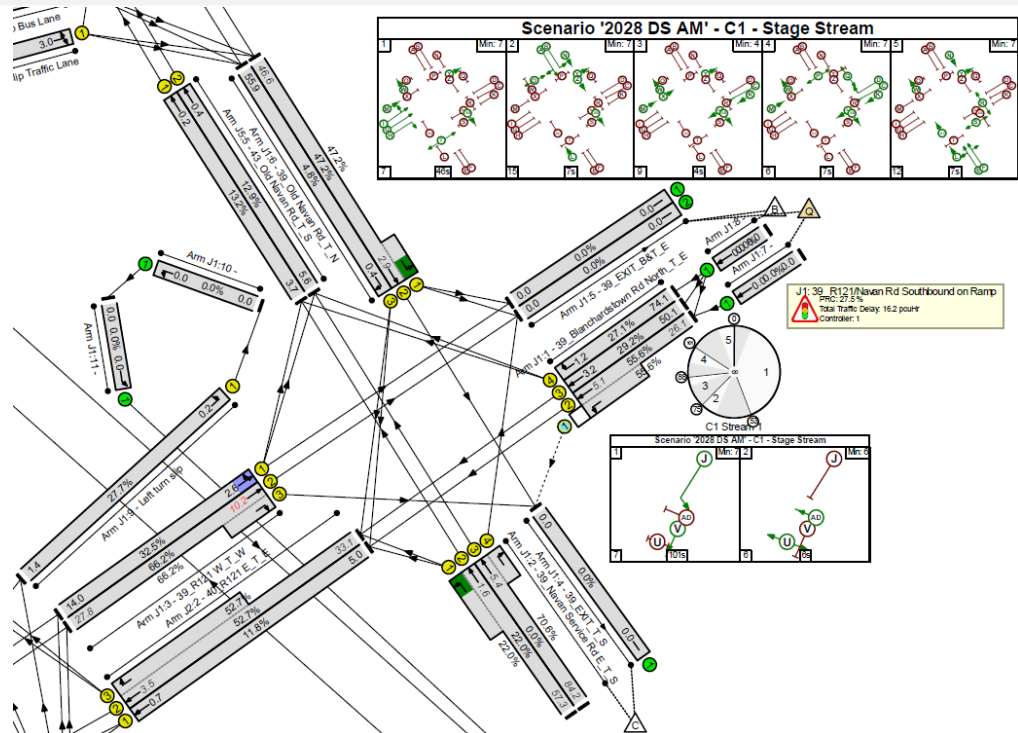
- Capacity / Delay**
- Junction operates within capacity.
 - Bus delay is <30s on average.



Do Something : 2028 : AM

Cycle = 120 secs
 PRC = 28%
 Delay = 16 pcuHr

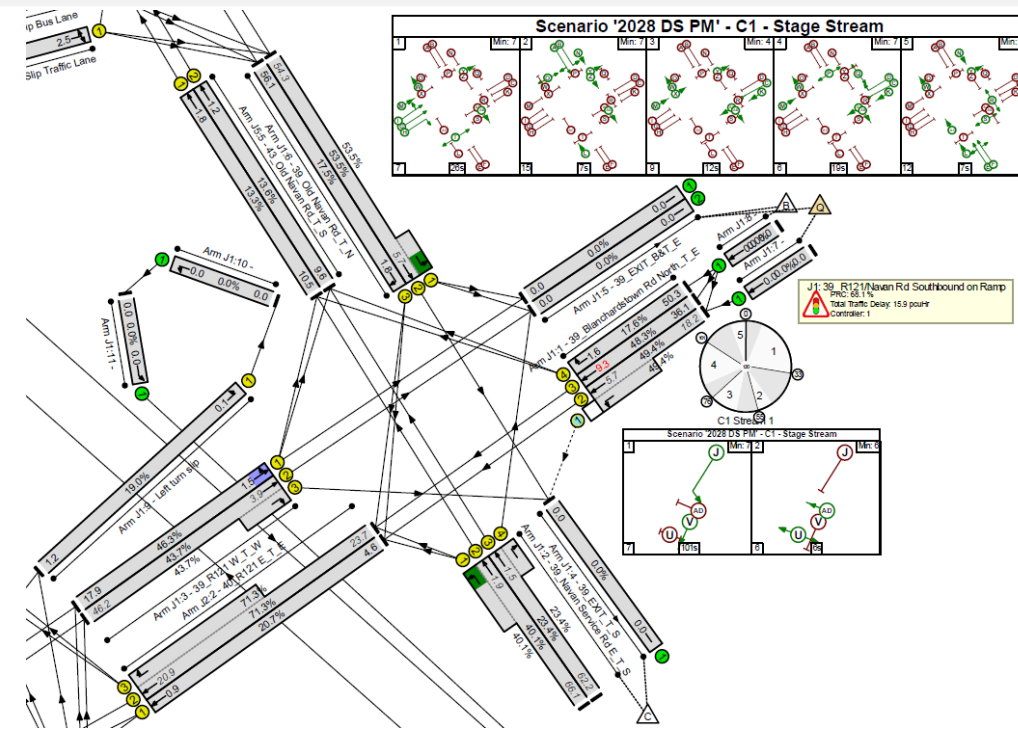
Bus delay
 Inbound = 14s
 Outbound = 26s



Do Something : 2028 : PM

Cycle = 120 secs
 PRC = 68%
 Delay = 16 pcuHr

Bus delay
 Inbound = 18s
 Outbound = 18s



Subject	BusConnects Core Bus Corridor Junction Design
Date	April 2022
Scheme	Blanchardstown to City Centre Core Bus Corridor Scheme

Blanchardstown Road South / N3 off-slip



Summary

The existing signal-controlled junction will be modified to include a left-turn bus lane on the approach from the Crowne Plaza / N3 westbound off-slip – connecting directly to the bus layover layby on Blanchardstown Road South. Cycle tracks will be provided through the junction on both sides of Blanchardstown Road South.

Signal Operation

The junction will operate with three signal stages, which will include provision for buses to travel unimpeded in a southbound bus lane. Cyclists and traffic will operate within the same stage. This will maximise green time for buses and minimise delay.

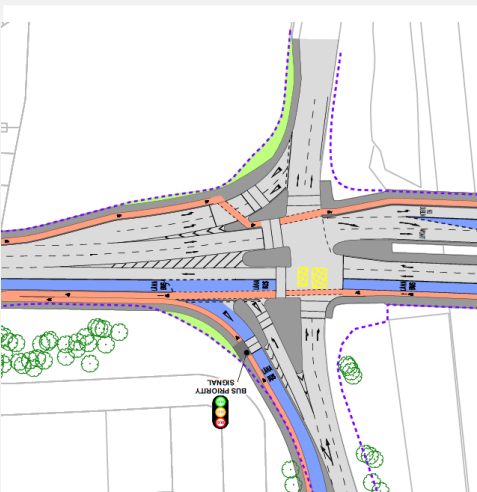
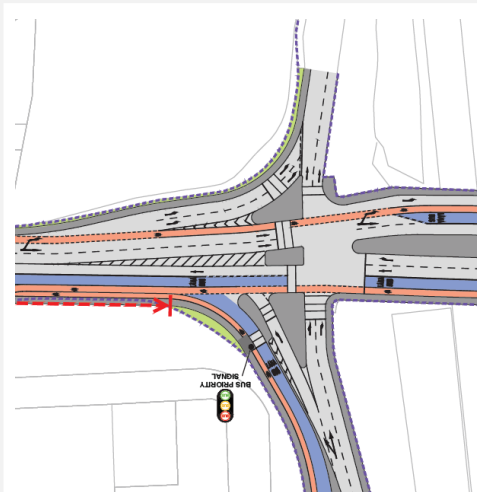
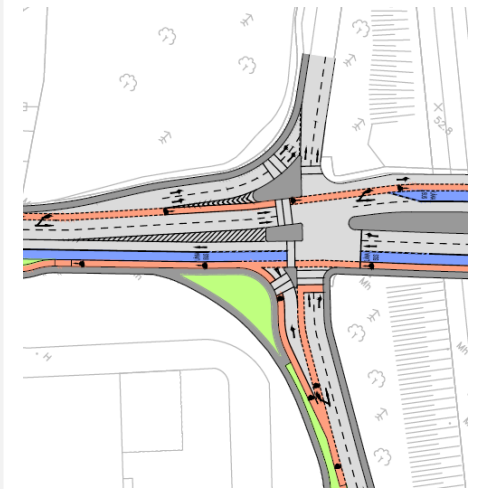
Junction Type **1**
Bus delay $\leq 30s$

EXISTING

EPR

DRAFT PRO (PC2)

DRAFT PRO (PC3)



Change Made	Reason for Change	Impact of Change
1. A southbound bus lane is provided (to replace a traffic lanes) on approach to the junction.	1. To provide bus priority through the junction area.	1. Improved reliability for bus movements
1. No change	1. N/A	1. N/A
1. Cycle track facilities in mid carriageway are relocated to the edge of the road	1. To address consultation concerns with cycle tracks with traffic on both sides	1. Improves safety for cyclists

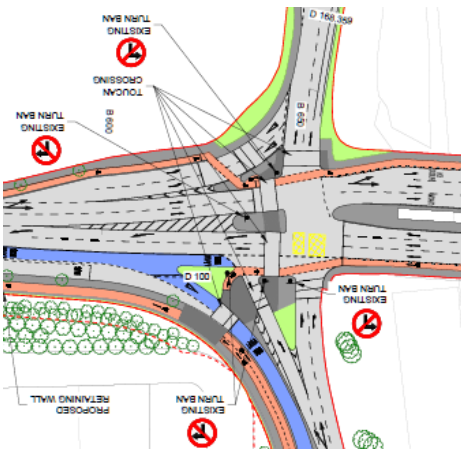
Subject	BusConnects Core Bus Corridor Junction Design
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Scheme	Blanchardstown to City Centre Core Bus Corridor Scheme

Blanchardstown Road
South / N3 off-slip

EXISTING



FINAL DESIGN



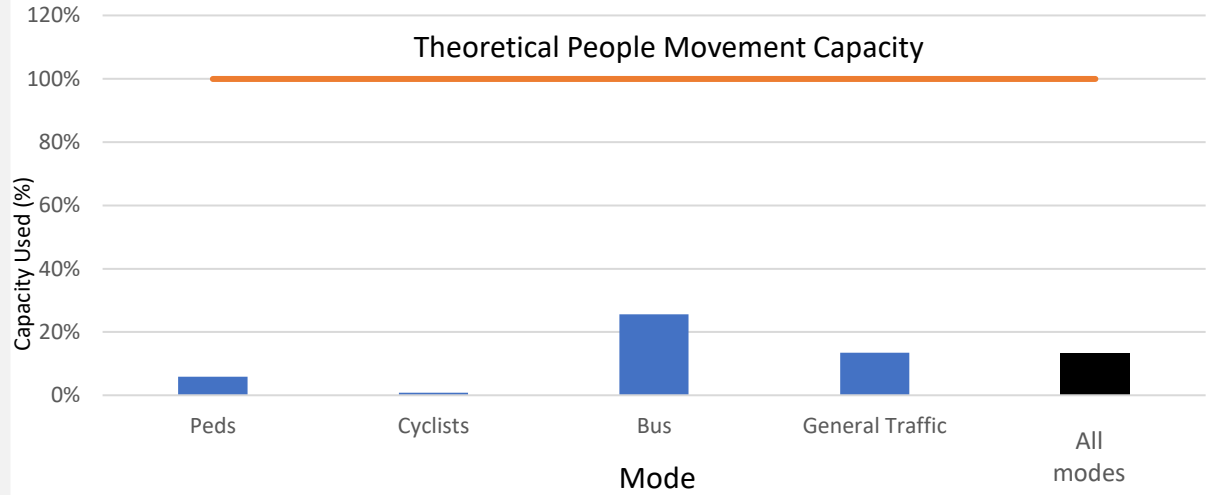
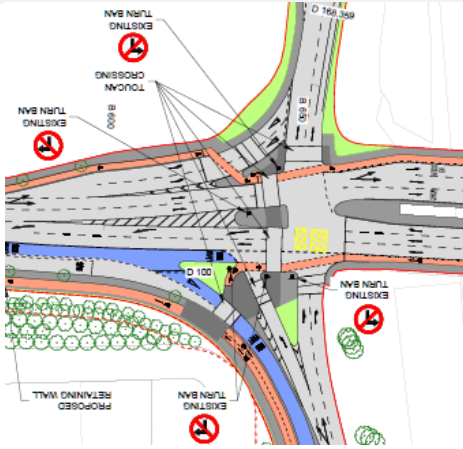
Change Made	Reason for Change	Impact of Change
<ol style="list-style-type: none"> 1. Removal of the bus lane on the east of the junction. 2. Incorporation of the bus layover layby into the junction configuration. 3. Cycle track realignment at the head of the N3 off-slip junction 	<ol style="list-style-type: none"> 1. To improve overall traffic management conditions. 2. To ensure minimum delay for buses travelling to the layover location. 3. To minimise conflict between cyclists and traffic. 	<ol style="list-style-type: none"> 1. Improved overall junction performance 2. Improved bus provision 3. Improve cycle safety

Subject	BusConnects Core Bus Corridor Junction Design
Date	April 2022
Scheme	Blanchardstown to City Centre Core Bus Corridor Scheme

Blanchardstown Road South / N3 off-slip

Capacity / Delay

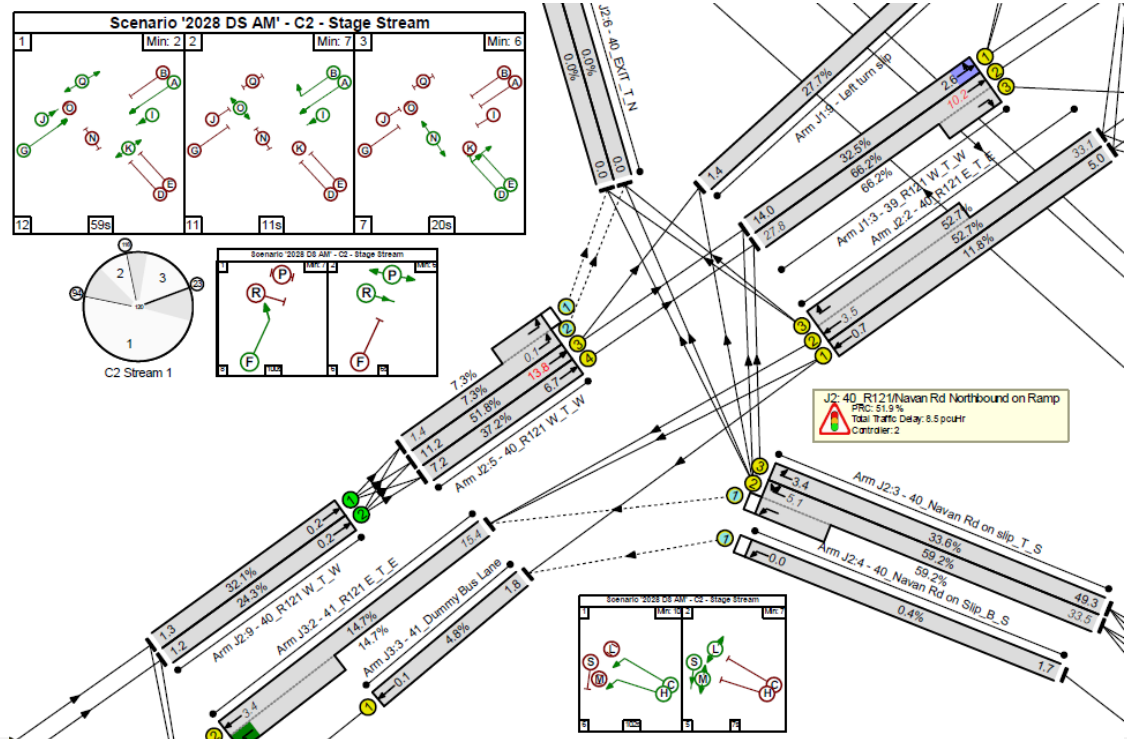
1. Junction operates within capacity.
2. Bus delay is <30s on average.



Do Something : 2028 : AM

Cycle = 120 secs
 PRC = 52%
 Delay = 9 pcuHr

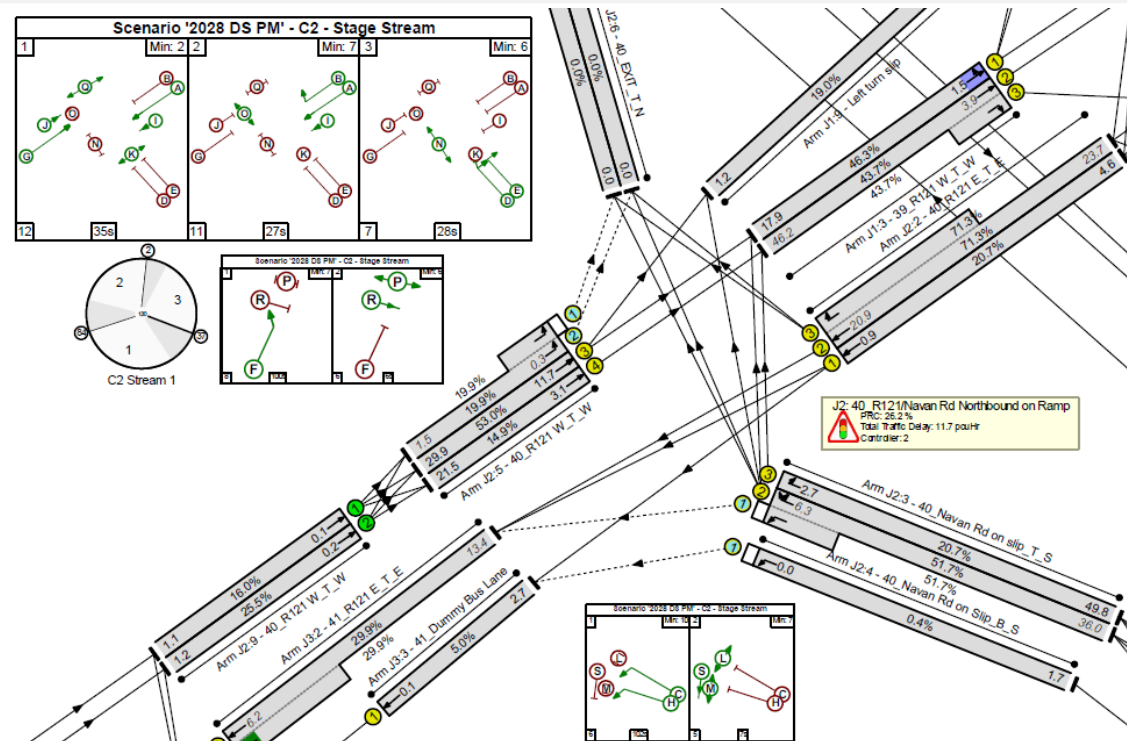
Bus delay
 Inbound = 11s
 Outbound = 2s



Do Something : 2028 : PM

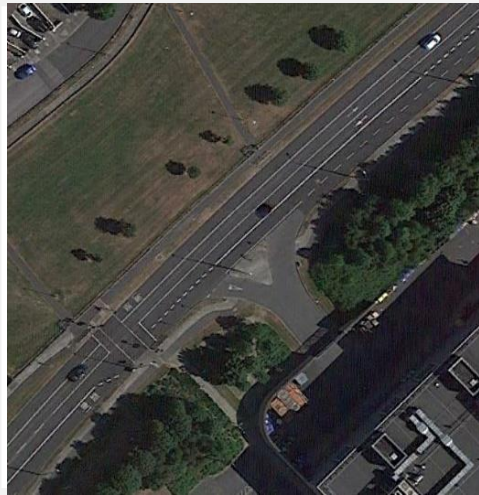
Cycle = 120 secs
 PRC = 26%
 Delay = 12 pcuHr

Bus delay
 Inbound = 30s
 Outbound = 2s



Subject	BusConnects Core Bus Corridor Junction Design
Date	April 2022
Scheme	Blanchardstown to City Centre Core Bus Corridor Scheme

Blanchardstown Road South / Shopping Centre car park



Summary - A new signal-controlled access junction will be provided to Blanchardstown Shopping Centre's northern car park – in order to divert car park traffic away from the existing entrance at the proposed Bus Interchange (which will tend to reduce congestion and allow buses to travel freely in and out of the Bus Interchange). The junction will operate as a three-stage signal junction. Left turning vehicles on the mainline will cross the outbound bus lane path on Blanchardstown Road South, 20m from the junction and will operate in the same stage as buses. Crossings of Blanchardstown Road South for pedestrians and cyclists will be provided within the signal staging.

Signal Operation

The junction will operate as a three-stage signal junction. Left turning vehicles on the mainline will cross the outbound bus lane path on Blanchardstown Road, 20m from the junction and will operate in the same stage as buses. Crossings of Blanchardstown Road South for pedestrians and cyclists will be provided within the signal staging. Crossing of the side road for cyclists will operate in the same stage as left turning traffic (who will be provided with a flashing amber signal), and pedestrians will cross in two stages utilising the wide pedestrian island.

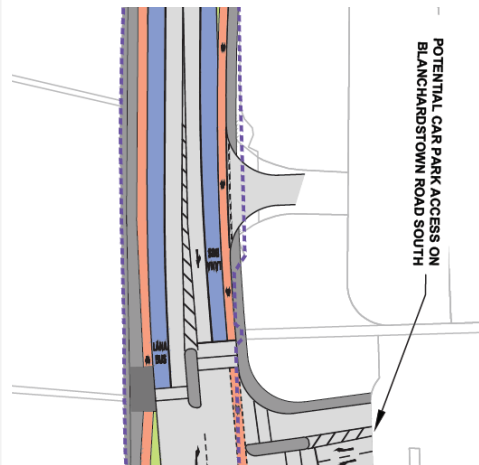
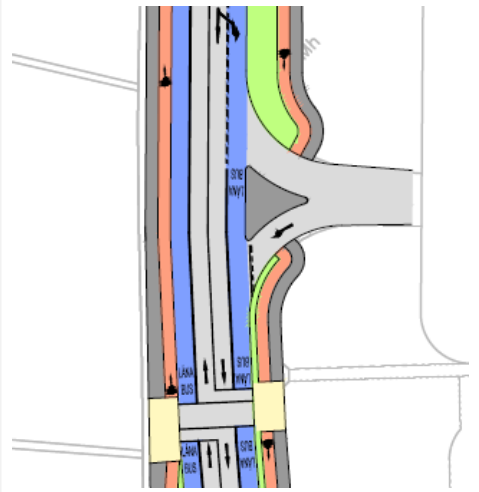
Junction Type 3 Bus delay ≤ 5s

EXISTING

EPR

DRAFT PRO (PC2)

DRAFT PRO (PC3)



Change Made	Reason for Change	Impact of Change
1. No junction proposed	1. N/A	1. N/A
1. New signal-controlled access junction is to be provided (on Blanchardstown Road South) to Blanchardstown Shopping Centre's northern car park.	1. To provide an alternative car park access point	1. Reduce congestion at car park entrance (adjacent to the proposed Bus Interchange).
1. Reduce the length of the bus lane on the southbound approach on Blanchardstown Road South.	1. To reduce the number of traffic stages and to maximise the green time allocated to bus movements.	1. Reduces overall delay to buses

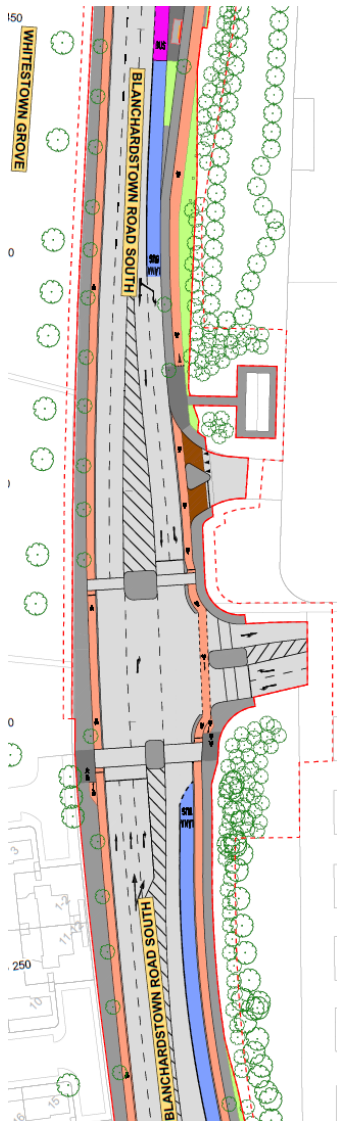
Subject	BusConnects Core Bus Corridor Junction Design
Date	April 2022
Scheme	Blanchardstown to City Centre Core Bus Corridor Scheme

Blanchardstown Road South / Shopping Centre car park

EXISTING



FINAL DESIGN

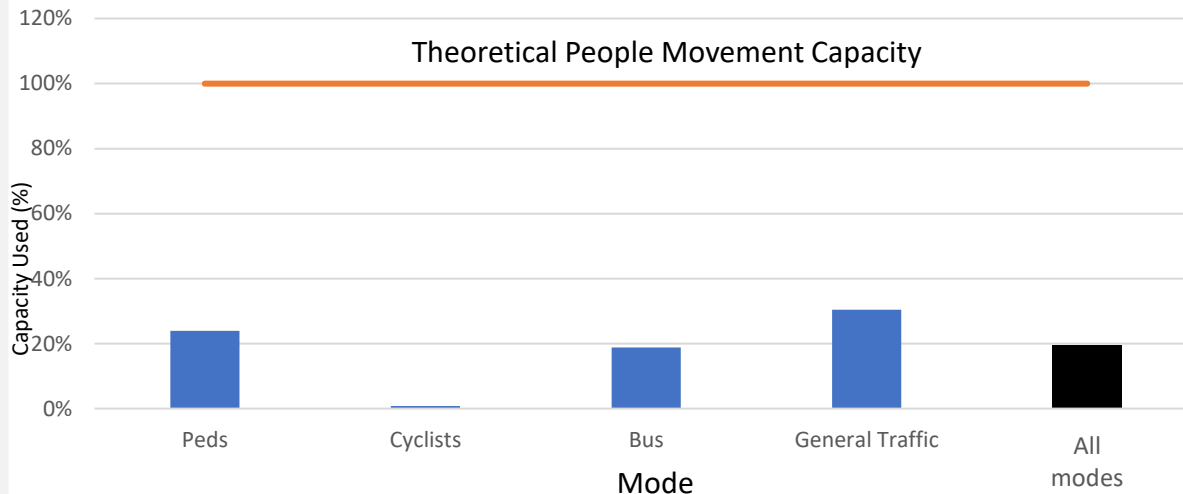
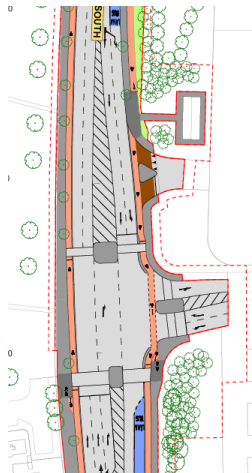


Change Made	Reason for Change	Impact of Change
<ol style="list-style-type: none"> Protected cycle route kerbs provided at junction for cyclists on Blanchardstown Road South cycle track Pedestrian crossings provided on both approach arms of Blanchardstown Road South. 	<ol style="list-style-type: none"> Brings junction in line with BusConnects Preliminary Design Guidance Booklet principles Improves capacity for pedestrians at the junction 	<ol style="list-style-type: none"> Improved cyclist facilities. Improved pedestrian safety and connectivity.

Subject	BusConnects Core Bus Corridor Junction Design
Date	April 2022
Scheme	Blanchardstown to City Centre Core Bus Corridor Scheme

Blanchardstown Road South / Shopping Centre car park

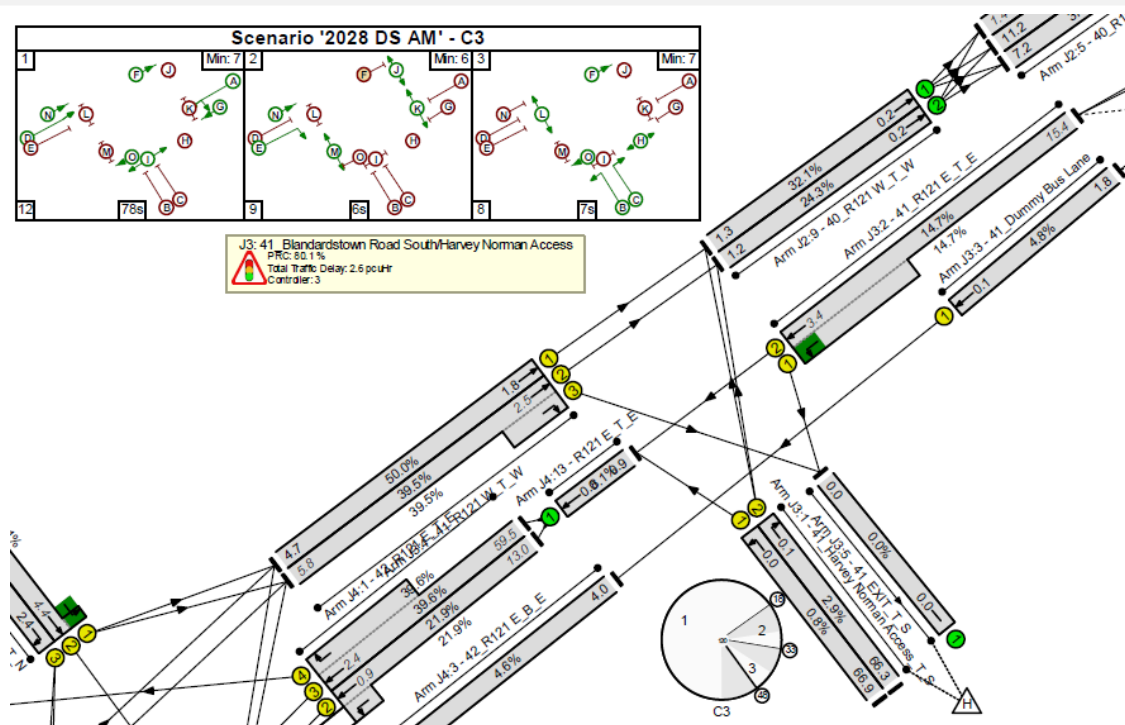
- Capacity / Delay**
1. Junction operates within capacity.
 2. Bus delay is <5s on average.



Do Something : 2028 : AM

Cycle = 120 secs
 PRC = 80%
 Delay = 3 pcuHr

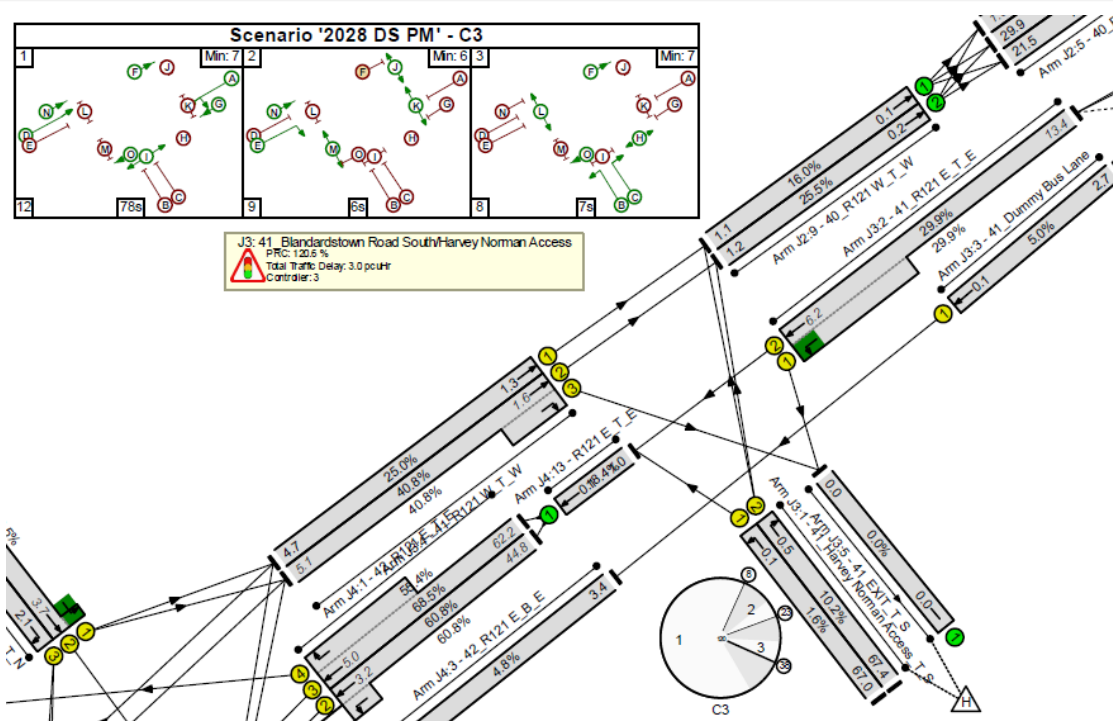
Bus delay
 Inbound = 5s
 Outbound = 2s



Do Something : 2028 : PM

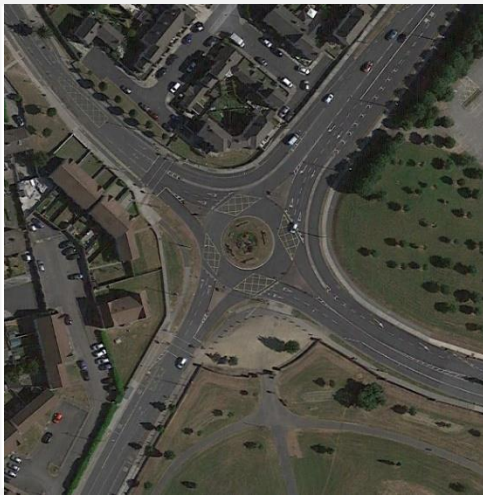
Cycle = 120 secs
 PRC = 120%
 Delay = 3 pcuHr

Bus delay
 Inbound = 3s
 Outbound = 5s



Subject	BusConnects Core Bus Corridor Junction Design
Date	April 2022
Scheme	Blanchardstown to City Centre Core Bus Corridor Scheme

Blanchardstown Road South / Blakestown Way



Summary

The roundabout junction of the Blanchardstown Road South and Blakestown Way is proposed to be modified to a four-arm signal-controlled junction. Left turning vehicles will cross the outbound bus lane path 20m from the junction. A segregated left turn lane and separate bus lane will be provided for the movement from Blanchardstown Road South towards the shopping centre.

Signal Operation

The junction will operate as a five-stage signal junction. Left turning vehicles will cross the outbound bus lane path, 20m from the junction and operate with buses. Cyclists and traffic will operate within the same stage with left turning traffic to give way to cyclists on flashing ambers apart from those lanes with heavy left turn traffic flows which results in cyclists operating within the same stage as pedestrians. This will maximise green time for buses and minimise delay. There will be a segregated left turn bus lane from Blanchardstown Road South, and the associated left turn traffic lane will give-way to oncoming traffic.

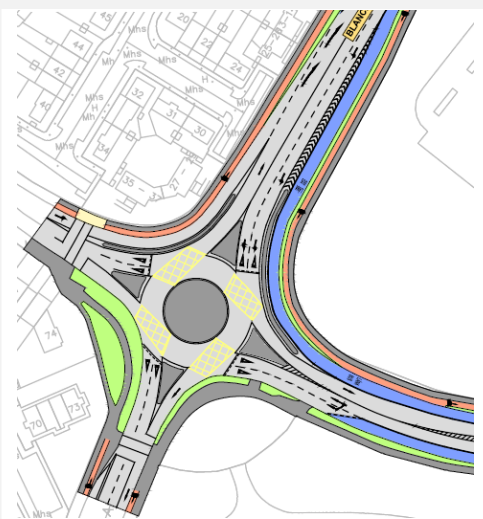
Junction Type 3 Bus delay ≤ 85s

EXISTING

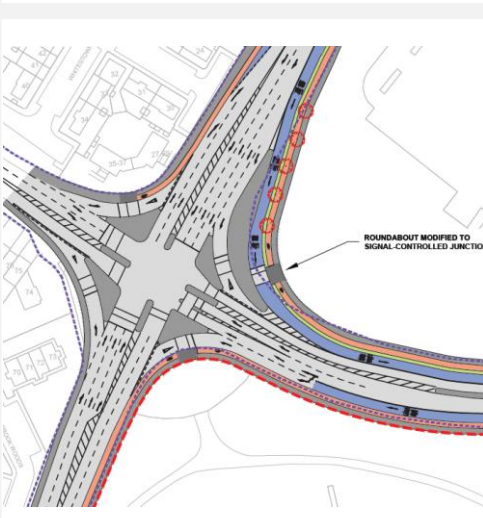
EPR

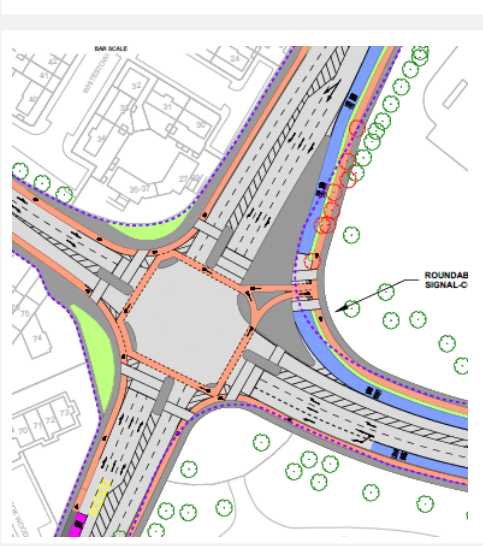
DRAFT PRO (PC2)

DRAFT PRO (PC3)



- | Change Made | Reason for Change | Impact of Change |
|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--------------------------------------------------------------------------------------------------------------------------------------|-----------------------------------------------------------------------------------------------|
| 1. Existing roundabout modified to add a continuous inbound bus lane north of the roundabout. | 1. To provide bus priority through the junction area. | 1. Improved reliability for bus movements |
| 1. Roundabout modified to a four-arm signal-controlled junction with inbound and outbound bus lanes.
2. Staggered pedestrian crossings are provided on each side of the junction. | 1. To provide continuous bus lanes through the junction.
2. To provide improved facilities for crossing pedestrians and cyclists. | 1. Improved reliability for bus movements
2. Improved safety for pedestrians and cyclists. |
| 1. Straight-across pedestrian crossings are provided on each side of the junction | 1. To provide improved facilities for crossing pedestrians and cyclists | 1. Improved safety for pedestrians and cyclists. |





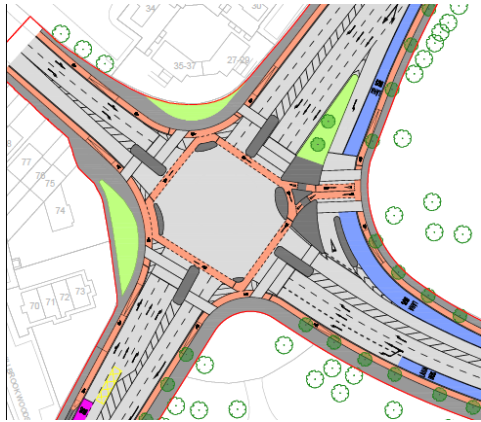
Subject	BusConnects Core Bus Corridor Junction Design
Date	April 2022
Scheme	Blanchardstown to City Centre Core Bus Corridor Scheme

Blanchardstown Road
South / Blakestown Way

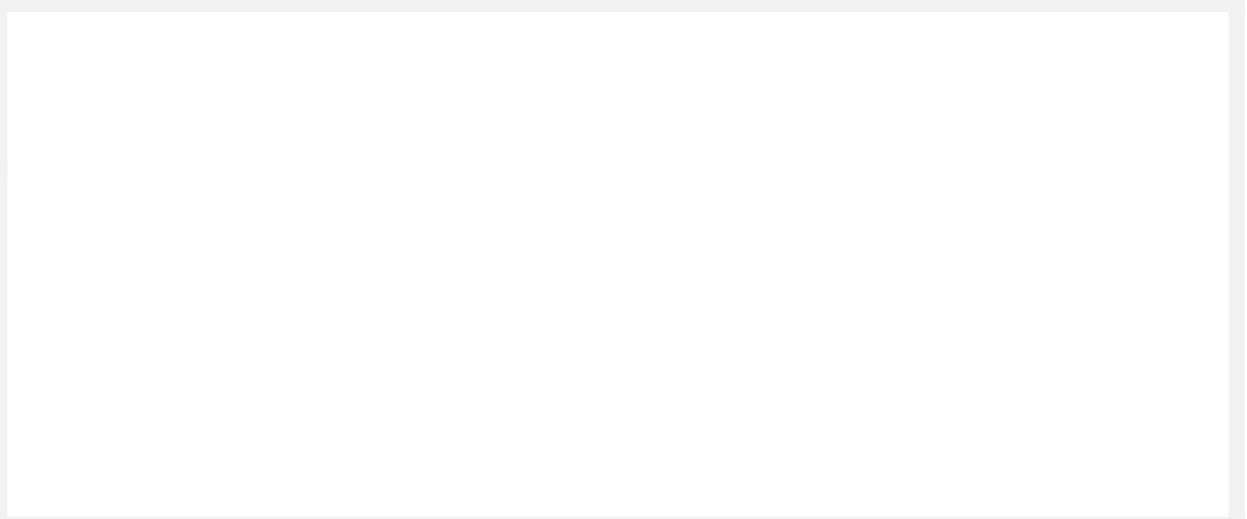
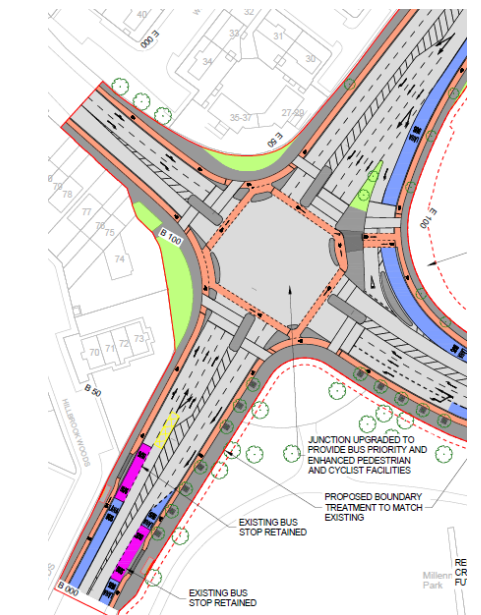


EXISTING

FINAL DRAFT JULY 2021



FINAL DESIGN

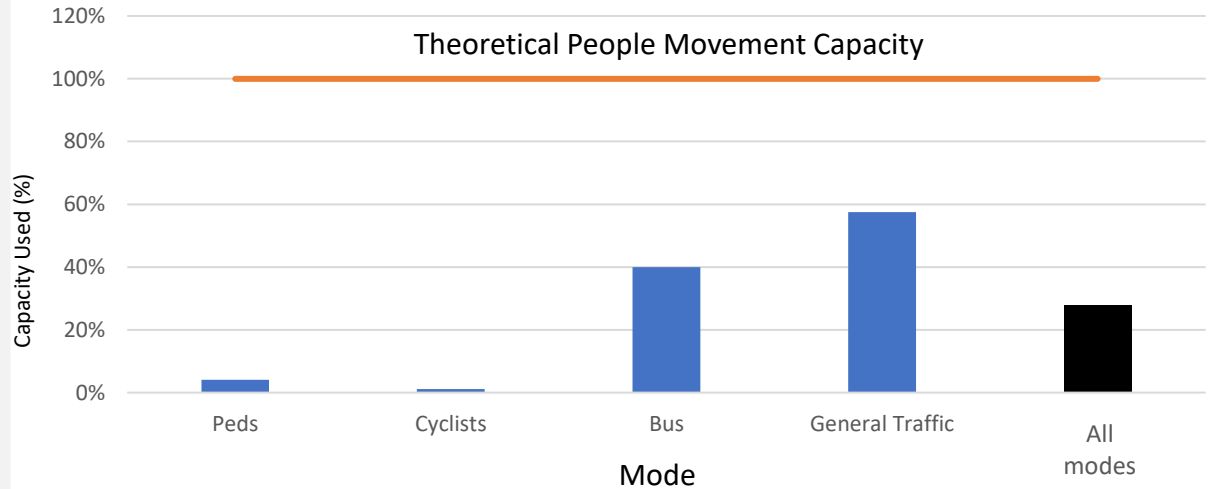
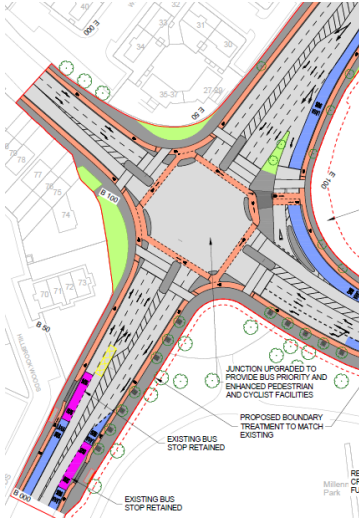


Change Made	Reason for Change	Impact of Change
<ol style="list-style-type: none"> 1. Left-turn slip modified to allow general traffic alongside bus lane 	<ol style="list-style-type: none"> 1. Allows left-turn traffic bypass the signal junction 	<ol style="list-style-type: none"> 1. Improve overall junction capacity
<ol style="list-style-type: none"> 1. Left-turn slip modified. 2. Removal of second pedestrian crossing on left turn and improvements to shared space. 3. Switch of pedestrian crossings on eastern arm 	<ol style="list-style-type: none"> 1. To reduce land take. 2. Brings junction in line with BusConnects Preliminary Design Guidance Booklet principles 3. To allow for staggered crossing for pedestrians at the junction 	<ol style="list-style-type: none"> 1. Minimal impact on junction operation 2. Improved pedestrian safety and connectivity 3. Improved pedestrian safety and connectivity

Subject	BusConnects Core Bus Corridor Junction Design
Date	April 2022
Scheme	Blanchardstown to City Centre Core Bus Corridor Scheme

Blanchardstown Road South / Blakestown Way

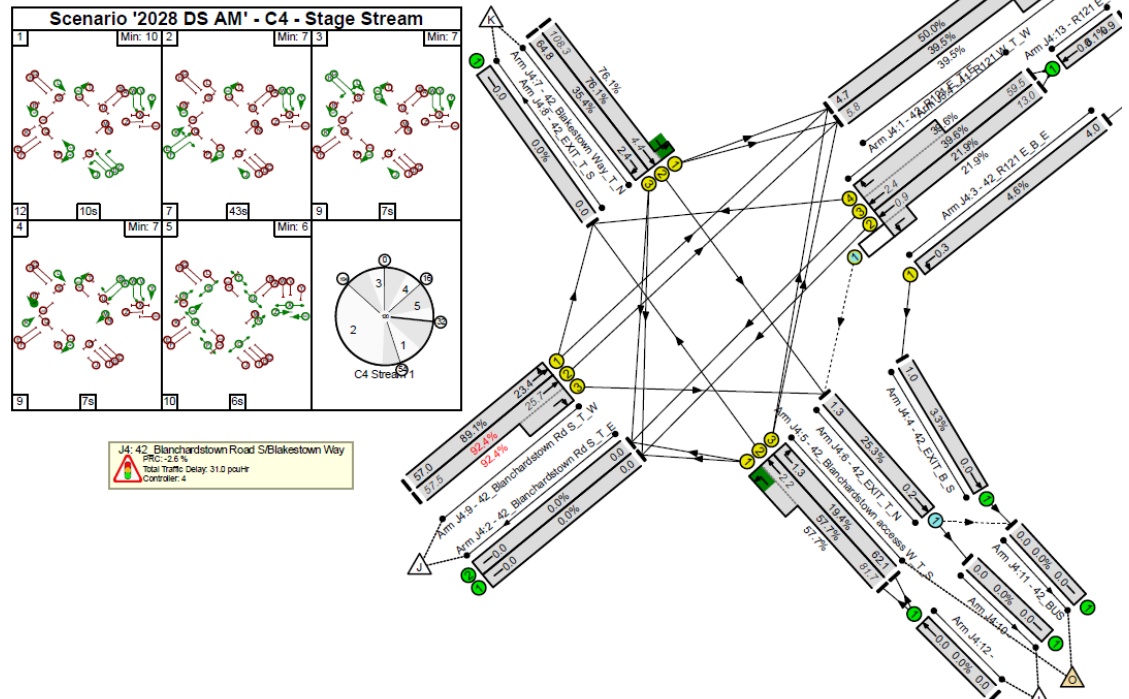
- Capacity / Delay**
- Junction operates within capacity.
 - Bus delay is <85s on average.



Do Something : 2028 : AM

Cycle = 120 secs
 PRC = -3%
 Delay = 31 pcuHr

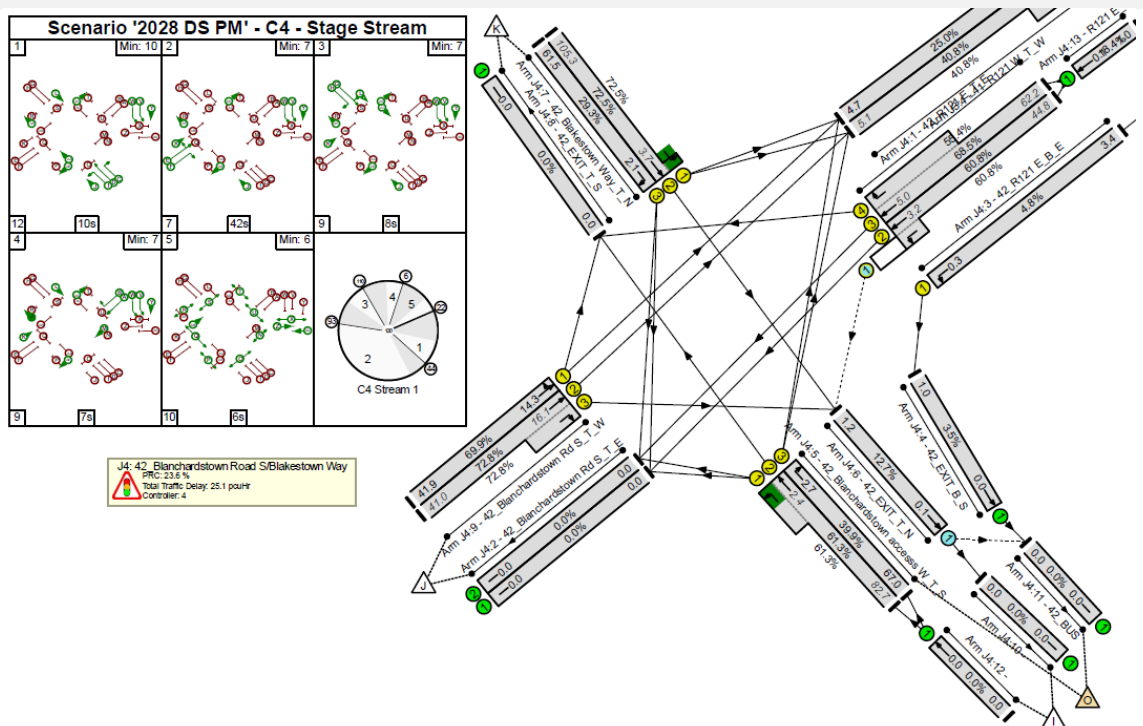
Bus delay
 Inbound = 4s
 Outbound = 82s



Do Something : 2028 : PM

Cycle = 120 secs
 PRC = 24%
 Delay = 25 pcuHr

Bus delay
 Inbound = 3s
 Outbound = 83s



Subject	BusConnects Core Bus Corridor Junction Design
Date	April 2022
Scheme	Blanchardstown to City Centre Core Bus Corridor Scheme

Bus Interchange Western Access

Summary

The roundabout junction is proposed to be modified to a four-arm signal-controlled junction. Bus lanes will be provided on the access road to the west of the junction. A two way cycle track will be set adjacent to the inbound bus lane. Shared areas will be provided at toucan crossing points for both cyclists and pedestrians to use.

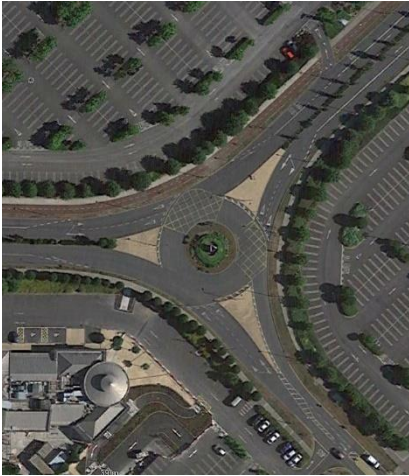
Signal Operation

The junction will operate as a five-stage signal junction. Buses will travel to the signal stopline and operate in the same stage as traffic from Blanchardstown Road South / Blakestown Way Junction, similarly with buses from the bus interchange which will operate in a separate stage to traffic. All cyclists will be segregated from all traffic and will operate in their own stage with pedestrians via the toucan crossings.

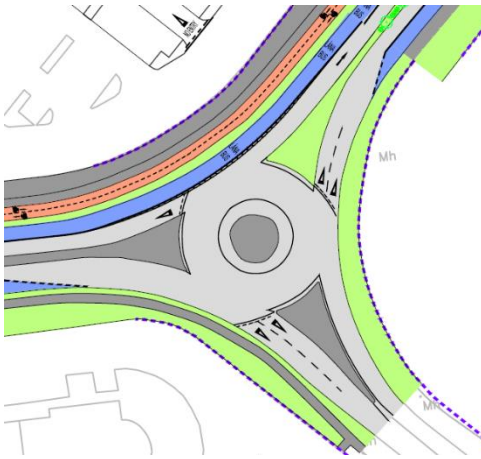
Junction Type **1/2**

Bus delay $\leq 45s$

EXISTING



EPR



DRAFT PRO (PC2)



DRAFT PRO (PC3)

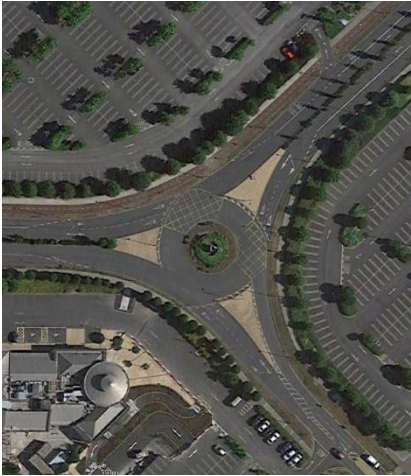


Change Made	Reason for Change	Impact of Change
<ol style="list-style-type: none"> Modification of the existing junction to add a continuous inbound bus lane north of the roundabout. 	<ol style="list-style-type: none"> To provide bus priority through the junction area. 	<ol style="list-style-type: none"> Improved reliability for bus movements
<ol style="list-style-type: none"> Replacement of the roundabout with a signal-controlled junction. Routing of through traffic along traffic lanes north and south of the bus interchange. 	<ol style="list-style-type: none"> To improve outbound and inbound bus priority To separate traffic movement from bus movement 	<ol style="list-style-type: none"> Improved reliability for bus movements Improved traffic management arrangements
<ol style="list-style-type: none"> Minor change to provide cycle track directly adjacent to the road. 	<ol style="list-style-type: none"> Consistency of positioning of cycle and pedestrian facilities. 	<ol style="list-style-type: none"> Improved safety for pedestrians and cyclists

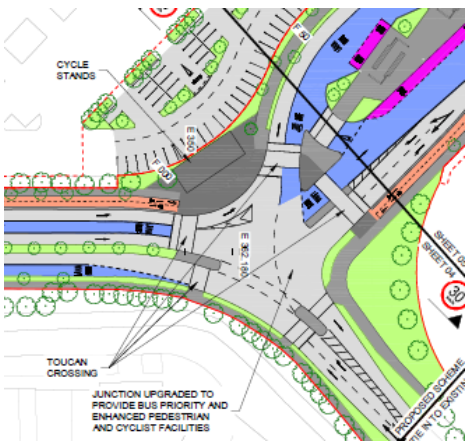
Subject	BusConnects Core Bus Corridor Junction Design
Date	April 2022
Scheme	Blanchardstown to City Centre Core Bus Corridor Scheme

Bus Interchange Western Access

EXISTING



FINAL DESIGN

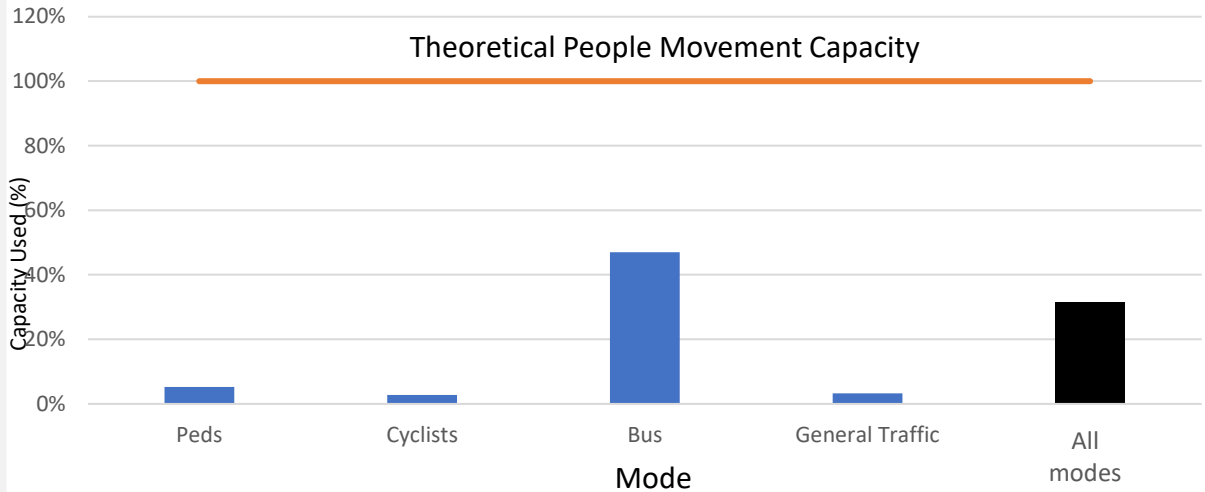
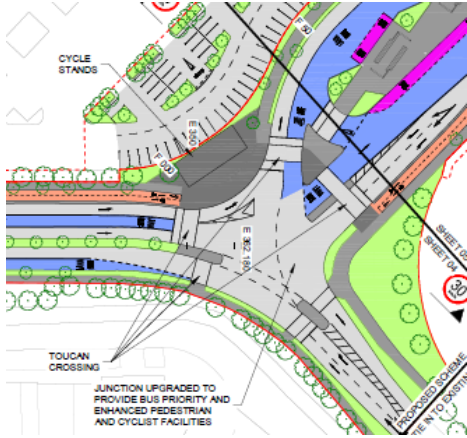


Change Made	Reason for Change	Impact of Change
<ol style="list-style-type: none"> 1. Additional lane to the nearside of the bus lane into the Interchange. 	<ol style="list-style-type: none"> 1. Reduce conflict with buses and left-turning traffic. 	<ol style="list-style-type: none"> 1. Improved bus priority, and capacity at the junction for road users.

Subject	BusConnects Core Bus Corridor Junction Design
Date	April 2022
Scheme	Blanchardstown to City Centre Core Bus Corridor Scheme

Bus Interchange Western Access

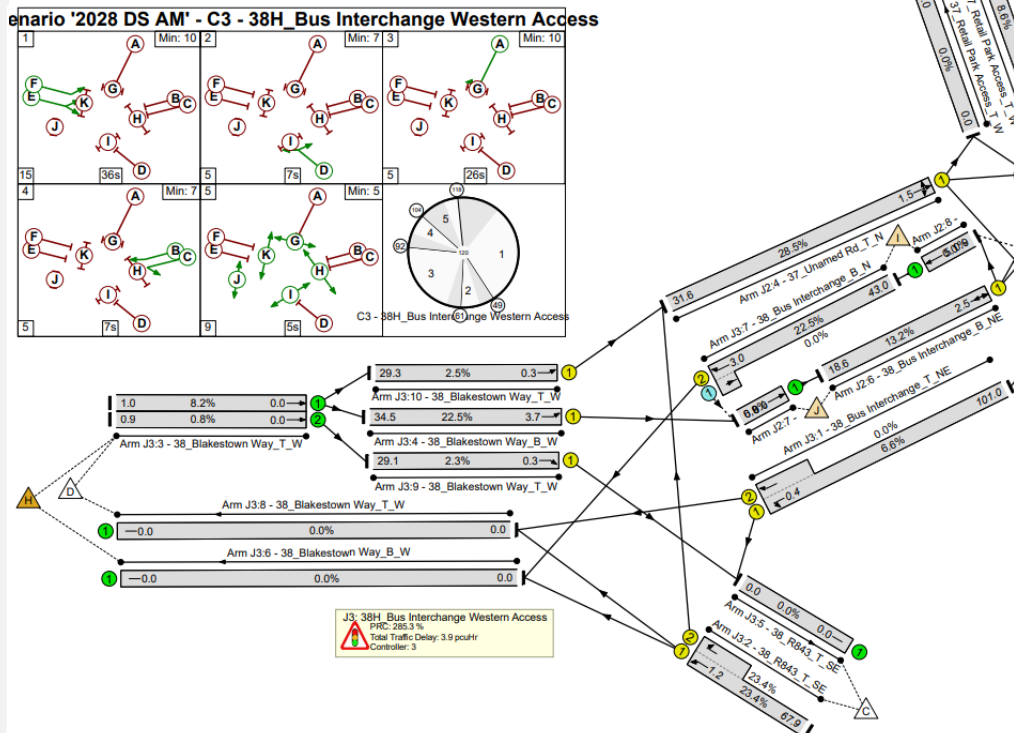
- Capacity / Delay**
- Junction operates within capacity.
 - Bus delay is <45s on average.



Do Something : 2028 : AM

Cycle = 120 secs
 PRC = 285%
 Delay = 4 pcuHr

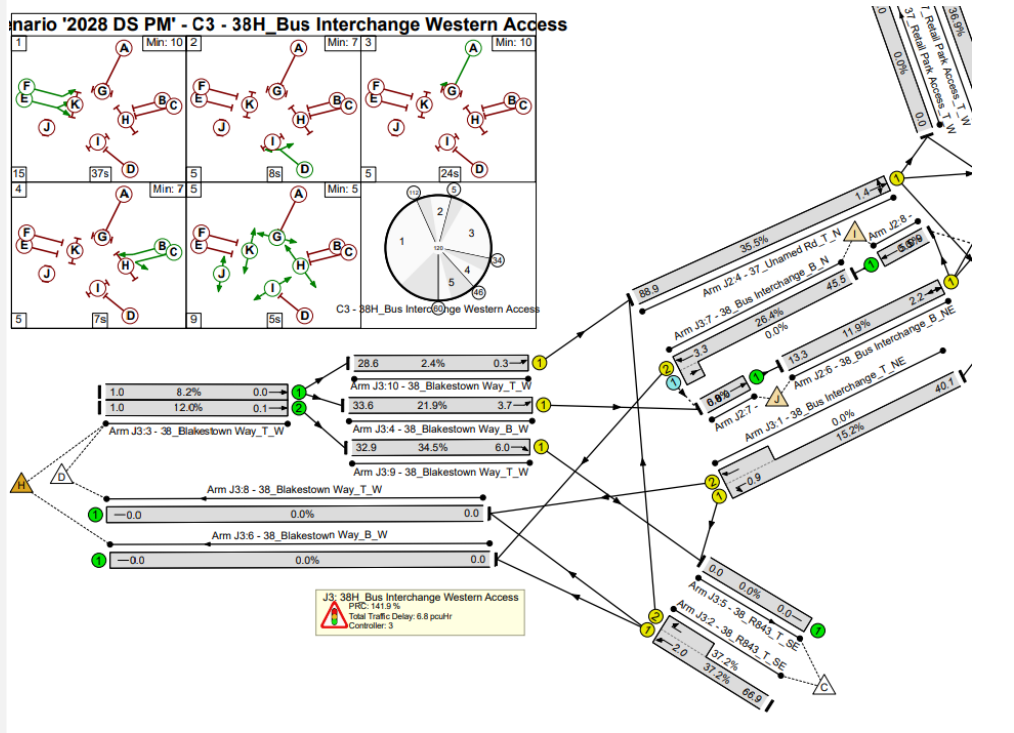
Bus delay
 Inbound = 35s
 Outbound = 43s



Do Something : 2028 : PM

Cycle = 120 secs
 PRC = 142%
 Delay = 7 pcuHr

Bus delay
 Inbound = 33s
 Outbound = 46s



Subject	BusConnects Core Bus Corridor Junction Design
Date	April 2022
Scheme	Blanchardstown to City Centre Core Bus Corridor Scheme

Bus Interchange Eastern Access

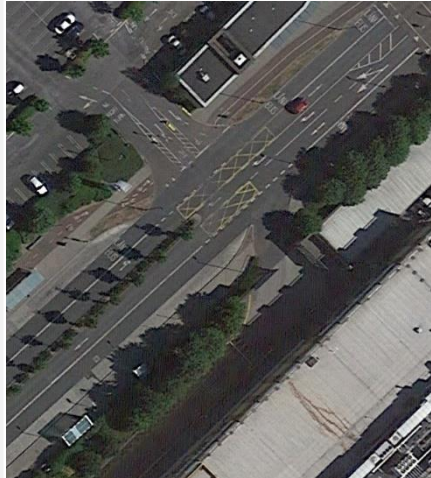
Summary

The existing car park access junction will be upgraded to a signal controlled junction which will incorporate bus lanes in and out of the proposed Bus Interchange. Pedestrian crossings to the interchange will also be provided.

Signal Operation

The junction will operate with three signal stages – with a stage each for the car park access, through traffic lanes with car park digress, and buses moving in and out of the interchange area with pedestrian crossing phases.

Junction Type **1**
Bus delay $\leq 30s$



Change Made

Reason for Change

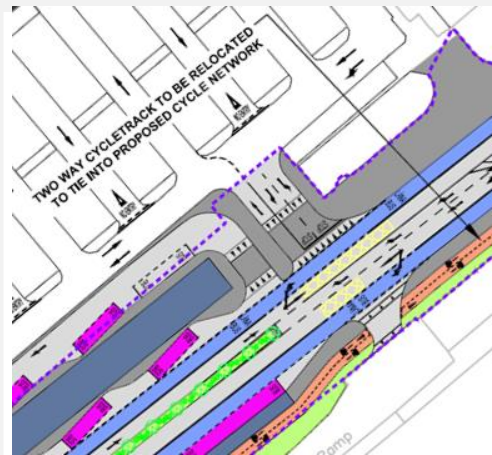
Impact of Change

EXISTING

EPR

DRAFT PRO (PC2)

DRAFT PRO (PC3)



- Two adjacent uncontrolled T-junctions are proposed - to give access to the bus interchange and the car park.
- Bus lanes are provided in both directions on West Street

- To provide access into the car park
- To provide bus priority through the junction area.

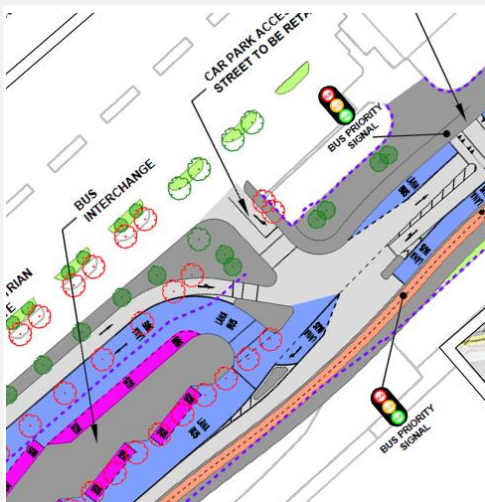
- Likely to produce traffic / bus congestion due to the two junctions (to the bus interchange and the car park) being located very close to each other.
- Bus priority maybe affected by the car park access junction.



- Access roads on West Street are proposed to be aligned around the bus interchange.

- To provide a improved traffic management conditions.

- Signal-controls can be applied to the revised junction which allows better traffic management and provision of bus priority.



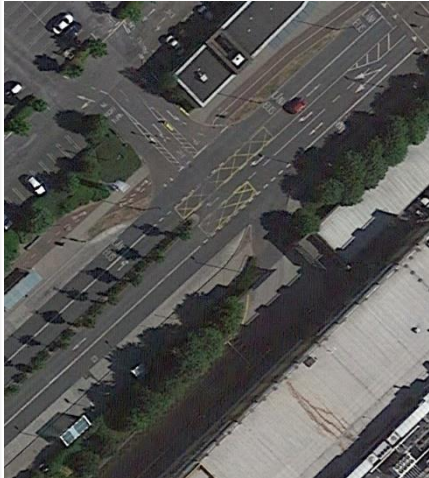
- Minor change to provide cycle track directly adjacent to the road.

- Consistency of positioning of cycle and pedestrian facilities.

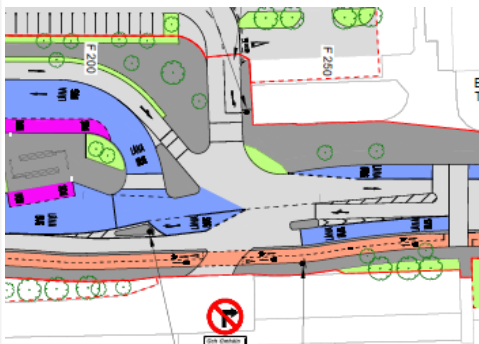
- Improved safety for pedestrians and cyclists

Subject	BusConnects Core Bus Corridor Junction Design
Date	April 2022
Scheme	Blanchardstown to City Centre Core Bus Corridor Scheme

Bus Interchange Eastern Access



EXISTING



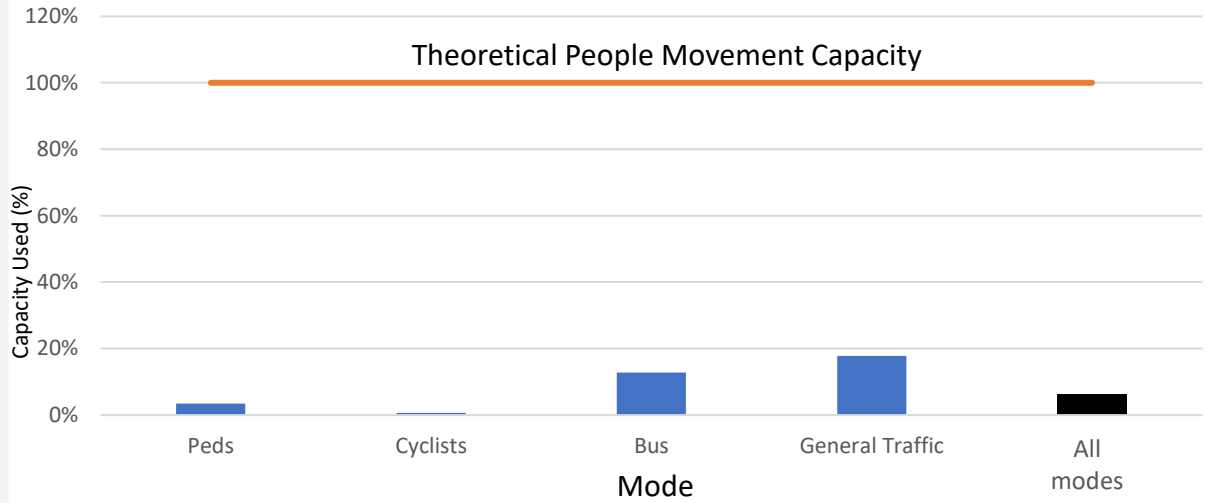
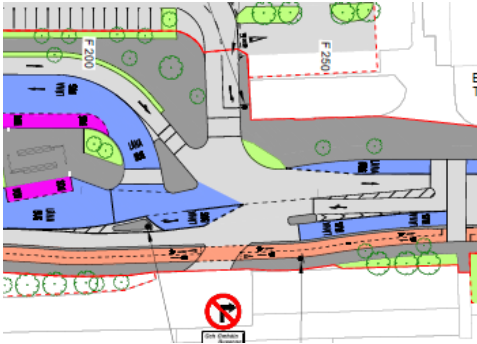
FINAL DESIGN

Change Made	Reason for Change	Impact of Change
<ol style="list-style-type: none"> Access to service yard included to the south of the junction. 	<ol style="list-style-type: none"> To formalise access for service vehicles. 	<ol style="list-style-type: none"> No impact on junction performance

Subject	BusConnects Core Bus Corridor Junction Design
Date	April 2022
Scheme	Blanchardstown to City Centre Core Bus Corridor Scheme

Bus Interchange Eastern Access

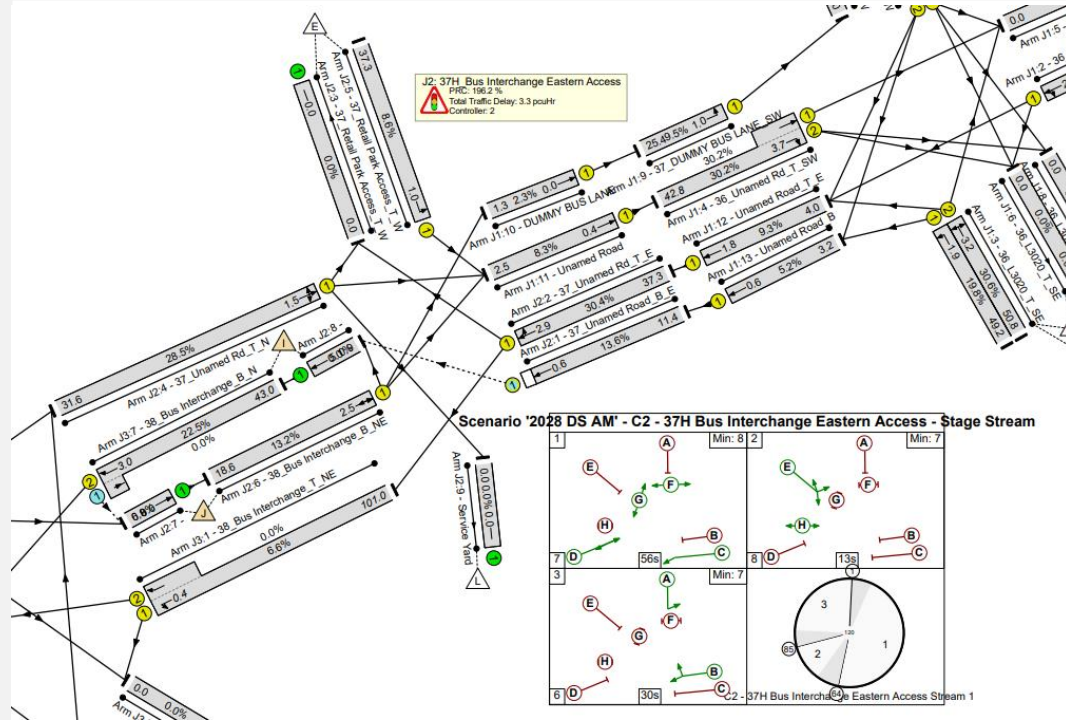
- Capacity / Delay**
- Junction operates within capacity.
 - Bus delay is <30s on average.



Do Something : 2028 : AM

Cycle = 120 secs
 PRC = 196%
 Delay = 3 pcuHr

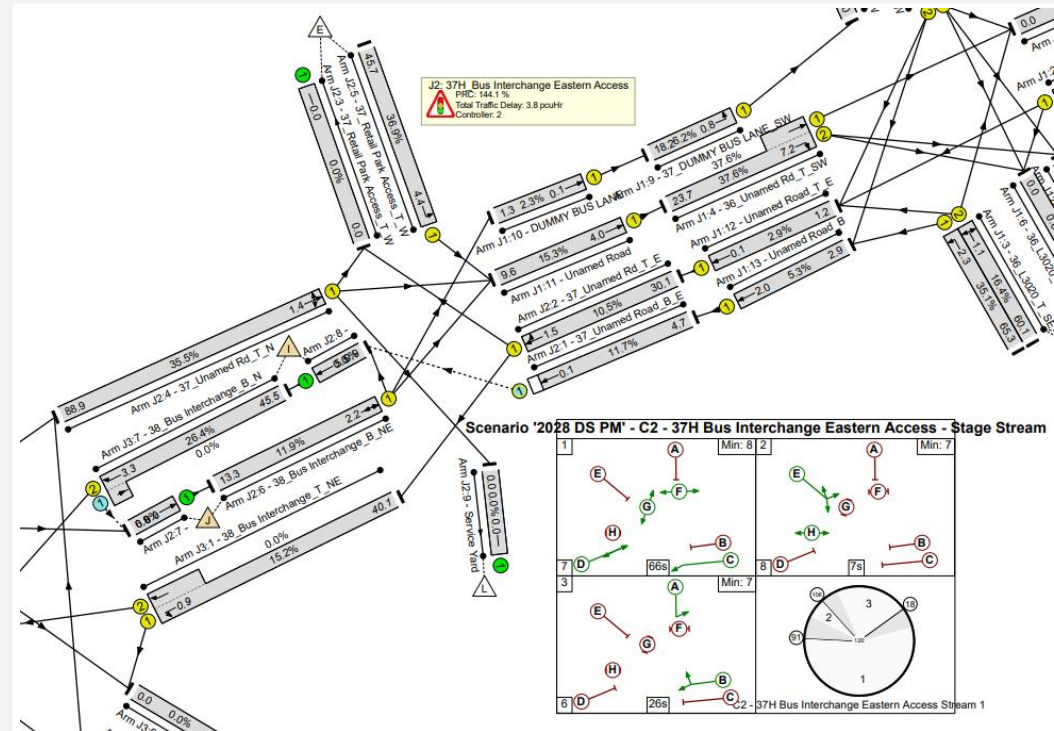
Bus delay
 Inbound = 37s
 Outbound = 19s



Do Something : 2028 : PM

Cycle = 120 secs
 PRC = 144%
 Delay = 4 pcuHr

Bus delay
 Inbound = 30s
 Outbound = 13s



Subject	BusConnects Core Bus Corridor Junction Design
Date	April 2022
Scheme	Blanchardstown to City Centre Core Bus Corridor Scheme

Crowne Plaza

Summary

The junction is proposed to be modified to a four-arm signal-controlled junction. A bus lane to the stop line will be provided on the approach arm from the L3020 / Liberty Insurance junction. The bus lane on the interchange access road will be curtailed 20m prior to the junction to manage capacity at the junction. Cycle facilities will be provided by a dedicated off road two-way cycle track on the same arms as the bus lanes. Shared space will be provided at the crossing areas for pedestrians and cyclists.

Signal Operation

The junction will operate as a five-stage signal junction, one for each of the four arms of the junction and a pedestrian crossing stage. Buses will travel to the signal stopline with traffic able to operate within the same stage on north and south arms. Straight ahead vehicles will cross the bus lane path on the interchange access road, 20m from the junction and operate with left-turning buses. This arrangement will maximise green time for buses and minimise delay.

Junction Type **1/3** Bus delay $\leq 60s$

EXISTING



EPR



DRAFT PRO (PC2)



DRAFT PRO (PC3)



Change Made	Reason for Change	Impact of Change
<ol style="list-style-type: none"> 1. Roundabout modified to a four-arm signal-controlled junction with bus lanes in both directions. 2. A two-way cycle track is provided on the south side of the junction. 3. Straight-across pedestrian crossings are provided on each side of the junction. 	<ol style="list-style-type: none"> 1. To provide continuous bus lanes through the junction. 2. To provide improved facilities for crossing pedestrians and cyclists. 	<ol style="list-style-type: none"> 1. Improved reliability for bus movements 2. Improved safety for pedestrians and cyclists.
<ol style="list-style-type: none"> 1. Minor changes to pedestrian and traffic islands 	<ol style="list-style-type: none"> 1. Improved geometry and vehicle paths 	<ol style="list-style-type: none"> 1. Improved safety
<ol style="list-style-type: none"> 1. Inbound bus lane terminated 20m from stopline to allow straight-ahead traffic to use this lane 	<ol style="list-style-type: none"> 1. To reduce the number of stages at the junction, and to maximise the bus green time per cycle by allowing buses to move during the same signal stage as traffic. 	<ol style="list-style-type: none"> 1. x

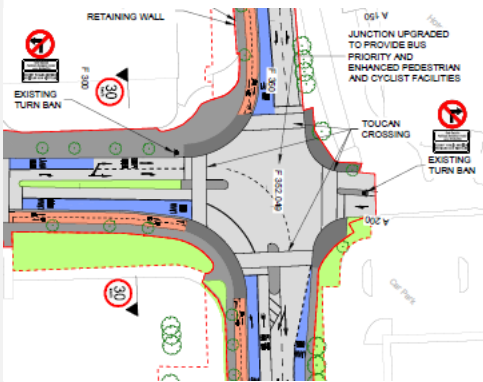
Subject	BusConnects Core Bus Corridor Junction Design
Date	April 2022
Scheme	Blanchardstown to City Centre Core Bus Corridor Scheme

Crowne Plaza

EXISTING



FINAL DESIGN



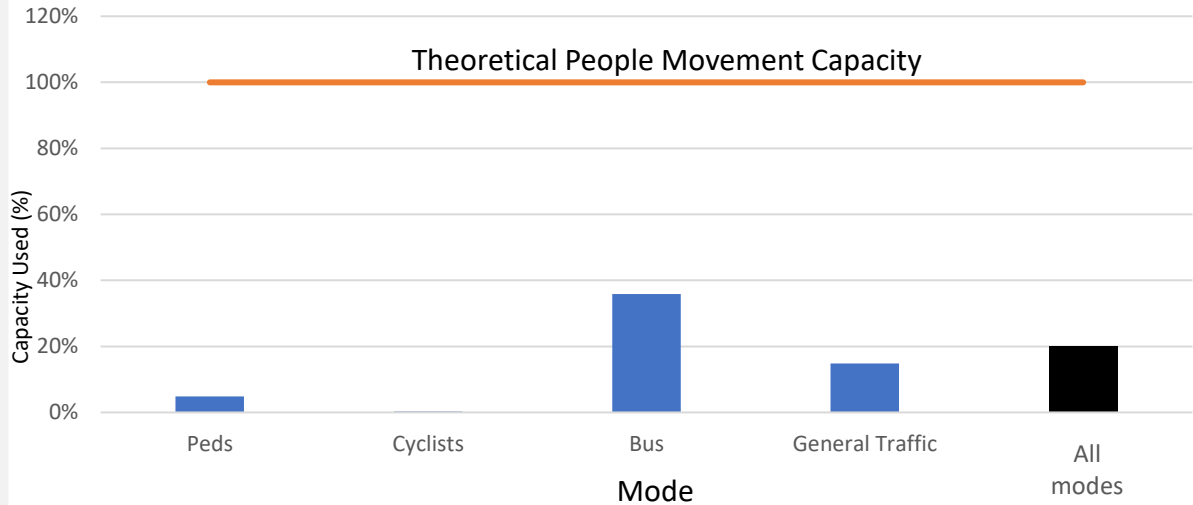
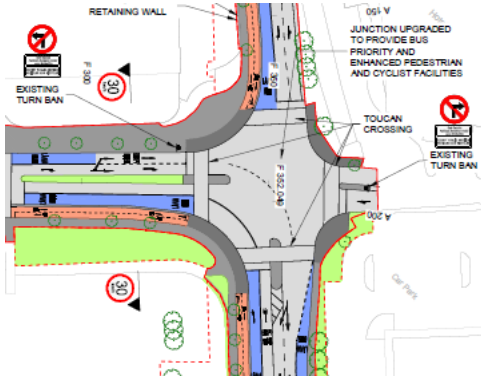
Change Made	Reason for Change	Impact of Change
<ol style="list-style-type: none"> Two-way cycle track added to the northern arm adjacent to the bus lane. 	<ol style="list-style-type: none"> Provide cycle facilities in both directions 	<ol style="list-style-type: none"> Improved cycling facilities with no operational impact

Subject	BusConnects Core Bus Corridor Junction Design
Date	April 2022
Scheme	Blanchardstown to City Centre Core Bus Corridor Scheme

Crowne Plaza

Capacity / Delay

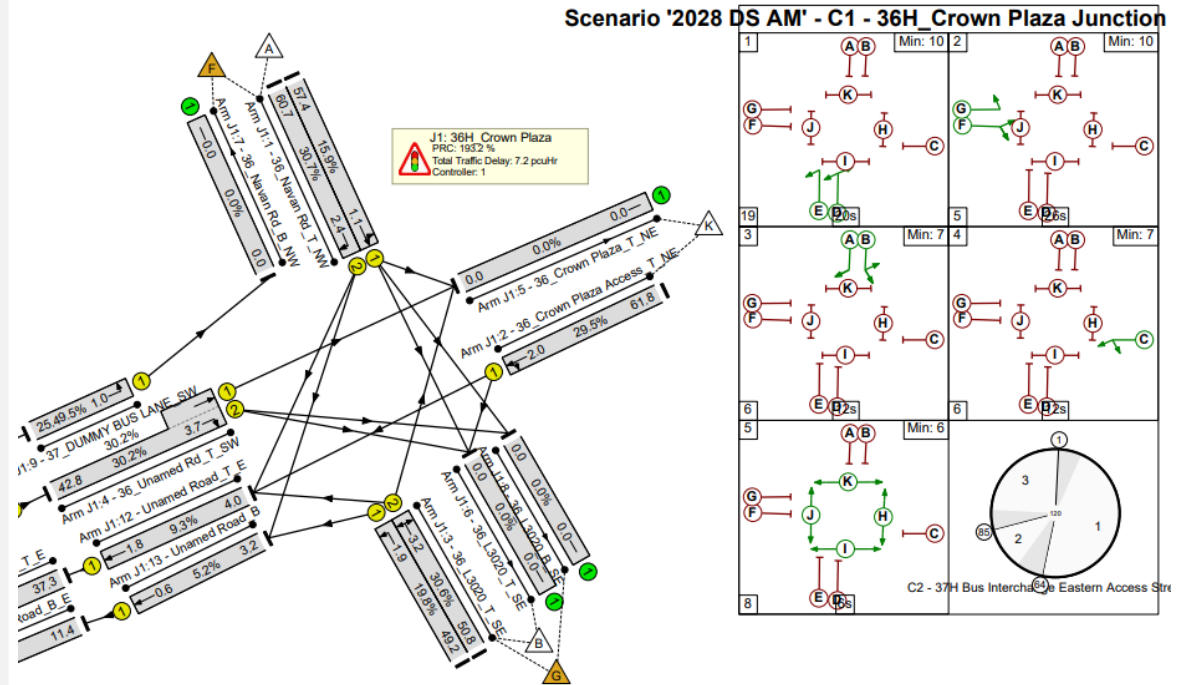
- Junction operates within capacity.
- Bus delay is <60s on average.



Do Something : 2028 : AM

Cycle = 120 secs
 PRC = 193%
 Delay = 7 pcuHr

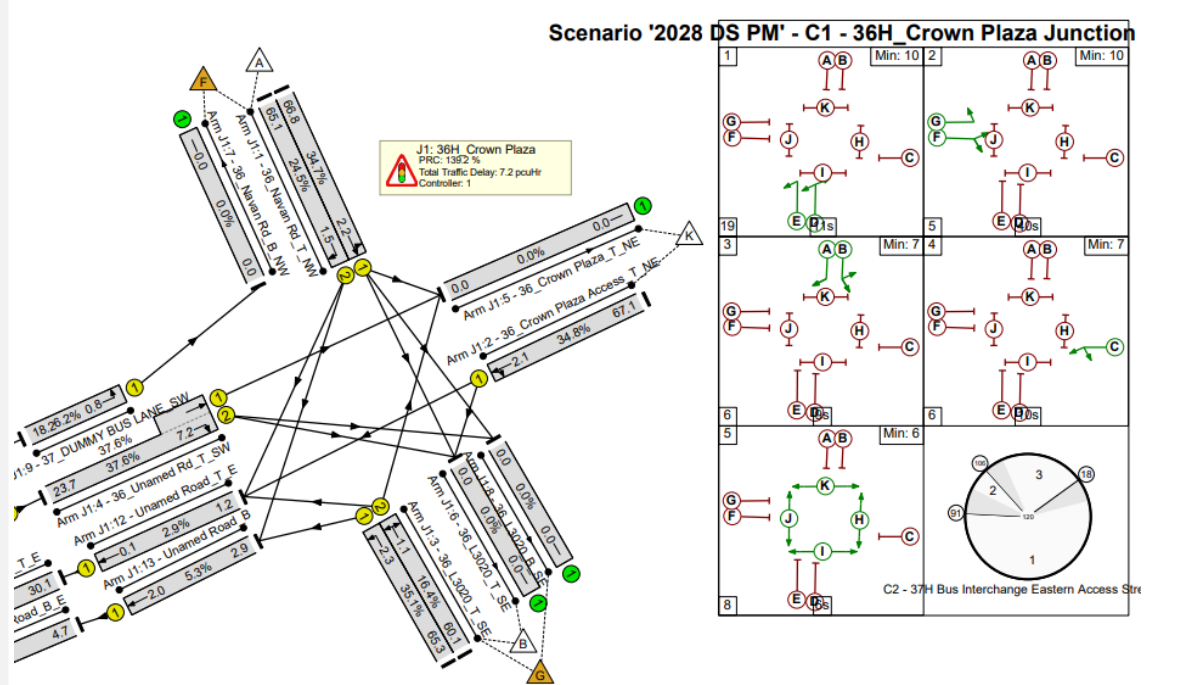
Bus delay
 Inbound = 25s
 Outbound = 49s



Do Something : 2028 : PM

Cycle = 120 secs
 PRC = 139%
 Delay = 7 pcuHr

Bus delay
 Inbound = 18s
 Outbound = 65s



Subject	BusConnects Core Bus Corridor Junction Design
Date	April 2022
Scheme	Blanchardstown to City Centre Core Bus Corridor Scheme

Crowne Plaza / N3 off-slip

Summary

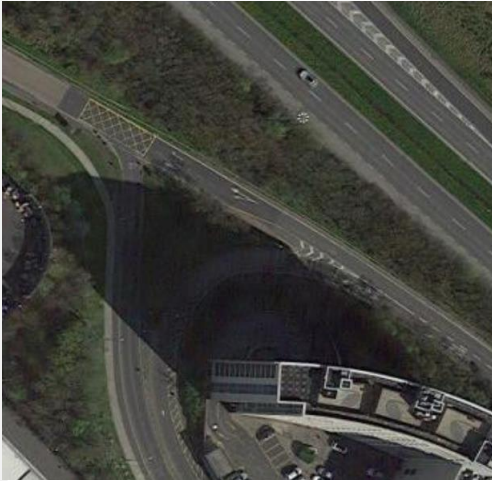
The junction is proposed to be signal-controlled, to provide signal priority for buses entering the slip road, and a short bus lane will also be provided on the slip road.

Signal Operation

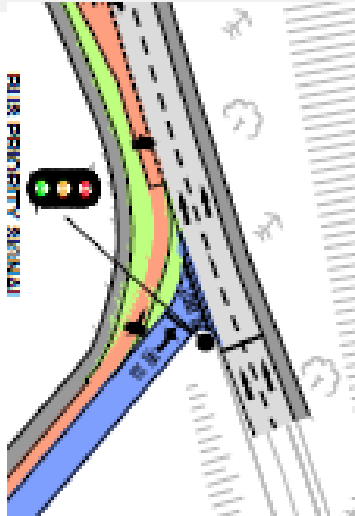
A three stage signal operation is proposed. Traffic from N3 Slip Road will operate separately from the Slip Road bus lane and the bus lane from Crowne Plaza.

Junction Type **1** Bus delay $\leq 65s$

EXISTING



EPR



- 1. Signals added to existing bus lane / slip road junction.

- 1. To enhance bus priority and journey time reliability.

- 1. Improved bus priority

DRAFT PRO (PC2)

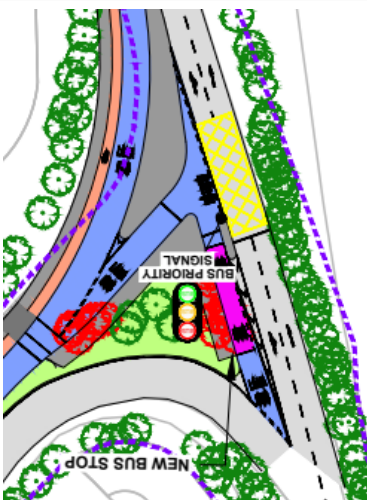


- 1. Additional left-turn bus lane to Blanchardstown Road South (southbound).

- 1. To ensure that buses bound for the layover area on Blanchardstown Road South can be access quickly and reliably by buses travelling from the Bus Interchange.

- 1. Limited impact on overall traffic movement as the left-turn bus lane is an additional facility and does not take roadspace from general traffic.

DRAFT PRO (PC3)



- 1. Short bus lane and bus priority signal added on slip road approach.

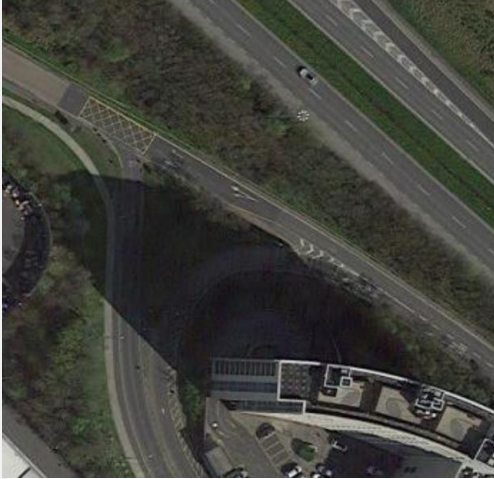
- 1. To provide for bus priority and journey time reliability for regional buses exiting the N3 slip road.

- 1. Marginal impact on traffic capacity due to additional signal stage for N3 slip road bus lane.

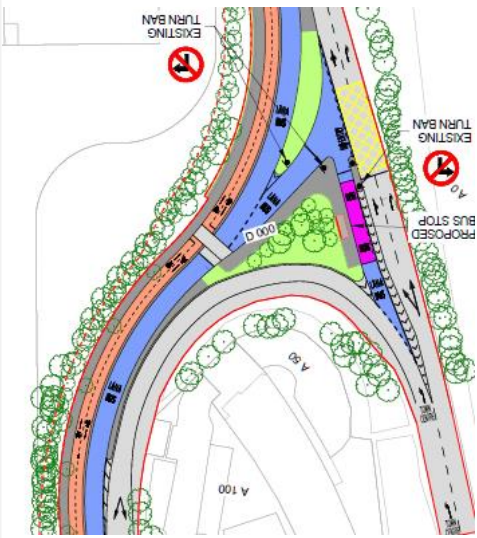
Subject	BusConnects Core Bus Corridor Junction Design
Date	April 2022
Scheme	Blanchardstown to City Centre Core Bus Corridor Scheme

Crowne Plaza / N3 off-slip

EXISTING



FINAL DESIGN



Change Made	Reason for Change	Impact of Change
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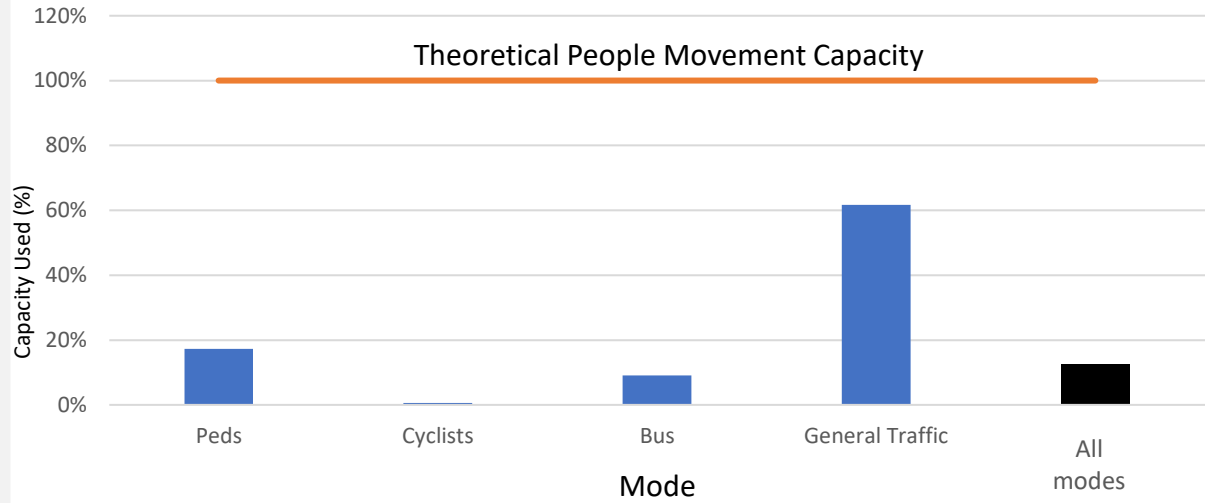
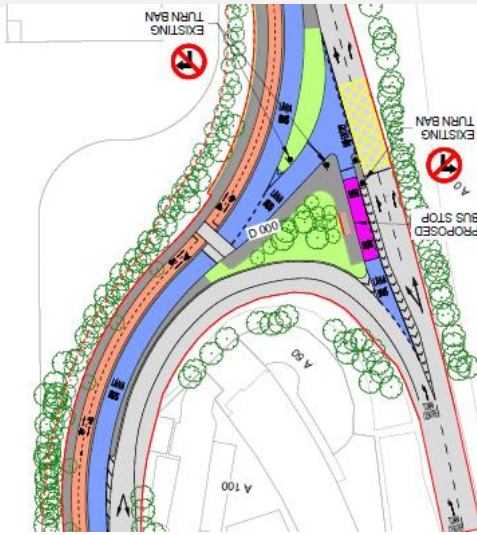
1. Two way cycle track added to the northern arm adjacent to the bus lane.	1. Provide cycle facilities in both directions	1. Improved cycling facilities with no operational impact on bus or traffic movement.

Subject	BusConnects Core Bus Corridor Junction Design
Date	April 2022
Scheme	Blanchardstown to City Centre Core Bus Corridor Scheme

Crowne Plaza / N3 off-slip

Capacity / Delay

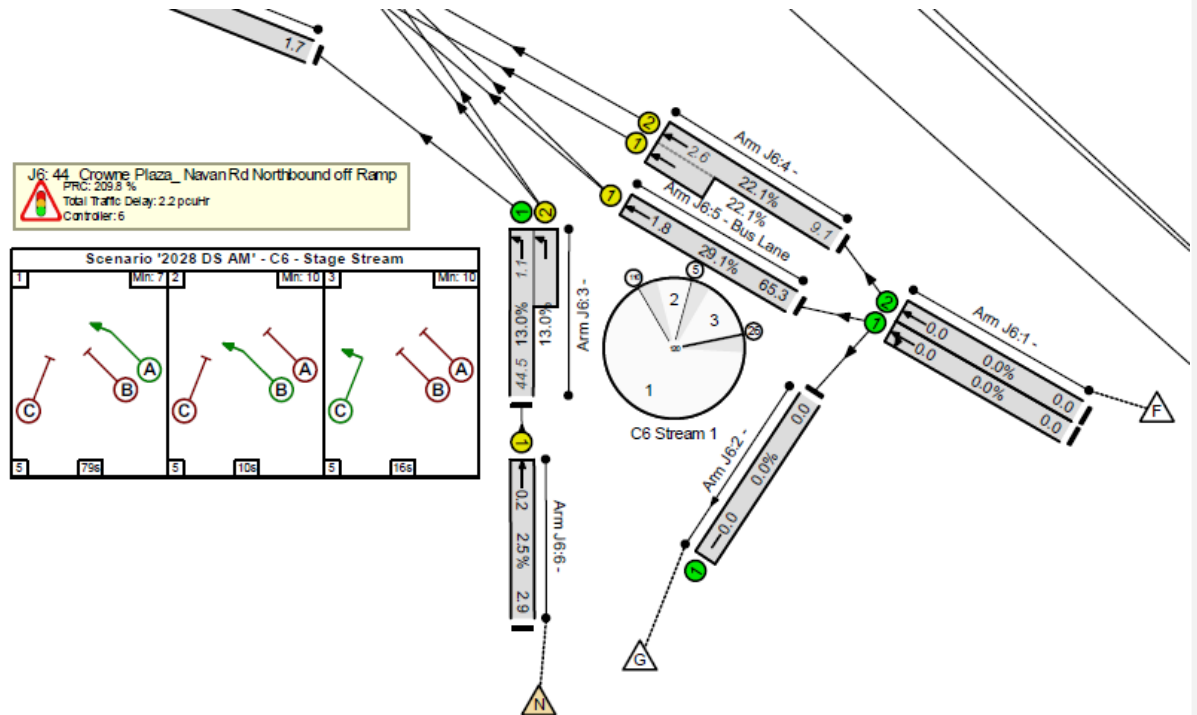
1. Junction operates within capacity.
2. Bus delay is <65s on average.
3. Stand-alone nature of the junction would allow bus detection to achieve reduced bus delay.



Do Something : 2028 : AM

Cycle = 120 secs
 PRC = 210%
 Delay = 2 pcuHr

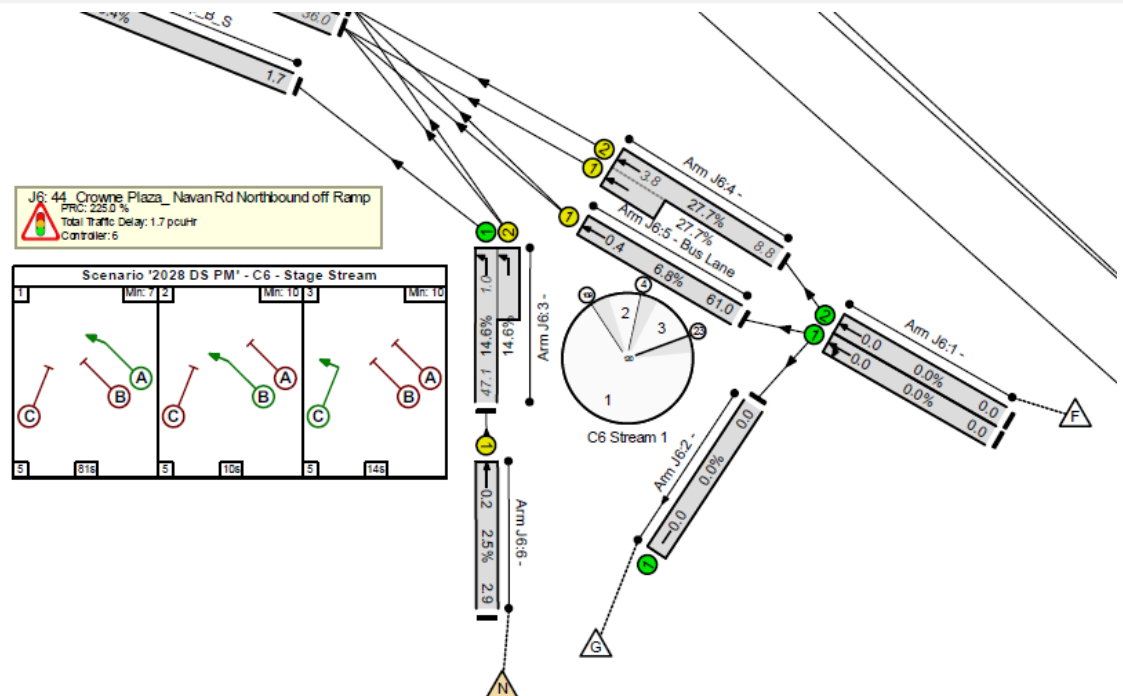
 Bus delay
 Inbound = 45s
 Outbound = 65s



Do Something : 2028 : PM

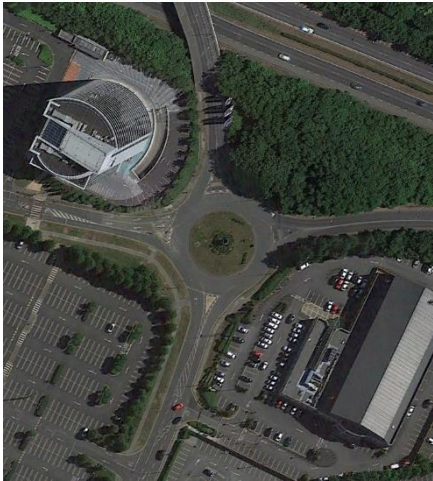
Cycle = 120 secs
 PRC = 225%
 Delay = 2 pcuHr

 Bus delay
 Inbound = 47s
 Outbound = 61s



Subject	BusConnects Core Bus Corridor Junction Design
Date	April 2022
Scheme	Blanchardstown to City Centre Core Bus Corridor Scheme

L3020 / Liberty Insurance



Summary

The junction is proposed to be modified to a four-arm signal-controlled junction. Bus lanes will be provided on the eastern and western approaches to the junction, which will be curtailed 20m prior to the junction to manage capacity at the junction. A two-way cycle track will be provided along the southern side of the road. The side roads will be provided with cycle lanes to lead users in / out of the main cycle track, via the toucan crossings.

Signal Operation

The junction will operate with five signal stages – with a stage for each of the four arms of the junction and a pedestrian crossing stage. Traffic and buses will operate in the same stage, with left turning vehicles crossing the bus lane path at a distance of 20m from the junction. This will maximise green time for buses and minimise delay.

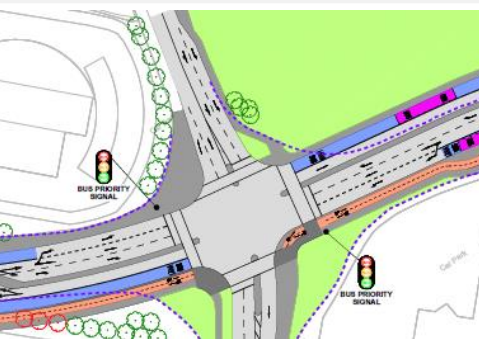
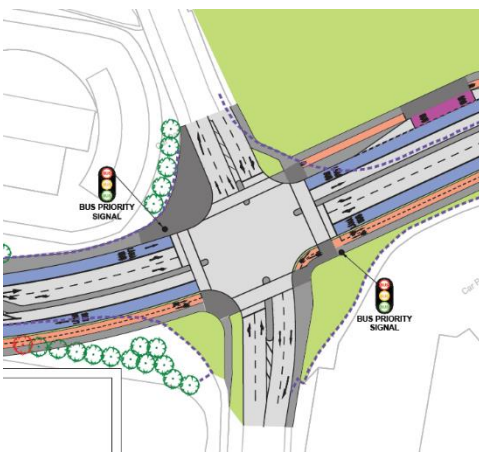
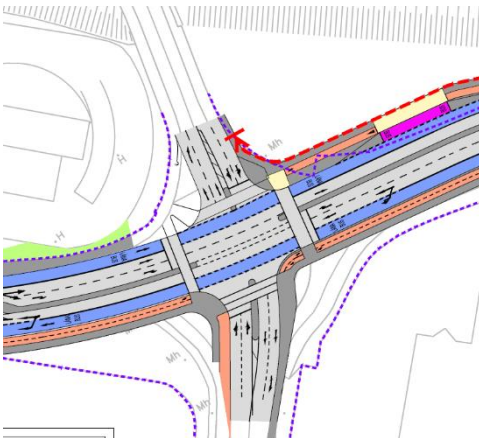
Junction Type 3
Bus delay ≤ 65s

EXISTING

EPR

DRAFT PRO (PC2)

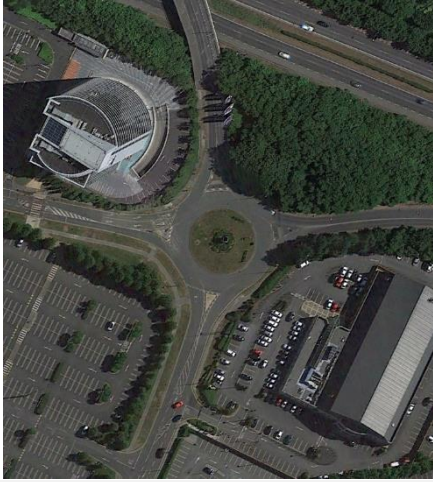
DRAFT PRO (PC3)



Change Made	Reason for Change	Impact of Change
<ol style="list-style-type: none"> 1. Roundabout modified to a four-arm signal-controlled junction with bus lanes in both directions. 2. A two-way cycle track is provided on the south side of the junction. 3. Straight-across pedestrian crossings are provided on each side of the junction. 	<ol style="list-style-type: none"> 1. To provide continuous bus lanes through the junction. 2. To provide improved facilities for crossing pedestrians and cyclists. 	<ol style="list-style-type: none"> 1. Improved reliability for bus movements 2. Improved safety for pedestrians and cyclists.
<ol style="list-style-type: none"> 1. No change 	<ol style="list-style-type: none"> 1. N/A 	<ol style="list-style-type: none"> 1. N/A
<ol style="list-style-type: none"> 1. Left turn lanes provided from a point 30m from the stopline – such that buses and traffic use the same lane over this distance. 	<ol style="list-style-type: none"> 1. To reduce one stage from the signal operation and to increase green time given to buses, and to ensure that some traffic capacity is retained to provide access by car to the retail park. 	<ol style="list-style-type: none"> 1. Reduced delay to buses, and improved traffic management conditions

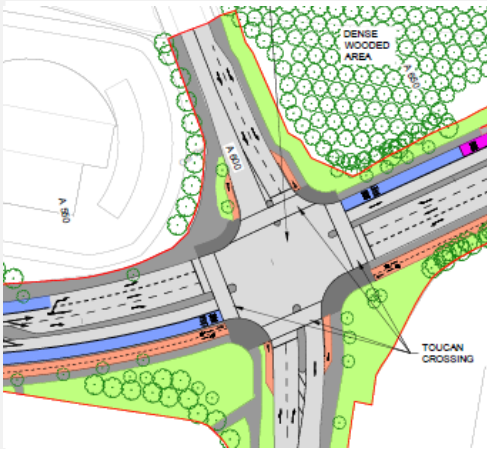
Subject	BusConnects Core Bus Corridor Junction Design
Date	April 2022
Scheme	Blanchardstown to City Centre Core Bus Corridor Scheme

L3020 / Liberty Insurance



EXISTING

FINAL DESIGN



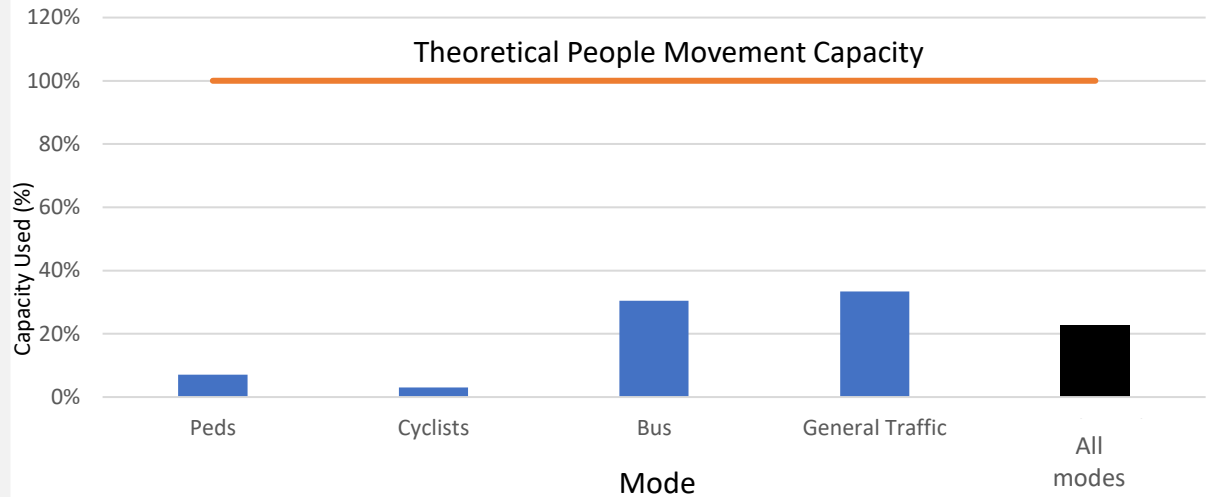
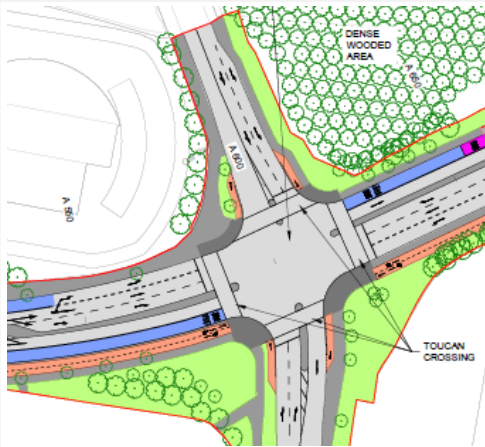
Change Made	Reason for Change	Impact of Change
<ol style="list-style-type: none"> Addition of shared spaces areas and cycle lead in and out lanes on the side roads, with toucan crossing facilities. 	<ol style="list-style-type: none"> To enable cycle access / egress to main cycle track. 	<ol style="list-style-type: none"> Improved cycle access. No impact on junction operation.

Subject	BusConnects Core Bus Corridor Junction Design
Date	April 2022
Scheme	Blanchardstown to City Centre Core Bus Corridor Scheme

L3020 / Liberty Insurance

Capacity / Delay

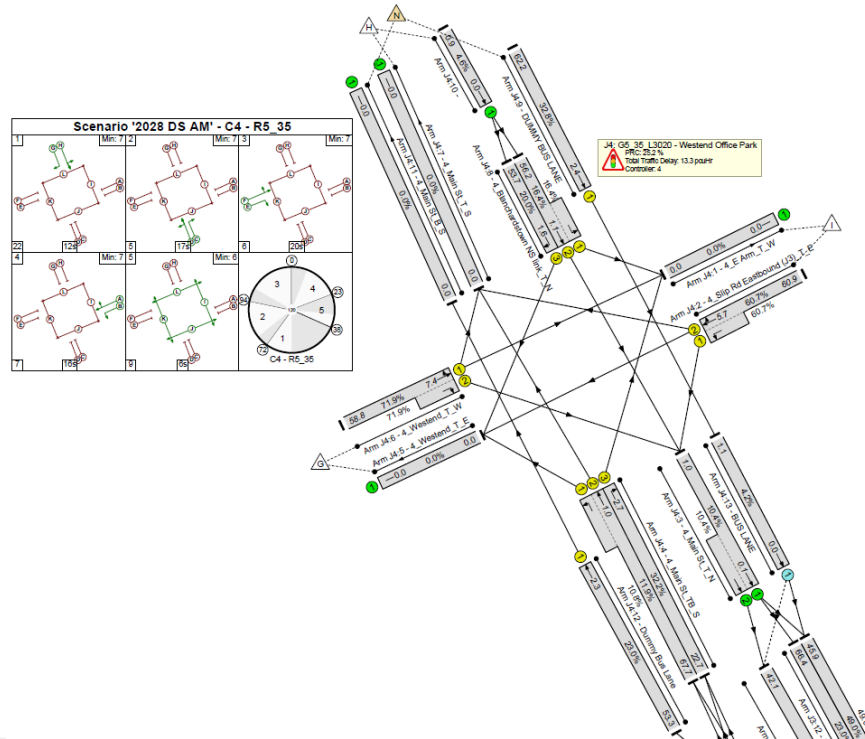
- Junction operates within capacity.
- Bus delay is <65s on average.



Do Something : 2028 : AM

Cycle = 120 secs
 PRC = 25%
 Delay = 13 pcuHr

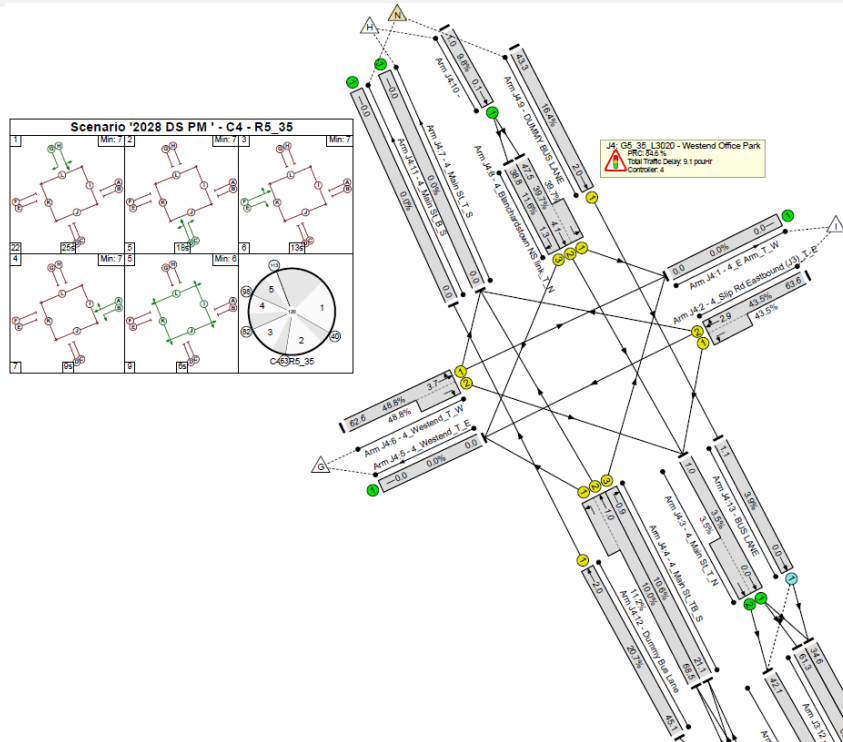
Bus delay
 Inbound = 62s
 Outbound = 53s



Do Something : 2028 : PM

Cycle = 120 secs
 PRC = 85%
 Delay = 9 pcuHr

Bus delay
 Inbound = 43s
 Outbound = 45s



Subject	BusConnects Core Bus Corridor Junction Design
Date	April 2022
Scheme	Blanchardstown to City Centre Core Bus Corridor Scheme

Snugborough Road / L3020*



Summary

The proposed junction improvement will consist of widening of all the junction approach roads (on Snugborough Road, Main Street (Blanchardstown), the L3020, and the N3 northbound off-slip road, with improved signal control, and provision of bus lanes and cycle and pedestrian facilities.

Signal Operation

The junction will operate as a six-stage signal junction. Traffic and non-conflicting pedestrian crossings will operate within the same stage. Buses will travel to the signal stopline and will be able to operate within the same stage as traffic. Cyclists will also operate in the same stage as traffic with left turning traffic to give way to cyclists on flashing ambers, except from Snugborough Road onto Main Street due to the heavy left turn traffic flows. This arrangement will maximise green time for buses and minimise delay.

Junction Type **1/2**
Bus delay = $\leq 90s$

EXISTING

EPR

DRAFT PRO (PC2)

DRAFT PRO (PC3)

Change Made	Reason for Change	Impact of Change
<ol style="list-style-type: none"> Junction improvement consists of widening of all the junction approach roads (on Snugborough Road, Main Street (Blanchardstown), the L3020, and the N3 northbound off-slip road, with improved signal control Provision of bus lanes and cycle and pedestrian facilities Additional traffic lanes 	<ol style="list-style-type: none"> To provide continuous bus lanes through the junction. To provide improved facilities for crossing pedestrians and cyclists. To increase traffic capacity 	<ol style="list-style-type: none"> Improved reliability for bus movements Improved safety for pedestrians and cyclists. Increased traffic capacity
<ol style="list-style-type: none"> No change 	<ol style="list-style-type: none"> N/A 	<ol style="list-style-type: none"> N/A
<ol style="list-style-type: none"> No change 	<ol style="list-style-type: none"> N/A 	<ol style="list-style-type: none"> N/A

*This junction is part of the Snugborough Interchange being implemented by Fingal County Council

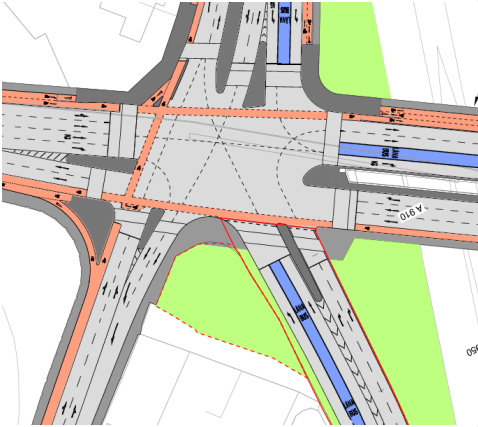
Subject	BusConnects Core Bus Corridor Junction Design
Date	April 2022
Scheme	Blanchardstown to City Centre Core Bus Corridor Scheme

Snugborough Road /
L3020*

EXISTING



FINAL DESIGN



Change Made	Reason for Change	Impact of Change
1. No change	1. N/A	1. N/A

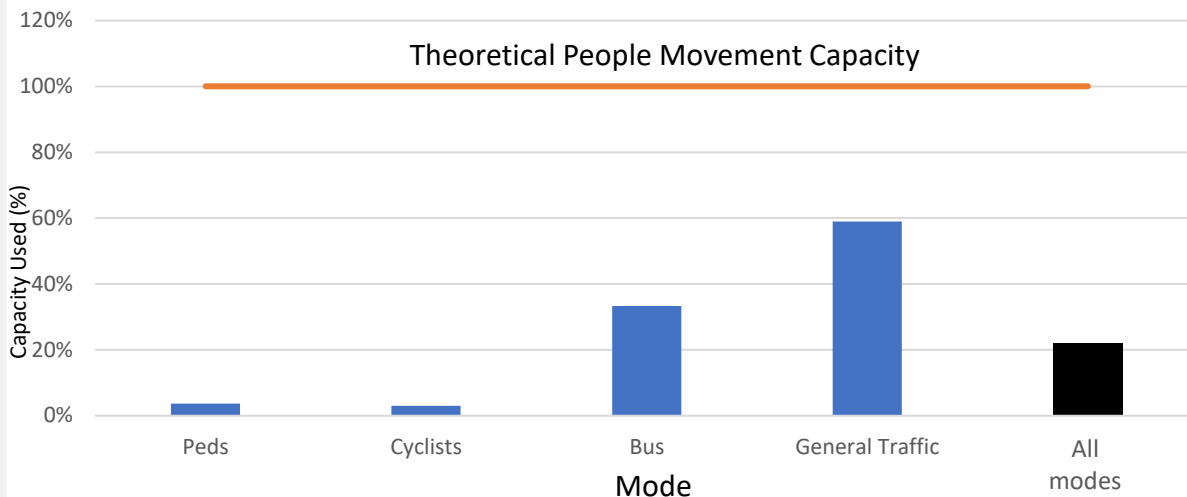
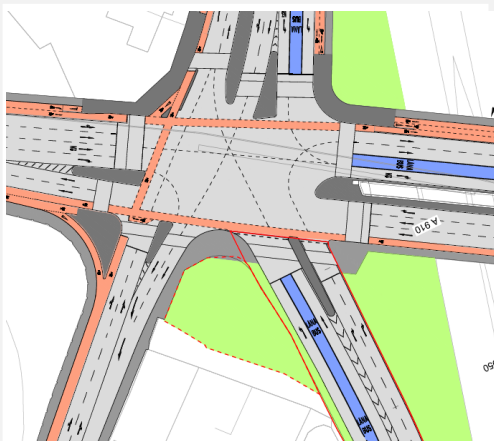
*This junction is part of the Snugborough Interchange being implemented by Fingal County Council

Subject	BusConnects Core Bus Corridor Junction Design
Date	April 2022
Scheme	Blanchardstown to City Centre Core Bus Corridor Scheme

Snugborough Road / L3020*

Capacity / Delay

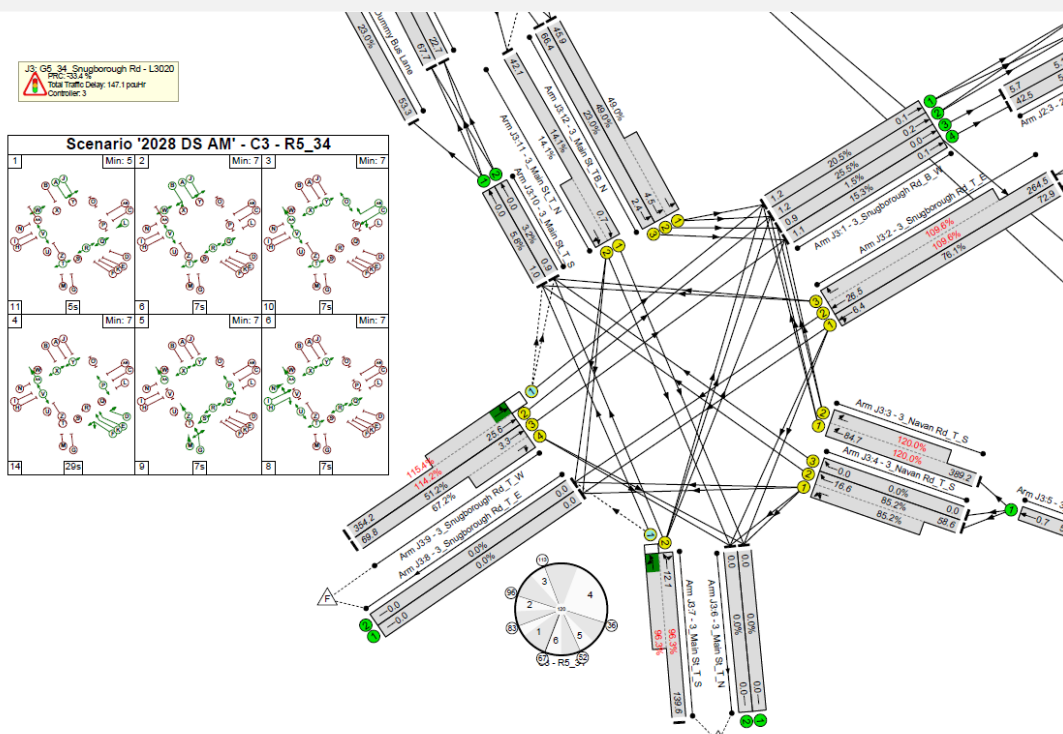
1. Bus delay is up to 90s on average.
2. Junction operates over capacity during the AM peak.



Do Something : 2028 : AM

Cycle = 120 secs
 PRC = -33%
 Delay = 147 pcuHr

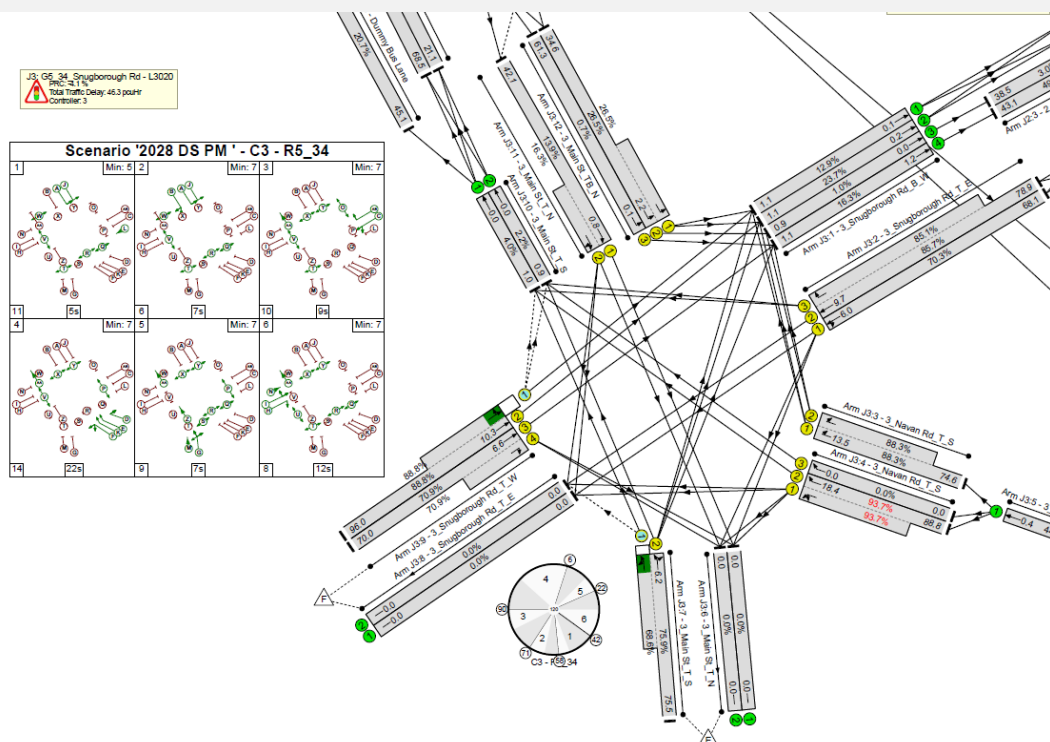
Bus delay
 Inbound = 66s
 Outbound = 59s



Do Something : 2028 : PM

Cycle = 120 secs
 PRC = -4%
 Delay = 46 pcuHr

Bus delay
 Inbound = 61s
 Outbound = 89s



*This junction is part of the Snugborough Interchange being implemented by Fingal County Council

Subject	BusConnects Core Bus Corridor Junction Design
Date	April 2022
Scheme	Blanchardstown to City Centre Core Bus Corridor Scheme

Snugborough Road / N3 (Southbound on-ramp)*



Summary

The existing roundabout at Snugborough Road / Waterville Road / Navan Road On-slip Road will be modified to a signal controlled T-junction (with Waterville Road diverted to a separate junction).

Signal Operation

The junction is proposed to operate with two streams on the controller. Westbound traffic movements on Snugborough Road and pedestrian crossing will operate in a separate stage to the right-turn / bus stage. The left turn southbound traffic stage and pedestrian crossing will operate on a separate stream of the controller, with traffic to give way to the right turning movement. The stand-alone nature of the junction will allow bus detection to achieve reduced bus delay.

Junction Type **1**
Bus delay $\leq 30s$ *

* Assumes detection reduces average bus delay

EXISTING

EPR

DRAFT PRO (PC2)

DRAFT PRO (PC3)

Change Made	Reason for Change	Impact of Change
<ol style="list-style-type: none"> Existing roundabout at Snugborough Road / Waterville Road / Navan Road On-slip Road is to be modified to a signal controlled T-junction Cycle tracks and pedestrian crossings added to the junction Additional traffic lanes 	<ol style="list-style-type: none"> To provide a continuous bus lane through the junction. To provide improved facilities for crossing pedestrians and cyclists. To increase traffic capacity. 	<ol style="list-style-type: none"> Improved reliability for bus movements Improved safety for pedestrians and cyclists. Increased traffic capacity
<ol style="list-style-type: none"> No change 	<ol style="list-style-type: none"> N/A 	<ol style="list-style-type: none"> N/A
<ol style="list-style-type: none"> No change 	<ol style="list-style-type: none"> N/A 	<ol style="list-style-type: none"> N/A

*This junction is part of the Snugborough Interchange being implemented by Fingal County Council

Subject	BusConnects Core Bus Corridor Junction Design
Date	April 2022
Scheme	Blanchardstown to City Centre Core Bus Corridor Scheme

Snugborough Road / N3
(Southbound on-ramp)*



EXISTING

Change Made	Reason for Change	Impact of Change
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1. No change	1. N/A	1. N/A
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FINAL DESIGN

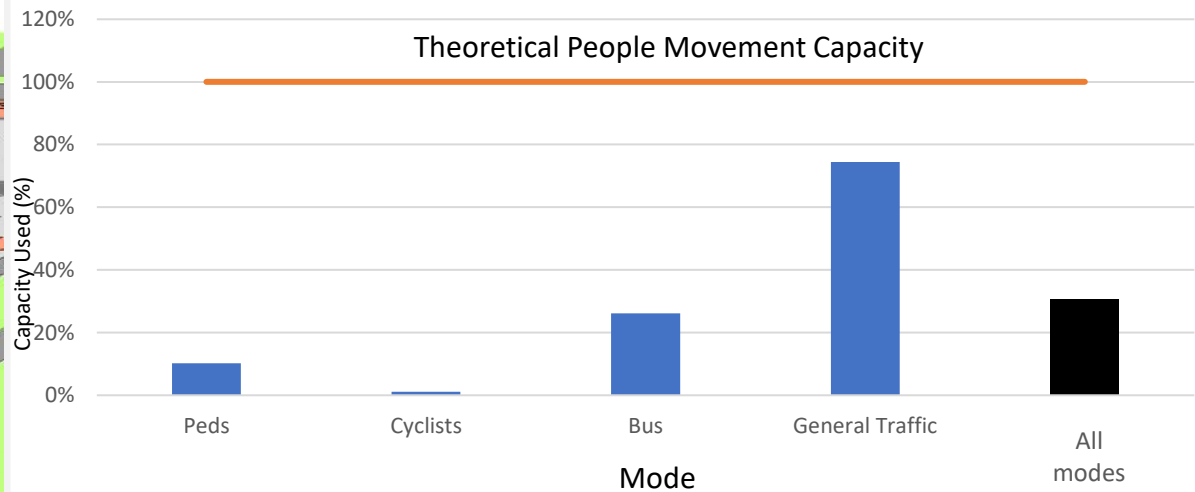
*This junction is part of the Snugborough Interchange being implemented by Fingal County Council

Subject	BusConnects Core Bus Corridor Junction Design
Date	April 2022
Scheme	Blanchardstown to City Centre Core Bus Corridor Scheme

Snugborough Road / N3 (Southbound on-ramp)*

Capacity / Delay

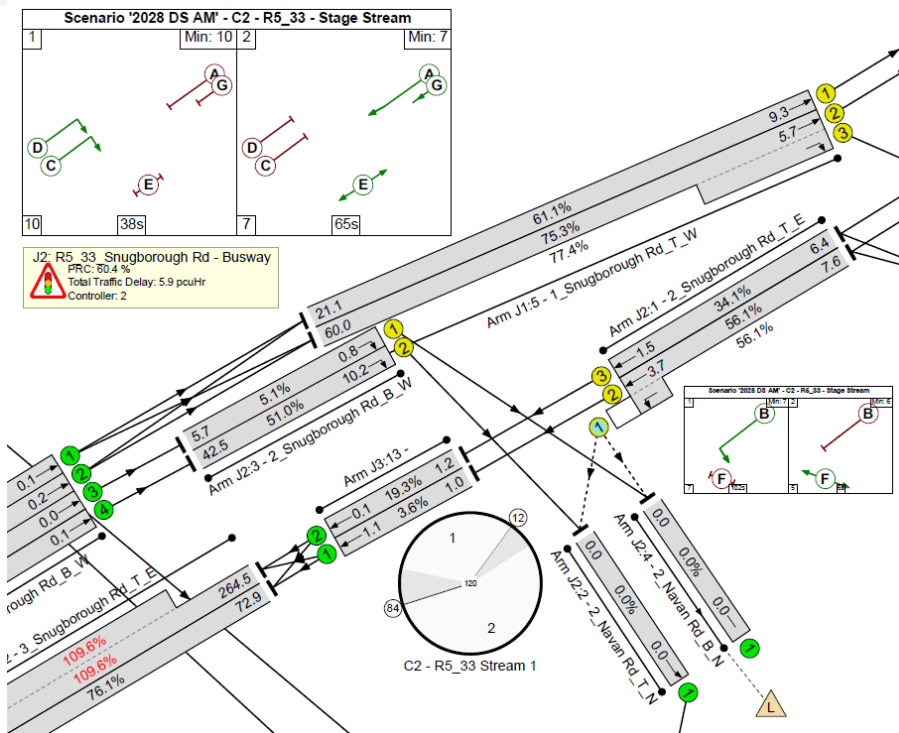
- Junction operates within capacity.
- Bus delay is <30s on average – but as the junction is a stand-alone operation it would be feasible to have bus detection actuated signals to minimise bus delay.



Do Something : 2028 : AM

Cycle = 120 secs
PRC = 60%
Delay = 6 pcuHr

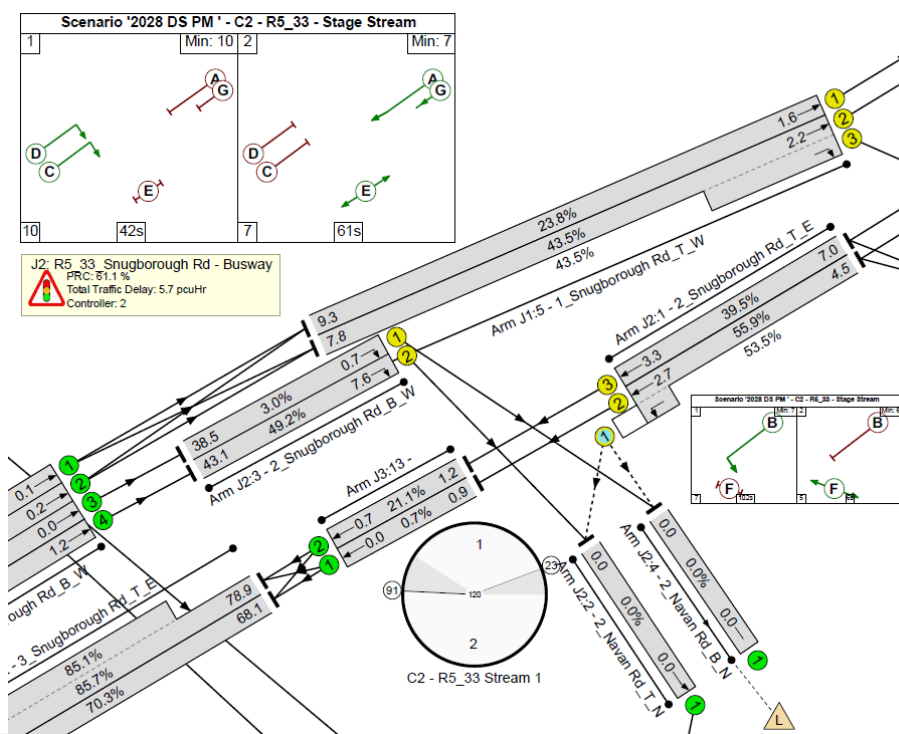
Bus delay
Inbound = 6s
Outbound = n/a



Do Something : 2028 : PM

Cycle = 120 secs
PRC = 61%
Delay = 6 pcuHr

Bus delay
Inbound = 39s
Outbound = n/a



*This junction is part of the Snugborough Interchange being implemented by Fingal County Council

Subject	BusConnects Core Bus Corridor Junction Design
Date	April 2022
Scheme	Blanchardstown to City Centre Core Bus Corridor Scheme

Snugborough Road / Waterville Road*

Summary

The existing roundabout at Snugborough Road / Waterville Road / Navan Road On-slip Road will be modified to a signal controlled T-junction (with the slip road diverted to a separate junction).

Signal Operation

The proposed junction will operate as a four-stage signal-controlled junction. Straight-ahead and left turning vehicles on the mainline will operate together, with left turning traffic giving way to cyclists on flashing ambers. Right turning traffic and cyclist movements from Snugborough Road will operate with left-turning movements from Waterville Road. Left and right movements from Waterville Road will operate together. Pedestrian crossings will operate in their own stage.

Junction Type n/a

Bus delay = n/a

EXISTING



EPR



DRAFT PRO (PC2)



DRAFT PRO (PC3)



Change Made	Reason for Change	Impact of Change
1. Modification of roundabout to a signal controlled T-junction	1. To increase traffic capacity and provide improved facilities for crossing pedestrians and cyclists.	1. Improved traffic management conditions and improved safety for pedestrians and cyclists.
1. No change	1. N/A	1. N/A
1. No change	1. N/A	1. N/A

*This junction is part of the Snugborough Interchange being implemented by Fingal County Council

Subject	BusConnects Core Bus Corridor Junction Design
Date	April 2022
Scheme	Blanchardstown to City Centre Core Bus Corridor Scheme

Snugborough Road /
Waterville Road*

EXISTING



FINAL DESIGN



Change Made	Reason for Change	Impact of Change
1. No change	1. N/A	1. N/A

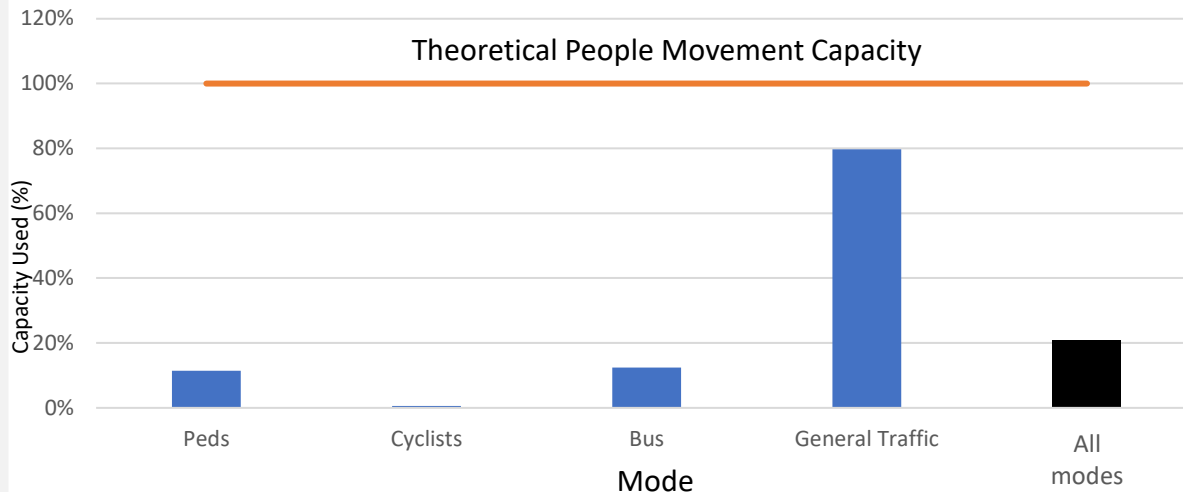
*This junction is part of the Snugborough Interchange being implemented by Fingal County Council

Subject	BusConnects Core Bus Corridor Junction Design
Date	April 2022
Scheme	Blanchardstown to City Centre Core Bus Corridor Scheme

Snugborough Road / Waterville Road*

Capacity / Delay

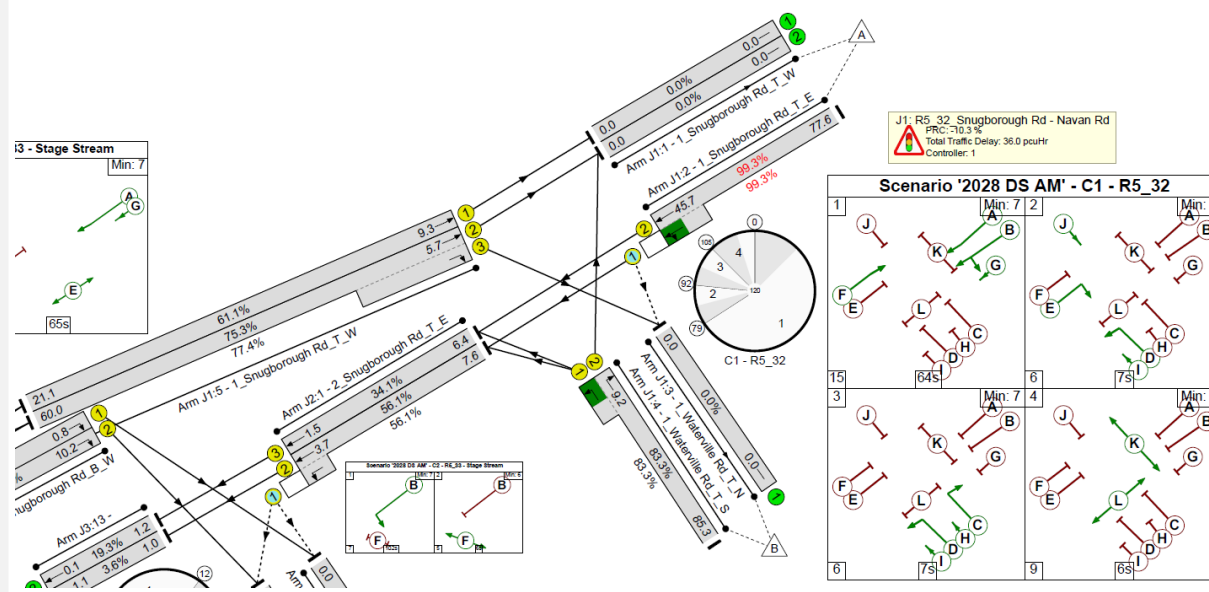
1. Junction operates over capacity – but maximises throughput and attracts traffic from other local roads.



Do Something : 2028 : AM

Cycle = 120 secs
 PRC = -10%
 Delay = 36 pcuHr

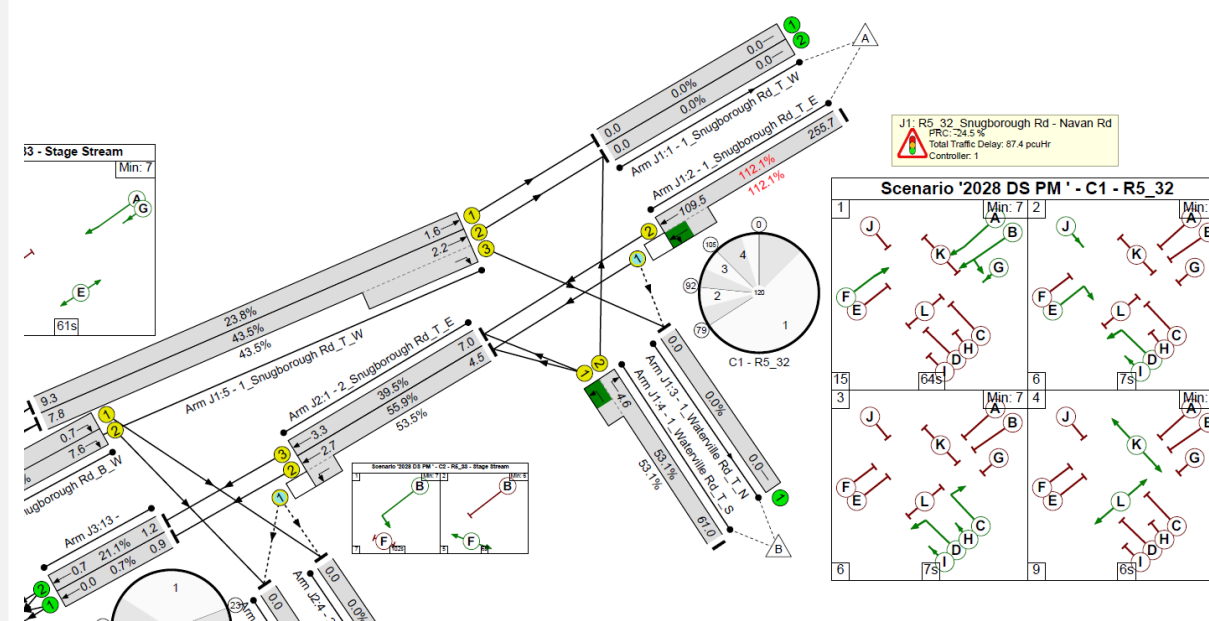
Bus delay
 Inbound = 78s
 Outbound = 21s



Do Something : 2028 : PM

Cycle = 120 secs
 PRC = -25%
 Delay = 87 pcuHr

Bus delay
 Inbound = 256s
 Outbound = 9s



*This junction is part of the Snugborough Interchange being implemented by Fingal County Council

Subject	BusConnects Core Bus Corridor Junction Design
Date	April 2022
Scheme	Blanchardstown to City Centre Core Bus Corridor Scheme

N3 Eastbound off-slip / Connolly Hospital Access

Summary

The existing signal-controlled junction will be modified to provide an additional lane for buses on the nearside of the N3 off-slip road, on the approach and exit carriageway.

Signal Operation

The junction is proposed to be operated as four signal stages, consisting of a separate stage for buses, a mainline traffic stage, a stage for right turns towards Connolly Hospital and left turns from the hospital access, and a separate pedestrian stage.

Junction Type 1
Bus delay ≤ 50s

Change Made

Reason for Change

Impact of Change

1. An additional lane for buses on the nearside of the N3 off-slip road is provided, on the approach and exit carriageway.

1. To provide a continuous bus lane through the junction.

1. Improved reliability for bus movements.

1. No change

1. N/A

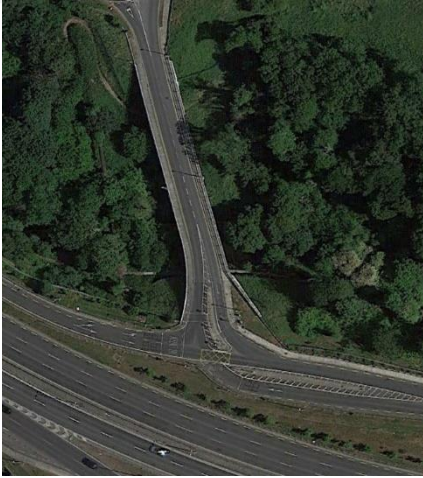
1. N/A

1. No change

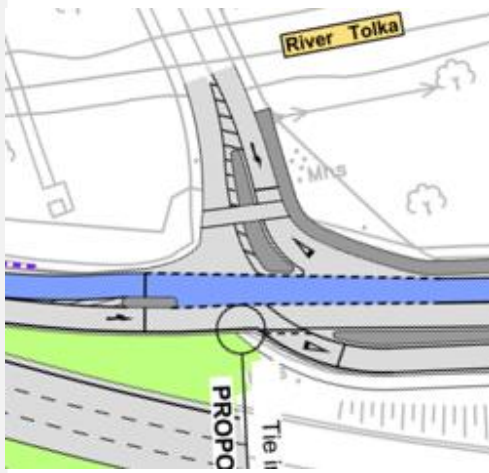
1. N/A

1. N/A

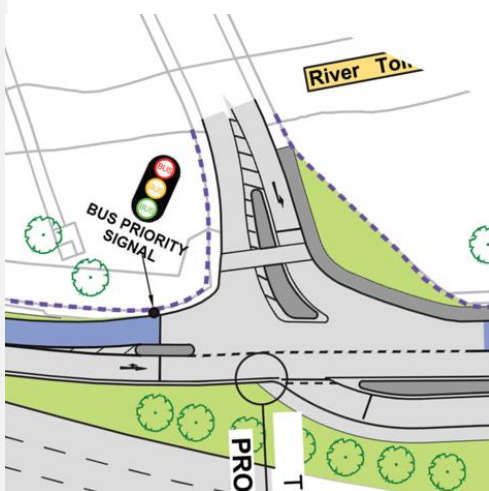
EXISTING



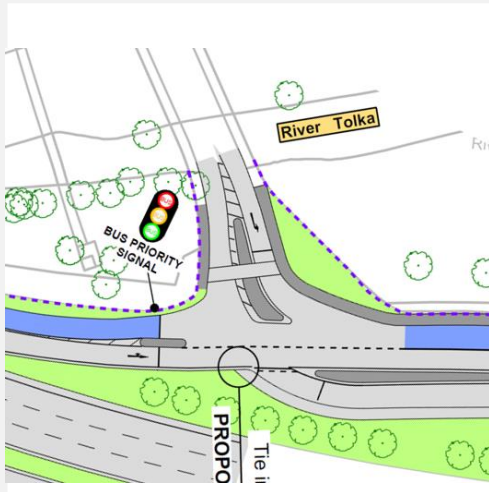
EPR



DRAFT PRO (PC2)



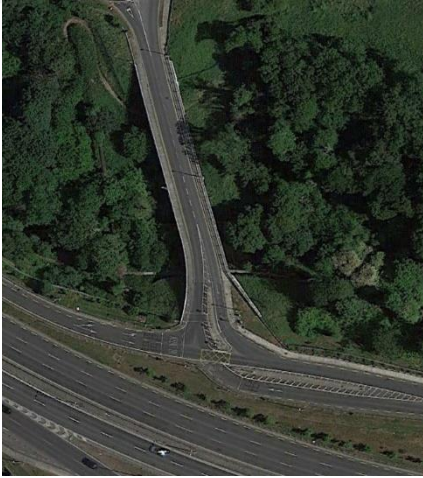
DRAFT PRO (PC3)



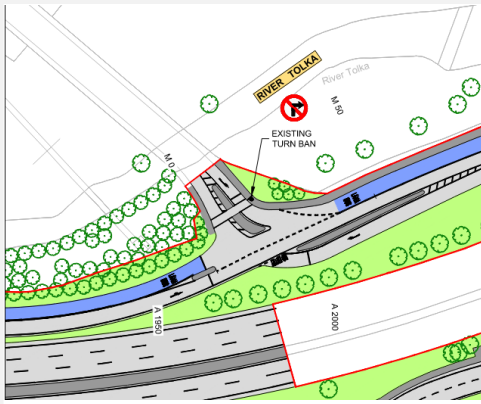
Subject	BusConnects Core Bus Corridor Junction Design
Date	April 2022
Scheme	Blanchardstown to City Centre Core Bus Corridor Scheme

N3 Eastbound off-slip /
Connolly Hospital Access

EXISTING



FINAL DESIGN



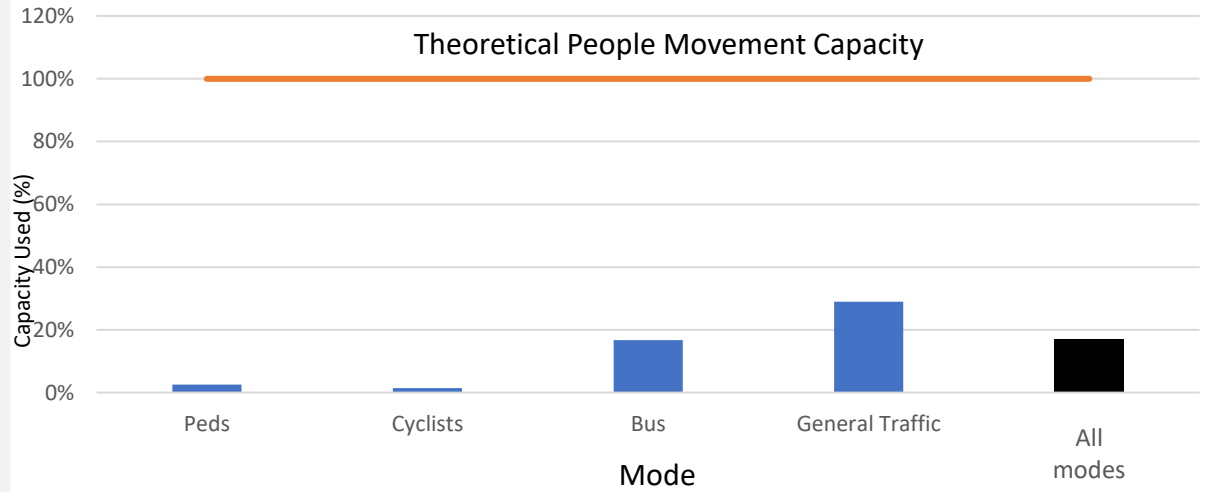
Change Made	Reason for Change	Impact of Change
1. No change	1. N/A	1. N/A

Subject	BusConnects Core Bus Corridor Junction Design
Date	April 2022
Scheme	Blanchardstown to City Centre Core Bus Corridor Scheme

N3 Eastbound off-slip / Connolly Hospital Access

Capacity / Delay

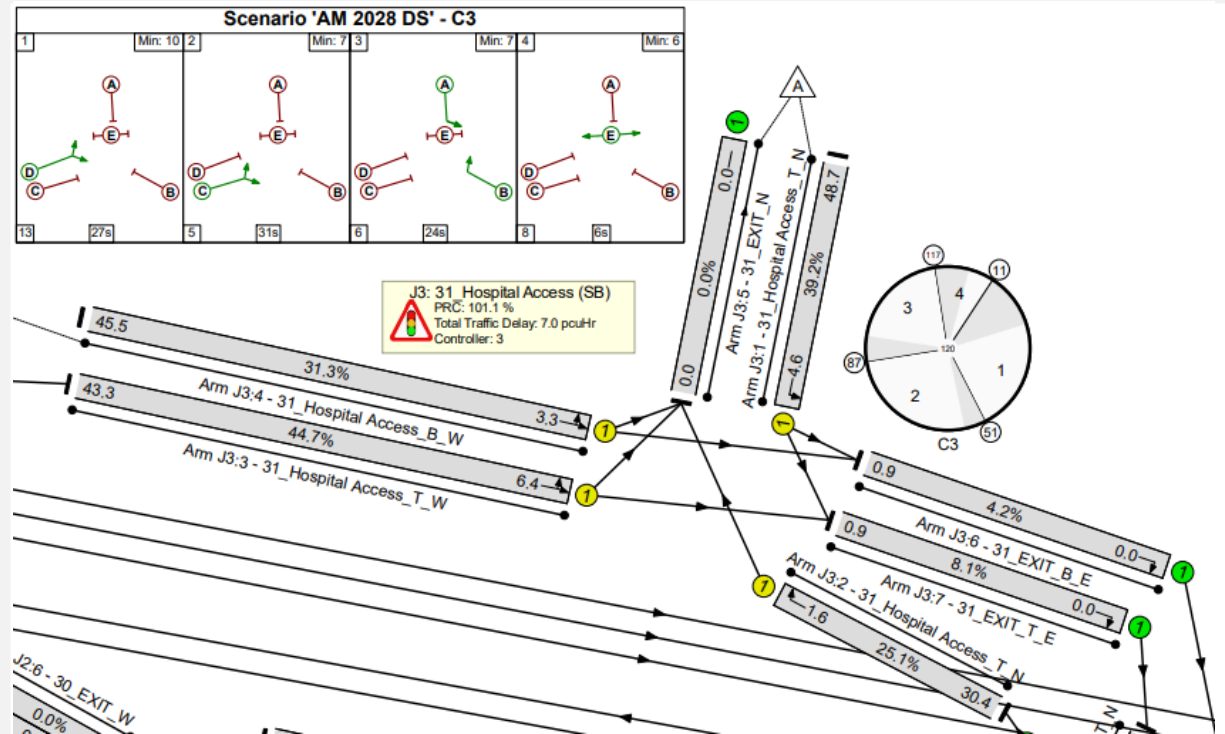
- Junction operates within capacity.
- Bus delay is <50s on average – but as the junction is a stand-alone operation it would be feasible to have bus detection actuated signals to minimise bus delay.



Do Something : 2028 : AM

Cycle = 120 secs
 PRC = 101%
 Delay = 7 pcuHr

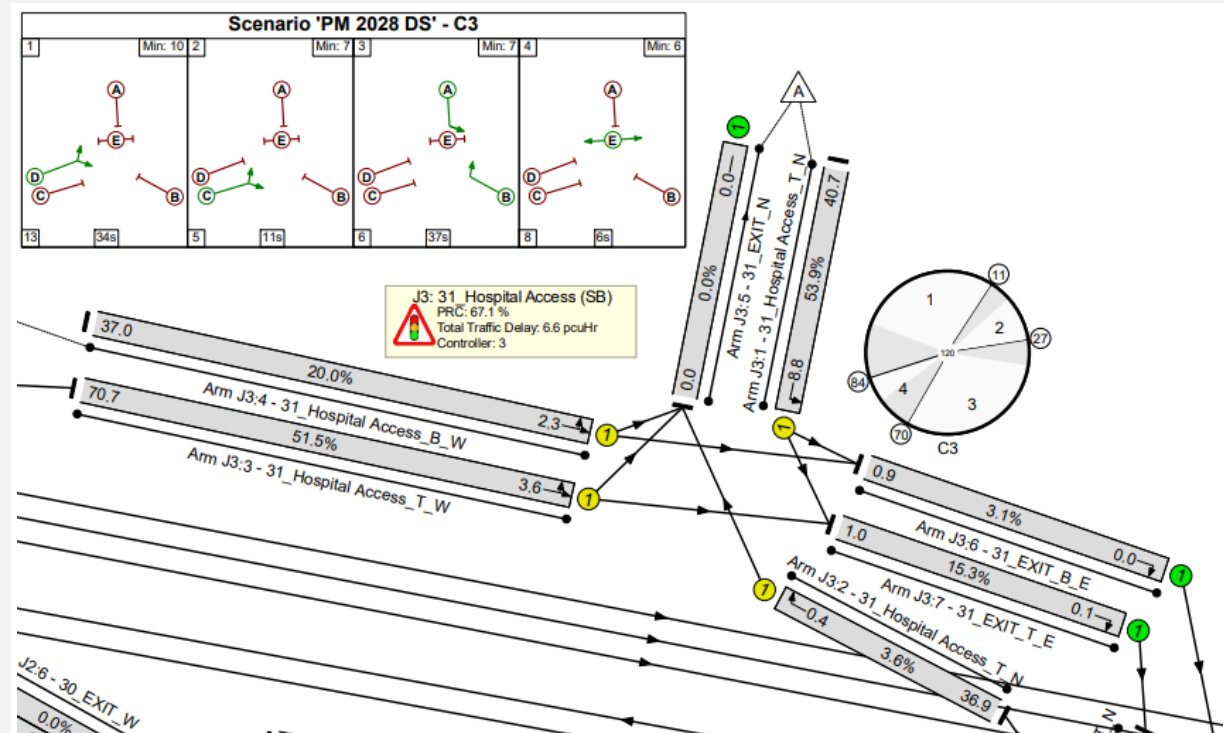
Bus delay
 Inbound = 46s
 Outbound = n/a



Do Something : 2028 : PM

Cycle = 120 secs
 PRC = 67%
 Delay = 7 pcuHr

Bus delay
 Inbound = 37s
 Outbound = n/a



Subject	BusConnects Core Bus Corridor Junction Design
Date	April 2022
Scheme	Blanchardstown to City Centre Core Bus Corridor Scheme

Navan Road / Old Navan Road

Summary

The existing signal-controlled junction has a proposed additional outbound bus lane on the nearside of the outbound carriageway. A pedestrian footpath will be provided on the south side of the N3 to provide access on foot to the bus stop east of the Connolly Hospital access junction. A left-turn lane on the outbound approach to the junction will be retained outside the new bus lane – accessed by general traffic by crossing the bus lane east of the junction.

Signal Operation

The junction is proposed to operate as a two-stage junction – with buses moving during the same stage as outbound general traffic. Pedestrian crossings are proposed to operate at the same time as non-conflicting traffic movements (as per the existing junction).

Junction Type 2
Bus delay ≤ 20s



Change Made

Reason for Change

Impact of Change

1. Navan Road / Old Navan Road has a proposed additional outbound bus lane on the nearside of the existing outbound carriageway.
2. A pedestrian footpath is to be provided on the south side of the N3.
3. A left-turn lane on the outbound approach to the junction is to be retained outside the new bus lane

1. To provide a continuous bus lane through the junction.
2. To provide access on foot to the inbound bus stop just west of the Connolly Hospital access junction.
3. To allow left turning traffic to operate during the same stage as the outbound bus lane.

1. Improved reliability for bus movements.
2. Improved catchment of bus stop.
3. Maximises green time for buses in the signal stage.

1. No change

1. N/A

1. N/A

1. The bus layby west of the junction has been extended to accommodate two stops.

1. To provide a bus stop for long distance buses - within a layby - to comply with highway standards which preclude bus stops on the mainline carriageway.

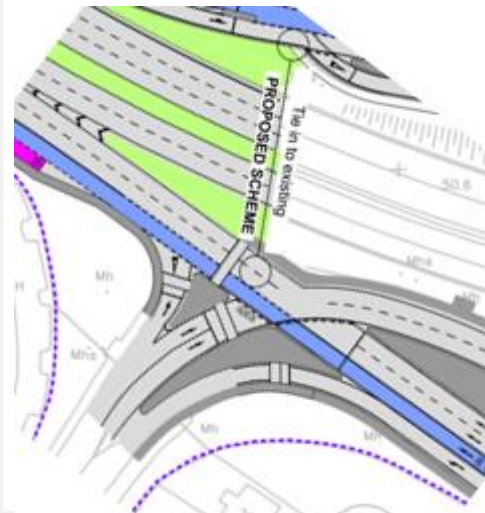
1. Provision for long-distance buses and reduce any potential for delay of city buses.

EXISTING

EPR

DRAFT PRO (PC2)

DRAFT PRO (PC3)



Subject	BusConnects Core Bus Corridor Junction Design
Date	April 2022
Scheme	Blanchardstown to City Centre Core Bus Corridor Scheme

Navan Road / Old Navan Road

EXISTING



FINAL DESIGN



Change Made	Reason for Change	Impact of Change
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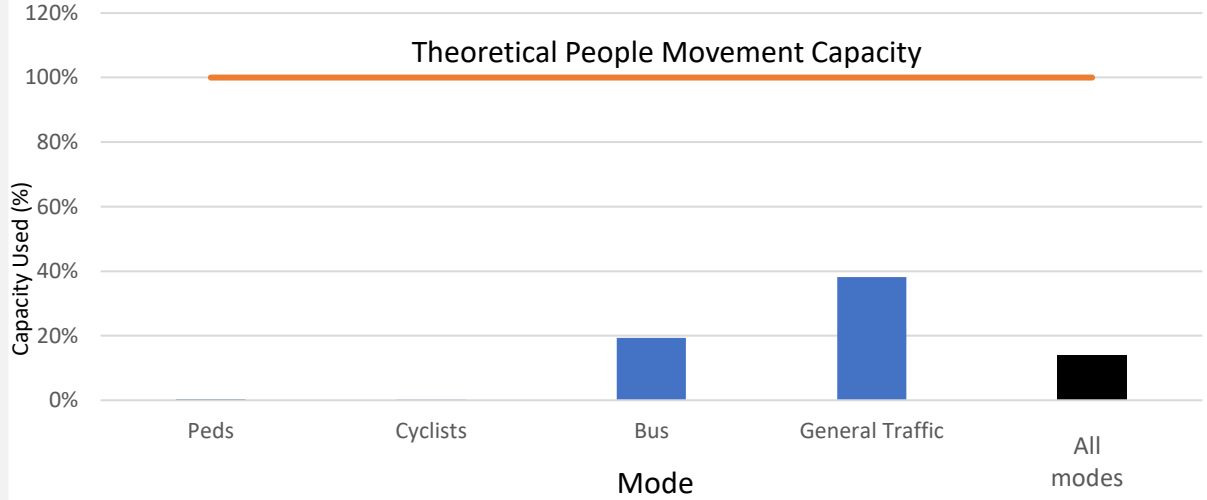
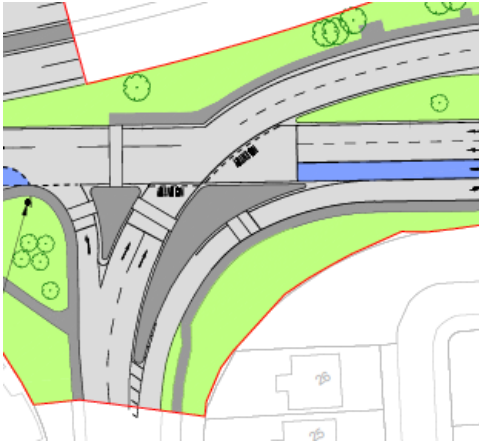
1. No change	1. n/a	1. n/a
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Subject	BusConnects Core Bus Corridor Junction Design
Date	April 2022
Scheme	Blanchardstown to City Centre Core Bus Corridor Scheme

Navan Road / Old Navan Road

Capacity / Delay

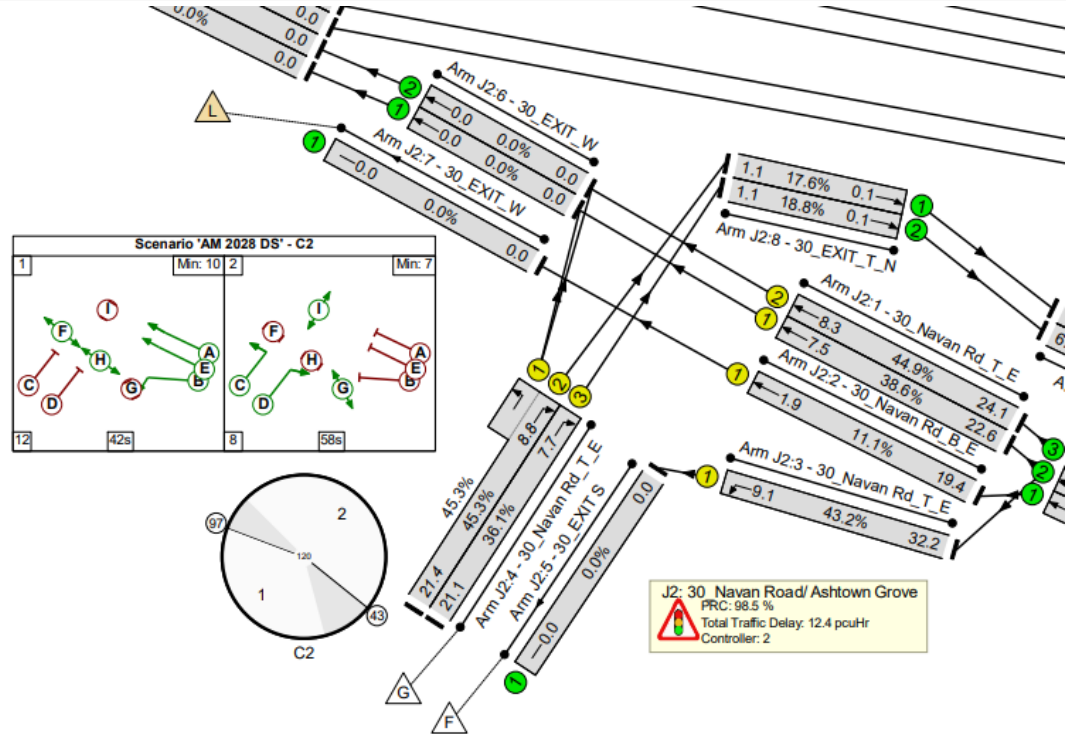
- Junction operates within capacity.
- Bus delay is <20s on average for outbound buses, with around 50s of green time for buses per cycle.



Do Something : 2028 : AM

Cycle = 120 secs
 PRC = 99%
 Delay = 12 pcuHr

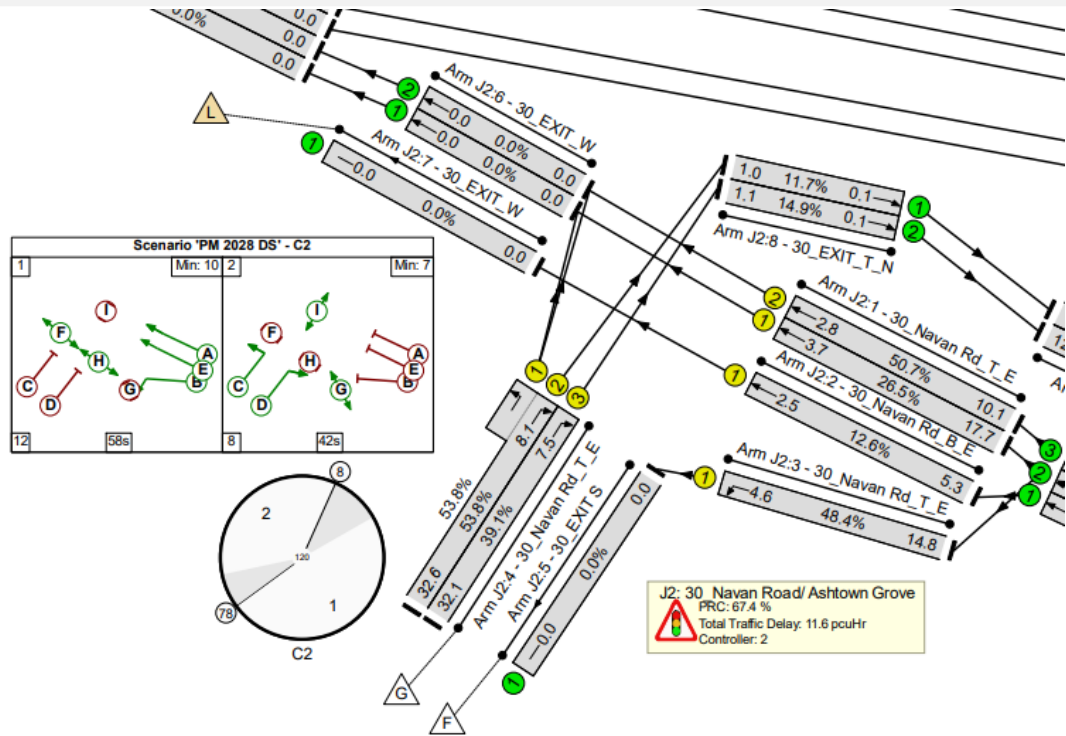
Bus delay
 Inbound = n/a
 Outbound = 19s



Do Something : 2028 : PM

Cycle = 120 secs
 PRC = 67%
 Delay = 12 pcuHr

Bus delay
 Inbound = n/a
 Outbound = 5s



Subject	BusConnects Core Bus Corridor Junction Design
Date	April 2022
Scheme	Blanchardstown to City Centre Core Bus Corridor Scheme

Navan Road / N3 Eastbound off-slip



Summary

The existing signal-controlled junction will be modified by addition of a left-turn bus lane on the nearside of the eastbound off-slip, and an outbound bus lane (as an additional lane alongside three general traffic lanes) on the nearside of the outbound carriageway. A signal-controlled pedestrian crossing of the N3 will be provided to improve pedestrian access to the inbound bus stop from areas to the south.

Signal Operation

The junction is proposed to operate with two streams on the controller. The movements on Navan Road will operate with four stages. The outbound bus lane will operate at the same time as the northbound and southbound mainline traffic. The outbound movement will continue with the right-turning movement into the hospital, followed by right-turning movements from the hospital. Pedestrians crossing the N3 will be accommodated via a signal-controlled crossing. A separate stream will control the left-turning buses, traffic, and pedestrians from the hospital.

Junction Type **1** Bus delay $\leq 20s$

EXISTING

EPR

DRAFT PRO (PC2)

DRAFT PRO (PC3)

Change Made	Reason for Change	Impact of Change
1. Addition of a bus lane on the nearside of the hospital access road, and an outbound bus lane (as an additional lane alongside three traffic lanes) on the nearside of the outbound carriageway.	1. To provide bus priority	1. Improved reliability for bus movements.
1. No change	1. N/A	1. N/A
1. A staggered pedestrian crossing is proposed on the west side of the junction.	1. To improve directness of walking routes (from the south) to the inbound bus stop just east of the junction.	1. Improved bus catchment by walking routes.

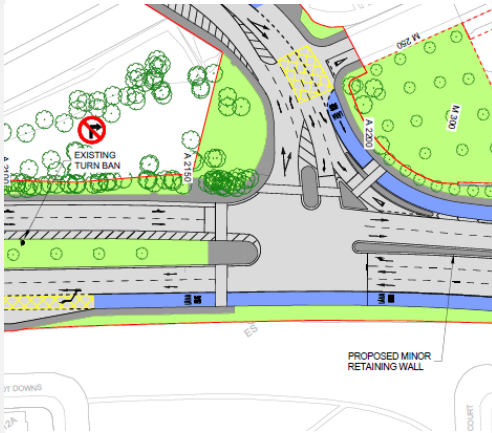
Subject	BusConnects Core Bus Corridor Junction Design
Date	April 2022
Scheme	Blanchardstown to City Centre Core Bus Corridor Scheme

Navan Road / N3
Eastbound off-slip

EXISTING



FINAL DESIGN

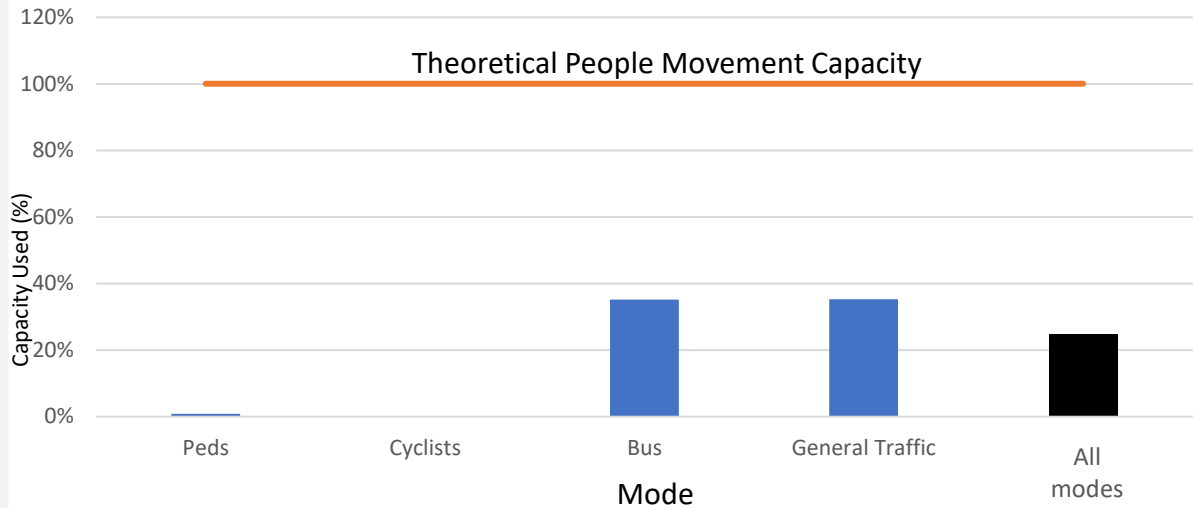
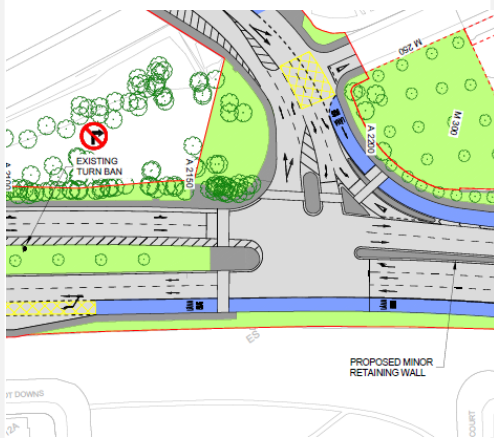


Change Made	Reason for Change	Impact of Change
<ol style="list-style-type: none"> 1. Realignment of the staggered pedestrian crossing on the west side of the junction. 	<ol style="list-style-type: none"> 1. To improve directness of walking routes (from the south) to the inbound bus stop just east of the junction. 	<ol style="list-style-type: none"> 1. Improved bus catchment by walking routes.

Subject	BusConnects Core Bus Corridor Junction Design
Date	April 2022
Scheme	Blanchardstown to City Centre Core Bus Corridor Scheme

Navan Road / N3 Eastbound off-slip

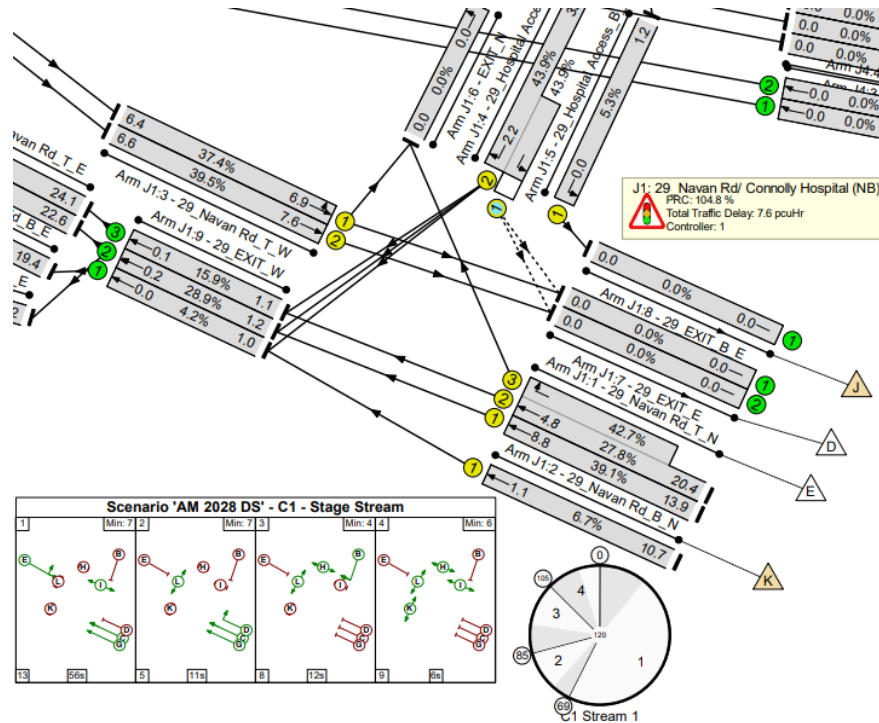
- Capacity / Delay**
- Junction operates within capacity.
 - Bus delay is <20s on average.



Do Something : 2028 : AM

Cycle = 120 secs
 PRC = 105%
 Delay = 8 pcuHr

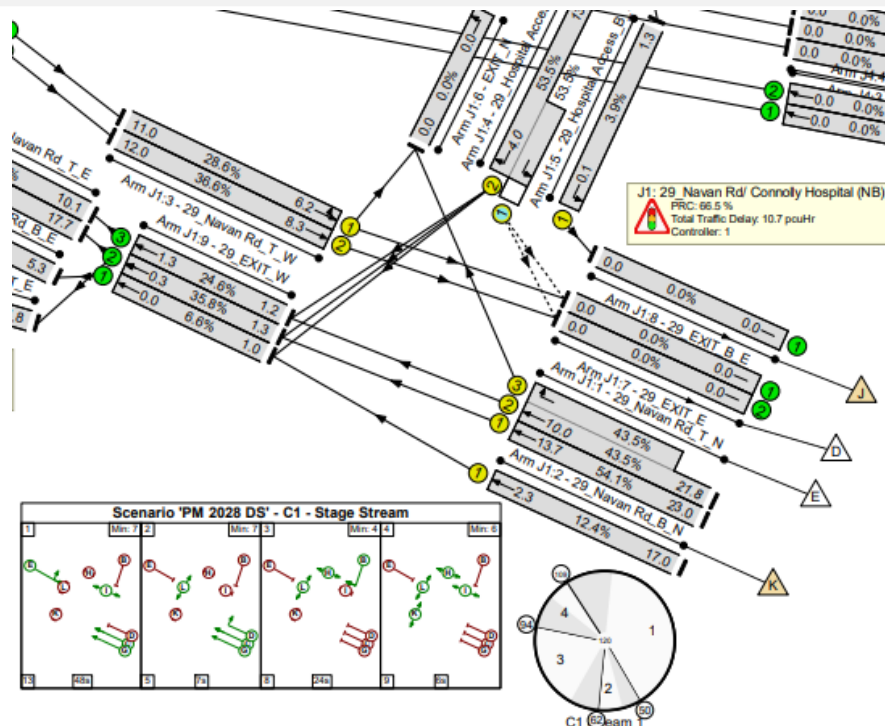
Bus delay
 Inbound = 1s
 Outbound = 11s



Do Something : 2028 : PM

Cycle = 120 secs
 PRC = 67%
 Delay = 11 pcuHr

Bus delay
 Inbound = 1s
 Outbound = 17s



Subject	BusConnects Core Bus Corridor Junction Design
Date	April 2022
Scheme	Blanchardstown to City Centre Core Bus Corridor Scheme

Navan Road / M50
Junction 6

Summary

The existing gyratory interchange is signal-controlled. Bus lanes are proposed as additional lanes on the nearside of outbound and inbound roundabout entry junctions from Navan Road to the east and west, with bus lanes to the stopline. On the gyratory carriageway, one of the three existing lanes will be allocated for use as a bus lane.

Signal Operation

Each arm of the roundabout will operate under a controlled stream consisting of two stages – one for the circulating traffic, and one for the entry arm, apart from Navan Road. Navan Road will have three phases to allow separate bus movement from traffic onto the gyratory due to the opposing traffic lanes.

Junction Type 1
Bus delay ≤ 50s

EXISTING



EPR



DRAFT PRO (PC2)



DRAFT PRO (PC3)



Change Made	Reason for Change	Impact of Change
1. Bus lanes are proposed to be constructed at the nearside of the entry lanes for the outbound and inbound approach to the gyratory.	1. To provide continuous bus lanes through the N3 interchange.	1. To ensure reliability for movement of buses.
1. No change	1. N/A	1. N/A
1. No change	1. N/A	1. N/A

Subject	BusConnects Core Bus Corridor Junction Design
Date	April 2022
Scheme	Blanchardstown to City Centre Core Bus Corridor Scheme

Navan Road / M50
Junction 6



EXISTING

FINAL DESIGN



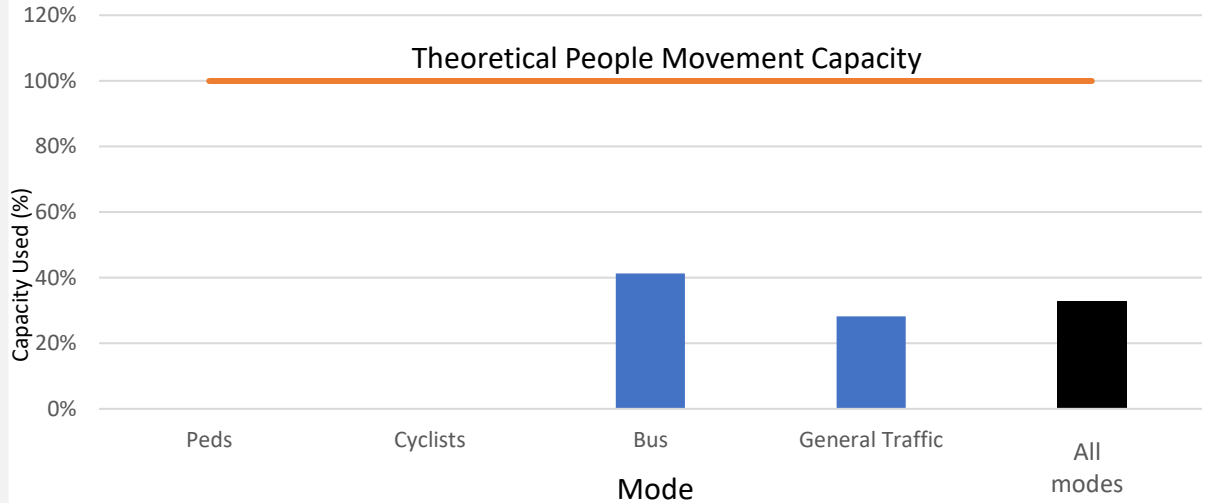
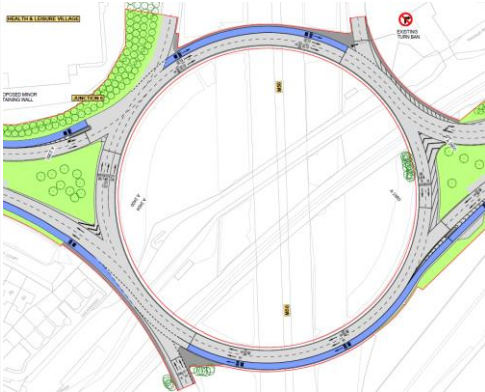
Change Made	Reason for Change	Impact of Change
1. Cycle time has been reduced to 90 seconds.	1. Optimises the capacity of the junction.	1. Improves capacity at the junction for road users.

Subject	BusConnects Core Bus Corridor Junction Design
Date	April 2022
Scheme	Blanchardstown to City Centre Core Bus Corridor Scheme

Navan Road / M50 Junction 6

Capacity / Delay

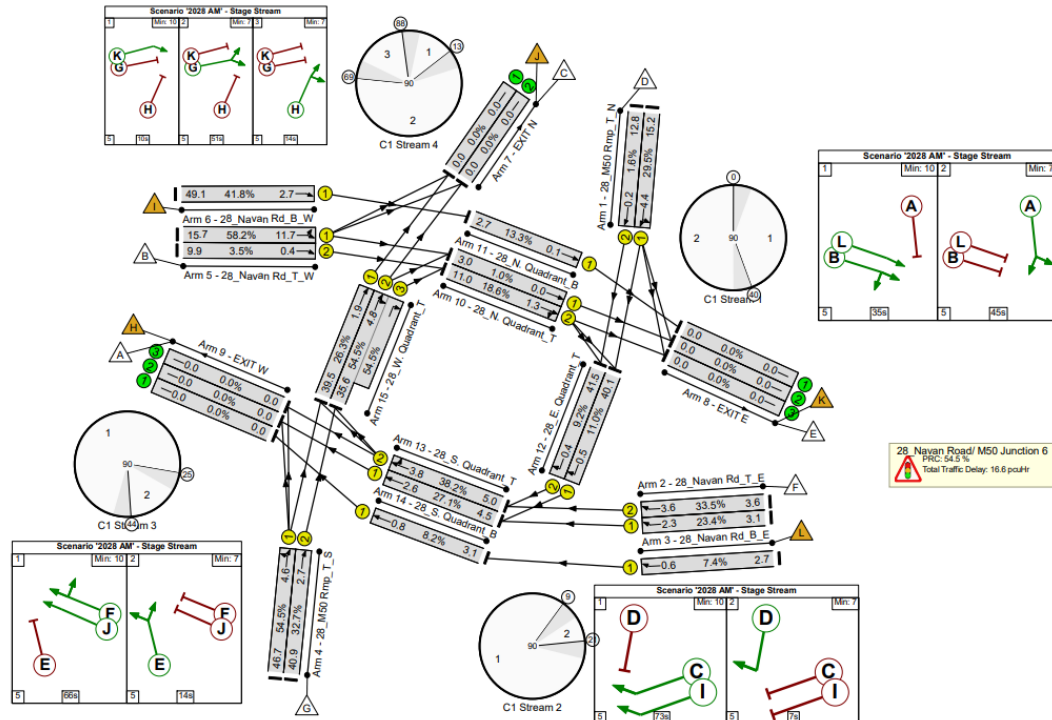
- Junction operates within capacity.
- Bus delay is <50s on average for inbound buses, and <5s delay for outbound buses. Inbound buses have 10s of green time per cycle – but the stand-alone nature of the junction would allow bus detection to achieve reduced bus delay.



Do Something : 2028 : AM

Cycle = 90 secs
 PRC = 58%
 Delay = 17 pcuHr

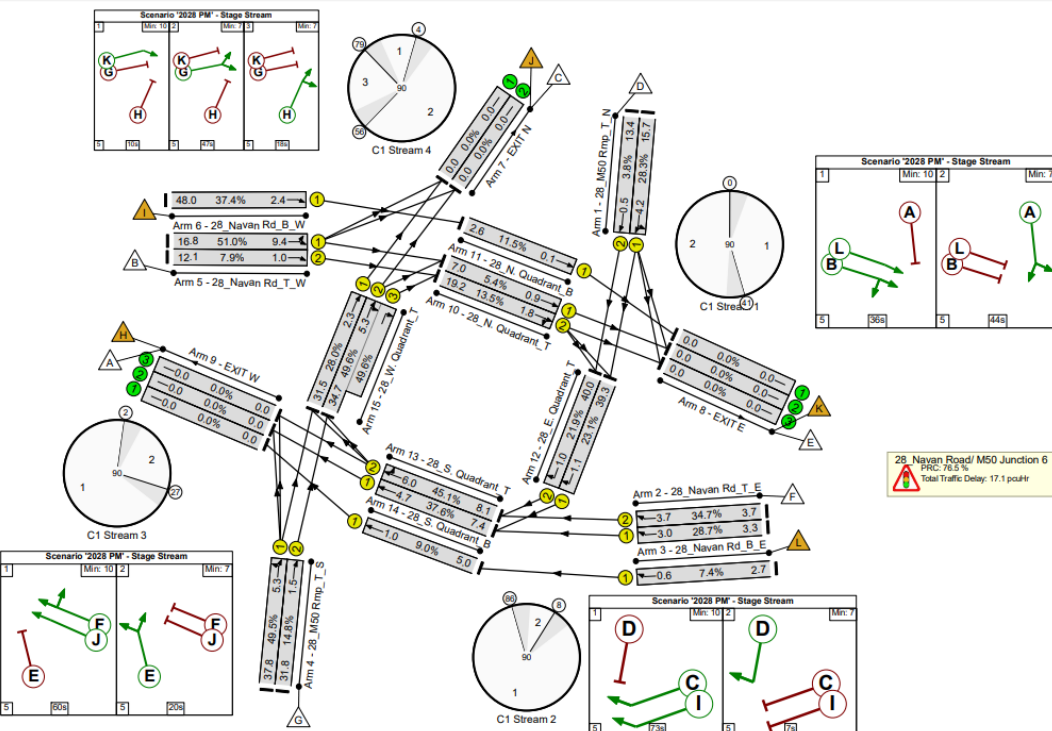
Bus delay
 Inbound = 49s
 Outbound = 3s



Do Something : 2028 : PM

Cycle = 90 secs
 PRC = 77%
 Delay = 17 pcuHr

Bus delay
 Inbound = 48s
 Outbound = 3s



Subject	BusConnects Core Bus Corridor Junction Design
Date	April 2022
Scheme	Blanchardstown to City Centre Core Bus Corridor Scheme

Navan Road / Auburn Avenue

Summary

The existing signal-controlled junction is proposed to be modified by provision of an additional lane for buses in the inbound direction, and to replace the existing left-turn lane with a bus lane in the outbound direction. Pedestrian crossing facilities are proposed across Navan Road on the east side of the junction.

Signal Operation

The junction will operate with six stages, for buses, mainline traffic, mainline right turn with Auburn Avenue left turn, Auburn Avenue, and Dunsink Lane, with pedestrians operating separately. Buses will be detected on approach to the junction and will be given a separate priority signal stage – with other general traffic movement held (which is feasible given the stand-alone nature of the junction).

Junction Type 1 Bus delay $\leq 90s$

Change Made

Reason for Change

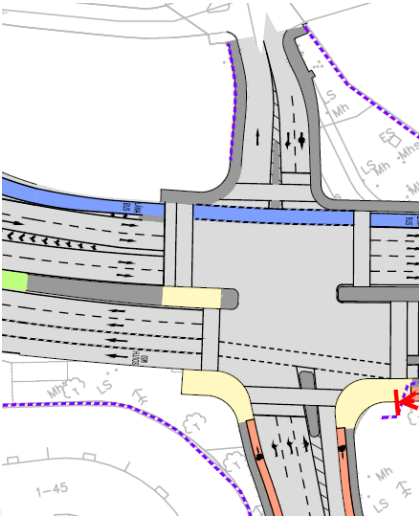
Impact of Change

Change Made	Reason for Change	Impact of Change
<ol style="list-style-type: none"> 1. An additional lane for buses is provided in the inbound direction, and the existing left-turn lane replaced with a bus lane in the outbound direction. 2. Pedestrian crossings are provided on both sides of the junction. 3. A two-way cycle track is provided on the south side of the N3 	<ol style="list-style-type: none"> 1. To provide bus priority 2. To provide improved pedestrian permeability 3. To provide a high quality cycle link 	<ol style="list-style-type: none"> 1. Provides a high degree of bus priority and safe facilities for cyclist and pedestrians. 2. Provides pedestrian permeability and high quality access on foot to bus stops. 3. Provides continuous cycle tracks.
<ol style="list-style-type: none"> 1. No significant changes 	<ol style="list-style-type: none"> 1. N/A 	<ol style="list-style-type: none"> 1. N/A
<ol style="list-style-type: none"> 1. Inbound lane usage is controlled at the junction exit by inclusion of hatching between the two nearside lanes and the two outside lanes. 2. Removal of the proposed pedestrian crossing of the N3 on the west side of the junction. 3. Removal of the two-way cycle track – and provision of a Quiet Street treatment for cyclists to travel on Castleknock Manor 	<ol style="list-style-type: none"> 1. To allow the inbound lanes to be merged to two lanes over a reduced distance. 2. The proposed pedestrian crossing on the west side of the junction was over 20m in width and as determined as too long for comfortable use (compared to a maximum width of 18-19m generally adopted for the CBC design). 3. To follow a more natural desire line for cyclists. 	<ol style="list-style-type: none"> 1. Provides an improved, safer bus lane and slip road layout downstream. 2. Provides safe pedestrian crossing routes. 3. Provides a more direct cycle route.

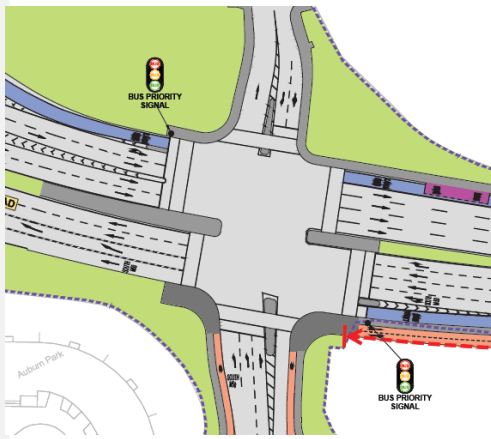
EXISTING



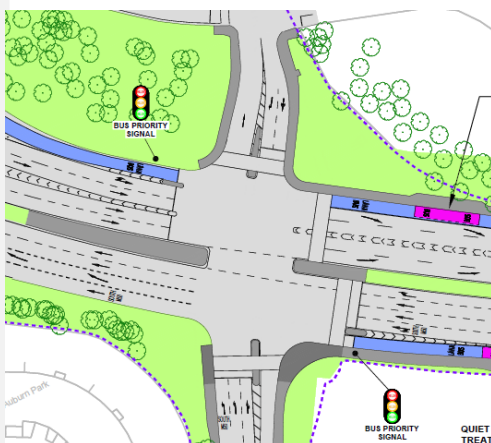
EPR



DRAFT PRO (PC2)



DRAFT PRO (PC3)



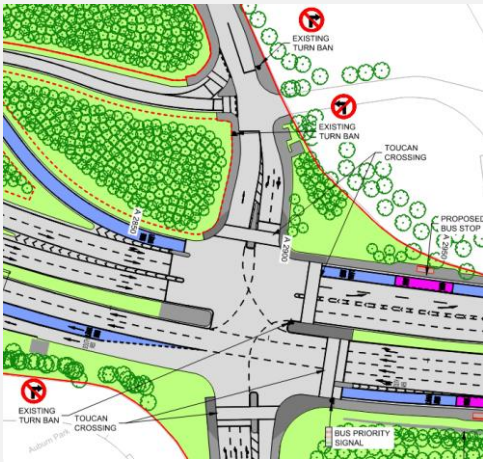
Subject	BusConnects Core Bus Corridor Junction Design
Date	April 2022
Scheme	Blanchardstown to City Centre Core Bus Corridor Scheme

Navan Road / Auburn Avenue

EXISTING



FINAL DESIGN



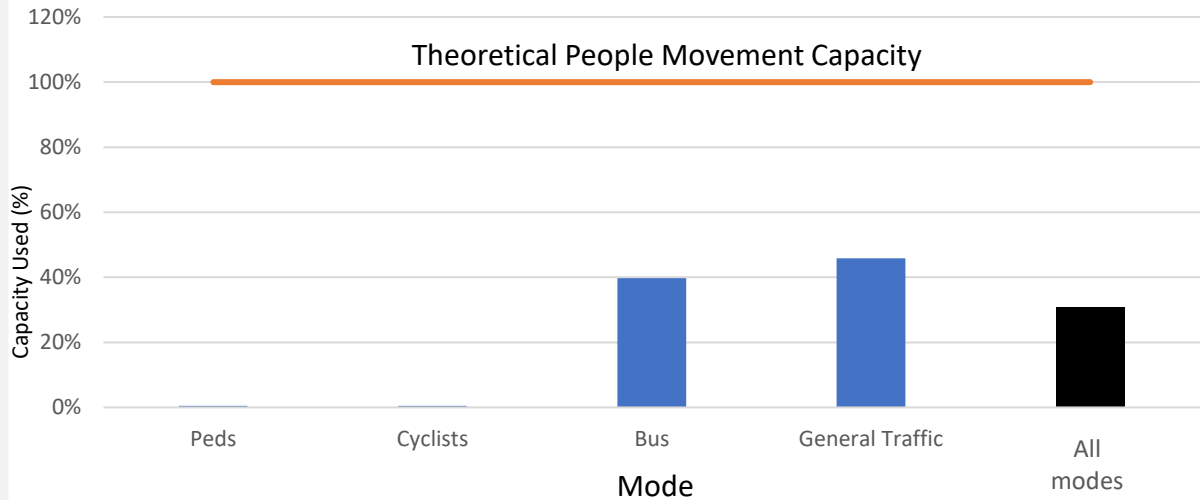
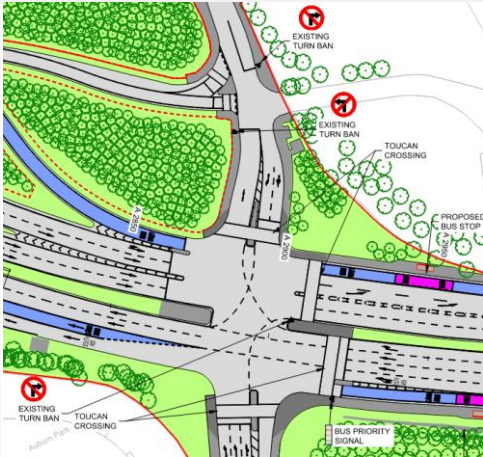
Change Made	Reason for Change	Impact of Change
<ol style="list-style-type: none"> Revised layout for bus lane exiting the junction towards the M50 	<ol style="list-style-type: none"> To improve traffic management and road safety 	<ol style="list-style-type: none"> No significant impact on overall junction operation.

Subject	BusConnects Core Bus Corridor Junction Design
Date	April 2022
Scheme	Blanchardstown to City Centre Core Bus Corridor Scheme

Navan Road / Auburn Avenue

Capacity / Delay

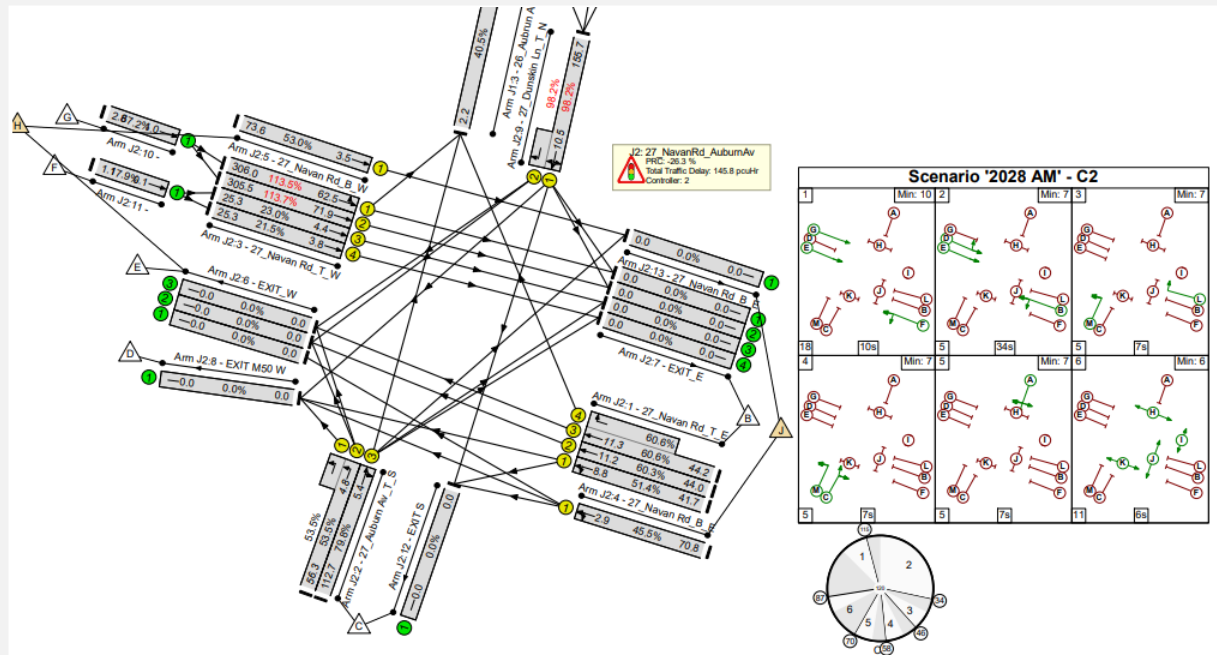
1. Junction operates within capacity.
2. Bus delay is <90s on average – but stand-alone nature of the junction would allow bus detection to achieve reduced bus delay.



Do Something : 2028 : AM

Cycle = 120 secs
 PRC = -26%
 Delay = 146 pcuHr

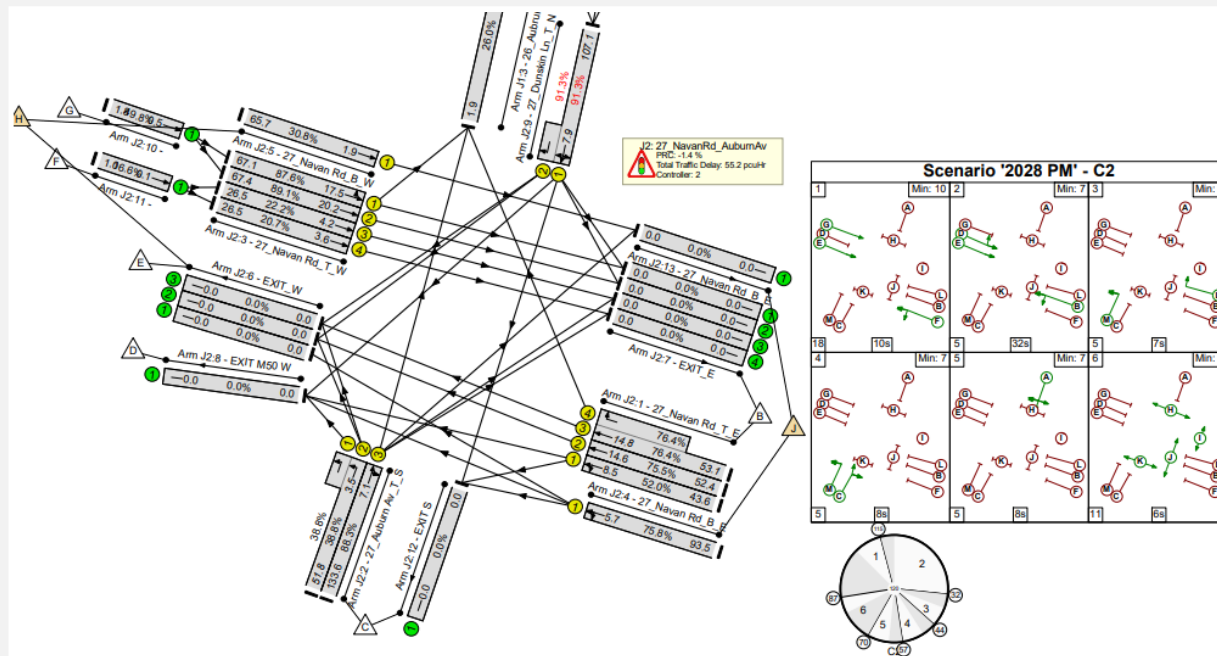
Bus delay
 Inbound = 74s
 Outbound = 71s



Do Something : 2028 : PM

Cycle = 120 secs
 PRC = -1%
 Delay = 55 pcuHr

Bus delay
 Inbound = 66s
 Outbound = 94s



Subject	BusConnects Core Bus Corridor Junction Design
Date	April 2022
Scheme	Blanchardstown to City Centre Core Bus Corridor Scheme

R147 Westbound off-slip / Parkway Bridge

Summary

The existing signal-controlled junction is proposed to be modified by extending the bus lane on the westbound off-slip road to the stop line. A inline bus stop and a bus stop lay-by is proposed (for long distance buses) on the approach arm to the junction.

Signal Operation

A five stage signal operation is proposed. Buses will operate in their own stage, followed by mainline traffic. The side roads will operate in the same stage, with an indicative right turn. Cyclists will be segregated from traffic, and use the toucan crossings that they will share with pedestrians, which will operate in their own stage.

Junction Type 1
Bus delay ≤ 60s

Change Made

Reason for Change

Impact of Change

1. The junction layout is largely unchanged from existing – but with an outbound bus lane west of the junction (on the on-slip road).

1. To maximise bus priority through the junction.

1. Provides a high degree of bus priority and safe facilities for cyclist and pedestrians.

1. Bus lane continuous to the stop line on the westbound approach to the junction (on the on-slip road).
2. Movements from the inbound slip road are limited to left and right-turns only for general traffic, with only buses allowed to travel straight ahead.

1. To maximise bus priority with an ability as a stand-alone junction to utilise detection-based green signals for buses.
2. To remove the ability of N3 mainline traffic to travel along the off-and on-slip road to queue jump (when congestion occurs on the N3 inbound).

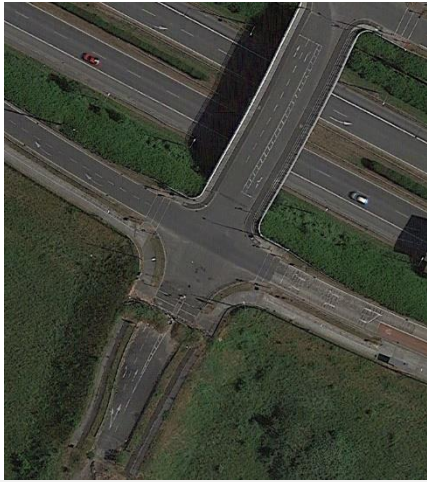
1. Junction operates well within capacity for all movements.

1. Addition of layby bus stop on the west side of the junction to serve long-distance buses.

1. To accommodate the need for laybys for long-distance bus stops (to reduce risk of delay to city buses).

1. Provision for long-distance buses and reduce any potential for delay of city buses.

EXISTING



EPR



DRAFT PRO (PC2)



DRAFT PRO (PC3)



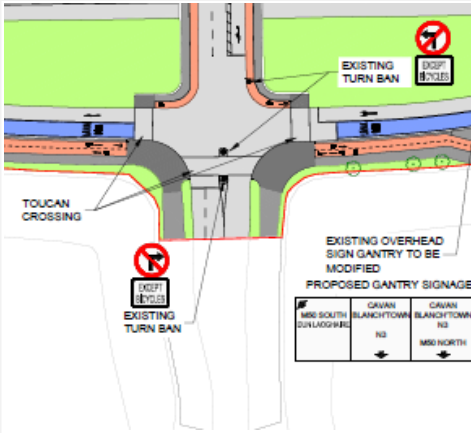
Subject	BusConnects Core Bus Corridor Junction Design
Date	April 2022
Scheme	Blanchardstown to City Centre Core Bus Corridor Scheme

R147 Westbound off-slip / Parkway Bridge

EXISTING



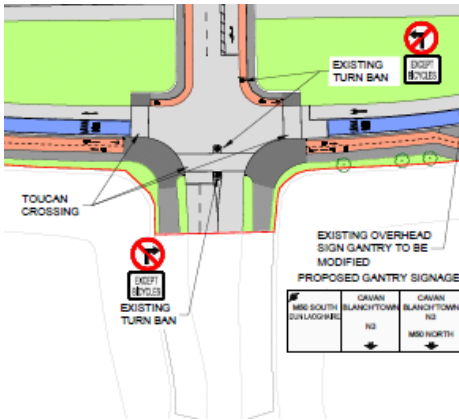
FINAL DESIGN



Change Made	Reason for Change	Impact of Change
<ol style="list-style-type: none"> Relocation of new bus stop layby to the east side of the junction to serve long-distance buses. Stop line of outbound bus lane set back c. 4m. 	<ol style="list-style-type: none"> Layby relocated to reduce visual impact on adjacent development. In line with BusConnects Preliminary Design Guidance Booklet, to ensure visibility of primary signals from general traffic lane. 	<ol style="list-style-type: none"> Provision for long-distance buses and reduce any potential for delay of city buses. Amendments to line markings.

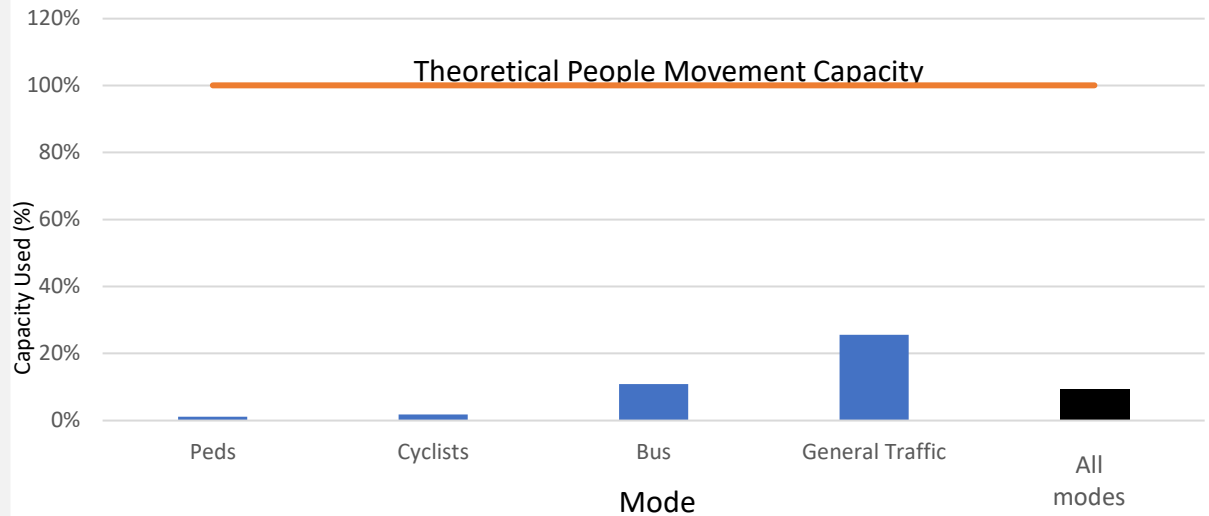
Subject	BusConnects Core Bus Corridor Junction Design
Date	April 2022
Scheme	Blanchardstown to City Centre Core Bus Corridor Scheme

R147 Westbound off-slip / Parkway Bridge



Capacity / Delay

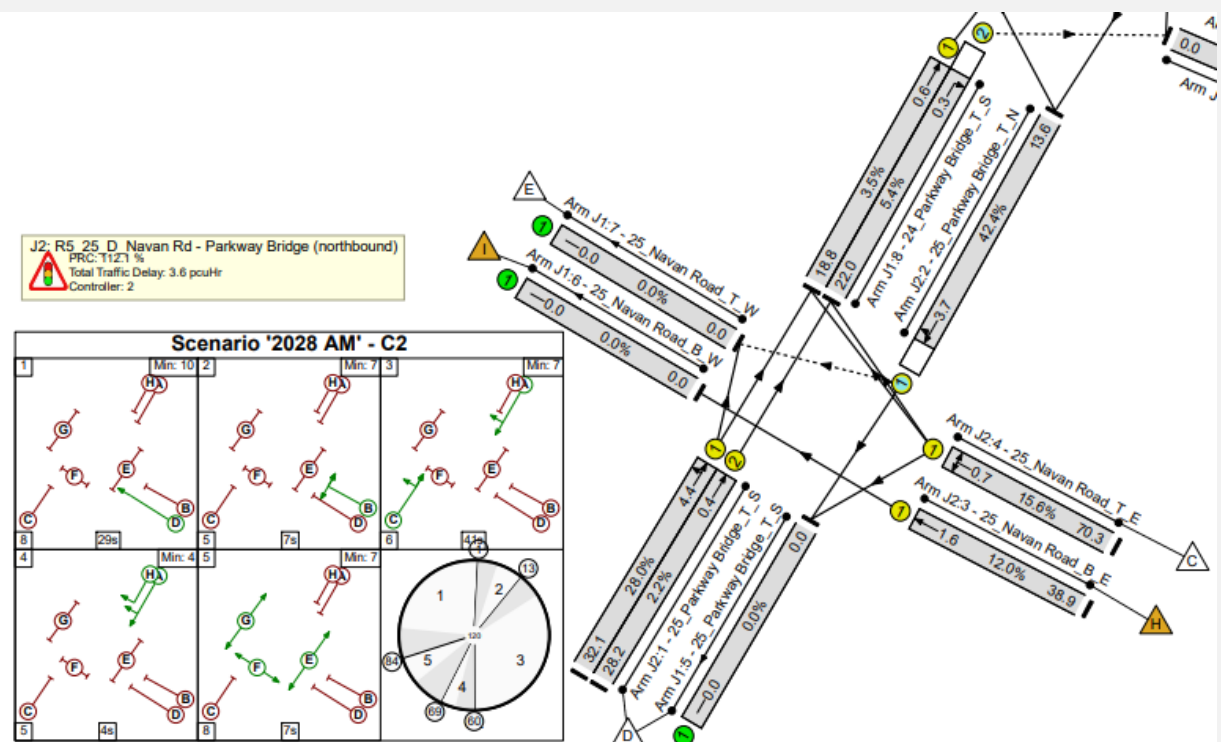
1. Junction operates within capacity.
2. Bus delay is <60s on average. Buses have a minimum of 10s of green time per cycle.
3. Stand-alone nature of the junction would allow bus detection to achieve reduced bus delay.



Do Something : 2028 : AM

Cycle = 120 secs
 PRC = 112%
 Delay = 4 pcuHr

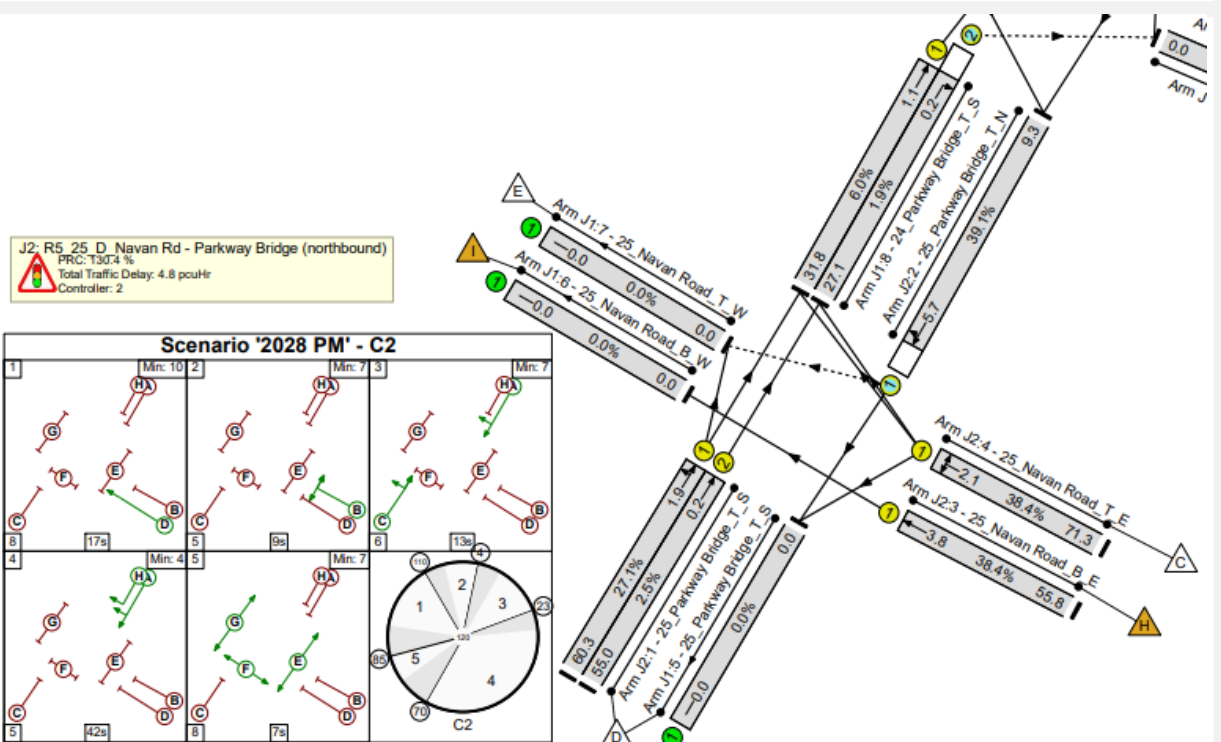
Bus delay
 Inbound = n/a
 Outbound = 39s



Do Something : 2028 : PM

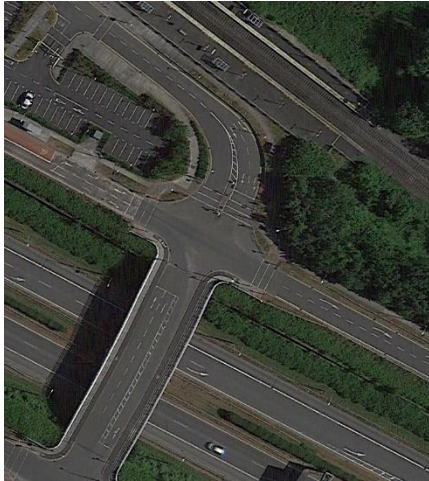
Cycle = 120 secs
 PRC = 130%
 Delay = 5 pcuHr

Bus delay
 Inbound = n/a
 Outbound = 56s



Subject	BusConnects Core Bus Corridor Junction Design
Date	April 2022
Scheme	Blanchardstown to City Centre Core Bus Corridor Scheme

R147 Eastbound off-slip / Parkway Bridge



Summary

The existing signal-controlled junction is proposed to be modified by extending the bus lane on the eastbound off-slip road to the stop line. An inline bus stop and separate bus stop layby (for long distance buses) is proposed each side of the junction.

Signal Operation

A five stage signal operation is proposed for movements as follows: by traffic from the slip road, buses from the slip road, Parkway access road, from the overbridge, and a pedestrian stage.

Junction Type 1
Bus delay ≤ 65s

Change Made

Reason for Change

Impact of Change

1. The junction layout is largely unchanged from existing – but with an inbound bus lane east of the junction (on the slip road).

1. To maximise bus priority through the junction.

1. Provides a high degree of bus priority and safe facilities for cyclist and pedestrians.

1. Bus lane continuous to the stop line on the eastbound approach to the junction (on the slip road).
2. Movements from the inbound slip road are limited to left and right-turns only for general traffic, with only buses allowed to travel straight ahead.

1. To maximise bus priority with an ability as a stand-alone junction to utilise detection-based green signals for buses.
2. To remove the ability of N3 mainline traffic to travel along the off-and on-slip road to queue jump (when congestion occurs on the N3 inbound).

1. Junction operates well within capacity for all movements.

1. Addition of layby bus stop on the north-west side of the slip road approach to serve long-distance buses.

1. To accommodate the need for laybys for long-distance bus stops (to reduce risk of delay to city buses).

1. Provision for long-distance buses and reduce any potential for delay of city buses.

EXISTING

EPR

DRAFT PRO (PC2)

DRAFT PRO (PC3)

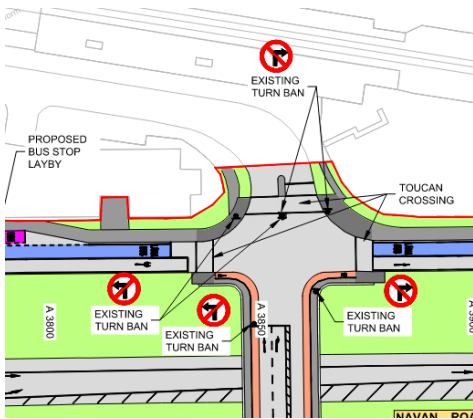
Subject	BusConnects Core Bus Corridor Junction Design
Date	April 2022
Scheme	Blanchardstown to City Centre Core Bus Corridor Scheme

R147 Eastbound off-slip / Parkway Bridge

EXISTING



FINAL DESIGN



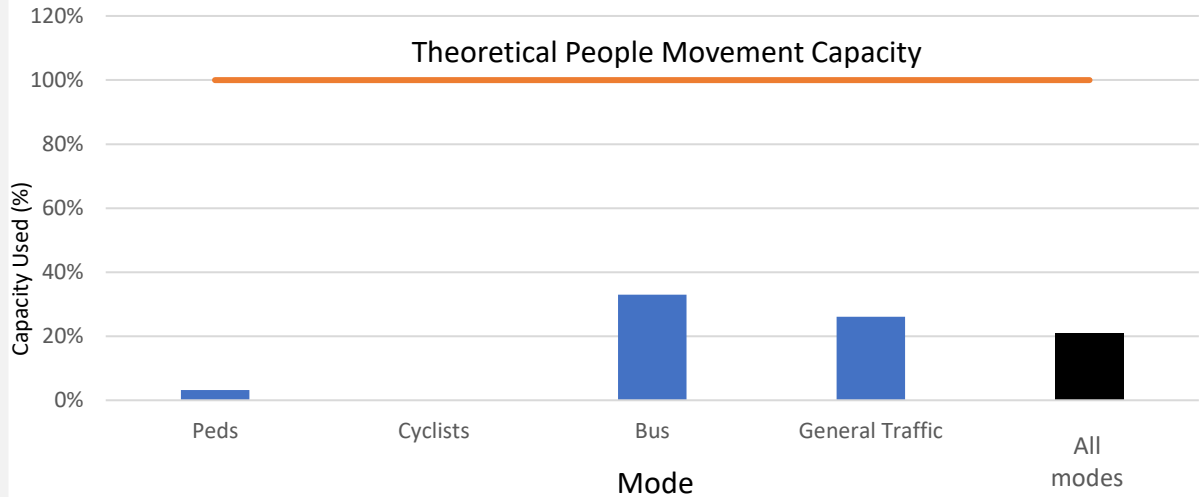
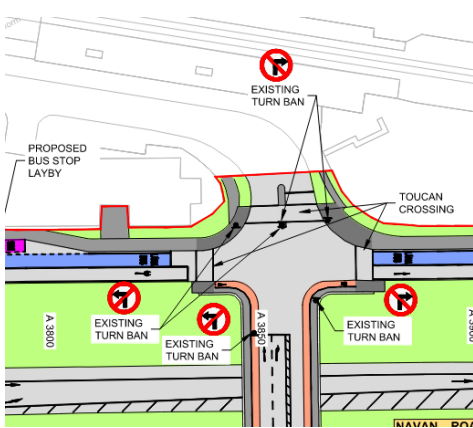
Change Made	Reason for Change	Impact of Change
<ol style="list-style-type: none"> 1. Stop line of inbound bus lane set back c. 4m. 	<ol style="list-style-type: none"> 1. In line with BusConnects Preliminary Design Guidance Booklet, to ensure visibility of primary signals from general traffic lane. 	<ol style="list-style-type: none"> 1. Amendments to line markings.

Subject	BusConnects Core Bus Corridor Junction Design
Date	April 2022
Scheme	Blanchardstown to City Centre Core Bus Corridor Scheme

R147 Eastbound off-slip / Parkway Bridge

Capacity / Delay

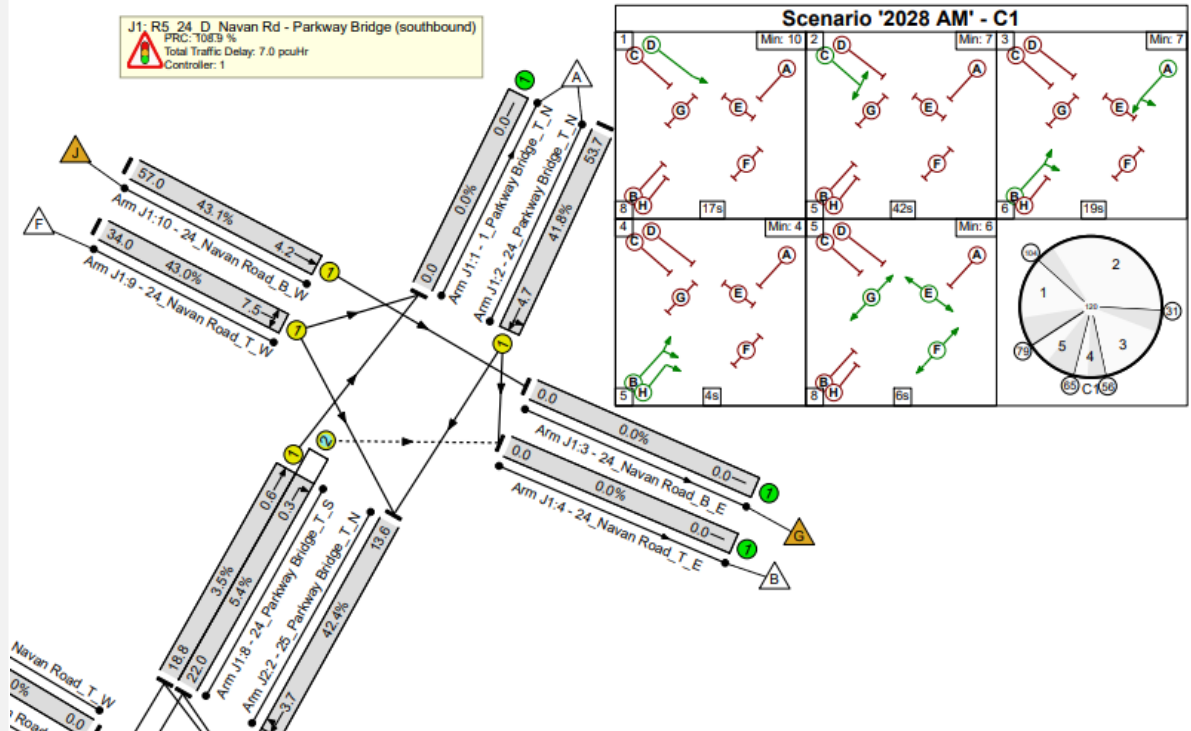
1. Junction operates well within capacity and hence acceptable.
2. Bus delay is <65s on average. Buses have a minimum of 10s of green time per cycle.
3. Stand-alone nature of the junction would allow bus detection to achieve reduced bus delay.



Do Something : 2028 : AM

Cycle = 120 secs
 PRC = 109%
 Delay = 7 pcuHr

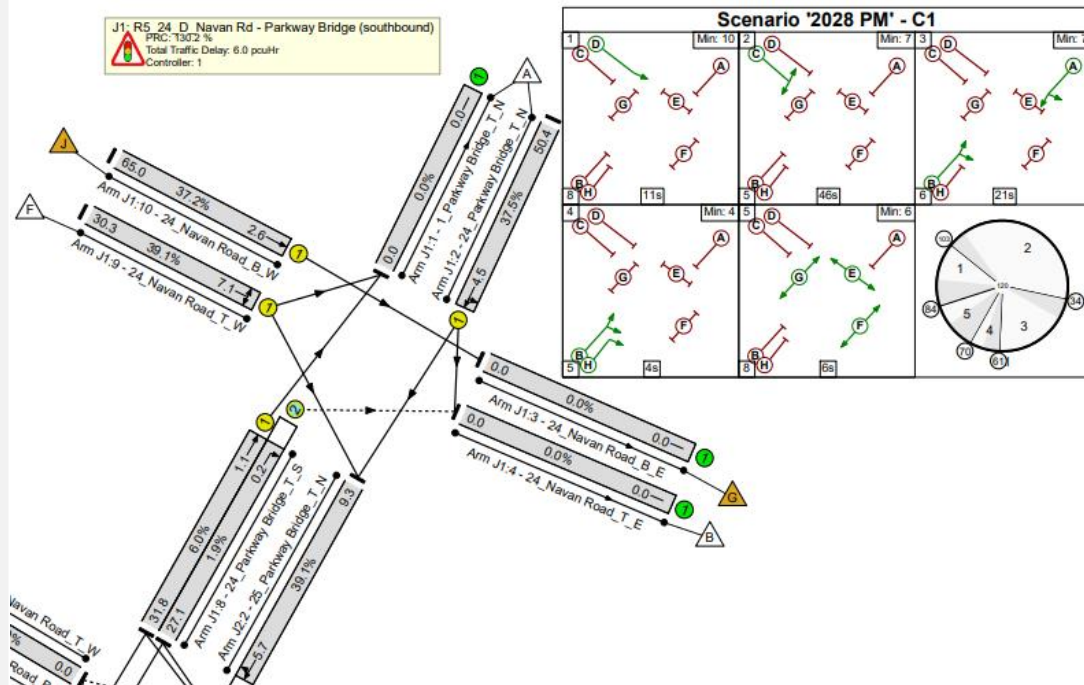
Bus delay
 Inbound = 57s
 Outbound = n/a



Do Something : 2028 : PM

Cycle = 120 secs
 PRC = 130%
 Delay = 6 pcuHr

Bus delay
 Inbound = 65s
 Outbound = n/a



Subject	BusConnects Core Bus Corridor Junction Design
Date	April 2022
Scheme	Blanchardstown to City Centre Core Bus Corridor Scheme

Navan Road / Phoenix Park Avenue

Summary

The Phoenix Park Avenue staggered junction with the access to Ashtown Business Centre is proposed to be signalised (instead of the present left-in / left-out junction). Signalisation will allow right turns out of the side roads, and in to Phoenix Park Avenue, but will prevent right-turn movements into the Ashtown Business Centre access road from Navan Road. Bus lanes will be provided on both Navan Road approaches and will be curtailed 20m from the junction. Cycle facilities will be provided via a two-way cycle track to the south of Navan Road.

Signal Operation

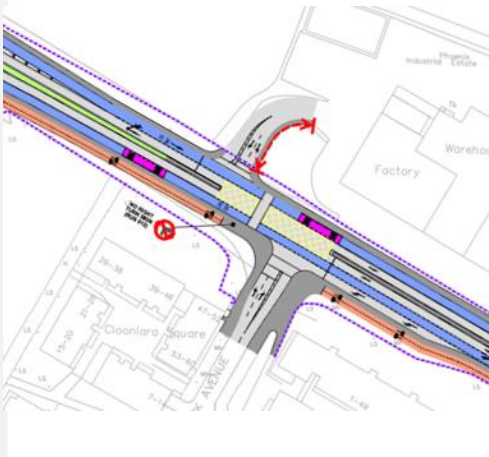
A four stage signal operation is proposed. Mainline traffic and buses will operate in the same stage, with left turning vehicles crossing the bus lane path at a distance of 20m from the junction. This will maximise green time for buses and minimise delay. The side roads will operate separately in their own stages. The pedestrian crossings will operate in their own stage.

Junction Type 3 Bus delay ≤ 20s

EXISTING



EPR



DRAFT PRO (PC2)



DRAFT PRO (PC3)



Change Made	Reason for Change	Impact of Change
<ol style="list-style-type: none"> Signal control of side roads and Navan Road staggered junction. 	<ol style="list-style-type: none"> To minimise the need for right-turn exiting vehicles to travel to the next junction to perform a U-turn. To provide signal control of cycle movements and pedestrian movement across Phoenix Park Avenue side road. 	<ol style="list-style-type: none"> Improved pedestrian and cyclist safety at the junction Reduced need for U-turn at adjacent Navan Road / Ashtown Road junction.
<ol style="list-style-type: none"> No change 	<ol style="list-style-type: none"> N/A 	<ol style="list-style-type: none"> N/A
<ol style="list-style-type: none"> Proposed Cycle track (two-way) relocated to a position adjacent to traffic carriageway, with footway to the rear of the cycle track Removal of separate outbound left turn lane and replacement with a bus layby to serve long-distance buses. Addition of layby bus stop on the north-west side of the Navan Road approach to serve long-distance buses. 	<ol style="list-style-type: none"> To improve safety for pedestrians and cyclists and to improve consistency with cycle track positioning on the rest of the CBC scheme. To accommodate the need for laybys for long-distance bus stops (to reduce risk of delay to city buses). To accommodate the need for laybys for long-distance bus stops (to reduce risk of delay to city buses). 	<ol style="list-style-type: none"> Improved overall pedestrian / cycle safety Provision for long-distance buses and reduce any potential for delay of city buses.

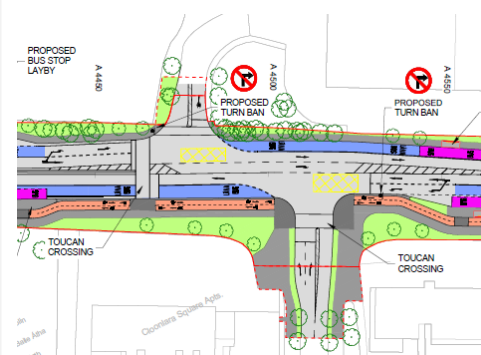
Subject	BusConnects Core Bus Corridor Junction Design
Date	April 2022
Scheme	Blanchardstown to City Centre Core Bus Corridor Scheme

Navan Road / Phoenix Park Avenue

EXISTING



FINAL DESIGN



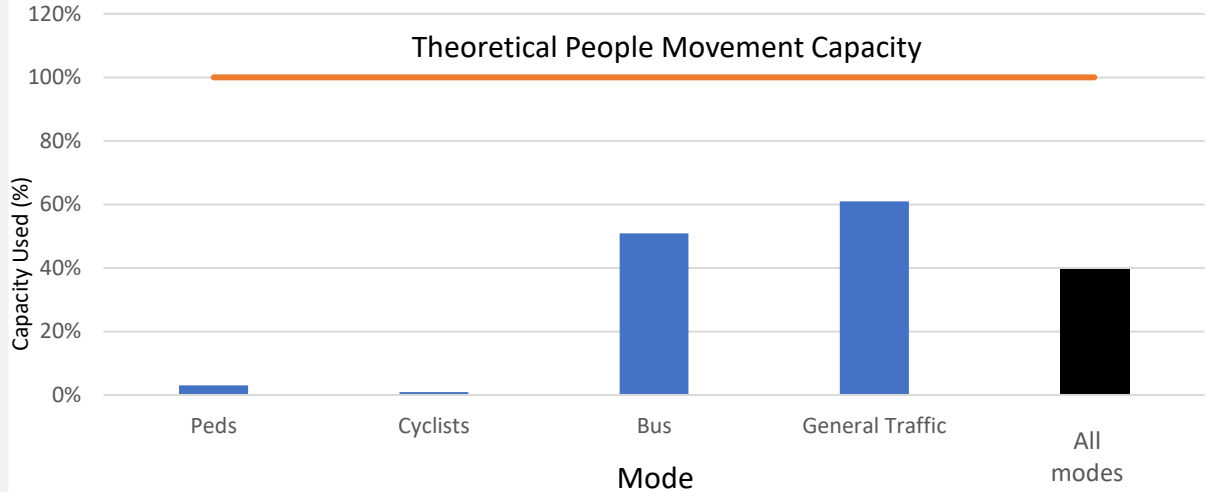
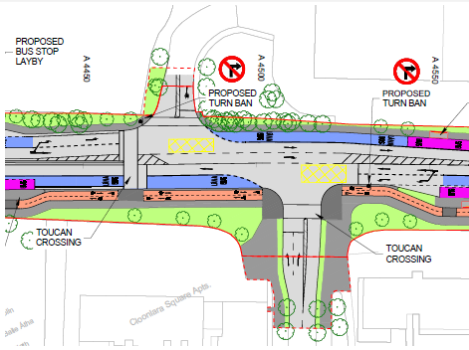
Change Made	Reason for Change	Impact of Change
<ol style="list-style-type: none"> 1. Crossing point from the car showroom moved to the western arm. 2. Shared surface access points on side roads added. 3. Right turn lane into Phoenix Park Avenue provided. 	<ol style="list-style-type: none"> 1. Space and operational constraints indicated that the mid junction arrangement would not work effectively. 2. To enable access to the off road cycle route without needing to cross stopline. 3. To accommodate right turns (which currently U-turn at Ashtown Rd roundabout). 	<ol style="list-style-type: none"> 1. Additional crossing point for pedestrians and cyclist to cross Navan Road improves junction operation overall. 2. No operational change to junction. Cyclists can access / egress cycle path without waiting for signals. 3. No operational change to junction, as right-turns will generally take place during intergreen at peak periods.

Subject	BusConnects Core Bus Corridor Junction Design
Date	April 2022
Scheme	Blanchardstown to City Centre Core Bus Corridor Scheme

Navan Road / Phoenix Park Avenue

Capacity / Delay

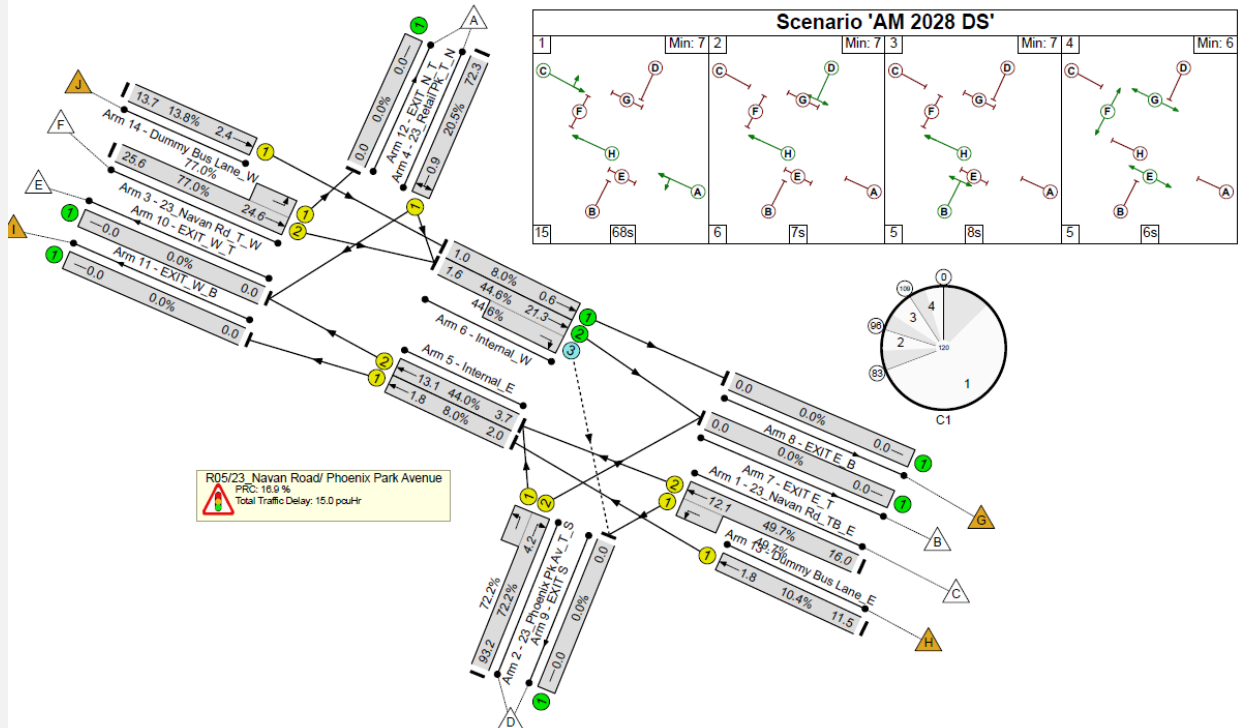
1. Junction operates within capacity.
2. Bus delay is around <20s on average.



Do Something : 2028 : AM

Cycle = 120 secs
 PRC = 17%
 Delay = 15 pcuHr

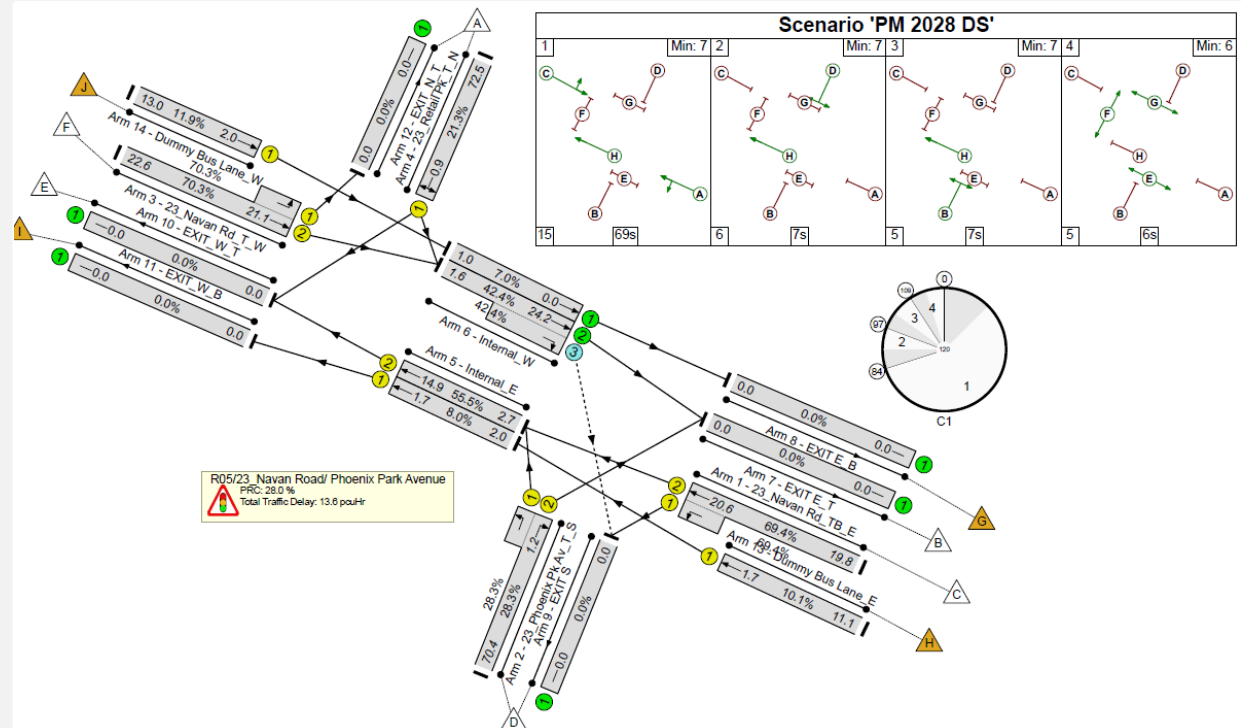
Bus delay
 Inbound = 14s
 Outbound = 12s



Do Something : 2028 : PM

Cycle = 120 secs
 PRC = 28%
 Delay = 14 pcuHr

Bus delay
 Inbound = 13s
 Outbound = 11s



Subject	BusConnects Core Bus Corridor Junction Design
Date	April 2022
Scheme	Blanchardstown to City Centre Core Bus Corridor Scheme

Navan Road / Ashtown Road



Summary

The existing roundabout is proposed to be converted to a signalised junction. Bus lanes are proposed on the Navan Road approaches; these will be curtailed 20m from the junction to allow for left turning movement. A shared pedestrian / cycle area will be provided on the south west corner where the two way cycle track (from the west) splits to become two one-way tracks on the east side of the junction.

Signal Operation

A five stage signal operation is proposed. Mainline straight and left turning traffic, cyclists, and buses will operate in the same stage, with left turning vehicles crossing the bus lane paths at a distance of 20m from the junction and to give way to cyclists on flashing ambers. This will maximise green time for buses and minimise delay. Right turning mainline traffic will operate together unopposed. Straight and left turning traffic and cyclists from the side roads will operate together, with left turning traffic to give way to cyclists on flashing ambers. Right turning traffic from the side roads will operate together unopposed. The pedestrian crossings will operate in their own stage.

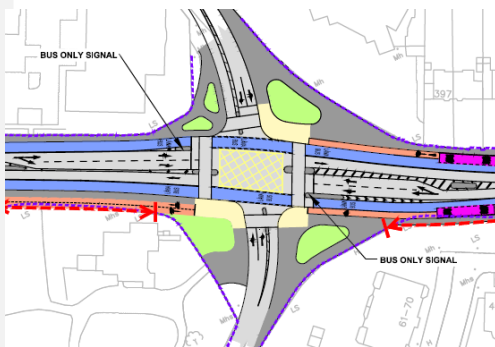
Junction Type 3 Bus delay < 45s

EXISTING

EPR

DRAFT PRO (PC2)

DRAFT PRO (PC3)



Change Made

Reason for Change

Impact of Change

- Existing roundabout converted to a signal-controlled cross-roads Junction with straight-across cycle and pedestrian crossings on all sides of the junction.
- Public realm space is created on the 'corners' of the junction.

- In keeping with general CBC design principles to have straight-through bus lanes and associated pedestrian and cycle facilities.

- Increased space for accessible public realm.

- The scheme is modified to retain a roundabout – with signal control added and a larger footprint to create queuing space.

- Community representatives requested to keep the roundabout in order to retain the existing trees on the central island.

- Reduced space for accessible public realm.
- Matches community representative requests.

- Modified gyratary widths to accommodate additional bus lanes in both directions.
- Modify traffic lane allocations to allow left turn vehicles to enter the bus lane at 30m from the stop line.

- To increase efficiency of junction by reducing the number of signal stages (by omitting a bus only stage).

- Longer green times for buses.

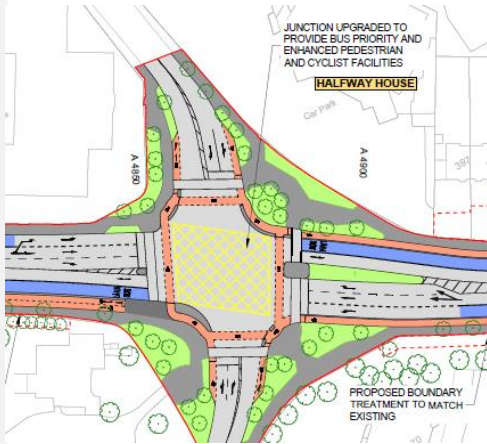
Subject	BusConnects Core Bus Corridor Junction Design
Date	April 2022
Scheme	Blanchardstown to City Centre Core Bus Corridor Scheme

Navan Road / Ashtown Road

EXISTING



FINAL DESIGN



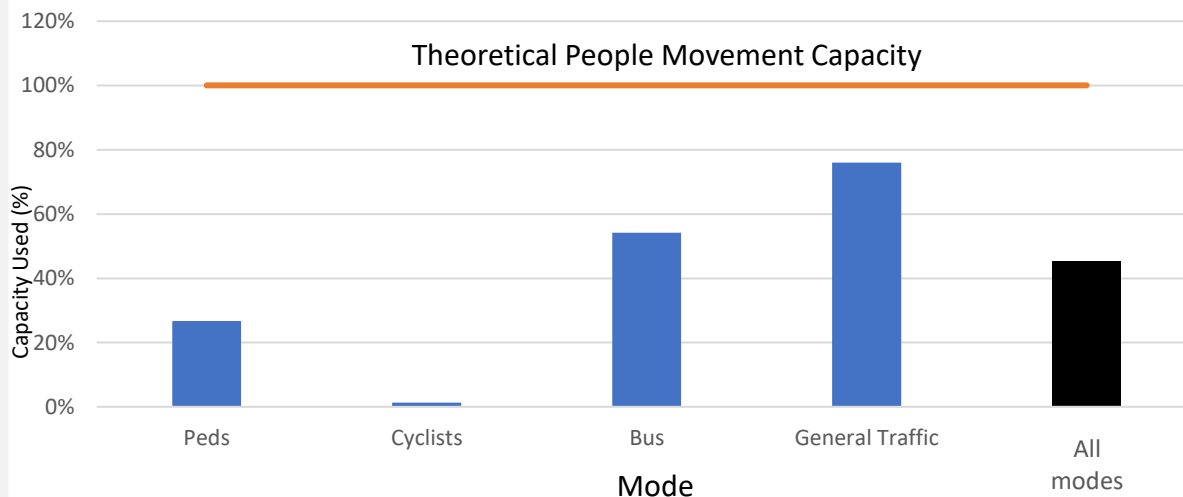
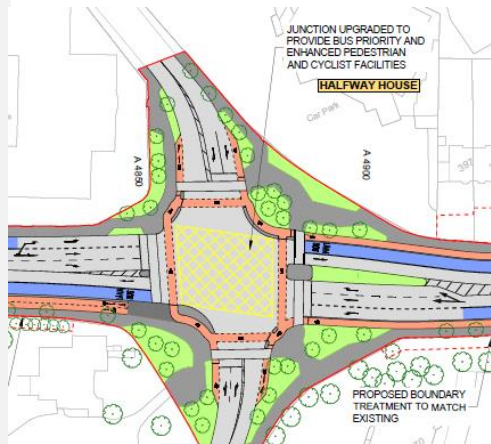
Change Made	Reason for Change	Impact of Change
<ol style="list-style-type: none"> 1. Roundabout changed to four arm signal controlled junction, with bus lanes terminated in advance of the stop lines to allow left turning vehicles to merge with the bus lane over a short distance (c.20m). 2. Protected junction for cyclists introduced. 	<ol style="list-style-type: none"> 1. To minimise delays at the junction for all modes and maximise the green time for buses. 2. Provide consistent cycle turning layout at junctions in line with BusConnects scheme 	<ol style="list-style-type: none"> 1. Improved junction capacity and bus journey time reliability. 2. Improved cyclist safety.

Subject	BusConnects Core Bus Corridor Junction Design
Date	April 2022
Scheme	Blanchardstown to City Centre Core Bus Corridor Scheme

Navan Road / Ashtown Road

Capacity / Delay

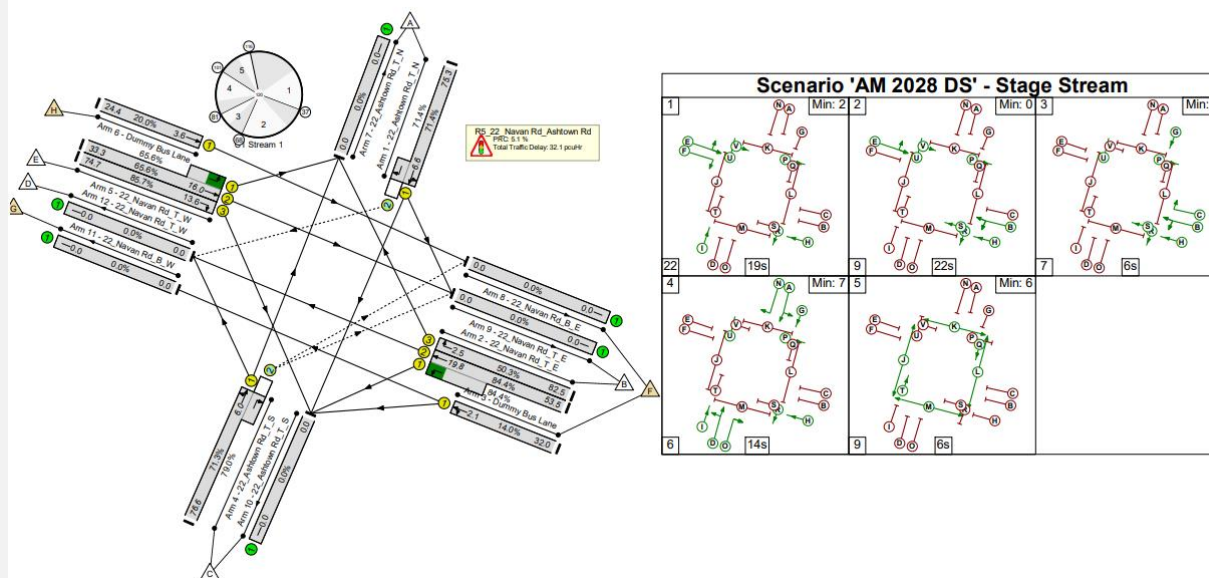
- Junction operates over capacity.



Do Something : 2028 : AM

Cycle = 120 secs
 PRC = -5%
 Delay = 32pcuHr

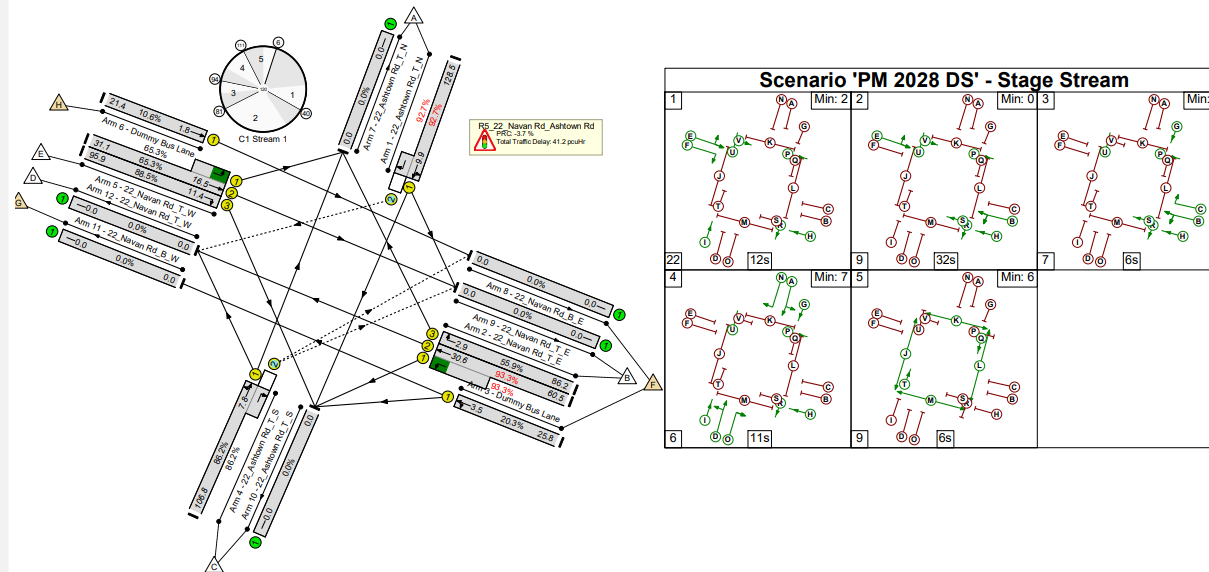
Bus delay
 Inbound = 24s
 Outbound = 32s



Do Something : 2028 : PM

Cycle = 120 secs
 PRC = -8%
 Delay = 41 pcuHr

Bus delay
 Inbound = 21s
 Outbound = 26s



Subject	BusConnects Core Bus Corridor Junction Design
Date	April 2022
Scheme	Blanchardstown to City Centre Core Bus Corridor Scheme

Navan Road / Kempton Avenue

Summary

Nearside bus lanes will be provided in both directions through the junction, with the inbound bus lane to be curtailed 20m from the junction to allow for left turn traffic. Cycle and pedestrians crossing facilities will be provided, and an advanced stop line for cyclists will be provided on the side road.

Signal Operation

A three stage signal operation is proposed. Mainline traffic and buses will operate in the same stage, with left turning vehicles to cross the bus lane path at a distance of 20m from the junction. Cyclists will also operate within the same stage with left turning traffic to give way to cyclists on flashing ambers. This will maximise green time for buses and minimise delay. The side road will operate in its own stage with a flashing amber, followed by pedestrians and right-turning cyclists.

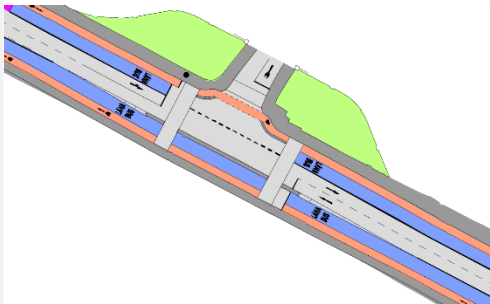
Junction Type **3**

Bus delay <15s

EXISTING



EPR



DRAFT PRO (PC2)



DRAFT PRO (PC3)



Change Made	Reason for Change	Impact of Change
<ol style="list-style-type: none"> Nearside bus lanes are provided in both directions through the junction. Cycle facilities along the CBC route are provided, and cycle and pedestrian crossing facilities 	<ol style="list-style-type: none"> To provide bus priority To provide standard and consistent provision for cyclists along the corridor 	<ol style="list-style-type: none"> To ensure reliable bus journey times Continuous cycling route along the corridor
<ol style="list-style-type: none"> No change 	<ol style="list-style-type: none"> N/A 	<ol style="list-style-type: none"> N/A
<ol style="list-style-type: none"> Removal of traffic island adjacent to outbound bus lane 	<ol style="list-style-type: none"> Traffic island was considered superfluous to junction operation 	<ol style="list-style-type: none"> Reduced land take

Subject	BusConnects Core Bus Corridor Junction Design
Date	April 2022
Scheme	Blanchardstown to City Centre Core Bus Corridor Scheme

Navan Road / Kempton Avenue

EXISTING



FINAL DESIGN



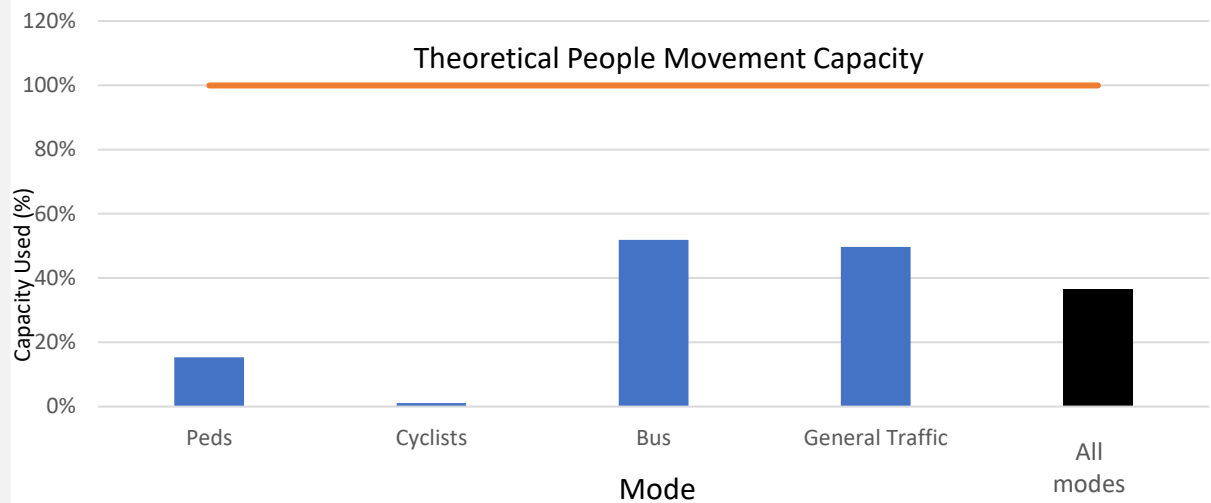
Change Made	Reason for Change	Impact of Change
<ol style="list-style-type: none"> Shortened outbound bus lane. Left turning vehicles will cross the bus lane path at a distance of 20m from the junction and operate within a single stage together with straight-ahead buses. Protected Junction for cyclist introduced. ASL on Kempton Avenue. Stop line of outbound bus lane set back c. 4m. 	<ol style="list-style-type: none"> Maximises green time for buses and minimises delay Provide consistent cycle turning layout at junctions in line with BusConnects scheme Provide cyclist with separate area and opportunity to be in front of traffic In line with BusConnects Preliminary Design Guidance Booklet, to ensure visibility of primary signals from general traffic lane. 	<ol style="list-style-type: none"> For Junction Type 3 operation, compared to Junction Type 1, delays for buses has decreased. Improved cyclist safety. No impact on junction operation. Amendments to line markings.

Subject	BusConnects Core Bus Corridor Junction Design
Date	April 2022
Scheme	Blanchardstown to City Centre Core Bus Corridor Scheme

Navan Road / Kempton Avenue

Capacity / Delay

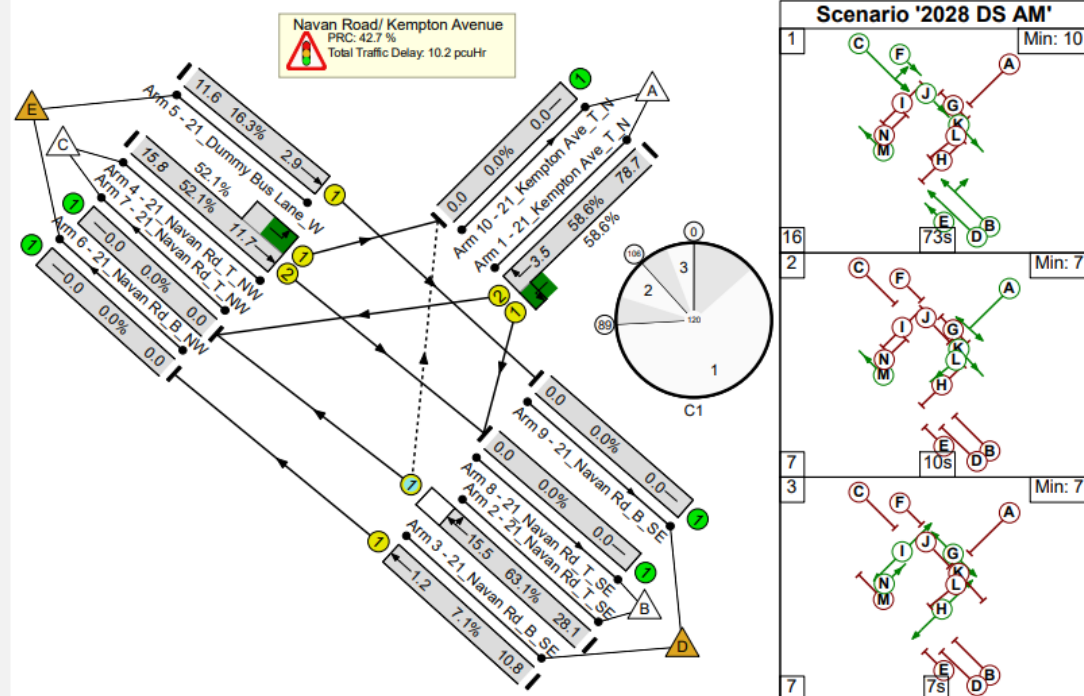
- Junction operates within capacity.
- Bus delay is <15s on average



Do Something : 2028 : AM

Cycle = 120 secs
 PRC = 43%
 Delay = 10 pcuHr

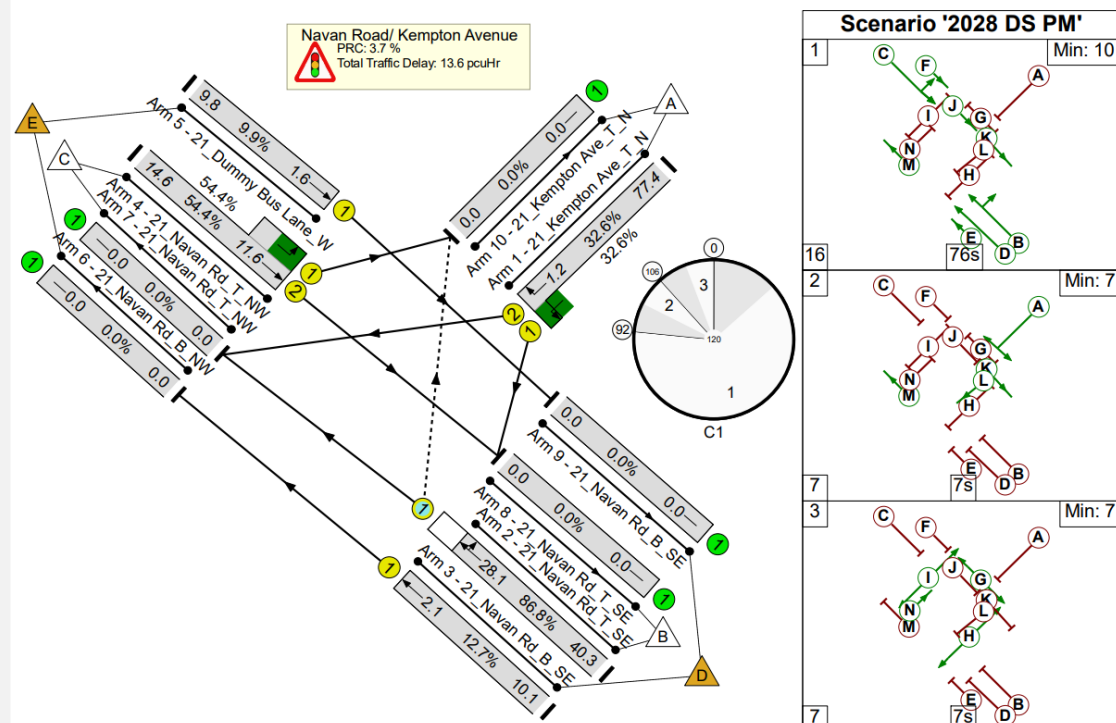
Bus delay
 Inbound = 12s
 Outbound = 11s



Do Something : 2028 : PM

Cycle = 120 secs
 PRC = 4%
 Delay = 14 pcuHr

Bus delay
 Inbound = 10s
 Outbound = 10s



Subject	BusConnects Core Bus Corridor Junction Design
Date	April 2022
Scheme	Blanchardstown to City Centre Core Bus Corridor Scheme

Navan Road / Ashtown Grove

Summary

Nearside bus lanes will be provided in both directions through the junction, with the inbound bus lane to be curtailed 20m from the junction to allow for left turn traffic. Cycle and pedestrian crossing facilities will be provided, and an advanced stop line for cyclists is to be provided on the side road.

Signal Operation

A four stage signal operation is proposed. Mainline traffic, buses and cyclists will operate in the same stage, with left turning vehicles to cross the bus lane path at a distance of 20m from the junction and give way to cyclists on flashing ambers. This will maximise green time for buses and minimise delay. An indicative arrow will provide priority for right-turning vehicles into Ashtown Grove. The side road will operate in its own stage with a flashing amber, followed by pedestrians and right-turning cyclists.

Junction Type 3 Bus delay $\leq 25s$

Change Made

Reason for Change

Impact of Change

1. Nearside bus lanes are provided in both directions through the junction.
2. Cycle facilities along the CBC route are provided, and cycle and pedestrian crossing facilities

1. To provide bus priority
2. To provide standard and consistent provision for cyclists along the corridor

1. To ensure reliable bus journey times
2. Continuous cycling route along the corridor

1. Dutch-style cycle crossing are included.

1. To provide standard and consistent provision for cyclists along the corridor

1. Continuous cycling route along the corridor

1. No change

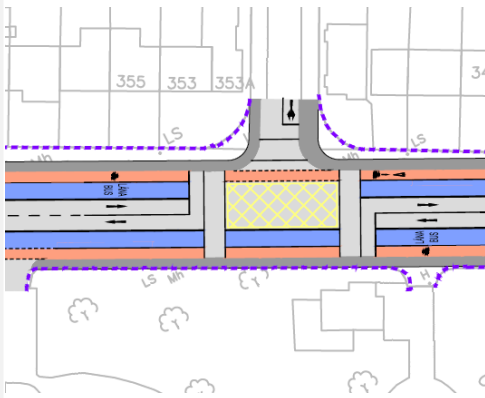
1. N/A

1. N/A

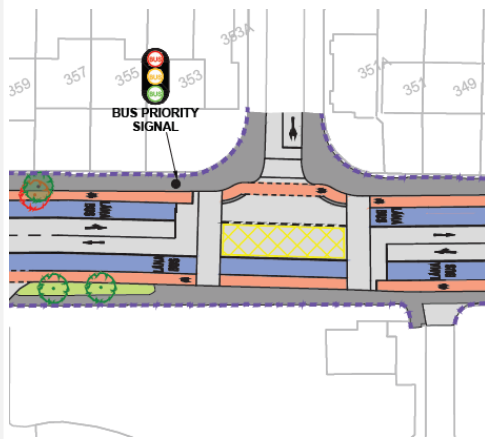
EXISTING



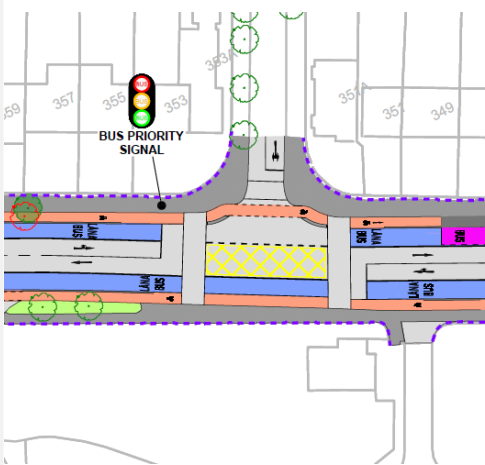
EPR



DRAFT PRO (PC2)



DRAFT PRO (PC3)



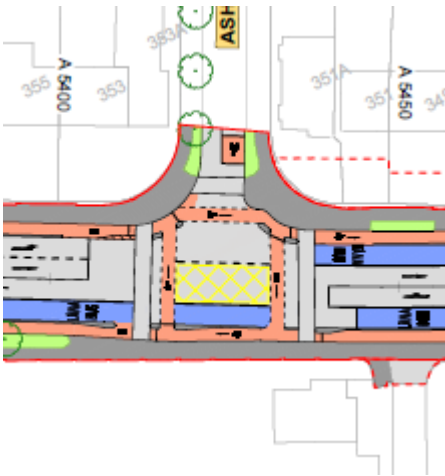
Subject	BusConnects Core Bus Corridor Junction Design
Date	April 2022
Scheme	Blanchardstown to City Centre Core Bus Corridor Scheme

Navan Road / Ashtown Grove

EXISTING



FINAL DESIGN



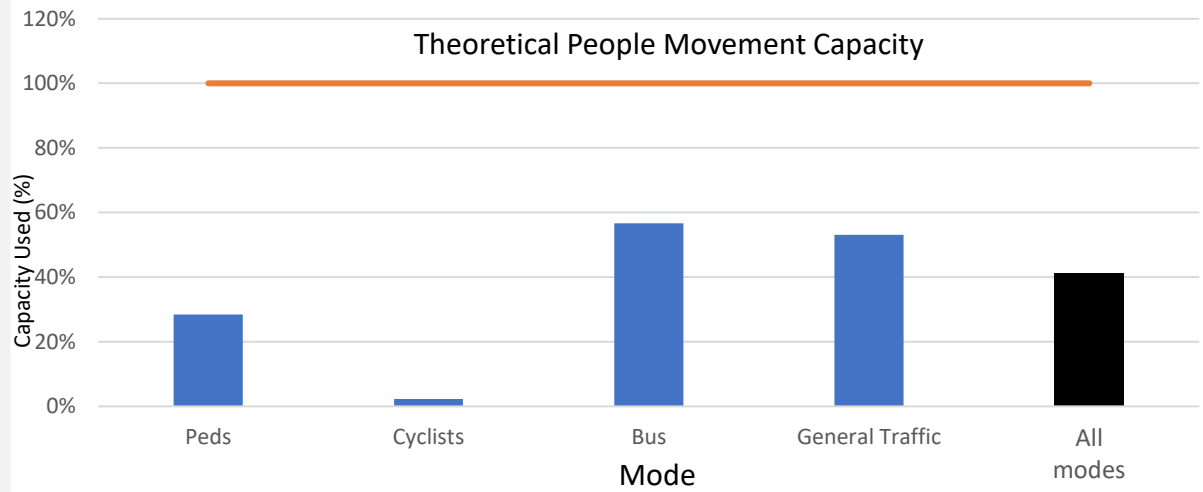
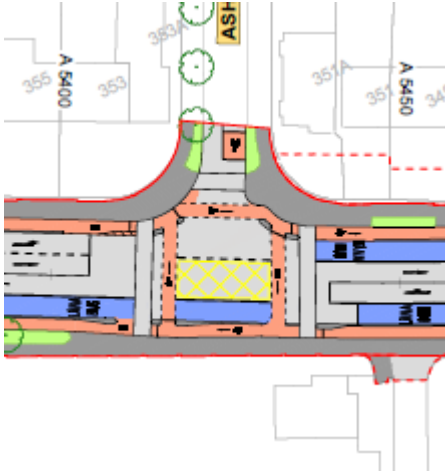
Change Made	Reason for Change	Impact of Change
<ol style="list-style-type: none"> Shortened inbound bus lane. Left turning vehicles will cross the bus lane path at a distance of 20m from the junction and operate within a single stage together with straight-ahead buses. Stop lines of outbound bus lane set back c. 4m. Protected Junction for cyclist introduced. ASL on Ashtown Grove. 	<ol style="list-style-type: none"> Maximises green time for buses and minimises delay In line with BusConnects Preliminary Design Guidance Booklet, to ensure visibility of primary signals from general traffic lane. Provide consistent cycle turning layout at junctions in line with BusConnects scheme. Provide cyclist with separate area and opportunity to be in front of traffic. 	<ol style="list-style-type: none"> Improved junction capacity and bus journey time reliability. Amendments to line markings. Improved cyclist safety. No impact on junction operation.

Subject	BusConnects Core Bus Corridor Junction Design
Date	April 2022
Scheme	Blanchardstown to City Centre Core Bus Corridor Scheme

Navan Road / Ashtown Grove

Capacity / Delay

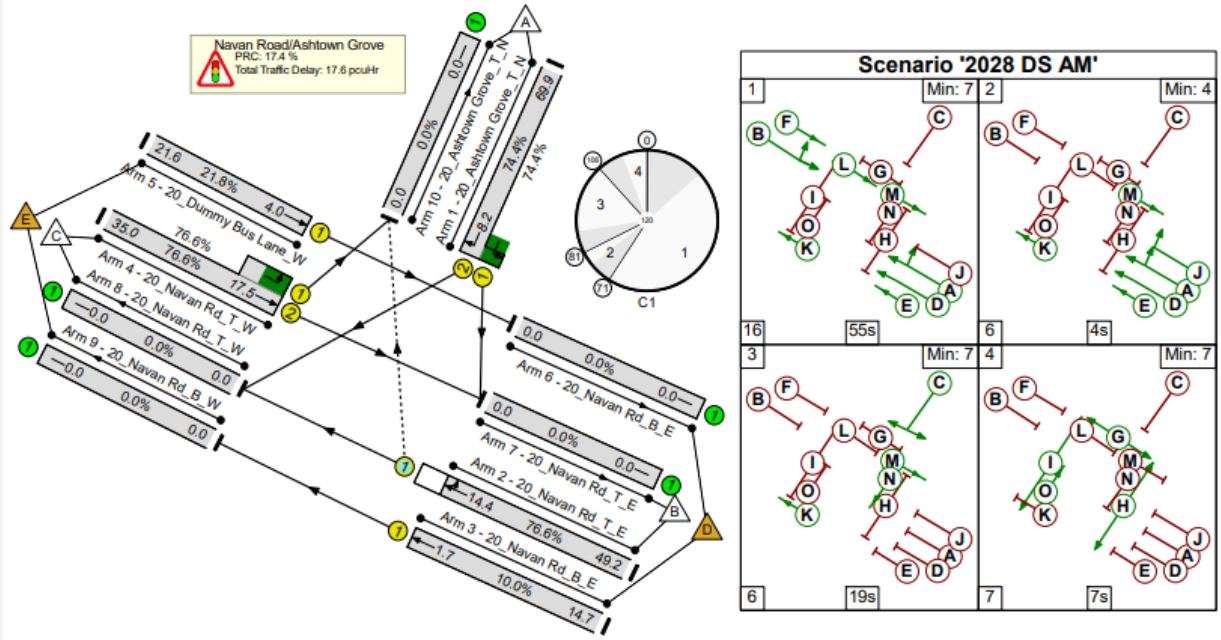
- Junction operates within capacity.
- Bus delay is <25s on average



Do Something : 2028 : AM

Cycle = 120 secs
 PRC = 17%
 Delay = 18 pcuHr

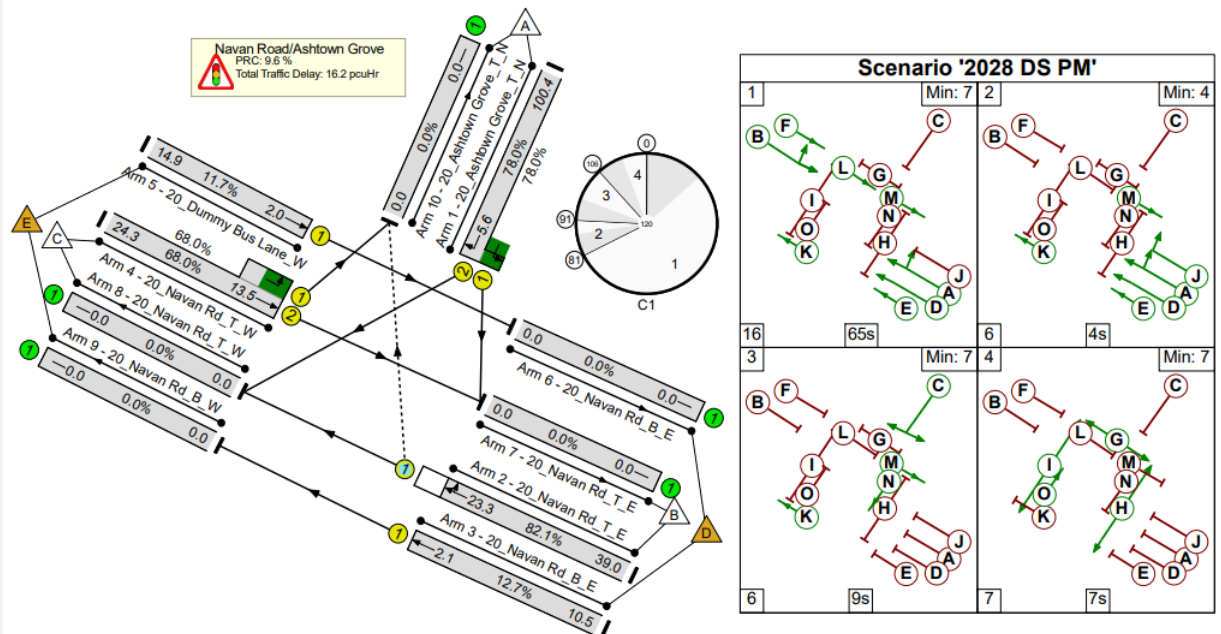
Bus delay
 Inbound = 22s
 Outbound = 15s



Do Something : 2028 : PM

Cycle = 120 secs
 PRC = 10%
 Delay = 16 pcuHr

Bus delay
 Inbound = 15s
 Outbound = 10s



Subject	BusConnects Core Bus Corridor Junction Design
Date	April 2022
Scheme	Blanchardstown to City Centre Core Bus Corridor Scheme

Navan Road / Baggot Road

Summary

Nearside bus lanes will be provided in both directions through the junction, with the inbound bus lane to be curtailed 20m from the junction to allow for left turn traffic. Cycle and pedestrians crossing facilities will be provided, and an advanced stop line for cyclists will be provided on the side roads due to space constraints. A right-turn pocket will be provided on Navan Road for traffic turning in to Kinvara Avenue.

Signal Operation

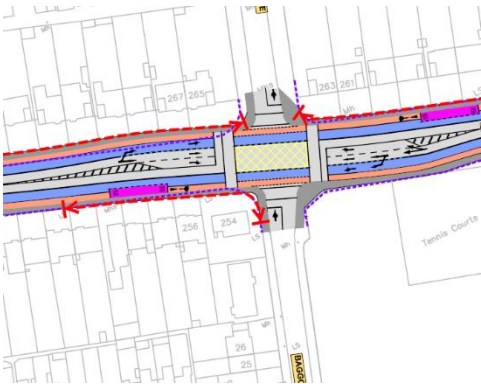
A four stage signal operation is proposed. Inbound buses, cyclists, and mainline traffic will operate in the same stage as outbound straight-ahead and left traffic, cyclists and buses, with left turning vehicles to cross the bus lane path at a distance of 20m from the junction and will be giving way to cyclists on flashing ambers. This will maximise green time for buses and minimise delay. Buses and straight-ahead traffic will continue on the eastern arm with the right turning traffic into Kinvara Ave. The side roads will operate together with flashing ambers, followed by pedestrians in a separate stage.

Junction Type 3 Bus delay \leq 30s

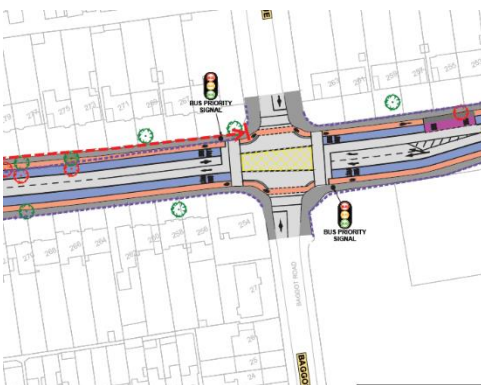
EXISTING



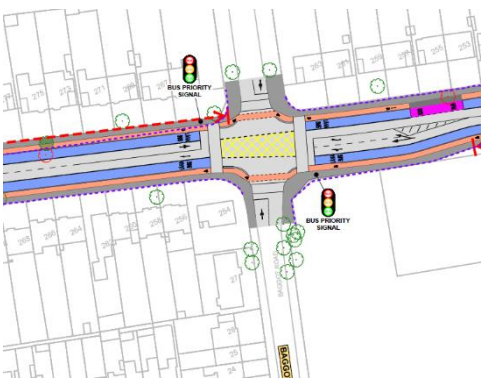
EPR



DRAFT PRO (PC2)



DRAFT PRO (PC3)

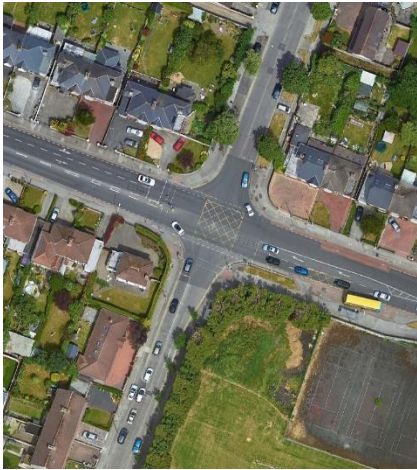


Change Made	Reason for Change	Impact of Change
<ol style="list-style-type: none"> Nearside bus lanes are provided in both directions through the junction. Cycle facilities along the CBC route are provided, and cycle and pedestrian crossing facilities 	<ol style="list-style-type: none"> To provide bus priority To provide standard and consistent provision for cyclists along the corridor 	<ol style="list-style-type: none"> To ensure reliable bus journey times Continuous cycling route along the corridor
<ol style="list-style-type: none"> Dutch-style cycle crossing are included. Removal of right turn lane from Navan Road (West). 	<ol style="list-style-type: none"> To provide standard and consistent provision for cyclists along the corridor Limited right turn movement 	<ol style="list-style-type: none"> Continuous cycling route along the corridor Reduction in land take
<ol style="list-style-type: none"> No change 	<ol style="list-style-type: none"> N/A 	<ol style="list-style-type: none"> N/A

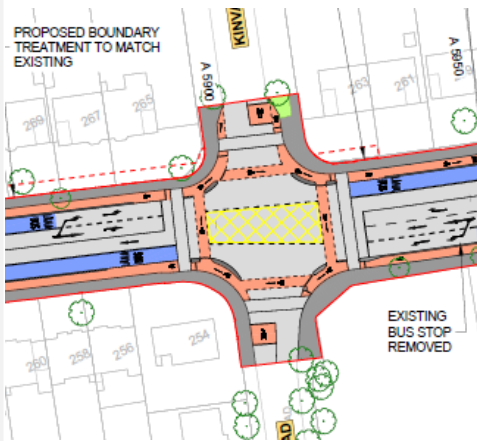
Subject	BusConnects Core Bus Corridor Junction Design
Date	April 2022
Scheme	Blanchardstown to City Centre Core Bus Corridor Scheme

Navan Road / Baggot Road

EXISTING



FINAL DESIGN



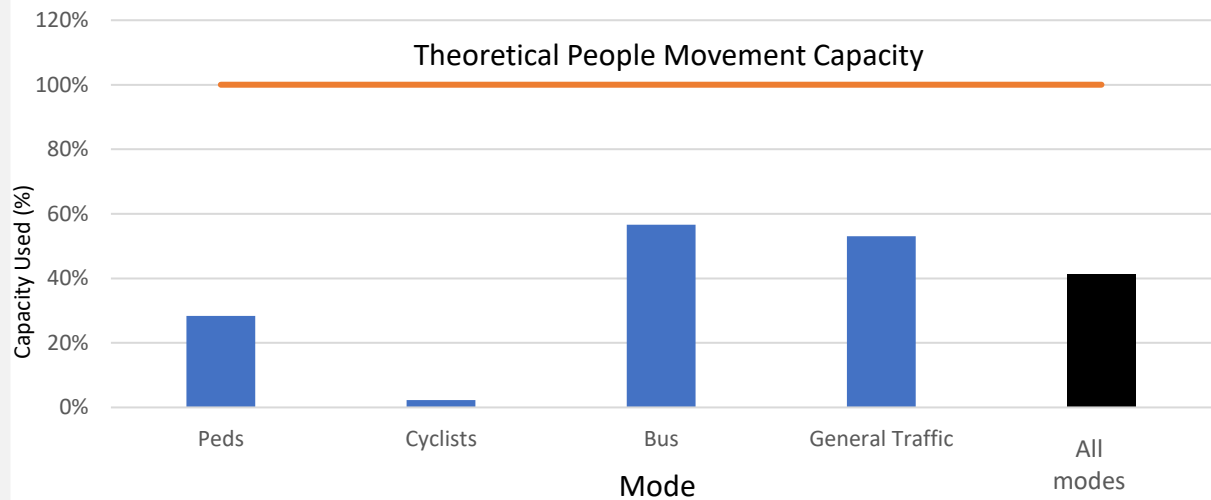
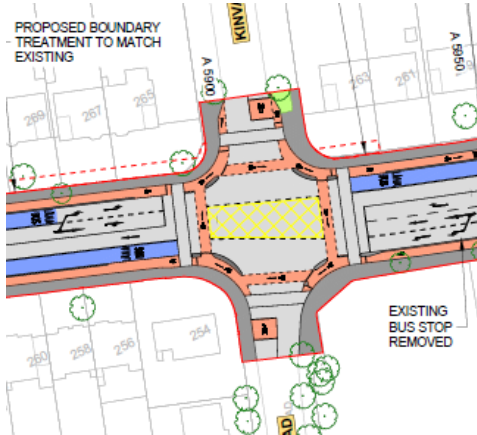
Change Made	Reason for Change	Impact of Change
<ol style="list-style-type: none"> Shortened outbound bus lane. Left turning vehicles will cross the bus lane path at a distance of 20m from the junction and operate within a single stage together with straight-ahead buses. Protected Junction for cyclist introduced. ASL on Baggot Road and Kinvara Avenue. Cycle lead in / lead out lanes provide on Kinvara Ave. 	<ol style="list-style-type: none"> Maximises green time for buses and minimises delay Provide consistent cycle turning layout at junctions in line with BusConnects scheme. Provide cycle priority area where lead in lanes are not possible. Provide preferred cycle route treatment. 	<ol style="list-style-type: none"> Improved junction capacity and bus journey time reliability. Improved cyclist safety. No impact on junction operation. No impact on junction operation.

Subject	BusConnects Core Bus Corridor Junction Design
Date	April 2022
Scheme	Blanchardstown to City Centre Core Bus Corridor Scheme

Navan Road / Baggot Road

Capacity / Delay

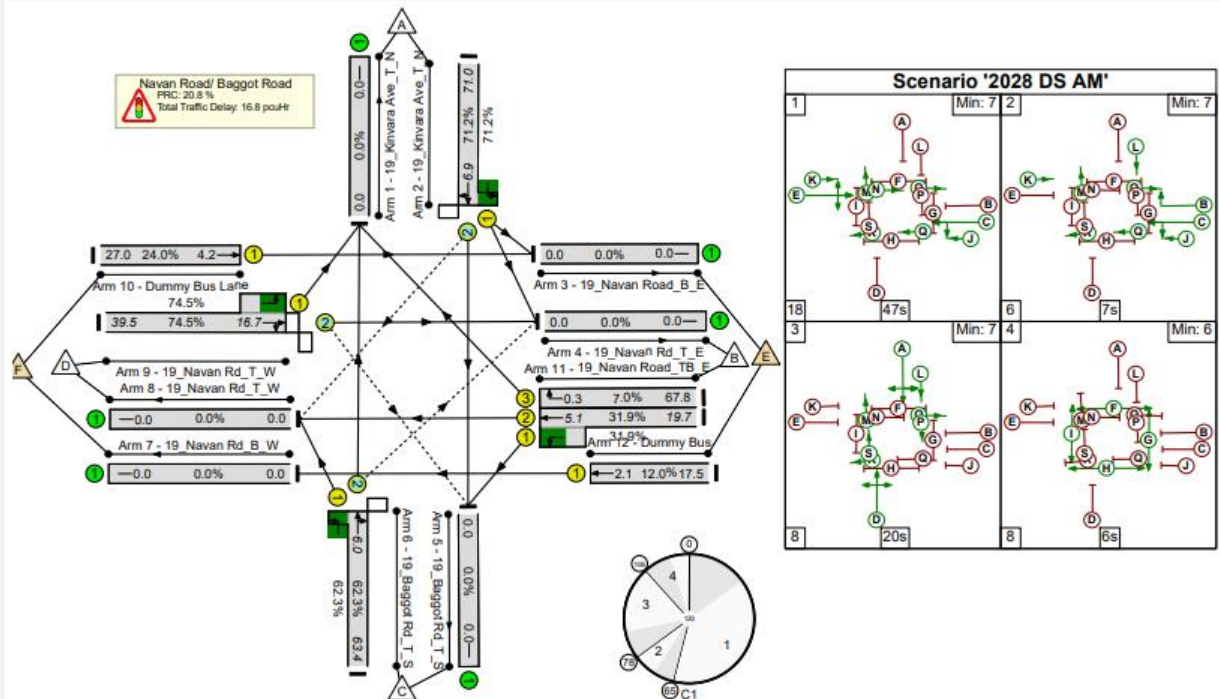
- Junction operates within capacity.
- Bus delay is <30s on average



Do Something : 2028 : AM

Cycle = 120 secs
 PRC = 21%
 Delay = 17 pcuHr

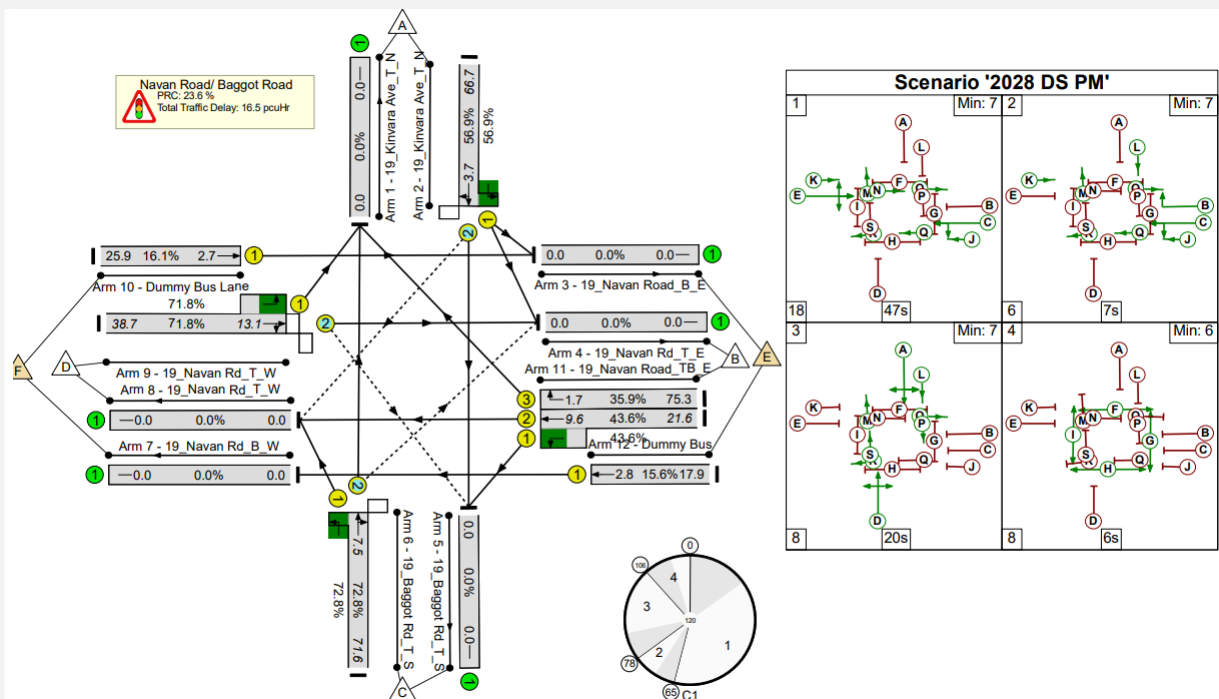
Bus delay
 Inbound = 27s
 Outbound = 18s



Do Something : 2028 : PM

Cycle = 120 secs
 PRC = 24%
 Delay = 17 pcuHr

Bus delay
 Inbound = 27s
 Outbound = 19s



Subject	BusConnects Core Bus Corridor Junction Design
Date	April 2022
Scheme	Blanchardstown to City Centre Core Bus Corridor Scheme

Navan Road / Nephin Road

Summary

The existing signal-controlled junction is proposed to be modified by extending existing nearside bus lanes in both directions up to the stop line. Right turns from Navan Road (east) will remain banned (as existing). The constrained junction location will require the use of right turn bays and non-protected kerbed cycle lanes on the southern side of the junction in order to maintain the consistent cycle route throughout. An advanced stop line will be provided for cyclists on each arm of Nephin Road.

Signal Operation

A six stage signal operation is proposed. Mainline buses and cyclists will operate within the same stage through the junction, followed by mainline traffic. A right turn indicative arrow will facilitate the traffic flow into Nephin Road (S). The side roads will operate in separate stages, with left turning traffic to give way to cyclists on flashing ambers. Pedestrian crossings will operate in their own stage.

Junction Type 1 Bus delay ≤ 90s

Change Made

Reason for Change

Impact of Change

1. Nearside bus lanes are provided in both directions through the junction.
2. Cycle facilities along the CBC route are provided, and cycle and pedestrian crossing facilities

1. To provide bus priority
2. To provide standard and consistent provision for cyclists along the corridor

1. To ensure reliable bus journey times
2. Continuous cycling route along the corridor

1. Dutch-style cycle crossing are included.

1. To provide standard and consistent provision for cyclists along the corridor

1. Continuous cycling route along the corridor

1. No Change

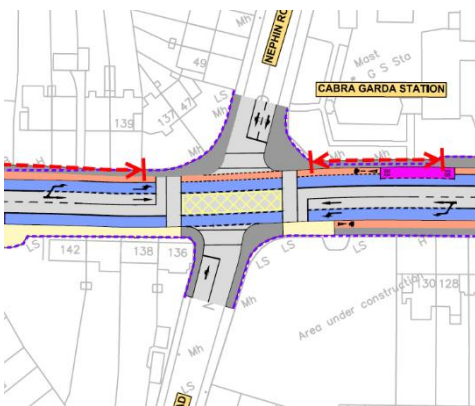
1. N/A

1. N/A

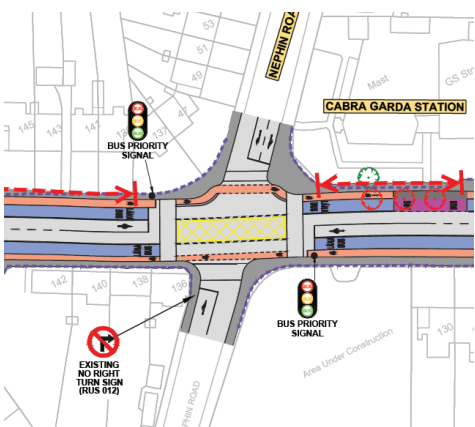
EXISTING



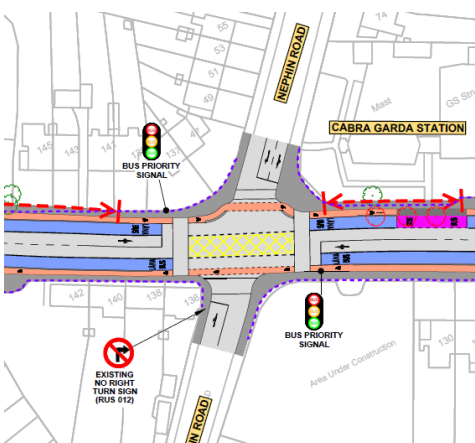
EPR



DRAFT PRO (PC2)



DRAFT PRO (PC3)



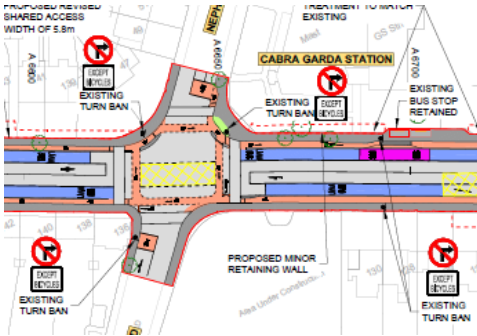
Subject	BusConnects Core Bus Corridor Junction Design
Date	April 2022
Scheme	Blanchardstown to City Centre Core Bus Corridor Scheme

Navan Road / Nephin Road

EXISTING



FINAL DESIGN



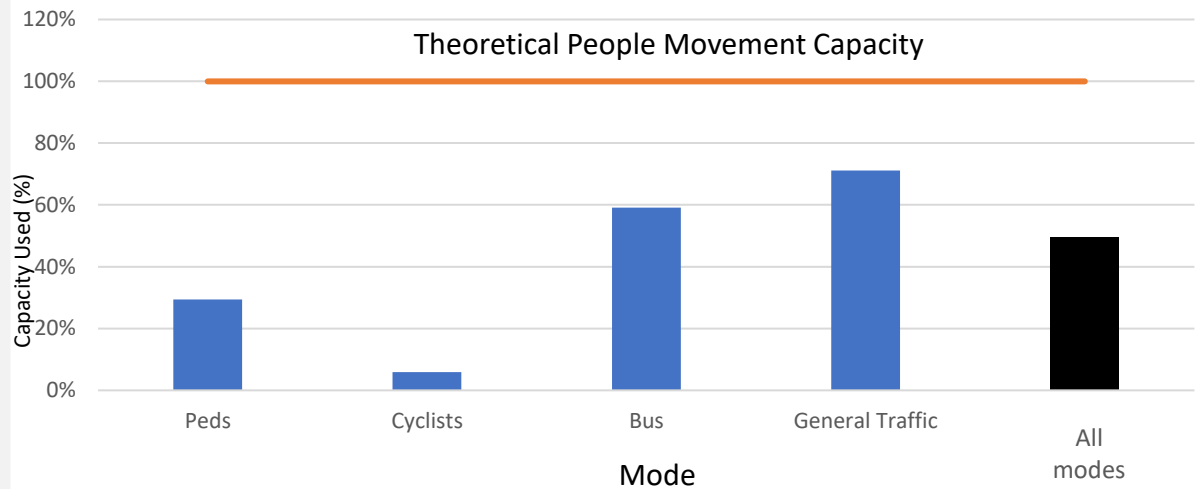
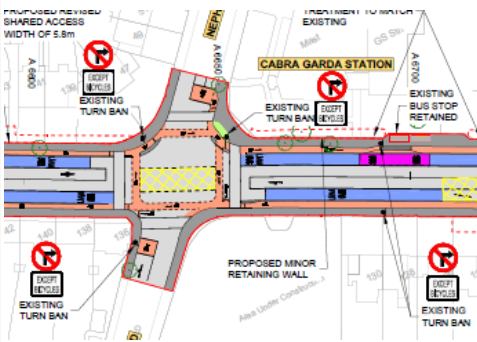
Change Made	Reason for Change	Impact of Change
<ol style="list-style-type: none"> 1. No kerb protection and right turn bays provided for cyclists on southern side 2. ASL on Nephin Road 3. Cycle lead in / lead out lanes provide on Nephin Road northern arm 4. Stop line of bus lanes set back c. 4m. 	<ol style="list-style-type: none"> 1. Maintain continuity of cycling provision in line with BusConnects guidance 2. Provide cycle priority area where lead in lanes are not possible 3. Provide preferred cycle route treatment 4. In line with BusConnects Preliminary Design Guidance Booklet, to ensure visibility of primary signals from general traffic lane. 	<ol style="list-style-type: none"> 1. Increase cyclist green time. 2. No impact on junction operation 3. No impact on junction operation 4. Amendments to line markings.

Subject	BusConnects Core Bus Corridor Junction Design
Date	April 2022
Scheme	Blanchardstown to City Centre Core Bus Corridor Scheme

Navan Road / Nephin Road

Capacity / Delay

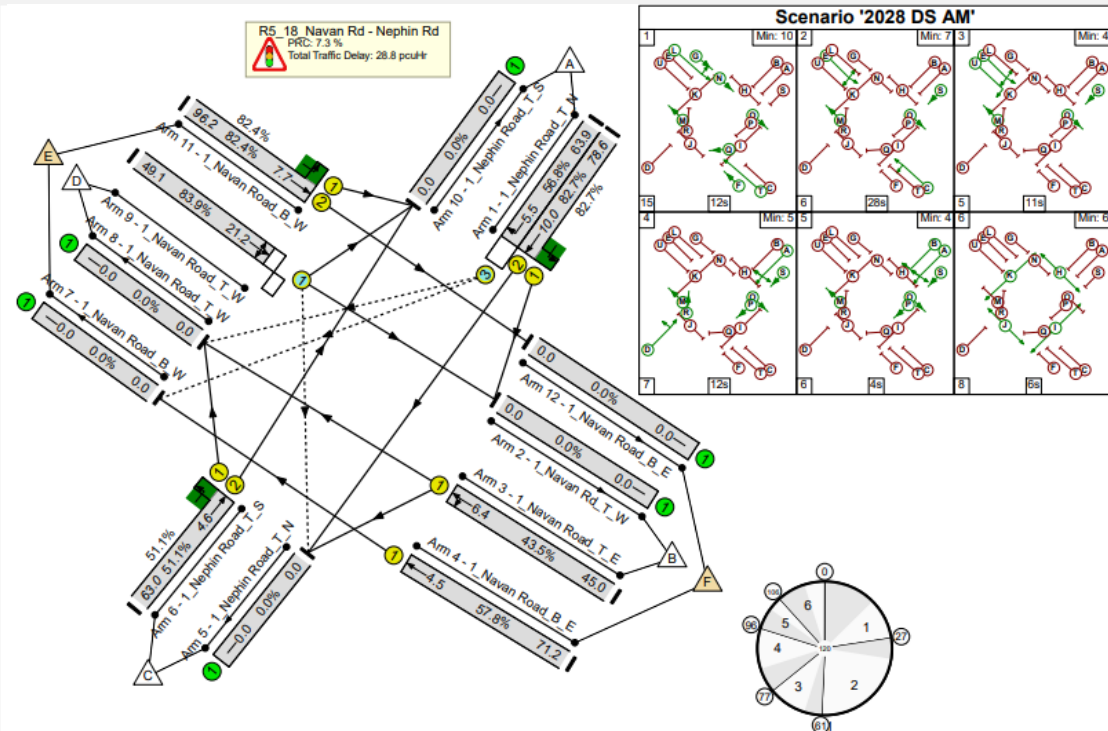
- Junction operates within capacity.
- Bus delay is <90s on average



Do Something : 2028 : AM

Cycle = 120 secs
 PRC = 7%
 Delay = 29 pcuHr

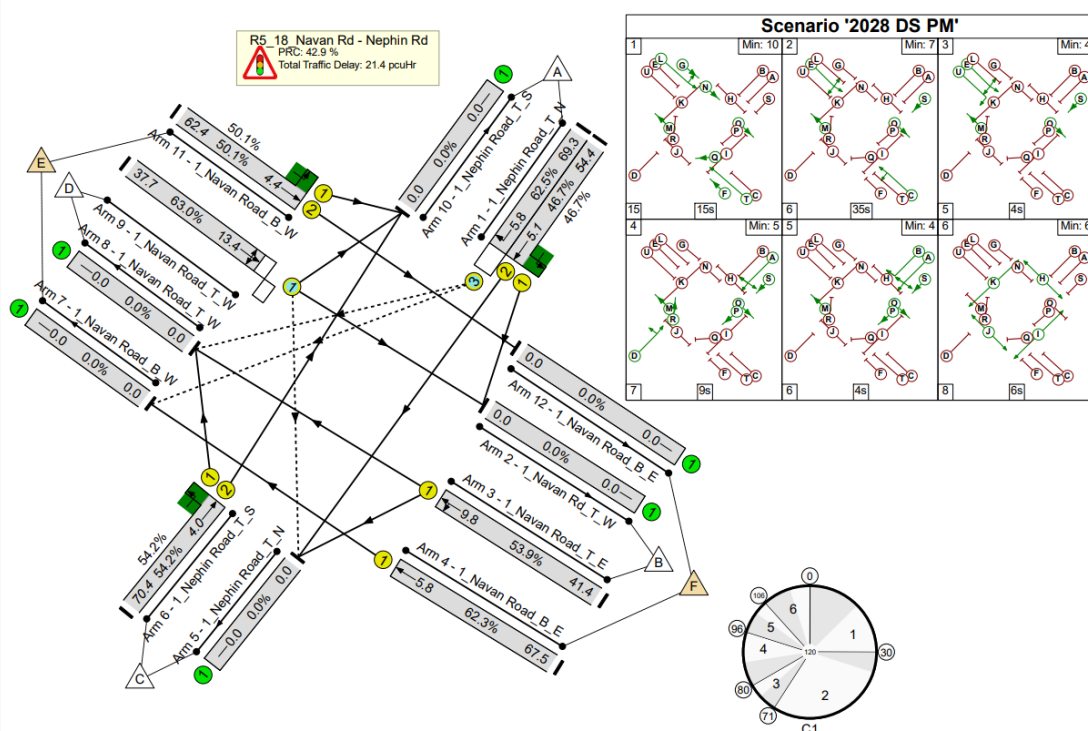
Bus delay
 Inbound = 96s
 Outbound = 71s



Do Something : 2028 : PM

Cycle = 120 secs
 PRC = 43%
 Delay = 21 pcuHr

Bus delay
 Inbound = 62s
 Outbound = 68s



Subject	BusConnects Core Bus Corridor Junction Design
Date	April 2022
Scheme	Blanchardstown to City Centre Core Bus Corridor Scheme

Navan Road / Skreen Road

Summary

This existing T-junction is proposed to be signal-controlled – with nearside bus lanes proposed in both directions (up to the stop line). Cycle tracks will be provided adjacent to bus lanes, with separate cycle and pedestrian crossing facilities to be provided.

Signal Operation

A five stage signal operation is proposed. Mainline buses and cyclists will operate within the same stage through the junction. Inbound buses will continue with the mainline traffic in both directions, followed by a right turn indicative arrow from Navan Road into Skreen Road. The side road will operate in its own stage with flashing ambers, followed by pedestrians and right-turning cyclists.

Junction Type **1**
Bus delay $\leq 90s$

Change Made

Reason for Change

Impact of Change

1. Nearside bus lanes are provided in both directions through the junction.
2. Cycle facilities along the CBC route are provided, and cycle and pedestrian crossing facilities

1. To provide bus priority
2. To provide standard and consistent provision for cyclists along the corridor

1. To ensure reliable bus journey times
2. Continuous cycling route along the corridor

1. Dutch-style cycle crossing are included.

1. To provide standard and consistent provision for cyclists along the corridor

1. Continuous cycling route along the corridor

1. No Change

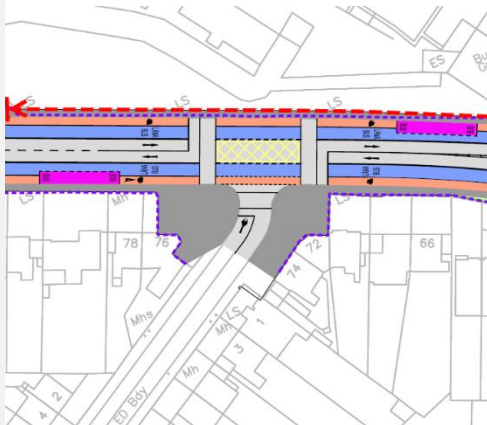
1. N/A

1. N/A

EXISTING



EPR



DRAFT PRO (PC2)



DRAFT PRO (PC3)



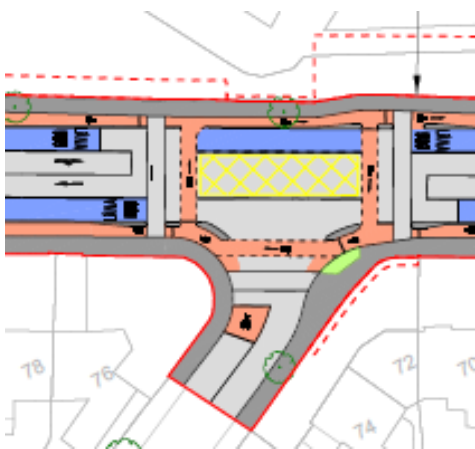
Subject	BusConnects Core Bus Corridor Junction Design
Date	April 2022
Scheme	Blanchardstown to City Centre Core Bus Corridor Scheme

Navan Road / Skreen Road

EXISTING



FINAL DESIGN



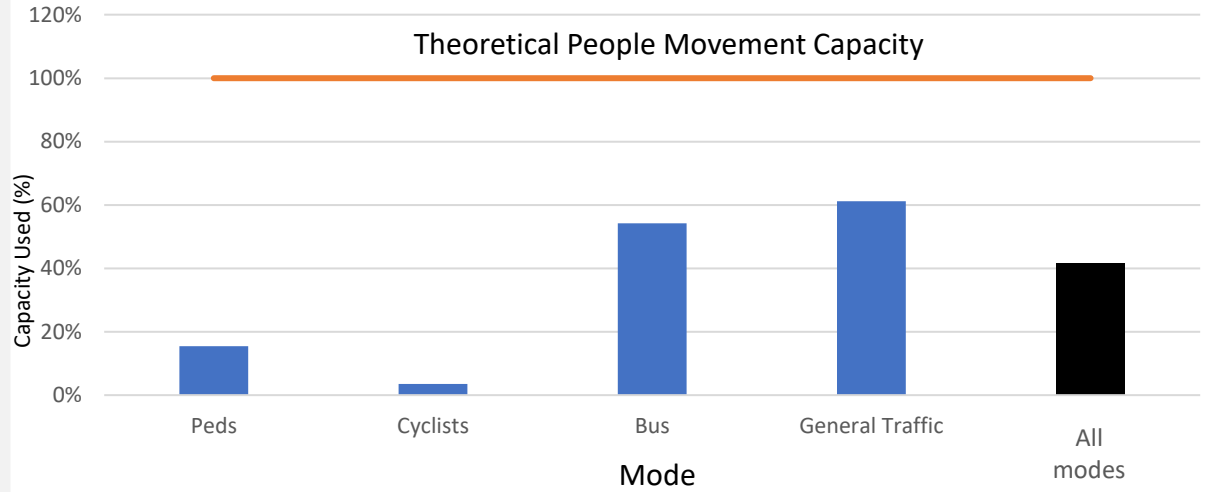
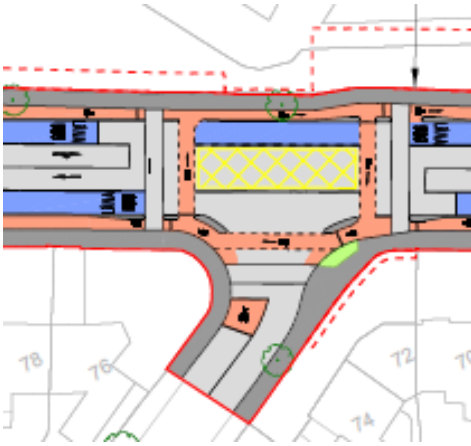
Change Made	Reason for Change	Impact of Change
<ol style="list-style-type: none"> 1. Provide consistent cycle turning layout at junctions in line with BusConnects scheme 2. Provide cyclist with separate area and opportunity to be in front of traffic. 3. Stop line of bus lanes set back c. 4m. 	<ol style="list-style-type: none"> 1. Provide consistent cycle turning layout at junctions in line with BusConnects scheme 2. Provide cyclist with separate area and opportunity to be in front of traffic. 3. In line with BusConnects Preliminary Design Guidance Booklet, to ensure visibility of primary signals from general traffic lane. 	<ol style="list-style-type: none"> 1. No impact on junction operation. 2. No impact on junction operation. 3. Amendments to line markings.

Subject	BusConnects Core Bus Corridor Junction Design
Date	April 2022
Scheme	Blanchardstown to City Centre Core Bus Corridor Scheme

Navan Road / Skreen Road

Capacity / Delay

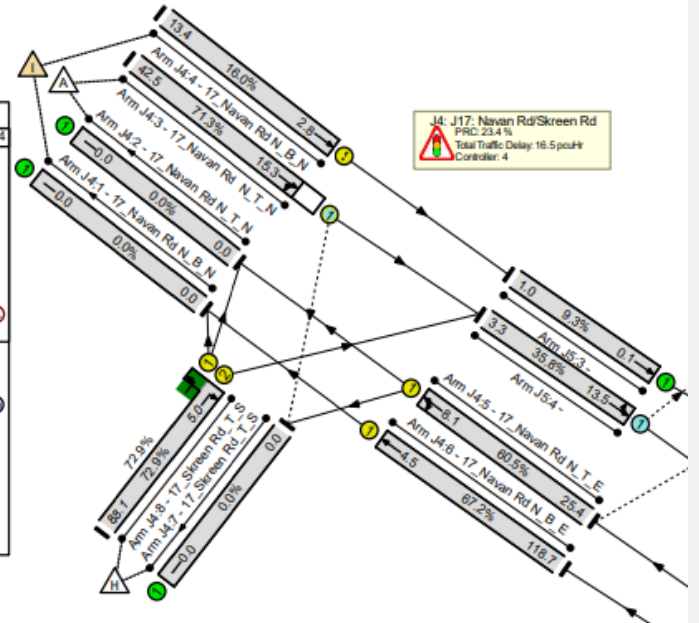
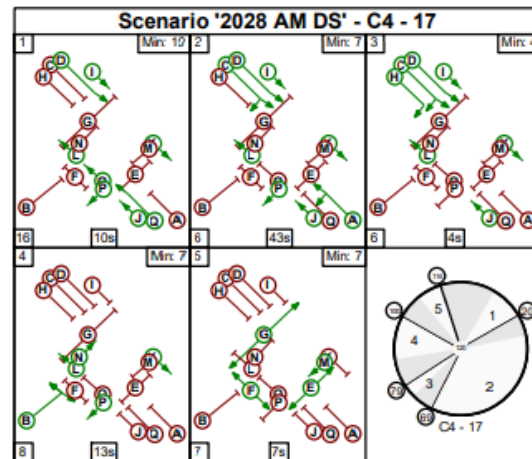
- Junction operates within capacity.
- Bus delay is <90s on average.



Do Something : 2028 : AM

Cycle = 120 secs
 PRC = 24%
 Delay = 17 pcuHr

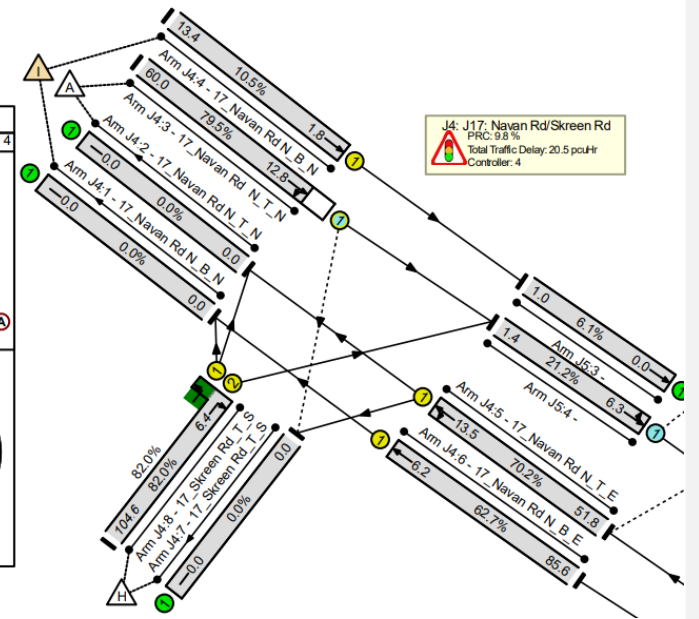
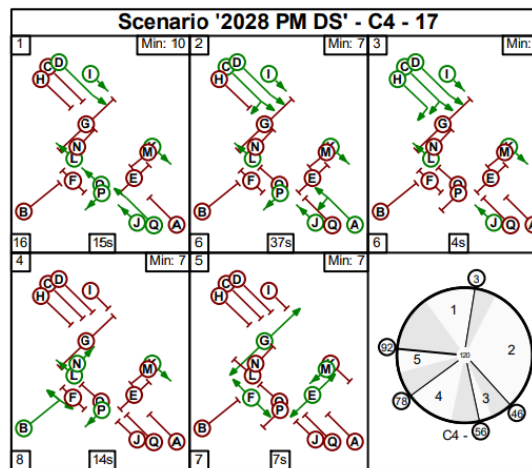
Bus delay
 Inbound = 13s
 Outbound = 119s



Do Something : 2028 : PM

Cycle = 120 secs
 PRC = 10%
 Delay = 21 pcuHr

Bus delay
 Inbound = 13s
 Outbound = 86s



Subject	BusConnects Core Bus Corridor Junction Design
Date	April 2022
Scheme	Blanchardstown to City Centre Core Bus Corridor Scheme

Navan Road / Hampton Green

Summary

This existing signal-controlled junction will be modified to provide nearside bus lanes in both directions, with the inbound lane to be brought to the junction stopline and the outbound to be curtailed 20m to provide for left turn movements. Cycle tracks will be provided adjacent to bus lanes, with separate cycle and pedestrian crossing facilities proposed.

Signal Operation

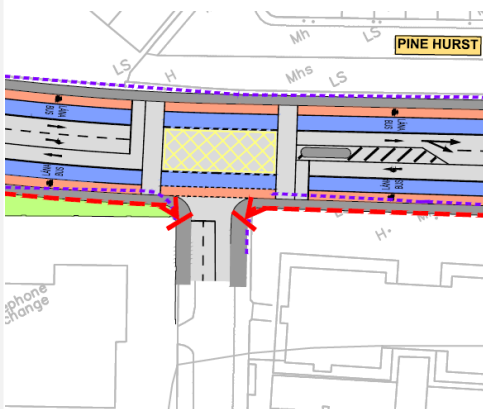
A four stage signal operation is proposed. Inbound buses and straight-ahead traffic will operate in the same stage as outbound mainline traffic, cyclists and buses, with left turning vehicles to cross the bus lane path at a distance of 20m from the junction and to be giving way to cyclists on flashing ambers. This will maximise green time for buses and minimise delay. Buses and straight-ahead traffic will be able to continue on the northern arm with the right turning traffic into Hampton Green. The side road will operate in its own stage with flashing ambers, followed by pedestrians and right-turning cyclists.

Junction Type **1/3** Bus delay $\leq 20s$

EXISTING



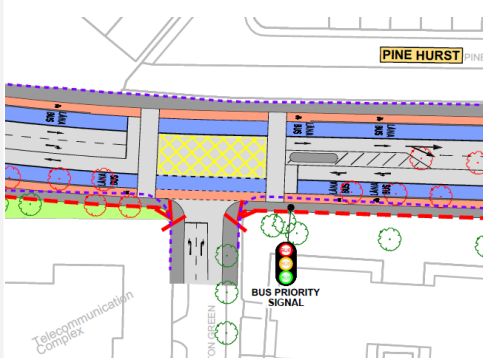
EPR



DRAFT PRO (PC2)



DRAFT PRO (PC3)



Change Made

Reason for Change

Impact of Change

1. Nearside bus lanes are provided in both directions through the junction.
2. Cycle facilities along the CBC route are provided, and cycle and pedestrian crossing facilities

1. To provide bus priority
2. To provide standard and consistent provision for cyclists along the corridor

1. To ensure reliable bus journey times
2. Continuous cycling route along the corridor

1. No Change

1. N/A

1. N/A

1. No Change

1. N/A

1. N/A

Subject	BusConnects Core Bus Corridor Junction Design
Date	April 2022
Scheme	Blanchardstown to City Centre Core Bus Corridor Scheme

Navan Road / Hampton Green

EXISTING



FINAL DESIGN



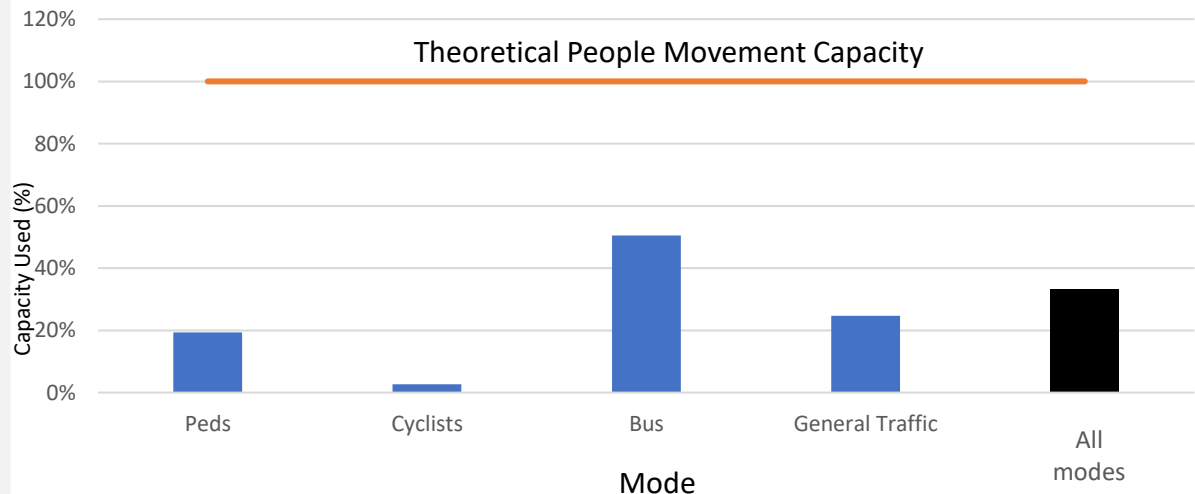
Change Made	Reason for Change	Impact of Change
<ol style="list-style-type: none"> Shortened outbound bus lane. Left turning vehicles will cross the bus lane path at a distance of 20m from the junction and operate within a single stage together with straight-ahead buses. Provide consistent cycle turning layout at junctions in line with BusConnects scheme Provide cyclist with separate area and opportunity to be in front of traffic Stop line of inbound bus lane set back c. 4m. 	<ol style="list-style-type: none"> Maximises green time for buses and minimises delay Provide consistent cycle turning layout at junctions in line with BusConnects scheme Provide cyclist with separate area and opportunity to be in front of traffic In line with BusConnects Preliminary Design Guidance Booklet, to ensure visibility of primary signals from general traffic lane. 	<ol style="list-style-type: none"> For Junction Type 3 operation compared to Junction Type 1, delays for buses has decreased in both AM and PM peaks No impact on junction operation No impact on junction operation Amendments to line markings.

Subject	BusConnects Core Bus Corridor Junction Design
Date	April 2022
Scheme	Blanchardstown to City Centre Core Bus Corridor Scheme

Navan Road / Hampton Green

Capacity / Delay

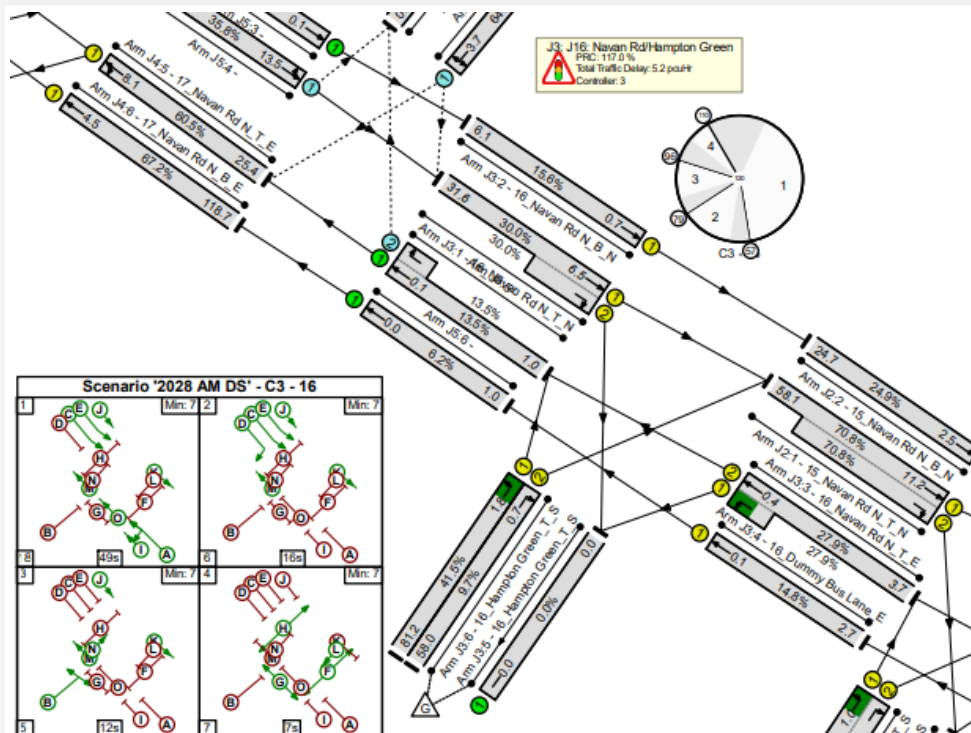
1. Junction operates within capacity.
2. Bus delay is <20s on average



Do Something : 2028 : AM

Cycle = 120 secs
 PRC = 117%
 Delay = 5 pcuHr

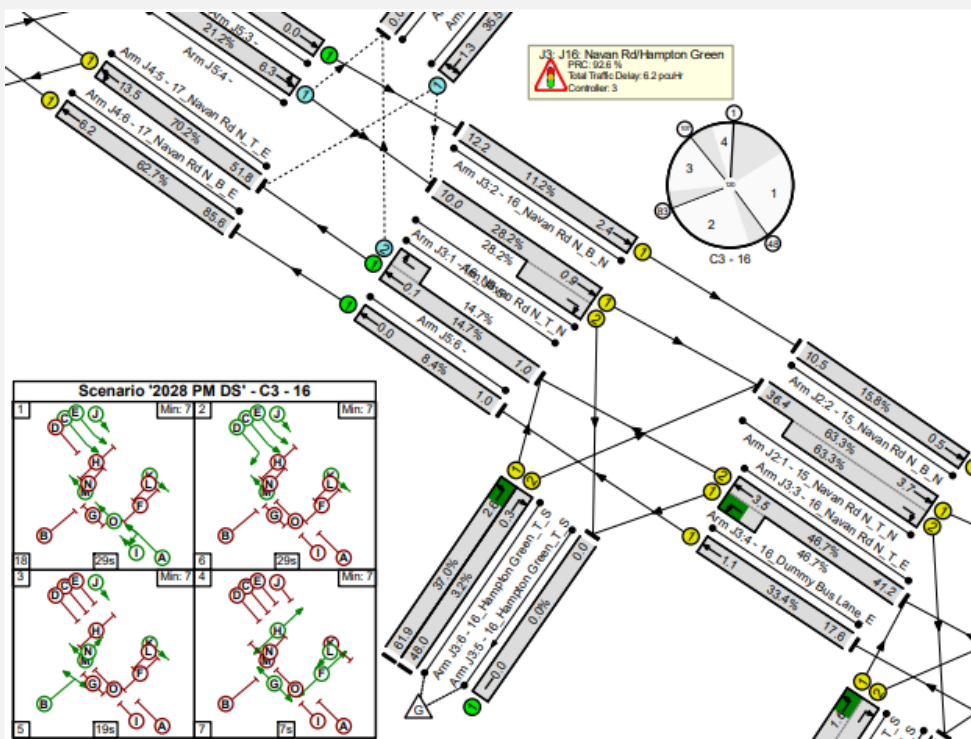
Bus delay
 Inbound = 6s
 Outbound = 3s



Do Something : 2028 : PM

Cycle = 120 secs
 PRC = 93%
 Delay = 6 pcuHr

Bus delay
 Inbound = 12s
 Outbound = 18s



Subject	BusConnects Core Bus Corridor Junction Design
Date	April 2022
Scheme	Blanchardstown to City Centre Core Bus Corridor Scheme

Navan Road / Cabra Library



Summary

This existing signal-controlled junction will be modified to provide nearside bus lanes in both directions, with the inbound lane being brought to the junction stopline and the outbound being curtailed 20m short of the stopline to provide for left turn movements. Cycle tracks will be provided adjacent to bus lanes, with separate cycle and pedestrian crossing facilities proposed.

Signal Operation

A four stage signal operation is proposed. Inbound buses will operate in the same stage as outbound mainline traffic, cyclists and buses, with left turning vehicles to cross the bus lane path at a distance of 20m from the junction and will be giving way to cyclists on flashing ambers. This will maximise green time for buses and minimise delay. Straight and right turning mainline traffic on the northern approach will operate in their own stage. The side road will operate in its own stage with flashing ambers, followed by pedestrians and right-turning cyclists.

Junction Type
1 (inbound)
3 (outbound)

Bus delay $\leq 25s$

Change Made

Reason for Change

Impact of Change

1. Nearside bus lanes are provided in both directions through the junction.
2. Cycle facilities along the CBC route are provided, and cycle and pedestrian crossing facilities

1. To provide bus priority
2. To provide standard and consistent provision for cyclists along the corridor

1. To ensure reliable bus journey times
2. Continuous cycling route along the corridor

1. Rearranged Dutch-style cycling facilities

1. To provide standard and consistent provision for cyclists along the corridor

1. Continuous cycling route along the corridor

1. No Change

1. N/A

1. N/A

EXISTING

EPR

DRAFT PRO (PC2)

DRAFT PRO (PC3)

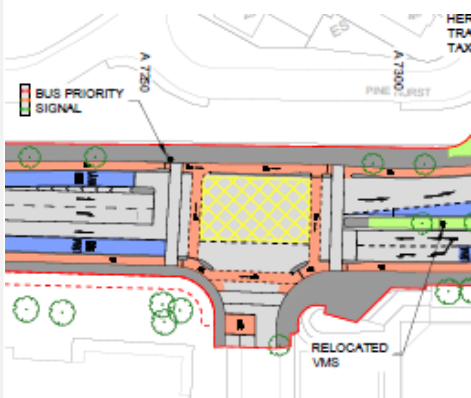
Subject	BusConnects Core Bus Corridor Junction Design
Date	April 2022
Scheme	Blanchardstown to City Centre Core Bus Corridor Scheme

Navan Road / Cabra Library



EXISTING

FINAL DESIGN



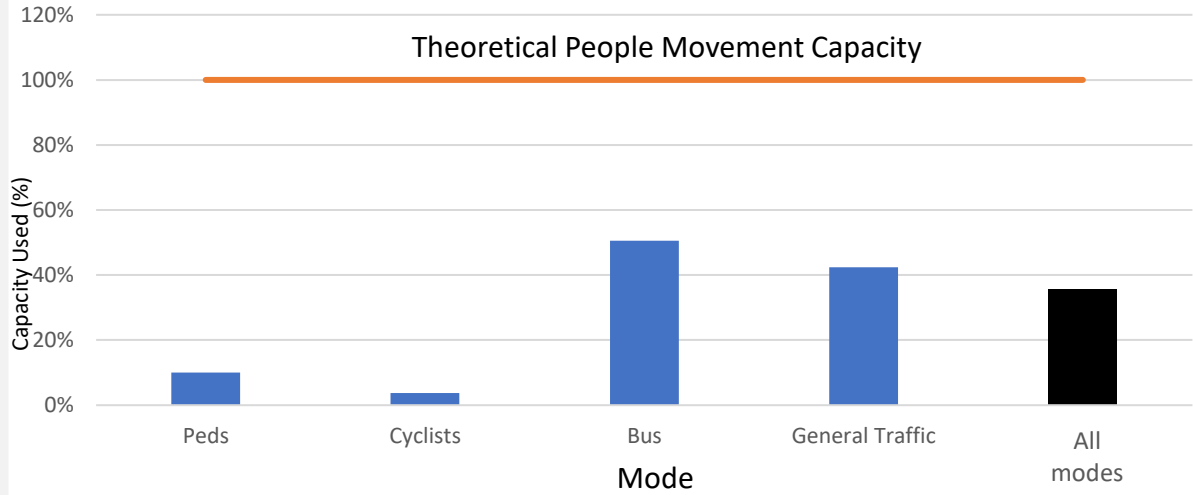
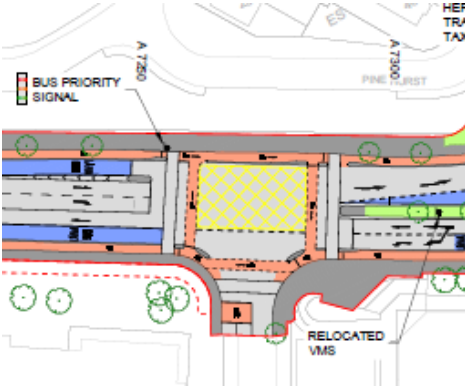
Change Made	Reason for Change	Impact of Change
<ol style="list-style-type: none"> Shortened outbound bus lane. Left turning vehicles will cross the bus lane path at a distance of 20m from the junction and operate within a single stage together with straight-ahead buses. Stop line of inbound bus lane set back c. 4m. On road cycle crossings added ASL on Cabra Library 	<ol style="list-style-type: none"> Maximises green time for buses and minimises delay. In line with BusConnects Preliminary Design Guidance Booklet, to ensure visibility of primary signals from general traffic lane. Provide consistent cycle turning layout at junctions in line with BusConnects scheme Provide cyclist with separate area and opportunity to be in front of traffic 	<ol style="list-style-type: none"> Improves reliability of bus journey times. Amendments to line markings. No impact on junction operation No impact on junction operation

Subject	BusConnects Core Bus Corridor Junction Design
Date	April 2022
Scheme	Blanchardstown to City Centre Core Bus Corridor Scheme

Navan Road / Cabra Library

Capacity / Delay

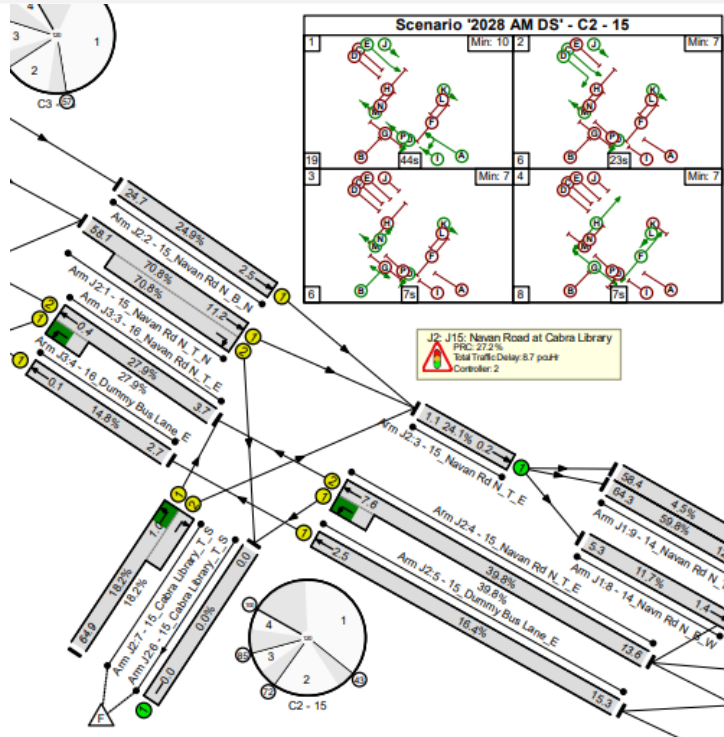
- Junction operates within capacity.
- Bus delay is <25s on average



Do Something : 2028 : AM

Cycle = 120 secs
 PRC = 27%
 Delay = 9 pcuHr

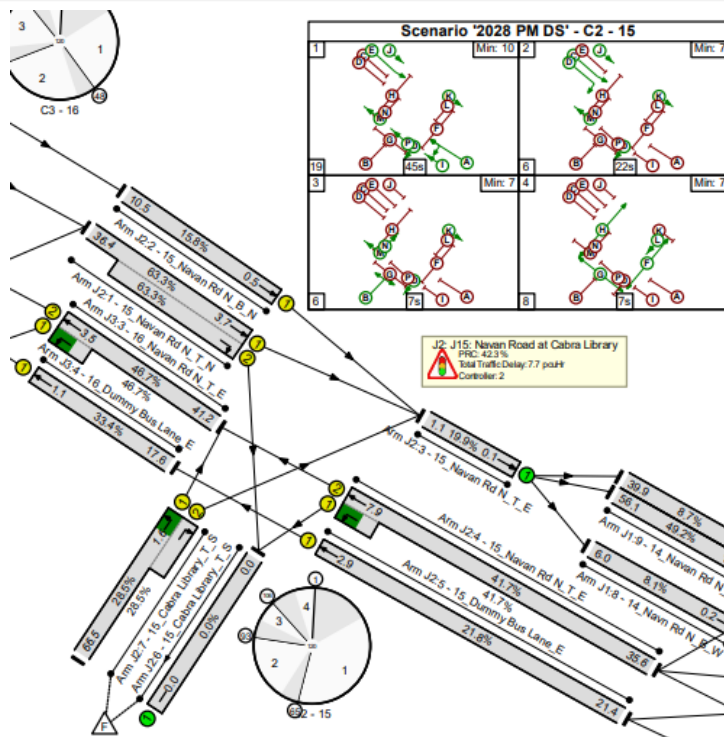
Bus delay
 Inbound = 25s
 Outbound = 15s



Do Something : 2028 : PM

Cycle = 120 secs
 PRC = 42%
 Delay = 8 pcuHr

Bus delay
 Inbound = 11s
 Outbound = 21s



Subject	BusConnects Core Bus Corridor Junction Design
Date	April 2022
Scheme	Blanchardstown to City Centre Core Bus Corridor Scheme

Navan Road / Old Cabra Road



Summary

The existing signal-controlled junction will be modified to include a ban on general traffic turning from Navan Road into Old Cabra Road. An outbound bus lane will be provided from Old Cabra Road to Navan Road. One way cycle tracks will be provided north and south of the junction with a two-way crossing provided across the junction. Toucan crossings will be provided alongside shared space areas to enable pedestrians and cyclists to cross together.

Signal Operation

A five-stage signal cycle is proposed. Traffic movements will operate separately from Ratoath Road, Cabra Road, Navan Road, and Old Cabra Road. Mainline buses and cyclists will operate together in their own stage with cyclists. Pedestrians crossings will be able to operate during non-conflicting traffic stages.

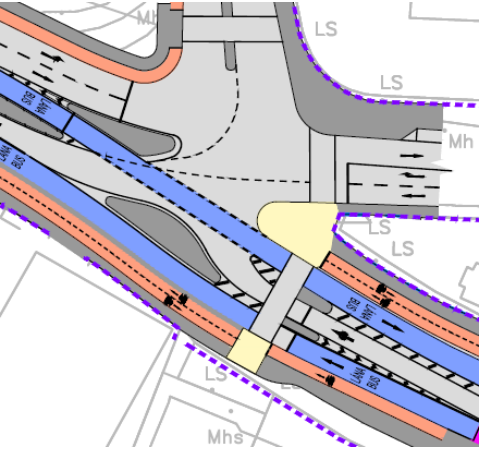
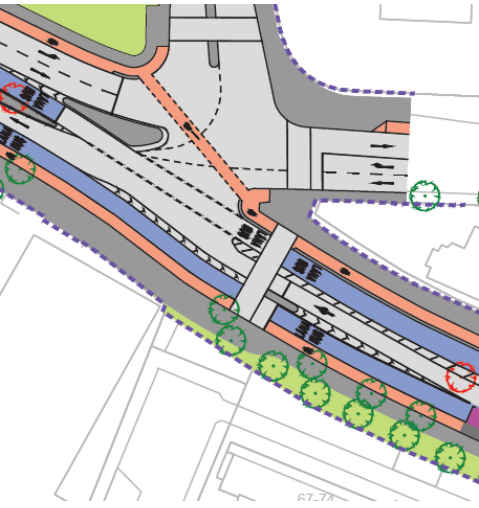
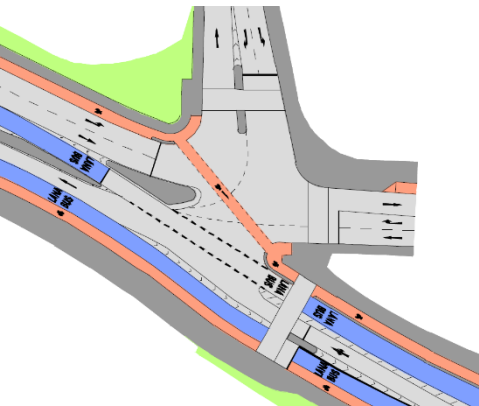
Junction Type **1** Bus delay $\leq 20s$

EXISTING

EPR

DRAFT PRO (PC2)

DRAFT PRO (PC3)

Change Made	Reason for Change	Impact of Change
 <ol style="list-style-type: none"> Traffic from Navan Road is banned from turning into Old Cabra Road. An outbound bus lane is also provided from Old Cabra Road to Navan Road 	<ol style="list-style-type: none"> To reduce traffic flow on Old Cabra Road and provide a virtual bus lane along its length. 	<ol style="list-style-type: none"> Ensure reliability of bus journey speed
 <ol style="list-style-type: none"> Rearranged cycling facilities to provide one-way cycle tracks 	<ol style="list-style-type: none"> To provide standard and consistent provision for cyclists along the corridor 	<ol style="list-style-type: none"> Continuous cycling route along the corridor
 <ol style="list-style-type: none"> No change 	<ol style="list-style-type: none"> N/A 	<ol style="list-style-type: none"> N/A

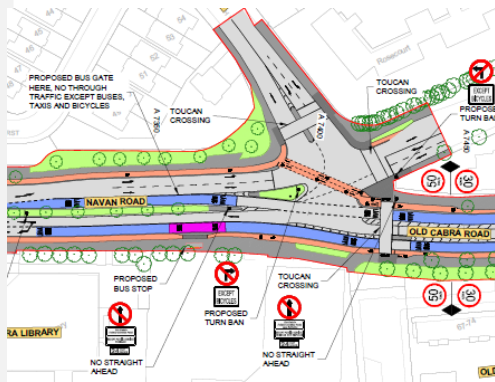
Subject	BusConnects Core Bus Corridor Junction Design
Date	April 2022
Scheme	Blanchardstown to City Centre Core Bus Corridor Scheme

Navan Road / Old Cabra Road

EXISTING



FINAL DESIGN



Change Made	Reason for Change	Impact of Change
<ol style="list-style-type: none"> Two-way cycle track across junction Shared space areas on Ratoath Road and Cabra Road at crossing points Stop line of outbound bus lane set back c. 4m. 	<ol style="list-style-type: none"> Connect to and from Ratoath Road cycle route (Radial Route 4b) Provide access/egress facility for cyclists on roads not on the core route In line with BusConnects Preliminary Design Guidance Booklet, to ensure visibility of primary signals from general traffic lane. 	<ol style="list-style-type: none"> Improved cycle connectivity with no impact on junction operation No impact on junction operation Amendments to line markings.

Subject	BusConnects Core Bus Corridor Junction Design
Date	April 2022
Scheme	Blanchardstown to City Centre Core Bus Corridor Scheme

Old Cabra Road / Glenbeigh Road



Summary

The Old Cabra Road / Glenbeigh Road T-junction will be signalised to enable side road traffic entering from Glenbeigh Road to be controlled and limited in volume (by use of short green times). Cycle turning will be provided by Toucan crossings here rather than through specific cycle crossing points.

Signal Operation

A three-stage signal operation is proposed. Traffic, buses, and cyclists on Old Cabra Road will operate together, with traffic giving way to cyclists on flashing ambers. Glenbeigh Road traffic will operate separately, and as such green times will be limited to restrict traffic movements. The pedestrian and toucan crossings will operate within their own stage.

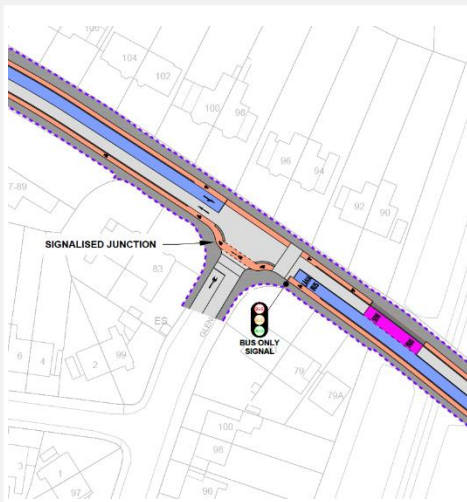
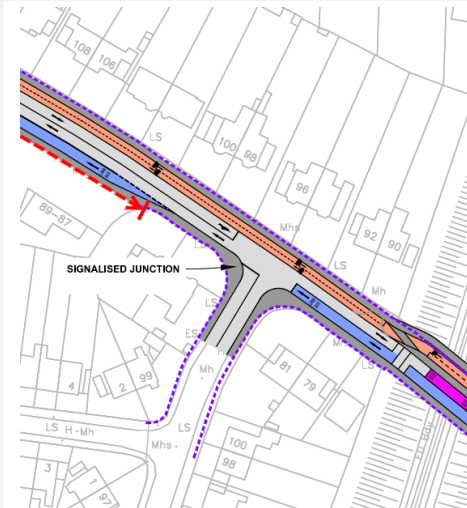
Junction Type **1**
Bus delay $\leq 30s$

EXISTING

EPR

DRAFT PRO (PC2)

DRAFT PRO (PC3)



Change Made	Reason for Change	Impact of Change
1. Old Cabra Road / Glenbeigh Road T-junction is to be signalised	1. To enable side road traffic entering from Glenbeigh Road to be limited (by use of short green times)	1. Limitation of traffic on Old Cabra Road to maximise bus reliability on this section of route.
1. Rearranged scheme with Dutch-style cycling facilities	1. To provide standard and consistent provision for cyclists along the corridor	1. Continuous cycling route along the corridor
1. No Change	1. N/A	1. N/A

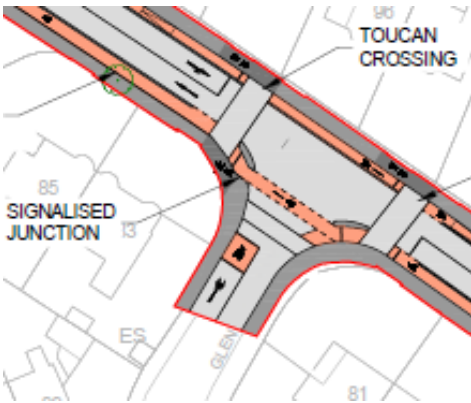
Subject	BusConnects Core Bus Corridor Junction Design
Date	April 2022
Scheme	Blanchardstown to City Centre Core Bus Corridor Scheme

Old Cabra Road /
Glenbeigh Road

EXISTING



FINAL DESIGN



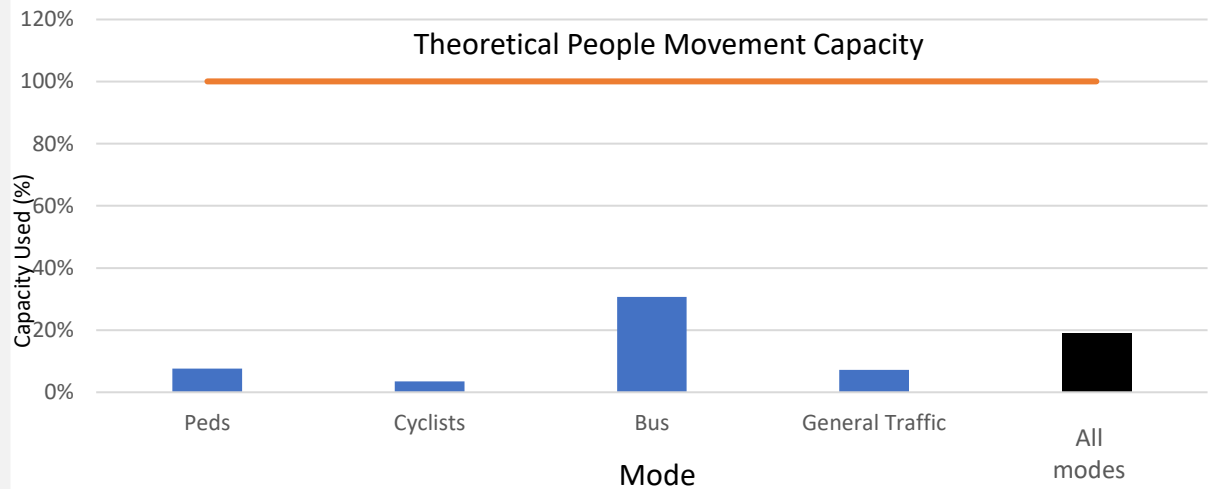
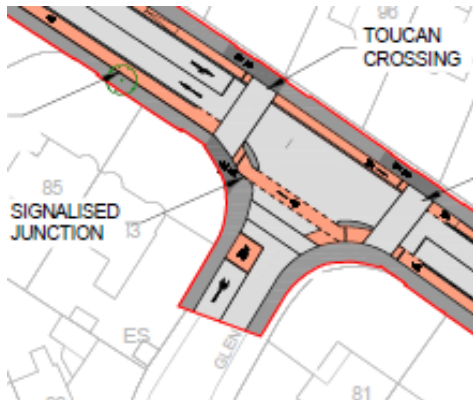
Change Made	Reason for Change	Impact of Change
<ol style="list-style-type: none"> 1. The southbound approach lane stop line has been moved further north to accommodate a toucan crossing. 2. Minor amendments to cycle protection kerbs. 3. ASL added on Glenbeigh Road. 4. Toucan crossing added to Old Cabra Road. 	<ol style="list-style-type: none"> 1. Allows access from / to local properties on Old Cabra Road 2. To align kerbs with access points and ensure driveways are not impeded. 3. Provide on-road cycle priority for confident cyclists. 4. Increase capacity for pedestrians at junction and facilitate right-turning cyclist movements. 	<ol style="list-style-type: none"> 1. No impact on effectiveness of outbound bus gate on Old Cabra Road 2. No impact on junction control 3. No impact on junction control 4. Improved pedestrian and cycling environment.

Subject	BusConnects Core Bus Corridor Junction Design
Date	April 2022
Scheme	Blanchardstown to City Centre Core Bus Corridor Scheme

Old Cabra Road / Glenbeigh Road

Capacity / Delay

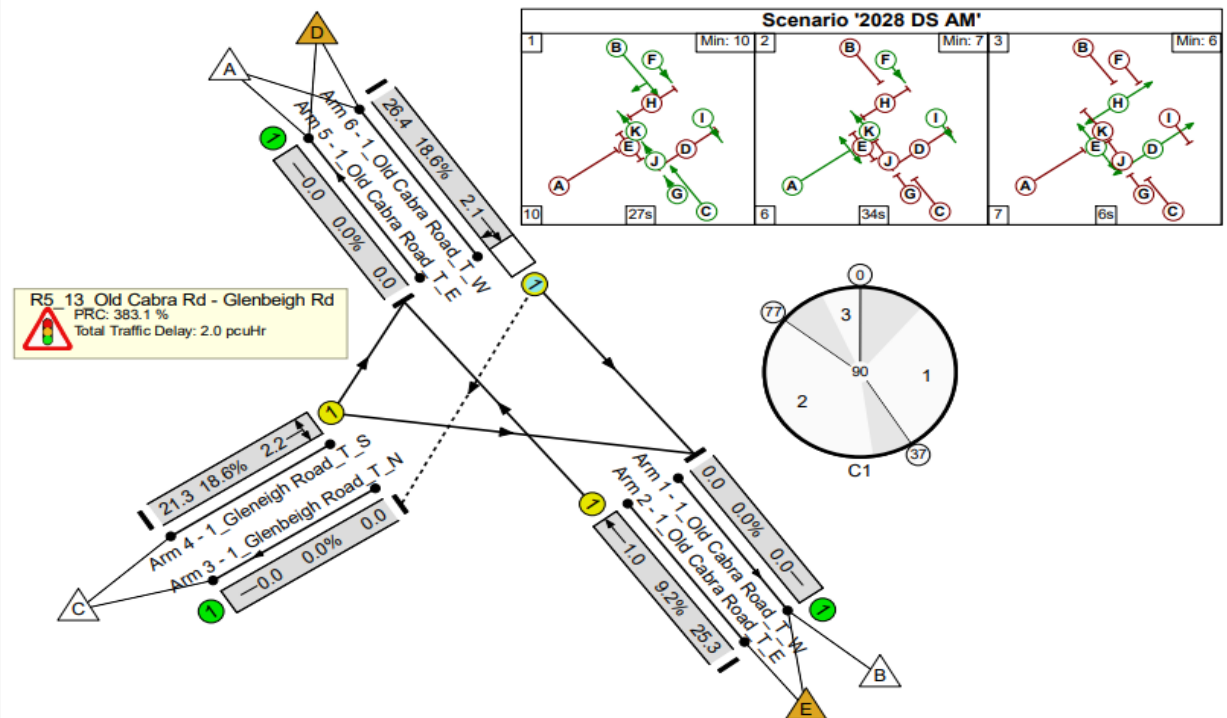
- Junction operates within capacity.
- Bus delay is <30s on average



Do Something : 2028 : AM

Cycle = 90 secs
 PRC = 383%
 Delay = 2 pcuHr

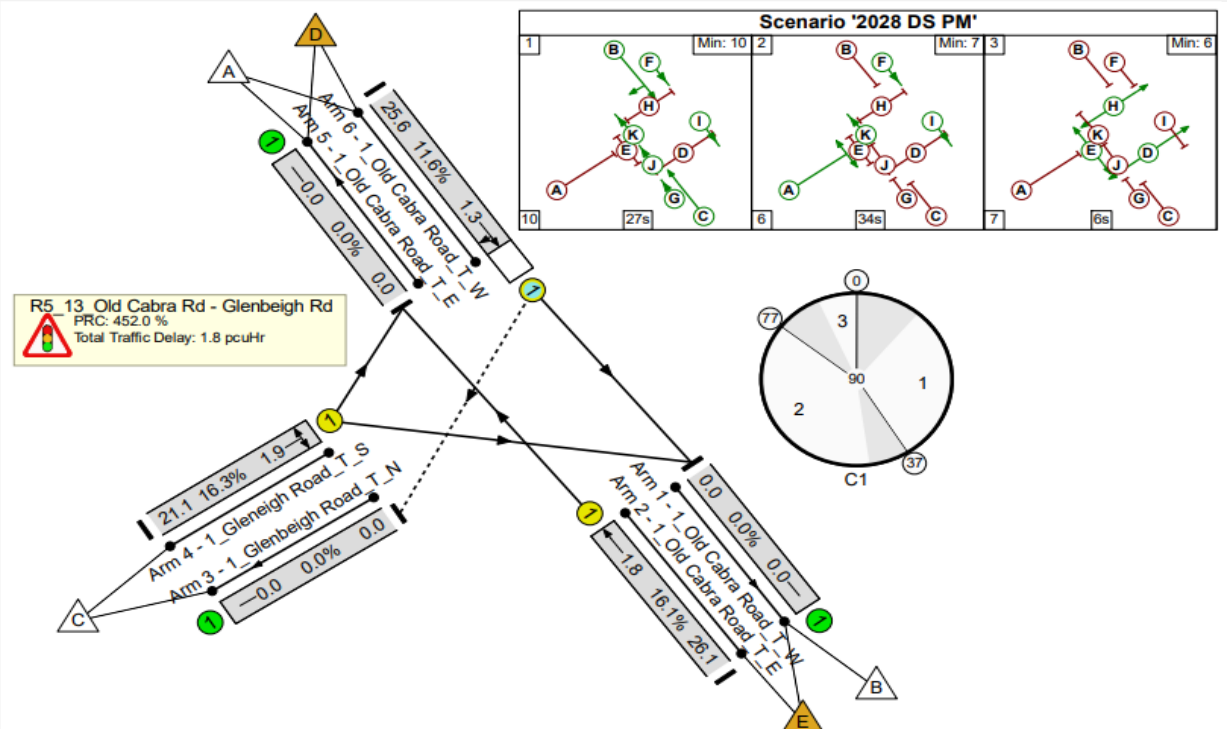
Bus delay
 Inbound = 26s
 Outbound = 25s



Do Something : 2028 : PM

Cycle = 90 secs
 PRC = 452%
 Delay = 2 pcuHr

Bus delay
 Inbound = 26s
 Outbound = 26s



Subject	BusConnects Core Bus Corridor Junction Design
Date	April 2022
Scheme	Blanchardstown to City Centre Core Bus Corridor Scheme

Prussia Street / North Circular Road

Summary

The existing signal-controlled junction will be modified to provide more space for cycling and pedestrian crossing facilities. General traffic movement from Prussia Street will be banned from turning right to ensure buses travelling to Old Cabra Road are not delayed.

Signal Operation

A four stage signal operation is proposed. Inbound and outbound traffic and cyclists on Prussia Street will operate together, with left turning traffic to give way to cyclists on flashing ambers. The side roads will operate in separate stages, with left turning traffic to give way to cyclists on flashing ambers. The pedestrian crossings will operate within their own stage.

Junction Type **n/a** Bus delay $\leq 50s$

Change Made

Reason for Change

Impact of Change

- | Change Made | Reason for Change | Impact of Change |
|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------|----------------------------------------------------------------------------------------------------------------------------------------------|
| <ol style="list-style-type: none"> 1. A northbound bus lane is proposed – with a bus stop located in the centre of the road adjacent to the bus lane. 2. A segregated two-way cycle track is included on the east side of the junction | <ol style="list-style-type: none"> 1. To provide bus priority 2. To provide a consistent level of cycling infrastructure along the CBC route. | <ol style="list-style-type: none"> 1. Reliability of bus journey time 2. Continuous cycling route along the corridor |

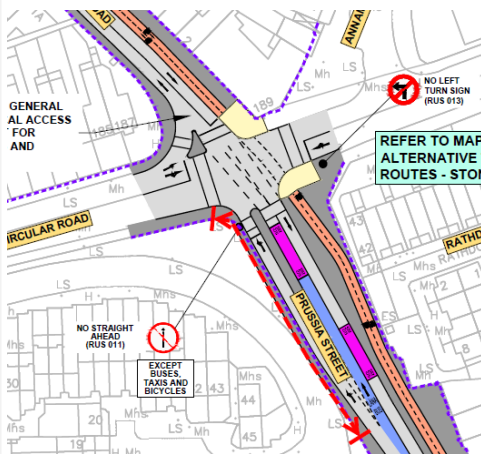
- | | | |
|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-----------------------------------------------------------------------------------------------------------------------------------|
| <ol style="list-style-type: none"> 1. Rearranged scheme with Dutch-style cycling facilities 2. Removal of northbound bus lane (which is able to be done without detriment to bus priority due to bus gate measures north and south). | <ol style="list-style-type: none"> 1. To provide standard and consistent provision for cyclists along the corridor 2. Improved traffic management and road layout | <ol style="list-style-type: none"> 1. Continuous cycling route along the corridor 2. Improved road safety |
|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-----------------------------------------------------------------------------------------------------------------------------------|

- | | | |
|----------------------------------------------------------------|----------------------------------------------------------|----------------------------------------------------------|
| <ol style="list-style-type: none"> 1. No change | <ol style="list-style-type: none"> 1. N/A | <ol style="list-style-type: none"> 1. N/A |
|----------------------------------------------------------------|----------------------------------------------------------|----------------------------------------------------------|

EXISTING



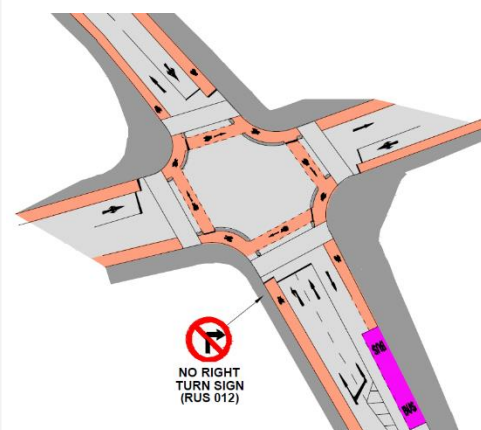
EPR



DRAFT PRO (PC2)



DRAFT PRO (PC3)



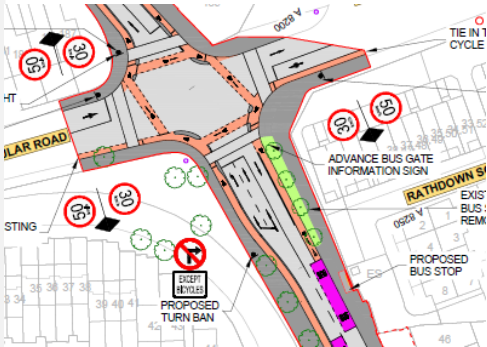
Subject	BusConnects Core Bus Corridor Junction Design
Date	April 2022
Scheme	Blanchardstown to City Centre Core Bus Corridor Scheme

Prussia Street / North Circular Road

EXISTING



FINAL DESIGN



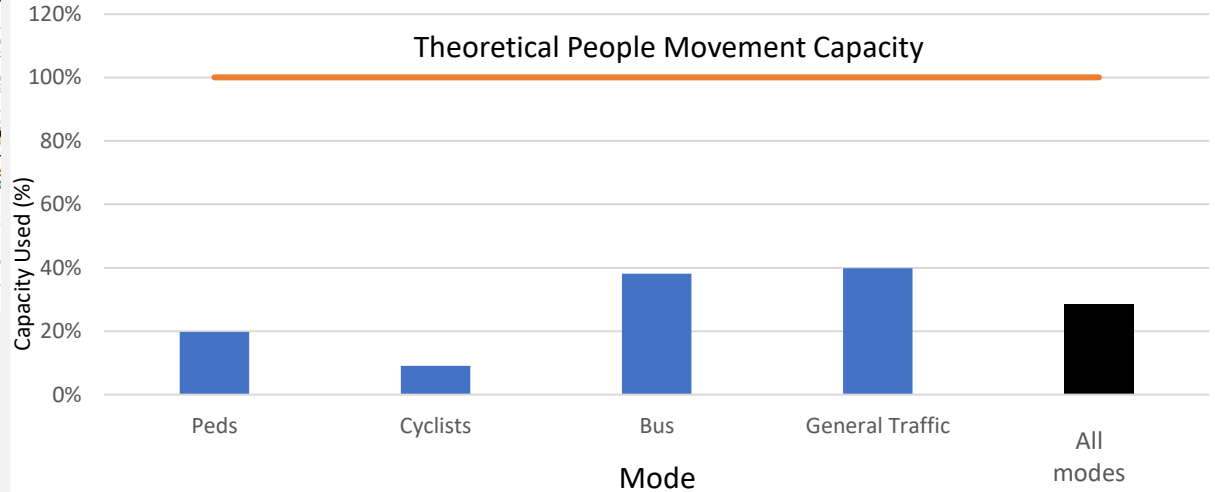
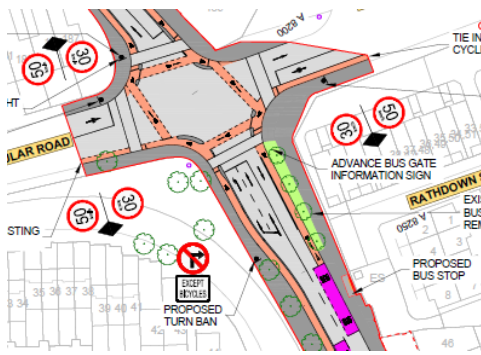
Change Made	Reason for Change	Impact of Change
<ol style="list-style-type: none"> 1. Pedestrian footpath (western side) on Prussia Street widened. 2. Traffic lanes on Prussia Street modified to a left lane diverge. 	<ol style="list-style-type: none"> 1. To improve pedestrian environment. 2. To accommodate footpath change and provide buses with straight ahead movement from the upstream bus stop. 	<ol style="list-style-type: none"> 1. Reduced impact on trees. 2. No impact on overall junction operation.

Subject	BusConnects Core Bus Corridor Junction Design
Date	April 2022
Scheme	Blanchardstown to City Centre Core Bus Corridor Scheme

Prussia Street / North Circular Road

Capacity / Delay

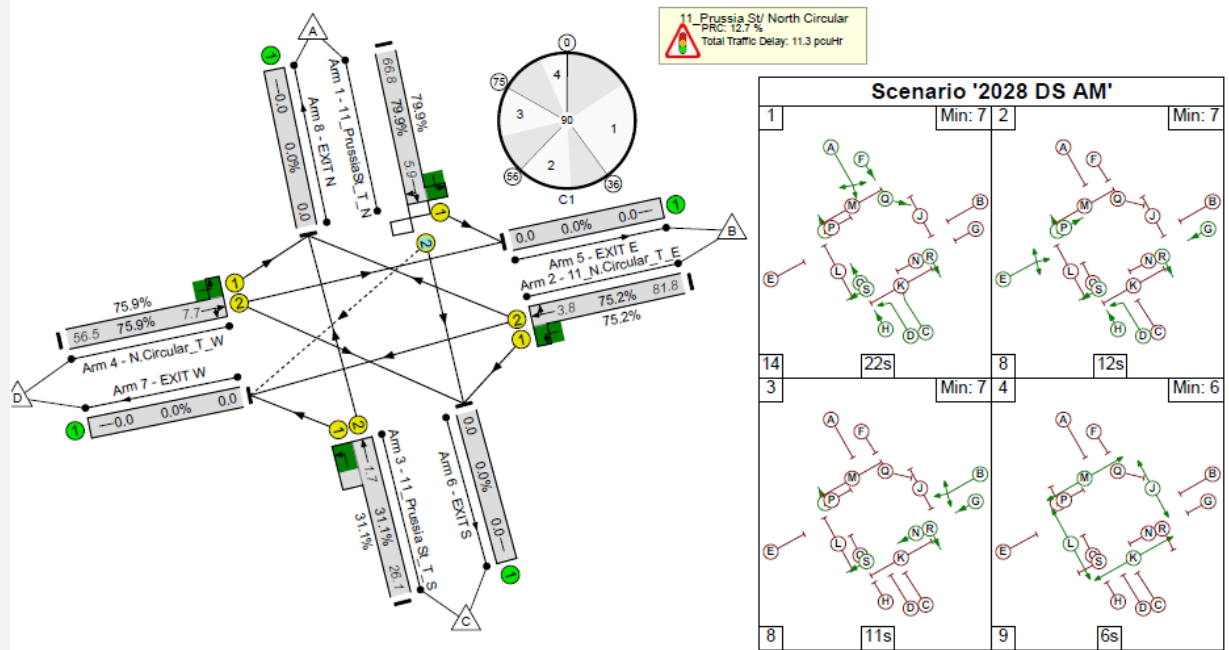
- Junction operates within capacity.
- Bus delay is <50s on average



Do Something : 2028 : AM

Cycle = 90 secs
 PRC = 13%
 Delay = 11 pcuHr

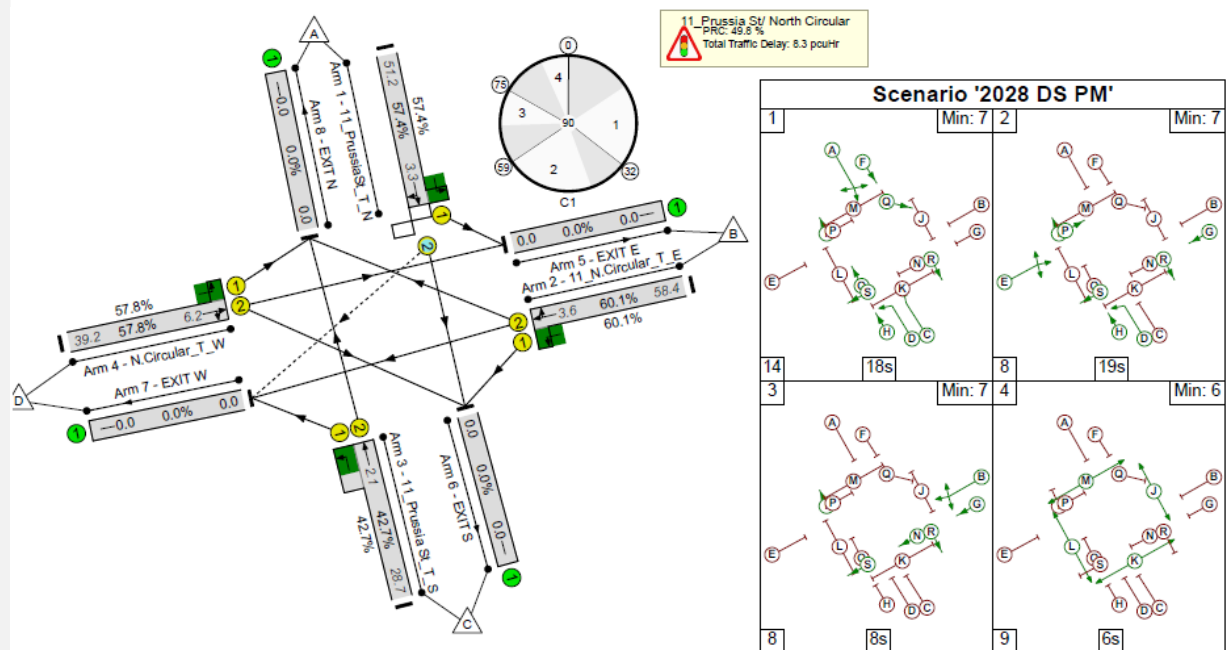
Bus delay
 Inbound = 67s
 Outbound = 26s



Do Something : 2028 : PM

Cycle = 90 secs
 PRC = 50%
 Delay = 8 pcuHr

Bus delay
 Inbound = 51s
 Outbound = 29s



Subject	BusConnects Core Bus Corridor Junction Design
Date	April 2022
Scheme	Blanchardstown to City Centre Core Bus Corridor Scheme

Manor Street / Aughrim Street



Summary

It is proposed to modify the junction to include signal control and introduce a Bus Gate, which will require all southbound and northbound general traffic to divert onto Aughrim Street. Only buses, taxis and cycles will be permitted to head south from Prussia Street to Manor Street and north from Manor Street to Prussia Street. A Bus Gate will also be introduced for buses arriving (and travelling south) on Aughrim Street; thus will effectively stop general traffic from travelling south from Aughrim Street to Manor Street.

Signal Operation

The signalisation arrangement includes for routing southbound buses from Aughrim Street to Manor Street (at around 3 per hour). Northbound cyclists will conflict with left turning traffic on Aughrim Street - where signals will hold left turners while cyclists and pedestrians cross. Signals will control a pedestrian crossing of Prussia Street just north of the junction.

Junction Type **1**
Bus delay $\leq 10s$

Change Made

Reason for Change

Impact of Change

1. Bus gate northbound, and two way traffic in and out of Aughrim Street.

1. To limit northbound buses on Prussia Street

1. To maximise bus journey time reliability.

1. Southbound bus gate introduced.

1. To stop general traffic entering Stoneybatter directly on the CBC route.

1. To maximise bus journey time reliability.

1. Relocation of northbound bus stop to the south

1. To enable less conflict points in junction operations

1. Increases scope for public realm

EXISTING

EPR

DRAFT PRO (PC2)

DRAFT PRO (PC3)

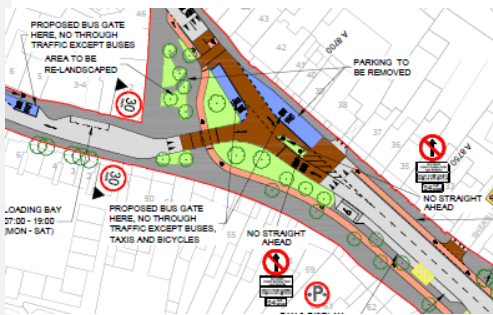
Subject	BusConnects Core Bus Corridor Junction Design
Date	April 2022
Scheme	Blanchardstown to City Centre Core Bus Corridor Scheme

Manor Street / Aughrim Street

EXISTING



FINAL DESIGN



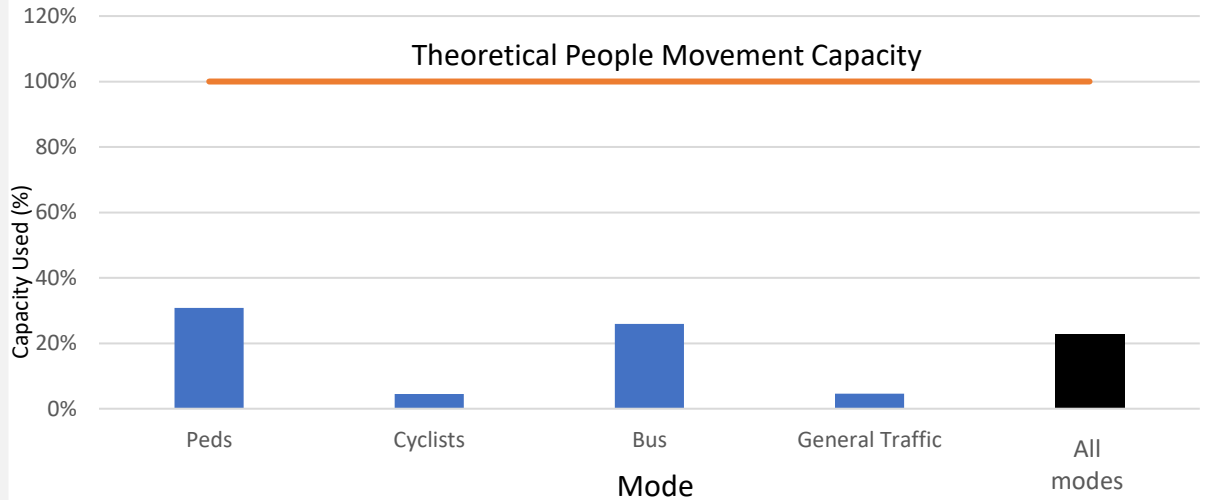
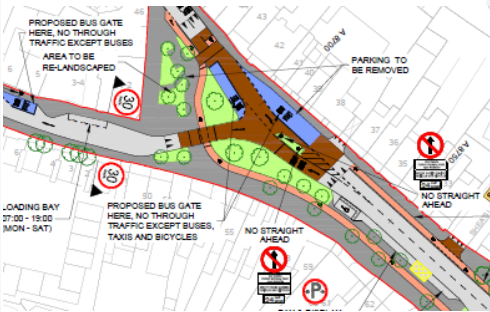
Change Made	Reason for Change	Impact of Change
<ol style="list-style-type: none"> 1. Parking bays adjacent to northbound lane on Manor Street modified to parallel bays, from angled. 	<ol style="list-style-type: none"> 1. Creates more footway space and removes hazard of reversing vehicles out of the angled bays. 	<ol style="list-style-type: none"> 1. No impact on junction operation.

Subject	BusConnects Core Bus Corridor Junction Design
Date	April 2022
Scheme	Blanchardstown to City Centre Core Bus Corridor Scheme

Manor Street / Aughrim Street

Capacity / Delay

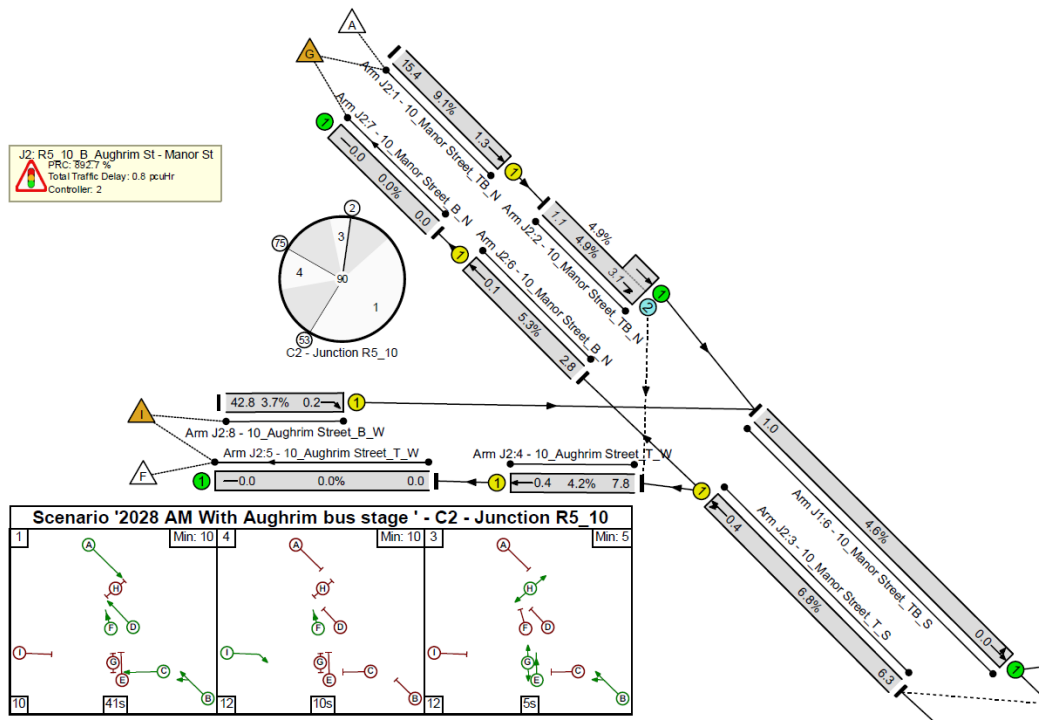
- Junction operates within capacity.
- Bus delay is <10s on average



Do Something : 2028 : AM

Cycle = 90 secs
 PRC = 893%
 Delay = 1 pcuHr

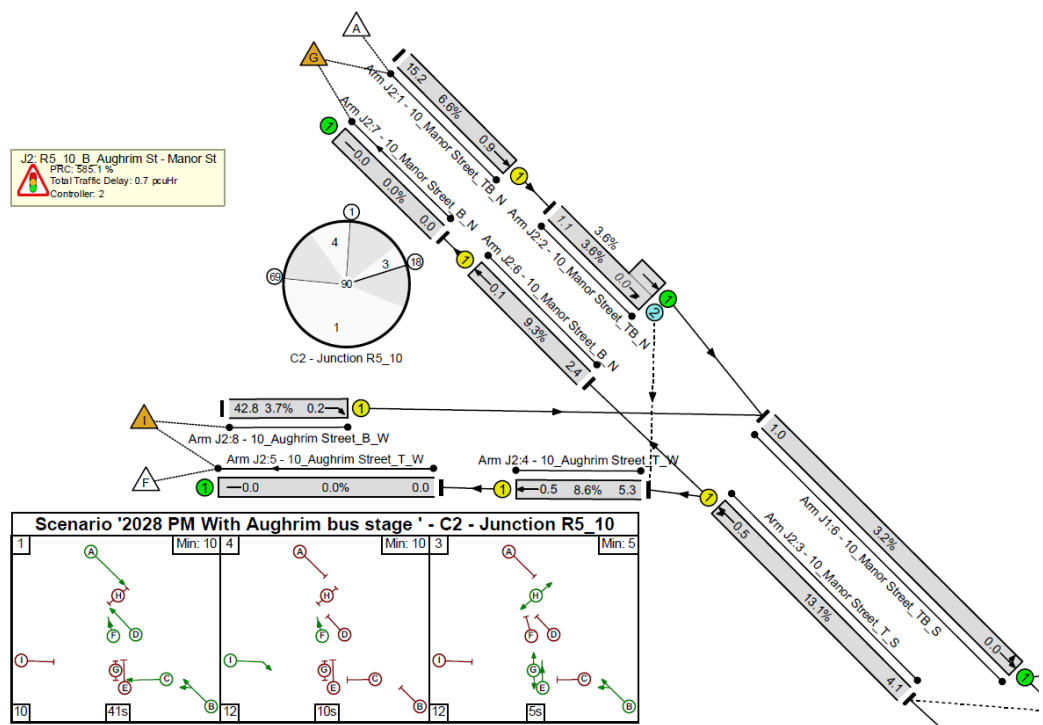
Bus delay
 Inbound = 1s
 Outbound = 6s



Do Something : 2028 : PM

Cycle = 90 secs
 PRC = 585%
 Delay = 1 pcuHr

Bus delay
 Inbound = 1s
 Outbound = 4s



Subject	BusConnects Core Bus Corridor Junction Design
Date	April 2022
Scheme	Blanchardstown to City Centre Core Bus Corridor Scheme

Manor Street / Kirwan Street



Summary

This junction is proposed to be signalised to allow traffic entering from Kirwan Street and Manor Place to be controlled thereby limit short-cutting traffic along side streets. A no right turn ban will be introduced on Kirwan Street, and access to Manor Place from Manor Street will be restricted – to limit traffic using side roads as short cut routes.

Signal Operation

A four stage signal operation is proposed. Mainline traffic on Manor Street will operate together, with Kirwan Street and Manor Place to operate separately. The pedestrian crossings will operate within their own stage.

Junction Type n/a
Bus delay ≤ 30s

Change Made

Reason for Change

Impact of Change

1. Bus lanes are provided in both directions across the side road junctions (which remain as uncontrolled).

1. To provide bus priority

1. To maximise reliability of bus journey times

1. Manor Place and Kirwan Street junctions are signalised
2. Traffic from Kirwan Street is right turn only.
3. Northbound bus priority signal just south of Manor Place

1. To enable traffic entering from side roads to be controlled and limited
2. To restrict rat-running from Grangegorman Upper to Manor Street (southbound).
3. To provide a bus priority measure and a means to restrict through traffic.

1. To limit use of local side streets by traffic, as an alternative to the CBC route, and maximise bus priority
2. To limit use of local side streets by traffic, as an alternative to the CBC route, and maximise bus priority
3. To limit use of local side streets by traffic, as an alternative to the CBC route, and maximise bus priority

1. Reduction of road width to a single traffic lane in each direction (with traffic management measures in place at Blackhall Place and Prussia Street to limit through traffic)

1. Maximise public realm and footpath widths.

1. Wider footpaths

EXISTING

EPR

DRAFT PRO (PC2)

DRAFT PRO (PC3)

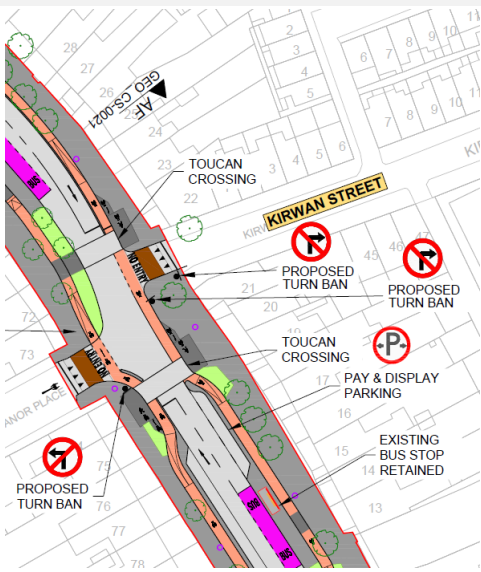
Subject	BusConnects Core Bus Corridor Junction Design
Date	April 2022
Scheme	Blanchardstown to City Centre Core Bus Corridor Scheme

Manor Street / Kirwan Street

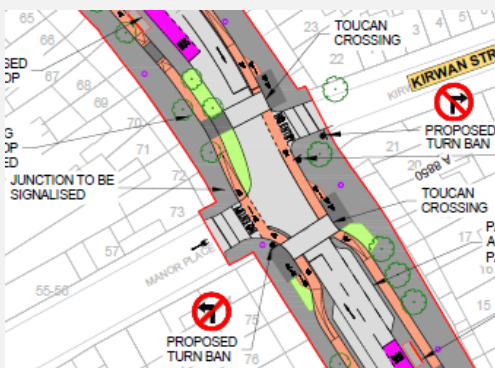
EXISTING



FINAL DRAFT JULY 2021



FINAL DESIGN



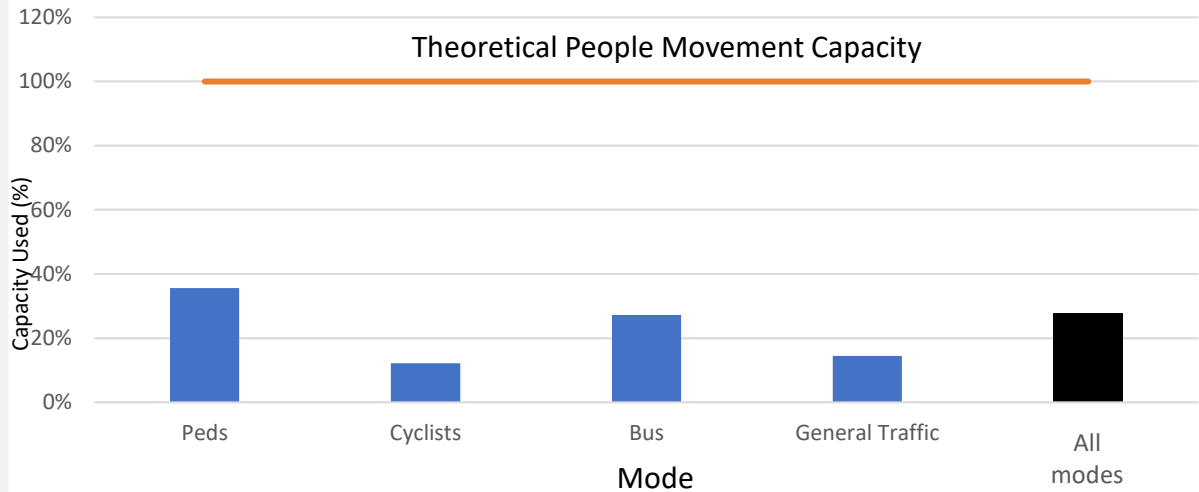
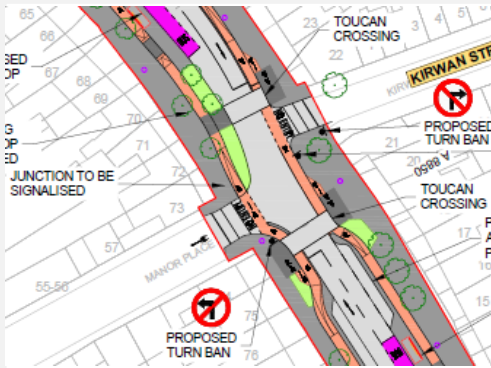
Change Made	Reason for Change	Impact of Change
<ol style="list-style-type: none"> 1. Manor Place modified to a one-way street towards the junction. 	<ol style="list-style-type: none"> 1. To reduce through movement on Oxmantown Road / Manor Place. 	<ol style="list-style-type: none"> 1. Reduced traffic through-movement on Manor Place / Oxmantown Road.
<ol style="list-style-type: none"> 1. Removal of side road entry treatment / ramps. 	<ol style="list-style-type: none"> 1. This junction is proposed to be signalised. 	<ol style="list-style-type: none"> 1. No impact on junction operation.

Subject	BusConnects Core Bus Corridor Junction Design
Date	April 2022
Scheme	Blanchardstown to City Centre Core Bus Corridor Scheme

Manor Street / Kirwan Street

Capacity / Delay

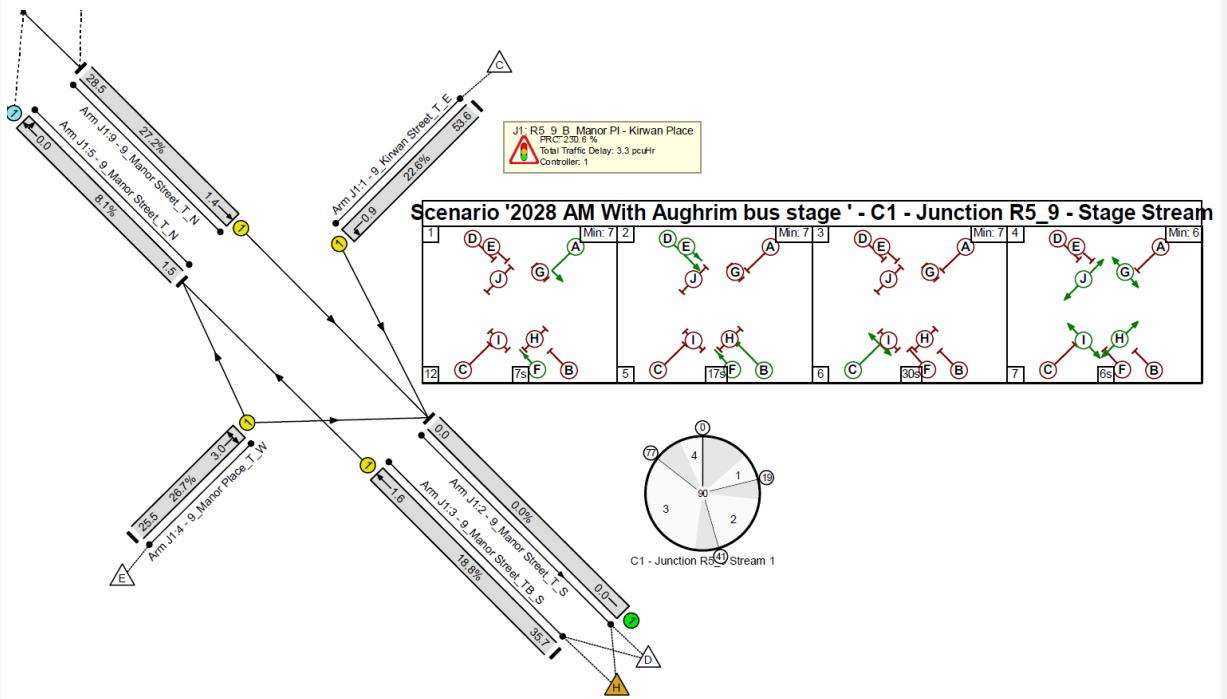
1. Junction operates within capacity.
2. Bus delay is <30s on average



Do Something : 2028 : AM

Cycle = 90 secs
 PRC = 231%
 Delay = 3 pcuHr

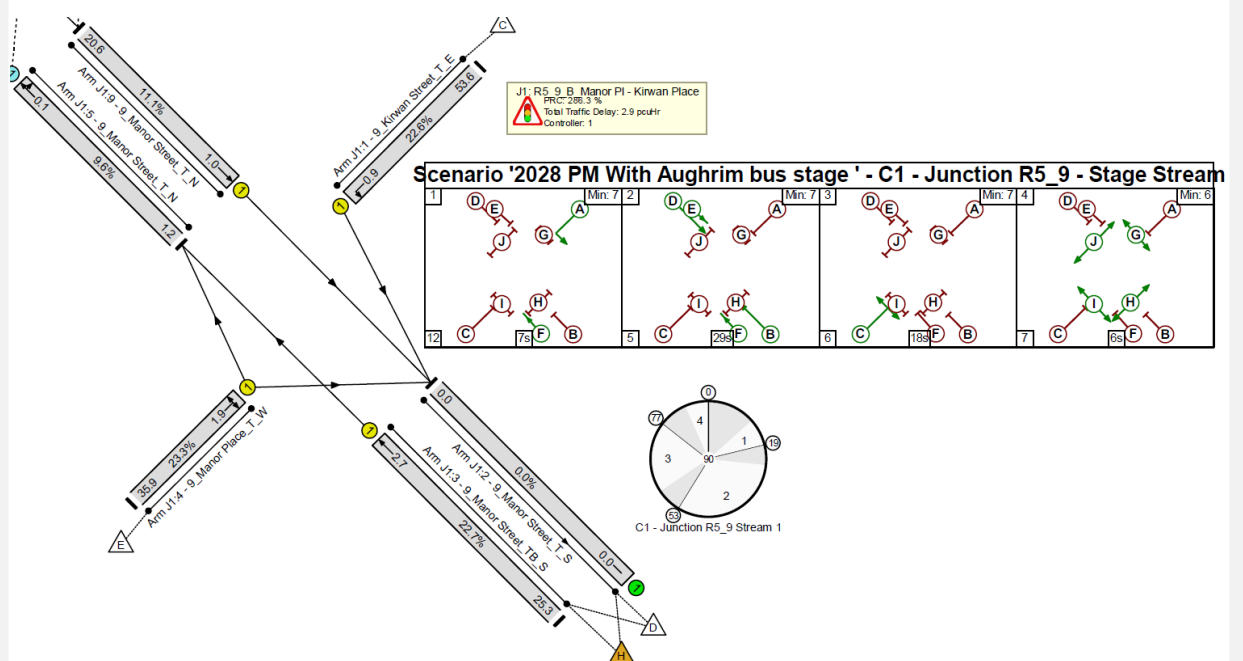
Bus delay
 Inbound = 29s
 Outbound = 36s



Do Something : 2028 : PM

Cycle = 90 secs
 PRC = 286%
 Delay = 3 pcuHr

Bus delay
 Inbound = 21s
 Outbound = 25s



Subject	BusConnects Core Bus Corridor Junction Design
Date	April 2022
Scheme	Blanchardstown to City Centre Core Bus Corridor Scheme

Stoneybatter / Brunswick Street North



Summary

The existing junction will be signal-controlled. An outbound bus lane is proposed on approach to the junction. Traffic from Brunswick Street North will be able to turn left to Blackhall Place or right to Stoneybatter (but will be restricted by short green times to minimise through traffic on Manor Street and Stoneybatter). Segregated cycle lanes will be provided on either side of Manor Street and Stoneybatter leading to Brunswick Street North.

Signal Operation

A four stage signal operation is proposed. The northbound bus lane will operate during the same stage as the southbound traffic lane from Manor Street. Separate stages will also operate for Brunswick Street North traffic, and for cyclists and pedestrian crossings.

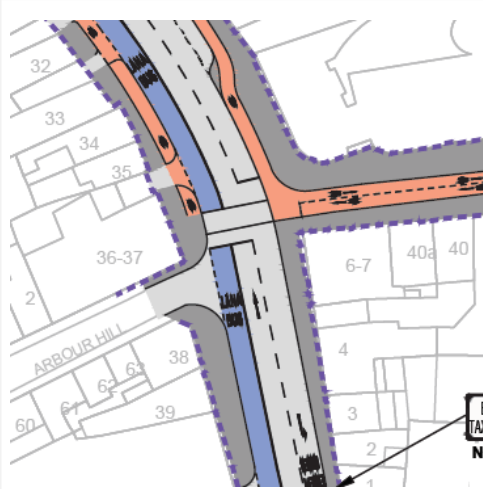
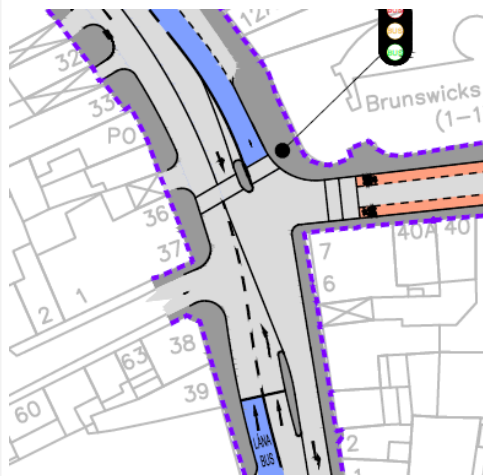
Junction Type **1**
Bus delay $\leq 20s$

EXISTING

EPR

DRAFT PRO (PC2)

DRAFT PRO (PC3)



Change Made	Reason for Change	Impact of Change
<ol style="list-style-type: none"> On the north side of the junction a southbound bus lane is terminated with traffic and buses merged in separate signal stages to a single southbound traffic lane. The southern approach also has a traffic and bus lane which are signal controlled to merge to a single northbound lane on Manor Street. 	<ol style="list-style-type: none"> To provide bus priority through the junction 	<ol style="list-style-type: none"> To maximise reliability of bus travel times.
<ol style="list-style-type: none"> This option involves closure on Brunswick Street North and its western end. 	<ol style="list-style-type: none"> Improves traffic management arrangements in order to maximise bus priority 	<ol style="list-style-type: none"> Provision of a continuous outbound bus lane can be achieved through the junction.
<ol style="list-style-type: none"> Remove the northbound traffic lane on Blackhall Place north of King Street. Provide a one-way street (westbound) on Brunswick Street North 	<ol style="list-style-type: none"> To maximise bus priority and restrict through traffic. To allow local traffic to travel to Stoneybatter (but in limited numbers by minimising the green stage at signal junction) 	<ol style="list-style-type: none"> To maximise reliability of bus travel times Minimise through traffic in Stoneybatter and on Aughrim Street

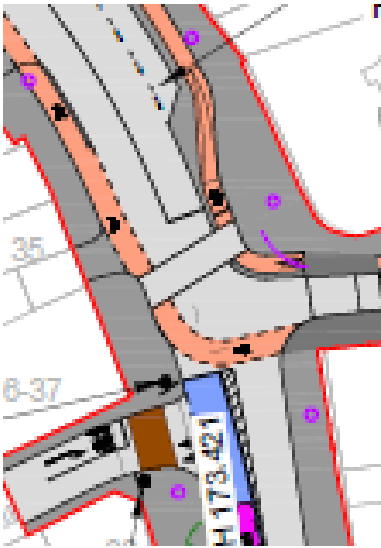
Subject	BusConnects Core Bus Corridor Junction Design
Date	April 2022
Scheme	Blanchardstown to City Centre Core Bus Corridor Scheme

Stoneybatter /
Brunswick Street North

EXISTING



FINAL DESIGN



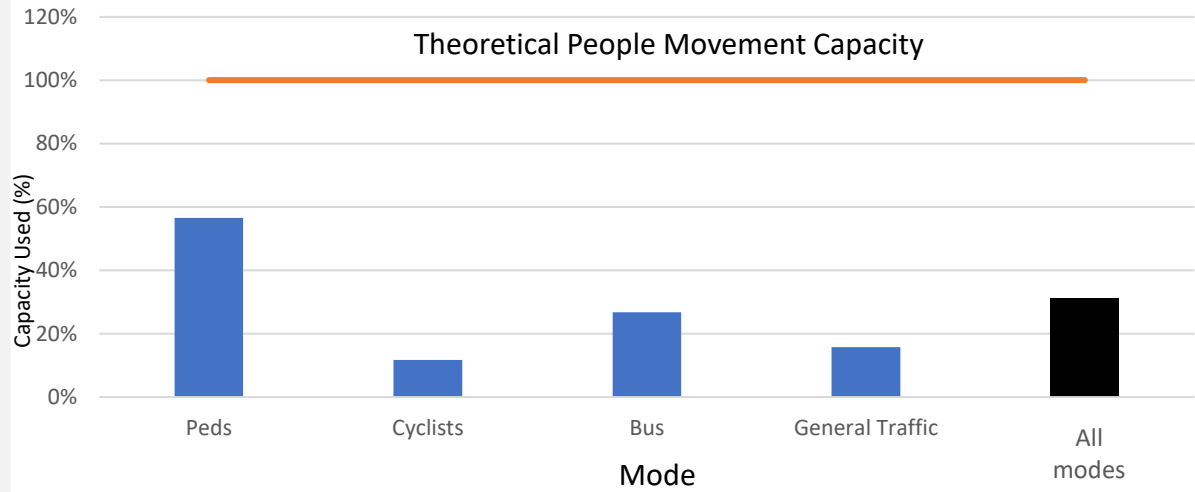
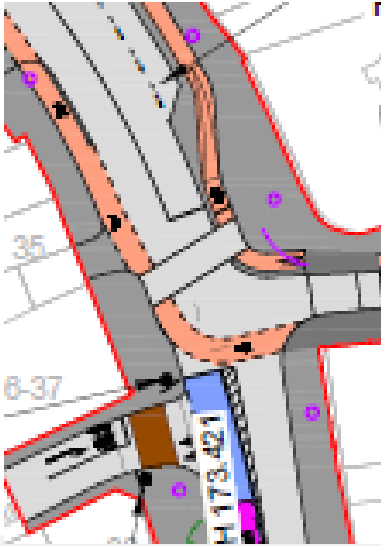
Change Made	Reason for Change	Impact of Change
<ol style="list-style-type: none"> Cycle connection from/to Brunswick Street North modified in conjunction with change to two one-way cycle tracks on Brunswick Street North. 	<ol style="list-style-type: none"> Provided a better cycling connection by keeping directional lanes on their respective side of the road 	<ol style="list-style-type: none"> Reduced conflict of pedestrians and cyclists.

Subject	BusConnects Core Bus Corridor Junction Design
Date	April 2022
Scheme	Blanchardstown to City Centre Core Bus Corridor Scheme

**Stoneybatter /
Brunswick Street North**

Capacity / Delay

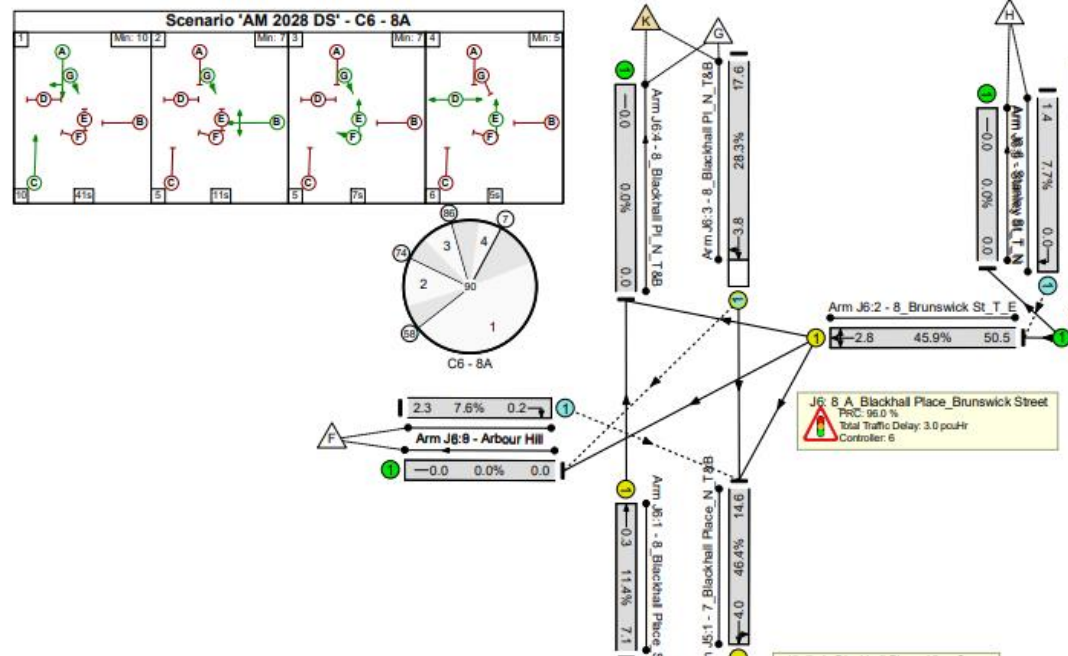
1. Junction operates within capacity.
2. Bus delay is <20s on average



Do Something : 2028 : AM

Cycle = 90 secs
 PRC = 96%
 Delay = 3 pcuHr

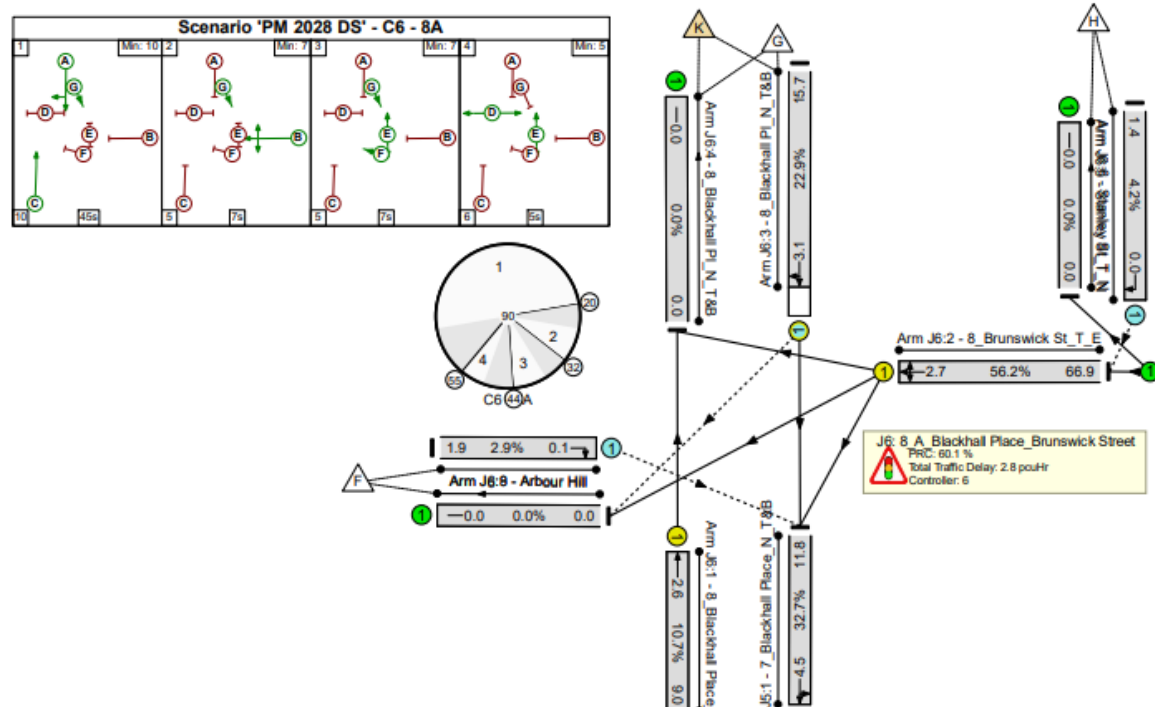
Bus delay
 Inbound = 18s
 Outbound = 7s



Do Something : 2028 : PM

Cycle = 90 secs
 PRC = 60%
 Delay = 3 pcuHr

Bus delay
 Inbound = 16s
 Outbound = 1s



Subject	BusConnects Core Bus Corridor Junction Design
Date	April 2022
Scheme	Blanchardstown to City Centre Core Bus Corridor Scheme

Brunswick Street North / Grangegorman Lower

Summary

The existing signal-controlled junction is proposed to be modified such that Brunswick Street North is an exit only for one-way traffic (westbound) and with added cycle track provision from Brunswick Street North to George's Lane and improved crossings for cyclists and pedestrians.

Signal Operation

A three stage signal operation is proposed. Traffic from George's Lane will operate separately. Traffic turning left from Grangegorman Lower will operate with cycle movements to and from George's Lane and Brunswick Street North. Pedestrian crossings will operate with adjacent cycle movements.

Junction Type n/a
Bus delay n/a



Change Made

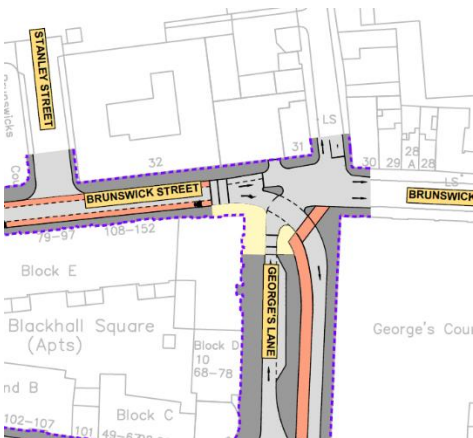
Reason for Change

Impact of Change

1. Junction altered to allow two-way traffic movement on George's Lane.

1. To accommodate bus priority measures on Blackhall Place

1. Reduction in public realm space.



1. Modification on George's Lane to locate two-way cycle track on the western side of the road.
2. Brunswick Street North is closed to through traffic

1. Improved cycle connectivity to CBC corridor on Manor Street.
2. To improve traffic management and bus priority on Blackhall Place.

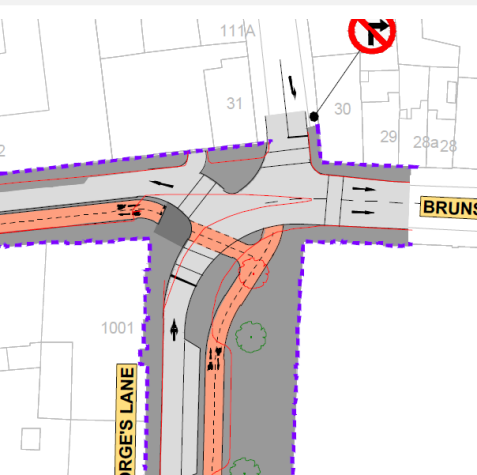
1. Increase space for public realm on Brunswick Street.



1. Realign cycle track to east side of George's Lane.
2. Realign junction to allow traffic movement from George's Lane to Brunswick Street North.

1. To improve cycle connectivity to Grangegorman Lower.
2. To allow traffic management of traffic bound for Stoneybatter – to allow provision of a bus-only lane on Blackhall Place

1. Improved cycle connectivity
2. To improve reliability of northbound bus movement.



EXISTING

EPR

DRAFT PRO (PC2)

DRAFT PRO (PC3)

Subject	BusConnects Core Bus Corridor Junction Design
Date	April 2022
Scheme	Blanchardstown to City Centre Core Bus Corridor Scheme

Brunswick Street North /
Grangegorman Lower

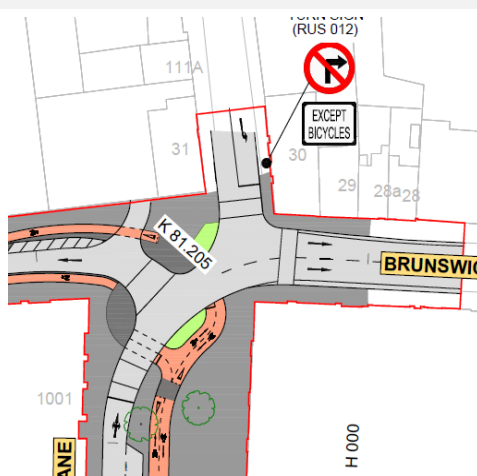


EXISTING

FINAL DRAFT JULY 2021

FINAL DESIGN

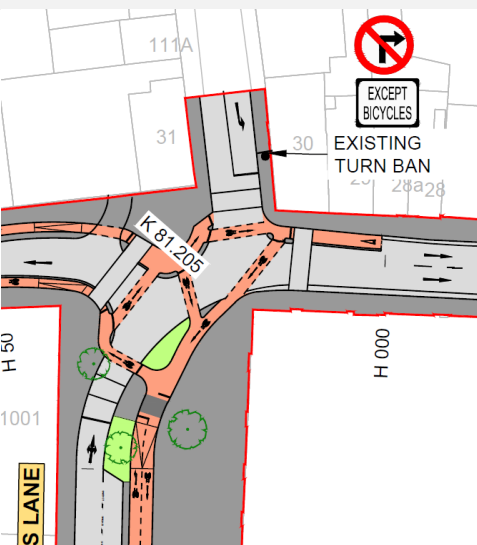
Change Made	Reason for Change	Impact of Change
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1. Two-way cycle track changed to one-way cycle tracks on Brunswick Street North.

1. To improve cycle crossing arrangements

1. Improved road safety for cyclist and pedestrians



1. Additional cycle provision through the junction.

1. To improve cycle crossing arrangements

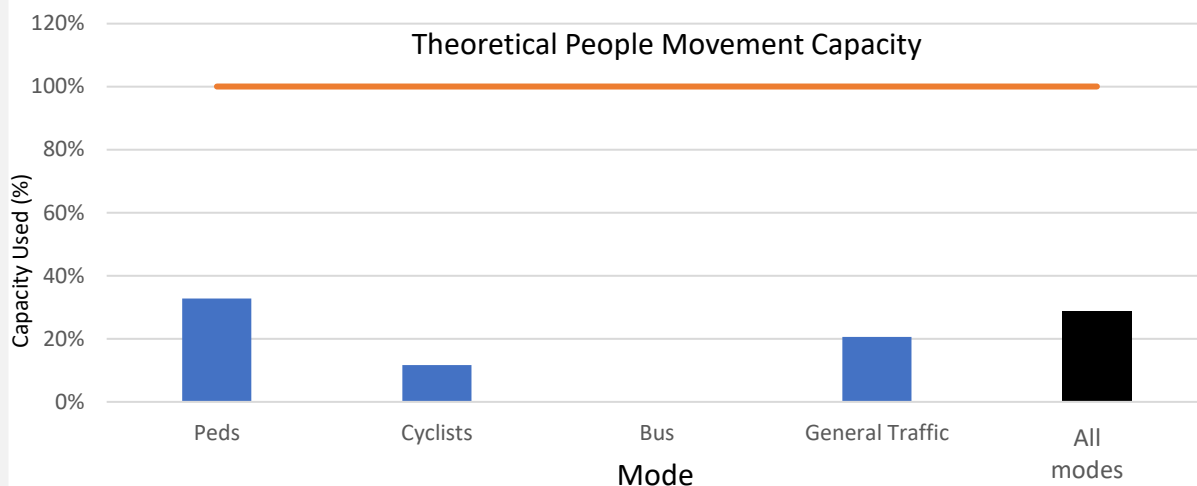
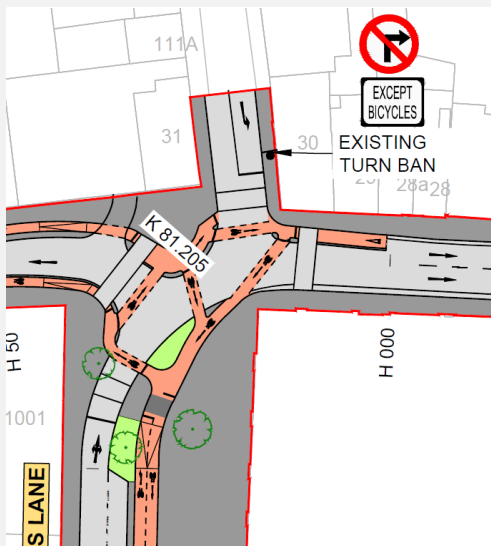
1. Improved road safety for cyclist and pedestrians

Subject	BusConnects Core Bus Corridor Junction Design
Date	April 2022
Scheme	Blanchardstown to City Centre Core Bus Corridor Scheme

Brunswick Street North / Grangegorman Lower

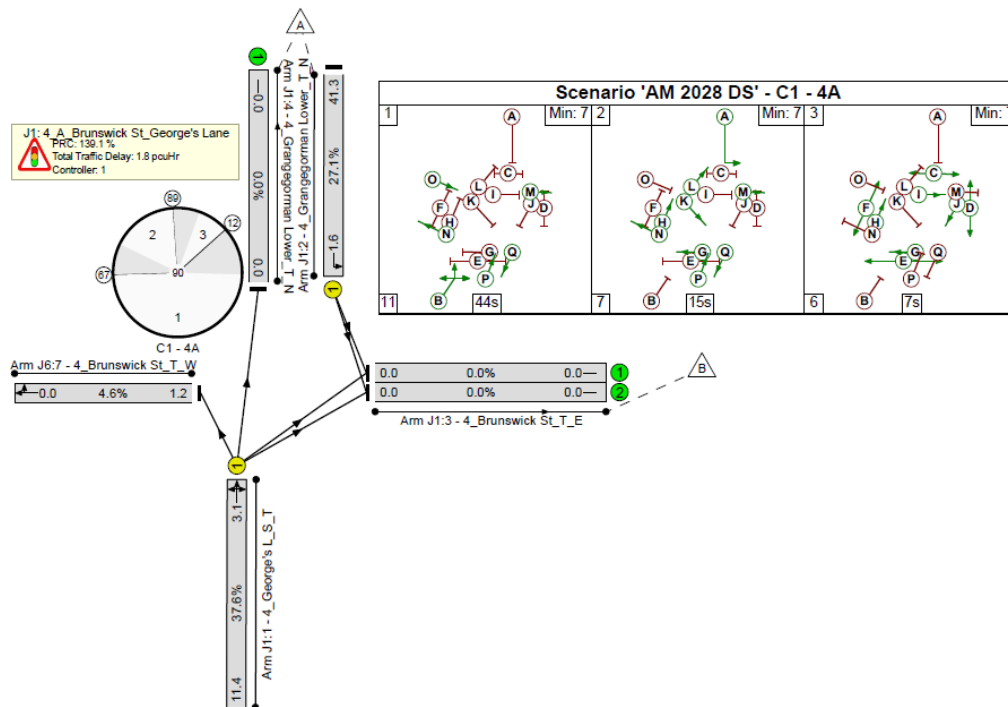
Capacity / Delay

- Junction operates within capacity.



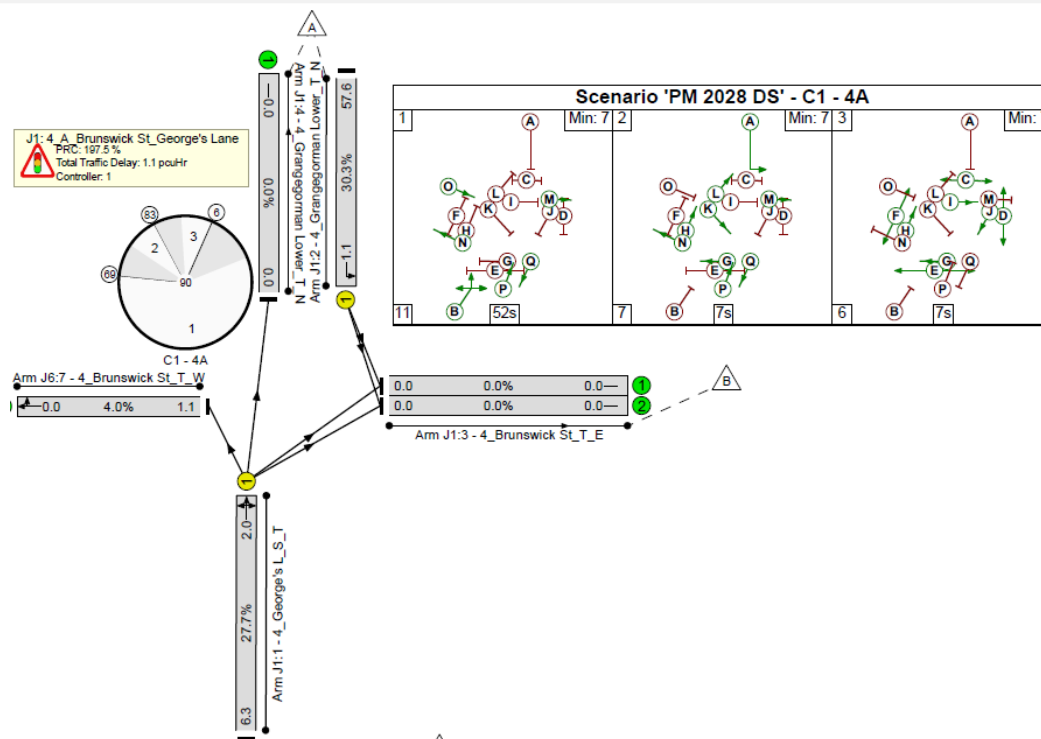
Do Something : 2028 : AM

Cycle = 90 secs
 PRC = 139%
 Delay = 2 pcuHr
 Bus delay = n/a



Do Something : 2028 : PM

Cycle = 90 secs
 PRC = 198%
 Delay = 1 pcuHr
 Bus delay = n/a



Subject	BusConnects Core Bus Corridor Junction Design
Date	April 2022
Scheme	Blanchardstown to City Centre Core Bus Corridor Scheme

Blackhall Place / King Street North

Summary

The existing signal-controlled junction is proposed to be altered to provide an outbound bus lane, and an inbound bus lane on the Blackhall Place exit. All outbound general traffic from Blackhall Place will turn right into King Street North. All general traffic from Stoneybatter will turn left into King Street North.

Signal Operation

A three stage signal operation is proposed. Mainline straight and left turning traffic on the northern approach and buses in both directions will operate in the same stage. Right turning traffic into King Street will operate unopposed. The pedestrian crossings will operate in their own stage.

Junction Type **1**
Bus delay $\leq 25s$

Change Made

Reason for Change

Impact of Change

1. Outbound and inbound bus lanes on Blackhall Place, with a right-turn lane from Blackhall Place to King Street North.

1. To provide bus priority measures

1. To maximise reliability of bus travel times.

1. The short right turn lane from Blackhall Place is removed.

1. Improve traffic management and road safety.

1. Wider footpaths

1. Remove the proposed northbound traffic lane north of King Street North.

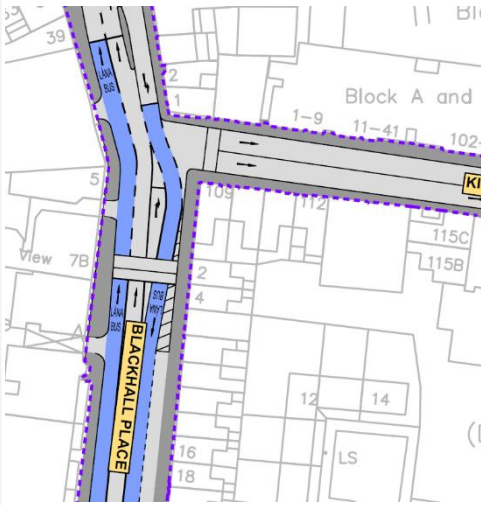
1. To maximise bus priority and restrict through traffic.

1. To maximise reliability of bus travel times

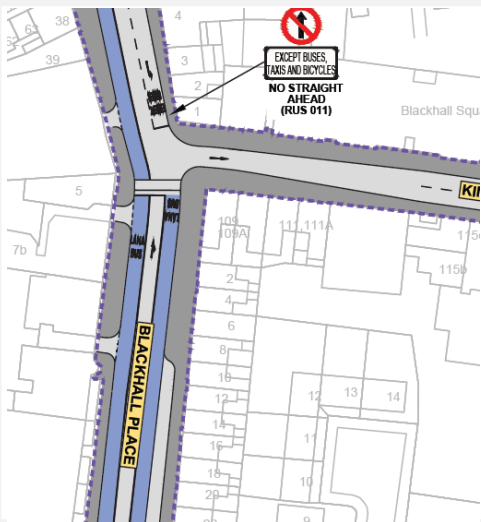
EXISTING



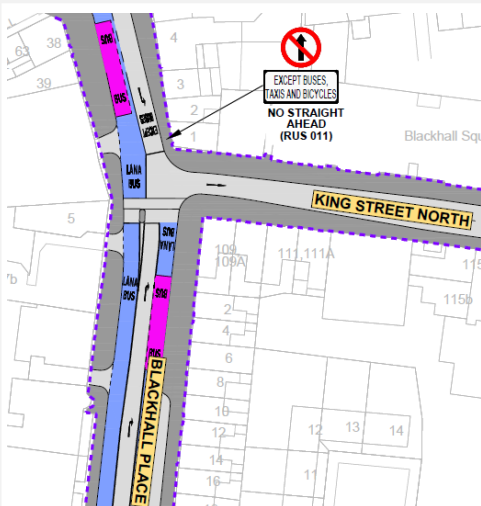
EPR



DRAFT PRO (PC2)



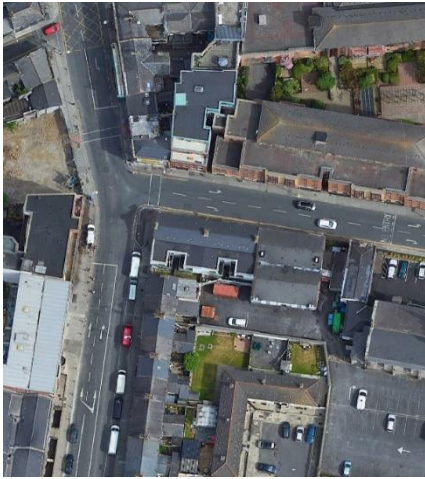
DRAFT PRO (PC3)



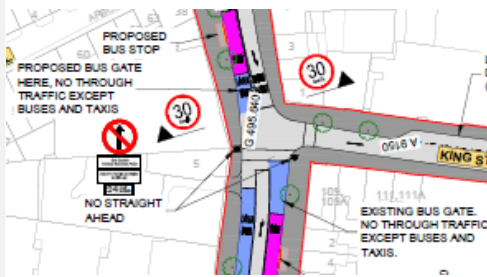
Subject	BusConnects Core Bus Corridor Junction Design
Date	April 2022
Scheme	Blanchardstown to City Centre Core Bus Corridor Scheme

Blackhall Place / King Street North

EXISTING



FINAL DESIGN



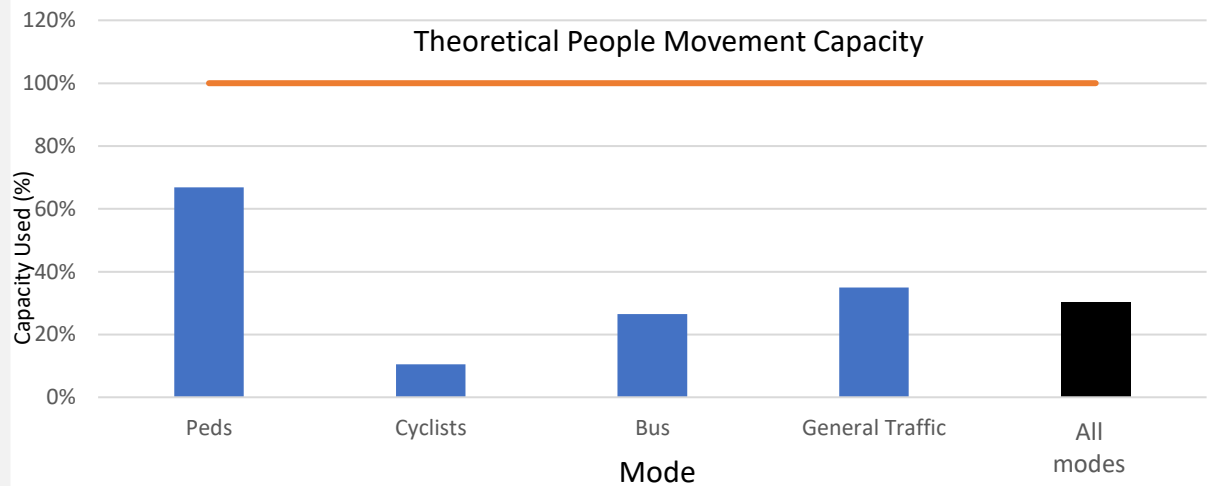
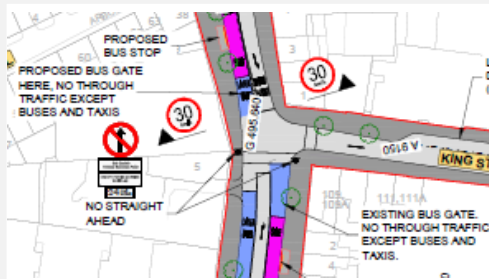
Change Made	Reason for Change	Impact of Change
<ol style="list-style-type: none"> Northbound general traffic lane stopline moved southwards. Pedestrian crossing added to King Street North. Stop line of outbound bus lane set back c. 4m. 	<ol style="list-style-type: none"> To accommodate turning manoeuvre of large vehicles. People movement calculator identified shortcomings with respect to the assigned capacity to pedestrians. In line with BusConnects Preliminary Design Guidance Booklet, to ensure visibility of primary signals from general traffic lane. 	<ol style="list-style-type: none"> No impact. Improved pedestrian environment. Amendments to line markings.

Subject	BusConnects Core Bus Corridor Junction Design
Date	April 2022
Scheme	Blanchardstown to City Centre Core Bus Corridor Scheme

Blackhall Place / King Street North

Capacity / Delay

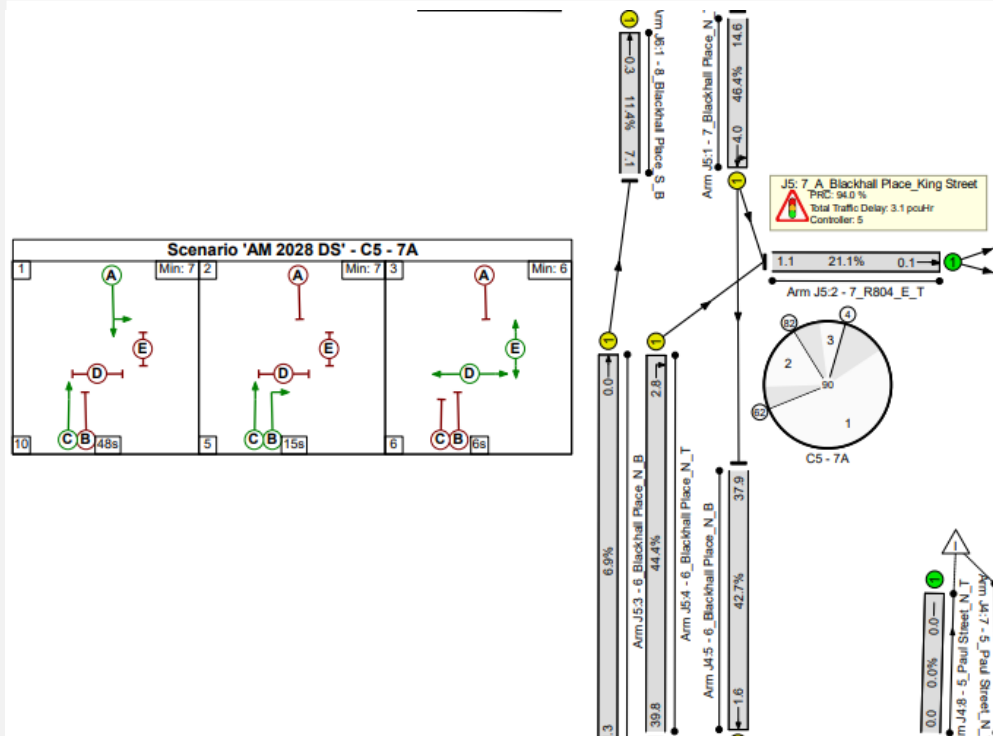
- Junction operates within capacity.
- Bus delay is <25s on average.



Do Something : 2028 : AM

Cycle = 90 secs
 PRC = 94%
 Delay = 3 pcuHr

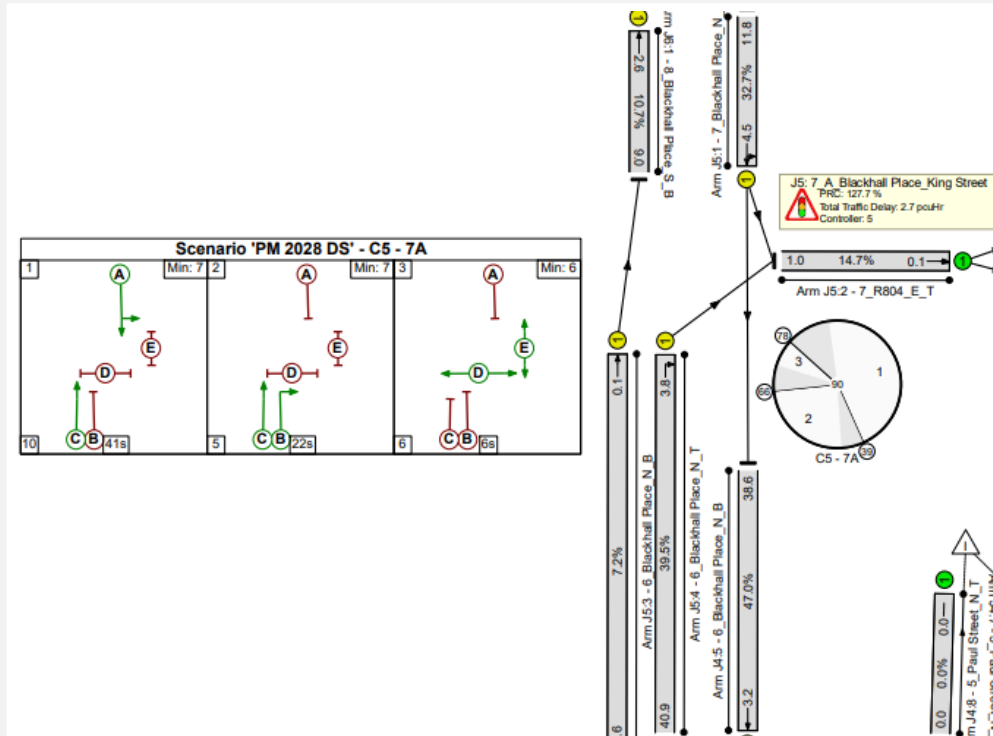
Bus delay
 Inbound = 15s
 Outbound = 1s



Do Something : 2028 : PM

Cycle = 90 secs
 PRC = 128%
 Delay = 3 pcuHr

Bus delay
 Inbound = 12s
 Outbound = 2s



Subject	BusConnects Core Bus Corridor Junction Design
Date	April 2022
Scheme	Blanchardstown to City Centre Core Bus Corridor Scheme

King Street North / Queen Street



Summary

The existing signal-controlled junction is proposed to be modified to remove the turning movement for general traffic from King Street North to George's Lane. A proposed two-way cycle track will connect through the junction to Queen Street.

Signal Operation

The junction is proposed to operate as a three-stage junction, with non-conflicting traffic, cyclist, and pedestrians phases to operate in different combinations.

Junction Type n/a
Bus delay n/a

Change Made

Reason for Change

Impact of Change

1. Junction altered to allow two-way traffic movement on George's Lane.

1. To accommodate bus priority measures on Blackhall Place

1. Reduction in public realm space.

1. Modification to only allow northbound traffic on George's Lane, and to remove the ability of traffic to turn right from King Street North (Traffic wishing to make this movement can travel south on Queen Street and turn via Blackhall Street and Blackhall Place).

1. Reduce traffic movement from King Street to Grangegorman

1. Increase space for public realm.

1. Realign cycle track to east side of George's Lane.

1. To improve cycle connectivity to Grangegorman Lower.

1. Improved cycle connectivity.

EXISTING

EPR

DRAFT PRO (PC2)

DRAFT PRO (PC3)

Subject	BusConnects Core Bus Corridor Junction Design
Date	April 2022
Scheme	Blanchardstown to City Centre Core Bus Corridor Scheme

King Street North /
Queen Street

EXISTING



FINAL DESIGN



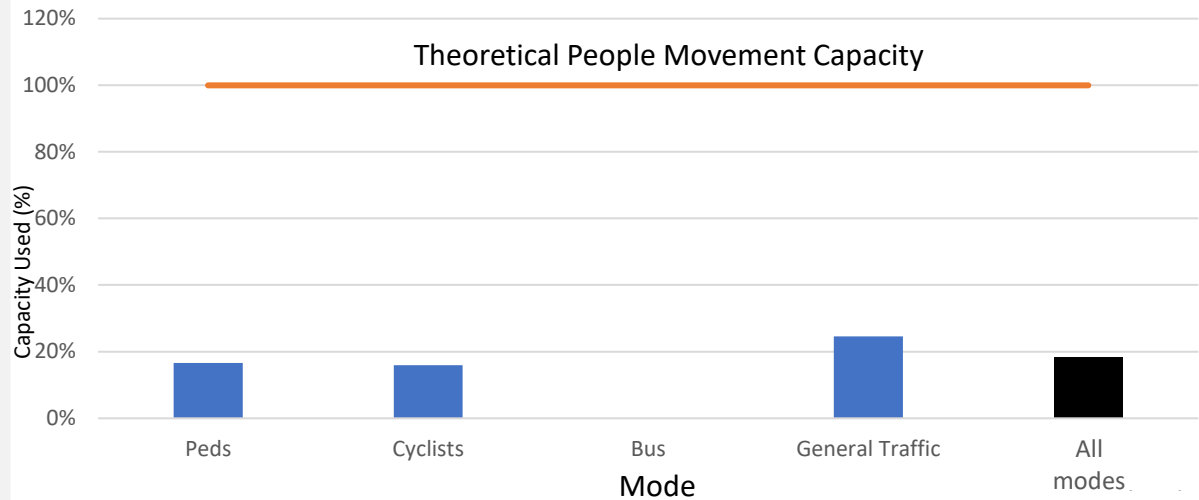
Change Made	Reason for Change	Impact of Change
<ol style="list-style-type: none"> Cycle track aligned on eastern side of Queen Street. 	<ol style="list-style-type: none"> Provides a cycle route with less vehicle / cycle conflict on Queen Street. 	<ol style="list-style-type: none"> Improved connectivity for cycle movements.

Subject	BusConnects Core Bus Corridor Junction Design
Date	April 2022
Scheme	Blanchardstown to City Centre Core Bus Corridor Scheme

King Street North / Queen Street

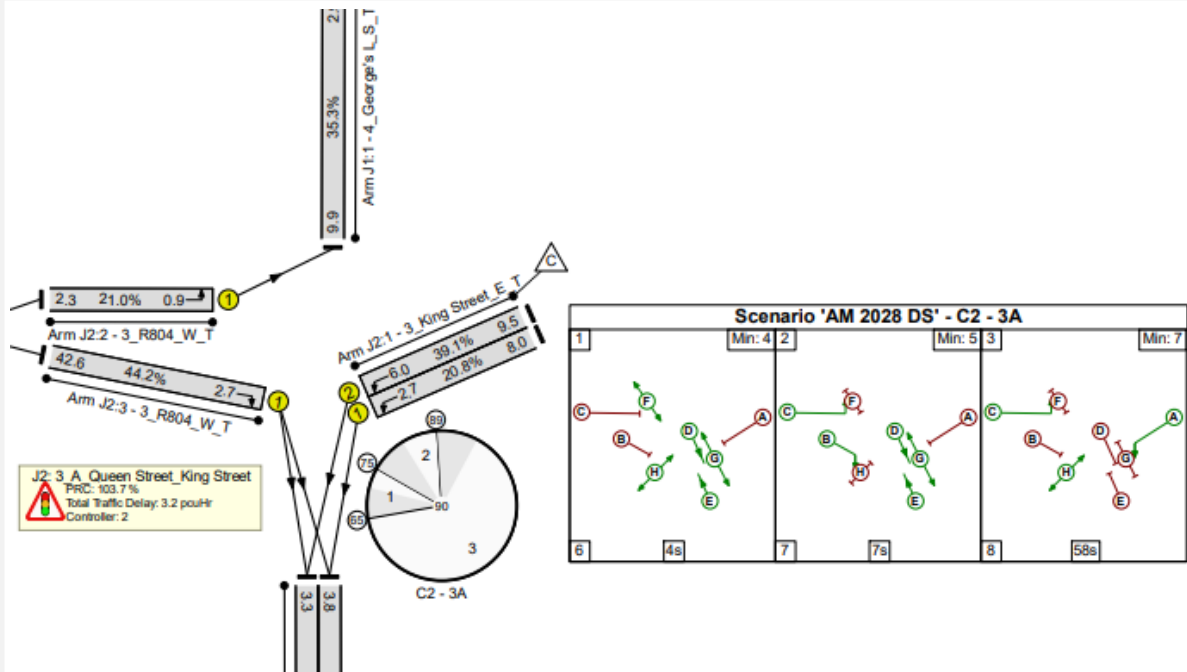
Capacity / Delay

- Junction operates within capacity.



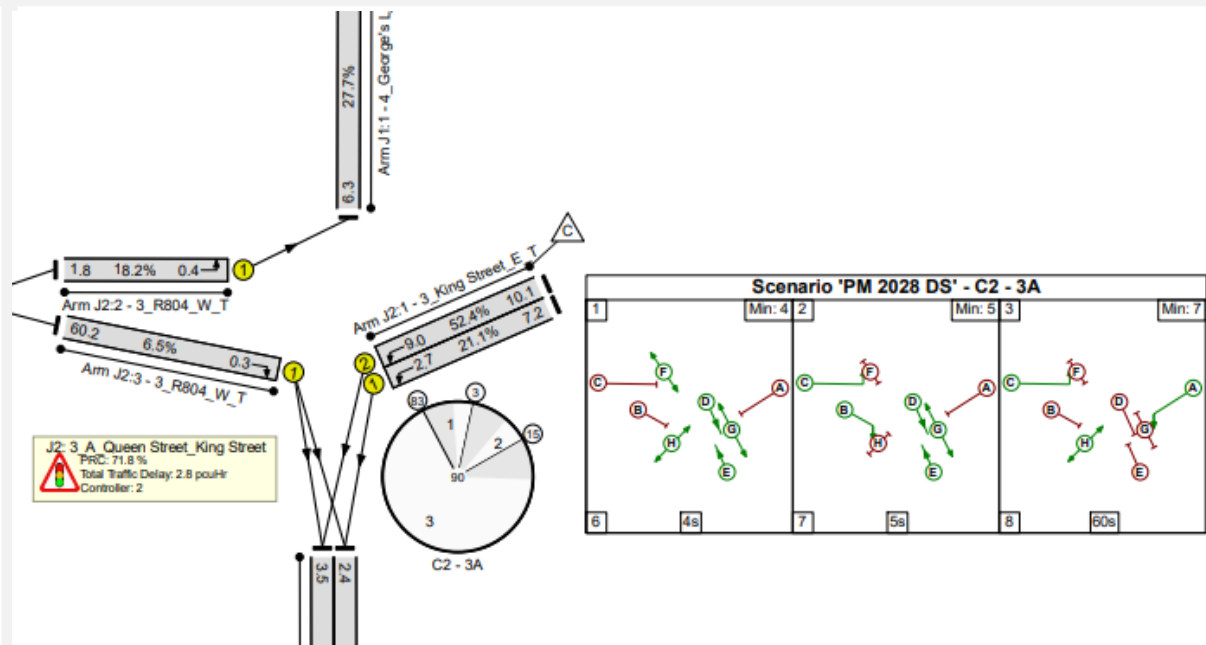
Do Something : 2028 : AM

Cycle = 90 secs
 PRC = 104%
 Delay = 3 pcuHr
 Bus delay = n/a



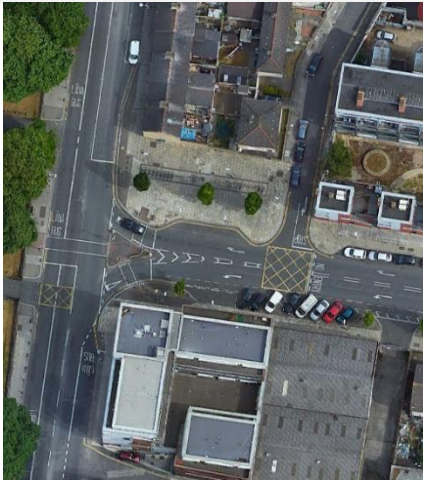
Do Something : 2028 : PM

Cycle = 90 secs
 PRC = 72%
 Delay = 3 pcuHr
 Bus delay = n/a



Subject	BusConnects Core Bus Corridor Junction Design
Date	April 2022
Scheme	Blanchardstown to City Centre Core Bus Corridor Scheme

Blackhall Place / Blackhall Street



Summary

The existing junction is proposed to be altered by realignment of the bell-mouth from Blackhall Street to remove the existing central splitter island. The junction will continue to operate as a signal-controlled junction, with the pedestrian crossings to be provided on all arms of the junction.

Signal Operation

A three stage signal operation is proposed. Traffic and buses on Blackhall Place will operate together, with traffic exiting Blackhall Street to be operating separately. The pedestrian crossings will operate within their own stage.

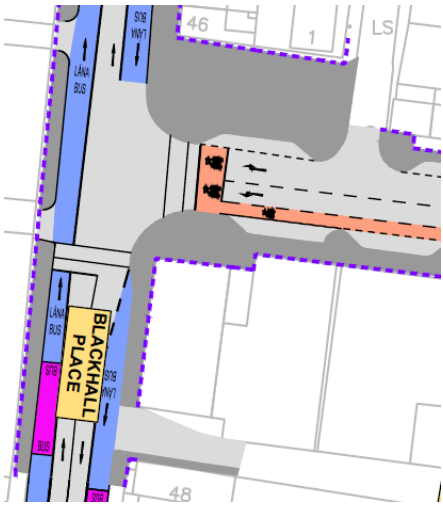
Junction Type **1**
Bus delay $\leq 60s$

EXISTING

EPR

DRAFT PRO (PC2)

DRAFT PRO (PC3)



- Existing junction is proposed to be altered by realignment of the bellmouth from Blackhall Street to remove the existing central splitter island.

- To provide traffic management of traffic entering the bus corridor

- Control of side road traffic entering the bus corridor.



- No Change

- N/A

- N/A



- Modification to Blackhall Street, involving road narrowing to a single lane.

- To improve road layout and provision for cyclist on Blackhall Street.

- Improved cycle connectivity to Dublin Bikes station on the western end of Blackhall Street.

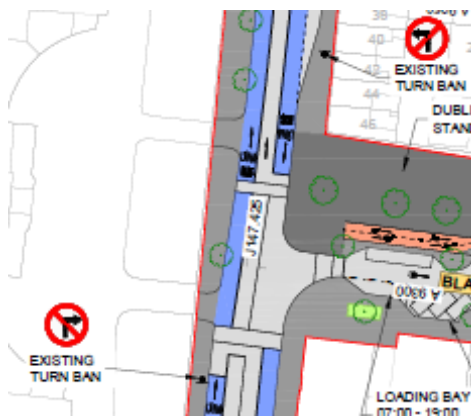
Subject	BusConnects Core Bus Corridor Junction Design
Date	April 2022
Scheme	Blanchardstown to City Centre Core Bus Corridor Scheme

Blackhall Place /
Blackhall Street

EXISTING



FINAL DESIGN



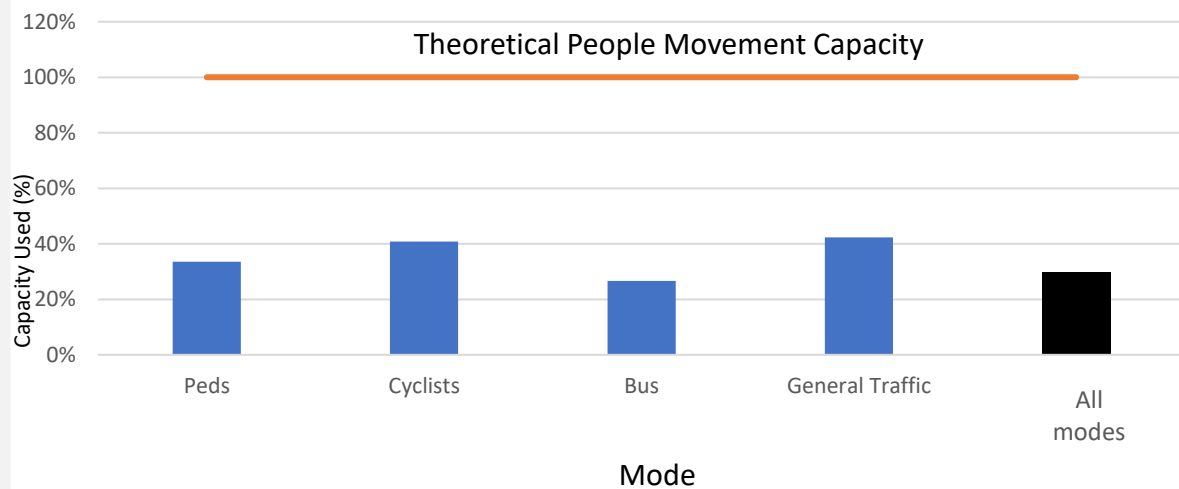
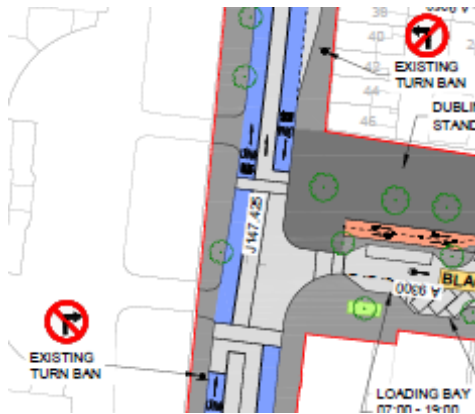
Change Made	Reason for Change	Impact of Change
<ol style="list-style-type: none"> 1. Southbound bus lane (exit on Blackhall Place) is brought all way to junction. 2. Pedestrian crossing added to Blackhall Place. 3. Stop line of outbound bus lane set back c. 4m. 	<ol style="list-style-type: none"> 1. Consistency with other bus lane arrangement at junction exit. 2. Increase capacity for pedestrians at junction and consistency with other junctions. 3. In line with BusConnects Preliminary Design Guidance Booklet, to ensure visibility of primary signals from general traffic lane. 	<ol style="list-style-type: none"> 1. Improved bus operation. 2. Improved pedestrian environment. 3. Amendments to line markings.

Subject	BusConnects Core Bus Corridor Junction Design
Date	April 2022
Scheme	Blanchardstown to City Centre Core Bus Corridor Scheme

Blackhall Place / Blackhall Street

Capacity / Delay

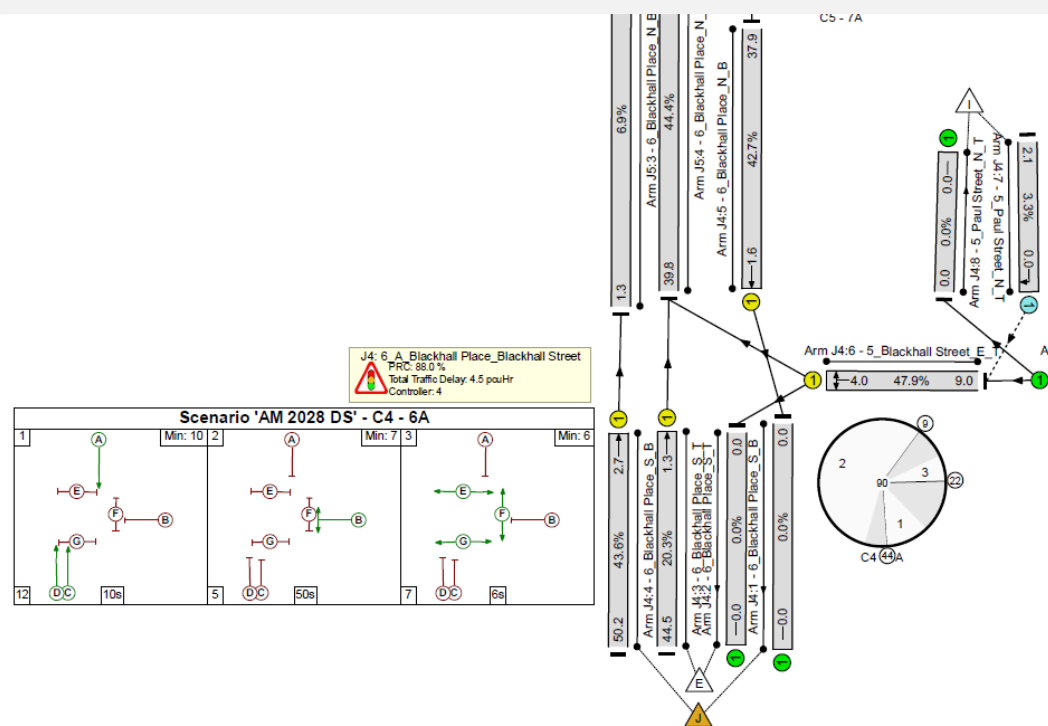
- Junction operates within capacity.
- Bus delay is <60s on average.



Do Something : 2028 : AM

Cycle = 90 secs
 PRC = 88%
 Delay = 5 pcuHr

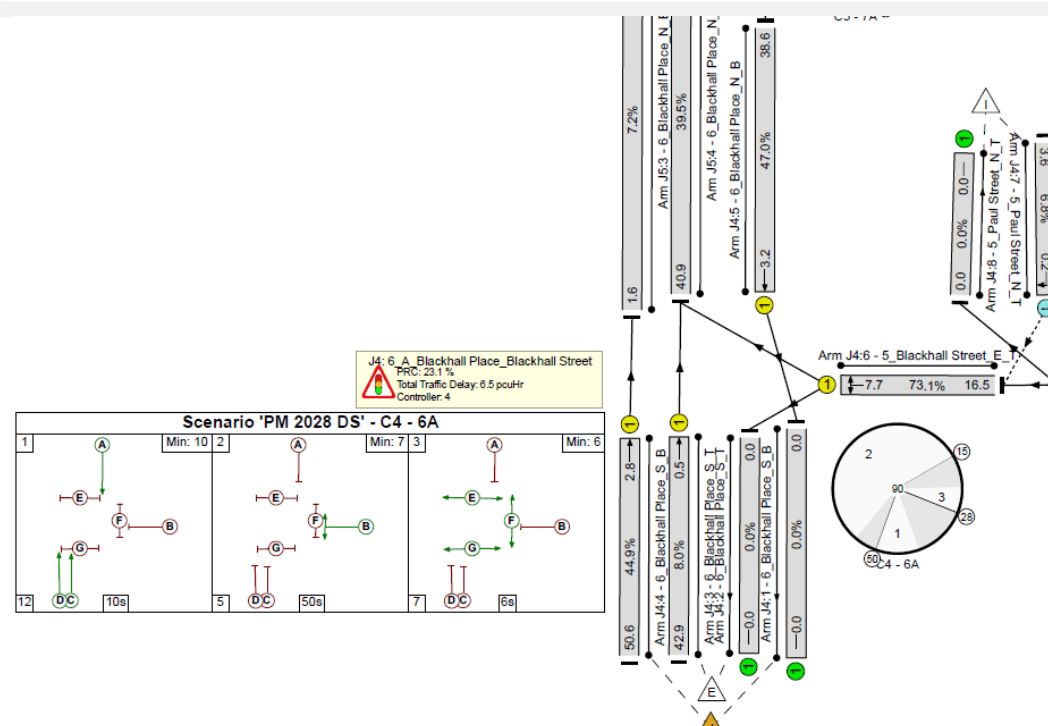
Bus delay
 Inbound = 38s
 Outbound = 50s



Do Something : 2028 : PM

Cycle = 90 secs
 PRC = 23%
 Delay = 7 pcuHr

Bus delay
 Inbound = 39s
 Outbound = 51s



Subject	BusConnects Core Bus Corridor Junction Design
Date	April 2022
Scheme	Blanchardstown to City Centre Core Bus Corridor Scheme

Queen Street / Blackhall Street

Summary

The existing junction is proposed to be altered by replacement of a traffic lane with a two-way cycle track on the eastern side of Queen Street. Access to the Blackhall Street cycle route will be via a Toucan crossing.

Signal Operation

It is proposed to operate the junction with two stages – all traffic and straight-ahead cycle movements to operate together. The pedestrian and toucan crossings will operate together in their own stage.

Junction Type n/a

Bus delay n/a

Change Made

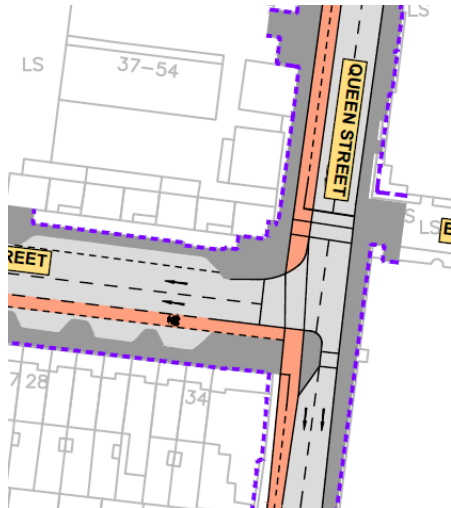
Reason for Change

Impact of Change

EXISTING



EPR



- Existing junction is proposed to be altered by replacement of a traffic lane by a two-way cycle track.
- On Queen Street, allocate one lane to turning right and one lane to straight ahead (with footpath build out).

- To provide cycle connectivity consistent with the rest of the CBC scheme.
- Allows signal staging to operate such that right turners can be held on red for the majority of the signal cycle (and hence cyclist can travel at the same stage as ahead traffic).

- Reduction of traffic capacity
- Maximised green signal for cyclists.

DRAFT PRO (PC2)



- No Change

- N/A

- N/A

DRAFT PRO (PC3)



- Modification to Blackhall Street, involving road narrowing to a single lane.

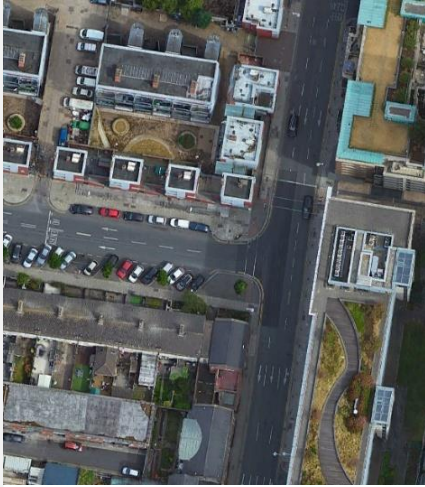
- To improve road layout and provision for cyclist on Blackhall Street.

- Improved cycle connectivity to Dublin Bikes station on the western end of Blackhall Street.

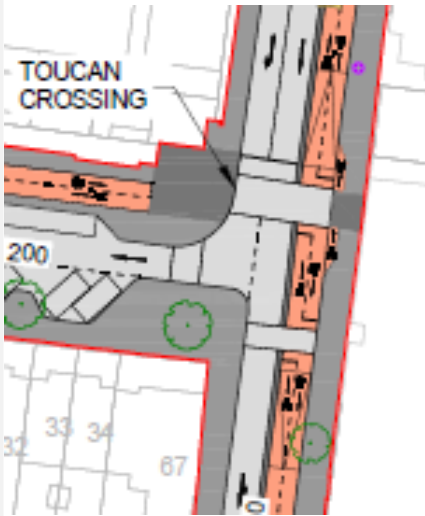
Subject	BusConnects Core Bus Corridor Junction Design
Date	April 2022
Scheme	Blanchardstown to City Centre Core Bus Corridor Scheme

Queen Street / Blackhall Street

EXISTING



FINAL DESIGN



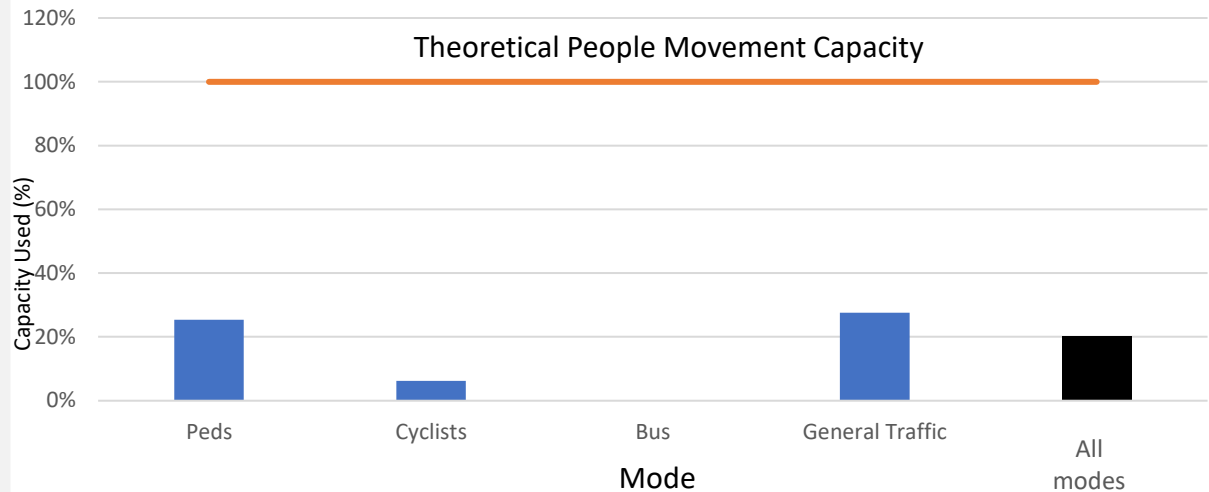
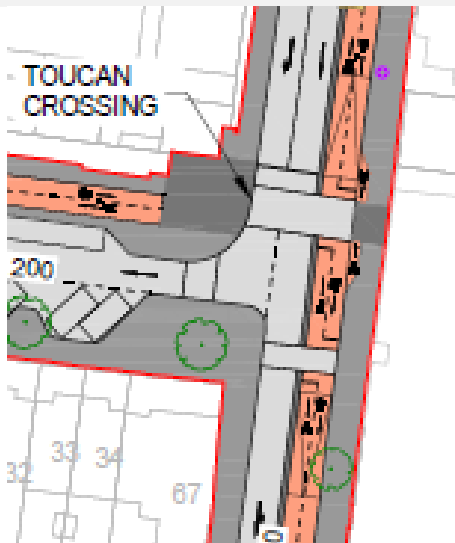
Change Made	Reason for Change	Impact of Change
<ol style="list-style-type: none"> 1. Switch the cycle lane to the eastern side of Queen Street. 2. Toucan crossing added to northern arm of junction. 	<ol style="list-style-type: none"> 1. Due to change at Grangegorman junction to north. 2. To facilitate cycle movement to Blackhall Street route. 	<ol style="list-style-type: none"> 1. Introduces a road crossing for cyclists wishing to travel west 2. Small additional delay to cyclists crossing Queen Street.

Subject	BusConnects Core Bus Corridor Junction Design
Date	April 2022
Scheme	Blanchardstown to City Centre Core Bus Corridor Scheme

Queen Street / Blackhall Street

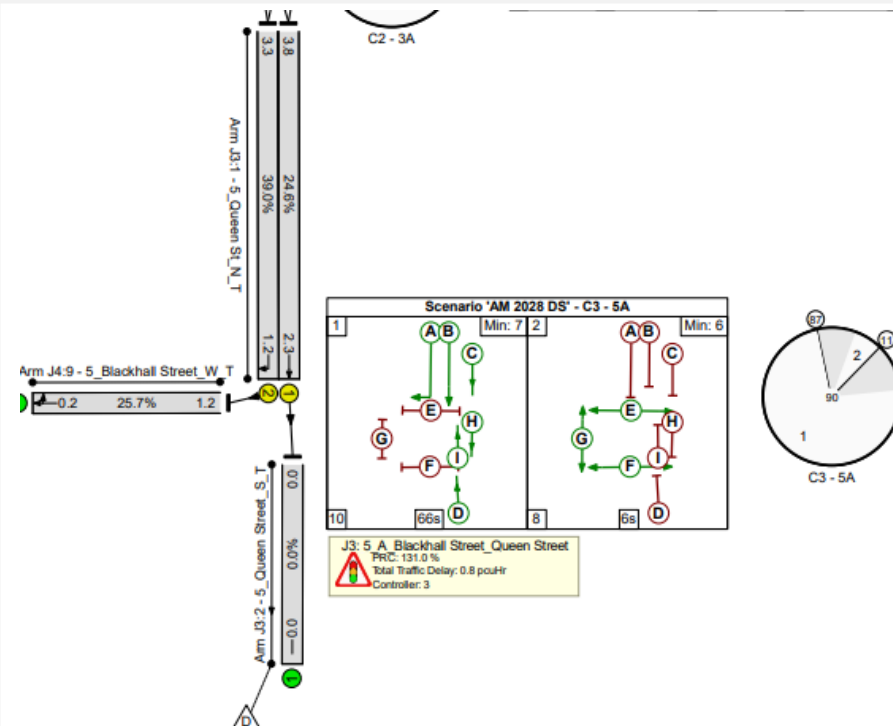
Capacity / Delay

- Junction operates within capacity.



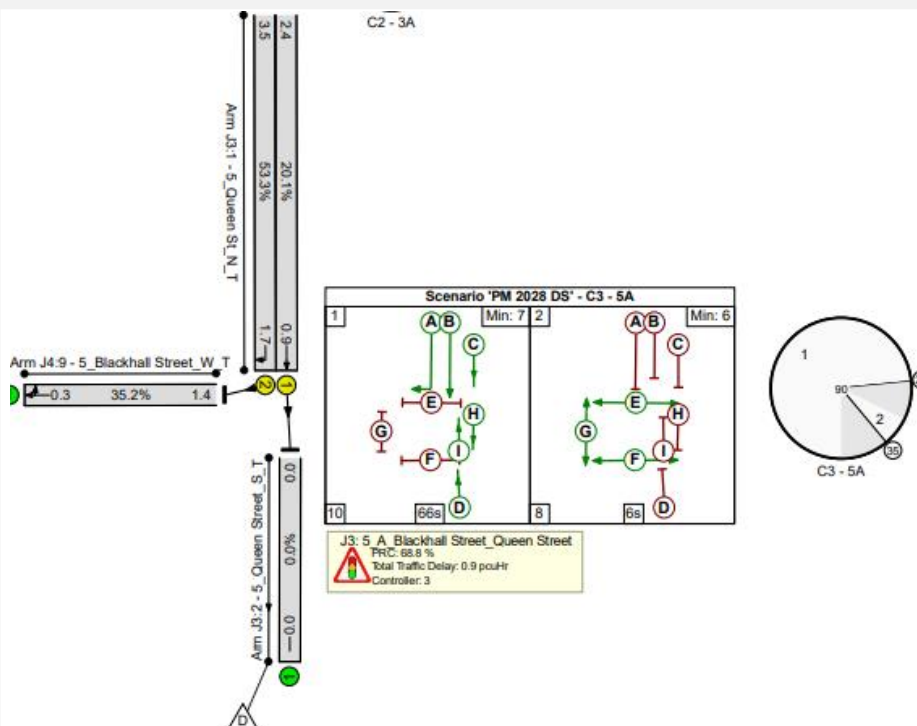
Do Something : 2028 : AM

Cycle = 90 secs
 PRC = 131%
 Delay = 1 pcuHr
 Bus delay = n/a



Do Something : 2028 : PM

Cycle = 90 secs
 PRC = 69%
 Delay = 1 pcuHr
 Bus delay = n/a



Subject	BusConnects Core Bus Corridor Junction Design
Date	April 2022
Scheme	Blanchardstown to City Centre Core Bus Corridor Scheme

Blackhall Place / Benburb Street



Summary

The existing signal-controlled junction is proposed to be modified by provision of a northbound bus lane (in addition to the existing southbound bus lane).

Signal Operation

A five stage signal operation is proposed. Southbound buses and general traffic will operate across two stages, with northbound buses and general traffic to operate separately to avoid conflict with the left turning traffic. Traffic from the side arm will operate separately. The Luas and the pedestrian crossings will operate within their own stages.

Junction Type **1**
Bus delay $\leq 30s$

Change Made

Reason for Change

Impact of Change

- | Change Made | Reason for Change | Impact of Change |
|-------------------------------------------------------------------------------------|-------------------------------------------------------|-------------------------------------------|
| 1. Upgrade the existing intermittent bus lanes to full bus lanes in both directions | 1. To provide bus priority through the junction area. | 1. Improved reliability for bus movements |
| 1. No change | 1. N/A | 1. N/A |
| 1. No change | 1. N/A | 1. N/A |

EXISTING

EPR

DRAFT PRO (PC2)

DRAFT PRO (PC3)

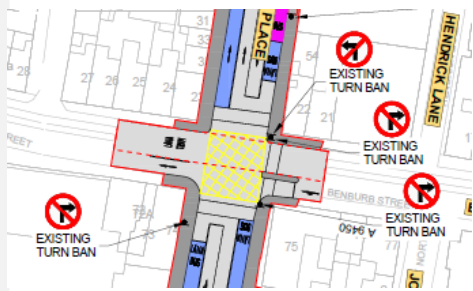
Subject	BusConnects Core Bus Corridor Junction Design
Date	April 2022
Scheme	Blanchardstown to City Centre Core Bus Corridor Scheme

Blackhall Place /
Benburb Street

EXISTING



FINAL DESIGN



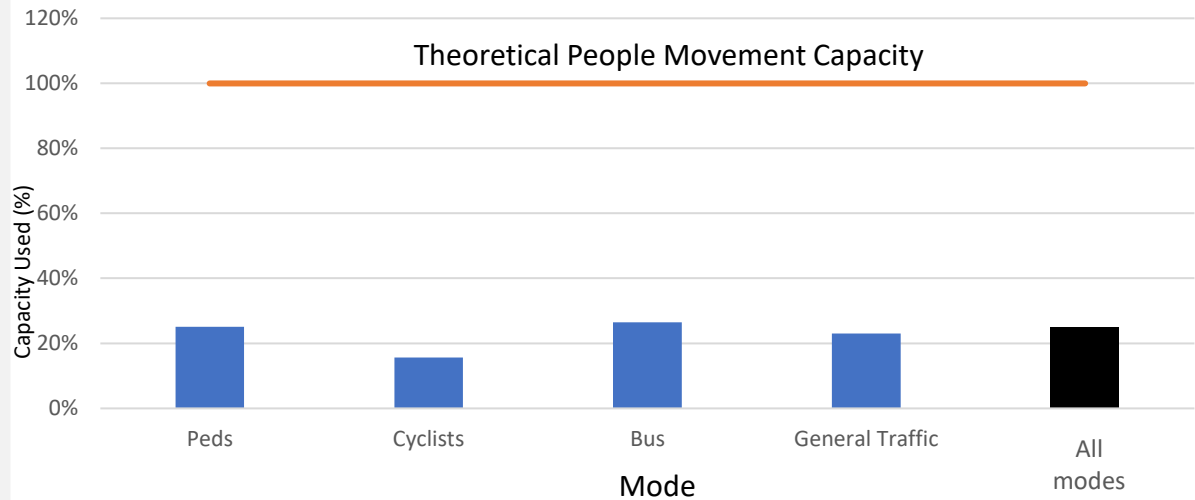
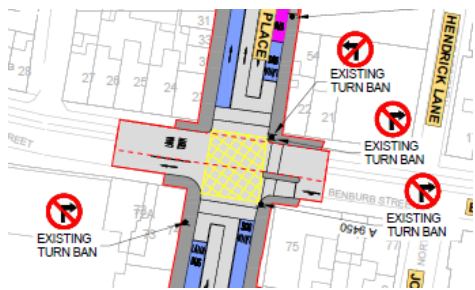
Change Made	Reason for Change	Impact of Change
1. Pedestrian crossing stage added to Benburb Street.	1. To provide a formalised signal-controlled crossing for pedestrians.	1. Improved pedestrian provision.

Subject	BusConnects Core Bus Corridor Junction Design
Date	April 2022
Scheme	Blanchardstown to City Centre Core Bus Corridor Scheme

Blackhall Place / Benburb Street

Capacity / Delay

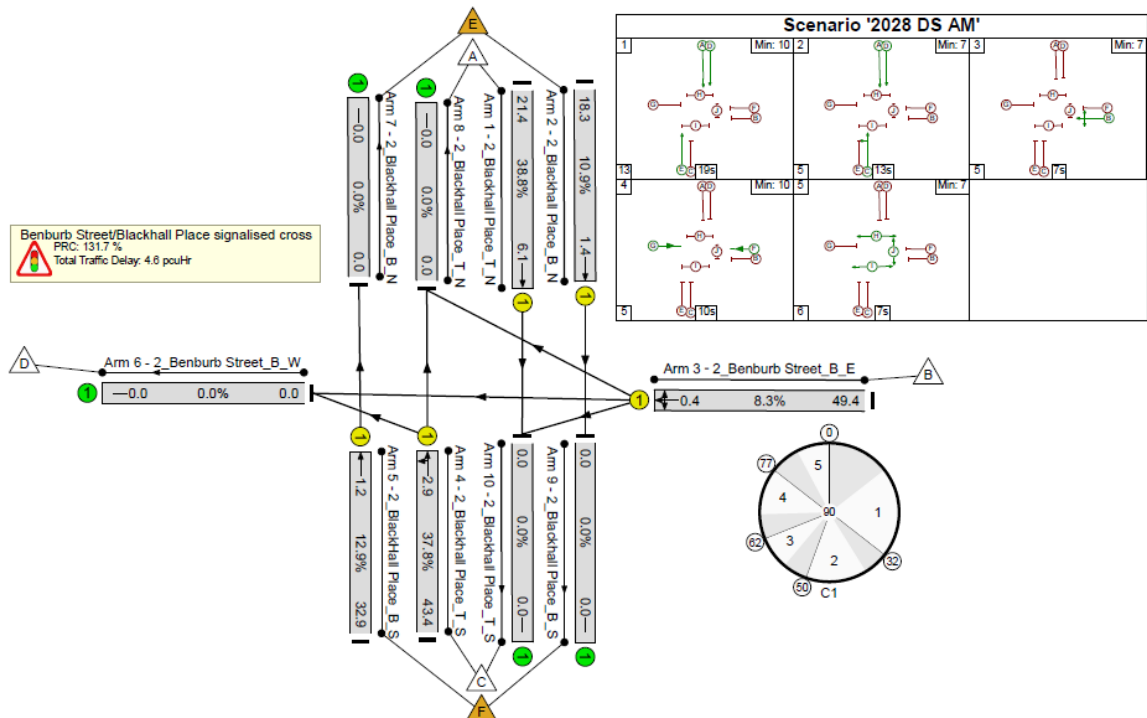
1. Junction operates within capacity.
2. Bus delay is <30s on average.



Do Something : 2028 : AM

Cycle = 90 secs
 PRC = 132%
 Delay = 5 pcuHr

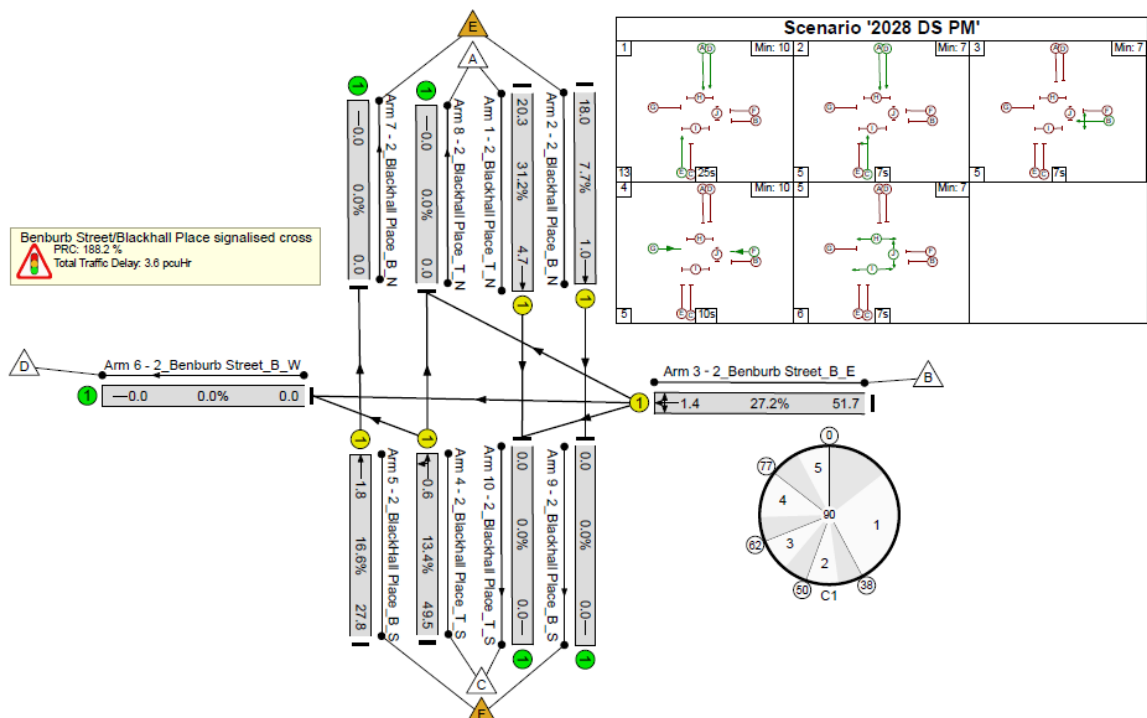
Bus delay
 Inbound = 18s
 Outbound = 33s



Do Something : 2028 : PM

Cycle = 90 secs
 PRC = 188%
 Delay = 4 pcuHr

Bus delay
 Inbound = 18s
 Outbound = 28s



Subject	BusConnects Core Bus Corridor Junction Design
Date	April 2022
Scheme	Blanchardstown to City Centre Core Bus Corridor Scheme

Queen Street / Benburb Street

Summary

The existing signal-controlled junction is proposed to be modified by removal of two (of three) southbound traffic lanes on Queen Street – to be replaced by a two-way cycle track and wider footpaths.

Signal Operation

A three stage signal operation is proposed. The Luas will operate with the east/west pedestrian crossings. The southbound traffic will operate in its own stage. The north/south cycle lanes and pedestrian crossing will operate within the same stage through the junction.

Junction Type n/a

Bus delay n/a

Change Made

Reason for Change

Impact of Change

1. The key junction change is replacement of the offside traffic lane with a two-way cycle track.

1. To provide cycle facilities.

1. To improve cycle accessibility and safety.

1. No change

1. N/A

1. N/A

1. No change

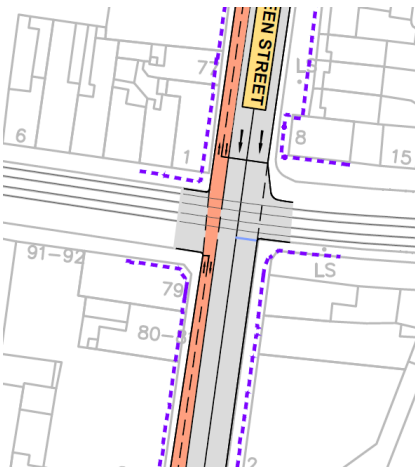
1. N/A

1. N/A

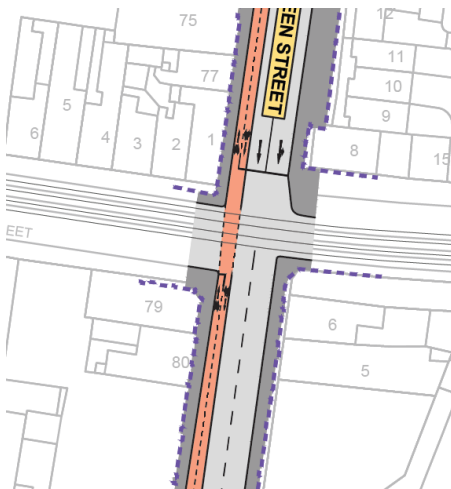
EXISTING



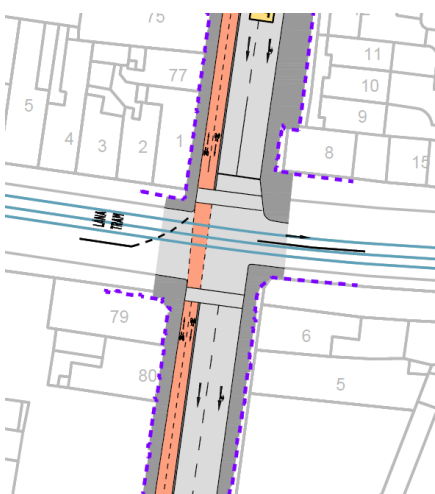
EPR



DRAFT PRO (PC2)



DRAFT PRO (PC3)



Subject	BusConnects Core Bus Corridor Junction Design
Date	April 2022
Scheme	Blanchardstown to City Centre Core Bus Corridor Scheme

Queen Street / Benburb Street

EXISTING



FINAL DESIGN



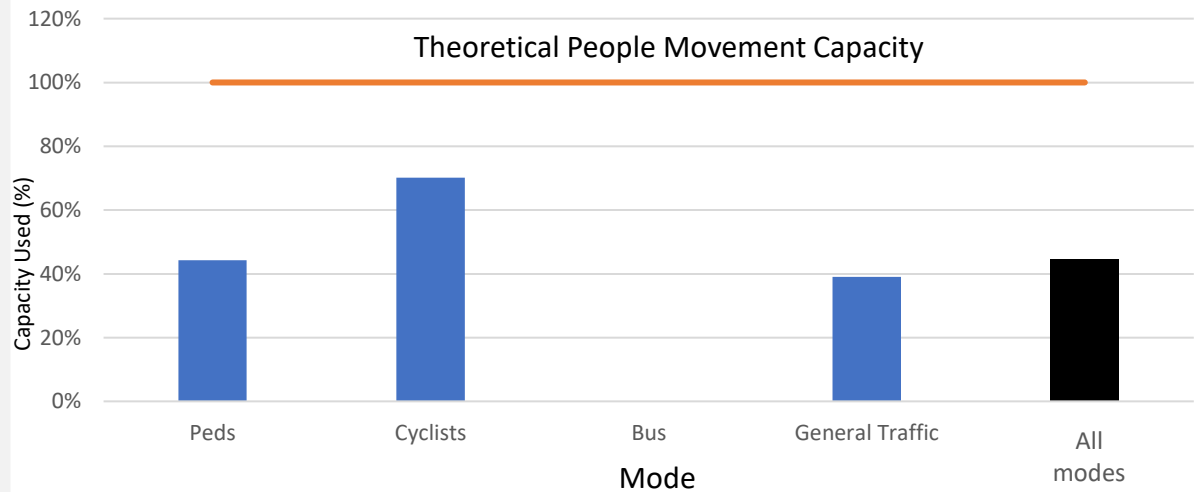
Change Made	Reason for Change	Impact of Change
<ol style="list-style-type: none"> Two-way cycle track switched to the eastern side of Queen Street. Pedestrian crossing added to Benburb Street. 	<ol style="list-style-type: none"> Due to change of cycle track position further north at George's Lane junction. People movement calculator identified shortcomings with respect to the assigned capacity to pedestrians. 	<ol style="list-style-type: none"> Improved cycle facilities. Improved pedestrian environment.

Subject	BusConnects Core Bus Corridor Junction Design
Date	April 2022
Scheme	Blanchardstown to City Centre Core Bus Corridor Scheme

Queen Street / Benburb Street

Capacity / Delay

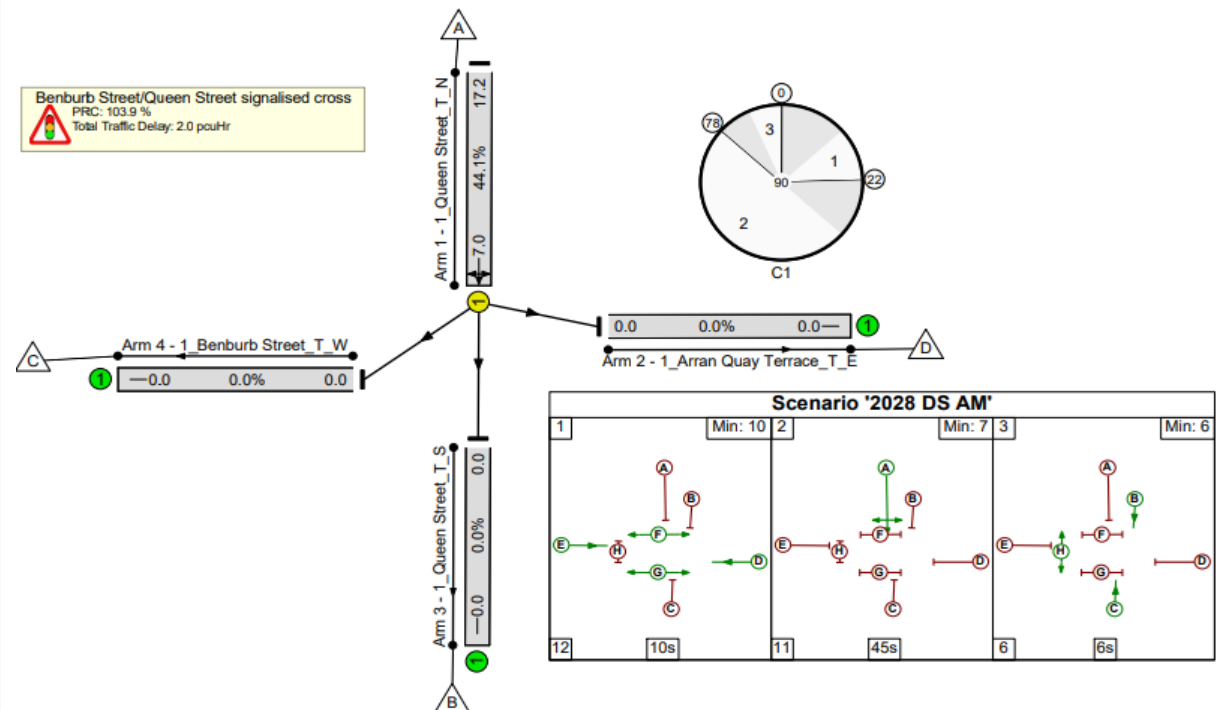
- Junction operates within capacity.



Do Something : 2028 : AM

Cycle = 90 secs
 PRC = 104%
 Delay = 2 pcuHr

Bus delay = n/a



Do Something : 2028 : PM

Cycle = 90 secs
 PRC = 125%
 Delay = 2 pcuHr

Bus delay = n/a

