Appendix L
Junction Design Report

BusConnects – Core Bus Corridor Project Tallaght / Clondalkin to City Centre

Junction Design and Modelling Report

BCIDA-ACM-TRA_AN-0809_XX_00-RP-TR-0001

Client – National Transport Authority

BCIDA-ACM-TRA_AN-0809_XX_00-RP-TR-0001

Date: February 2023

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Figures

Tables

1. Introduction

This report has been prepared to document the evolution of the design of key junctions along the Tallaght / Clondalkin to City Centre Scheme (hereafter referred the Proposed Scheme). 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 capacity of the junctions for all modes. The methodology adopted is elaborated upon in the following sections.

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 Preliminary Design Guidance Booklet for BusConnects Core Bus Corridors 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 stop line;
- 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 – Similar to a CYCLOPS junction; however, signalised pedestrian crossings are proposed 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 provide for the changes at key points in the project as follows:

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

2.2 Transport Modelling

Transport modelling has been an 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 2-1**.

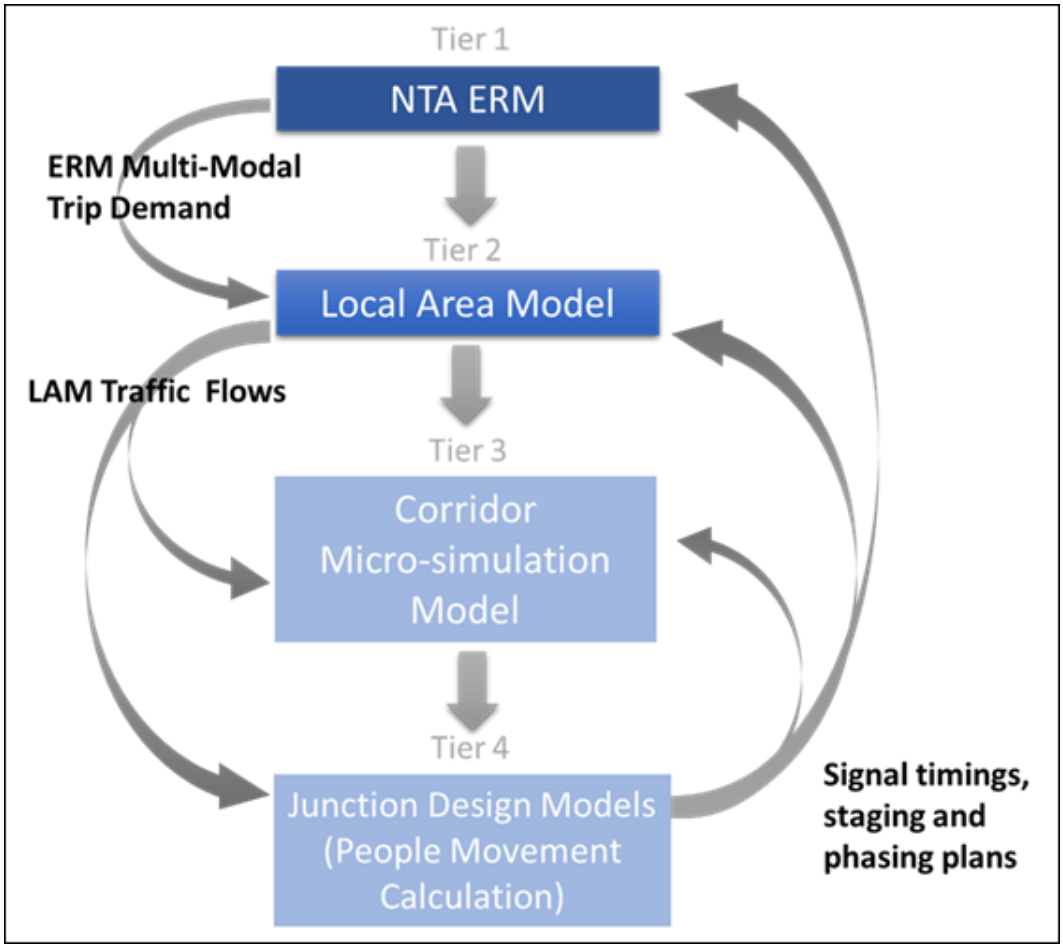


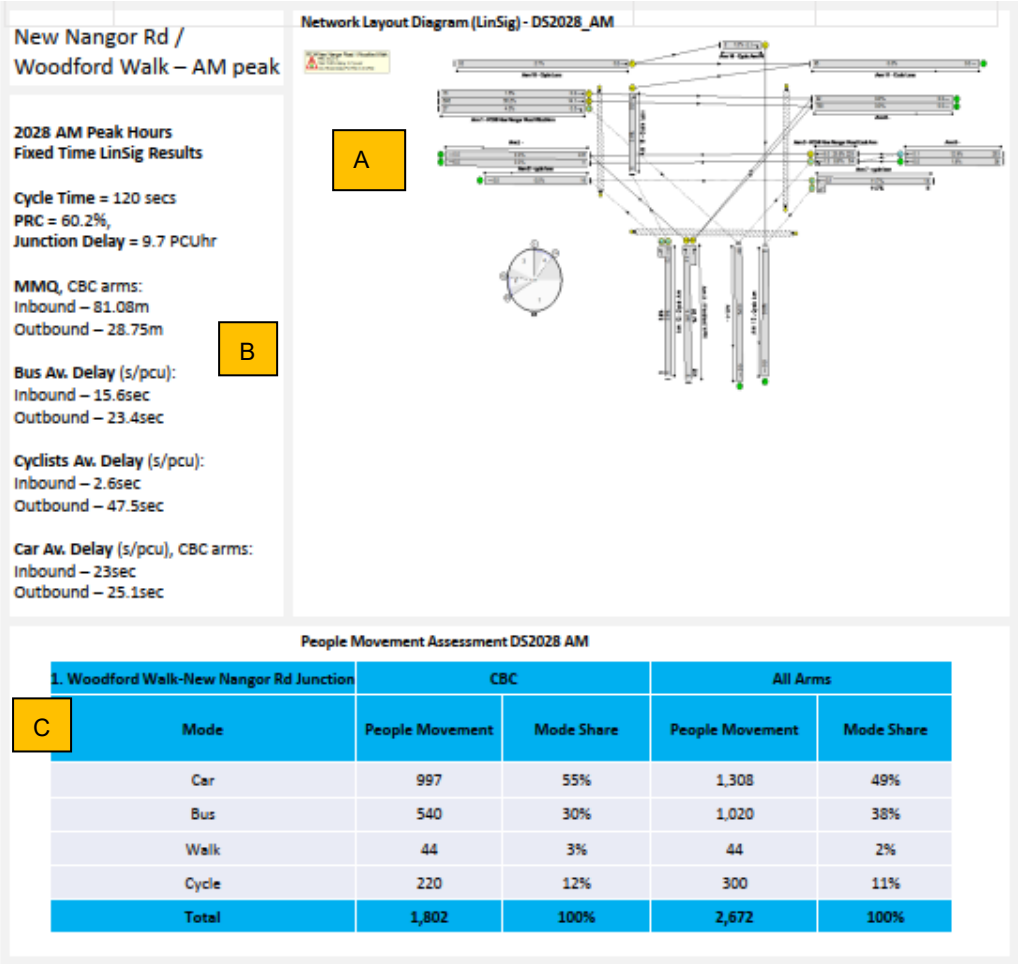
Figure 2-1: Transport Modelling Methodology and Information Flow

As shown above, 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; and
- Local Junction Models: each junction along the proposed CBC were developed to support local junction design development.

For the purposes of the Junction Design and Modelling 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 preferred design for the CBC. 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 of BusConnects. **Figure 2-2** presents an example of the local junction modelling results from LinSig presented in this report. A description of the images follows.



People Movement Assessment DS2028 AM

1. Woodford Walk-New Nangor Rd Junction	CBC		All Arms	
Mode	People Movement	Mode Share	People Movement	Mode Share
Car	997	55%	1,308	49%
Bus	540	30%	1,020	38%
Walk	44	3%	44	2%
Cycle	220	12%	300	11%
Total	1,802	100%	2,672	100%

Figure 2-2: Example of a junction modelling results in the JDR

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

- **Number of PCUs arriving at the Stop Line** – this is the number located at the back of the lane in Figure 2-2 and reflects the traffic flows on its respective lane;
- **Degree of Saturation (%)** – this is the number located in the middle of the lane in Figure 2-2 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 2 and is maximum queue (per lane) within a typical cycle.

B 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);
- **MMQ** (meters) - maximum queue (CBC arms) within a typical cycle;
- **Junction Delay** (PCUhr) – the total aggregate delay on all lanes controlled by each Stage Stream;
- **Bus Av. Delay** (s/pcu) – the average bus delay per direction on the CBC per junction;

- **Cyclists Av. Delay** (s/pcu) - the average cyclist delay per direction on the CBC per junction; and
- **Car Av. Delay** (s/pcu) - the average car delay per direction on the CBC per junction.

C shows the tabulated information on the People Movement Assessment for the Do-Something 2028 scenario during the peak hours. 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 Environmental Impact Assessment Report (EIAR).

2.3 People Movement

An assessment has been carried out to determine the potential people movement the proposed scheme will generate. This adopts a policy led approach to the design of junctions, which prioritises the people movement and maximisation of sustainable modes i.e. walking, cycling and bus in advance of the consideration and management of general traffic movements at junctions. The outputs of the calculator provide an estimate of people movement per mode per junction and the respective percentage mode share. **Figure 2-3** illustrates the People Movement Formulae.

People Movement Formulae	
Cyclists	$\sum(\frac{Green\ Time}{headway})(\frac{3600}{Cycle\ Time})(\frac{CT\ Width}{1.5})$
Buses	$\sum(No.of\ Buses)(Occupancy)(Direction)$
General Traffic	$\sum LinSig\ PCU\ Capacity\ Outputs$
Pedestrians	$\sum(Green\ Time)(\frac{Walking\ Speed}{Ped.Walking\ Buffer})(\frac{Crossing\ Width}{2})(\frac{3600}{Cycle\ Time})(No.Crossing\ Points)$

Figure 2-3 People Movement Formulae

The emerging proposed designs were inputted to the People Movement Calculation tool, which produced initial people movement outputs and indicative green times per mode. The results provided an initial starting point to facilitate a review of the junction designs, where necessary pedestrian, cyclist and bus infrastructure was optimised accordingly to facilitate additional capacity. The revised designs were then added into the LAM to facilitate traffic modelling.

The LAM outputs provided traffic flows for the operational year (2028) and operational year +15 (2043). The traffic flows were fed into the LinSig models to facilitate a detailed analysis of the proposed junction operation. The LinSig and DLAM analysis required traffic modelling iterations. The people movement results were also revaluated during the iteration process, the results were also used to inform the projected number of cyclists in the operational year in the Cycle Quantification assessment. Below is a sample **Table 2-1** of People Movement results, which captures the People Movement Assessment for Do-Something 2028 scenario for all modes during the morning peak hours.

Table 2-1: People Movement Assessment

People Movement Assessment DS2028 AM

1. Woodford Walk-New Nangor Rd Junction	CBC		All Arms	
Mode	**People Movement**	**Mode Share**	**People Movement**	**Mode Share**
Car	997	55%	1,308	49%
Bus	540	30%	1,020	38%
Walk	44	3%	44	2%
Cycle	220	12%	300	11%
Total	**1,802**	**100%**	**2,672**	**100%**

3. Junctions Assessed

A total number of 41 junctions in the Proposed Scheme are presented in this report which are as follows:

Clondalkin Corridor:

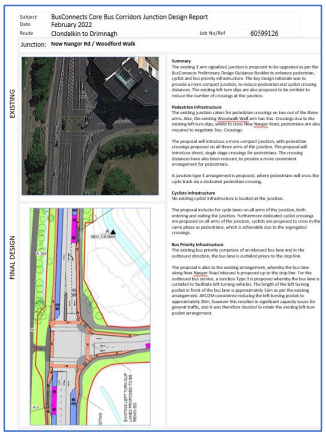
1. New Nangor Road / Woodford Walk
2. New Nangor Road / Riverview Business Park
3. New Nangor Road / Oak Road
4. New Nangor Road / Willow Road
5. New Nangor Road / Kileen Road (N)
6. New Nangor Road / Kileen Road (S)
7. New Nangor Road / Naas Road / Long Mile Road
8. Old Naas Road / John F Kennedy
9. Naas Road / Walkinstown Avenue
10. Walkinstown Avenue / Long Mile Road
11. Walkinstown Parade / Long Mile Road

Tallaght to City Centre Corridor

12. Blessington Road / Cookstown Road / Belgard Road
13. Belgard Square West / Old Blessington
14. Belgard Square West / Belgard Square North
15. Belgard Square East / Belgard Square North
16. Belgard Square East / Blessington Road
17. Belgard Road / Blessington Road
18. Blessington Road / Old Bawn Main
19. Old Greenhills Road / Main Street
20. Old Greenhills Road / Greenhills Road
21. Greenhills Road / Airton Road
22. Greenhills Road / Hibernian Industrial Estate
23. Greenhills Road / Mayberry Road
24. Greenhills Road / Old Greenhills Road
25. Greenhills Road / Castletymon Road
26. Calmount Road / Ballymount Avenue
27. Calmount Road / Calmount Avenue
28. Walkinstown Roundabout
29. Walkinstown Road / Kilnamanagh Road
30. Walkinstown Road / Long Mile Road
31. Drimnagh Road / Errigal Road
32. Drimnagh Road / Kildare Road
33. Crumlin Road / Cooley Road
34. Crumlin Road / Sundrive Road
35. Crumlin Road / Dolphin Road
36. Dolphins Barn / South Circular Road
37. Cork Street / Ardee Street
38. Coombe / Dean Street
39. Patrick Street / Dean Street
40. Patrick Street / Bride Road
41. Nicholas Street / Christchurch Road

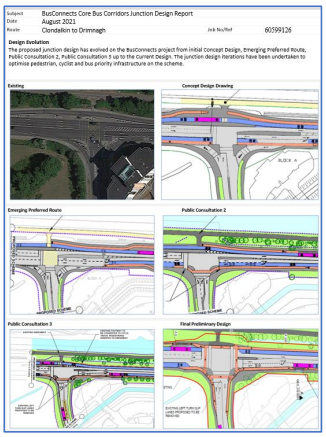
The junctions design and modelling commentary and results are presented in similar order as above in the next section.

Contents


BusConnects Core Bus Corridors Junction Design Report
February 2022
Clondalkin to Drimnagh
60599126
New Nangor Rd / Woodford Walk
EXISTING
FINAL DESIGN

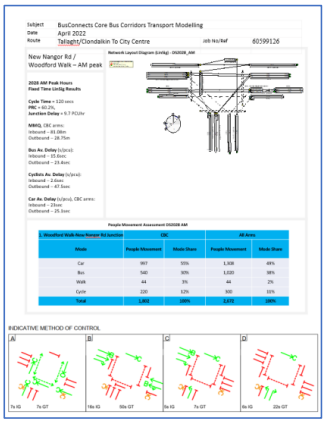
Current Proposal

- Proposed Design;
- Pedestrian Infrastructure;
- Cyclists Infrastructure;
- Bus Priority


BusConnects Core Bus Corridors Junction Design Report
August 2021
Clondalkin to Drimnagh
60599126
Design Evolution
Existing
Concept Design Drawing
Emerging Preferred Route
Public Consultation 2
Public Consultation 3
Final Preliminary Design

Design Evolution

- Existing;
- Concept Design;
- Emerged Preferred Route;
- PC2;
- PC3; and
- Current Proposal.


BusConnects Core Bus Corridors Transport Modelling
April 2022
Tallaght/Clondalkin To City Centre
60599126
New Nangor Rd / Woodford Walk – AM peak
INDICATIVE METHOD OF CONTROL

Transport Modelling

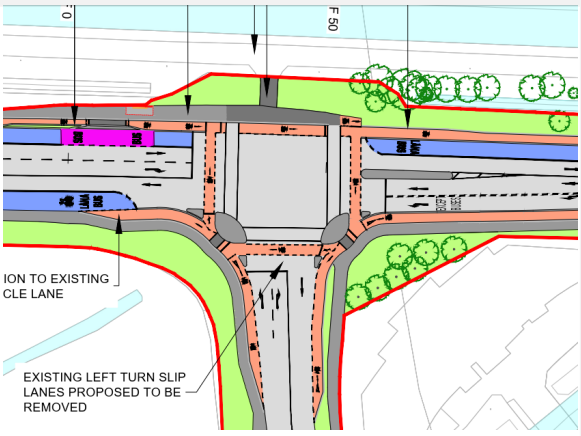
- LinSig Network outputs;
- Network Flow Diagrams; and
- People Movement.

Subject	BusConnects Core Bus Corridors Junction Design Report		
Date	February 2023		
Route	Tallaght/Clondalkin To City Centre	Job No/Ref	60599126

Junction: **New Nangor Rd / Woodford Walk**

EXISTING

FINAL DESIGN



Summary
The existing 3 arm signalised junction is proposed to be upgraded as per the BusConnects Preliminary Design Guidance Booklet to enhance pedestrian, cyclist and bus priority infrastructure. The key design rationale was to provide a more compact junction, to reduce pedestrian and cyclist crossing distances. The existing left turn slips are also proposed to be omitted to reduce the number of crossings at the junction.

Pedestrian Infrastructure
The existing junction caters for pedestrian crossings on two out of the three arms. Also, the existing Woodwalk Walf arm has 3no. Crossings due to the existing left turn slips, whilst to cross New Nangor Road, pedestrians are also required to negotiate 3no. Crossings.

The proposal will introduce a more compact junction, with pedestrian crossings proposed on all three arms of the junction. The proposal will introduce direct, single stage crossings for pedestrians. The crossing distances have also been reduced, to provide a more convenient arrangement for pedestrians.

A junction type 4 arrangement is proposed, where pedestrians will cross the cycle track via a dedicated pedestrian crossing.

Cyclists Infrastructure
No existing cyclist infrastructure is located at the junction.

The proposal includes for cycle lanes on all arms of the junction, both entering and exiting the junction. Furthermore dedicated cyclist crossings are proposed on all arms of the junction, cyclists are proposed to cross in the same phase as pedestrians, which is achievable due to the segregated crossings.

Bus Priority Infrastructure
The existing bus priority comprises of an inbound bus lane and in the outbound direction, the bus lane is curtailed priory to the stop line.

The proposal is akin to the existing arrangement, whereby the bus lane along New Nangor Road inbound is proposed up to the stop line. For the outbound bus service, a Junction Type 3 is proposed whereby the bus lane is curtailed to facilitate left turning vehicles. The length of the left turning pocket in front of the bus lane is approximately 55m as per the existing arrangement. AECOM considered reducing the left turning pocket to approximately 20m, however this resulted in significant capacity issues for general traffic, and it was therefore decided to retain the existing left turn pocket arrangement.

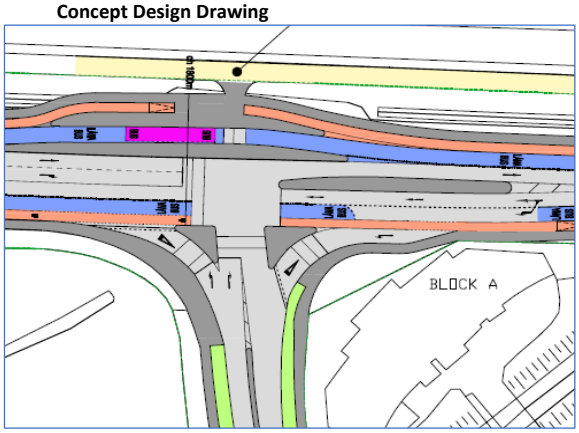
Subject	BusConnects Core Bus Corridors Junction Design Report		
Date	February 2023		
Route	Tallaght/Clondalkin To City Centre	Job No/Ref	60599126

Design Evolution

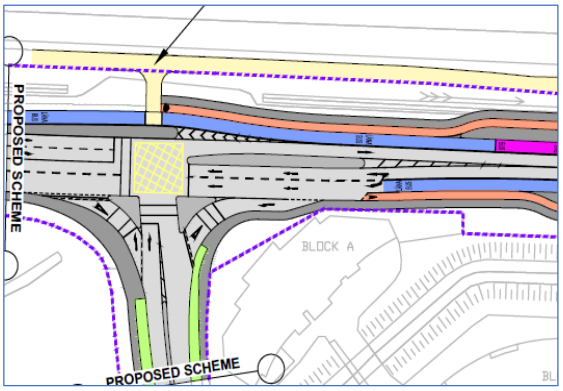
The proposed junction design has evolved on the BusConnects project from initial Concept Design, Emerging Preferred Route, Public Consultation 2, Public Consultation 3 up to the Current Design. The junction design iterations have been undertaken to optimise pedestrian, cyclist and bus priority infrastructure on the scheme.

Existing

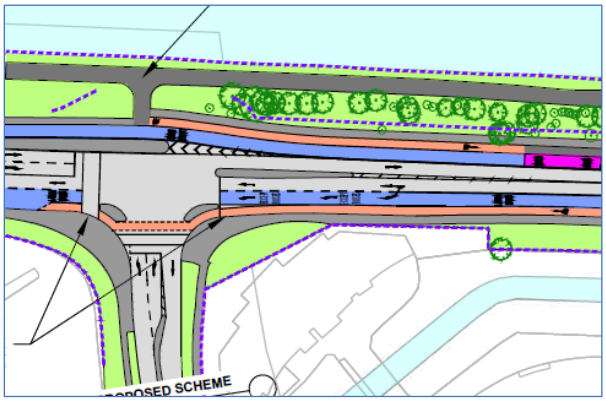
Concept Design Drawing



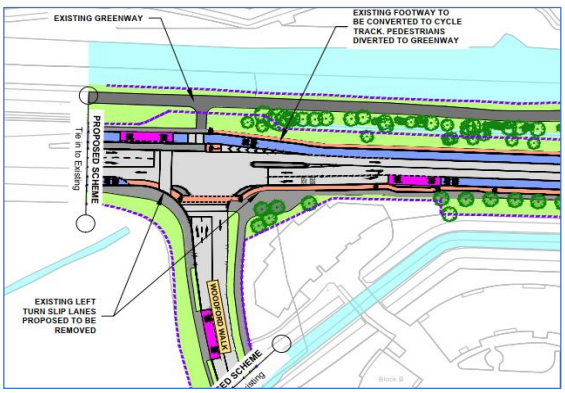
Emerging Preferred Route



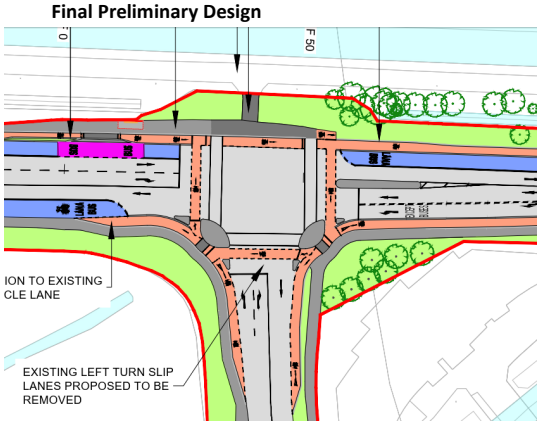
Public Consultation 2



Public Consultation 3



Final Preliminary Design



Subject	BusConnects Core Bus Corridors Transport Modelling		
Date	February 2023		
Route	Tallaght/Clondalkin To City Centre	Job No/Ref	60599126

New Nangor Rd / Woodford Walk – AM peak

2028 AM Peak Hours
Fixed Time LinSig Results

Cycle Time = 120 secs
PRC = 60.4%,
Junction Delay = 9.9 PCUhr

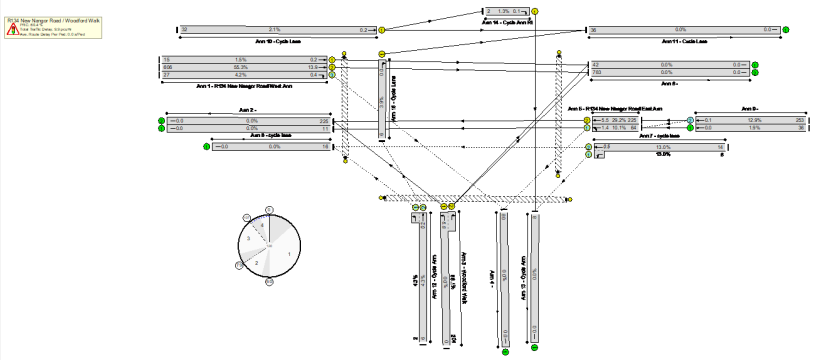
MMQ, CBC arms:
Inbound – 79.92m
Outbound – 39.1m

Bus Av. Delay (s/pcu):
Inbound – 15.1sec
Outbound – 29.6sec

Cyclists Av. Delay (s/pcu):
Inbound – 2.5sec
Outbound – 49.7sec

Car Av. Delay (s/pcu), CBC arms:
Inbound – 15.1sec
Outbound – 55.1sec

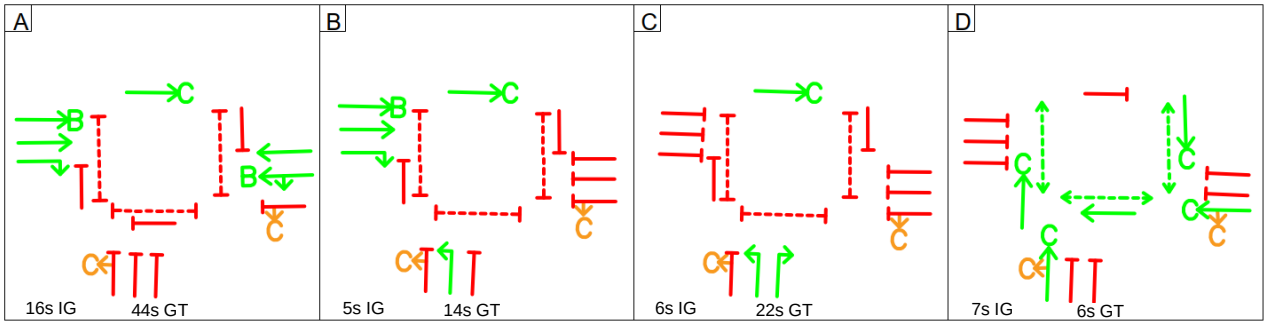
Network Layout Diagram (LinSig) - DS2028_AM



People Movement Assessment DS2028 AM

1. Woodford Walk-New Nangor Rd Junction	CBC		All Arms	
Mode	People Movement	Mode Share	People Movement	Mode Share
Car	997	55%	1,308	49%
Bus	540	30%	1,020	38%
Walk	44	3%	44	2%
Cycle	220	12%	300	11%
Total	**1,802**	**100%**	**2,672**	**100%**

INDICATIVE METHOD OF CONTROL



Subject	BusConnects Core Bus Corridors Transport Modelling		
Date	February 2023		
Route	Tallaght/Clondalkin To City Centre	Job No/Ref	60599126

New Nangor Rd / Woodford Walk – PM peak

2028 PM Peak Hours
Fixed Time LinSig Results

Cycle Time = 120 secs
PRC = 85.6%,
Junction Delay = 11.9 PCUhr

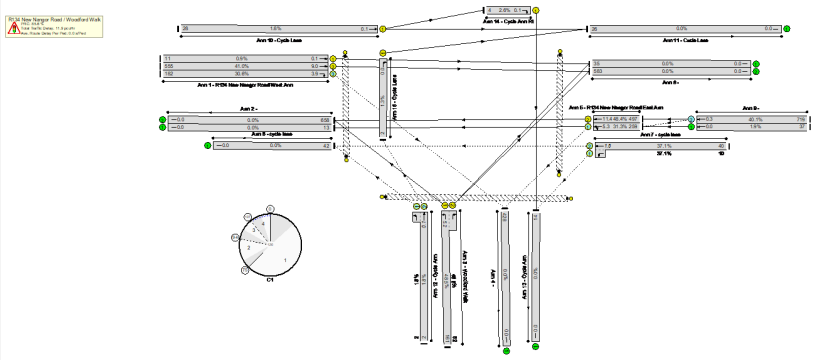
MMQ, CBC arms:
Inbound – 51.75m
Outbound – 65.55m

Bus Av. Delay (s/pcu):
Inbound – 8.6sec
Outbound – 21sec

Cyclists Av. Delay (s/pcu):
Inbound – 2.5sec
Outbound – 63.3sec

Car Av. Delay (s/pcu), CBC arms:
Inbound – 11.9sec
Outbound – 50.6sec

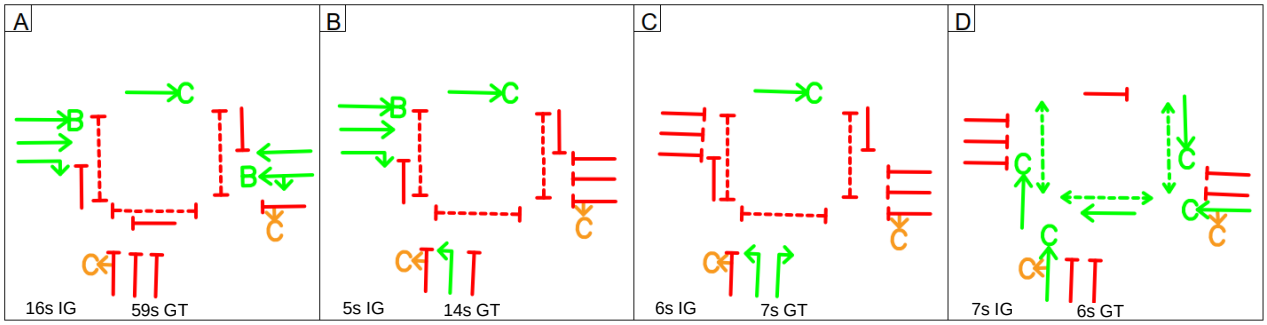
Network Layout Diagram (LinSig) - DS2028_PM



People Movement Assessment DS2028 PM

1. Woodford Walk-New Nangor Rd Junction	CBC		All Arms	
Mode	People Movement	Mode Share	People Movement	Mode Share
Car	1,262	60%	2,003	59%
Bus	480	23%	960	28%
Walk	40	2%	40	1%
Cycle	320	15%	410	12%
Total	**2,102**	**100%**	**3,412**	**100%**

INDICATIVE METHOD OF CONTROL



Subject	BusConnects Core Bus Corridors Junction Design Report		
Date	February 2023		
Route	Tallaght/Clondalkin To City Centre	Job No/Ref	60599126

Junction: **New Nangor Road / Riverview Business Park**

EXISTING

FINAL DESIGN

Summary
The existing 4 arm roundabout junction is proposed to be upgraded as per the BusConnects Preliminary Design Guidance Booklet to enhance pedestrian, cyclist and bus priority infrastructure.

The key design rationale was to introduce a new signalised junction, with more compact crossings to reduce pedestrian and cyclist crossing distances.

Pedestrian Infrastructure
The existing junction has no controlled pedestrian crossings. Uncontrolled crossings are located on the side arms.

The proposal will introduce new controlled crossings on all four arms of the junction. A junction type 4 arrangement is proposed, which will reduce pedestrian crossing distances across the carriageway.

Cyclists Infrastructure
The existing junction does not cater for cyclists.

The proposal will introduce new cycle tracks along New Nangor Road in both directions. On the side arms, a cycle entry and exit lane is proposed. Dedicated cyclist signals are proposed, the Junction Type 4 arrangement will assist cyclists to cross two arms of the junction simultaneously.

Bus Priority Infrastructure
The existing infrastructure comprises of a bus lane, which is curtailed prior to the stop line to facilitate a left turning lane. From a review of the opening year traffic flow data, the left turning volumes is projected to be low (less than 100pcus) and therefore the left turning vehicles will be limited to approx. 2-3 vehicles per cycle, and unlikely to have an impact to bus journey times.

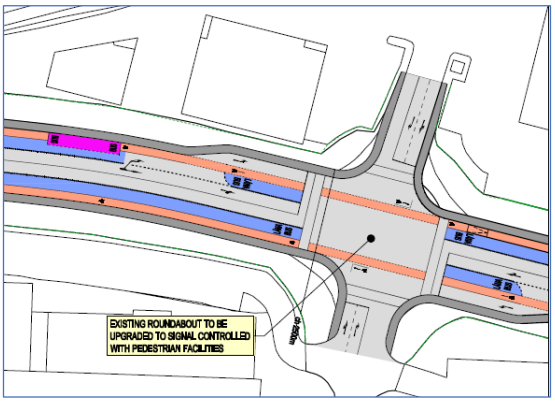
Subject	BusConnects Core Bus Corridors Junction Design Report		
Date	February 2023		
Route	Tallaght/Clondalkin To City Centre	Job No/Ref	60599126

Design Evolution

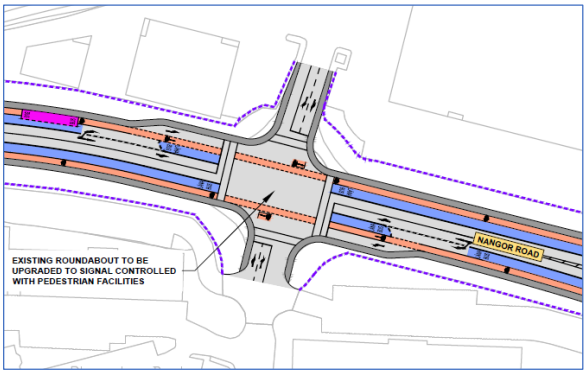
The proposed junction design has evolved on the BusConnects project from initial Concept Design, Emerging Preferred Route, Public Consultation 2, Public Consultation 3 up to the Current Design. The junction design iterations have been undertaken to optimise pedestrian, cyclist and bus priority infrastructure on the scheme.

Existing

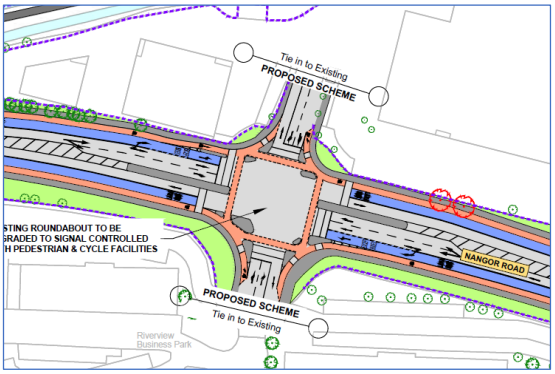
Concept Design Drawing



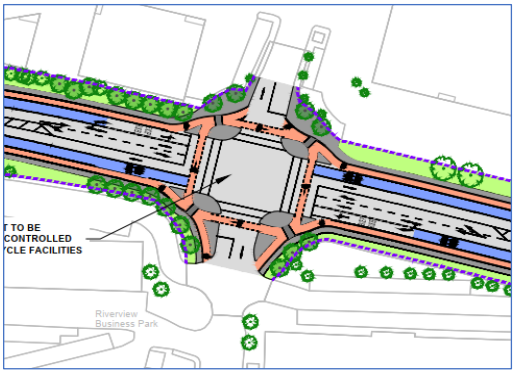
Emerging Preferred Route



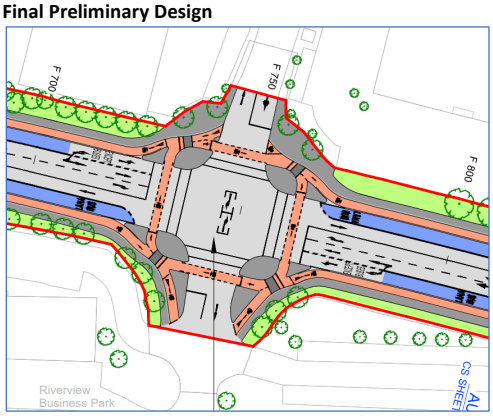
Public Consultation 2



Public Consultation 3



Final Preliminary Design



Subject	BusConnects Core Bus Corridors Transport Modelling		
Date	February 2023		
Route	Tallaght/Clondalkin To City Centre	Job No/Ref	60599126

New Nangor Rd / Riverview BP – AM peak

2028 AM Peak Hours
Fixed Time LinSig Results

Cycle Time = 120 secs
PRC = 30.4%,
Junction Delay = 9.4 PCUhr

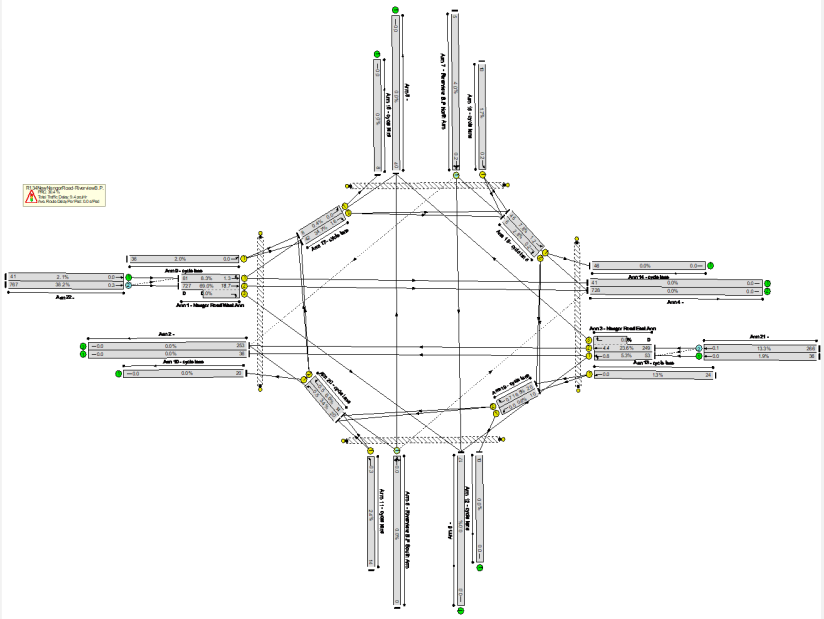
MMQ, CBC arms:
Inbound – 107.53m
Outbound – 25.3m

Bus Av. Delay (s/pcu):
Inbound – 14.8sec
Outbound – 14.4sec

Cyclists Av. Delay (s/pcu):
Inbound – 1.0sec
Outbound - 1.0sec

Car Av. Delay (s/pcu), CBC arms:
Inbound – 25.1sec
Outbound – 16.2sec

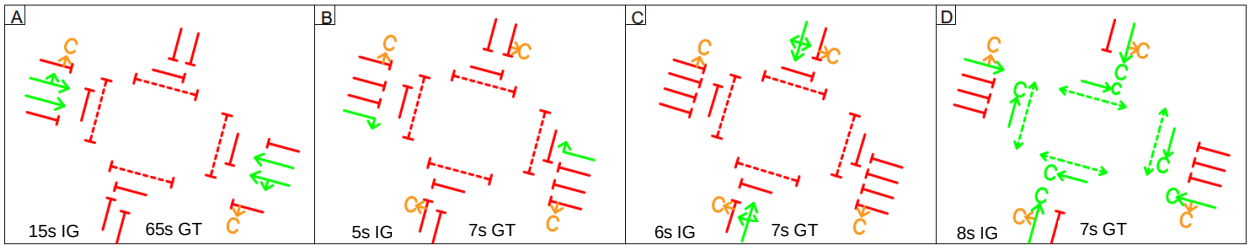
Network Layout Diagram (LinSig) - DS2028_AM



People Movement Assessment DS2028 AM

2. Riverview BP-New Nangor Rd Junction	CBC		All Arms	
Mode	People Movement	Mode Share	People Movement	Mode Share
Car	1,171	38%	1,246	37%
Bus	1560	51%	1,560	47%
Walk	48	1%	48	1%
Cycle	230	10%	420	15%
Total	**3,009**	**100%**	**3,274**	**100%**

INDICATIVE METHOD OF CONTROL



Subject	BusConnects Core Bus Corridors Transport Modelling		
Date	February 2023		
Route	Tallaght/Clondalkin To City Centre	Job No/Ref	60599126

New Nangor Rd / Riverview BP – PM peak

2028 PM Peak Hours
Fixed Time LinSig Results

Cycle Time = 120 secs
PRC = 40.7%,
Junction Delay = 13.5 PCUhr

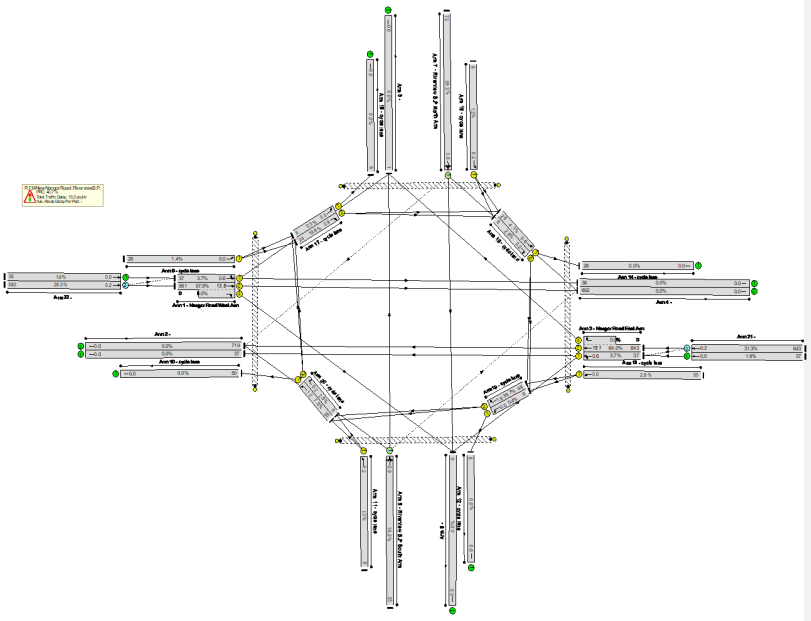
MMQ, CBC arms:
Inbound – 79.35m
Outbound – 92.58m

Bus Av. Delay (s/pcu):
Inbound – 15.7sec
Outbound – 15.7sec

Cyclists Av. Delay (s/pcu):
Inbound – 1.0sec
Outbound – 1.0sec

Car Av. Delay (s/pcu), CBC arms:
Inbound – 23.7sec
Outbound – 25.3sec

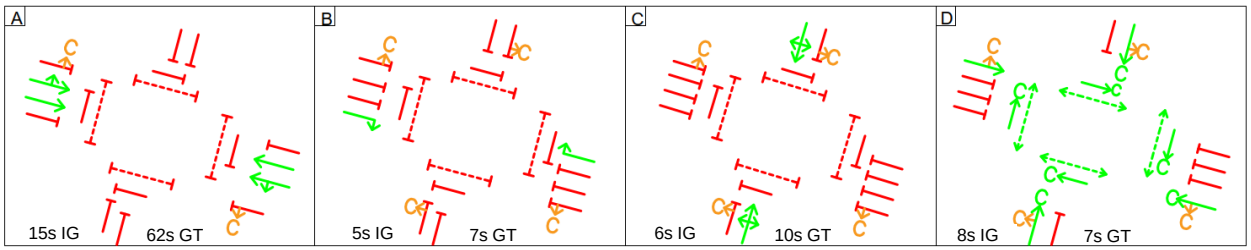
Network Layout Diagram (LinSig) - DS2028_PM



People Movement Assessment DS2028 PM

2. Riverview BP-New Nangor Rd Junction	CBC		All Arms	
Mode	People Movement	Mode Share	People Movement	Mode Share
Car	1,469	45%	1,586	45%
Bus	1,440	44%	1,440	41%
Walk	36	1%	36	1%
Cycle	320	10%	460	13%
Total	**3,265**	**100%**	**3,522**	**100%**

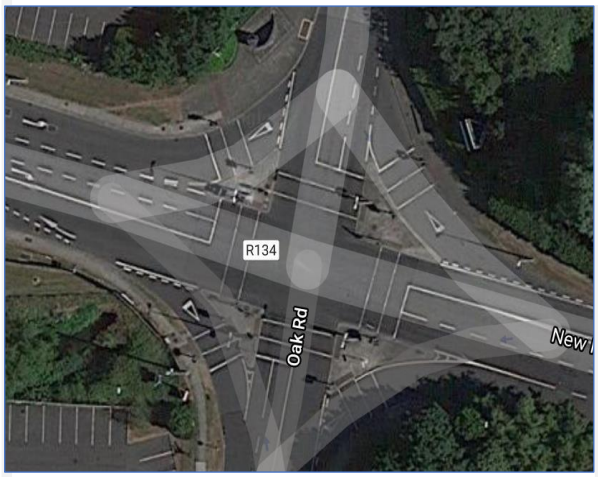
INDICATIVE METHOD OF CONTROL



Subject	BusConnects Core Bus Corridors Junction Design Report		
Date	February 2023		
Route	Tallaght/Clondalkin To City Centre	Job No/Ref	60599126

Junction: **New Nangor Rd / Oak Rd**

EXISTING



FINAL DESIGN

Summary

The existing 4 arm signalised junction is proposed to be upgraded as per the BusConnects Preliminary Design Guidance Booklet to enhance pedestrian, cyclist and bus priority infrastructure. The key design rationale was to provide a more compact junction, to reduce pedestrian and cyclist crossing distances. The existing left turn slips are also proposed to be omitted on all arms to achieve a more compact junction arrangement.

Pedestrian Infrastructure

The existing junction comprises of pedestrian crossings on all arms. However pedestrians are required to negotiate the existing left turn slips on all arms, resulting in 3no. Separate pedestrian crossings per arm. This creates an unattractive environment for pedestrians and significant pedestrian delay to cross this junction.

The proposal is to introduce a more compact junction, with a Junction Type 4 layout proposed, which reduces pedestrian crossing distances across the carriageway. The proposal will reduce the number of crossings per arm from 3no. to 1no. crossings across the carriageway.

Cyclists Infrastructure

No existing cyclist infrastructure is located at this junction.

A Junction Type 4 arrangement is proposed where the junction accommodates an orbital cycle track across the junction. This arrangement segregates cyclists from vehicular traffic. A dedicated pedestrian and cyclists crossing stage can be achieved at this location due to the segregated pedestrian and cyclist crossing facilities.

Bus Priority Infrastructure

No existing bus priority is located at the junction.

A Junction Type 1 is proposed on the inbound direction where the bus lane is proposed upto the stop line. From this lane, buses can turn left or ahead. A Junction Type 1 is proposed at this location due to a review of the future traffic data indicating a high volume of left turning traffic in the morning peak hour travelling onto Oak Road northbound. Therefore, this design will ensure left turning traffic from New Nangor Road (inbound) does not compromise bus priority at the junction.

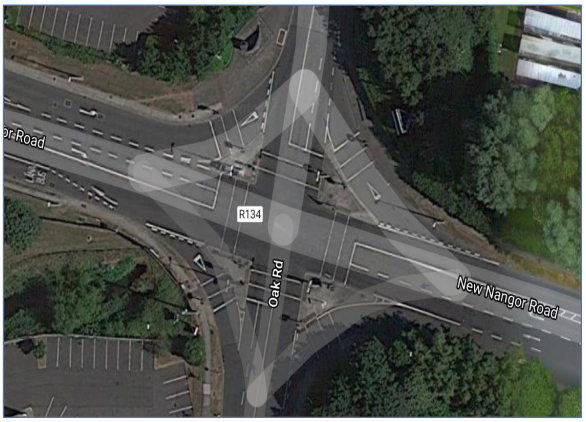
For the outbound direction, a Junction Type 3 is proposed where the bus lane is curtailed approximately 20m prior to the stop line to facilitate a short left turn pocket. From a review of the traffic flow data, the projected left turning volumes is low, less than 150pcus during the peak hours. Therefore the left turning traffic volumes would have a minimal impact to bus priority at this location. Furthermore, the Junction Type 3 provides greater capacity at the junction for all modes in comparison to Junction Type 1.

Subject	BusConnects Core Bus Corridors Junction Design Report		
Date	February 2023		
Route	Tallaght/Clondalkin To City Centre	Job No/Ref	60599126

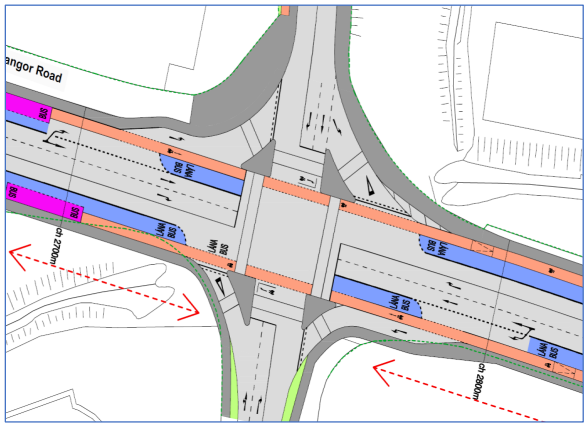
Design Evolution

The proposed junction design has evolved on the BusConnects project from initial Concept Design, Emerging Preferred Route, Public Consultation 2, Public Consultation 3 up to the Current Design. The junction design iterations have been undertaken to optimise pedestrian, cyclist and bus priority infrastructure on the scheme.

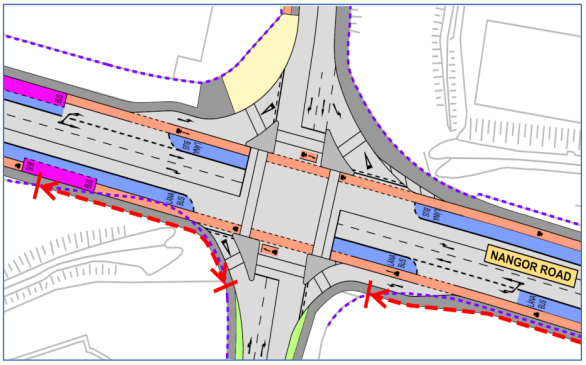
Existing



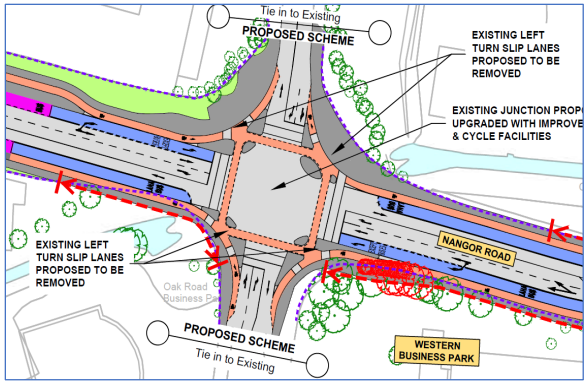
Concept Design Drawing



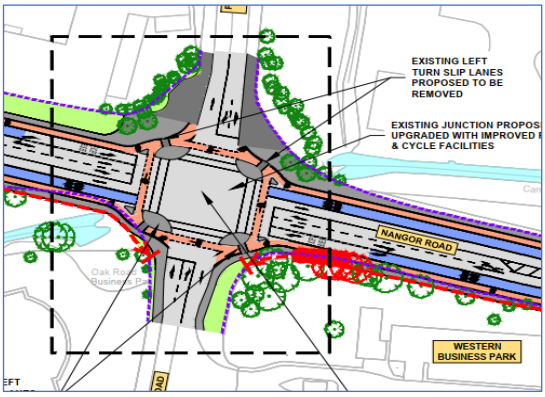
Emerging Preferred Route



Public Consultation 2



Public Consultation 3



Final Preliminary Design

Subject	BusConnects Core Bus Corridors Transport Modelling		
Date	February 2023		
Route	Tallaght/Clondalkin To City Centre	Job No/Ref	60599126

New Nangor Rd / Oak Rd – AM peak

2028 AM Peak Hours
Fixed Time LinSig Results

Cycle Time = 120 secs
PRC = -20.9%,
Junction Delay = 64.4 PCUhr

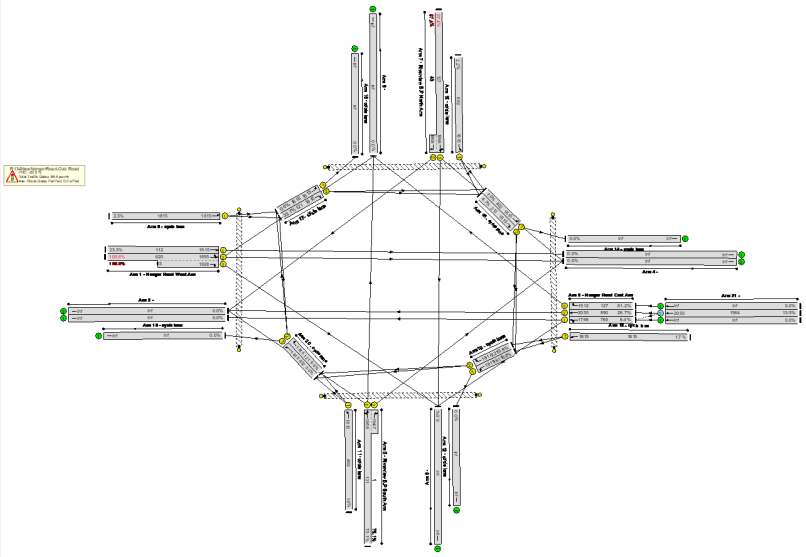
MMQ, CBC arms:
Inbound – 363.4m
Outbound – 29.9m

Bus Av. Delay (s/pcu):
Inbound – 74.9sec
Outbound – 22.3sec

Cyclists Av. Delay (s/pcu):
Inbound – 1.0sec
Outbound - 1.0sec

Car Av. Delay (s/pcu), CBC arms:
Inbound – 226.2sec
Outbound – 24.6sec

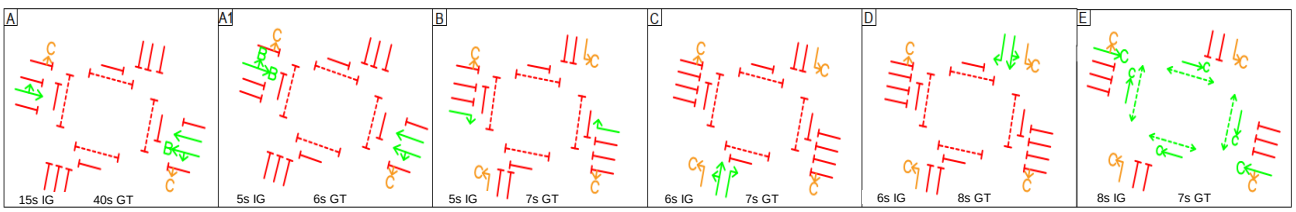
Network Layout Diagram (LinSig) - DS2028_AM



People Movement Assessment DS2028 AM

3. Oak Rd-New Nangor Rd Junction	CBC		All Arms	
Mode	**People Movement**	**Mode Share**	**People Movement**	**Mode Share**
Car	685	34.36%	1,621	51.30%
Bus	960	48.13%	960	30.38%
Walk	49	2.47%	49	1.56%
Cycle	300	15.04%	530	16.77%
Total	**1,994**	**100%**	**3,160**	**100%**

INDICATIVE METHOD OF CONTROL



Subject	BusConnects Core Bus Corridors Transport Modelling		
Date	February 2023		
Route	Tallaght/Clondalkin To City Centre	Job No/Ref	60599126

New Nangor Rd / Oak Rd – PM peak

2028 PM Peak Hours
Fixed Time LinSig Results

Cycle Time = 120 secs
PRC = -13.2%,
Junction Delay = 46.4 PCUhr

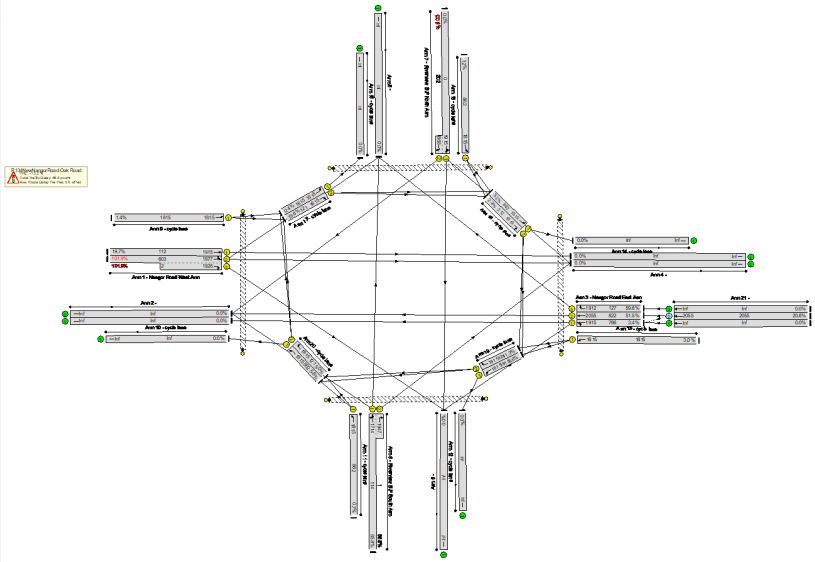
MMQ, CBC arms:
Inbound – 128.80m
Outbound – 59.80m

Bus Av. Delay (s/pcu):
Inbound – 73.9sec
Outbound – 21.8sec

Cyclists Av. Delay (s/pcu):
Inbound – 1.0sec
Outbound – 1.0sec

Car Av. Delay (s/pcu), CBC arms:
Inbound – 55.1sec
Outbound – 28.1sec

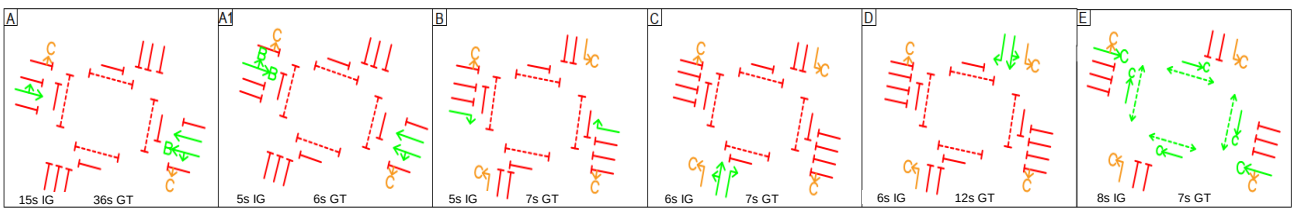
Network Layout Diagram (LinSig) - DS2028_PM



People Movement Assessment DS2028 PM

3. Oak Rd-New Nangor Rd Junction	CBC		All Arms	
Mode	People Movement	Mode Share	People Movement	Mode Share
Car	1,070	43.22%	1,703	52.25%
Bus	960	38.76%	960	29.46%
Walk	116	4.70%	116	3.57%
Cycle	330	13.32%	480	14.73%
Total	**2,477**	**100%**	**3,259**	**100%**

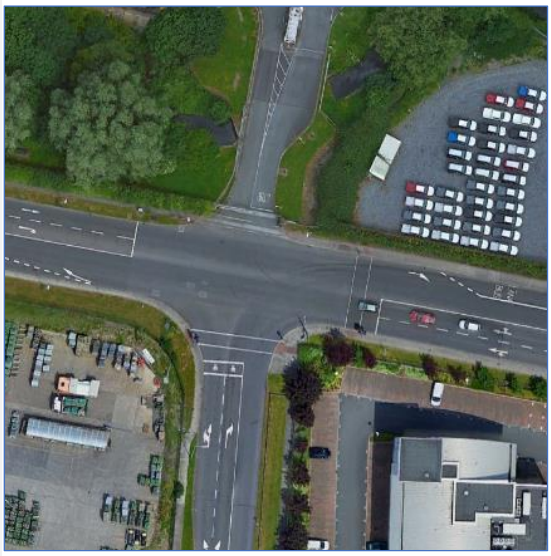
INDICATIVE METHOD OF CONTROL



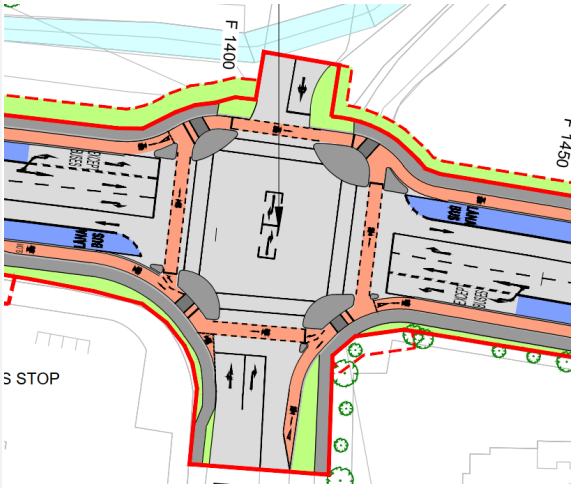
Subject	BusConnects Core Bus Corridors Junction Design Report		
Date	February 2023		
Route	Tallaght/Clondalkin To City Centre	Job No/Ref	60599126

Junction: **New Nangor Rd / Willow Rd**

EXISTING



FINAL DESIGN



Summary
The existing 4 arm signalised junction is proposed to be upgraded as per the BusConnects Preliminary Design Guidance Booklet to enhance pedestrian, cyclist and bus priority infrastructure.

The key design rationale was to provide a more compact junction, to reduce pedestrian and cyclist crossing distances, whilst introducing new cycle signals to manage the flow of cyclists through the junction.

Pedestrian Infrastructure
The existing junction comprises of pedestrian crossings on 3 arms of the junction. The proposal will provide controlled crossings on all 4 arms of the junction.

As noted below, an orbital cycle track is proposed at the junction. Controlled raised pedestrian crossings are proposed across the cycle track, where cyclists will have to stop to facilitate pedestrians crossings at these locations.

The junction radius has also been significantly reduced as per the DMURS guidelines to facilitate more compact and reduced pedestrian crossing distances.

Cyclists Infrastructure
It is proposed to introduce a Junction Type 4 design, where an orbital cycle track is proposed at the junction. This junction type is proposed due to the high volume of larger vehicles on New Nangor Road, the Junction Type 4 therefore offers a greater level of segregation between cyclists and vehicles to further enhance cyclist safety. The cyclists crossings are proposed to be segregated from the pedestrian crossings, to assist in crossing stage for cyclists will run simultaneously as the pedestrian crossing stage.

Bus Priority Infrastructure
The proposed bus priority infrastructure is akin to Junction Type 3, where the bus lane is curtailed approximately 20m prior to the stop line to facilitate left turning vehicles. A Junction Type 1 was considered at this location, however due to the low volume of left turning vehicles into the side roads, a junction type 3 provides greater capacity for all modes and enhances people movement.

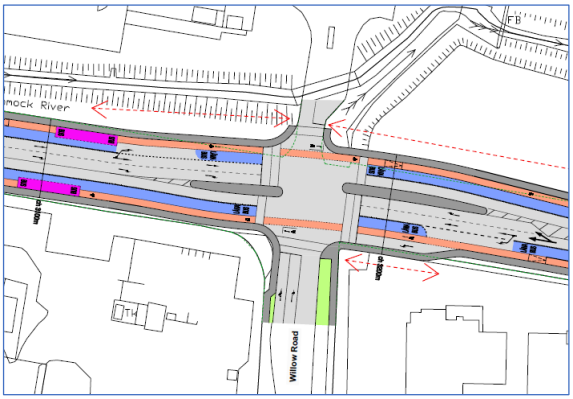
Subject	BusConnects Core Bus Corridors Junction Design Report		
Date	February 2023		
Route	Tallaght/Clondalkin To City Centre	Job No/Ref	60599126

Design Evolution

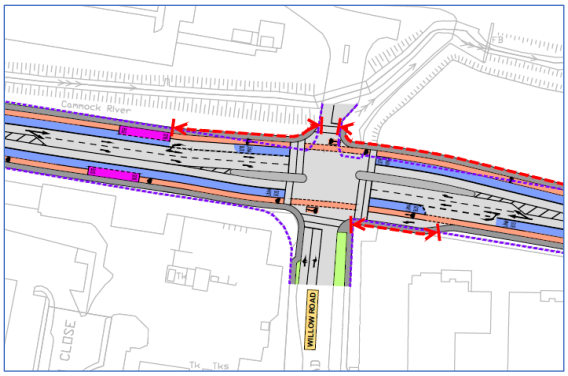
The proposed junction design has evolved on the BusConnects project from initial Concept Design, Emerging Preferred Route, Public Consultation 2, Public Consultation 3 up to the Current Design. The junction design iterations have been undertaken to optimise pedestrian, cyclist and bus priority infrastructure on the scheme.

Existing

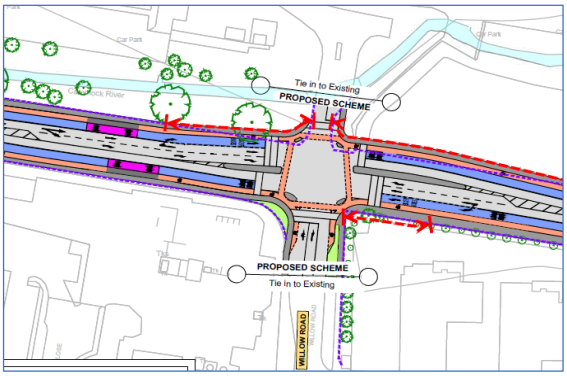
Concept Design Drawing



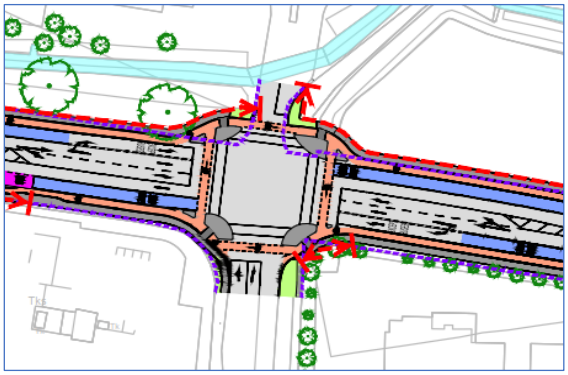
Emerging Preferred Route



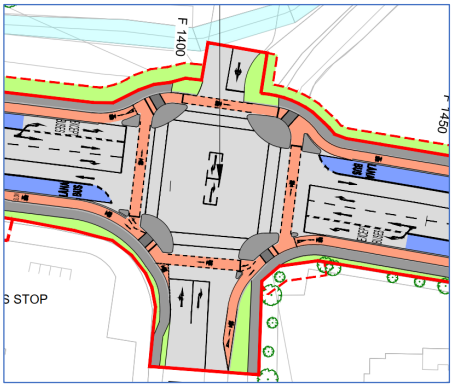
Public Consultation 2



Public Consultation 3



Final Preliminary Design



Subject	BusConnects Core Bus Corridors Transport Modelling		
Date	February 2023		
Route	Tallaght/Clondalkin To City Centre	Job No/Ref	60599126

New Nangor Rd / Willow Rd – AM peak

2028 AM Peak Hours
Fixed Time LinSig Results

Cycle Time = 120 secs
PRC = 84.1%,
Junction Delay = 13.6 PCUhr

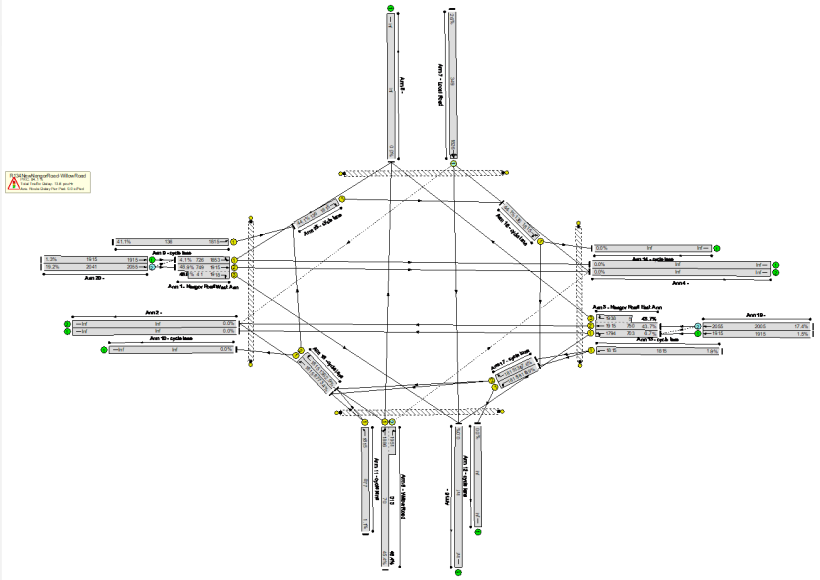
MMQ, CBC arms:
Inbound – 55.2m
Outbound – 48.3m

Bus Av. Delay (s/pcu):
Inbound – 25.2sec
Outbound – 25.6sec

Cyclists Av. Delay (s/pcu):
Inbound – 75.3sec
Outbound – 9.7sec

Car Av. Delay (s/pcu), CBC arms:
Inbound – 33.2sec
Outbound – 31.2sec

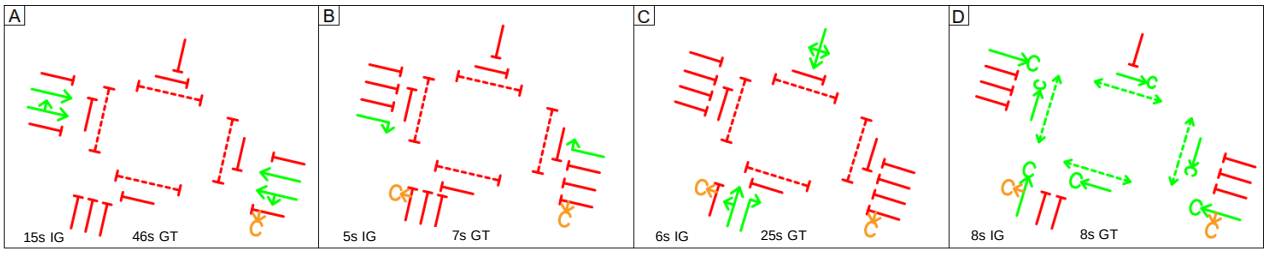
Network Layout Diagram (LinSig) - DS2028_AM



People Movement Assessment DS2028 AM

4. Willow Rd - New Nangor Rd Junction	CBC		All Arms	
Mode	**People Movement**	**Mode Share**	**People Movement**	**Mode Share**
Car	833	37%	1,109	42%
Bus	1,020	45%	1,020	38%
Walk	31	2%	31	1%
Cycle	370	16%	500	19%
Total	**2,254**	**100%**	**2,660**	**100%**

INDICATIVE METHOD OF CONTROL



Subject	BusConnects Core Bus Corridors Transport Modelling		
Date	February 2023		
Route	Tallaght/Clondalkin To City Centre	Job No/Ref	60599126

New Nangor Rd / Willow Rd – PM peak

2028 PM Peak Hours
Fixed Time LinSig Results

Cycle Time = 120 secs
PRC = 57.6%,
Junction Delay = 14.1 PCUhr

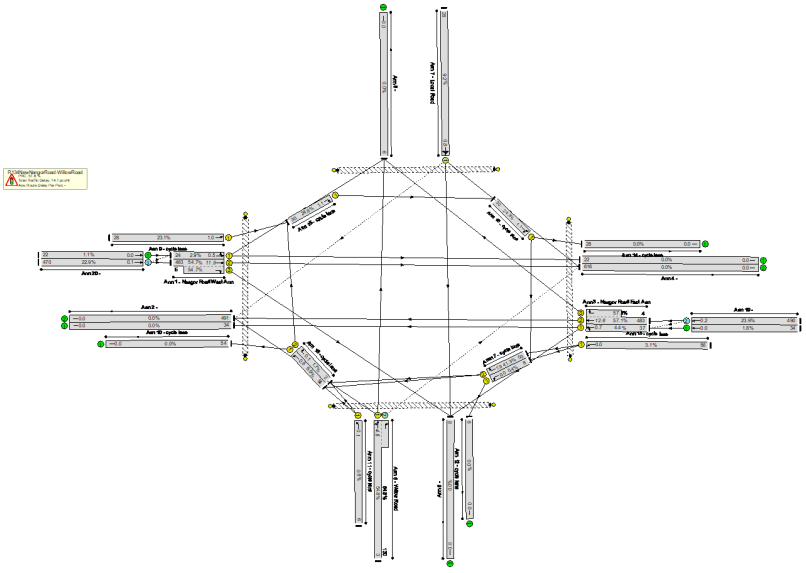
MMQ, CBC arms:
Inbound – 68.43m
Outbound – 72.45m

Bus Av. Delay (s/pcu):
Inbound – 21.2sec
Outbound – 21.4sec

Cyclists Av. Delay (s/pcu):
Inbound – 72.4sec
Outbound – 9.3sec

Car Av. Delay (s/pcu), CBC arms:
Inbound – 29.6sec
Outbound – 30.1sec

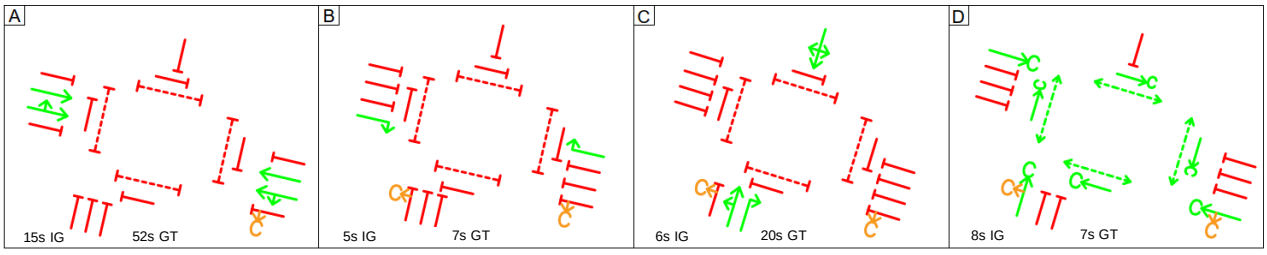
Network Layout Diagram (LinSig) - DS2028_PM



People Movement Assessment DS2028 PM

4. Willow Rd - New Nangor Rd Junction	CBC		All Arms	
Mode	**People Movement**	**Mode Share**	**People Movement**	**Mode Share**
Car	1,135	42%	1,345	45%
Bus	1,140	42%	1,140	38%
Walk	53	2%	53	2%
Cycle	380	14%	450	15%
Total	**2,708**	**100%**	**2,988**	**100%**

INDICATIVE METHOD OF CONTROL



Subject	BusConnects Core Bus Corridors Junction Design Report		
Date	February 2023		
Route	Tallaght/Clondalkin To City Centre	Job No/Ref	60599126

Junction: **New Nangor Rd / Killeen Rd (N)**

EXISTING

FINAL DESIGN

Summary
The existing 3 arm signalised junction is proposed to be upgraded as per the BusConnects Preliminary Design Guidance Booklet to enhance pedestrian, cyclist and bus priority infrastructure.

The key design rationale was to provide a more compact junction, to reduce pedestrian and cyclist crossing distances. The existing left turn slips are also proposed to be omitted on all arms to achieve a more compact junction arrangement.

Pedestrian Infrastructure
As noted above, the existing junction is proposed to be upgraded to provide a more compact junction arrangement. The existing left turn slips from New Nangor Road onto Killeen Road, and from Killeen Road to New Nangor Road are proposed to be omitted. This does reduce vehicular capacity but provides a more compact junction, reducing crossing distances for pedestrians and cyclists.

Raised controlled pedestrian crossings are also proposed across the cycle track to ensure pedestrian priority at crossing locations.

Cyclists Infrastructure
No existing cycling infrastructure is located at the junction. The proposal will introduce cycle tracks with new cyclists signals to facilitate cyclists crossing New Nangor Road and Killeen Road.

Bus Priority Infrastructure
As per the existing arrangement, bus priority outbound along New Nangor Road will comprise of a continuous bus lane. The outbound bus lane bypasses the junction therefore offering greater green time for outbound buses.

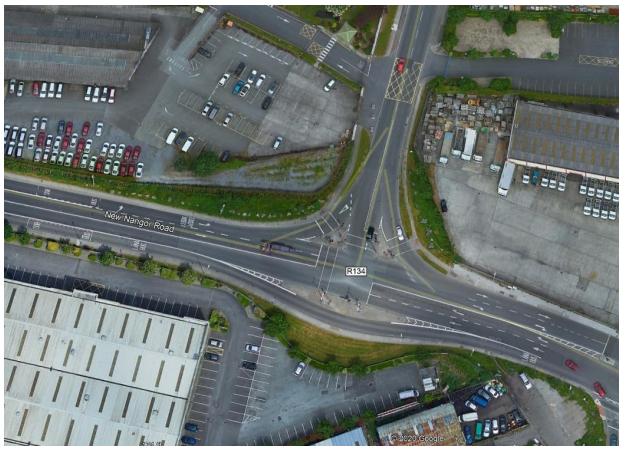
The inbound bus priority design is akin to Junction Type 2, with a proposed break in the bus lane to facilitate a left turning lane. This arrangement is proposed following a review of the future traffic data, which indicated the volume of left turning volumes requiring additional capacity.

Subject	BusConnects Core Bus Corridors Junction Design Report		
Date	February 2023		
Route	Tallaght/Clondalkin To City Centre	Job No/Ref	60599126

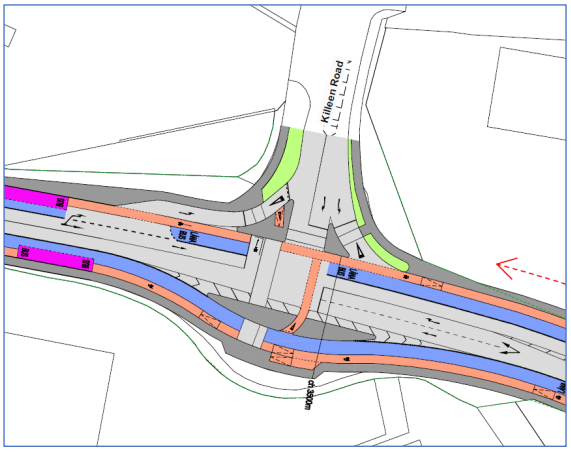
Design Evolution

The proposed junction design has evolved on the BusConnects project from initial Concept Design, Emerging Preferred Route, Public Consultation 2, Public Consultation 3 up to the Current Design. The junction design iterations have been undertaken to optimise pedestrian, cyclist and bus priority infrastructure on the scheme.

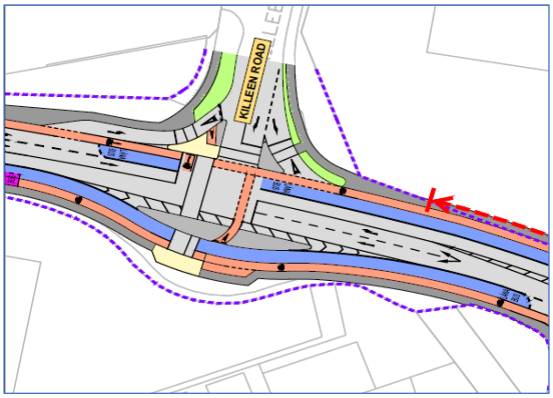
Existing



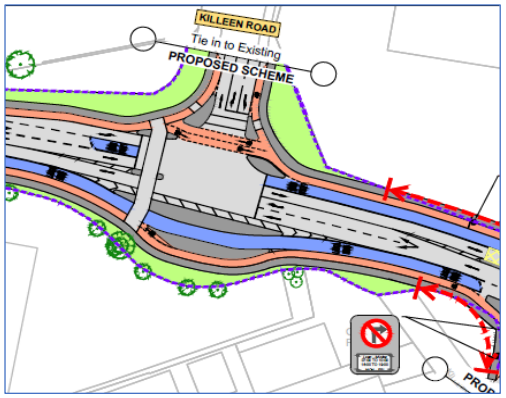
Concept Design Drawing



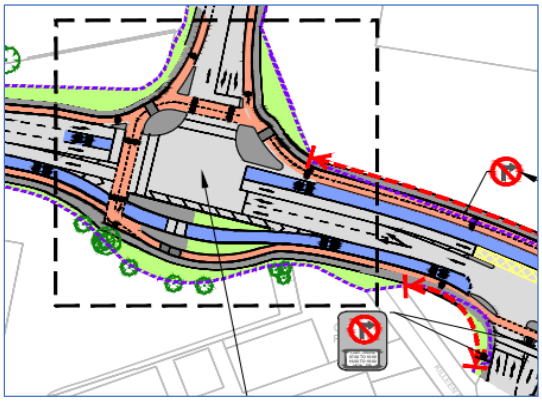
Emerging Preferred Route



Public Consultation 2



Public Consultation 3



Final Preliminary Design

Subject	BusConnects Core Bus Corridors Transport Modelling		
Date	February 2023		
Route	Tallaght/Clondalkin To City Centre	Job No/Ref	60599126

New Nangor Rd / Killeen Rd (N) – AM peak

2028 AM Peak Hours
Fixed Time LinSig Results

Cycle Time = 120 secs
PRC = 40.1%,
Junction Delay = 16.6 PCUhr

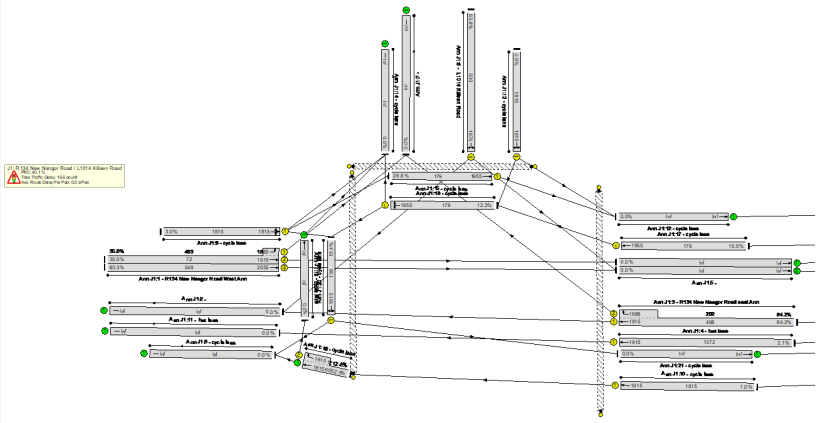
MMQ, CBC arms:
Inbound – 63.25m
Outbound – 59.22m

Bus Av. Delay (s/pcu):
Inbound – 36.4sec
Outbound – 34.6sec

Cyclists Av. Delay (s/pcu):
Inbound – 1.0sec
Outbound - 1.0sec

Car Av. Delay (s/pcu), CBC arms:
Inbound – 47.7sec
Outbound – 48.8sec

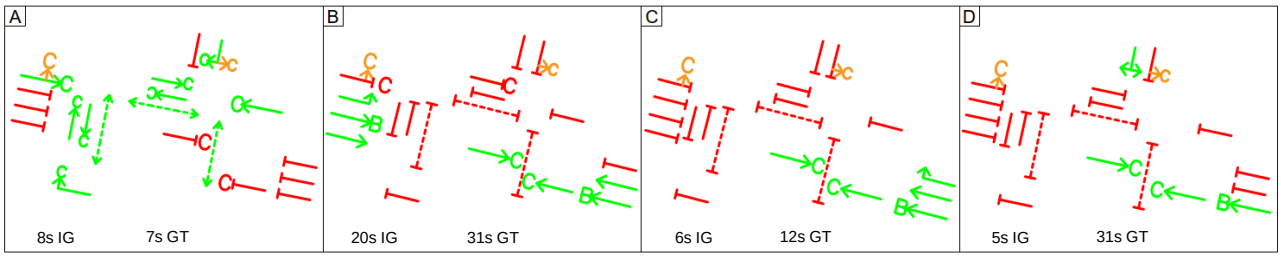
Network Layout Diagram (LinSig) - DS2028_AM



People Movement Assessment DS2028 AM

5. L1014 Killeen Rd - New Nangor Rd Junction	CBC		All Arms	
Mode	People Movement	Mode Share	People Movement	Mode Share
Car	695	32%	1,436	47%
Bus	1,080	49%	1,080	35%
Walk	18	1%	18	1%
Cycle	400	18%	530	17%
Total	**2,193**	**100%**	**3,064**	**100%**

INDICATIVE METHOD OF CONTROL



Subject	BusConnects Core Bus Corridors Transport Modelling		
Date	February 2023		
Route	Tallaght/Clondalkin To City Centre	Job No/Ref	60599126

New Nangor Rd / Killeen Rd (N) – PM peak

2028 PM Peak Hours
Fixed Time LinSig Results

Cycle Time = 120 secs
PRC = 2.9%,
Junction Delay = 25.7 PCUhr

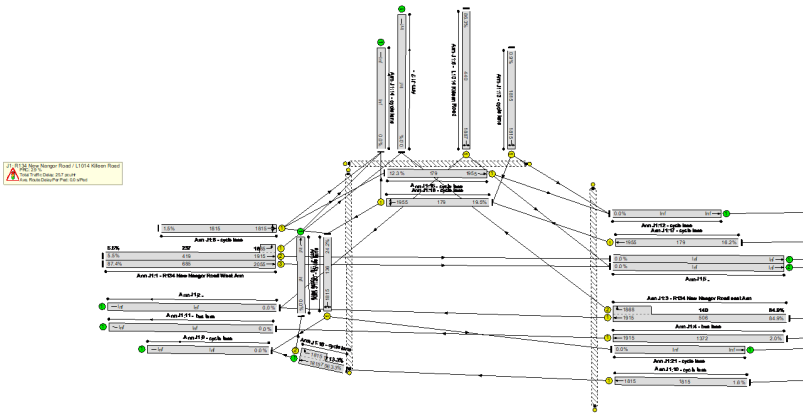
MMQ, CBC arms:
Inbound – 125.92m
Outbound – 86.25m

Bus Av. Delay (s/pcu):
Inbound – 28.5sec
Outbound – 5.5sec

Cyclists Av. Delay (s/pcu):
Inbound – 1.0sec
Outbound – 1.0sec

Car Av. Delay (s/pcu), CBC arms:
Inbound – 57.1sec
Outbound – 71.4sec

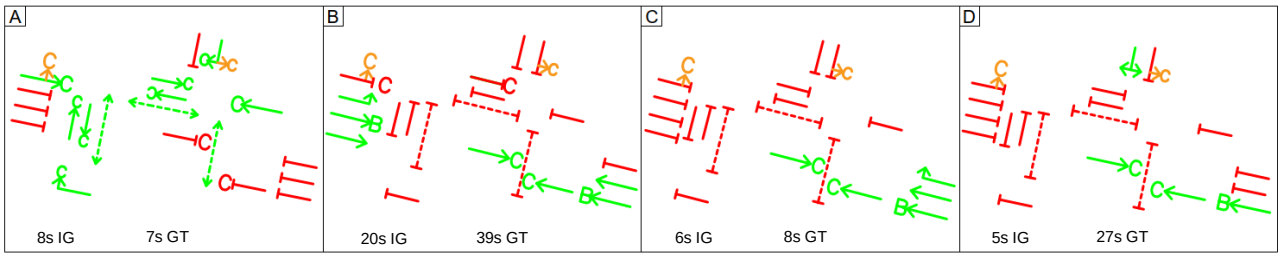
Network Layout Diagram (LinSig) - DS2028_PM



People Movement Assessment DS2028 PM

5. L1014 Killeen Rd - New Nangor Rd Junction	CBC		All Arms	
Mode	**People Movement**	**Mode Share**	**People Movement**	**Mode Share**
Car	1,204	46%	1,818	54%
Bus	1,020	39%	1,020	30%
Walk	18	1%	18	1%
Cycle	370	14%	510	15%
Total	**2,612**	**100%**	**3,366**	**100%**

INDICATIVE METHOD OF CONTROL

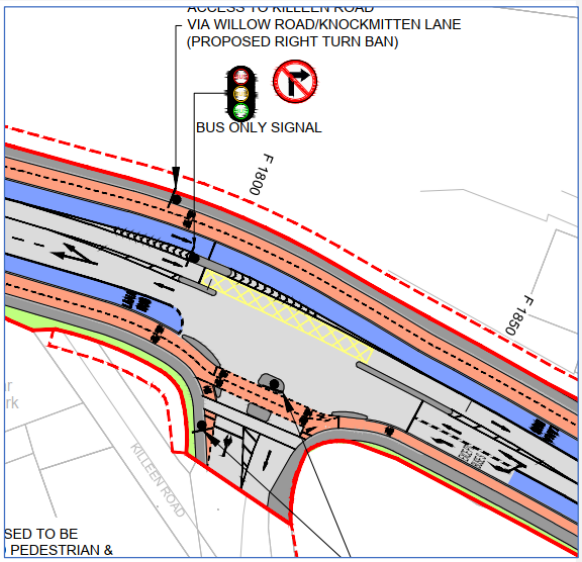


Subject	BusConnects Core Bus Corridors Junction Design Report		
Date	February 2023		
Route	Tallaght/Clondalkin To City Centre	Job No/Ref	60599126

Junction: **New Nangor Rd / Killeen Rd (S)**

EXISTING

FINAL DESIGN



Summary
The existing 3 arm signalised junction is proposed to be upgraded as per the BusConnects Preliminary Design Guidance Booklet to enhance pedestrian, cyclist and bus priority infrastructure.

The key design rationale was to provide a more compact junction, to reduce pedestrian and cyclist crossing distances.

Pedestrian Infrastructure
It is proposed to provide a direct single stage crossing on the southern arm across Killeen Road (S).

A pedestrian crossing was considered across New Nangor Road, however the proposal will introduce pedestrian crossings at the Killeen Road (N) / New Nangor Road signalised junction nearby, therefore this should cater for the pedestrian desire line across New Nangor Road.

Cyclists Infrastructure
No existing cycle infrastructure is located the junction, the proposal will significantly enhance cycle infrastructure by introducing a continuous two way cycle track on the northern side of New Nangor Road. Furthermore, on the southern side of New Nangor Road, a single cycle track is proposed upto Killeen Road (S), with a two way cycle track proposed after the Killeen Road (S) up to the Killeen Road (N) junction.

Bus Priority Infrastructure
For the inbound direction along New Nangor Road, a continuous bus lane is proposed as per Junction Type 1.

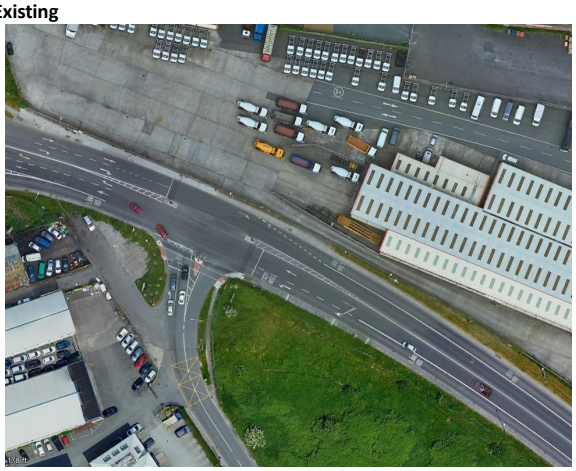
For the outbound direction along New Nangor Road, a Junction Type 3 is proposed where the bus lane is curtailed approximately 20m prior to the stop line to facilitate left turning vehicular movements. A review of the future traffic flow data indicates the volume of left turning movement will be relatively low and therefore can be accommodated within the proposed left turning pocket, without materially impacting upon bus priority.

Subject	BusConnects Core Bus Corridors Junction Design Report		
Date	February 2023		
Route	Tallaght/Clondalkin To City Centre	Job No/Ref	60599126

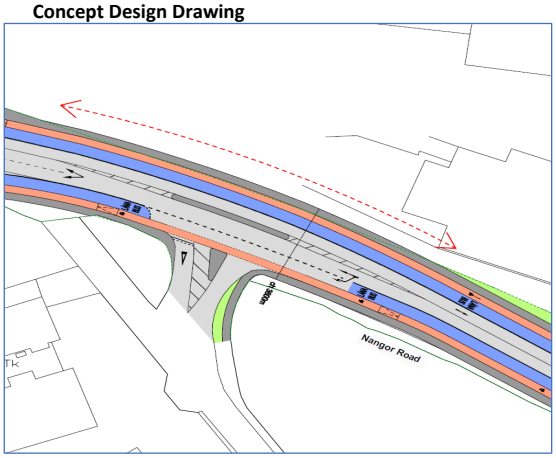
Design Evolution

The proposed junction design has evolved on the BusConnects project from initial Concept Design, Emerging Preferred Route, Public Consultation 2, Public Consultation 3 up to the Current Design. The junction design iterations have been undertaken to optimise pedestrian, cyclist and bus priority infrastructure on the scheme.

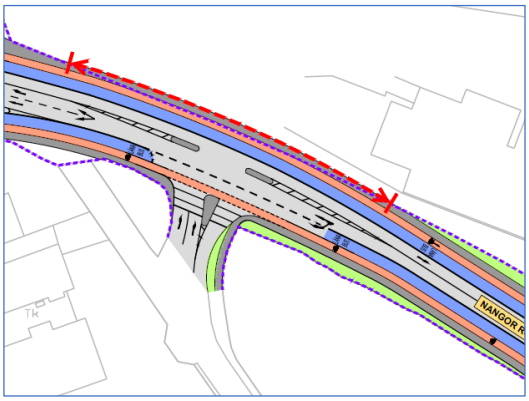
Existing



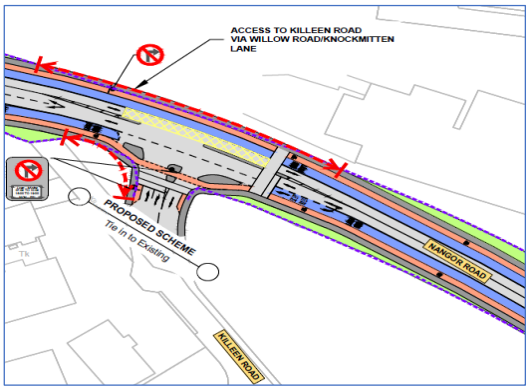
Concept Design Drawing



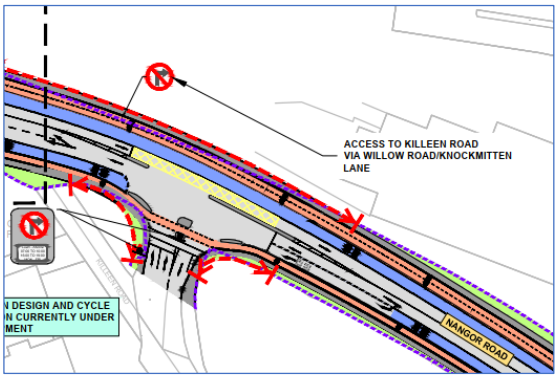
Emerging Preferred Route



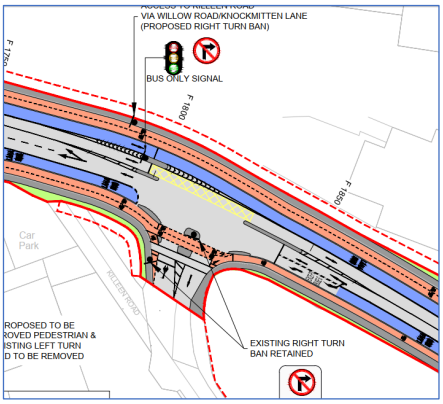
Public Consultation 2



Public Consultation 3



Final Preliminary Design



Subject	BusConnects Core Bus Corridors Transport Modelling		
Date	February 2023		
Route	Tallaght/Clondalkin To City Centre	Job No/Ref	60599126

New Nangor Rd / Killeen Rd (S) – AM peak

2028 AM Peak Hours
Fixed Time LinSig Results

Cycle Time = 120 secs
PRC = 67.4%,
Junction Delay = 4.0 PCUhr

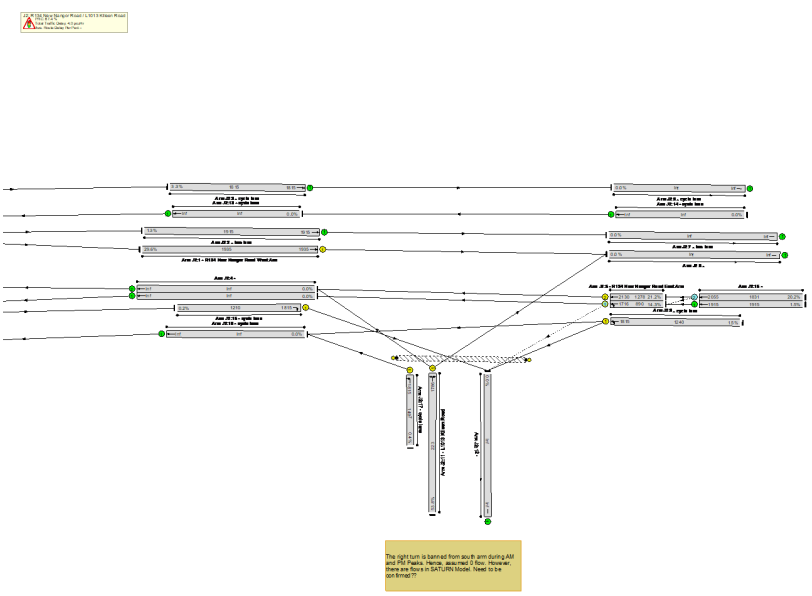
MMQ, CBC arms:
Inbound – 1.15m
Outbound – 23.58m

Bus Av. Delay (s/pcu):
Inbound – 1.0sec
Outbound – 12.9sec

Cyclists Av. Delay (s/pcu):
Inbound – 1.0sec
Outbound – 7.3sec

Car Av. Delay (s/pcu), CBC arms:
Inbound – 1.3sec
Outbound – 12.8sec

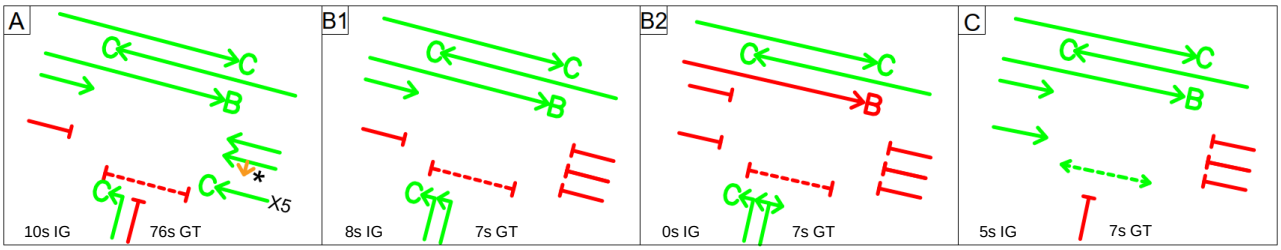
Network Layout Diagram (LinSig) - DS2028_AM



People Movement Assessment DS2028 AM

6. L1013 Killeen Rd - New Nangor Rd Junction	CBC		All Arms	
Mode	People Movement	Mode Share	People Movement	Mode Share
Car	1,002	41%	1,264	45%
Bus	960	39%	960	35%
Walk	18	1%	18	1%
Cycle	450	19%	520	19%
Total	**2,430**	**100%**	**2,762**	**100%**

INDICATIVE METHOD OF CONTROL



B1 PEAK TIME STAGING (7:00-10:00 and 16:00-19:00, Monday to Friday / No Right Turn)
B2 OFF-PEAK STAGING
* denotes Flashing Amber
X5 denotes Advance 5 seconds Start for Cyclists

Subject	BusConnects Core Bus Corridors Transport Modelling		
Date	February 2023		
Route	Tallaght/Clondalkin To City Centre	Job No/Ref	60599126

New Nangor Rd / Killeen Rd (S) – PM peak

2028 PM Peak Hours
Fixed Time LinSig Results

Cycle Time = 120 secs
PRC = 55.3%,
Junction Delay = 5.7 PCUhr

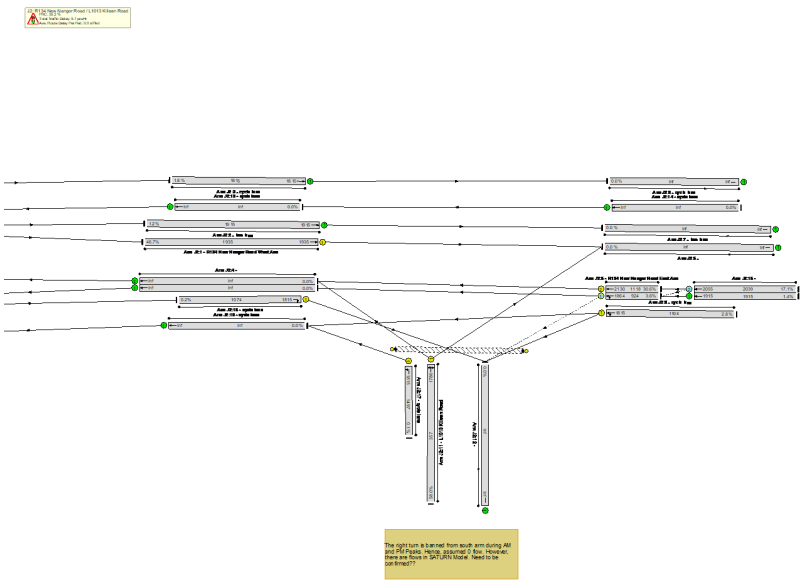
MMQ, CBC arms:
Inbound – 2.30m
Outbound – 37.38m

Bus Av. Delay (s/pcu):
Inbound – 1.0sec
Outbound – 15.8sec

Cyclists Av. Delay (s/pcu):
Inbound – 1.0sec
Outbound – 11.1sec

Car Av. Delay (s/pcu), CBC arms:
Inbound – 1.7sec
Outbound – 18.4sec

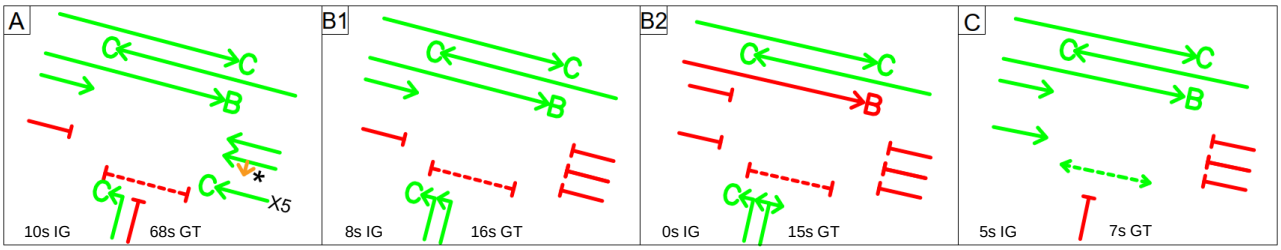
Network Layout Diagram (LinSig) - DS2028_PM



People Movement Assessment DS2028 PM

6. L1013 Killeen Rd - New Nangor Rd Junction	CBC		All Arms	
Mode	People Movement	Mode Share	People Movement	Mode Share
Car	1,442	50%	1,698	54%
Bus	960	34%	960	30%
Walk	18	1%	18	1%
Cycle	440	15%	480	15%
Total	**2,860**	**100%**	**3,156**	**100%**

INDICATIVE METHOD OF CONTROL



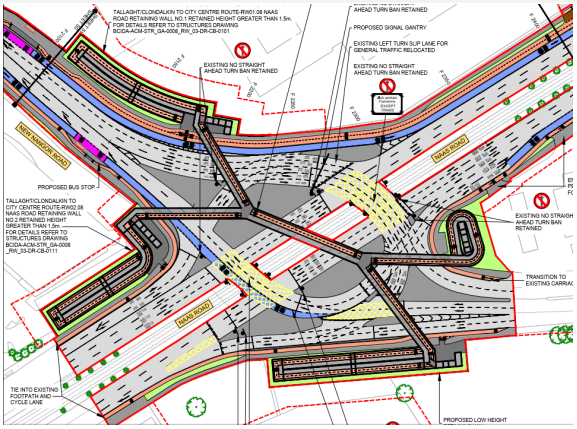
B1 PEAK TIME STAGING (7:00-10:00 and 16:00-19:00, Monday to Friday / No Right Turn)
B2 OFF-PEAK STAGING
* denotes Flashing Amber
X5 denotes Advance 5 seconds Start for Cyclists

Subject	BusConnects Core Bus Corridors Junction Design Report		
Date	February 2023		
Route	Tallaght/Clondalkin To City Centre	Job No/Ref	60599126

Junction: **Naas Rd / Long Mile Rd / New Nangor Rd**

EXISTING

FINAL DESIGN



Summary
The existing major 4 arm signalised junction is proposed to be upgraded as per the BusConnects Preliminary Design Guidance Booklet to enhance pedestrian, cyclist and bus priority infrastructure.

Pedestrian Infrastructure
The existing junction comprises of a number of existing pedestrian crossings, where pedestrians cross the junction in stages. For instance pedestrians crossing the New Nangor Road arm of the junction are required to cross four separate pedestrian crossings, creating an excessive crossing time and significant delay to pedestrians. A similar arrangement exists at the existing crossing on Long Mile Road and Naas Road.

The proposal includes the introduction of a new pedestrian and cyclist bridge across the junction. The bridge can be access from all four sides of the junction. This will offer pedestrians and cyclists with a safety and continuous arrangement to cross the junction.

Cyclists Infrastructure
Existing on road cycle lanes are located along Naas Road. Otherwise no existing cycle infrastructure is located at the junction.

The proposal will significantly enhance cycle infrastructure by providing cycle tracks continuous through the junction, which will significantly enhance cyclist safety. As noted previously a new bridge is proposed, which will cater for both pedestrians and cyclists crossing the junction.

A two way cycle track is proposed along the northern side of New Nangor Road onto Naas Road to provide a continuous cycle facility in both inbound and outbound directions.

Bus Priority Infrastructure
No existing bus priority is located through the junction.

The proposed inbound bus lane along New Nangor Road will be continuous onto Naas Road towards the City Centre.

For the outbound bus services, the bus lane is curtailed prior to the junction to facilitate left turnin

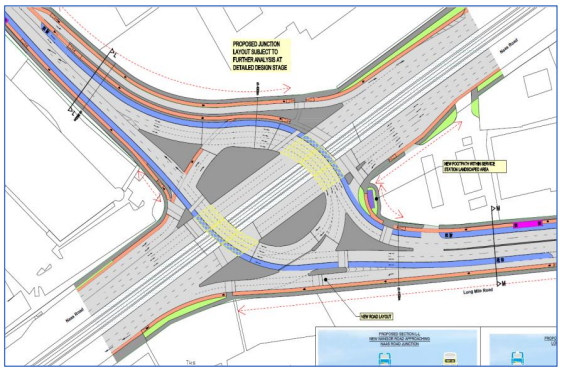
Subject	BusConnects Core Bus Corridors Junction Design Report		
Date	February 2023		
Route	Tallaght/Clondalkin To City Centre	Job No/Ref	60599126

Design Evolution

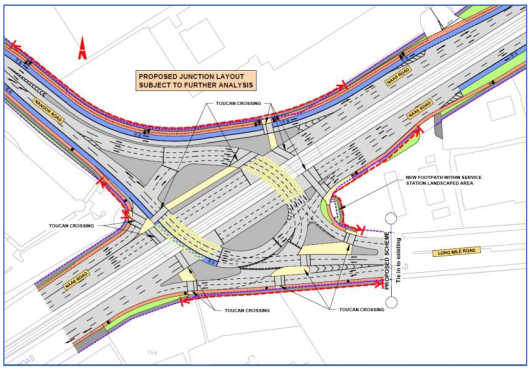
The proposed junction design has evolved on the BusConnects project from initial Concept Design, Emerging Preferred Route, Public Consultation 2, Public Consultation 3 up to the Current Design. The junction design iterations have been undertaken to optimise pedestrian, cyclist and bus priority infrastructure on the scheme.

Existing

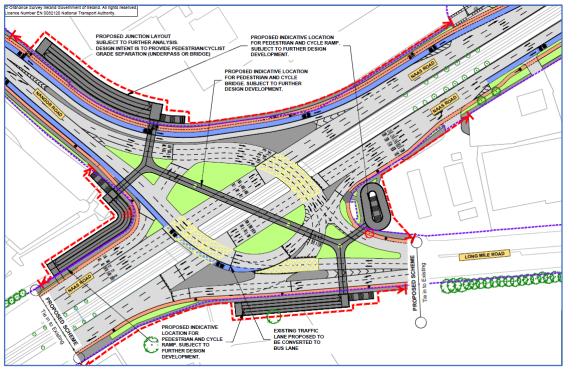
Concept Design Drawing



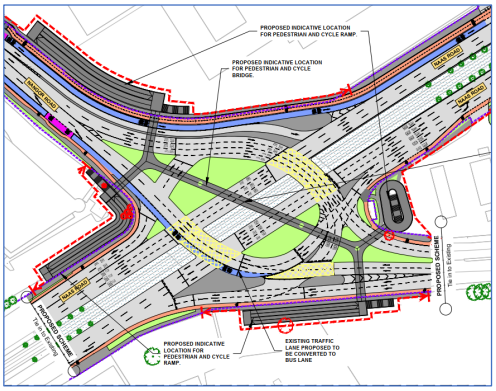
Emerging Preferred Route



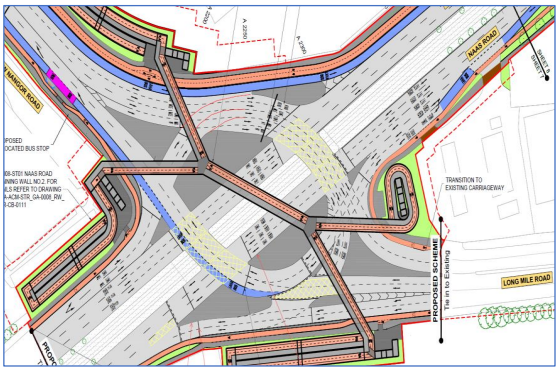
Public Consultation 2



Public Consultation 3



Final Preliminary Design



Subject	BusConnects Core Bus Corridors Transport Modelling		
Date	February 2023		
Route	Tallaght/Clondalkin To City Centre	Job No/Ref	60599126

Naas Rd / Long Mile Rd/
New Nangor Rd– AM peak

2028 AM Peak Hours
Fixed Time LinSig Results

Cycle Time = 90 secs
PRC = 30.6%,
Junction Delay = 57.9 PCUhr

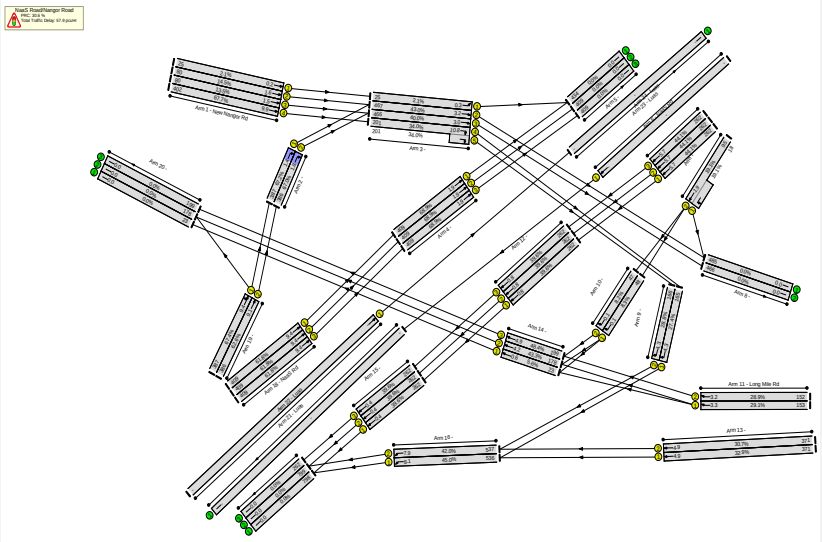
MMQ, CBC arms:
Inbound – 56.93m
Outbound – 32.78m

Bus Av. Delay (s/pcu):
Inbound –
Outbound – 28.3sec

Cyclists Av. Delay (s/pcu):
Inbound –
Outbound –

Car Av. Delay (s/pcu), CBC arms:
Inbound – 8.2sec
Outbound – 28.3sec

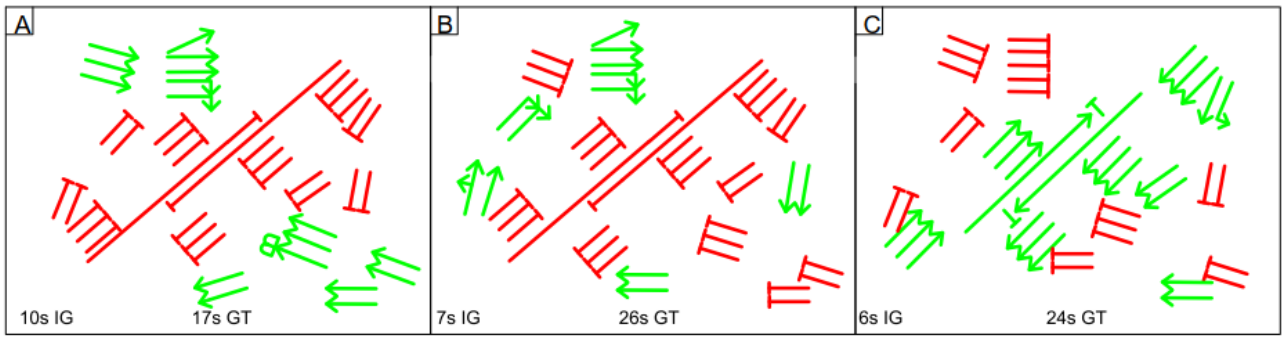
Network Layout Diagram (LinSig) - DS2028_AM



People Movement Assessment DS2028 AM

7. Nangor-Naas-Long Mile Rd Junction	CBC		All Arms	
Mode	**People Movement**	**Mode Share**	**People Movement**	**Mode Share**
Car	116	10%	5,258	59%
Bus	960	85%	3,540	40%
Walk	49	5%	49	1%
Cycle	Free Flow		Free Flow	
Total	**1,126**	**100%**	**8,848**	**100%**

INDICATIVE METHOD OF CONTROL



Subject	BusConnects Core Bus Corridors Transport Modelling		
Date	February 2023		
Route	Tallaght/Clondalkin To City Centre	Job No/Ref	60599126

Naas Rd / Long Mile Rd/
New Nangor Rd - PM peak

2028 PM Peak Hours
Fixed Time LinSig Results

Cycle Time = 90 secs
PRC = 25.7%,
Junction Delay = 57.9 PCUhr

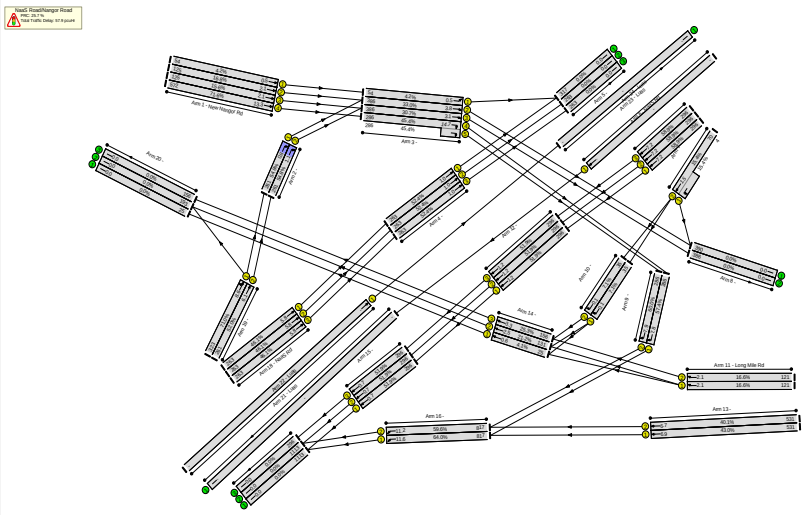
MMQ, CBC arms:
Inbound – 76.48m
Outbound – 41.40m

Bus Av. Delay (s/pcu):
Inbound –
Outbound – 31.8sec

Cyclists Av. Delay (s/pcu):
Inbound –
Outbound –

Car Av. Delay (s/pcu), CBC arms:
Inbound – 6.6sec
Outbound – 31.8sec

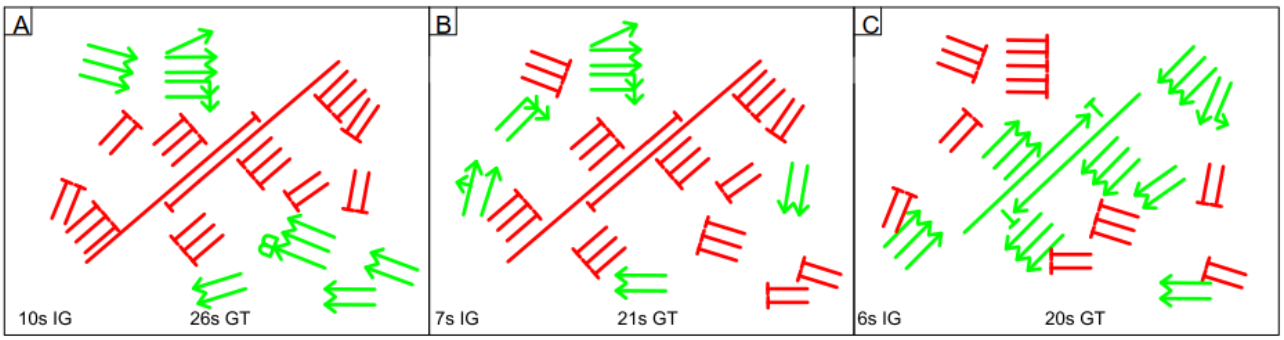
Network Layout Diagram (LinSig) - DS2028_PM



People Movement Assessment DS2028 PM

7. Nangor-Naas-Long Mile Rd Junction	CBC		All Arms	
Mode	People Movement	Mode Share	People Movement	Mode Share
Car	119	10%	5,250	61%
Bus	960	83%	3,240	38%
Walk	85	7%	85	1%
Cycle	Free Flow		Free Flow	
Total	**1,164**	**100%**	**8,575**	**100%**

INDICATIVE METHOD OF CONTROL

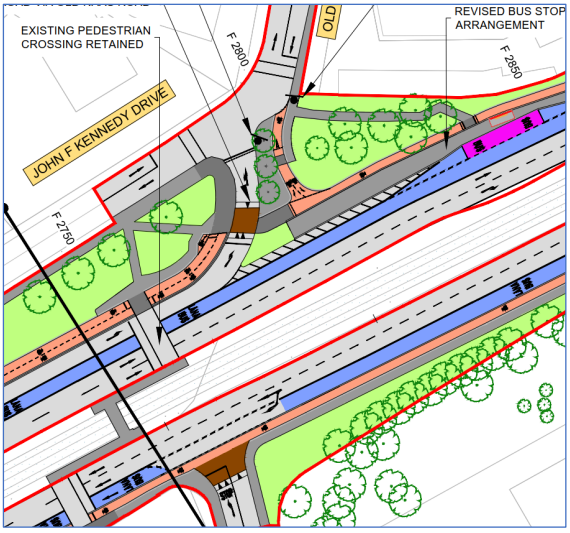


Subject	BusConnects Core Bus Corridors Junction Design Report		
Date	February 2023		
Route	Tallaght/Clondalkin To City Centre	Job No/Ref	60599126

Junction: **Old Naas Rd / John F Kennedy**

EXISTING

FINAL DESIGN



Summary
The existing junction is proposed to be upgraded as per the BusConnects Preliminary Design Guidance Booklet to enhance pedestrian and cycle infrastructure.

The existing junction comprises a left in and left out arrangement. The proposed junction is to be amended to facilitate one way only for vehicular traffic from Naas Road onto Old Naas Road. Any vehicles wishing to travel from Old Naas Road onto Naas Road will be required to travel via Kylemore Road.

Pedestrian Infrastructure
The existing infrastructure comprises of uncontrolled pedestrian crossings on the Old Naas Road arm.

The proposal will introduce a more compact junction, with a reduced crossing distance for pedestrians, to enhance pedestrian safety.

Cyclists Infrastructure
No existing cycle infrastructure is located at this junction.

The proposal will introduce cycle track along the northern side of Naas Road. A crossing facility is proposed across the Old Naas Road arm.

A shared path is also proposed to direct cyclists from Naas Road towards John F Kennedy Drive. A cycle entry lane is also proposed from Old Naas Road onto the two way cycle track proposed along Naas Road.

Bus Priority Infrastructure
A Junction Type 2 is proposed where a bus lane is proposed upto the stop line, with a proposed break in the bus lane to facilitate a left turn lane inside of the bus lane.

Subject	BusConnects Core Bus Corridors Junction Design Report		
Date	February 2023		
Route	Tallaght/Clondalkin To City Centre	Job No/Ref	60599126

Design Evolution

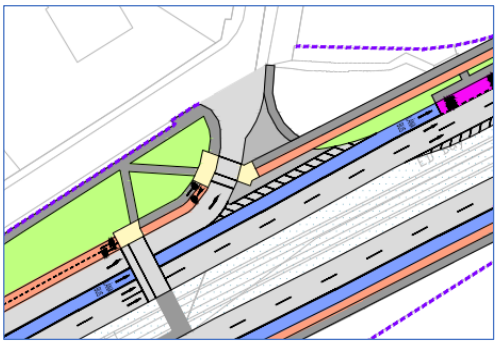
The proposed junction design has evolved on the BusConnects project from initial Concept Design, Emerging Preferred Route, Public Consultation 2, Public Consultation 3 up to the Current Design. The junction design iterations have been undertaken to optimise pedestrian, cyclist and bus priority infrastructure on the scheme.

Existing

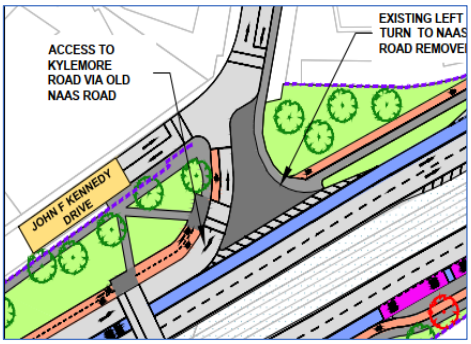
Concept Design Drawing

Junction Note Included within Concept Design Stage

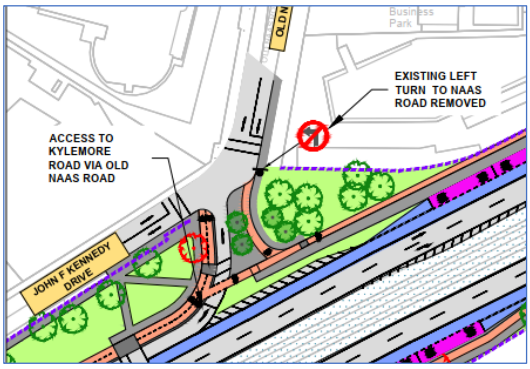
Emerging Preferred Route



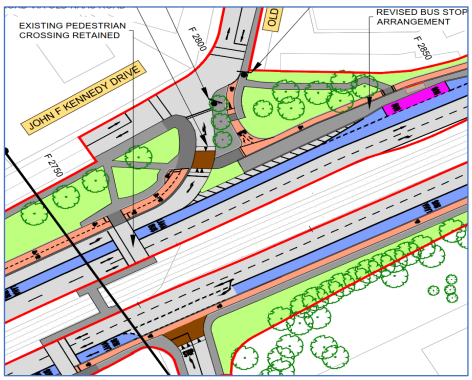
Public Consultation 2



Public Consultation 3



Final Preliminary Design



Subject	BusConnects Core Bus Corridors Transport Modelling		
Date	February 2023		
Route	Tallaght/Clondalkin To City Centre	Job No/Ref	60599126

John F Kennedy / Old Naas Rd - AM peak

2028 AM Peak Hours
Fixed Time LinSig Results

Cycle Time = 90 secs
PRC = 39.7%,
Junction Delay = 5.9 PCUhr

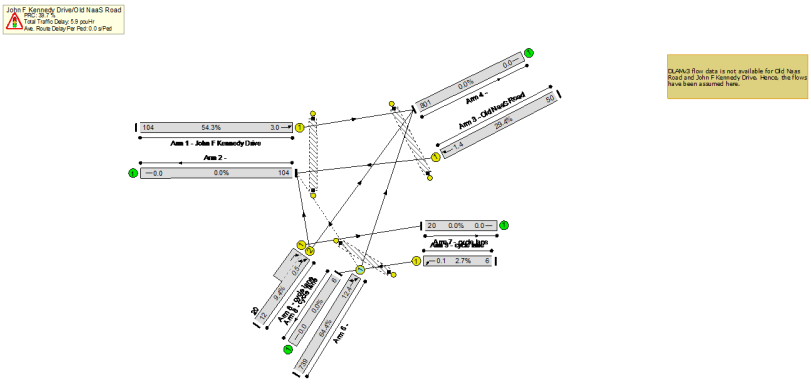
MMQ, CBC arms:
Inbound – 71.3m
Outbound – 8.05m

Bus Av. Delay (s/pcu):
Inbound –
Outbound –

Cyclists Av. Delay (s/pcu):
Inbound – 12.5sec
Outbound – 17.4sec

Car Av. Delay (s/pcu), CBC arms:
Inbound – 15.1sec
Outbound – 53.3sec

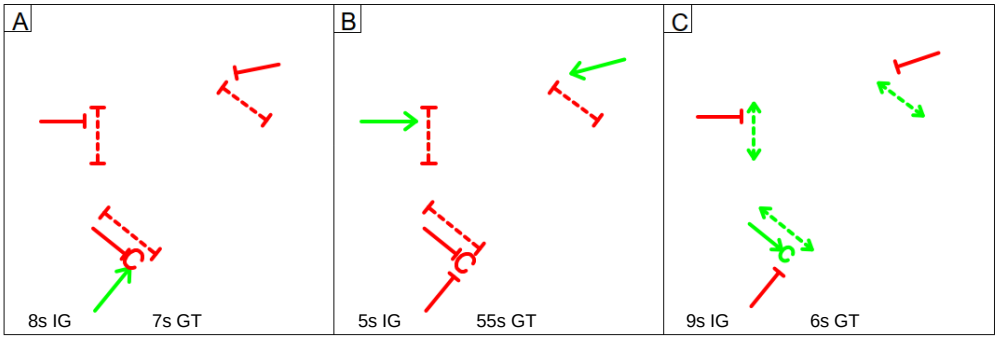
Network Layout Diagram (LinSig) - DS2028_AM



People Movement Assessment DS2028 AM

8. John F Kennedy - Old Naas Rd Junction	CBC		All Arms	
Mode	People Movement	Mode Share	People Movement	Mode Share
Car	827	85%	1,067	85%
Bus	0	0%	0	0%
Walk	24	3%	24	2%
Cycle	70	12%	110	13%
Total	**921**	**100%**	**1,201**	**100%**

INDICATIVE METHOD OF CONTROL



Subject	BusConnects Core Bus Corridors Transport Modelling		
Date	February 2023		
Route	Tallaght/Clondalkin To City Centre	Job No/Ref	60599126

John F Kennedy / Old Naas Rd - PM peak

2028 PM Peak Hours
Fixed Time LinSig Results

Cycle Time = 90 secs
PRC = 151.7%,
Junction Delay = 3.4 PCUhr

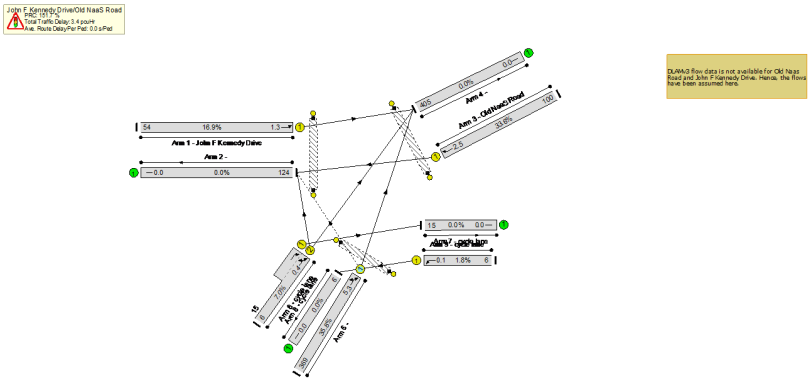
MMQ, CBC arms:
Inbound – 30.47m
Outbound – 14.37m

Bus Av. Delay (s/pcu):
Inbound –
Outbound –

Cyclists Av. Delay (s/pcu):
Inbound – 15.6sec
Outbound – 35.4sec

Car Av. Delay (s/pcu), CBC arms:
Inbound – 13.8sec
Outbound – 42.9sec

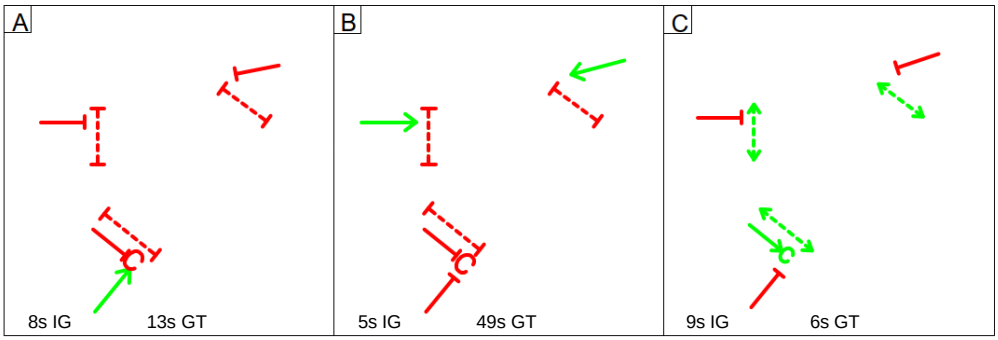
Network Layout Diagram (LinSig) - DS2028_PM



People Movement Assessment DS2028 PM

8. John F Kennedy - Old Naas Rd Junction	CBC		All Arms	
Mode	People Movement	Mode Share	People Movement	Mode Share
Car	419	82%	623	82%
Bus	0	0%	0	0%
Walk	24	5%	24	3%
Cycle	40	13%	80	15%
Total	**483**	**100%**	**727**	**100%**

INDICATIVE METHOD OF CONTROL

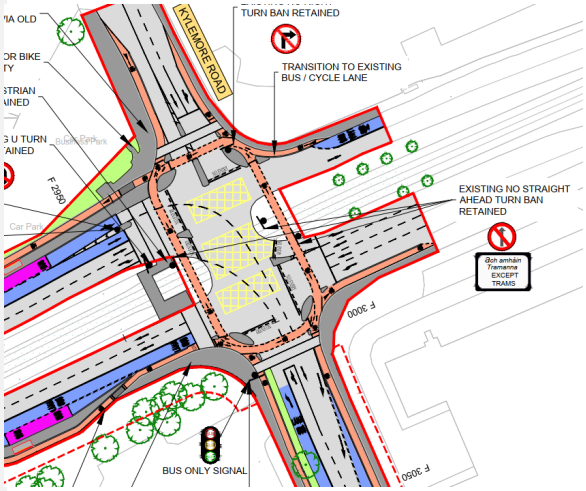


Subject	BusConnects Core Bus Corridors Junction Design Report		
Date	February 2023		
Route	Tallaght/Clondalkin To City Centre	Job No/Ref	60599126

Junction: **Naas Rd / Walkinstown Ave / Kylemore Rd**

EXISTING

FINAL DESIGN



Summary

The existing major four arm signalised junction is proposed to be upgraded as per the BusConnects Preliminary Design Guidance Booklet to enhance pedestrian, cyclist and bus priority infrastructure.

The key design rationale was to provide a more compact junction, to reduce pedestrian and cyclist crossing distances. The existing left turn slip from Naas Road to Kylemore Road is proposed to be omitted to reduce the number of crossings at the junction.

Pedestrian Infrastructure

The existing junction comprises of pedestrian crossings on two of the four arms at the junction including Kylemore Road and across Naas Road. The existing crossings are in a staggered arrangement, for instance the Kylemore Road arm comprises of three separate crossings to cross Kylemore Road.

The proposal will result in a significant enhance to pedestrian crossing at the junction. A direct single stage crossing is proposed on the northern (Kylemore Road) and southern (Walkinstown Avenue) arms of the junction respectively.

Staggered pedestrian crossings are proposed across Naas Road akin to the existing arrangements. A direct single stage crossing was considered however this is not feasible at this location due to the crossing distance being greater than 19m (total distance 30m+).

The staggered pedestrians are also necessary due to the existing Luas Red Line, which passes through the junction. A direct single stage crossing across Naas Road would result in an overly excessive intergreen time impacting the luas, therefore staggered crossing is more appropriate at this location.

Cyclists Infrastructure

The existing junction does not provide infrastructure for cyclists.

The proposed design will comprise of cycle tracks on all arms of the junction. The design proposes an orbital cycle track across the junction akin to a Junction Type 4. This design arrangement is proposed to ensure cyclists are segregated from vehicular traffic when crossing the junction due to the presence of high volumes of traffic and larger vehicles such as lorries.

Bus Priority Infrastructure

A Junction Type 1 is proposed for both inbound along Naas Road and outbound direction along Walkinstown Avenue. This will provide continuous bus priority up to the stop line in both directions.

Along Naas Road inbound, a separate lane is proposed for right turning and ahead buses. A right turning bus lane is proposed in Lane 1 to assist buses exiting the bus stop and getting into lane to turn right onto Walkinstown Avenue along the proposed core bus corridor.

Subject	BusConnects Core Bus Corridors Junction Design Report		
Date	February 2023		
Route	Tallaght/Clondalkin To City Centre	Job No/Ref	60599126

Design Evolution

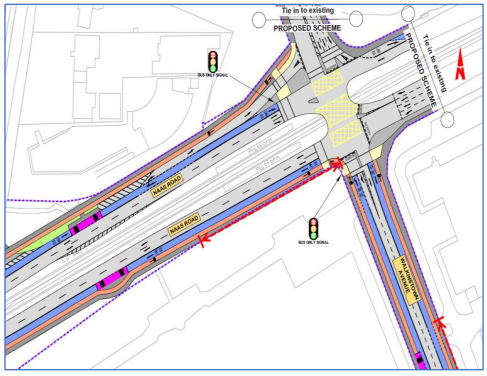
The proposed junction design has evolved on the BusConnects project from initial Concept Design, Emerging Preferred Route, Public Consultation 2, Public Consultation 3 up to the Current Design. The junction design iterations have been undertaken to optimise pedestrian, cyclist and bus priority infrastructure on the scheme.

Existing

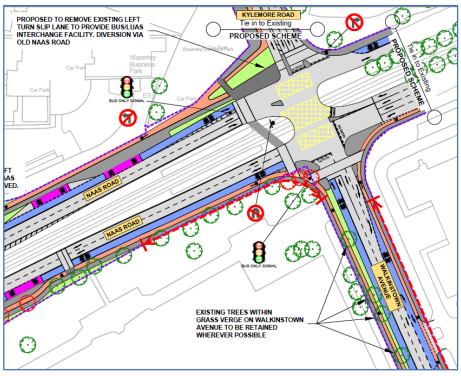
Concept Design Drawing

This junction is not part of the Concept Design

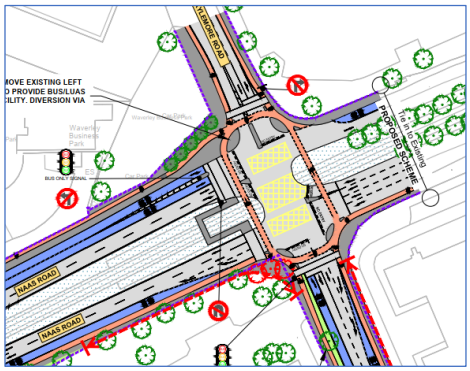
Emerging Preferred Route



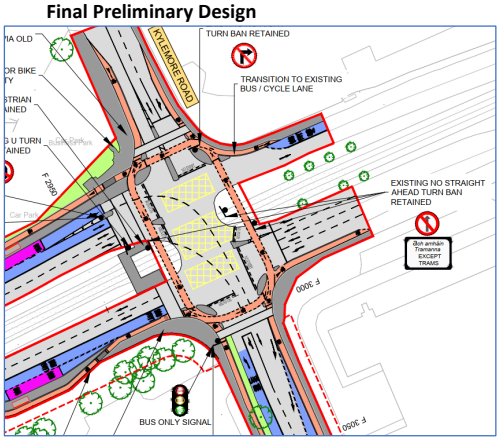
Public Consultation 2



Public Consultation 3



Final Preliminary Design



Subject	BusConnects Core Bus Corridors Transport Modelling		
Date	February 2023		
Route	Tallaght/Clondalkin To City Centre	Job No/Ref	60599126

Naas Rd/Walkinstown Ave/Kylemore – AM Peak

2028 AM Peak Hours
Fixed Time LinSig Results

Cycle Time = 130 secs
PRC = 8.9%,
Junction Delay = 40.1 PCUhr

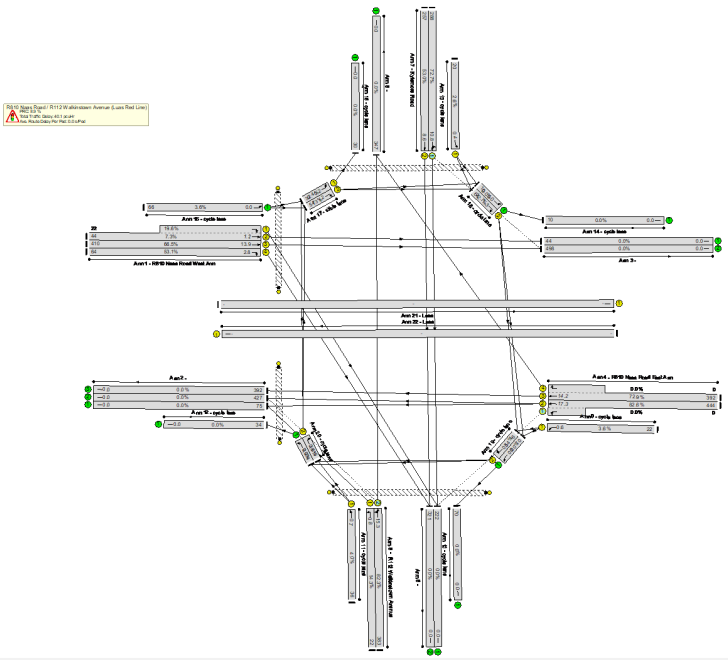
MMQ, CBC arms:
Inbound – 79.93m
Outbound – 87.98m

Bus Av. Delay (s/pcu):
Inbound – 43.8sec
Outbound – 68sec

Cyclists Av. Delay (s/pcu):
Inbound – 1.0sec
Outbound – 18.7sec

Car Av. Delay (s/pcu), CBC arms:
Inbound – 90.5sec
Outbound – 67.7sec

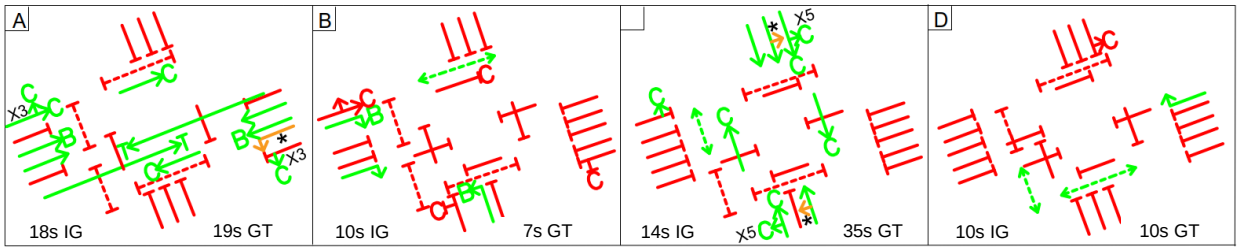
Network Layout Diagram (LinSig) - DS2028_AM



People Movement Assessment DS2028 AM

9. Naas Rd - Walkinstown Ave Junction	CBC		All Arms	
Mode	People Movement	Mode Share	People Movement	Mode Share
Car	120	8%	2,686	51%
Bus	900	61%	1,740	33%
Walk	106	7%	106	2%
Cycle	350	24%	720	14%
Total	**1,476**	**100%**	**5,251**	**100%**

INDICATIVE METHOD OF CONTROL



* denotes Flashing Amber
X3 denotes Advance 3 seconds Start for Cyclists

Subject	BusConnects Core Bus Corridors Transport Modelling		
Date	February 2023		
Route	Tallaght/Clondalkin To City Centre	Job No/Ref	60599126

Naas Rd / Walkinstown Ave / Kylemore - PM peak

2028 PM Peak Hours
Fixed Time LinSig Results

Cycle Time = 130 secs
PRC = 15%,
Junction Delay = 33.5 PCUhr

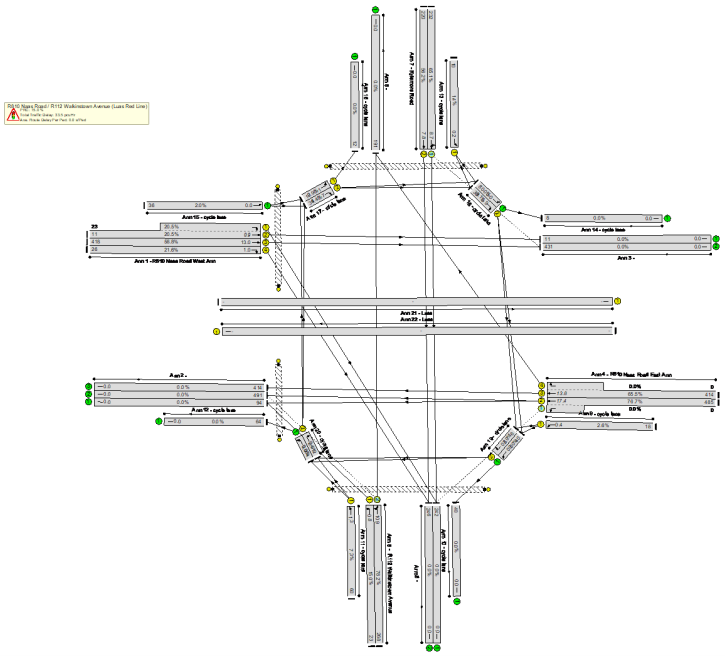
MMQ, CBC arms:
Inbound – 73.03m
Outbound – 59.23m

Bus Av. Delay (s/pcu):
Inbound – 62.0sec
Outbound – 68.1sec

Cyclists Av. Delay (s/pcu):
Inbound – 1sec
Outbound – 22.4sec

Car Av. Delay (s/pcu), CBC arms:
Inbound – 77.1sec
Outbound – 73.0sec

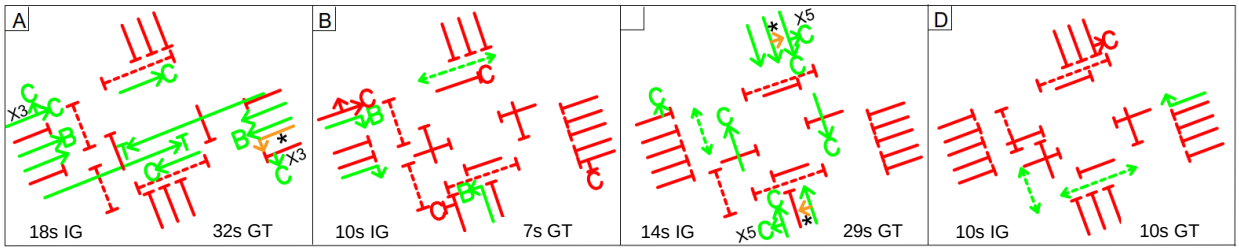
Network Layout Diagram (LinSig) - DS2028_PM



People Movement Assessment DS2028 PM

9. Naas Rd - Walkinstown Ave Junction	CBC		All Arms	
Mode	People Movement	Mode Share	People Movement	Mode Share
Car	124	8%	2,476	58%
Bus	900	59%	1,140	26%
Walk	103	6%	103	2%
Cycle	410	27%	620	14%
Total	**1,537**	**100%**	**4,339**	**100%**

INDICATIVE METHOD OF CONTROL

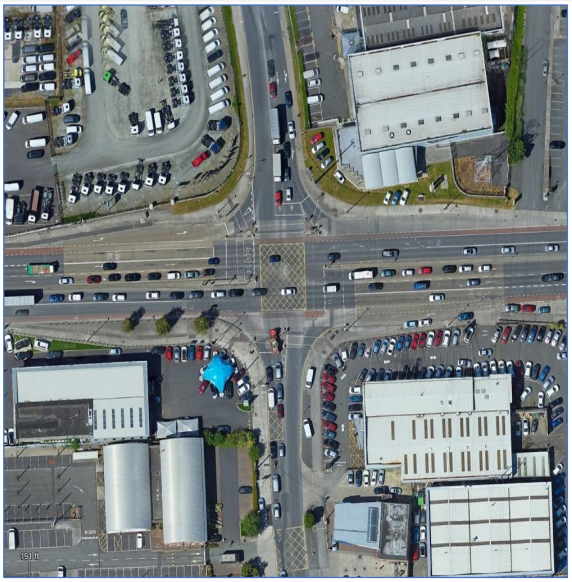


* denotes Flashing Amber
X3 denotes Advance 3 seconds Start for Cyclists

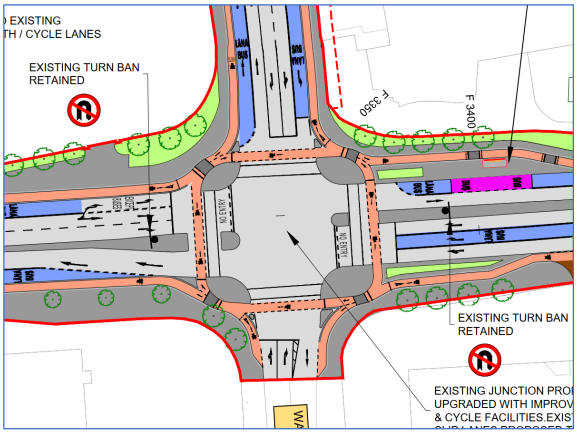
Subject	BusConnects Core Bus Corridors Junction Design Report		
Date	February 2023		
Route	Tallaght/Clondalkin To City Centre	Job No/Ref	60599126

Junction: **Walkinstown Avenue / Long Mile Rd**

EXISTING



FINAL DESIGN



Summary

The existing major four arm signalised junction is proposed to be upgraded as per the BusConnects Preliminary Design Guidance Booklet to enhance pedestrian, cyclist and bus priority infrastructure.

The key design rationale was to provide a more compact junction, to reduce pedestrian and cyclist crossing distances. The existing left turn slips on Long Mile Road and Walkinstown Avenue are proposed to be omitted to reduce the number of crossings at the junction.

Pedestrian Infrastructure

The existing pedestrian crossing infrastructure at the junction requires pedestrians to navigate a series of staggered crossings on the northern and western arms of the junction. Furthermore the crossing distances are significant due to the larger corner radius and the existing left turn slip lanes.

The proposal will introduce direct single stage pedestrian crossings on Walkinstown Avenue northern and southern arms. The corner radius is also proposed to be reduced at the junctions, which reduces the crossing distances for pedestrians.

On Long Mile Road, direct single stage pedestrian crossings were considered, however the pedestrian crossing distances are greater than 19m and therefore the refuge island will facilitate pedestrians that wish to cross in two stages. The staggered arrangement also facilitates pedestrians crossing 'with traffic' stages, to give pedestrians more opportunities to cross during the cycle.

Cyclists Infrastructure

The existing junction comprises on road cycle lanes along Long Mile Road. ASLs (Advanced Stop Lines) are located along Walkinstown Avenue.

The proposal will introduce orbital cycle tracks across the junction and cycle tracks on all arms of the junction. Segregated cycle crossings are proposed on all arms of the junction, to facilitate pedestrians and cyclists crossing simultaneously. The design will ensure cyclists crossing the junction are segregated from vehicular traffic at the junction.

Bus Priority Infrastructure

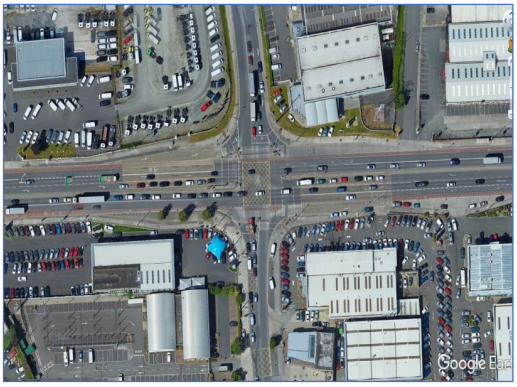
Bus priority is proposed up to the stop line on both inbound and outbound directions along Walkinstown Avenue and Long Mile Road respectively. On Long Mile Road, buses will turn right from a dedicated bus lane. A bus gate along Long Mile Road is proposed to facilitate buses merging into lane 3 to turn right.

Subject	BusConnects Core Bus Corridors Junction Design Report		
Date	February 2023		
Route	Tallaght/Clondalkin To City Centre	Job No/Ref	60599126

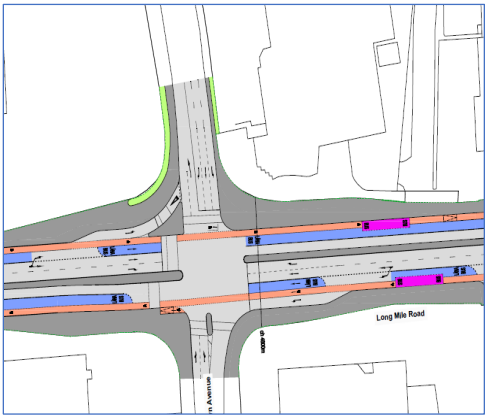
Design Evolution

The proposed junction design has evolved on the BusConnects project from initial Concept Design, Emerging Preferred Route, Public Consultation 2, Public Consultation 3 up to the Current Design. The junction design iterations have been undertaken to optimise pedestrian, cyclist and bus priority infrastructure on the scheme.

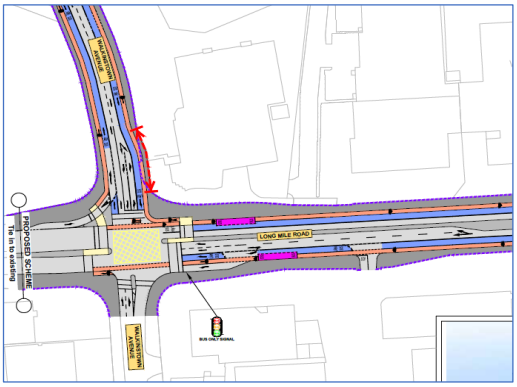
Existing



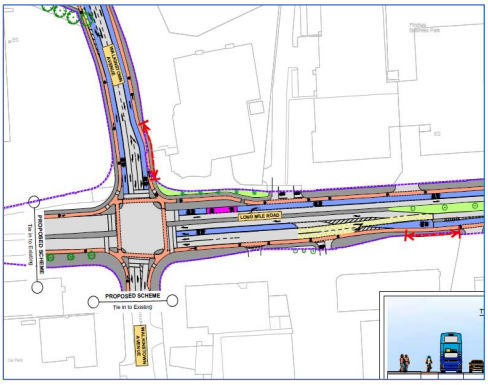
Concept Design Drawing



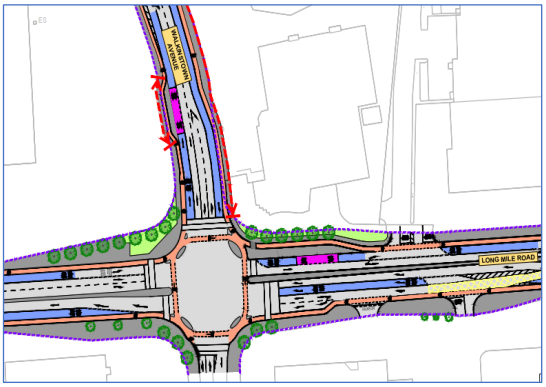
Emerging Preferred Route



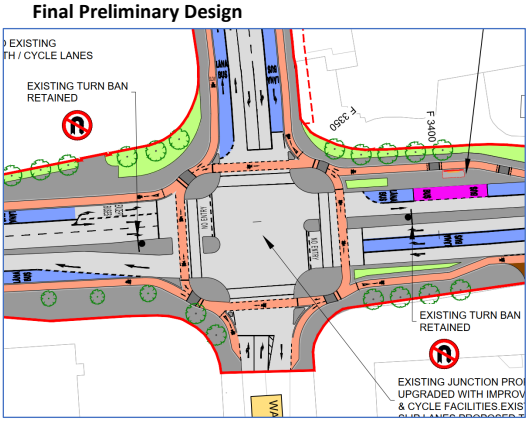
Public Consultation 2



Public Consultation 3



Final Preliminary Design



Subject	BusConnects Core Bus Corridors Transport Modelling		
Date	February 2023		
Route	Tallaght/Clondalkin To City Centre	Job No/Ref	60599126

Walkinstown Ave / Long Mile Rd – AM peak

2028 AM Peak Hours
Fixed Time LinSig Results

Cycle Time = 120 secs
PRC = -17.2%,
Junction Delay = 81.6 PCUhr

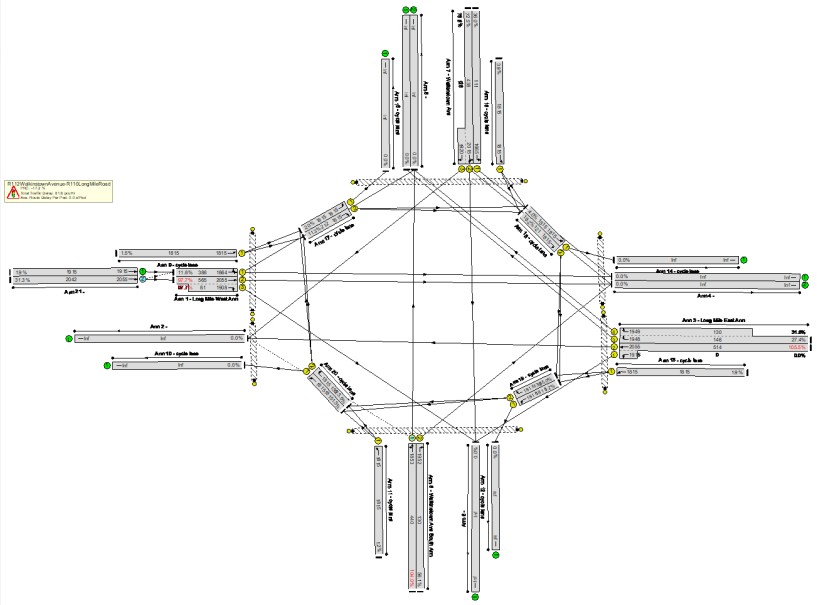
MMQ, CBC arms:
Inbound – 158.12m
Outbound – 230m

Bus Av. Delay (s/pcu):
Inbound – 78.7sec
Outbound – 61.7sec

Cyclists Av. Delay (s/pcu):
Inbound – 1sec
Outbound – 1sec

Car Av. Delay (s/pcu), CBC arms:
Inbound – 96.5sec
Outbound – 192.4sec

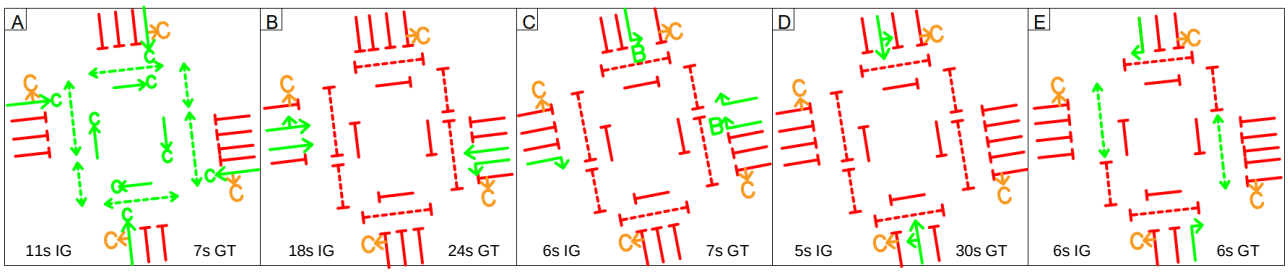
Network Layout Diagram (LinSig) - DS2028_AM



People Movement Assessment DS2028 AM

10. Walkinstown-Long Mile Junction	CBC		All Arms	
Mode	People Movement	Mode Share	People Movement	Mode Share
Car	118	5%	2,603	44%
Bus	1,620	72%	2,340	40%
Walk	151	7%	151	3%
Cycle	350	16%	770	13%
Total	**2,239**	**100%**	**5,864**	**100%**

INDICATIVE METHOD OF CONTROL



* denotes Flashing Amber

Subject	BusConnects Core Bus Corridors Transport Modelling		
Date	February 2023		
Route	Tallaght/Clondalkin To City Centre	Job No/Ref	60599126

Walkinstown Ave / Long Mile Rd - PM peak

2028 PM Peak Hours
Fixed Time LinSig Results

Cycle Time = 120 secs
PRC = -1.3%,
Junction Delay = 44.8 PCUhr

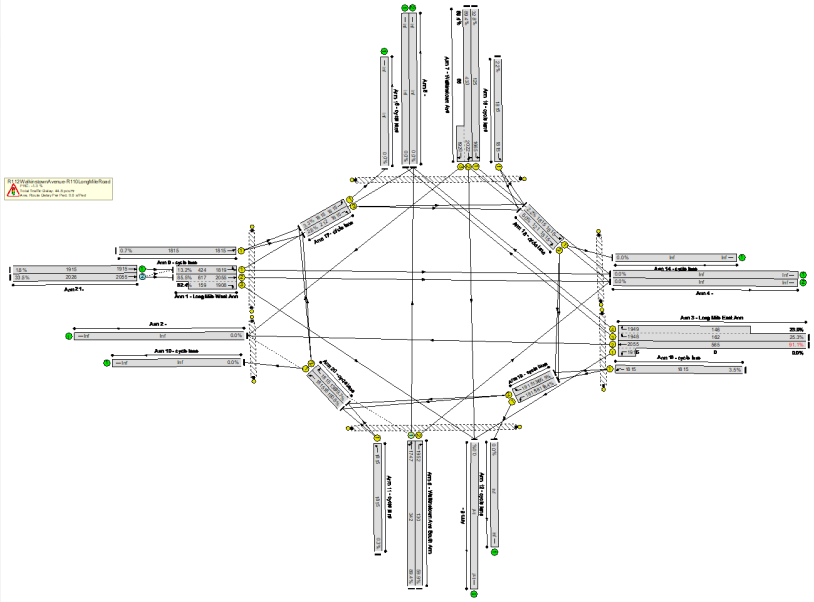
MMQ, CBC arms:
Inbound – 109.82m
Outbound – 120.75m

Bus Av. Delay (s/pcu):
Inbound – 74sec
Outbound – 59.3sec

Cyclists Av. Delay (s/pcu):
Inbound – 1sec
Outbound – 1sec

Car Av. Delay (s/pcu), CBC arms:
Inbound – 54.2sec
Outbound – 72.7sec

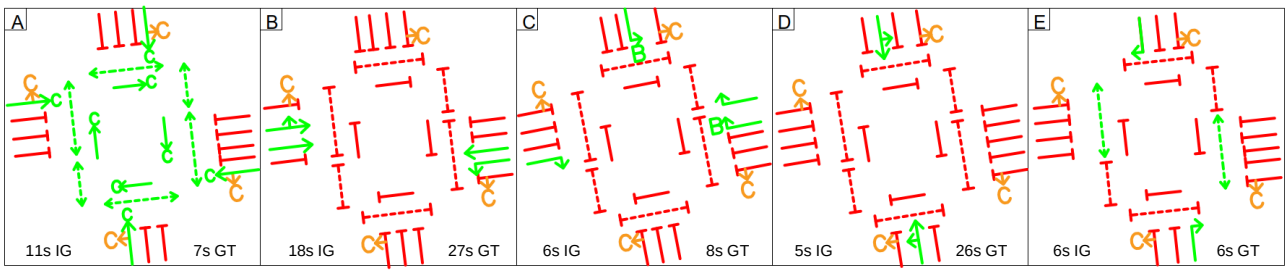
Network Layout Diagram (LinSig) - DS2028_PM



People Movement Assessment DS2028 PM

10. Walkinstown-Long Mile Junction	CBC		All Arms	
Mode	People Movement	Mode Share	People Movement	Mode Share
Car	110	5%	2,459	44%
Bus	1,620	69%	2,340	42%
Walk	180	8%	180	3%
Cycle	430	18%	610	11%
Total	**2,340**	**100%**	**5,589**	**100%**

INDICATIVE METHOD OF CONTROL



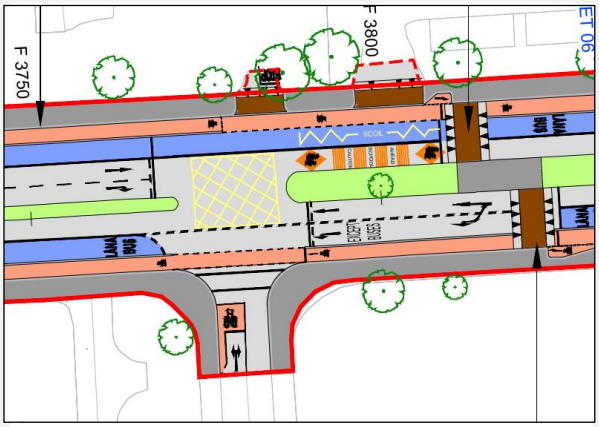
* denotes Flashing Amber

Subject	BusConnects Core Bus Corridors Junction Design Report		
Date	February 2023		
Route	Tallaght/Clondalkin To City Centre	Job No/Ref	60599126

Junction: **Walkinstown Parade / Long Mile Rd**

EXISTING

FINAL DESIGN



Summary
The existing three arm signalised junction is proposed to be upgraded as per the BusConnects Preliminary Design Guidance Booklet to enhance pedestrian, cyclist and bus priority infrastructure.

Pedestrian Infrastructure
The proposal will introduce a controlled pedestrian crossing across Walkinstown Parade.

A staggered toucan crossing is proposed to the east of the junction to facilitate pedestrian access across Long Mile Road directly towards Drimnagh Castle Secondary and Assumption Senior Girls National Schools.

Cyclists Infrastructure
The existing on road cycle lanes along Long Mile Road are proposed to be upgraded to cycle tracks, to offer cyclists greater protection. A toucan crossing is proposed to facilitate cyclists crossing Long Mile Road.

On Walkinstown Parade an ASL is proposed to facilitate cyclist access from the side arm onto Long Mile Road.

Bus Priority Infrastructure
Bus priority is proposed for inbound as per Junction Type 1, with the bus lane up to the stop line. For the outbound direction, bus lane is proposed to be curtailed prior to the stop line to facilitate left turning vehicles to access lane 1. A review of the traffic flow data indicates the left turning volumes are relatively low and the impact upon bus priority will be miniminal.

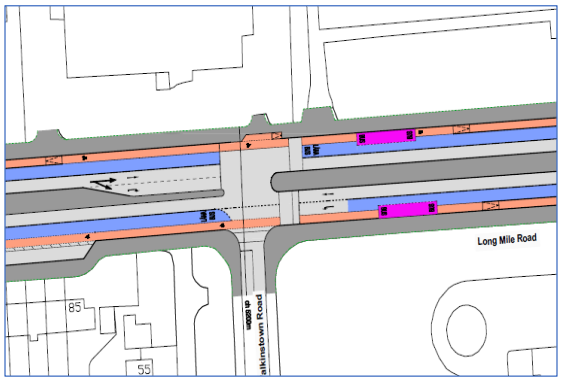
Subject	BusConnects Core Bus Corridors Junction Design Report		
Date	February 2023		
Route	Tallaght/Clondalkin To City Centre	Job No/Ref	60599126

Design Evolution

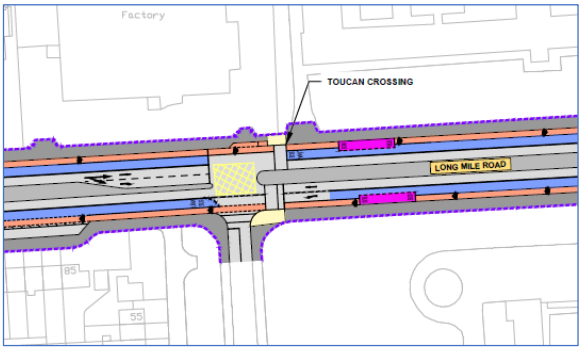
The proposed junction design has evolved on the BusConnects project from initial Concept Design, Emerging Preferred Route, Public Consultation 2, Public Consultation 3 up to the Current Design. The junction design iterations have been undertaken to optimise pedestrian, cyclist and bus priority infrastructure on the scheme.

Existing

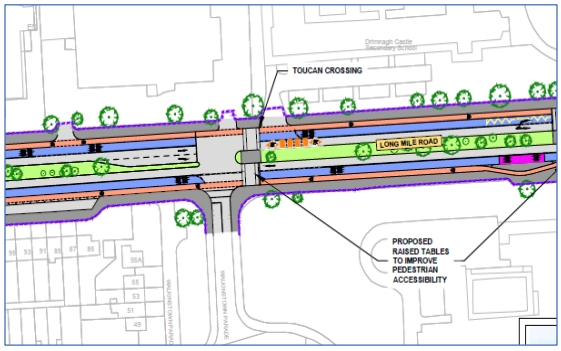
Concept Design Drawing



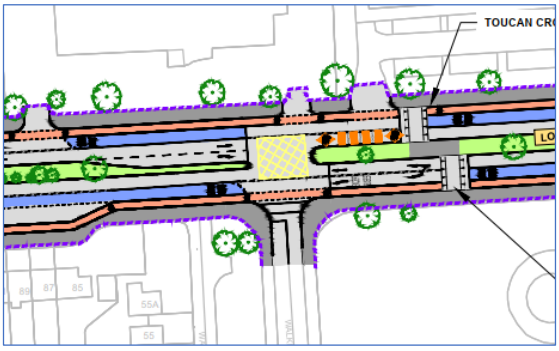
Emerging Preferred Route



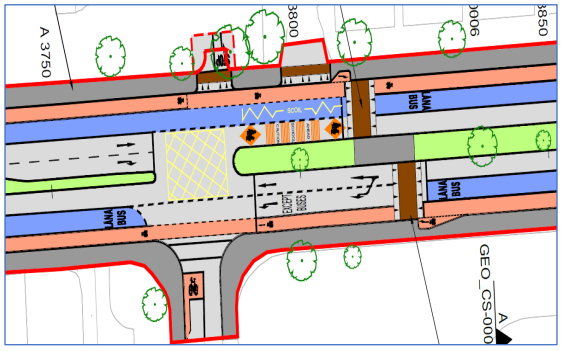
Public Consultation 2



Public Consultation 3



Final Preliminary Design



Subject	BusConnects Core Bus Corridors Transport Modelling		
Date	February 2023		
Route	Tallaght/Clondalkin To City Centre	Job No/Ref	60599126

Walkinstown Parade / Long Mile Rd – AM peak

2028 AM Peak Hours
Fixed Time LinSig Results

Cycle Time = 100 secs
PRC = 19.4%,
Junction Delay = 12.6 PCUhr

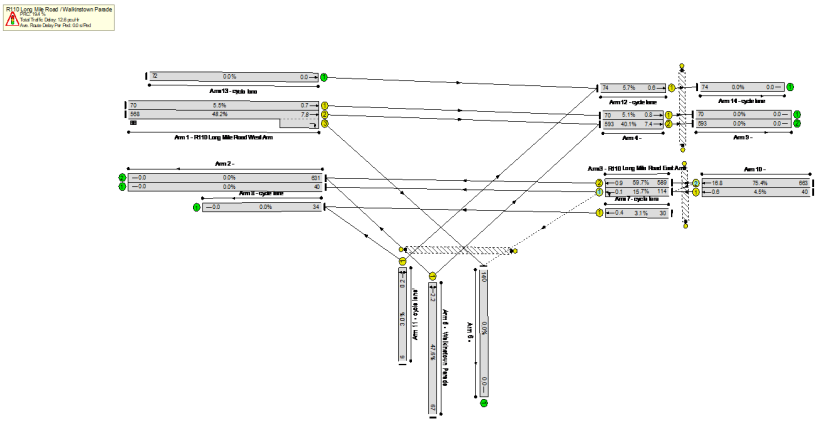
MMQ, CBC arms:
Inbound – 44.85m
Outbound – 96.6m

Bus Av. Delay (s/pcu):
Inbound – 7.2sec
Outbound – 17.1sec

Cyclists Av. Delay (s/pcu):
Inbound – 5.7sec
Outbound – 13.2sec

Car Av. Delay (s/pcu), CBC arms:
Inbound – 14.2sec
Outbound – 31.0sec

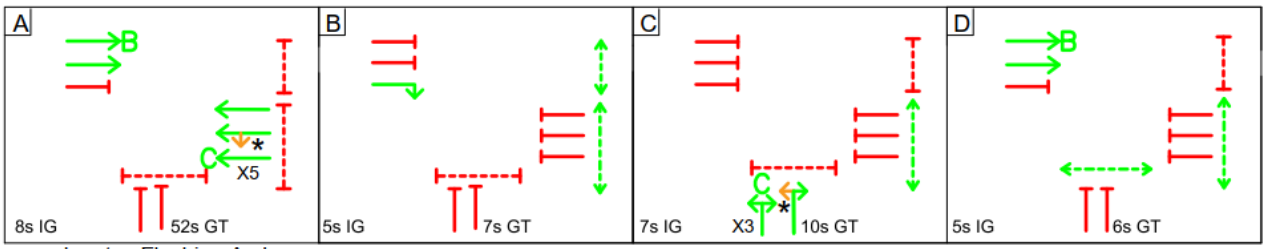
Network Layout Diagram (LinSig) - DS2028_AM



People Movement Assessment DS2028 AM

11. Walkinstown Parade Junction	CBC		All Arms	
Mode	People Movement	Mode Share	People Movement	Mode Share
Car	1,436	32%	1,637	35%
Bus	2,220	50%	2,220	47%
Walk	281	6%	281	6%
Cycle	510	12%	540	12%
Total	**4,447**	**100%**	**4,678**	**100%**

INDICATIVE METHOD OF CONTROL



* denotes Flashing Amber
X3 denotes Advance 3 seconds Start for Cyclists
X5 denotes Advance 5 seconds Start for Cyclists

Subject	BusConnects Core Bus Corridors Transport Modelling		
Date	February 2023		
Route	Tallaght/Clondalkin To City Centre	Job No/Ref	60599126

Walkinstown Parade / Long Mile Rd - PM peak

2028 PM Peak Hours
Fixed Time LinSig Results

Cycle Time = 100 secs
PRC = 47.7%,
Junction Delay = 10.4 PCUhr

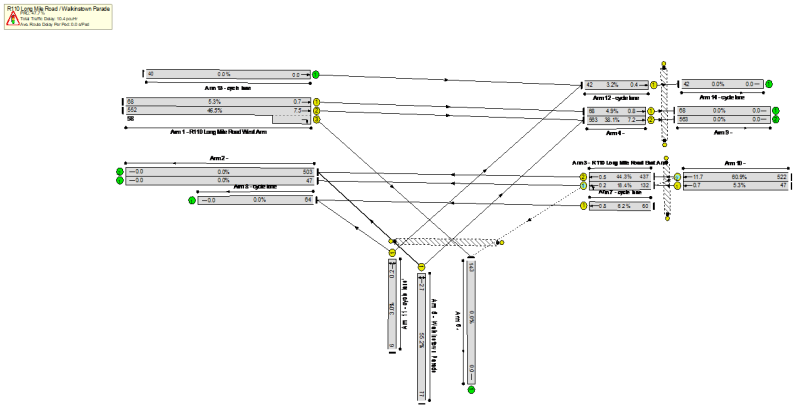
MMQ, CBC arms:
Inbound – 43.13m
Outbound – 67.23m

Bus Av. Delay (s/pcu):
Inbound – 7.1sec
Outbound – 17.2sec

Cyclists Av. Delay (s/pcu):
Inbound – 5.7sec
Outbound – 13.5sec

Car Av. Delay (s/pcu), CBC arms:
Inbound – 13.6sec
Outbound – 26.1sec

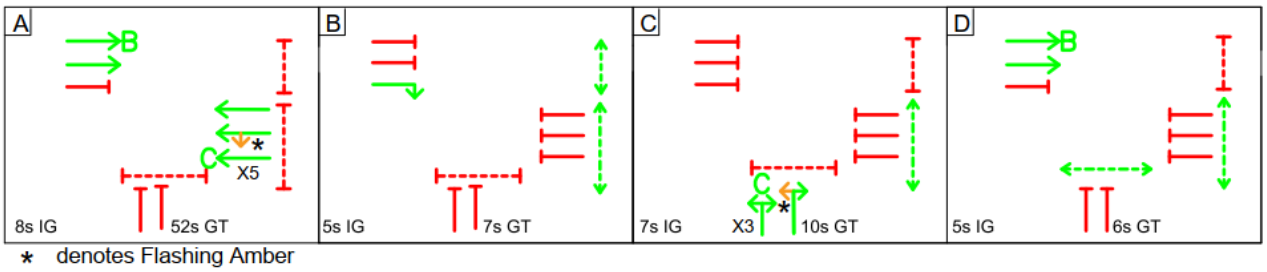
Network Layout Diagram (LinSig) - DS2028_PM



People Movement Assessment DS2028 PM

11. Walkinstown Parade Junction	CBC		All Arms	
Mode	People Movement	Mode Share	People Movement	Mode Share
Car	1,187	29%	1,451	34%
Bus	2,280	57%	2,280	53%
Walk	62	2%	62	1%
Cycle	500	12%	530	12%
Total	**4,029**	**100%**	**4,323**	**100%**

INDICATIVE METHOD OF CONTROL

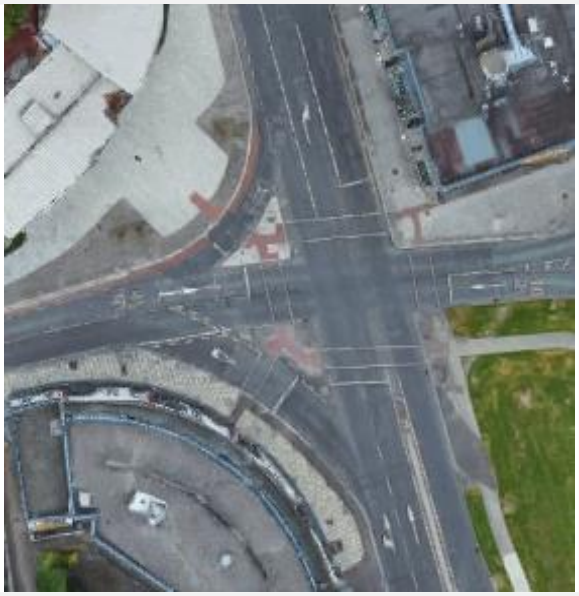


* denotes Flashing Amber
X3 denotes Advance 3 seconds Start for Cyclists
X5 denotes Advance 5 seconds Start for Cyclists

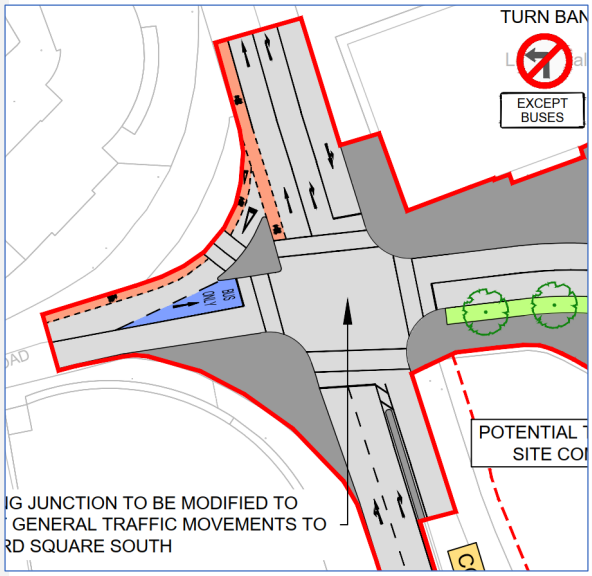
Subject	BusConnects Core Bus Corridors Junction Design Report		
Date	February 2023		
Route	Tallaght/Clondalkin To City Centre	Job No/Ref	60599126

Junction: **Cookstown Way / Belgard Square South**

EXISTING



FINAL DESIGN



Summary
The existing four arm signalised junction is proposed to be upgraded as per the BusConnects Preliminary Design Guidance Booklet to enhance pedestrian, cyclist and bus priority infrastructure.

Pedestrian Infrastructure
The existing left turn slip from Cookstown Way onto Alderpark Ct is proposed to be omitted to introduce a more compact junction. A review was undertaken to omit the left turn slip from Alderpark Ct to Cokstown Way, but the left turn slip facilitates the introduction of a bus priority from Alderpark Ct to Belgard Square S.

Controlled pedestrian crossings are proposed on all arms of the junction.

Cyclists Infrastructure
A cycle track is proposed along Cookstown Way on the northern arm, exiting the junction.

Bus Priority Infrastructure
Bus priority is proposed on Alderpark Court, to facilitate bus priority towards the new bus interchange.

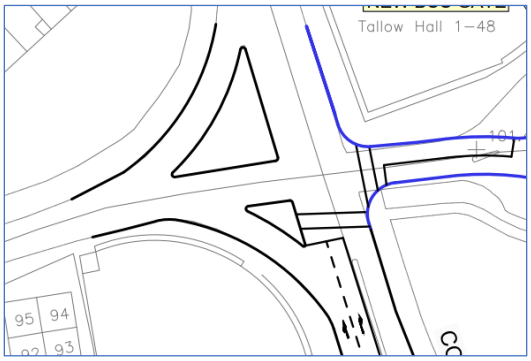
Subject	BusConnects Core Bus Corridors Junction Design Report		
Date	February 2023		
Route	Tallaght/Clondalkin To City Centre	Job No/Ref	60599126

Design Evolution

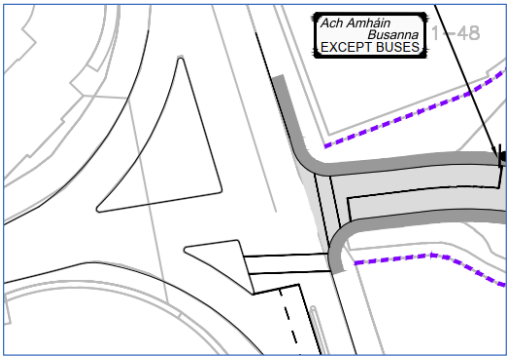
The proposed junction design has evolved on the BusConnects project from initial Concept Design, Emerging Preferred Route, Public Consultation 2, Public Consultation 3 up to the Current Design. The junction design iterations have been undertaken to optimise pedestrian, cyclist and bus priority infrastructure on the scheme.

Existing

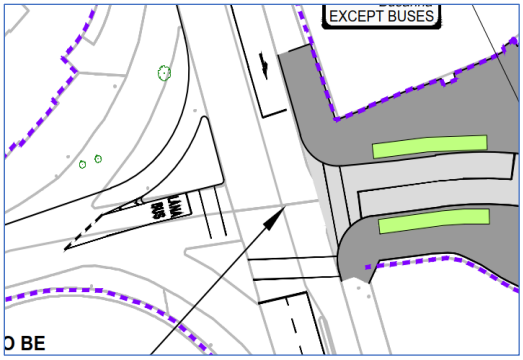
Concept Design Drawing



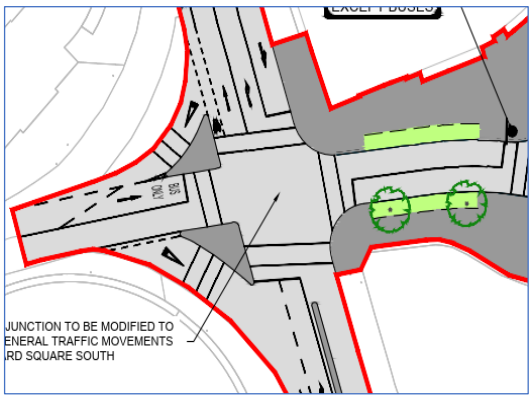
Emerging Preferred Route



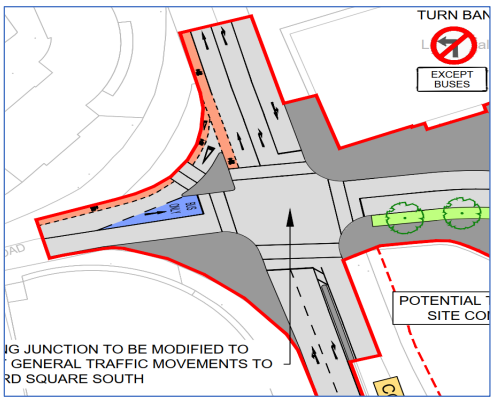
Public Consultation 2



Public Consultation 3



Final Preliminary Design



Subject	BusConnects Core Bus Corridors Transport Modelling		
Date	February 2023		
Route	Tallaght/Clondalkin To City Centre	Job No/Ref	60599126

Cookstown Way / Belgard Square South– AM peak

2028 AM Peak Hours
Fixed Time LinSig Results

Cycle Time = 110 secs
PRC = 78.9%,
Junction Delay = 8.6 PCUhr

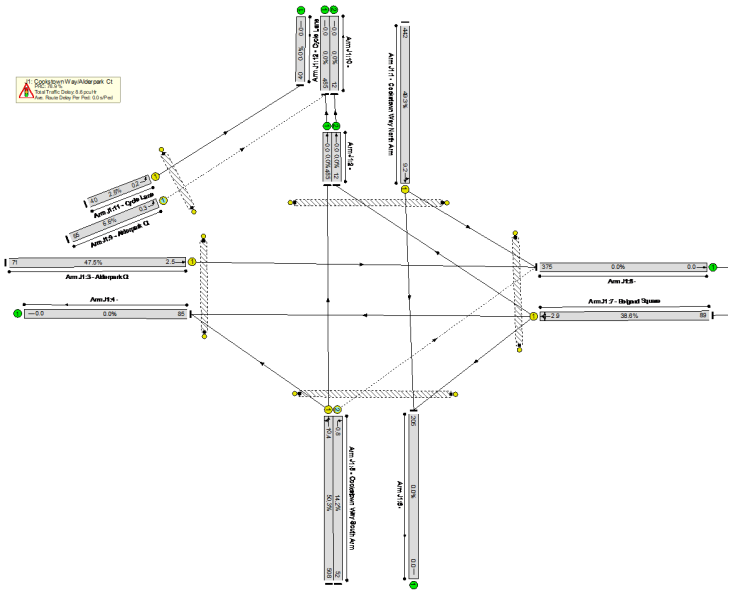
MMQ, CBC arms:
Inbound – 14.37m
Outbound – 16.67m

Bus Av. Delay (s/pcu):
Inbound – 71.7sec
Outbound – 55.3sec

Cyclists Av. Delay (s/pcu):
Inbound – 71.7sec
Outbound – 55.3sec

Car Av. Delay (s/pcu), CBC arms:
Inbound – 20.0sec
Outbound – 55.3sec

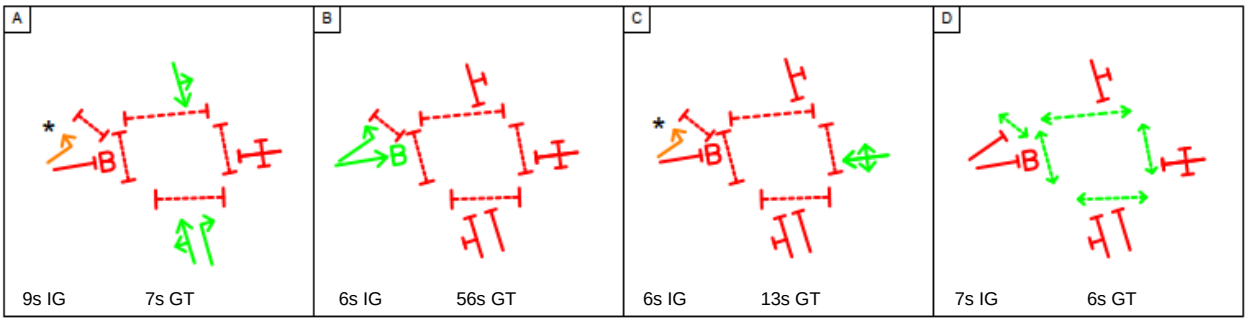
Network Layout Diagram (LinSig) - DS2028_AM



People Movement Assessment DS2028 AM

1a. Cookstown Way Junction	CBC		All Arms	
Mode	**People Movement**	**Mode Share**	**People Movement**	**Mode Share**
Car (AM peak, PCUs)	0	0%	925	16%
Bus	2,340	95%	4,620	82%
Walk	120	5%	120	2%
Cycle	0	0%	0	0%
Total	**2,460**	**100%**	**5,665**	**100%**

INDICATIVE METHOD OF CONTROL



* denotes Flashing Amber

Subject	BusConnects Core Bus Corridors Transport Modelling		
Date	February 2023		
Route	Tallaght/Clondalkin To City Centre	Job No/Ref	60599126

Cookstown Way / Belgard Square South– PM peak

2028 PM Peak Hours
Fixed Time LinSig Results

Cycle Time = 110 secs
PRC = 38.8%,
Junction Delay = 11.5 PCUhr

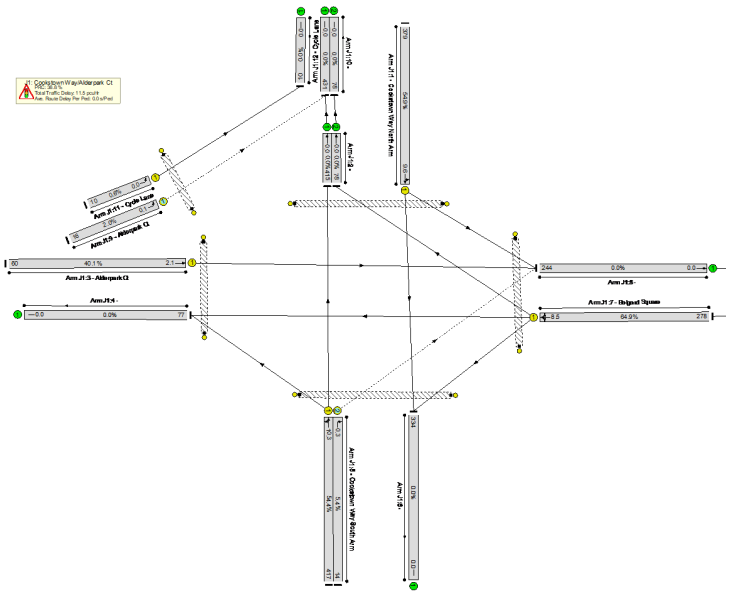
MMQ, CBC arms:
Inbound – 12.07m
Outbound – 48.87m

Bus Av. Delay (s/pcu):
Inbound – 68.7sec
Outbound – 43.5sec

Cyclists Av. Delay (s/pcu):
Inbound – 68.7sec
Outbound – 43.5sec

Car Av. Delay (s/pcu), CBC arms:
Inbound –
Outbound – 43.5sec

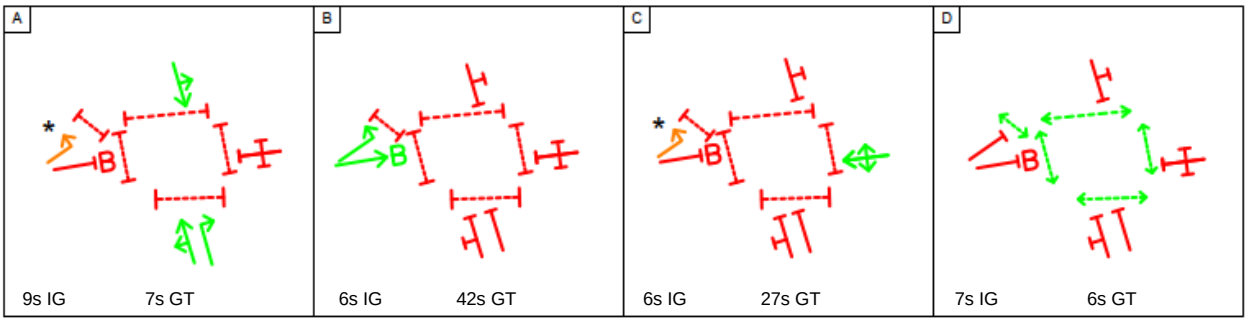
Network Layout Diagram (LinSig) - DS2028_PM



People Movement Assessment DS2028 PM

1a. Cookstown Way Junction	CBC		All Arms	
Mode	**People Movement**	**Mode Share**	**People Movement**	**Mode Share**
Car (PM peak, PCUs)	0	0%	966	17%
Bus	2,400	95%	4,560	81%
Walk	120	5%	120	2%
Cycle	0	0%	0	0%
Total	**2,520**	**100%**	**5,646**	**100%**

INDICATIVE METHOD OF CONTROL



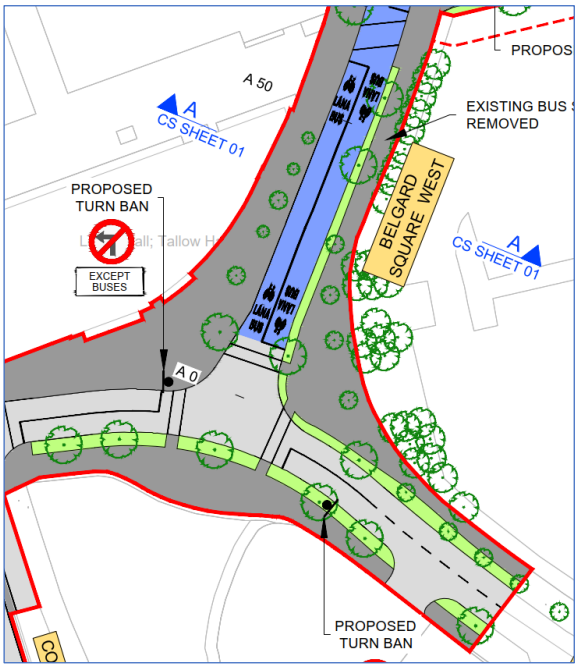
* denotes Flashing Amber

Subject	BusConnects Core Bus Corridors Junction Design Report		
Date	February 2023		
Route	Tallaght/Clondalkin To City Centre	Job No/Ref	60599126

Junction: **Belgard Square South / Belgard Square West**

EXISTING

FINAL DESIGN



Summary
The existing three arm roundabout junction is proposed to be upgraded as per the BusConnects Preliminary Design Guidance Booklet to enhance pedestrian and bus priority infrastructure.

Pedestrian Infrastructure
Controlled pedestrian crossings are proposed on all arms of the junction to facilitate the safe flow of pedestrians.

Cyclists Infrastructure
It is proposed to provide a shared bus and cycle facility along Belgard Square West.

Bus Priority Infrastructure
Bus priority is proposed along Belgard Square West up to the stop line along Belgard Square West. The proposed bus interchange will be located on Belgard Square West, and is the commencement point for buses into the city centre.

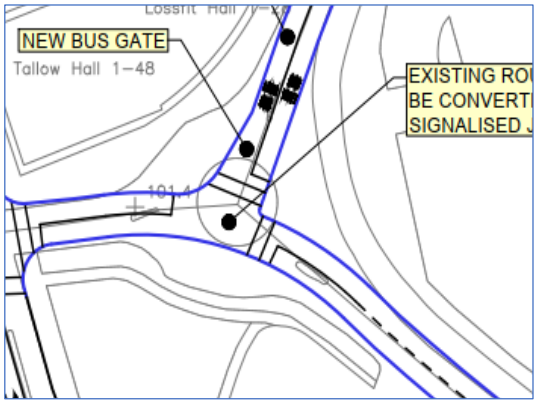
Subject	BusConnects Core Bus Corridors Junction Design Report		
Date	February 2023		
Route	Tallaght/Clondalkin To City Centre	Job No/Ref	60599126

Design Evolution

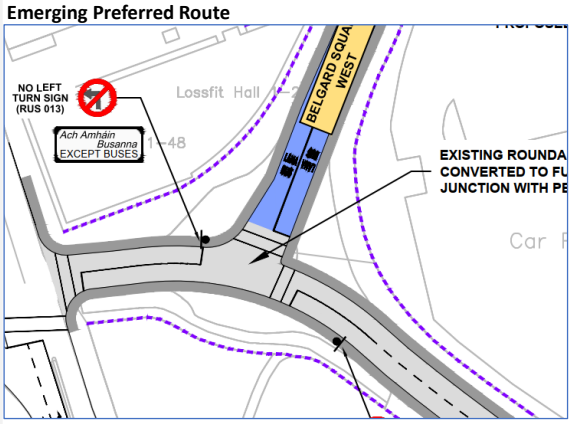
The proposed junction design has evolved on the BusConnects project from initial Concept Design, Emerging Preferred Route, Public Consultation 2, Public Consultation 3 up to the Current Design. The junction design iterations have been undertaken to optimise pedestrian, cyclist and bus priority infrastructure on the scheme.

Existing

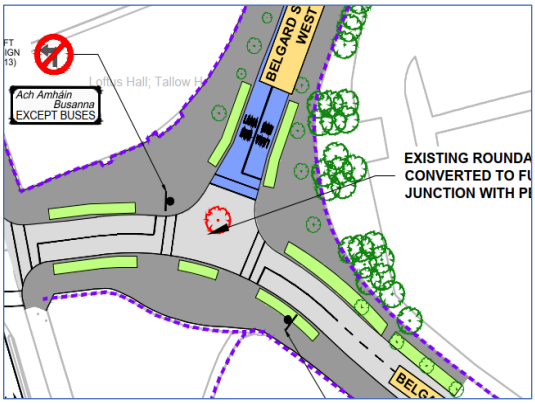
Concept Design Drawing



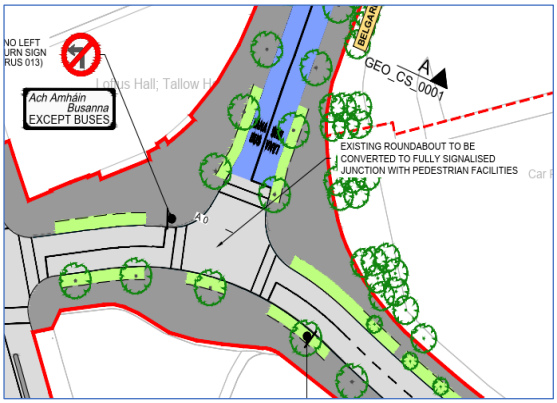
Emerging Preferred Route



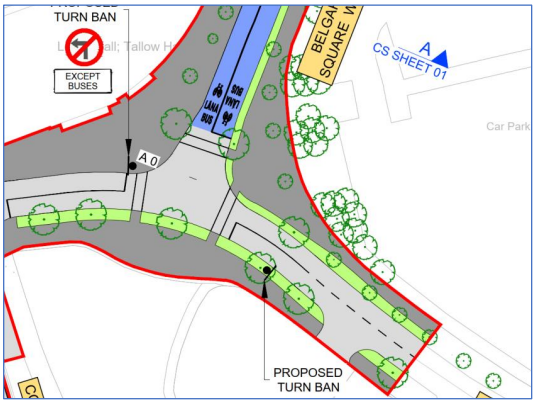
Public Consultation 2



Public Consultation 3



Final Preliminary Design



Subject	BusConnects Core Bus Corridors Transport Modelling		
Date	February 2023		
Route	Tallaght/Clondalkin To City Centre	Job No/Ref	60599126

Belgard Square South / Belgard Square West– AM peak

2028 AM Peak Hours
Fixed Time LinSig Results

Cycle Time = 110 secs
PRC = 12.0%,
Junction Delay = 4.8 PCUhr

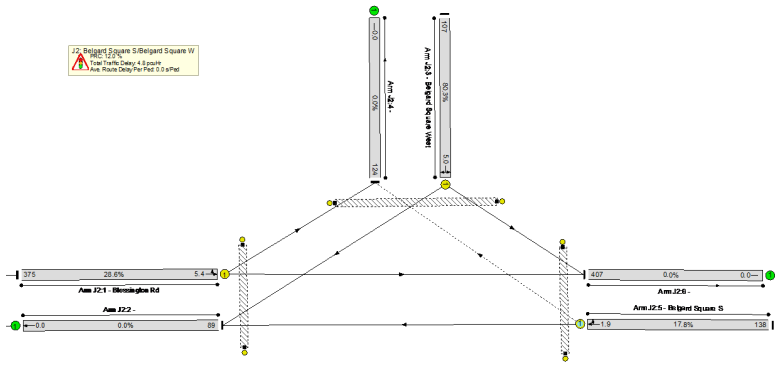
MMQ, CBC arms:
Inbound – 31.05m
Outbound – 28.75m

Bus Av. Delay (s/pcu):
Inbound – 11.4sec
Outbound – 110.1sec

Cyclists Av. Delay (s/pcu):
Inbound – 11.4sec
Outbound – 9.7sec

Car Av. Delay (s/pcu), CBC arms:
Inbound – 11.4sec
Outbound – 9.7sec

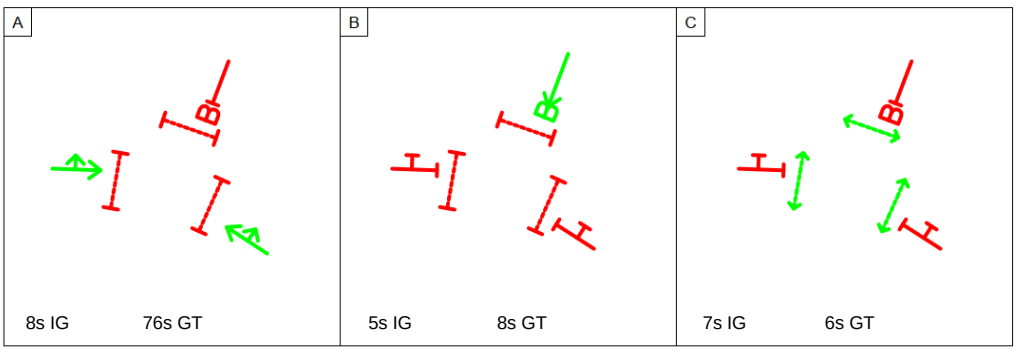
Network Layout Diagram (LinSig) - DS2028_AM



People Movement Assessment DS2028 AM

1b. Belgard Sq S-Belgard Sq W Junction	CBC		All Arms	
Mode	**People Movement**	**Mode Share**	**People Movement**	**Mode Share**
Car (AM peak, PCUs)	0	0%	362	6%
Bus	1,260	90%	5,100	91%
Walk	146	10%	146	3%
Cycle	0	0%	0	0%
Total	**1,406**	**100%**	**5,608**	**100%**

INDICATIVE METHOD OF CONTROL



Subject	BusConnects Core Bus Corridors Transport Modelling		
Date	February 2023		
Route	Tallaght/Clondalkin To City Centre	Job No/Ref	60599126

Belgard Square South / Belgard Square West– PM peak

2028 PM Peak Hours
Fixed Time LinSig Results

Cycle Time = 110 secs
PRC = 9.2%,
Junction Delay = 5.1 PCUhr

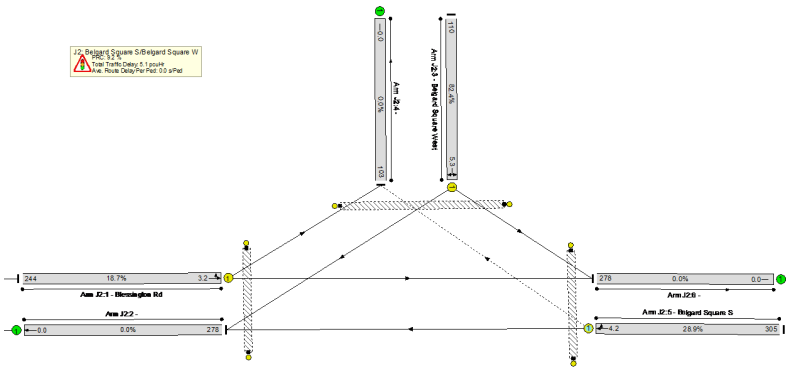
MMQ, CBC arms:
Inbound – 18.40m
Outbound – 30.48m

Bus Av. Delay (s/pcu):
Inbound – 11sec
Outbound – 115.1sec

Cyclists Av. Delay (s/pcu):
Inbound –
Outbound –

Car Av. Delay (s/pcu), CBC arms:
Inbound –
Outbound –

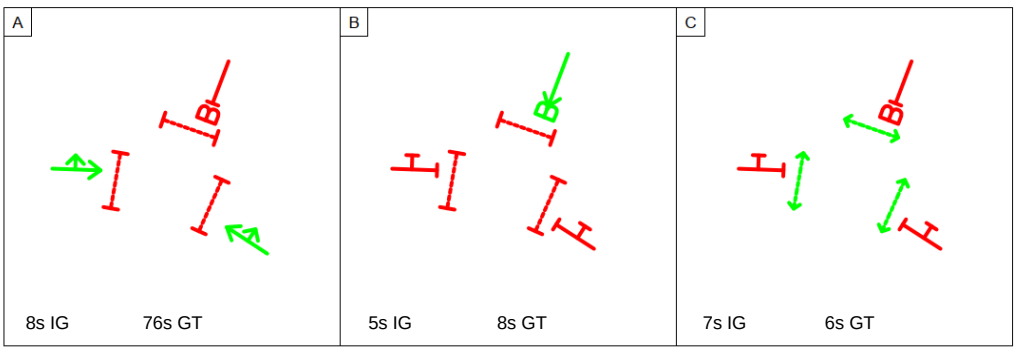
Network Layout Diagram (LinSig) - DS2028_PM



People Movement Assessment DS2028 PM

1b. Belgard Sq S-Belgard Sq W Junction	CBC		All Arms	
Mode	**People Movement**	**Mode Share**	**People Movement**	**Mode Share**
Car (PM peak, PCUs)	0	0%	380	7%
Bus	1,260	88%	5,100	90%
Walk	165	12%	165	3%
Cycle	0	0%	0	0%
Total	**1,425**	**100%**	**5,646**	**100%**

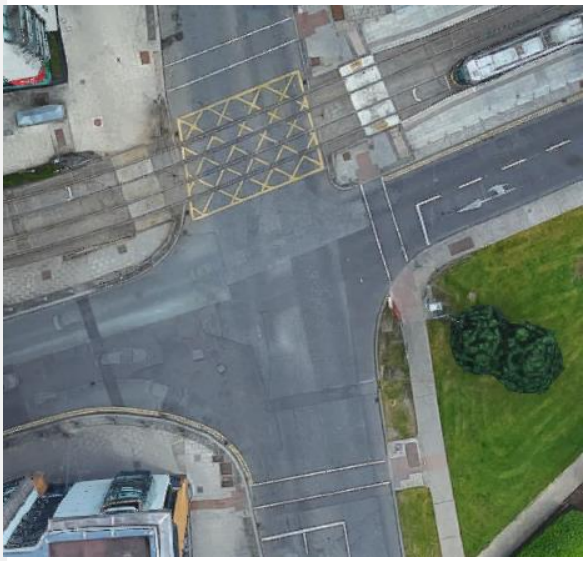
INDICATIVE METHOD OF CONTROL



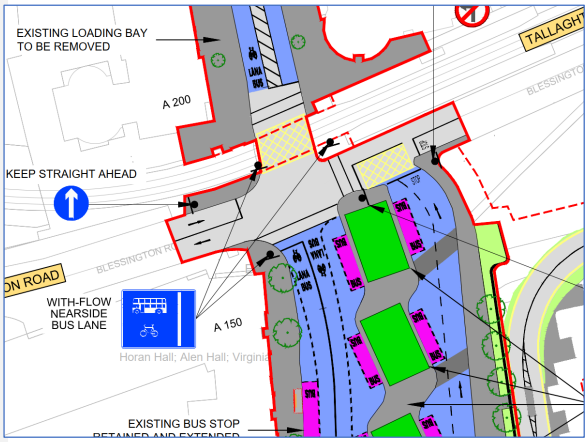
Subject	BusConnects Core Bus Corridors Junction Design Report		
Date	February 2023		
Route	Tallaght/Clondalkin To City Centre	Job No/Ref	60599126

Junction: **Belgard Square West / Old Blessington Rd**

EXISTING



FINAL DESIGN



Summary
The existing four arm junction is proposed to be upgraded as per the BusConnects Preliminary Design Guidance Booklet to enhance pedestrian and bus priority infrastructure.

Pedestrian Infrastructure
The proposal will introduce more compact pedestrian crossings at the junction. This has been achieved by reducing the corner radius at the junction, to ensure the junction is more compliant with DMURS.

Cyclists Infrastructure
Due to constraints at this location, segregated cycle tracks are not proposed. Cyclists are proposed to utilise the bus lane.

Bus Priority Infrastructure
Dedicated bus lane infrastructure is proposed along Belgard Square West to facilitate buses accessing the proposed Interchange.

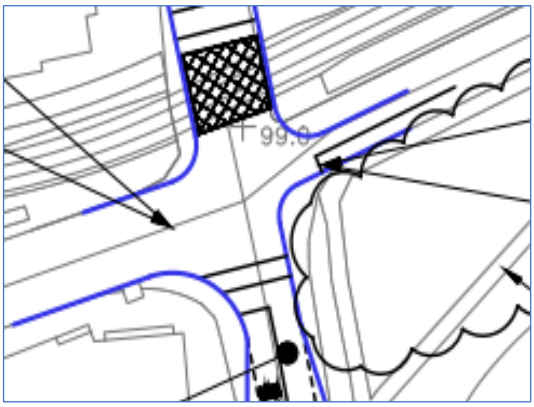
Subject	BusConnects Core Bus Corridors Junction Design Report		
Date	February 2023		
Route	Tallaght/Clondalkin To City Centre	Job No/Ref	60599126

Design Evolution

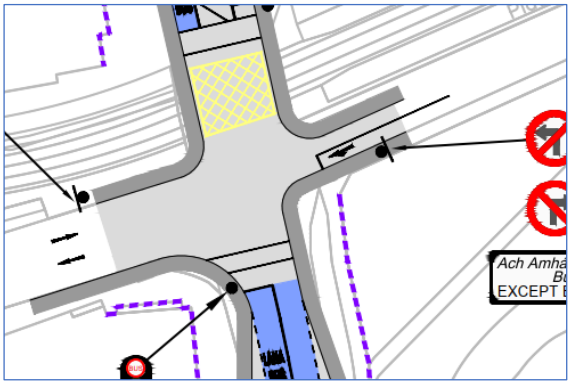
The proposed junction design has evolved on the BusConnects project from initial Concept Design, Emerging Preferred Route, Public Consultation 2, Public Consultation 3 up to the Current Design. The junction design iterations have been undertaken to optimise pedestrian, cyclist and bus priority infrastructure on the scheme.

Existing

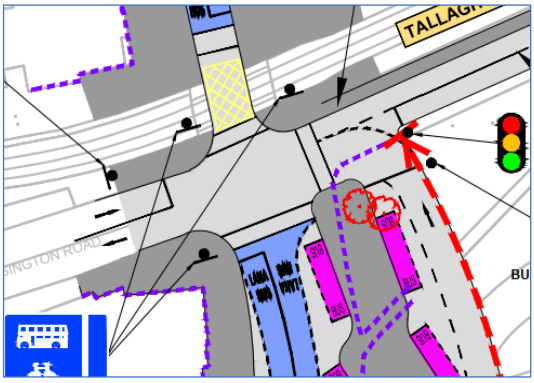
Concept Design Drawing



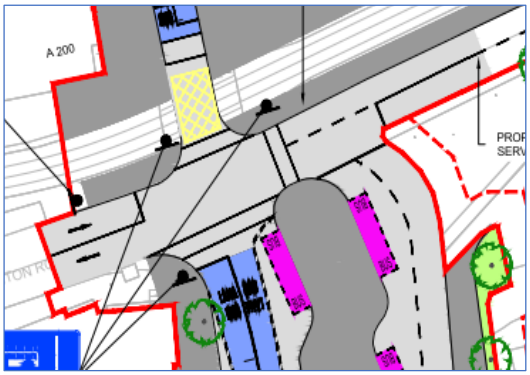
Emerging Preferred Route



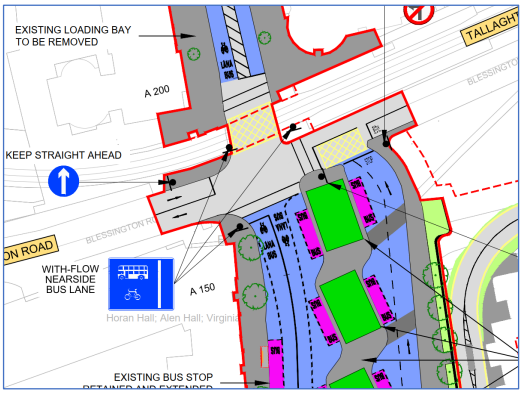
Public Consultation 2



Public Consultation 3



Final Preliminary Design



Subject	BusConnects Core Bus Corridors Transport Modelling		
Date	February 2023		
Route	Tallaght/Clondalkin To City Centre	Job No/Ref	60599126

Belgard Square West / Old Blessington Rd– AM peak

2028 AM Peak Hours
Fixed Time LinSig Results

Cycle Time = 75 secs
PRC = 47.1%,
Junction Delay = 11.9 PCUhr

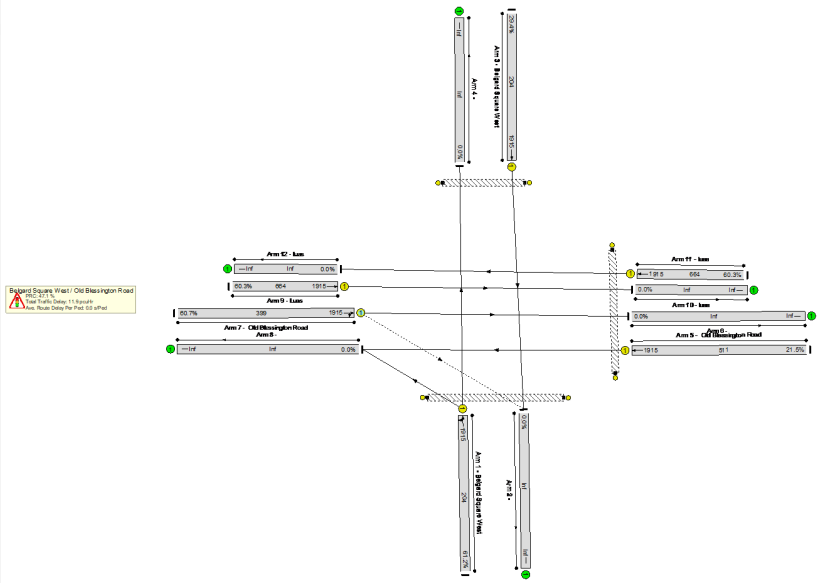
MMQ, CBC arms:
Inbound – 30.47m
Outbound – 18.4m

Bus Av. Delay (s/pcu):
Inbound – 36.8sec
Outbound – 54.3sec

Cyclists Av. Delay (s/pcu):
Inbound – 36.8sec
Outbound – 54.3sec

Car Av. Delay (s/pcu), CBC arms:
Inbound – 36.8sec
Outbound – 25.9sec

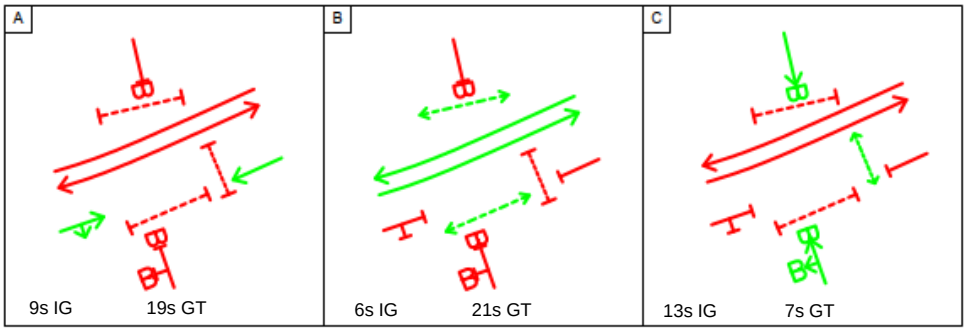
Network Layout Diagram (LinSig) - DS2028_AM



People Movement Assessment DS2028 AM

2. Old Blessington Rd-Belgard W Junction	CBC		All Arms	
Mode	**People Movement**	**Mode Share**	**People Movement**	**Mode Share**
Car (AM peak, PCUs)	0	0%	143	3%
Bus	2,160	75%	4,020	82%
Walk	734	25%	734	15%
Cycle	0	0%	0.0	0%
Total	**2,894**	**100%**	**4,897**	**100%**

INDICATIVE METHOD OF CONTROL



Subject	BusConnects Core Bus Corridors Transport Modelling		
Date	February 2023		
Route	Tallaght/Clondalkin To City Centre	Job No/Ref	60599126

Belgard Square West / Old Blessington Rd– PM peak

2028 PM Peak Hours
Fixed Time LinSig Results

Cycle Time = 75 secs
PRC = 72.5%,
Junction Delay = 9.9 PCUhr

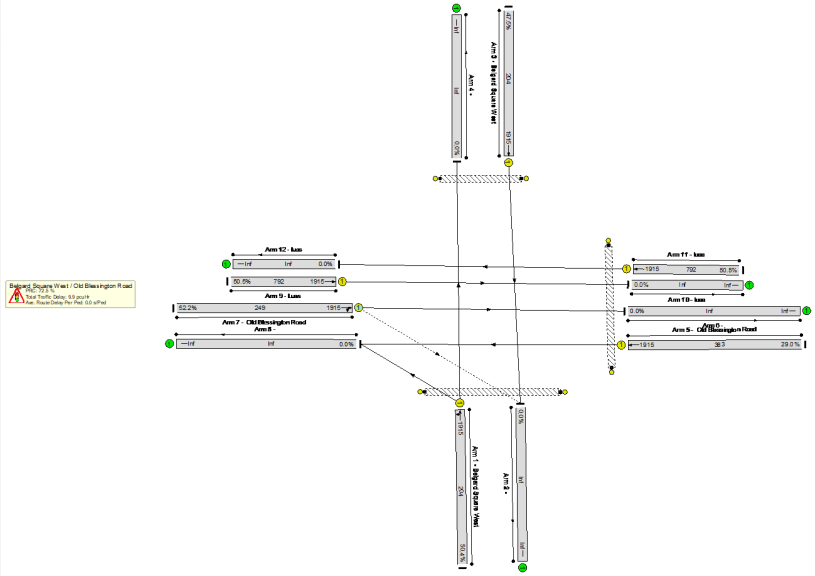
MMQ, CBC arms:
Inbound – 17.25m
Outbound – 14.37m

Bus Av. Delay (s/pcu):
Inbound – 42.8sec
Outbound – 49.2sec

Cyclists Av. Delay (s/pcu):
Inbound – 42.8sec
Outbound – 32.1sec

Car Av. Delay (s/pcu), CBC arms:
Inbound – 42.8sec
Outbound – 32.1sec

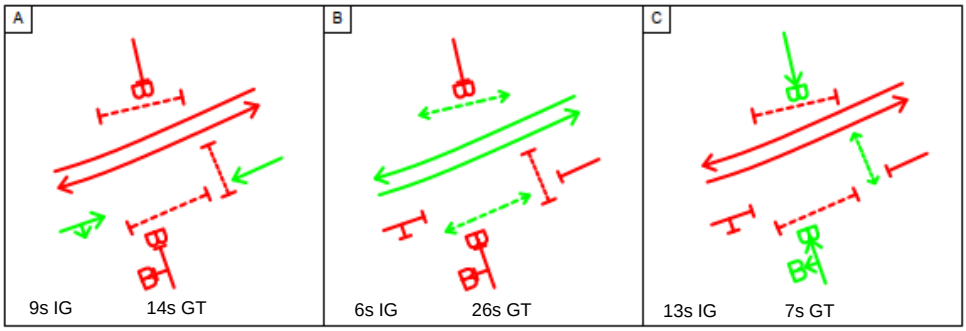
Network Layout Diagram (LinSig) - DS2028_PM



People Movement Assessment DS2028 PM

2. Old Blessington Rd-Belgard W Junction	CBC		All Arms	
Mode	**People Movement**	**Mode Share**	**People Movement**	**Mode Share**
Car (PM peak, PCUs)	0	0%	174	4%
Bus	2,160	76%	4,020	82%
Walk	688	24%	688	14%
Cycle	0	0%	0.0	0%
Total	**2,848**	**100%**	**4,882**	**100%**

INDICATIVE METHOD OF CONTROL

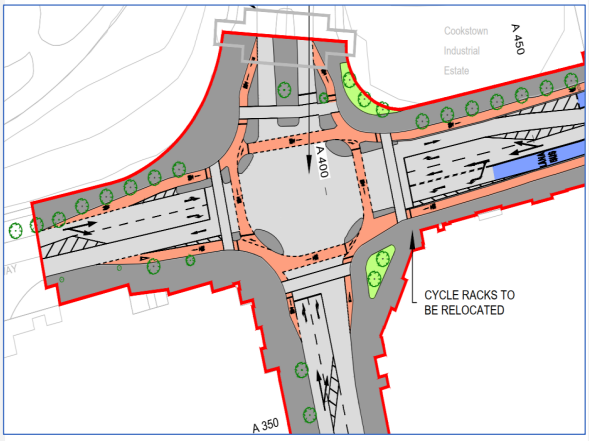


Subject	BusConnects Core Bus Corridors Junction Design Report		
Date	February 2023		
Route	Tallaght/Clondalkin To City Centre	Job No/Ref	60599126

Junction: **Belgard Square North / Belgard Square West**

EXISTING

FINAL DESIGN



Summary
The existing four arm roundabout junction is proposed to be upgraded as per the BusConnects Preliminary Design Guidance Booklet to enhance pedestrian, cyclist and bus priority infrastructure.

Pedestrian Infrastructure
New controlled pedestrian crossings are proposed on all arms of the junction.

Cyclists Infrastructure
New segregated cycle tracks are proposed along Belgard Square North. The junction will introduce segregated cycle tracks entering and exiting the junction on all four arms.

New segregated cycle tracks are proposed along Belgard Square North. The junction will introduce segregated cycle tracks entering and exiting the junction on all four arms.

A protected style junction is proposed, where physical kerb build outs will assist to give cyclists greater protection from left turning vehicles.

Bus Priority Infrastructure
Due to constraints at this location, it is proposed that buses will share with general traffic along Belgard Square West. From a review of the future traffic data, traffic volumes is projected to be low due and delay to buses is anticipated to be minimal.

For outbound buses along Belgard Square North, buses a Junction Type 3 is proposed whereby the bus lane is curtailed approximately 20m prior to facilitate a left turning pocket. From a review of the future traffic data, it is envisaged that traffic volumes at this location will be low and therefore the impact upon buses will be minimal.

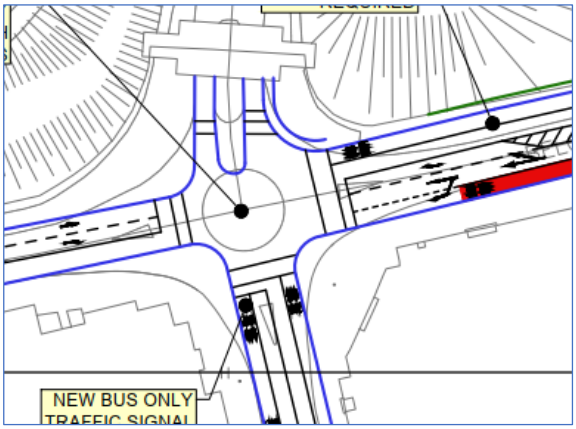
Subject	BusConnects Core Bus Corridors Junction Design Report		
Date	February 2023		
Route	Tallaght/Clondalkin To City Centre	Job No/Ref	60599126

Design Evolution

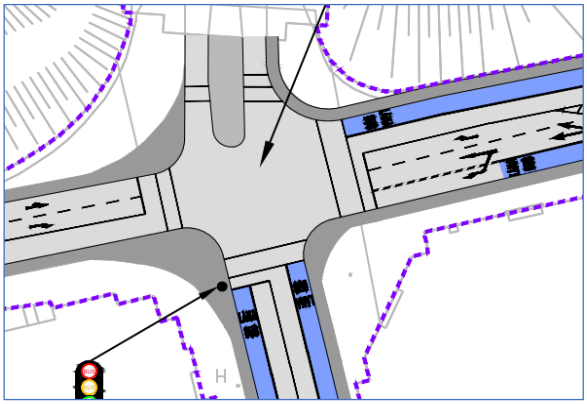
The proposed junction design has evolved on the BusConnects project from initial Concept Design, Emerging Preferred Route, Public Consultation 2, Public Consultation 3 up to the Current Design. The junction design iterations have been undertaken to optimise pedestrian, cyclist and bus priority infrastructure on the scheme.

Existing

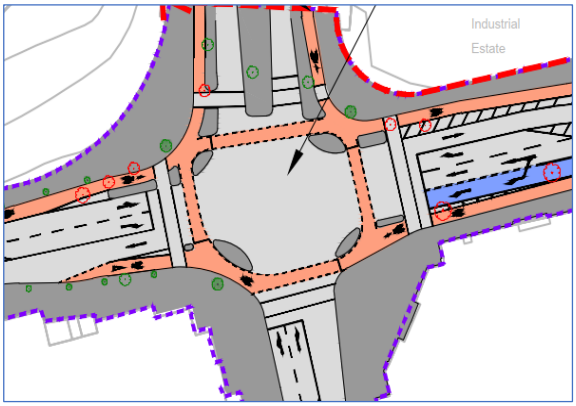
Concept Design Drawing



Emerging Preferred Route

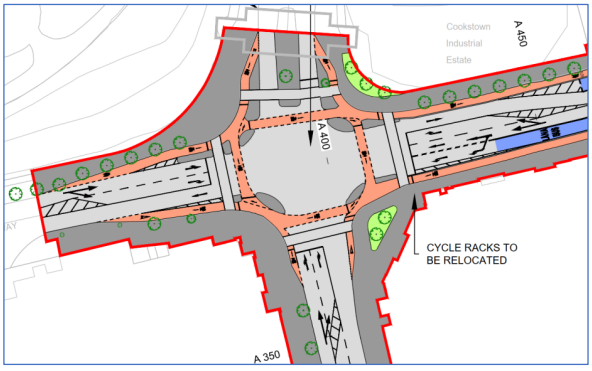


Public Consultation 2



Public Consultation 3

Final Preliminary Design



Subject	BusConnects Core Bus Corridors Transport Modelling		
Date	February 2023		
Route	Tallaght/Clondalkin To City Centre	Job No/Ref	60599126

Belgard Square North / Belgard Square West –AM peak

2028 AM Peak Hours
Fixed Time LinSig Results

Cycle Time = 120 secs
PRC = 45.5%,
Junction Delay = 12.8 PCUhr

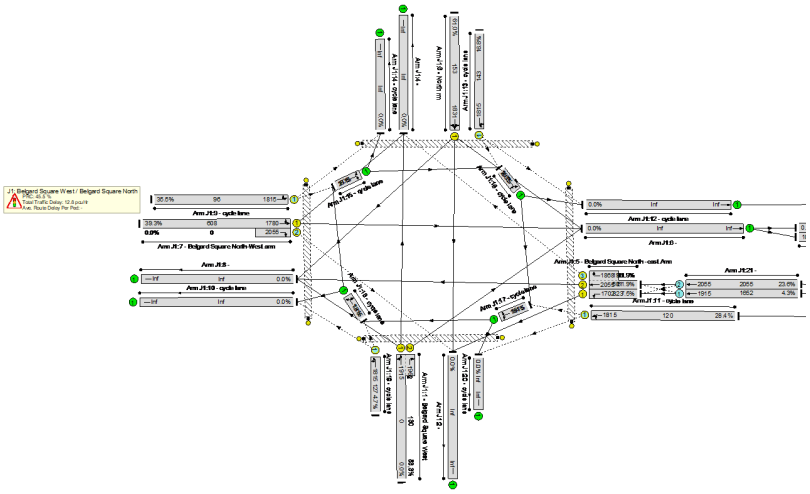
MMQ, CBC arms:
Inbound – 36.8m
Outbound – 73.6m

Bus Av. Delay (s/pcu):
Inbound – 34.9sec
Outbound – 6.8sec

Cyclists Av. Delay (s/pcu):
Inbound – 82.5sec
Outbound – 77.2sec

Car Av. Delay (s/pcu), CBC arms:
Inbound – 83.4sec
Outbound – 82.6sec

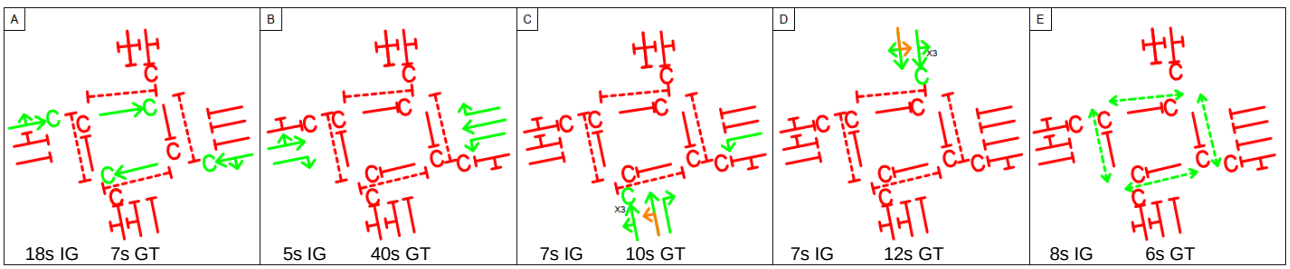
Network Layout Diagram (LinSig) - DS2028_AM



People Movement Assessment DS2028 AM

3a. Belgard Sq N-Belgard Sq W Junction	CBC		All Arms	
Mode	**People Movement**	**Mode Share**	**People Movement**	**Mode Share**
Car (AM peak, PCUs)	0	0%	1,004	20%
Bus	2,640	76%	3,000	60%
Walk	485	14%	485	10%
Cycle	60	10%	480	11%
Total	**3,185**	**100%**	**4,969**	**100%**

INDICATIVE METHOD OF CONTROL



X3 denotes Advance 3 seconds Start for Cyclists

Subject	BusConnects Core Bus Corridors Transport Modelling		
Date	February 2023		
Route	Tallaght/Clondalkin To City Centre	Job No/Ref	60599126

Belgard Square North / Belgard Square West– PM peak

2028 PM Peak Hours
Fixed Time LinSig Results

Cycle Time = 120 secs
PRC = 3.1%,
Junction Delay = 19.4 PCUhr

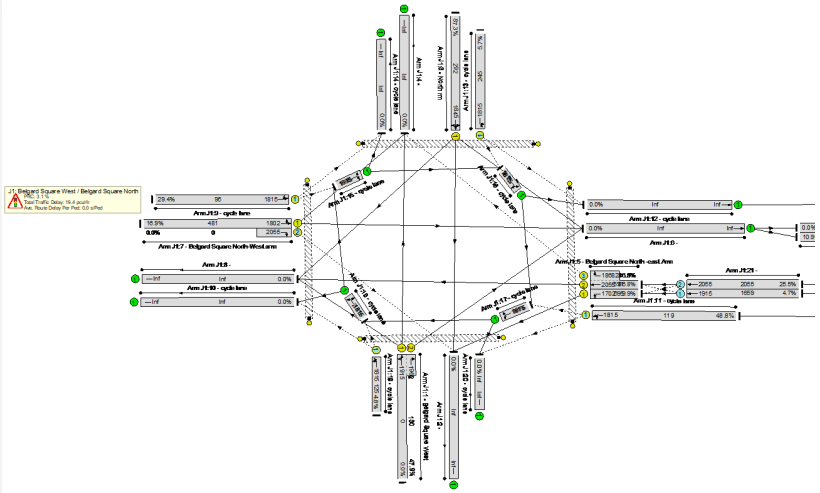
MMQ, CBC arms:
Inbound – 64.4m
Outbound – 111.55m

Bus Av. Delay (s/pcu):
Inbound – 38.3sec
Outbound – 11sec

Cyclists Av. Delay (s/pcu):
Inbound – 80sec
Outbound – 86.4sec

Car Av. Delay (s/pcu), CBC arms:
Inbound – 80.3sec
Outbound – 91.1sec

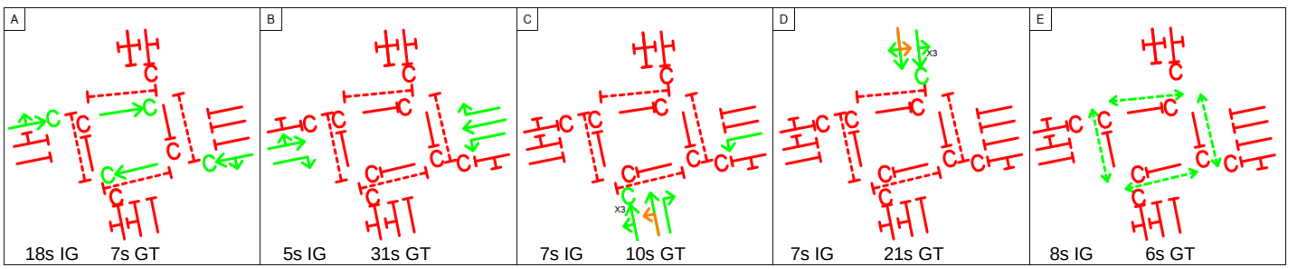
Network Layout Diagram (LinSig) - DS2028_PM



People Movement Assessment DS2028 PM

3a. Belgard Sq N-Belgard Sq W Junction	CBC		All Arms	
Mode	**People Movement**	**Mode Share**	**People Movement**	**Mode Share**
Car (PM peak, PCUs)	0	0%	1,021	21%
Bus	2,640	83%	3,000	63%
Walk	235	7%	235	5%
Cycle	70	10%	520	11%
Total	**2,945**	**100%**	**4,776**	**100%**

INDICATIVE METHOD OF CONTROL

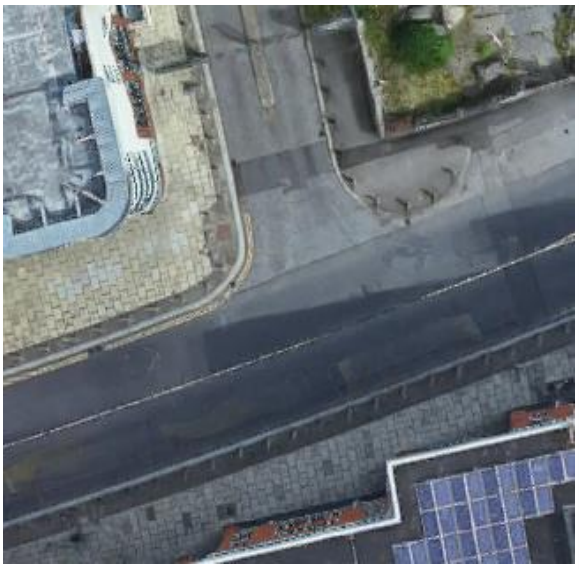


X3 denotes Advance 3 seconds Start for Cyclists

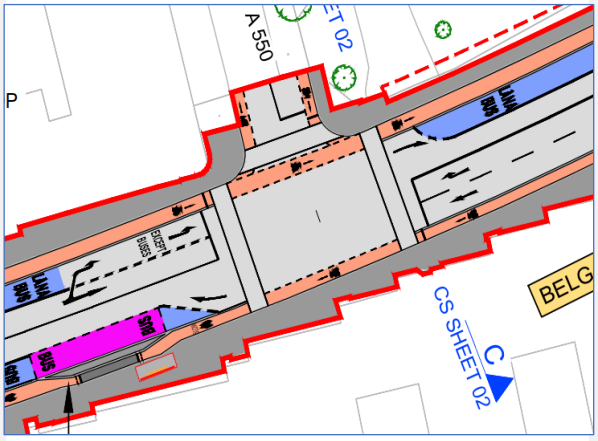
Subject	BusConnects Core Bus Corridors Junction Design Report		
Date	February 2023		
Route	Tallaght/Clondalkin To City Centre	Job No/Ref	60599126

Junction: **Belgard Square North / Link Road**

EXISTING



FINAL DESIGN



Summary
The existing junction is proposed to be upgraded as per the BusConnects Preliminary Design Guidance Booklet to enhance pedestrian, cyclist and bus priority infrastructure.

Pedestrian Infrastructure
The proposal will introduce controlled crossings on all three arms of the junction to facilitate the safe movement of pedestrians. The radius of the junction is also proposed to be reduced, providing a more compact junction.

Cyclists Infrastructure
Cyclist entry and exit lanes are proposed on all arms of the junction. The proposal will also introduce cycle tracks along Belgard Square North to facilitate continuous flow of cyclists along the scheme.

Bus Priority Infrastructure
For inbound direction along Belgard Square North, a Junction Type 3 is proposed where the bus lane is curtailed approximately 20m prior to the stop line. A review of the future traffic data indicates that left turning volumes will be low at this location and therefore any left turning vehicles will not have a detrimental impact upon bus priority.

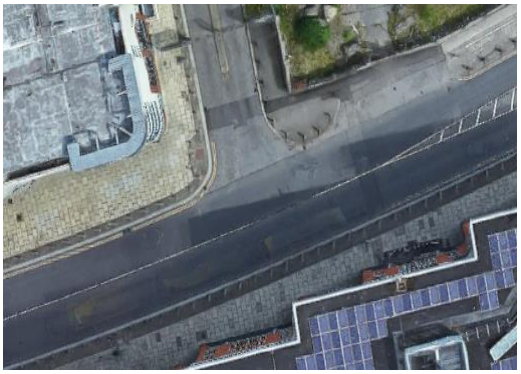
For the outbound direction, due to physical constraints along this section of Belgard Square North, buses will share with general traffic.

Subject	BusConnects Core Bus Corridors Junction Design Report		
Date	February 2023		
Route	Tallaght/Clondalkin To City Centre	Job No/Ref	60599126

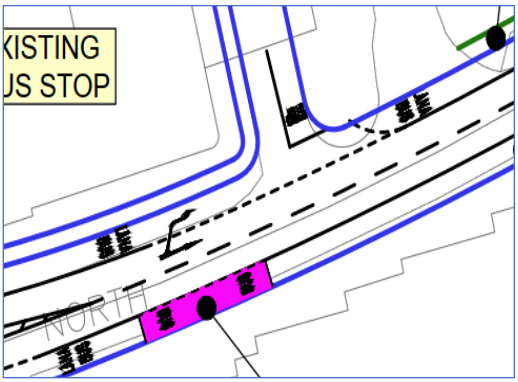
Design Evolution

The proposed junction design has evolved on the BusConnects project from initial Concept Design, Emerging Preferred Route, Public Consultation 2, Public Consultation 3 up to the Current Design. The junction design iterations have been undertaken to optimise pedestrian, cyclist and bus priority infrastructure on the scheme.

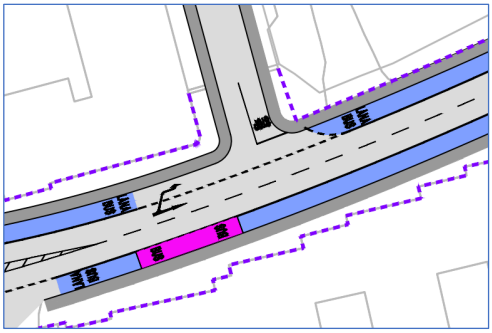
Existing



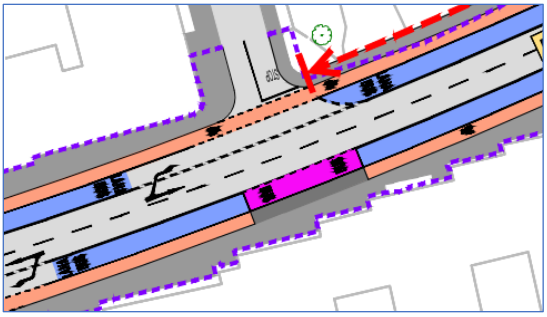
Concept Design Drawing



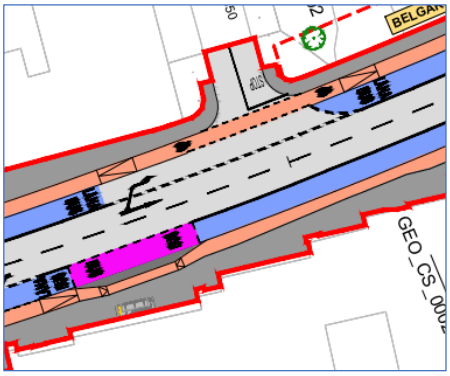
Emerging Preferred Route



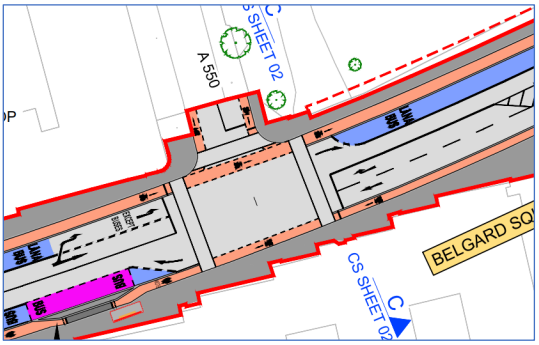
Public Consultation 2



Public Consultation 3



Final Preliminary Design



Subject	BusConnects Core Bus Corridors Transport Modelling		
Date	February 2023		
Route	Tallaght/Clondalkin To City Centre	Job No/Ref	60599126

Belgard Square North / Library – AM peak

2028 AM Peak Hours
Fixed Time LinSig Results

Cycle Time = 120 secs
PRC = 52.6%,
Junction Delay = 7 PCUhr

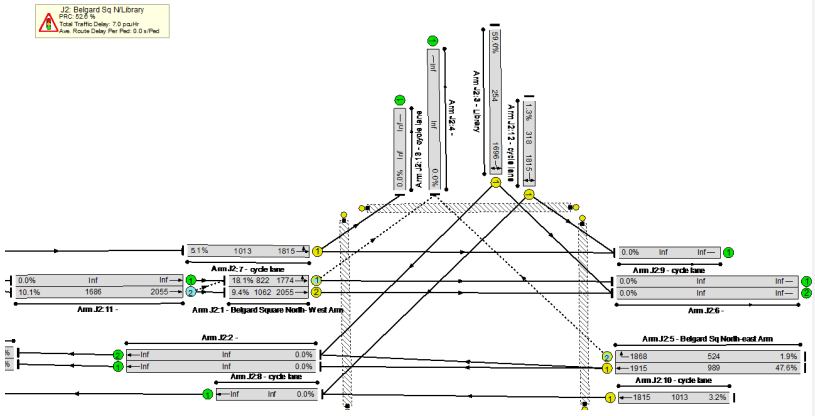
MMQ, CBC arms:
Inbound – 30.47m
Outbound – 59.8m

Bus Av. Delay (s/pcu):
Inbound – 11.7sec
Outbound – 22.1sec

Cyclists Av. Delay (s/pcu):
Inbound – 13.6sec
Outbound – 13.8sec

Car Av. Delay (s/pcu), CBC arms:
Inbound – 16.8sec
Outbound – 22.1sec

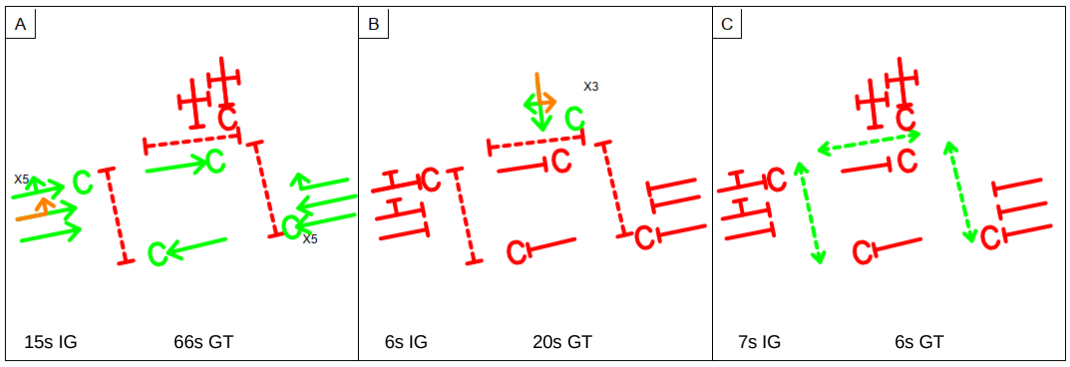
Network Layout Diagram (LinSig) - DS2028_AM



People Movement Assessment DS2028 AM

3b. Belgard Squre N-Library Junction	CBC		All Arms	
Mode	**People Movement**	**Mode Share**	**People Movement**	**Mode Share**
Car (AM peak, PCUs)	600	15%	877	20%
Bus	3,000	72%	3,000	67%
Walk	120	3%	120	3%
Cycle	410	10%	440	10%
Total	**4,130**	**100%**	**4,437**	**100%**

INDICATIVE METHOD OF CONTROL



X3/X5 denotes Advance 3/5 seconds Start for Cyclists

Subject	BusConnects Core Bus Corridors Transport Modelling		
Date	February 2023		
Route	Tallaght/Clondalkin To City Centre	Job No/Ref	60599126

Belgard Square North / Library – PM peak

2028 PM Peak Hours
Fixed Time LinSig Results

Cycle Time = 120 secs
PRC = 31.5%,
Junction Delay = 7.5 PCUhr

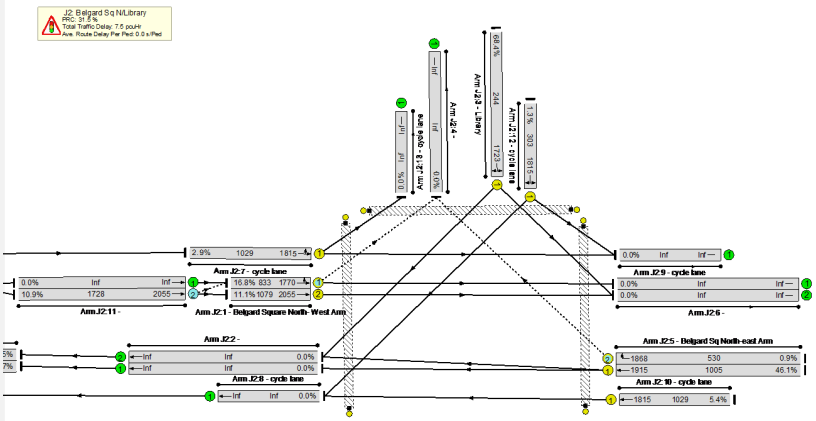
MMQ, CBC arms:
Inbound – 36.22m
Outbound – 58.07m

Bus Av. Delay (s/pcu):
Inbound – 12.7sec
Outbound – 21.2sec

Cyclists Av. Delay (s/pcu):
Inbound – 15.1sec
Outbound – 13.5sec

Car Av. Delay (s/pcu), CBC arms:
Inbound – 15.6sec
Outbound – 21.2sec

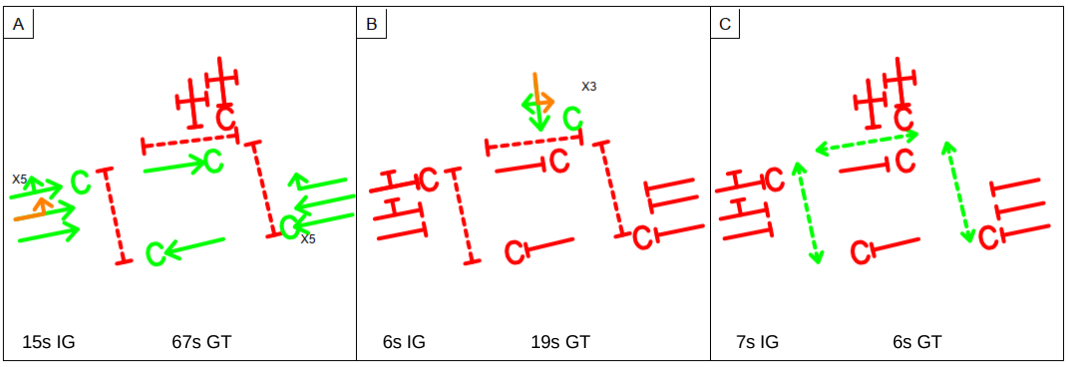
Network Layout Diagram (LinSig) - DS2028_PM



People Movement Assessment DS2028 PM

3b. Belgard Squre N-Library Junction	CBC		All Arms	
Mode	**People Movement**	**Mode Share**	**People Movement**	**Mode Share**
Car (PM peak, PCUs)	606	14%	895	19%
Bus	3,180	73%	3,180	68%
Walk	120	3%	120	3%
Cycle	420	10%	450	10%
Total	**4,326**	**100%**	**4,645**	**100%**

INDICATIVE METHOD OF CONTROL

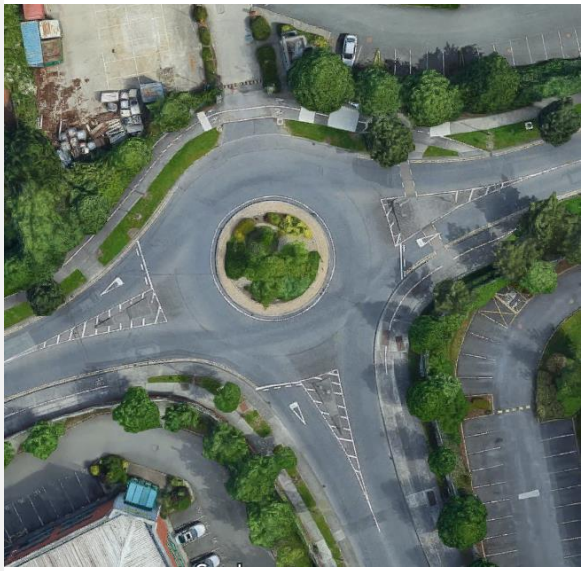


X3/X5 denotes Advance 3/5 seconds Start for Cyclists

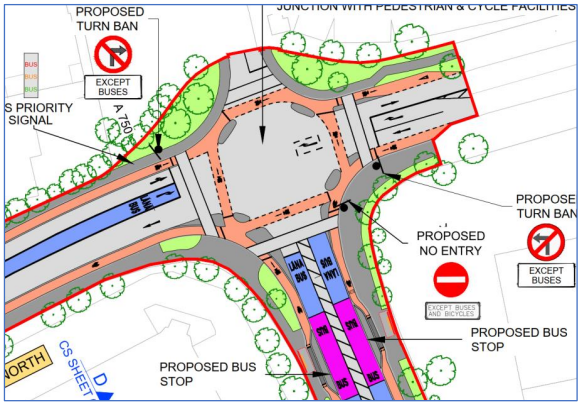
Subject	BusConnects Core Bus Corridors Junction Design Report		
Date	February 2023		
Route	Tallaght/Clondalkin To City Centre	Job No/Ref	60599126

Junction: **Belgard Square North / Belgard Square East**

EXISTING



FINAL DESIGN



Summary
The existing roundabout junction is proposed to be upgraded as per the BusConnects Preliminary Design Guidance Booklet to enhance pedestrian, cyclist and bus priority infrastructure.

Pedestrian Infrastructure
The existing junction comprises uncontrolled crossings.

The proposal will introduce controlled pedestrian crossings on all four arms of the junction.

Cyclists Infrastructure
The proposal will introduce high quality cycle tracks entering and exiting the junction along Belgard Square North and Belgard Square East.

Cyclist entry and exit lanes is not proposed into the northern arm of the junction due to constraints and also the northern arm serves as a vehicular entrance used frequently by HGVs.

The proposed junction upgrade will introduce physical build outs on all four corners to reduce vehicular turning speeds whilst offering cyclists with greater protection from left turning vehicles.

Bus Priority Infrastructure
Bus priority as per Junction Type 1 is proposed for both inbound and outbound directions along Belgard Square North and Belgard Square East respectively.

Along Belgard Square East a bus gate is proposed to provide buses with priority along this section.

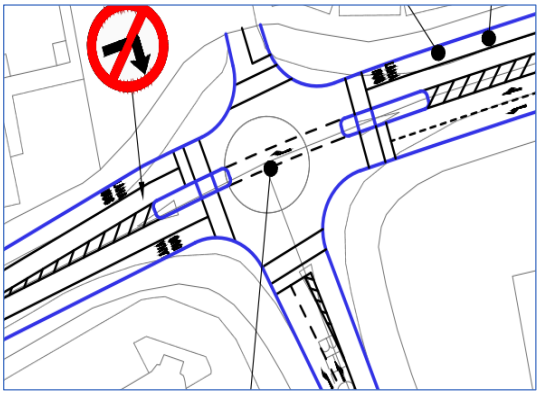
Subject	BusConnects Core Bus Corridors Junction Design Report		
Date	February 2023		
Route	Tallaght/Clondalkin To City Centre	Job No/Ref	60599126

Design Evolution

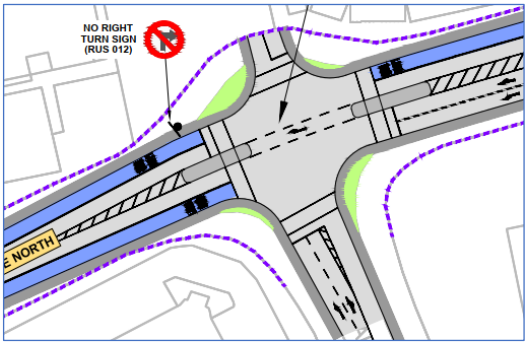
The proposed junction design has evolved on the BusConnects project from initial Concept Design, Emerging Preferred Route, Public Consultation 2, Public Consultation 3 up to the Current Design. The junction design iterations have been undertaken to optimise pedestrian, cyclist and bus priority infrastructure on the scheme.

Existing

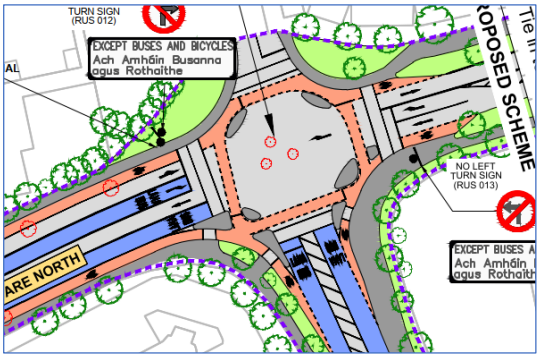
Concept Design Drawing



Emerging Preferred Route

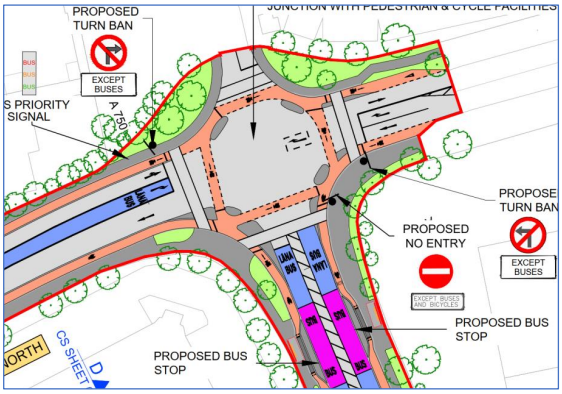


Public Consultation 2



Public Consultation 3

Final Preliminary Design



Subject	BusConnects Core Bus Corridors Transport Modelling		
Date	February 2023		
Route	Tallaght/Clondalkin To City Centre	Job No/Ref	60599126

Belgard Square North /
Belgard Square East– AM peak

2028 AM Peak Hours
Fixed Time LinSig Results

Cycle Time = 120 secs
PRC = 66.1%,
Junction Delay = 10.1 PCUhr

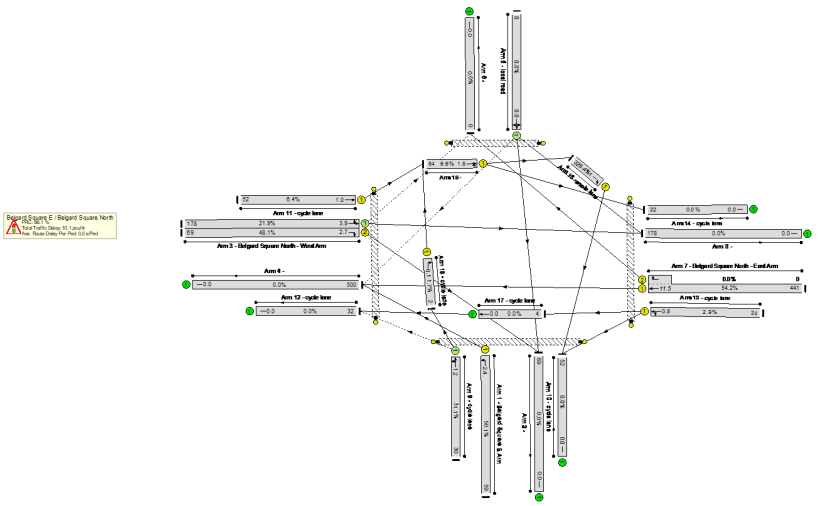
MMQ, CBC arms:
Inbound – 22.42m
Outbound – 66.12m

Bus Av. Delay (s/pcu):
Inbound – 24.7sec
Outbound – 84.2sec

Cyclists Av. Delay (s/pcu):
Inbound – 21sec
Outbound – 80.3sec

Car Av. Delay (s/pcu), CBC arms:
Inbound – 24.7sec
Outbound – 30.6sec

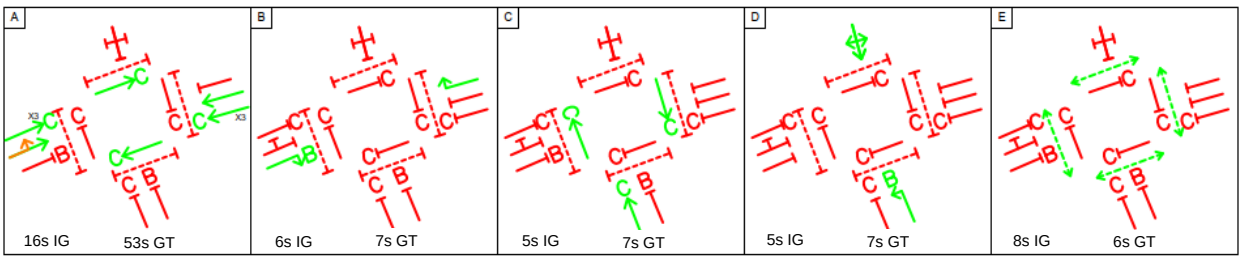
Network Layout Diagram (LinSig) - DS2028_AM



People Movement Assessment DS2028 AM

4. Belgard Square North-East Junction	CBC		All Arms	
Mode	**People Movement**	**Mode Share**	**People Movement**	**Mode Share**
Car (AM peak, PCUs)	0	0%	714	16%
Bus	2,580	87%	3,060	70%
Walk	78	3%	78	2%
Cycle	300	10%	530	12%
Total	**2,958**	**100%**	**4,382**	**100%**

INDICATIVE METHOD OF CONTROL

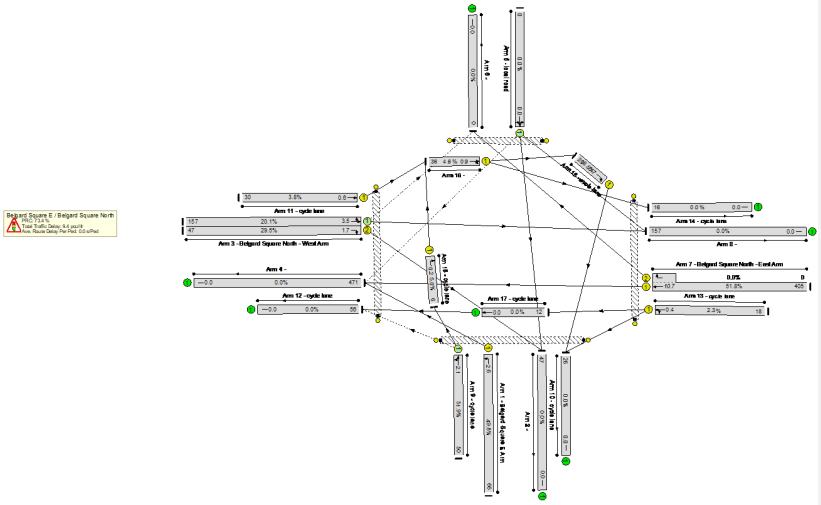


X3 denotes Advance 3 seconds Start for Cyclists and Buses

Subject	BusConnects Core Bus Corridors Transport Modelling		
Date	February 2023		
Route	Tallaght/Clondalkin To City Centre	Job No/Ref	60599126

Belgard Square North /
Belgard Square East– PM peak

Network Layout Diagram (LinSig) - DS2028_PM



2028 PM Peak Hours
Fixed Time LinSig Results

Cycle Time = 120 secs
PRC = 73.4%,
Junction Delay = 9.4 PCUhr

MMQ, CBC arms:
Inbound – 19.55m
Outbound – 59.8m

Bus Av. Delay (s/pcu):
Inbound – 25.1sec
Outbound – 80.0sec

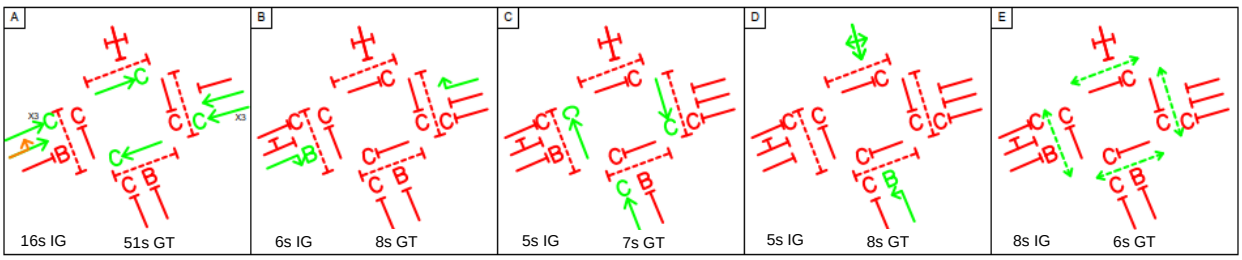
Cyclists Av. Delay (s/pcu):
Inbound – 22sec
Outbound – 92.1sec

Car Av. Delay (s/pcu), CBC arms:
Inbound – 25.1sec
Outbound – 30.5sec

People Movement Assessment DS2028 PM

4. Belgard Square North-East Junction	CBC		All Arms	
Mode	**People Movement**	**Mode Share**	**People Movement**	**Mode Share**
Car (PM peak, PCUs)	0	0%	646	16%
Bus	2,280	85%	2,760	70%
Walk	77	3%	77	2%
Cycle	320	12%	490	12%
Total	**2,677**	**100%**	**3,972**	**100%**

INDICATIVE METHOD OF CONTROL



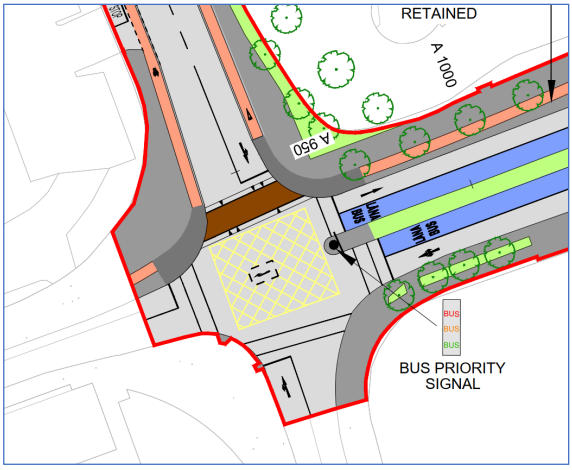
X3 denotes Advance 3 seconds Start for Cyclists and Buses

Subject	BusConnects Core Bus Corridors Junction Design Report		
Date	February 2023		
Route	Tallaght/Clondalkin To City Centre	Job No/Ref	60599126

Junction: **Blessington Road / Belgard Square East**

EXISTING

FINAL DESIGN



Summary
The existing junction is proposed to be upgraded as per the BusConnects Preliminary Design Guidance Booklet to enhance pedestrian, cyclist and bus priority infrastructure.

Pedestrian Infrastructure
The proposal will introduce a more compact junction with reduced corner radius, to reduce pedestrian crossing distances.

Cyclists Infrastructure
The proposal will introduce cycle tracks along Belgard Square East and provide a toucan crossing to cater for cyclists travelling towards Blessington Road.

Bus Priority Infrastructure
For outbound direction, a bus lane is proposed up to the stop line as per Junction Type 1 along Blessington Road.

For the inbound direction along Belgard Square East, due to carriageway constraints, it is proposed that buses will share with general traffic. From reviewing the future traffic data, it is envisaged that traffic volumes along Belgard Square East will be relatively low due to the proposed bus gate along Belgard Square East.

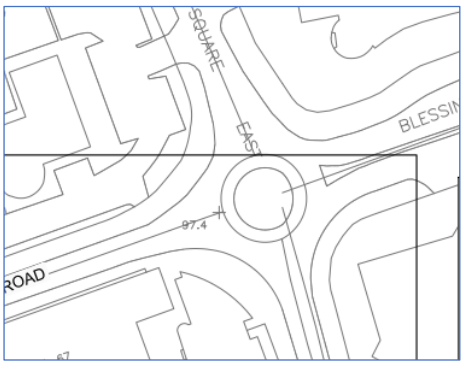
Subject	BusConnects Core Bus Corridors Junction Design Report		
Date	February 2023		
Route	Tallaght/Clondalkin To City Centre	Job No/Ref	60599126

Design Evolution

The proposed junction design has evolved on the BusConnects project from initial Concept Design, Emerging Preferred Route, Public Consultation 2, Public Consultation 3 up to the Current Design. The junction design iterations have been undertaken to optimise pedestrian, cyclist and bus priority infrastructure on the scheme.

Existing

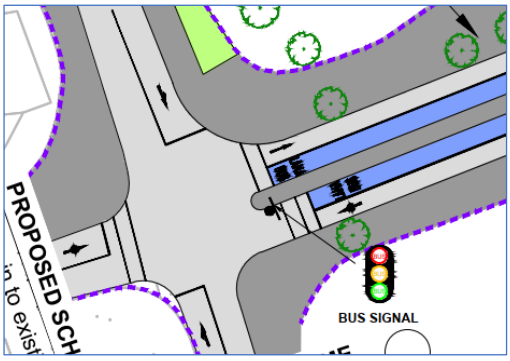
Concept Design Drawing



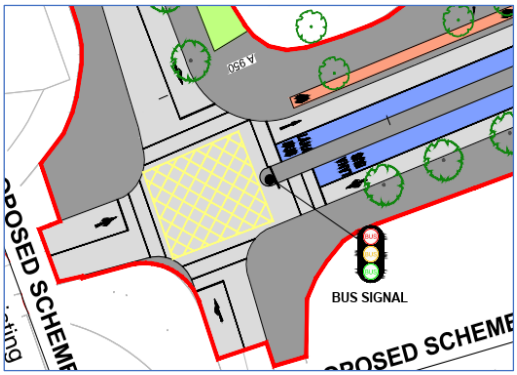
Emerging Preferred Route

This Junction is not part of Emerging Preferred Route

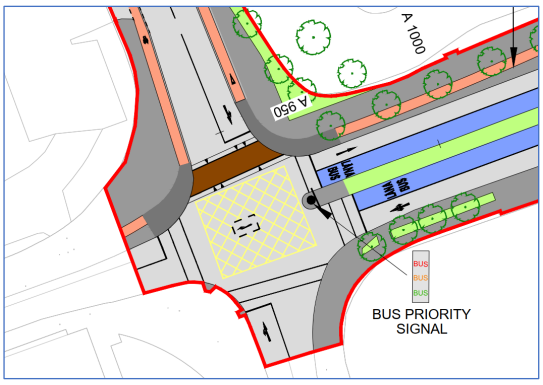
Public Consultation 2



Public Consultation 3



Final Preliminary Design



Subject	BusConnects Core Bus Corridors Transport Modelling		
Date	February 2023		
Route	Tallaght/Clondalkin To City Centre	Job No/Ref	60599126

Blessington Rd / Belgard Square East– AM peak

2028 AM Peak Hours
Fixed Time LinSig Results

Cycle Time = 120 secs
PRC = 336.3%,
Junction Delay = 2.9 PCUhr

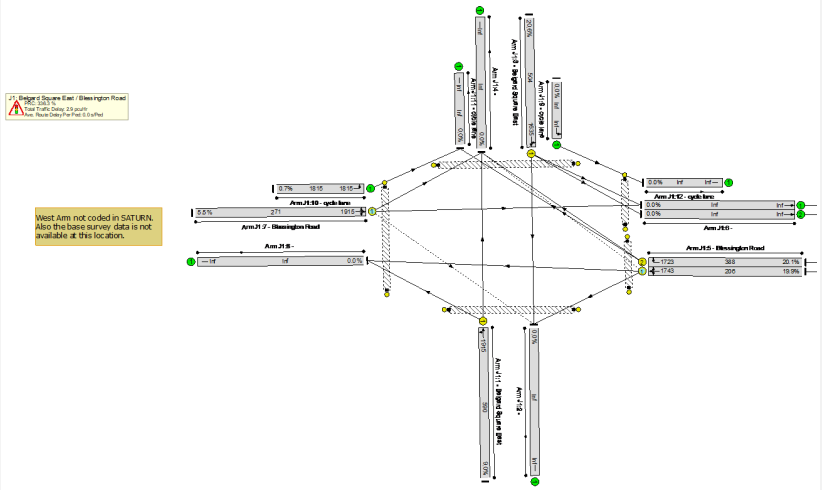
MMQ, CBC arms:
Inbound – 15.52m
Outbound – 8.05m

Bus Av. Delay (s/pcu):
Inbound – 35.2sec
Outbound –

Cyclists Av. Delay (s/pcu):
Inbound –
Outbound –

Car Av. Delay (s/pcu), CBC arms:
Inbound – 51.7sec
Outbound – 62.1sec

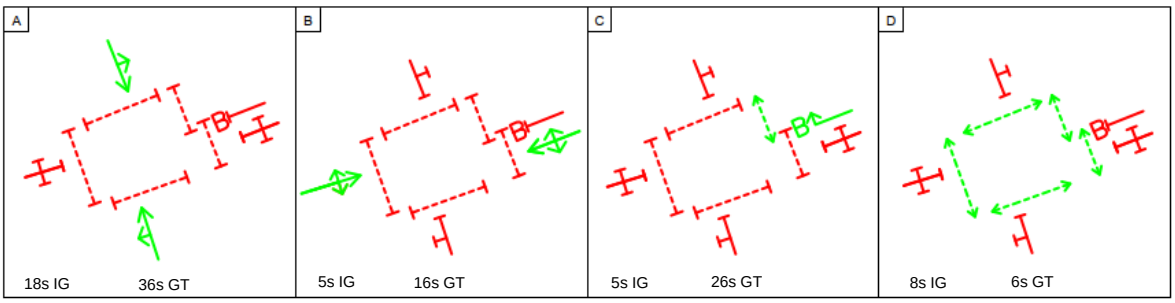
Network Layout Diagram (LinSig) - DS2028_AM



People Movement Assessment DS2028 AM

5. Blessington Rd-Belgard Square E Junction	CBC		All Arms	
Mode	People Movement	Mode Share	People Movement	Mode Share
Car (AM peak, PCUs)	60	2%	134	4%
Bus	2,580	83%	2,580	79%
Walk	120	4%	120	4%
Cycle	350	11%	440	13%
Total	**3,110**	**100%**	**3,274**	**100%**

INDICATIVE METHOD OF CONTROL



Subject	BusConnects Core Bus Corridors Transport Modelling		
Date	February 2023		
Route	Tallaght/Clondalkin To City Centre	Job No/Ref	60599126

Blessington Rd/ Belgard Square East– PM peak

2028 PM Peak Hours
Fixed Time LinSig Results

Cycle Time = 120 secs
PRC = 217.0%,
Junction Delay = 4.1 PCUhr

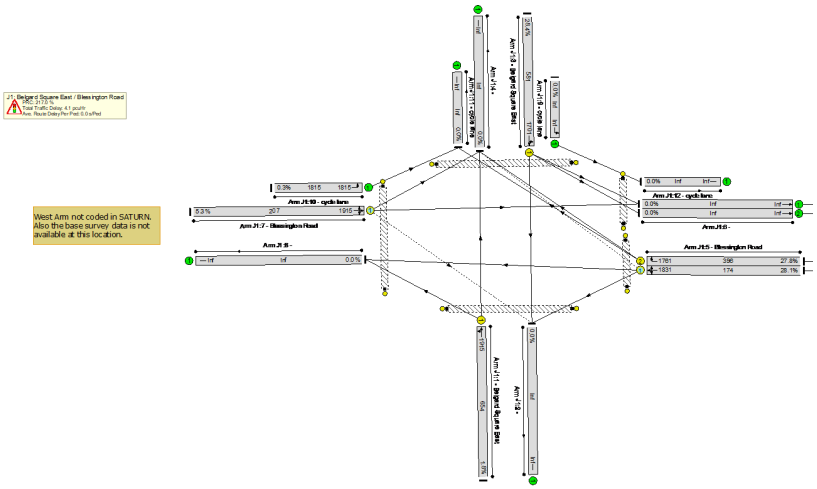
MMQ, CBC arms:
Inbound – 24.15m
Outbound – 9.77m

Bus Av. Delay (s/pcu):
Inbound – 31.4sec
Outbound –

Cyclists Av. Delay (s/pcu):
Inbound –
Outbound – 56.2sec

Car Av. Delay (s/pcu), CBC arms:
Inbound – 57.3ec
Outbound – 56.2sec

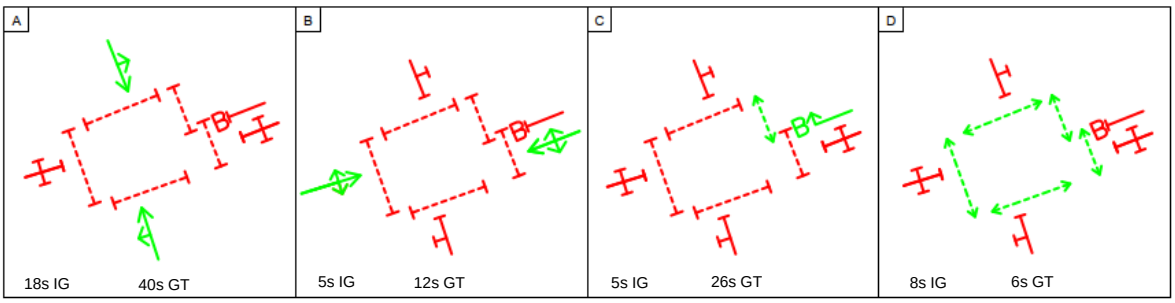
Network Layout Diagram (LinSig) - DS2028_PM



People Movement Assessment DS2028 PM

5. Blessington Rd-Belgard Square E Junction	CBC		All Arms	
Mode	**People Movement**	**Mode Share**	**People Movement**	**Mode Share**
Car (PM peak, PCUs)	79	3%	158	5%
Bus	2,460	81%	2,460	78%
Walk	120	4%	120	4%
Cycle	350	12%	410	13%
Total	**3,009**	**100%**	**3,148**	**100%**

INDICATIVE METHOD OF CONTROL



Subject	BusConnects Core Bus Corridors Junction Design Report		
Date	February 2023		
Route	Tallaght/Clondalkin To City Centre	Job No/Ref	60599126

Junction: **Blessington Rd / Belgard Rd**

EXISTING

FINAL DESIGN

Summary
The existing junction is proposed to be upgraded as per the BusConnects Preliminary Design Guidance Booklet to enhance pedestrian, cyclist and bus priority infrastructure.

Pedestrian Infrastructure
It is proposed to introduce more direct pedestrian crossings on all arms of the junction. The existing left turn slip from Belgard Road to Blessington Road is proposed to be omitted to introduce a more compact junction, reducing the crossing distances for pedestrians.

Cyclists Infrastructure
The existing junction is proposing to upgrade the existing cycling infrastructure at the junction. The proposal will introduce toucan crossings to cater for cyclists crossing at the respective junction.

Bus Priority Infrastructure
For the inbound direction, a bus lane is proposed upto the stop line along Blessington Road.

For the outbound direction, due to carriageway constraints, buses are proposed to share with general traffic. A review of the future traffic data indicates that traffic volumes will be relatively low and will have minimal impact upon bus journey times.

Subject	BusConnects Core Bus Corridors Junction Design Report		
Date	February 2023		
Route	Tallaght/Clondalkin To City Centre	Job No/Ref	60599126

Design Evolution

The proposed junction design has evolved on the BusConnects project from initial Concept Design, Emerging Preferred Route, Public Consultation 2, Public Consultation 3 up to the Current Design. The junction design iterations have been undertaken to optimise pedestrian, cyclist and bus priority infrastructure on the scheme.

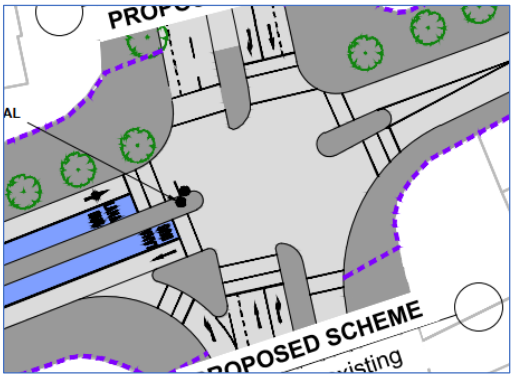
Existing

Concept Design Drawing

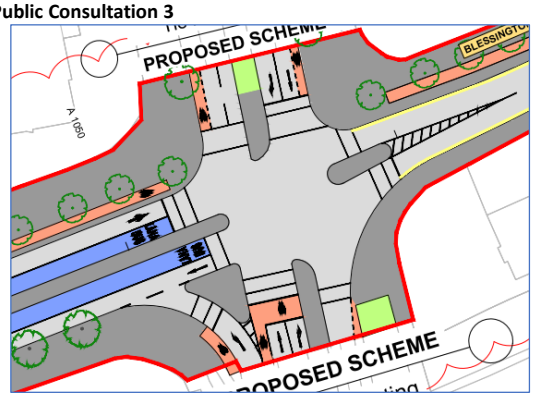
Emerging Preferred Route

This Junction is not part of Emerging Preferred Route

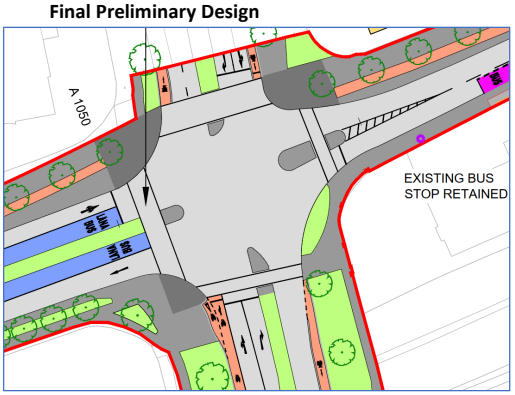
Public Consultation 2



Public Consultation 3



Final Preliminary Design



Subject	BusConnects Core Bus Corridors Transport Modelling		
Date	February 2023		
Route	Tallaght/Clondalkin To City Centre	Job No/Ref	60599126

Blessington Rd / Belgard Rd– AM peak

2028 AM Peak Hours
Fixed Time LinSig Results

Cycle Time = 120 secs
PRC = 45.6%,
Junction Delay = 11.8 PCUhr

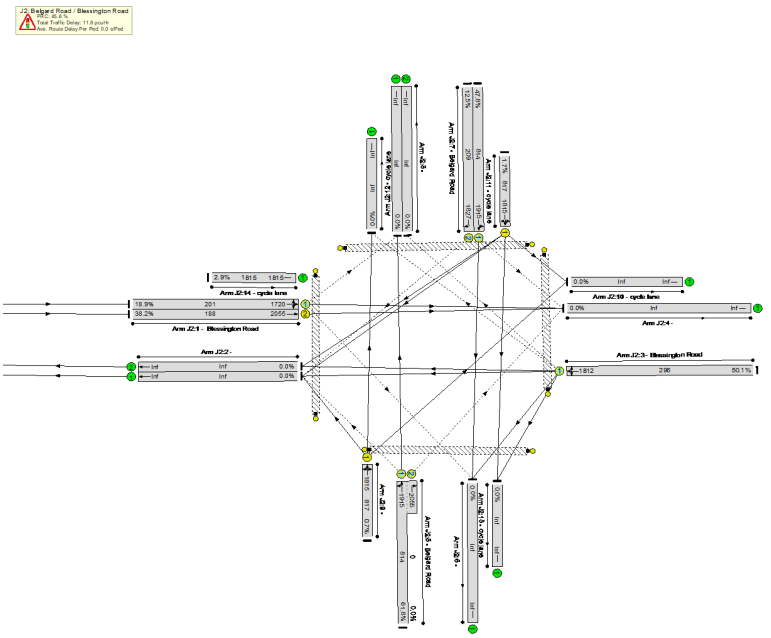
MMQ, CBC arms:
Inbound – 55.77m
Outbound – 79.35m

Bus Av. Delay (s/pcu):
Inbound – 48.7sec
Outbound – 53.8sec

Cyclists Av. Delay (s/pcu):
Inbound – 20.7sec
Outbound – 20.6sec

Car Av. Delay (s/pcu), CBC arms:
Inbound – 46.7sec
Outbound – 53.8sec

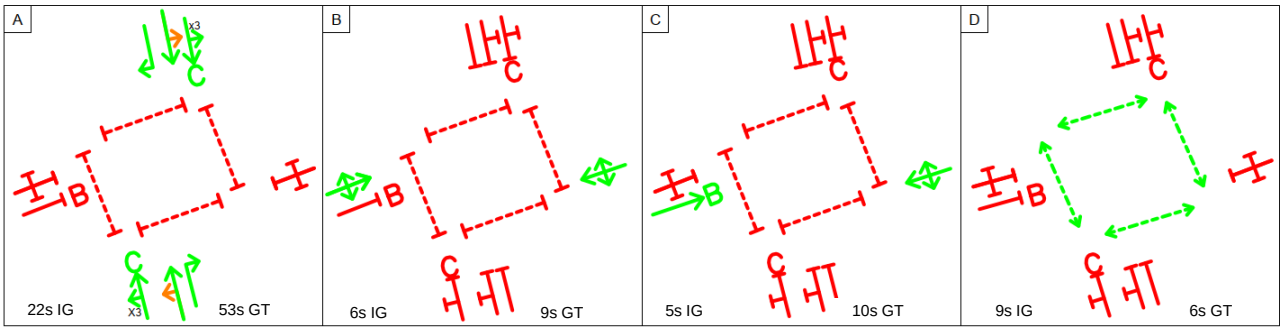
Network Layout Diagram (LinSig) - DS2028_AM



People Movement Assessment DS2028 AM

6. Blessington Rd-Belgard Rd Junction	CBC		All Arms	
Mode	**People Movement**	**Mode Share**	**People Movement**	**Mode Share**
Car (AM peak, PCUs)	1	1%	1,204	28%
Bus	2,580	87%	2,580	59%
Walk	72	2%	72	2%
Cycle	300	10%	480	11%
Total	**2,953**	**100%**	**4,336**	**100%**

INDICATIVE METHOD OF CONTROL



X3 denotes Advance 3 seconds Start for Cyclists

Subject	BusConnects Core Bus Corridors Transport Modelling		
Date	February 2023		
Route	Tallaght/Clondalkin To City Centre	Job No/Ref	60599126

Blessington Rd / Belgard Rd– PM peak

2028 PM Peak Hours
Fixed Time LinSig Results

Cycle Time = 120 secs
PRC = 0.4%,
Junction Delay = 26.1 PCUhr

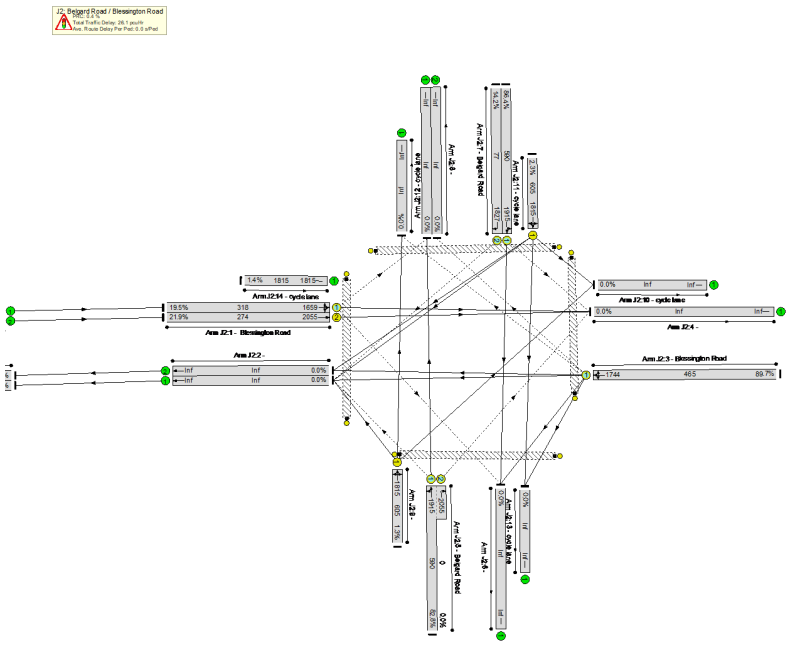
MMQ, CBC arms:
Inbound – 109.25m
Outbound – 97.75m

Bus Av. Delay (s/pcu):
Inbound – 46.7sec
Outbound – 71.1sec

Cyclists Av. Delay (s/pcu):
Inbound – 30sec
Outbound – 30sec

Car Av. Delay (s/pcu), CBC arms:
Inbound – 60sec
Outbound – 71.1sec

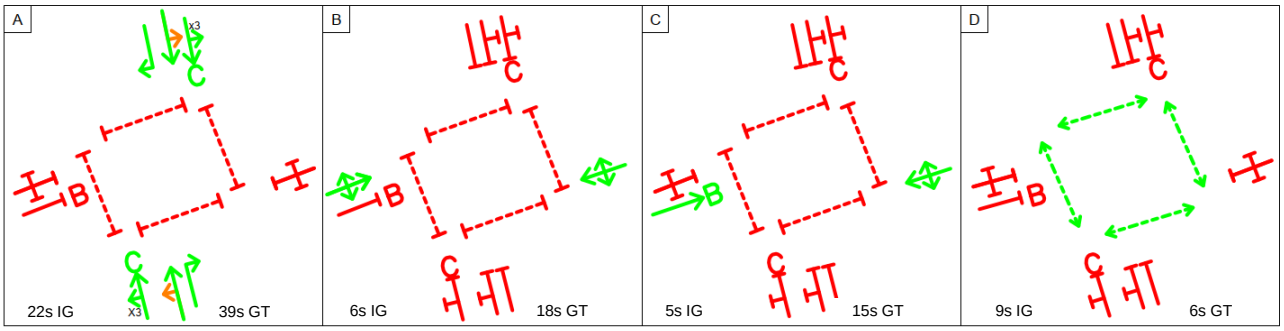
Network Layout Diagram (LinSig) - DS2028_PM



People Movement Assessment DS2028 PM

6. Blessington Rd-Belgard Rd Junction	CBC		All Arms	
Mode	**People Movement**	**Mode Share**	**People Movement**	**Mode Share**
Car (PM peak, PCUs)	5	1%	1,601	35%
Bus	2,460	86%	2,460	53%
Walk	72	2%	72	1%
Cycle	320	11%	490	11%
Total	**2,857**	**100%**	**4,623**	**100%**

INDICATIVE METHOD OF CONTROL



X3 denotes Advance 3 seconds Start for Cyclists

Subject	BusConnects Core Bus Corridors Junction Design Report		
Date	February 2023		
Route	Tallaght/Clondalkin To City Centre	Job No/Ref	60599126

Junction: **Main Street / Old Bawn Rd**

EXISTING

FINAL DESIGN

Summary
The existing junction is proposed to be upgraded as per the BusConnects Preliminary Design Guidance Booklet to enhance pedestrian and bus priority infrastructure.

Pedestrian Infrastructure
The junction is proposed to be upgraded to reduce pedestrian crossing distances and introducing a more compact junction. In addition, a new controlled crossing is proposed on the southern arm.

Cyclists Infrastructure
Due to width constraints, cycle infrastructure is not feasible and haven't been included at this junction.

Bus Priority Infrastructure
For the inbound direction along Main Street, existing carriageway width constraints restrict the ability to introduce a bus lane at this location.

For the outbound direction along Old Bawn Road, it is proposed to introduce a bus lane to accommodate right turning buses towards Tallaght Interchange.

Subject	BusConnects Core Bus Corridors Junction Design Report		
Date	February 2023		
Route	Tallaght/Clondalkin To City Centre	Job No/Ref	60599126

Design Evolution

The proposed junction design has evolved on the BusConnects project from initial Concept Design, Emerging Preferred Route, Public Consultation 2, Public Consultation 3 up to the Current Design. The junction design iterations have been undertaken to optimise pedestrian, cyclist and bus priority infrastructure on the scheme.

Existing

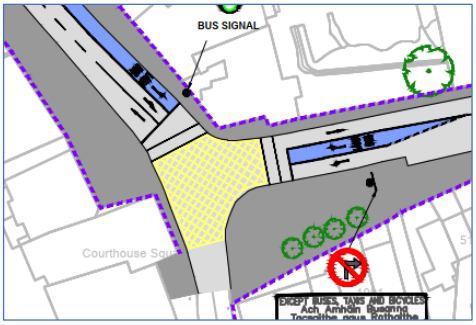
Concept Design Drawing

This Junction is not part of Concept Design

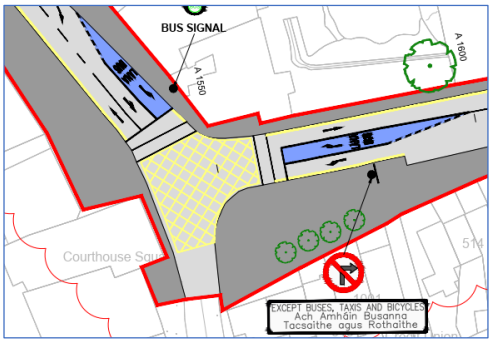
Emerging Preferred Route

This Junction is not part of Emerging Preferred Route

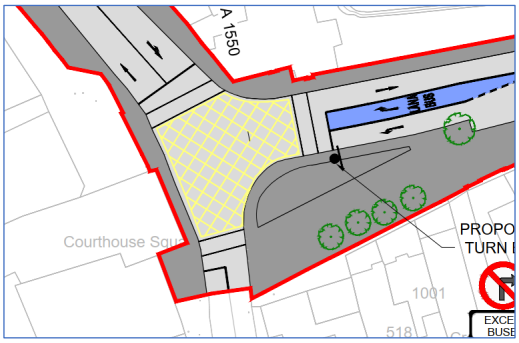
Public Consultation 2



Public Consultation 3



Final Preliminary Design



Subject	BusConnects Core Bus Corridors Transport Modelling		
Date	February 2023		
Route	Tallaght/Clondalkin To City Centre	Job No/Ref	60599126

Main Street / Old Bawn Rd– AM peak

2028 AM Peak Hours
Fixed Time LinSig Results

Cycle Time = 75 secs
PRC = 250.5%,
Junction Delay = 2.1 PCUhr

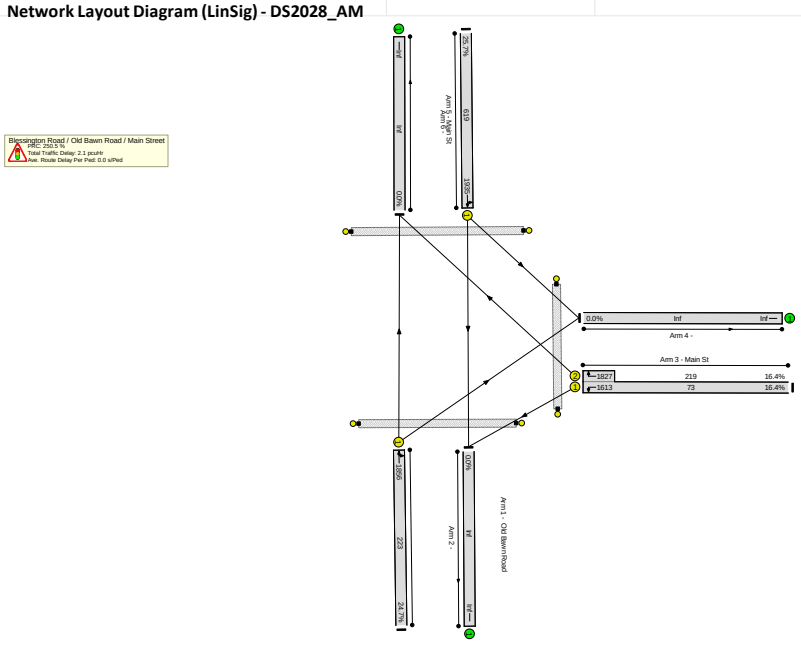
MMQ, CBC arms:
Inbound – 14.95m
Outbound – 4.6m

Bus Av. Delay (s/pcu):
Inbound – 22.8sec
Outbound – 34.2sec

Cyclists Av. Delay (s/pcu):
Inbound –
Outbound –

Car Av. Delay (s/pcu), CBC arms:
Inbound – 40.6sec
Outbound –

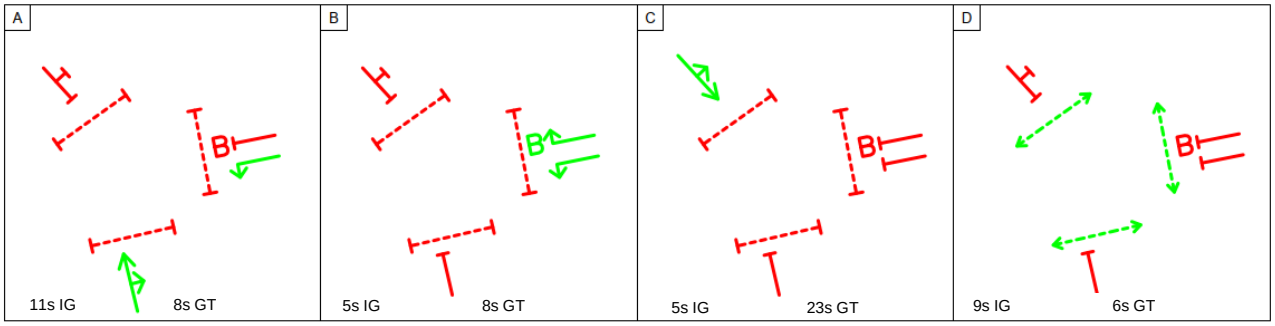
Network Layout Diagram (LinSig) - DS2028_AM



People Movement Assessment DS2028 AM

7. Old Bawn Rd- Main Street Junction	CBC		All Arms	
Mode	**People Movement**	**Mode Share**	**People Movement**	**Mode Share**
Car (AM peak, PCUs)	25	2%	172	6%
Bus	1,440	94%	2,520	92%
Walk	60	4%	60	2%
Cycle	0	0%	0	0%
Total	**1,525**	**100%**	**2,752**	**100%**

INDICATIVE METHOD OF CONTROL



Subject	BusConnects Core Bus Corridors Transport Modelling		
Date	February 2023		
Route	Tallaght/Clondalkin To City Centre	Job No/Ref	60599126

Main Street / Old Bawn Rd– PM peak

2028 PM Peak Hours
Fixed Time LinSig Results

Cycle Time = 75 secs
PRC = 193.4%,
Junction Delay = 2.5 PCUhr

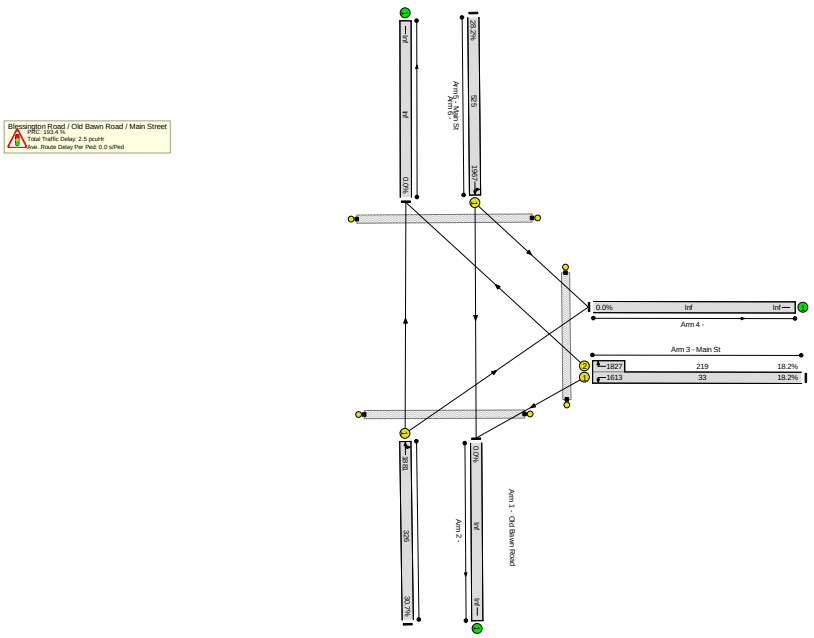
MMQ, CBC arms:
Inbound – 14.95m
Outbound – 5.18m

Bus Av. Delay (s/pcu):
Inbound – 26.6sec
Outbound – 36.7sec

Cyclists Av. Delay (s/pcu):
Inbound –
Outbound –

Car Av. Delay (s/pcu), CBC arms:
Inbound – 35sec
Outbound –

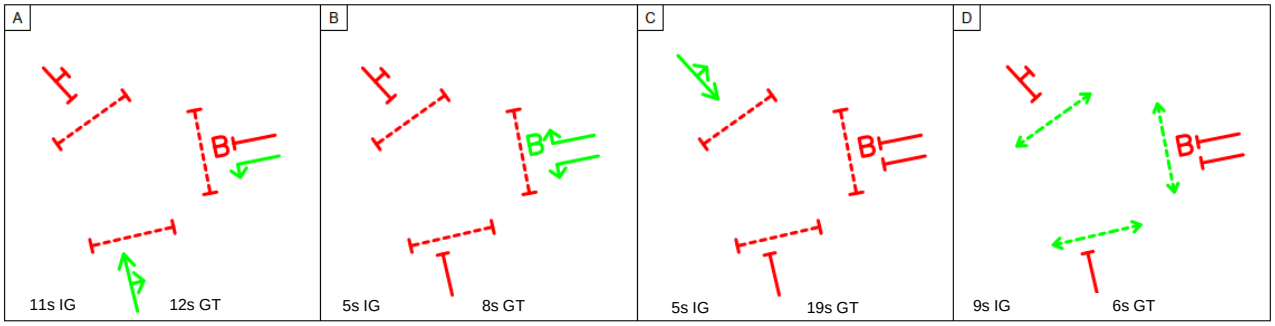
Network Layout Diagram (LinSig) - DS2028_PM



People Movement Assessment DS2028 PM

7. Old Bawn Rd- Main Street Junction	CBC		All Arms	
Mode	**People Movement**	**Mode Share**	**People Movement**	**Mode Share**
Car (PM peak, PCUs)	11	1%	184	7%
Bus	1,440	95%	2,460	91%
Walk	60	4%	60	2%
Cycle	0	0%	0	0%
Total	**1,511**	**100%**	**2,704**	**100%**

INDICATIVE METHOD OF CONTROL

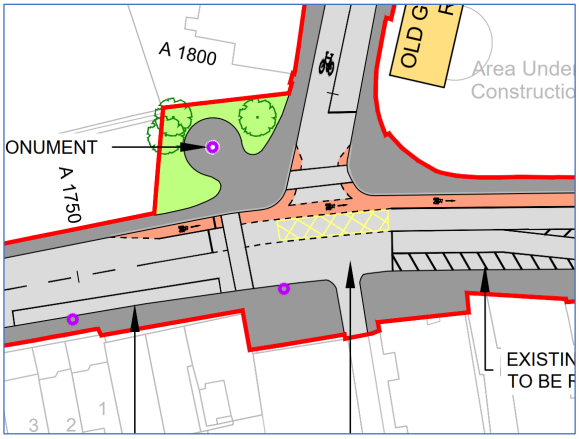


Subject	BusConnects Core Bus Corridors Junction Design Report		
Date	February 2023		
Route	Tallaght/Clondalkin To City Centre	Job No/Ref	60599126

Junction: **Old Greenhills Rd / Main St**

EXISTING

FINAL DESIGN



Summary
The existing junction is proposed to be upgraded as per the BusConnects Preliminary Design Guidance Booklet to enhance pedestrian, cycling and bus priority infrastructure.

Pedestrian Infrastructure
The existing junction is proposed to be upgraded to introduce controlled pedestrian crossings across Old Greenhills Road and Main Street. Furthermore the corner radius is proposed to be reduced as per the DMURS guidelines to reduce pedestrian crossing distances.

Cyclists Infrastructure
It is proposed to introduce a cycle infrastructure at the junction, to cater for cyclists travelling inbound.

A review was undertaken of the proposed outbound direction, but due to carriageway constraints, it was not feasible to include cycle infrastructure in the outbound direction.

Bus Priority Infrastructure
Due to the carriageway constraints, it was not feasible to introduce a bus lane at this junction. Inbound buses are proposed to travel along Main Road and turn left towards Old Greenhills Road where a bus gate is proposed. The proposed bus gate along Old Greenhills Road will assist to reduce general traffic volumes to minimise delay to buses.

Subject	BusConnects Core Bus Corridors Junction Design Report		
Date	February 2023		
Route	Tallaght/Clondalkin To City Centre	Job No/Ref	60599126

Design Evolution

The proposed junction design has evolved on the BusConnects project from initial Concept Design, Emerging Preferred Route, Public Consultation 2, Public Consultation 3 up to the Current Design. The junction design iterations have been undertaken to optimise pedestrian, cyclist and bus priority infrastructure on the scheme.

Existing

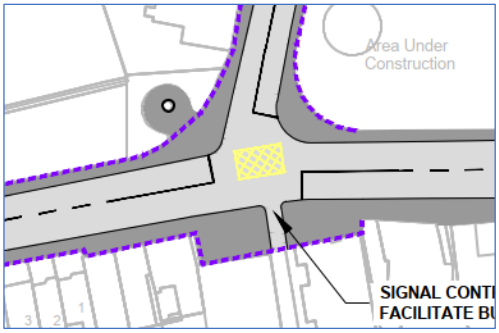
Concept Design Drawing

This Junction is not part of Concept Design

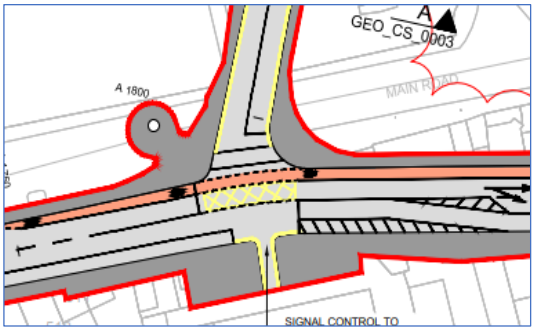
Emerging Preferred Route

This Junction is not part of Emerging Preferred Route

Public Consultation 2



Public Consultation 3



Final Preliminary Design

Subject	BusConnects Core Bus Corridors Transport Modelling		
Date	February 2023		
Route	Tallaght/Clondalkin To City Centre	Job No/Ref	60599126

Old Greenhills Rd / Main St– AM peak

2028 AM Peak Hours
Fixed Time LinSig Results

Cycle Time = 90 secs
PRC = 969.9%,
Junction Delay = 0.7 PCUhr

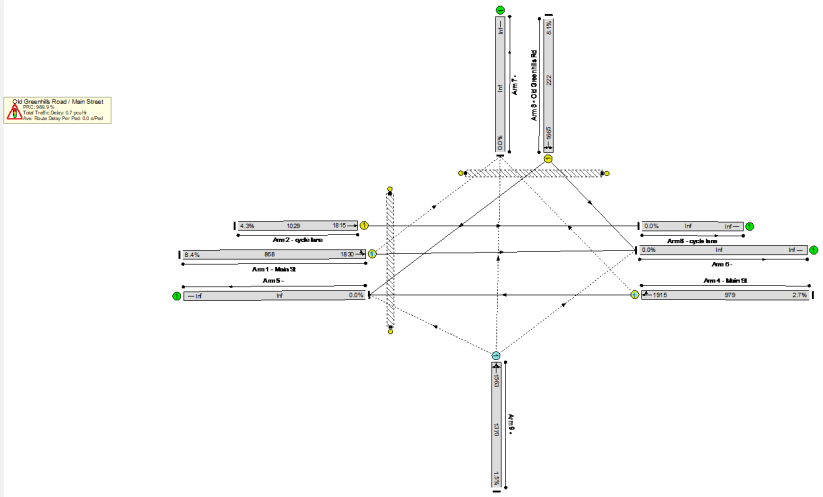
MMQ, CBC arms:
Inbound – 5.75m
Outbound – 2.3m

Bus Av. Delay (s/pcu):
Inbound – 13.5sec
Outbound – 43.1sec

Cyclists Av. Delay (s/pcu):
Inbound – 10.5sec
Outbound –

Car Av. Delay (s/pcu), CBC arms:
Inbound – 13.5sec
Outbound – 12.9sec

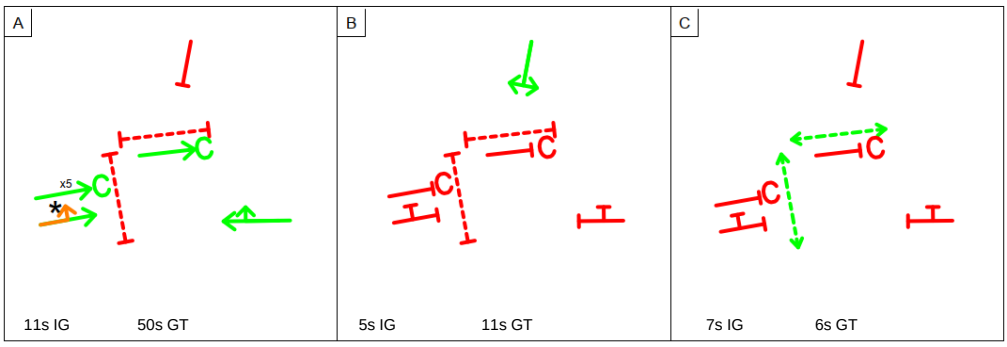
Network Layout Diagram (LinSig) - DS2028_AM



People Movement Assessment DS2028 AM

8. Old Greenhills Rd- Main St Junction	CBC		All Arms	
Mode	People Movement	Mode Share	People Movement	Mode Share
Car (AM peak, PCUs)	0	0%	54	3%
Bus	720	95%	1,440	82%
Walk	36	5%	36	2%
Cycle	0	0%	220	13%
Total	756	100%	1,750	100%

INDICATIVE METHOD OF CONTROL



* denotes Flashing Amber
X5 denotes Advance 5 seconds Start for Cyclists

Subject	BusConnects Core Bus Corridors Transport Modelling		
Date	February 2023		
Route	Tallaght/Clondalkin To City Centre	Job No/Ref	60599126

Old Greenhills Rd / Main St– PM peak

2028 PM Peak Hours
Fixed Time LinSig Results

Cycle Time = 90 secs
PRC = 1211.1%,
Junction Delay = 0.6 PCUhr

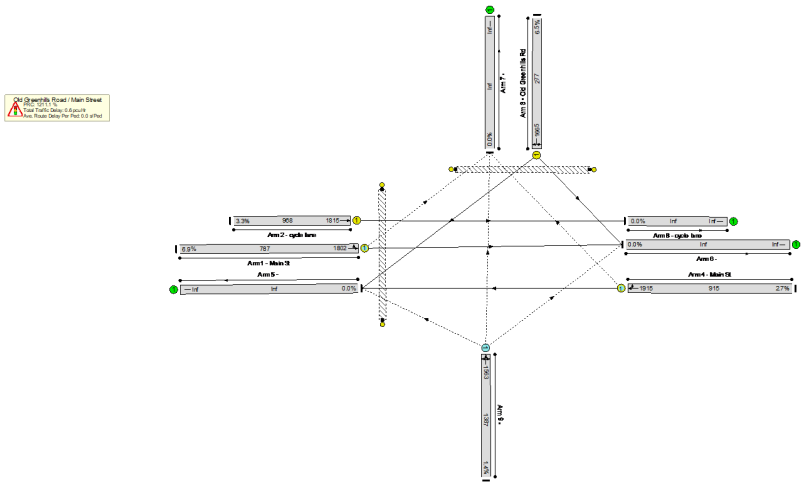
MMQ, CBC arms:
Inbound – 4.6m
Outbound – 2.3m

Bus Av. Delay (s/pcu):
Inbound – 15.2sec
Outbound – 38.6sec

Cyclists Av. Delay (s/pcu):
Inbound – 12sec
Outbound –

Car Av. Delay (s/pcu), CBC arms:
Inbound – 15.2sec
Outbound –14.6sec

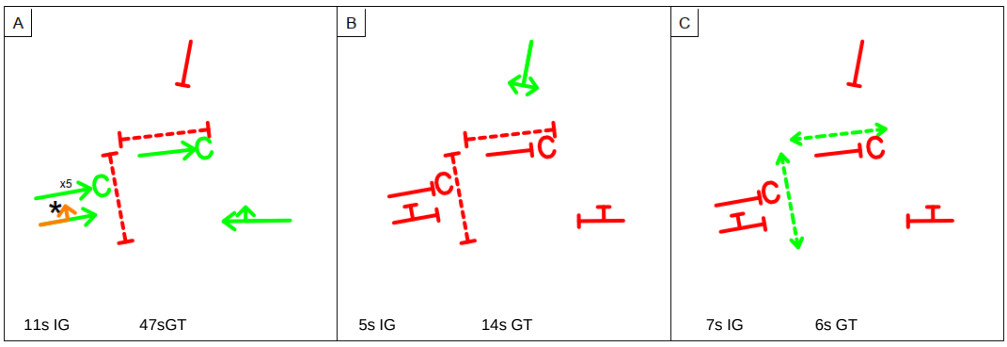
Network Layout Diagram (LinSig) - DS2028_PM



People Movement Assessment DS2028 PM

8. Old Greenhills Rd- Main St Junction	CBC		All Arms	
Mode	**People Movement**	**Mode Share**	**People Movement**	**Mode Share**
Car (PM peak, PCUs)	0	0%	31	2%
Bus	720	95%	1,440	86%
Walk	36	5%	36	2%
Cycle	0	0%	160	10%
Total	**756**	**100%**	**1,667**	**100%**

INDICATIVE METHOD OF CONTROL



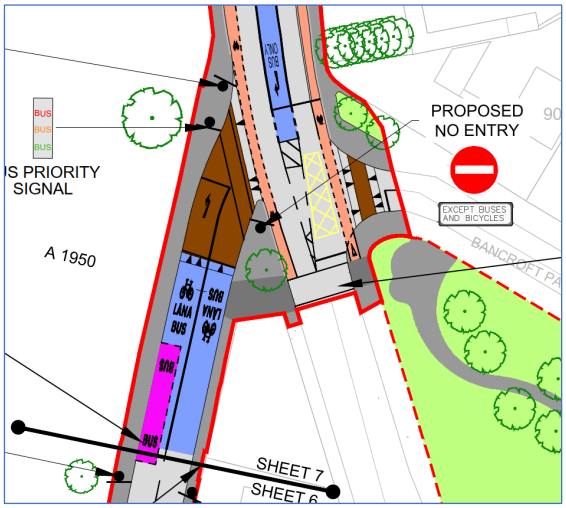
* denotes Flashing Amber
X5 denotes Advance 5 seconds Start for Cyclists

Subject	BusConnects Core Bus Corridors Junction Design Report		
Date	February 2023		
Route	Tallaght/Clondalkin To City Centre	Job No/Ref	60599126

Junction: **Old Greenhills Rd / Greenhills Rd**

EXISTING

FINAL DESIGN



Summary
The existing junction is proposed to be upgraded as per the BusConnects Preliminary Design Guidance Booklet to enhance pedestrian, cycling and bus priority infrastructure.

Pedestrian Infrastructure
The proposal will introduce controlled pedestrian crossings across Old Greenhills Road, Greenhills Road and Bancroft Park.

Cyclists Infrastructure
The proposal will introduce cycle tracks along Greenhills Road to cater for cyclists travelling through the junction.

Furthermore, advisory cycle symbols are proposed along Old Greenhills Road to denote the advisory cycle route.

Bus Priority Infrastructure
A bus lane is proposed up to the stop line for both inbound and outbound directions. The bus gate is proposed at the existing cul de sac end, to provide a route for buses to travel along Old Greenhills Road, to avoid Greenhills Road / Main Street junction.

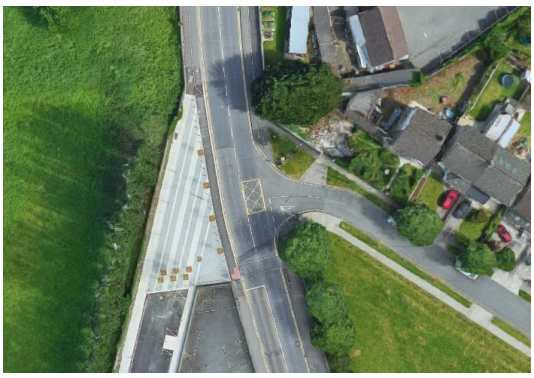
Bus priority is proposed in the outbound direction, with a dedicated right turning lane.

Subject	BusConnects Core Bus Corridors Junction Design Report		
Date	February 2023		
Route	Tallaght/Clondalkin To City Centre	Job No/Ref	60599126

Design Evolution

The proposed junction design has evolved on the BusConnects project from initial Concept Design, Emerging Preferred Route, Public Consultation 2, Public Consultation 3 up to the Current Design. The junction design iterations have been undertaken to optimise pedestrian, cyclist and bus priority infrastructure on the scheme.

Existing



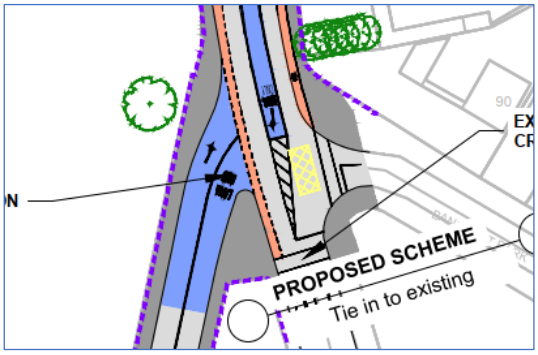
Concept Design Drawing

This Junction is not part of Concept Design

Emerging Preferred Route

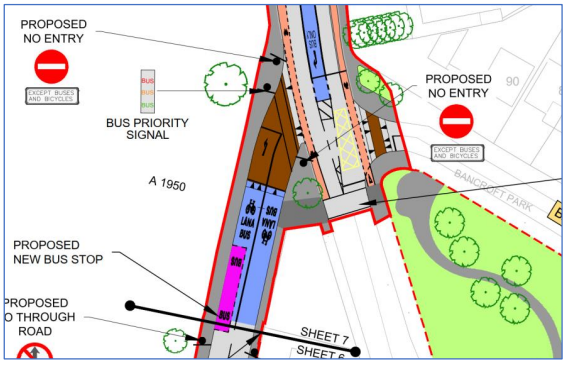
This Junction is not part of Emerging Preferred Route

Public Consultation 2



Public Consultation 3

Final Preliminary Design



Subject	BusConnects Core Bus Corridors Transport Modelling		
Date	February 2023		
Route	Tallaght/Clondalkin To City Centre	Job No/Ref	60599126

Old Greenhills Rd / Greenhills Rd– AM peak

2028 AM Peak Hours
Fixed Time LinSig Results

Cycle Time = 90 secs
PRC = 87.1%,
Junction Delay = 3.6 PCUhr

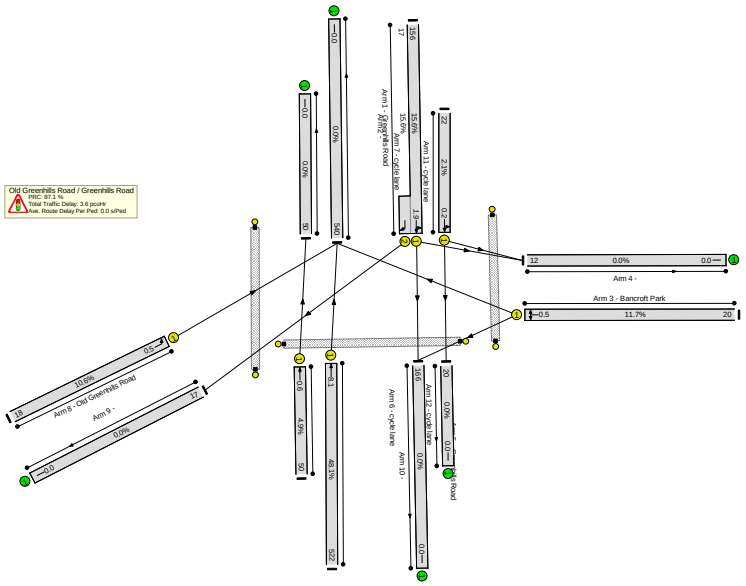
MMQ, CBC arms:
Inbound – 46.57m
Outbound – 10.93m

Bus Av. Delay (s/pcu):
Inbound – 49.6sec
Outbound – 39.7sec

Cyclists Av. Delay (s/pcu):
Inbound – 10.5sec
Outbound – 10.5sec

Car Av. Delay (s/pcu), CBC arms:
Inbound – 49.8sec
Outbound – 49.8sec

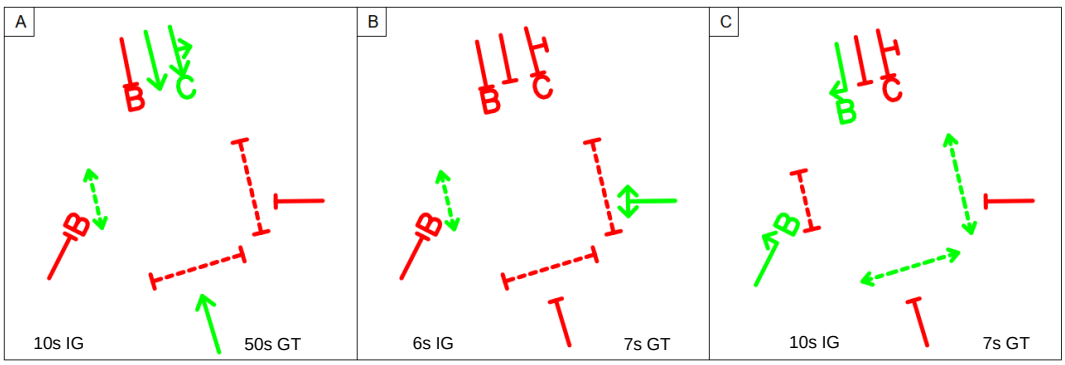
Network Layout Diagram (LinSig) - DS2028_AM



People Movement Assessment DS2028 AM

9. Old GH Rd - GH Rd – Junction	CBC		All Arms	
Mode	**People Movement**	**Mode Share**	**People Movement**	**Mode Share**
Car (AM peak, PCUs)	0	0%	826	43%
Bus	720	67%	720	38%
Walk	12	1%	12	1%
Cycle	350	32%	350	18%
Total	**1,082**	**100%**	**1,908**	**100%**

INDICATIVE METHOD OF CONTROL



Subject	BusConnects Core Bus Corridors Transport Modelling		
Date	February 2023		
Route	Tallaght/Clondalkin To City Centre	Job No/Ref	60599126

Old Greenhills Rd / Greenhills Rd– PM peak

2028 PM Peak Hours
Fixed Time LinSig Results

Cycle Time = 90 secs
PRC = 136.5%,
Junction Delay = 3.8 PCUhr

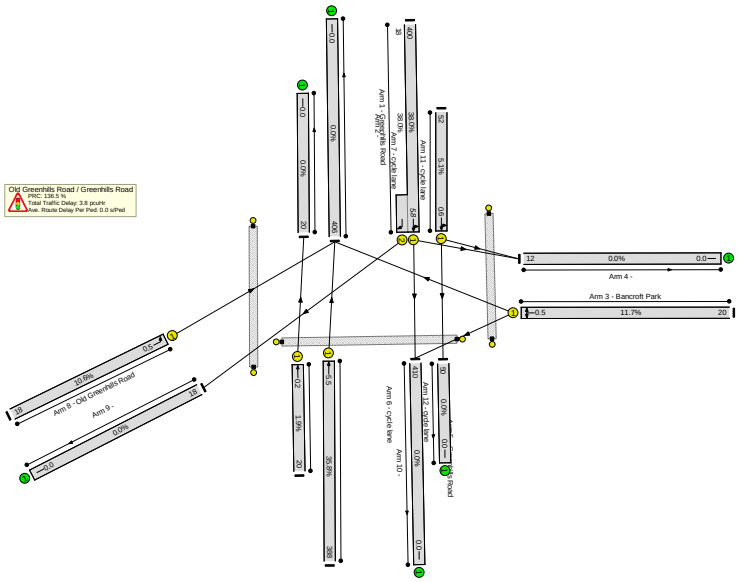
MMQ, CBC arms:
Inbound – 2.88m
Outbound – 33.4m

Bus Av. Delay (s/pcu):
Inbound – 49.6sec
Outbound – 40.5sec

Cyclists Av. Delay (s/pcu):
Inbound – 10.5sec
Outbound – 10.6sec

Car Av. Delay (s/pcu), CBC arms:
Inbound – 13.2sec
Outbound – 13.3sec

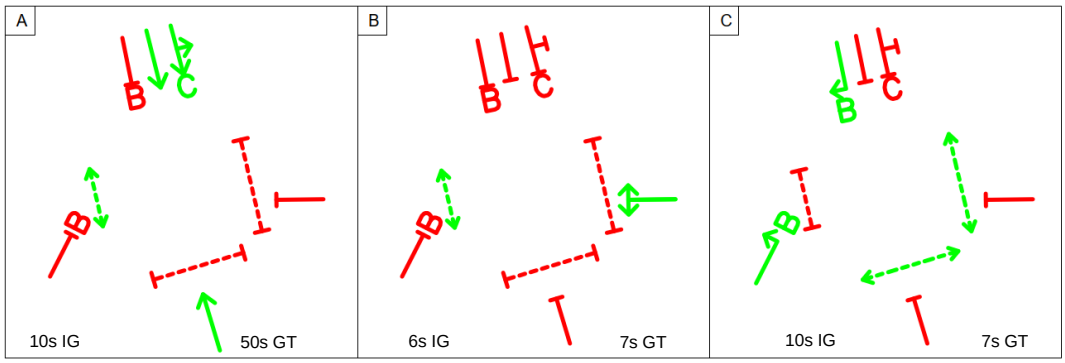
Network Layout Diagram (LinSig) - DS2028_PM



People Movement Assessment DS2028 PM

9. Old GH Rd - GH Rd – Junction	CBC		All Arms	
Mode	**People Movement**	**Mode Share**	**People Movement**	**Mode Share**
Car (PM peak, PCUs)	0	0%	958	47%
Bus	720	67%	720	35%
Walk	12	1%	12	1%
Cycle	350	32%	350	17%
Total	**1,082**	**100%**	**2,040**	**100%**

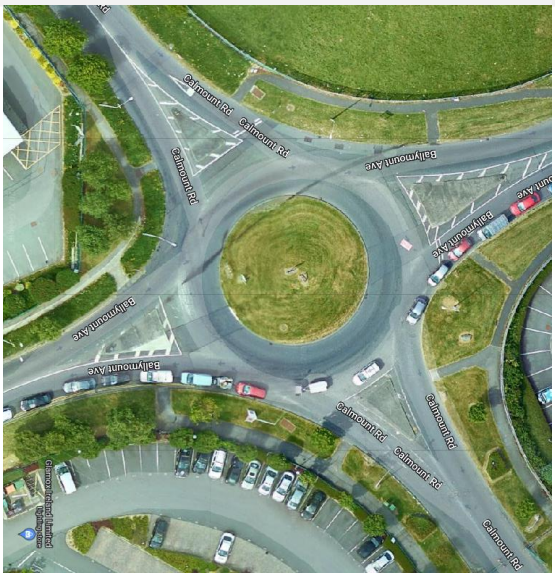
INDICATIVE METHOD OF CONTROL



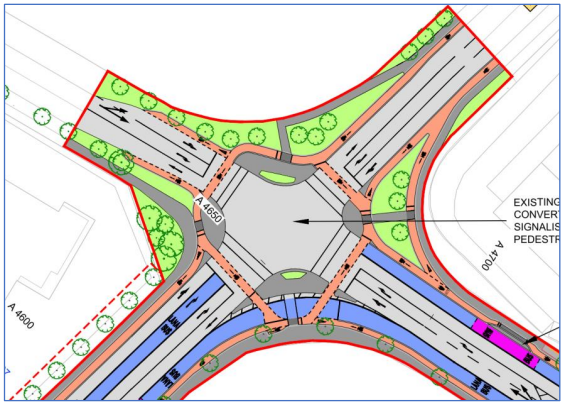
Subject	BusConnects Core Bus Corridors Junction Design Report		
Date	February 2023		
Route	Tallaght/Clondalkin To City Centre	Job No/Ref	60599126

Junction: **Ballymount Ave / Calmount Rd**

EXISTING



FINAL DESIGN



Summary
The existing four arm roundabout junction is to be upgraded as per the BusConnects Preliminary Design Guidance Booklet to enhance pedestrian, cyclist and bus priority infrastructure. The junction will be upgraded to a Junction Type 4 signalised junction.

Pedestrian Infrastructure
It is proposed to introduce controlled pedestrian crossing facilities on all four arms of the junction. A junction type 4 arrangement is proposed, where segregated pedestrian and cyclist crossing facilities are proposed. An orbital cycle track is proposed at the junction, with dedicated pedestrian crossings across the cycle track.

The proposed crossing distances have been reduced due to the proposed compact arrangement at the junction, which will reduce pedestrian crossing time and also the associated intergreen time to clear the pedestrian phase.

Cyclists Infrastructure
A Junction Type 4 arrangement is proposed where an orbital cycle track is to be introduced at the junction. This arrangement is proposed due to the available space to accommodate this design, but also due to the presence of larger vehicles at this junction, this design will offer cyclists with greater protection as the cyclist crossings will be segregated to the vehicular movement phases.

Bus Priority Infrastructure
For bus priority at the junction, a bus lane is proposed along both the inbound (Ballymount Ave) and outbound (Calmount Road) directions upto the stop line at the junction. This will assist to provide bus priority in both directions.

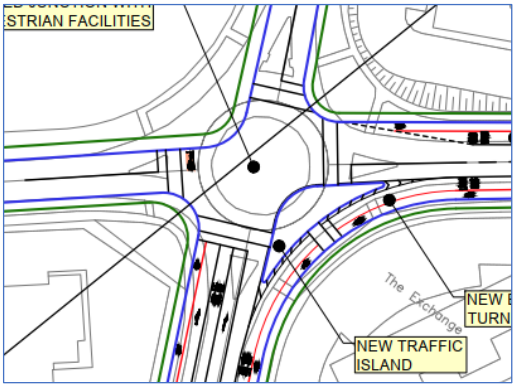
Subject	BusConnects Core Bus Corridors Junction Design Report		
Date	February 2023		
Route	Tallaght/Clondalkin To City Centre	Job No/Ref	60599126

Design Evolution

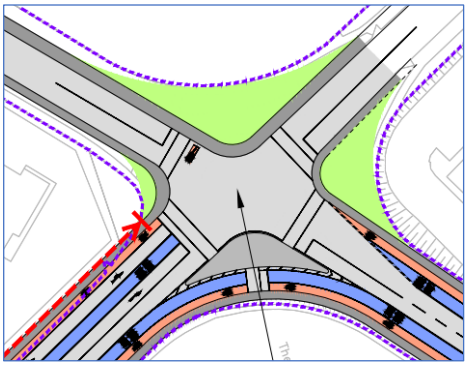
The proposed junction design has evolved on the BusConnects project from initial Concept Design, Emerging Preferred Route, Public Consultation 2, Public Consultation 3 up to the Current Design. The junction design iterations have been undertaken to optimise pedestrian, cyclist and bus priority infrastructure on the scheme.

Existing

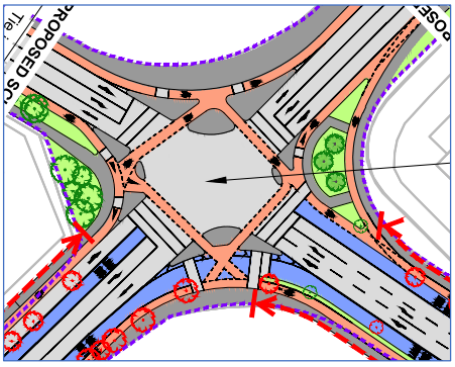
Concept Design Drawing



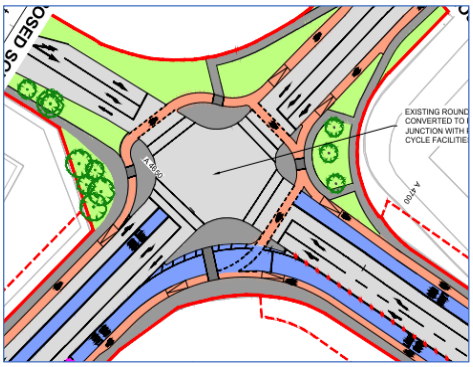
Emerging Preferred Route



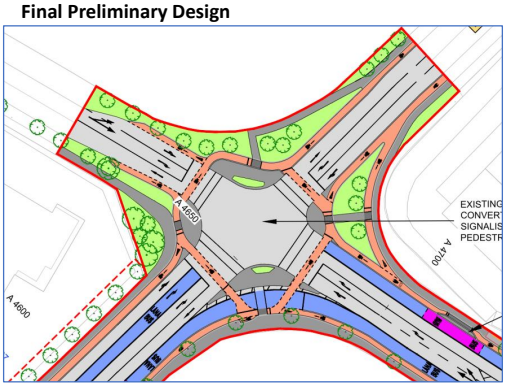
Public Consultation 2



Public Consultation 3



Final Preliminary Design



Subject	BusConnects Core Bus Corridors Transport Modelling		
Date	February 2023		
Route	Tallaght/Clondalkin To City Centre	Job No/Ref	60599126

Ballymount Ave / Calmount Rd– AM peak

2028 AM Peak Hours
Fixed Time LinSig Results

Cycle Time = 120 secs
PRC = -4.7%,
Junction Delay = 40.1 PCUhr

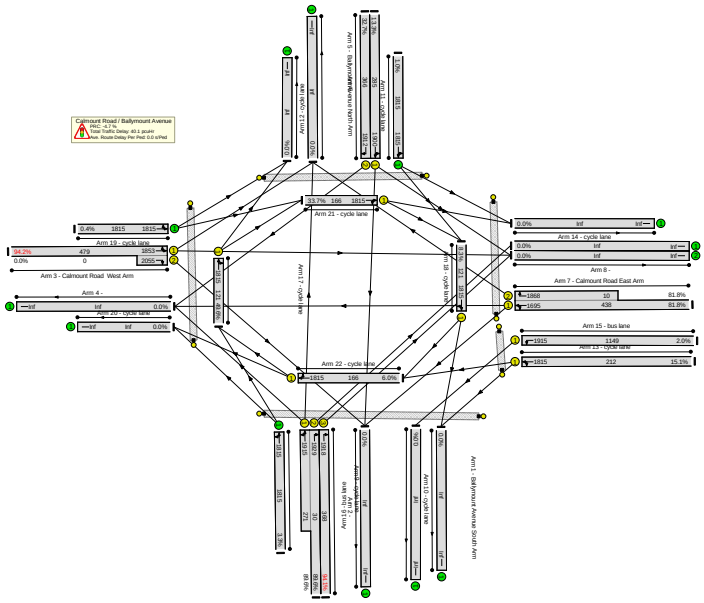
MMQ, CBC arms:
Inbound – 117.3m
Outbound – 76.48m

Bus Av. Delay (s/pcu):
Inbound – 96.4sec
Outbound – 6.7sec

Cyclists Av. Delay (s/pcu):
Inbound – 54.9sec
Outbound – 57.7sec

Car Av. Delay (s/pcu), CBC arms:
Inbound – 103.5sec
Outbound – 63sec

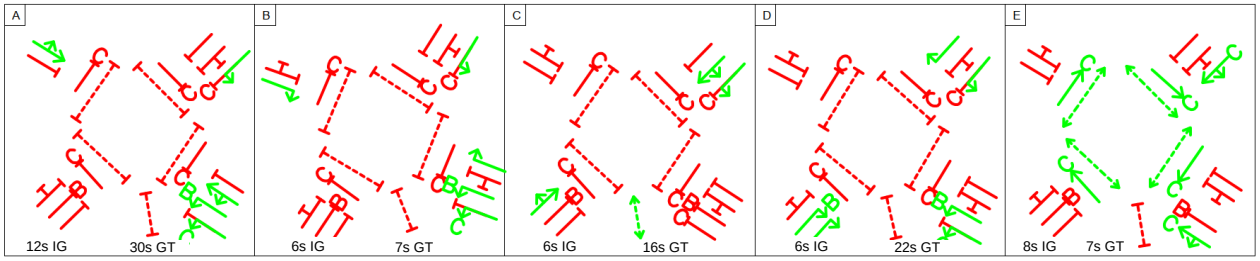
Network Layout Diagram (LinSig) - DS2028_AM



People Movement Assessment DS2028 AM

14. Calmount Rd - Ballymount Ave Junction	CBC		All Arms	
Mode	People Movement	Mode Share	People Movement	Mode Share
Car	787	35%	1,877	53%
Bus	1,020	46%	1,020	29%
Walk	65	3%	65	2%
Cycle	370	16%	590	16%
Total	**2,242**	**100%**	**3,552**	**100%**

INDICATIVE METHOD OF CONTROL



Subject	BusConnects Core Bus Corridors Transport Modelling		
Date	February 2023		
Route	Tallaght/Clondalkin To City Centre	Job No/Ref	60599126

Ballymount Ave / Calmount Rd– PM peak

2028 PM Peak Hours
Fixed Time LinSig Results

Cycle Time = 120 secs
PRC = 2.4%,
Junction Delay = 39 PCUhr

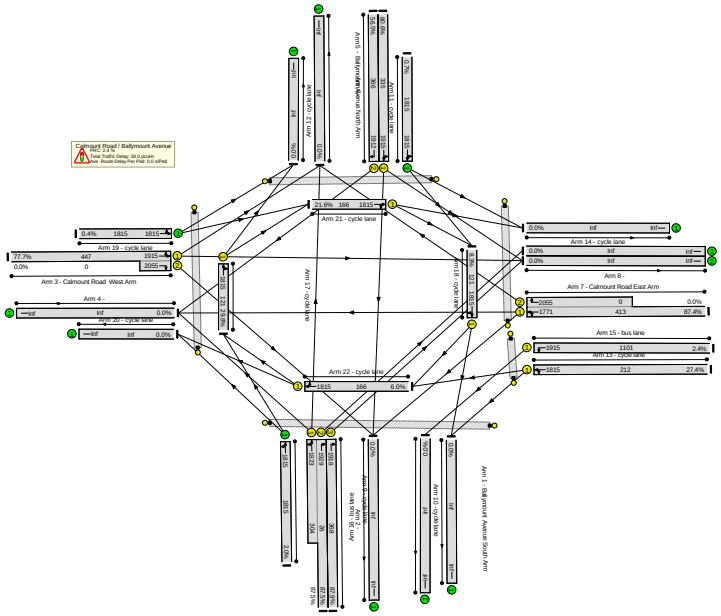
MMQ, CBC arms:
Inbound – 78.20m
Outbound – 83.95m

Bus Av. Delay (s/pcu):
Inbound – 86.2sec
Outbound – 7.5sec

Cyclists Av. Delay (s/pcu):
Inbound – 53sec
Outbound – 60.1sec

Car Av. Delay (s/pcu), CBC arms:
Inbound – 82.5sec
Outbound – 75.1sec

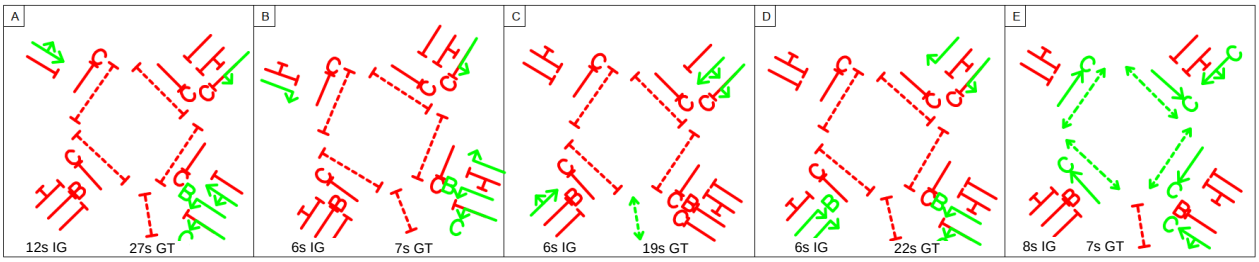
Network Layout Diagram (LinSig) - DS2028_PM



People Movement Assessment DS2028 PM

14. Calmount Rd - Ballymount Ave Junction	CBC		All Arms	
Mode	**People Movement**	**Mode Share**	**People Movement**	**Mode Share**
Car	623	31%	2,129	58%
Bus	960	47%	960	26%
Walk	35	2%	35	1%
Cycle	400	20%	570	15%
Total	**2,018**	**100%**	**3,694**	**100%**

INDICATIVE METHOD OF CONTROL

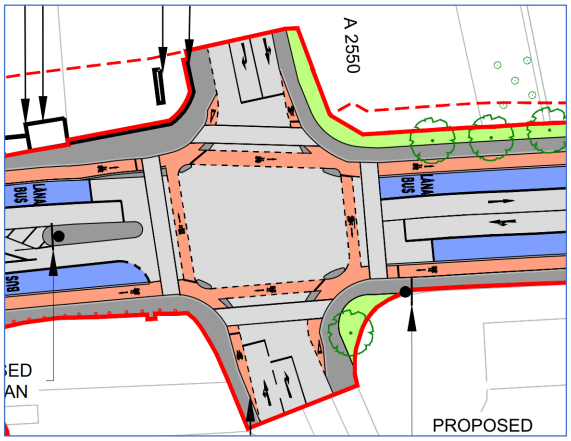


Subject	BusConnects Core Bus Corridors Junction Design Report		
Date	February 2023		
Route	Tallaght/Clondalkin To City Centre	Job No/Ref	60599126

Junction: **Greenhills Rd / Hibernian Ind Est**

EXISTING

FINAL DESIGN



Summary
The existing junction is to be upgraded as per the BusConnects Preliminary Design Guidance Booklet to enhance pedestrian, cyclist and bus priority infrastructure

Pedestrian Infrastructure
The existing pedestrian infrastructure is proposed to be upgraded. The proposal will introduce an additional controlled crossing on the eastern arm of the junction. Furthermore, the angle of the western arm has been altered to make it perpendicular to the footways. The proposed junction design will ensure a pedestrian wrap around is provided, enhancing pedestrian permeability at the junction.

Cyclists Infrastructure
The proposal is to upgrade the junction to cater for cycle tracks on all arms entering and exiting the junction. Dedicated cycle crossings are proposed on all arms. It is proposed to introduce physical build outs to offer cyclists greater protection crossing the junction

Bus Priority Infrastructure
It is proposed to introduce a bus lane up to the stop line to ensure bus priority at both inbound and outbound directions. Left turning general traffic vehicles will be required to turn left from a single general traffic lane

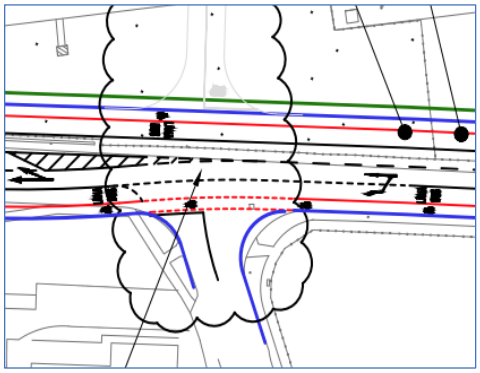
Subject	BusConnects Core Bus Corridors Junction Design Report		
Date	February 2023		
Route	Tallaght/Clondalkin To City Centre	Job No/Ref	60599126

Design Evolution

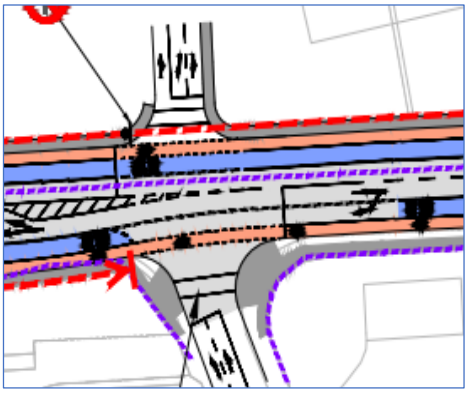
The proposed junction design has evolved on the BusConnects project from initial Concept Design, Emerging Preferred Route, Public Consultation 2, Public Consultation 3 up to the Current Design. The junction design iterations have been undertaken to optimise pedestrian, cyclist and bus priority infrastructure on the scheme.

Existing

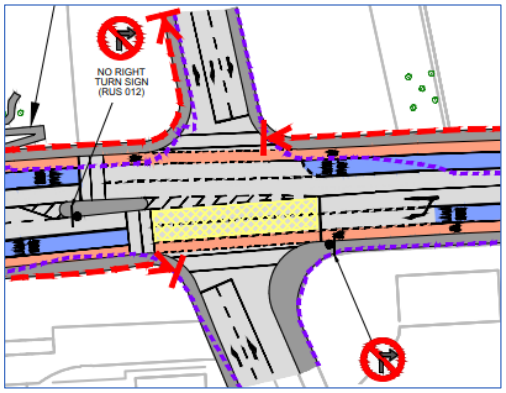
Concept Design Drawing



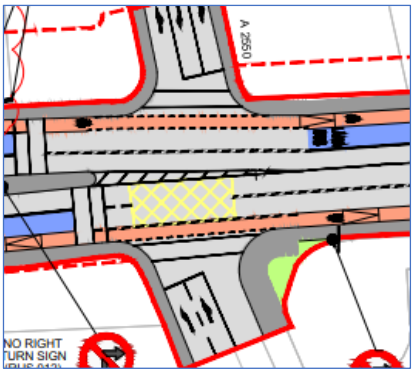
Emerging Preferred Route



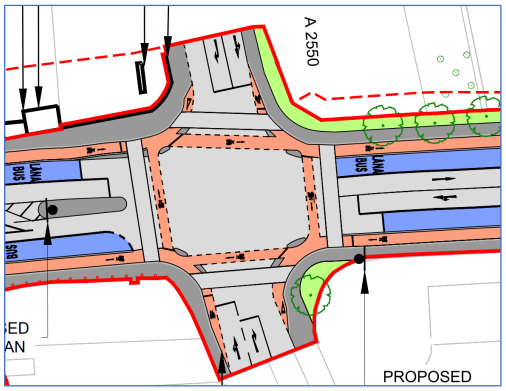
Public Consultation 2



Public Consultation 3



Final Preliminary Design



Subject	BusConnects Core Bus Corridors Transport Modelling		
Date	February 2023		
Route	Tallaght/Clondalkin To City Centre	Job No/Ref	60599126

Greenhills Rd / Hibernian Ind Est– AM peak

2028 AM Peak Hours
Fixed Time LinSig Results

Cycle Time = 120 secs
PRC = 72.4%,
Junction Delay = 6.0 PCUhr

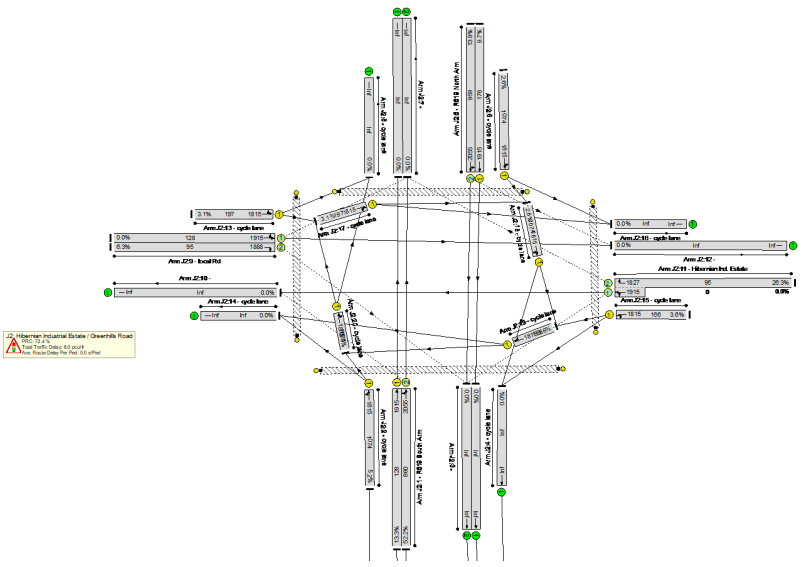
MMQ, CBC arms:
Inbound – 36.22m
Outbound – 14.95m

Bus Av. Delay (s/pcu):
Inbound – 72.2sec
Outbound – 61.3sec

Cyclists Av. Delay (s/pcu):
Inbound – 12.9sec
Outbound – 11.9sec

Car Av. Delay (s/pcu), CBC arms:
Inbound – 23.3sec
Outbound – 20.4sec

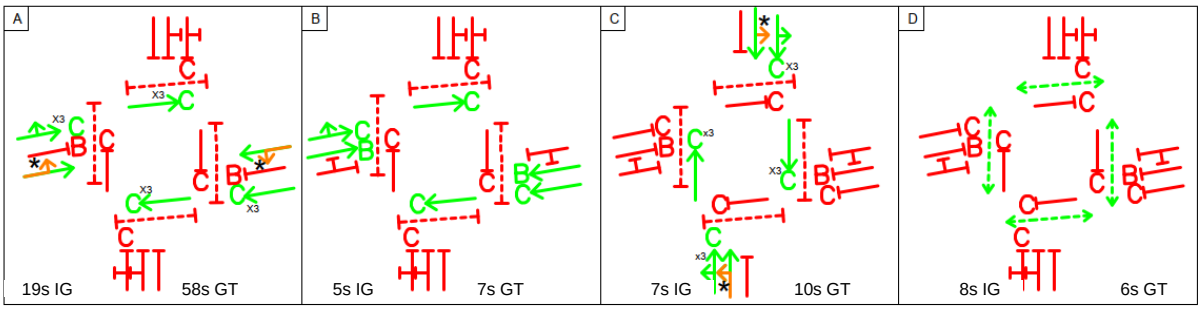
Network Layout Diagram (LinSig) - DS2028_AM



People Movement Assessment DS2028 AM

11. Greenhills Rd - Hibernian Incl. Estate Junction	CBC		All Arms	
Mode	**People Movement**	**Mode Share**	**People Movement**	**Mode Share**
Car (AM peak, PCUs)	564	33%	736	38%
Bus	660	39%	660	33%
Walk	103	6%	103	5%
Cycle	370	22%	480	24%
Total	**1,697**	**100%**	**1,979**	**100%**

INDICATIVE METHOD OF CONTROL



* denotes Flashing Amber
X3 denotes Advance 3 seconds Start for Cyclists

Subject	BusConnects Core Bus Corridors Transport Modelling		
Date	February 2023		
Route	Tallaght/Clondalkin To City Centre	Job No/Ref	60599126

Greenhills Rd / Hibernian Ind Est– PM peak

2028 PM Peak Hours
Fixed Time LinSig Results

Cycle Time = 120 secs
PRC = 103.2%,
Junction Delay = 6.8 PCUhr

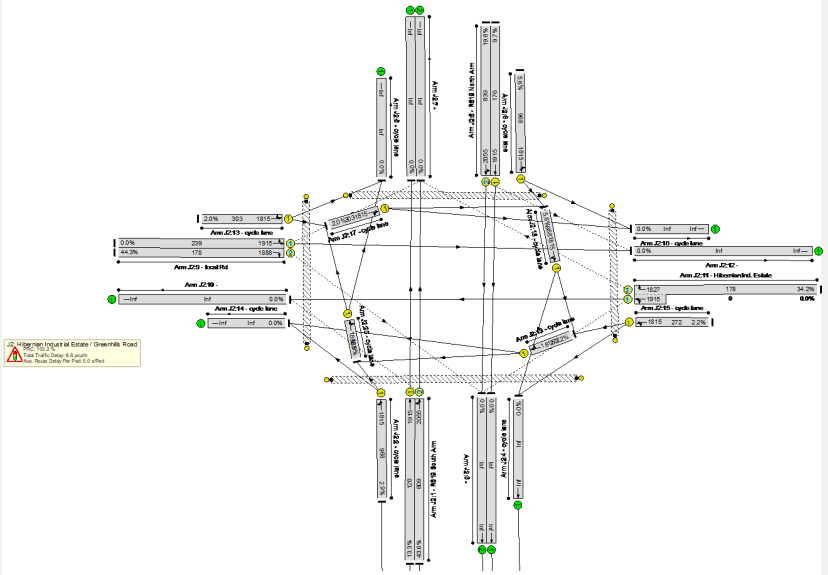
MMQ, CBC arms:
Inbound – 39.1m
Outbound – 21.27m

Bus Av. Delay (s/pcu):
Inbound – 55.1sec
Outbound – 61.3sec

Cyclists Av. Delay (s/pcu):
Inbound – 15.4sec
Outbound – 15.5sec

Car Av. Delay (s/pcu), CBC arms:
Inbound – 13.sec
Outbound – 25.5sec

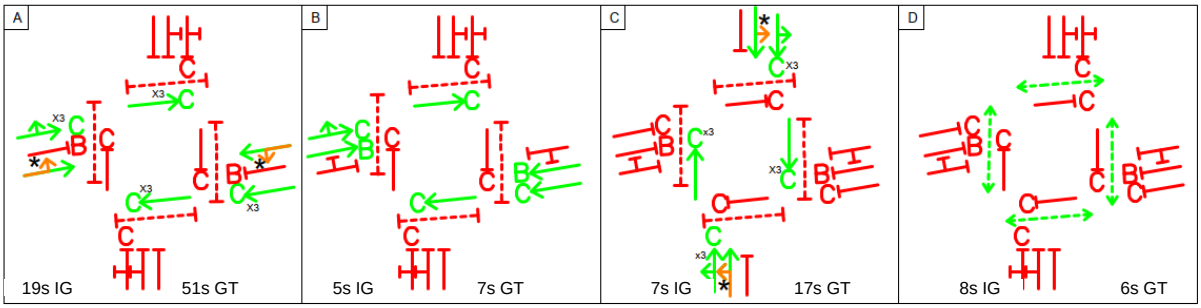
Network Layout Diagram (LinSig) - DS2028_PM



People Movement Assessment DS2028 PM

11. Greenhills Rd - Hibernian Incl. Estate Junction	CBC		All Arms	
Mode	**People Movement**	**Mode Share**	**People Movement**	**Mode Share**
Car (PM peak, PCUs)	587	35%	791	40%
Bus	660	39%	660	33%
Walk	77	4%	77	4%
Cycle	370	22%	470	23%
Total	**1,694**	**100%**	**1,998**	**100%**

INDICATIVE METHOD OF CONTROL



* denotes Flashing Amber
X3 denotes Advance 3 seconds Start for Cyclists

Subject	BusConnects Core Bus Corridors Junction Design Report		
Date	February 2023		
Route	Tallaght/Clondalkin To City Centre	Job No/Ref	60599126

Junction: **Greenhills Rd / Mayberry Rd**

EXISTING

FINAL DESIGN

Summary
The existing junction is to be upgraded as per the BusConnects Preliminary Design Guidance Booklet to enhance pedestrian, cyclist and bus priority infrastructure.

Pedestrian Infrastructure
It is proposed to replace the existing western crossing with a two stage controlled crossing due to the increased crossing length being greater than the maximum permitted 19m crossing distance. The northern pedestrian crossing is maintained

Cyclists Infrastructure
The proposal is to upgrade the junction to cater for cycle tracks on all arms entering and exiting the junction. Dedicated cycle crossings are proposed across all arms to enhance cyclist permeability at this location. It is proposed to introduce physical build outs to offer cyclists with greater protection crossing the junction

Bus Priority Infrastructure
It is proposed to introduce a bus lane up to the stop line to ensure bus priority at both inbound and outbound directions. For the inbound direction, a break in the bus lane to the west of the junction is proposed to facilitate a new left turning lane inside the bus lane, which is due to the volume of left turning vehicles predicted in the Opening Year. This will facilitate additional capacity for traffic turning left without impacting on buses

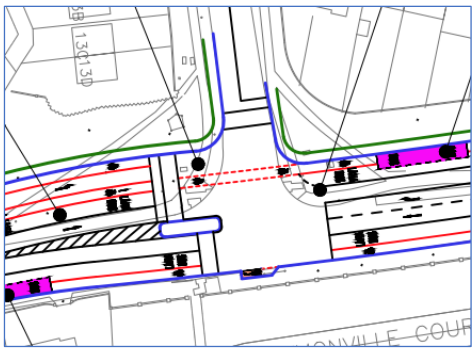
Subject	BusConnects Core Bus Corridors Junction Design Report		
Date	February 2023		
Route	Tallaght/Clondalkin To City Centre	Job No/Ref	60599126

Design Evolution

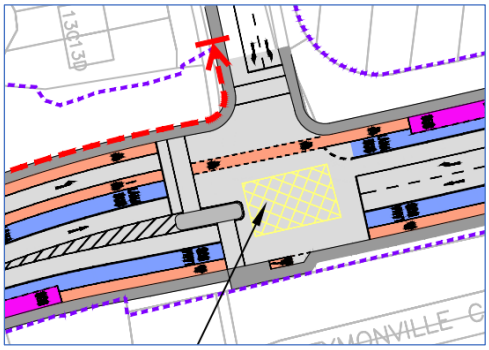
The proposed junction design has evolved on the BusConnects project from initial Concept Design, Emerging Preferred Route, Public Consultation 2, Public Consultation 3 up to the Current Design. The junction design iterations have been undertaken to optimise pedestrian, cyclist and bus priority infrastructure on the scheme.

Existing

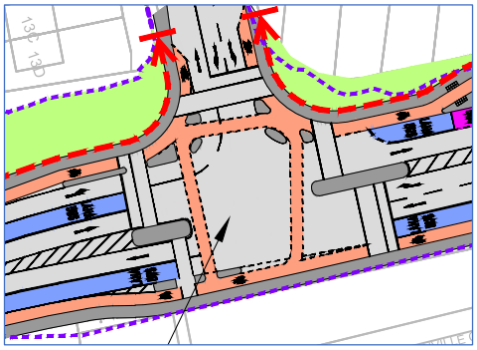
Concept Design Drawing



Emerging Preferred Route



Public Consultation 2



Public Consultation 3

Final Preliminary Design

Subject	BusConnects Core Bus Corridors Transport Modelling		
Date	February 2023		
Route	Tallaght/Clondalkin To City Centre	Job No/Ref	60599126

Greenhills Rd / Mayberry Rd– AM peak

2028 AM Peak Hours
Fixed Time LinSig Results

Cycle Time = 100 secs
PRC = 6.8%,
Junction Delay = 18.1 PCUhr

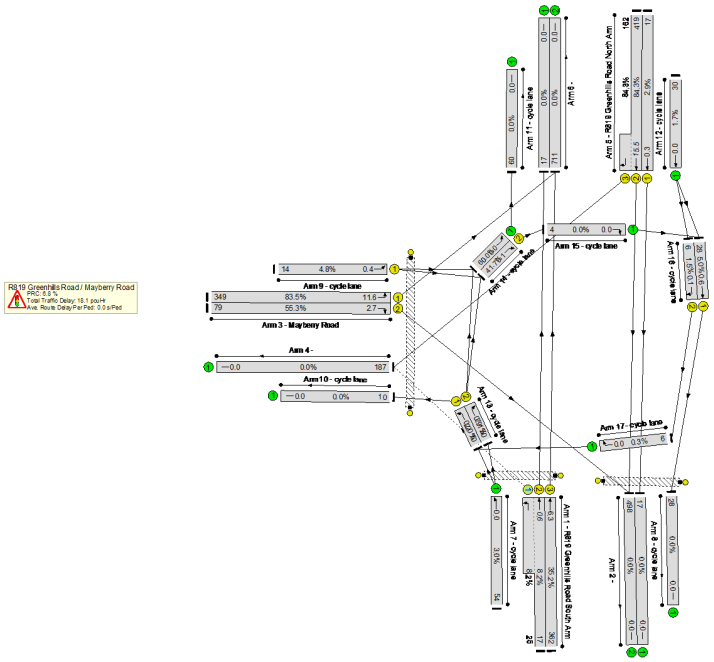
MMQ, CBC arms:
Inbound – 66.7m
Outbound – 89.12m

Bus Av. Delay (s/pcu):
Inbound – 16.6sec
Outbound – 27.3sec

Cyclists Av. Delay (s/pcu):
Inbound – 21.9sec
Outbound – 27.4sec

Car Av. Delay (s/pcu), CBC arms:
Inbound – 60.6sec
Outbound – 71.9sec

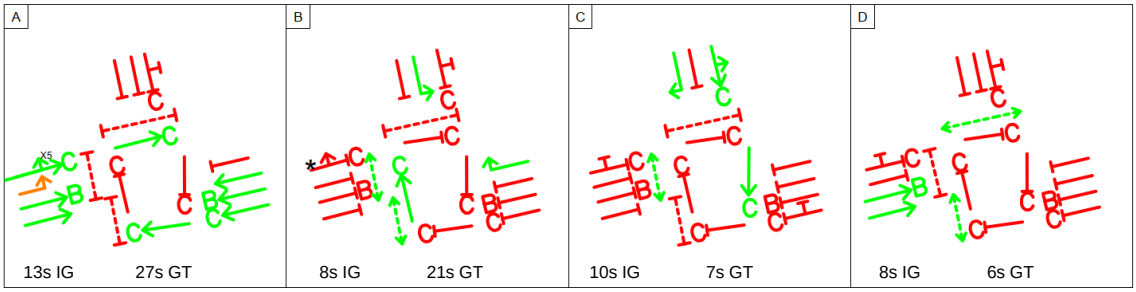
Network Layout Diagram (LinSig) - DS2028_AM



People Movement Assessment DS2028 AM

12. Mayberry Rd-Greenhills Rd Junction	CBC		All Arms	
Mode	**People Movement**	**Mode Share**	**People Movement**	**Mode Share**
Car (AM peak, PCUs)	937	47%	1,675	58%
Bus	660	33%	660	23%
Walk	46	2%	46	2%
Cycle	370	18%	490	17%
Total	**2,013**	**100%**	**2,871**	**100%**

INDICATIVE METHOD OF CONTROL



* denotes Flashing Amber
X5 denotes Advance 5 seconds Start for Cyclists

Subject	BusConnects Core Bus Corridors Transport Modelling		
Date	February 2023		
Route	Tallaght/Clondalkin To City Centre	Job No/Ref	60599126

Greenhills Rd / Mayberry Rd– PM peak

2028 PM Peak Hours
Fixed Time LinSig Results

Cycle Time = 100 secs
PRC = 16.4%,
Junction Delay = 15.7 PCUhr

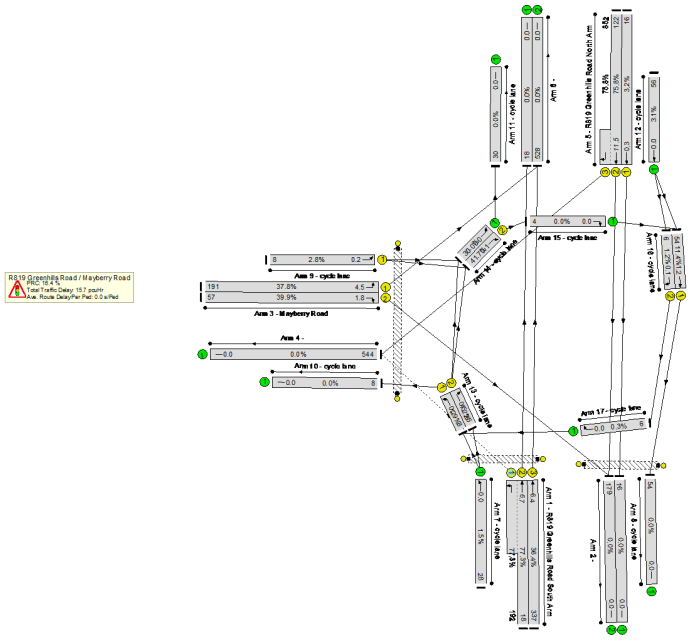
MMQ, CBC arms:
Inbound – 38.52m
Outbound – 66.12m

Bus Av. Delay (s/pcu):
Inbound – 43.1sec
Outbound – 31.5sec

Cyclists Av. Delay (s/pcu):
Inbound – 25.2sec
Outbound – 30.7ec

Car Av. Delay (s/pcu), CBC arms:
Inbound – 34sec
Outbound – 64.5sec

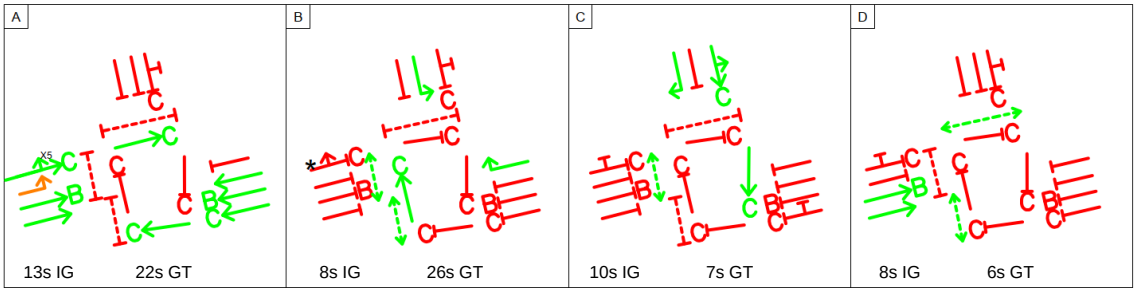
Network Layout Diagram (LinSig) - DS2028_PM



People Movement Assessment DS2028 PM

12. Mayberry Rd/Greenhills Rd Junction	CBC		All Arms	
Mode	People Movement	Mode Share	People Movement	Mode Share
Car	827	43%	1,501	56%
Bus	660	35%	660	25%
Walk	49	2%	49	2%
Cycle	380	20%	460	17%
Total	**1,916**	**100%**	**2,670**	**100%**

INDICATIVE METHOD OF CONTROL



* denotes Flashing Amber
X5 denotes Advance 5 seconds Start for Cyclists

Subject	BusConnects Core Bus Corridors Junction Design Report		
Date	February 2023		
Route	Tallaght/Clondalkin To City Centre	Job No/Ref	60599126

Junction: **Greenhills Rd / Castletymon Rd**

EXISTING

FINAL DESIGN

Summary
The existing junction is to be upgraded as per the BusConnects Preliminary Design Guidance Booklet to enhance pedestrian, cyclist and bus priority infrastructure.

Pedestrian Infrastructure
The direct pedestrian crossings are proposed on the eastern arm of the junction on Greenhills Road and on the Castletymon Road. Furthermore, the corner radius is proposed to be reduced where feasible to assist in reducing vehicular speeds at the junction.

Cyclists Infrastructure
The proposal will assist to upgrade the existing cycling infrastructure at the junction. Cycle tracks are proposed in the inbound direction along Greenhills Road and on the Castletymon Road in the outbound direction.

Bus Priority Infrastructure
Due to the carriageway constraints, it was not feasible to introduce a bus lane at this junction. Exclusive bus lane is proposed parallel to the Greenhills Road in both inbound and outbound directions. This proposal reduces the delay to buses caused by the high general traffic volumes.

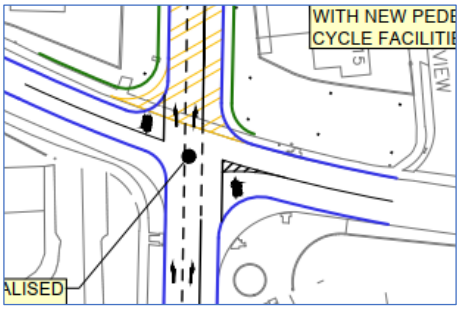
Subject	BusConnects Core Bus Corridors Junction Design Report		
Date	February 2023		
Route	Tallaght/Clondalkin To City Centre	Job No/Ref	60599126

Design Evolution

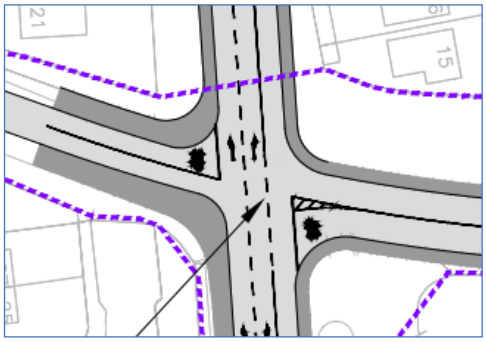
The proposed junction design has evolved on the BusConnects project from initial Concept Design, Emerging Preferred Route, Public Consultation 2, Public Consultation 3 up to the Current Design. The junction design iterations have been undertaken to optimise pedestrian, cyclist and bus priority infrastructure on the scheme.

Existing

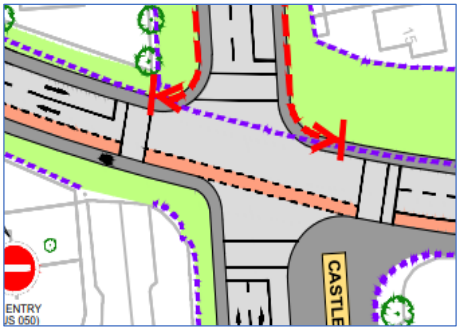
Concept Design Drawing



Emerging Preferred Route

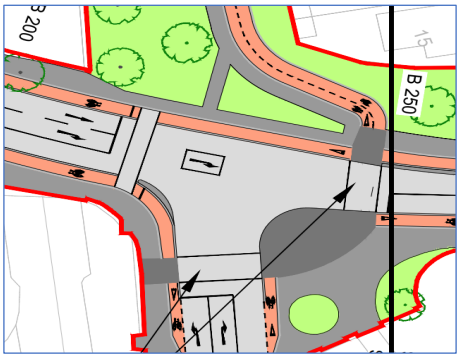


Public Consultation 2



Public Consultation 3

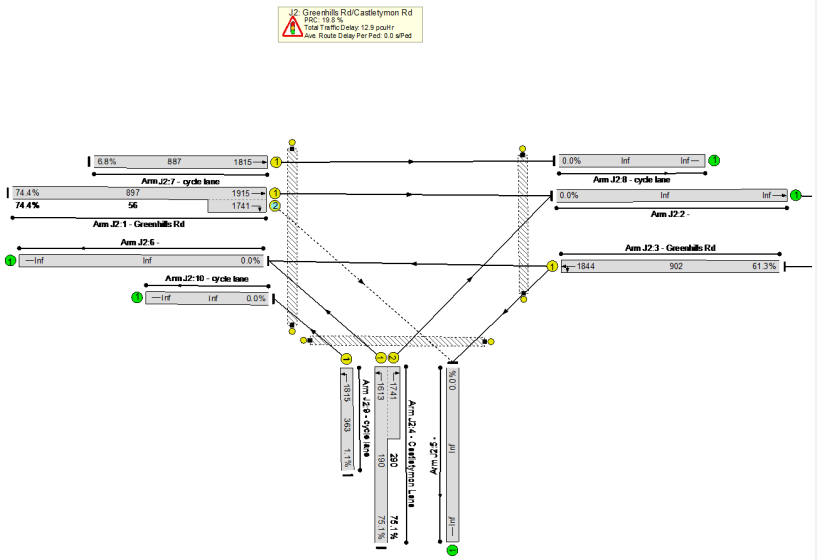
Final Preliminary Design



Subject	BusConnects Core Bus Corridors Transport Modelling		
Date	February 2023		
Route	Tallaght/Clondalkin To City Centre	Job No/Ref	60599126

Greenhills Rd / Castletymon Rd – AM peak

Network Layout Diagram (LinSig) - DS2028_AM



2028 AM Peak Hours
Fixed Time LinSig Results

Cycle Time = 90 secs
PRC = 19.8%,
Junction Delay = 12.9 PCUhr

MMQ, CBC arms:
Inbound – 86.25m
Outbound – 58.07m

Bus Av. Delay (s/pcu):
Inbound –
Outbound –

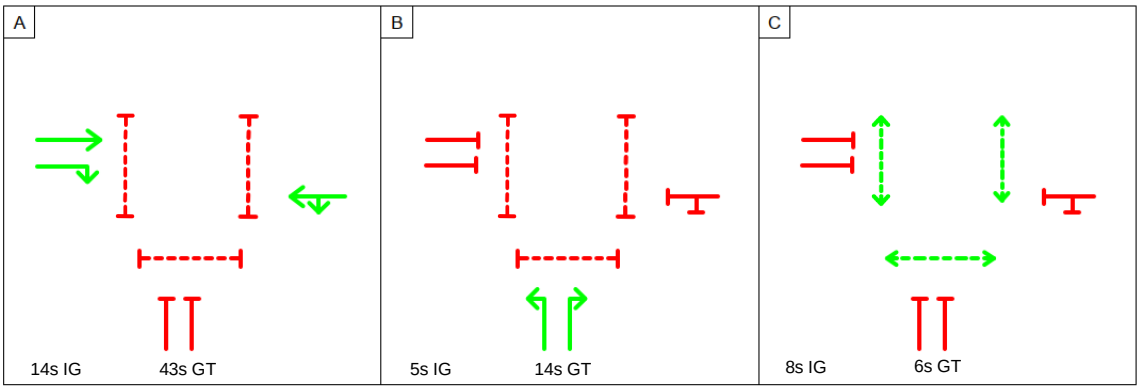
Cyclists Av. Delay (s/pcu):
Inbound – 14.4sec
Outbound – 34.2sec

Car Av. Delay (s/pcu), CBC arms:
Inbound – 25.3sec
Outbound – 49.9sec

People Movement Assessment DS2028 AM

13a. Greenhills Rd - Castletymon Rd Junction	CBC		All Arms	
Mode	People Movement	Mode Share	People Movement	Mode Share
Car	1,327	81%	1,948	85%
Bus	0	0%	0	0%
Walk	24	1%	24	1%
Cycle	300	18%	320	14%
Total	**1,651**	**100%**	**2,292**	**100%**

INDICATIVE METHOD OF CONTROL



Subject	BusConnects Core Bus Corridors Transport Modelling		
Date	February 2023		
Route	Tallaght/Clondalkin To City Centre	Job No/Ref	60599126

Greenhills Rd / Castletymon Rd – PM peak

2028 PM Peak Hours
Fixed Time LinSig Results

Cycle Time = 90 secs
PRC = 12.1%,
Junction Delay = 8.4 PCUhr

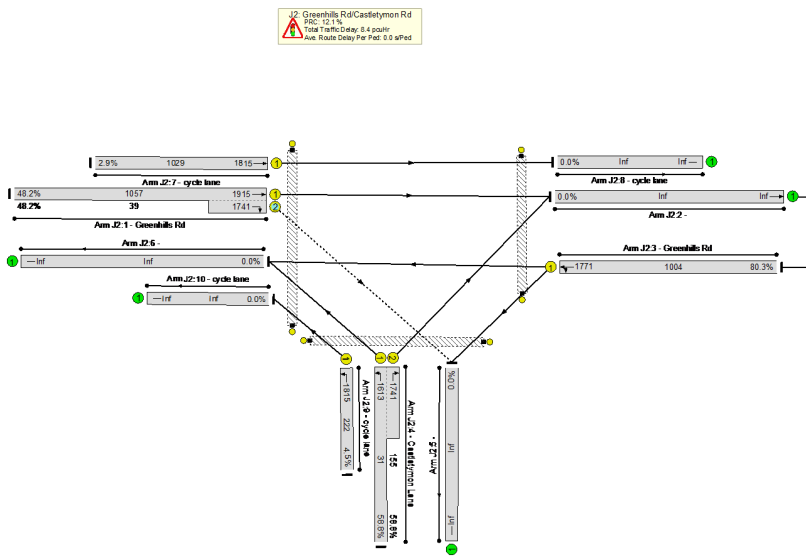
MMQ, CBC arms:
Inbound – 46m
Outbound – 94.3m

Bus Av. Delay (s/pcu):
Inbound –
Outbound –

Cyclists Av. Delay (s/pcu):
Inbound – 8.2sec
Outbound –

Car Av. Delay (s/pcu), CBC arms:
Inbound – 14.8sec
Outbound – 62.3sec

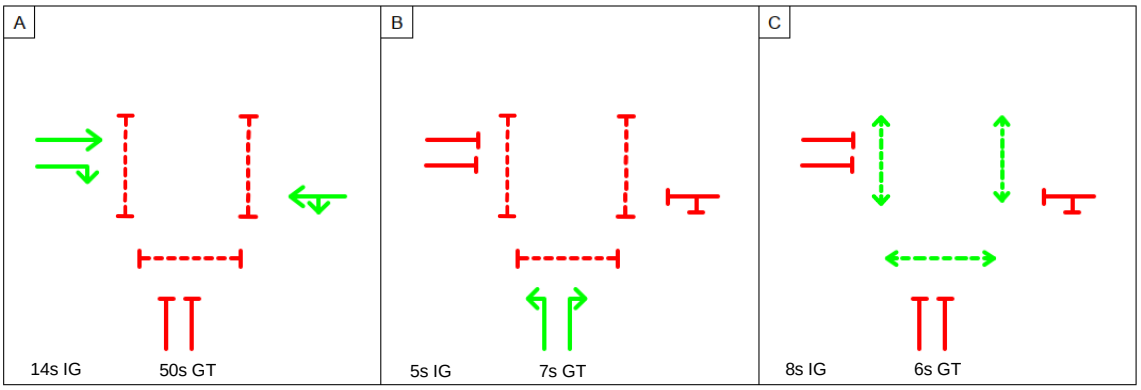
Network Layout Diagram (LinSig) - DS2028_PM



People Movement Assessment DS2028 PM

13a. Greenhills Rd - Castletymon Rd Junction	CBC		All Arms	
Mode	**People Movement**	**Mode Share**	**People Movement**	**Mode Share**
Car	1,158	87%	1,732	89%
Bus	0	0%	0	0%
Walk	24	2%	24	1%
Cycle	150	11%	200	10%
Total	**1,332**	**100%**	**1,956**	**100%**

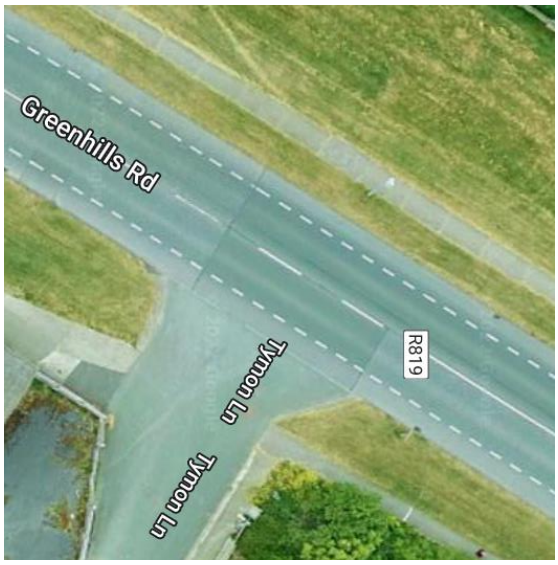
INDICATIVE METHOD OF CONTROL



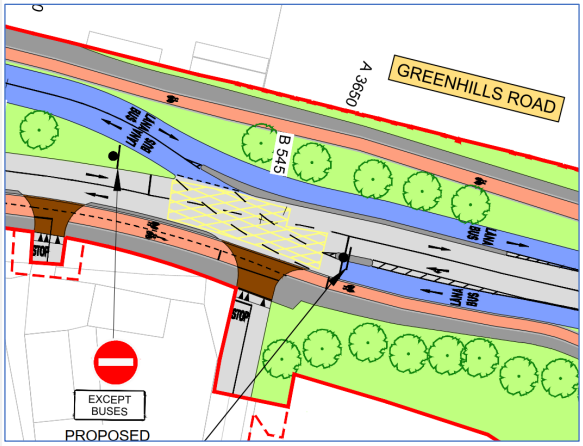
Subject	BusConnects Core Bus Corridors Junction Design Report		
Date	February 2023		
Route	Tallaght/Clondalkin To City Centre	Job No/Ref	60599126

Junction: **Greenhills Rd/Tymon Lane**

EXISTING



FINAL DESIGN



Summary
The existing junction is to be upgraded as per the BusConnects Preliminary Design Guidance Booklet to enhance pedestrian, cyclist and bus priority infrastructure.

Pedestrian Infrastructure
The direct pedestrian crossing is proposed on the side arm of the junction. Furthermore, the corner radius is proposed to be reduced where feasible to assist in reducing vehicular speeds at the junction.

Cyclists Infrastructure
Cycle tracks are proposed along Greenhills Road both inbound and outbound directions.

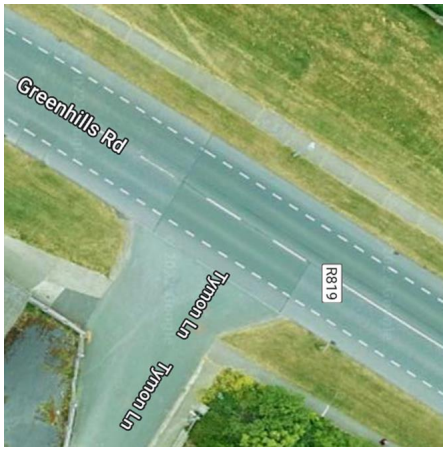
Bus Priority Infrastructure
It is proposed to provide junction priority as per Junction Type 1, where the bus lane is proposed upto the stop line in inbound direction along Greenhills Road.

Subject	BusConnects Core Bus Corridors Junction Design Report		
Date	February 2023		
Route	Tallaght/Clondalkin To City Centre	Job No/Ref	60599126

Design Evolution

The proposed junction design has evolved on the BusConnects project from initial Concept Design, Emerging Preferred Route, Public Consultation 2, Public Consultation 3 up to the Current Design. The junction design iterations have been undertaken to optimise pedestrian, cyclist and bus priority infrastructure on the scheme.

Existing



Concept Design Drawing

This Junction is not part of Concept Design

Emerging Preferred Route

This Junction is not part of Emerging Preferred Route

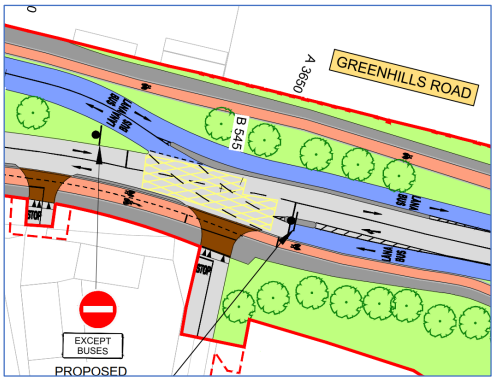
Public Consultation 2

This Junction is not part of Public Consultation 2

Public Consultation 3

This Junction is not part of Public Consultation 3

Final Preliminary Design



Subject	BusConnects Core Bus Corridors Transport Modelling		
Date	February 2023		
Route	Tallaght/Clondalkin To City Centre	Job No/Ref	60599126

Greenhills Rd/Tymon Lane – AM peak

2028 AM Peak Hours
Fixed Time LinSig Results

Cycle Time = 90 secs
PRC = 4.6%,
Junction Delay = 9.1 PCUhr

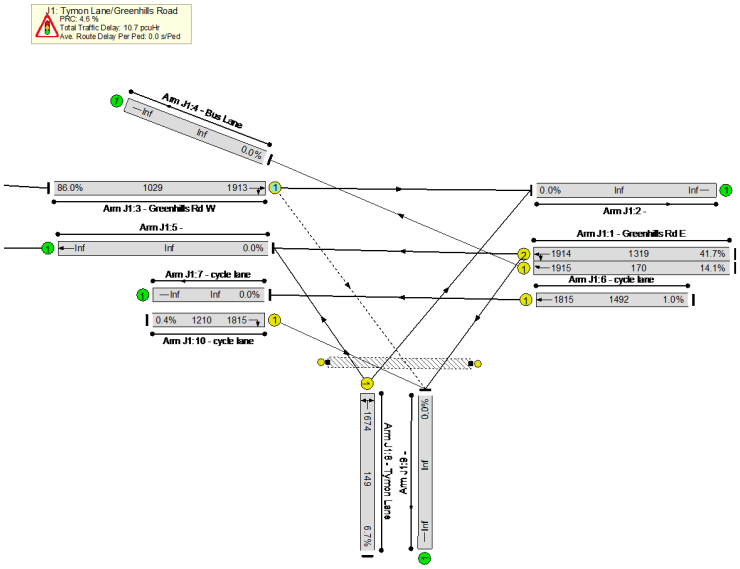
MMQ, CBC arms:
Inbound – 139.15m
Outbound – 36.23m

Bus Av. Delay (s/pcu):
Inbound –
Outbound – 50.1sec

Cyclists Av. Delay (s/pcu):
Inbound – 6.7sec
Outbound – 2.7sec

Car Av. Delay (s/pcu), CBC arms:
Inbound – 36.1Sec
Outbound – 8.5sec

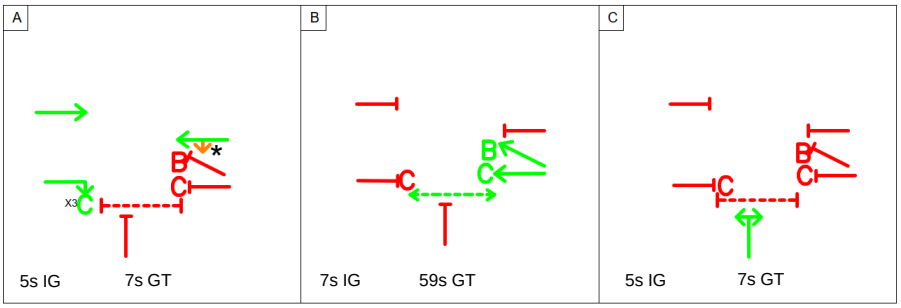
Network Layout Diagram (LinSig) - DS2028_AM



People Movement Assessment DS2028 AM

13b. Greenhills Rd – Tymon Lane Junction	CBC		All Arms	
Mode	**People Movement**	**Mode Share**	**People Movement**	**Mode Share**
Car	1,710	67%	1,734	67%
Bus	480	19%	480	19%
Walk	24	1%	24	1%
Cycle	325	13%	350	13%
Total	**2,539**	**100%**	**2,588**	**100%**

INDICATIVE METHOD OF CONTROL



X3 denotes Advance 3 seconds Start for Cyclists
* denotes Flashing Amber
Stage A, rest stage until the bus stage is called
Stage B, on demand

Subject	BusConnects Core Bus Corridors Transport Modelling		
Date	February 2023		
Route	Tallaght/Clondalkin To City Centre	Job No/Ref	60599126

Greenhills Rd/Tymon Lane – PM peak

2028 PM Peak Hours
Fixed Time LinSig Results

Cycle Time = 90 secs
PRC = 24.3%,
Junction Delay = 8.5 PCUhr

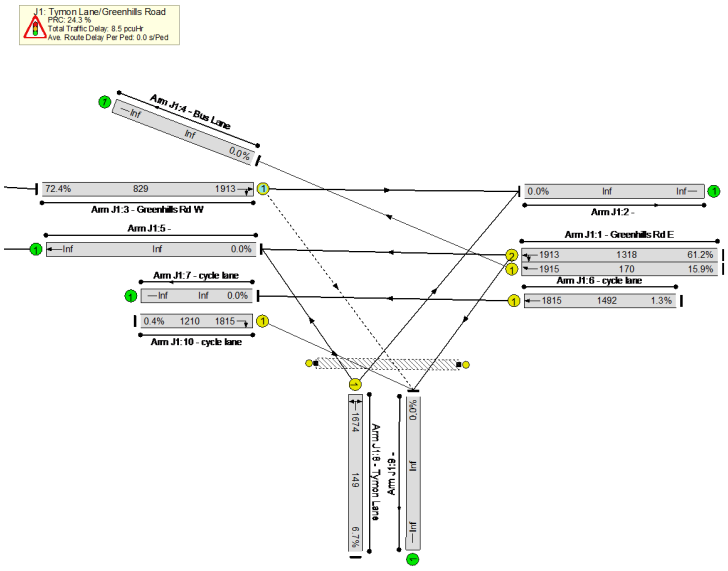
MMQ, CBC arms:
Inbound – 89.12m
Outbound – 66.13m

Bus Av. Delay (s/pcu):
Inbound –
Outbound – 50.5sec

Cyclists Av. Delay (s/pcu):
Inbound – 6.7sec
Outbound – 2.7sec

Car Av. Delay (s/pcu), CBC arms:
Inbound – 33.1sec
Outbound – 11.0sec

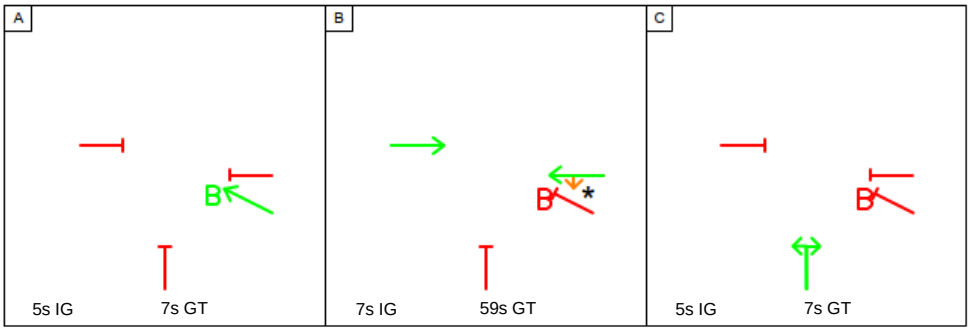
Network Layout Diagram (LinSig) - DS2028_PM



People Movement Assessment DS2028 PM

13b. Greenhills Rd – Tymon Lane Junction	CBC		All Arms	
Mode	**People Movement**	**Mode Share**	**People Movement**	**Mode Share**
Car	1,675	67%	1,687	67%
Bus	540	22%	540	21%
Walk	24	1%	24	1%
Cycle	250	10%	275	11%
Total	**2,489**	**100%**	**2,526**	**100%**

INDICATIVE METHOD OF CONTROL

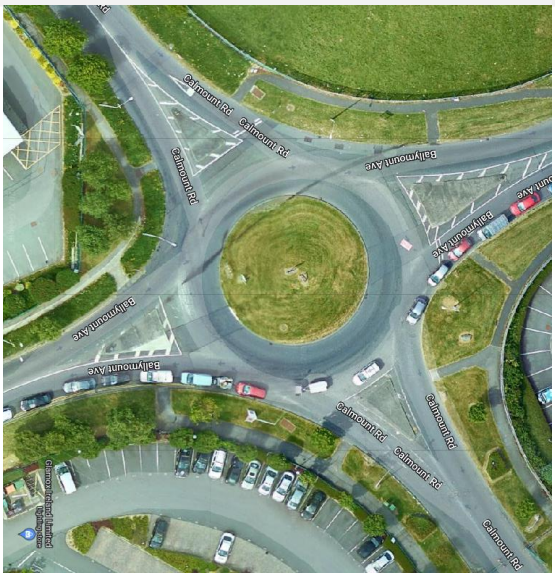


* denotes Flashing Amber

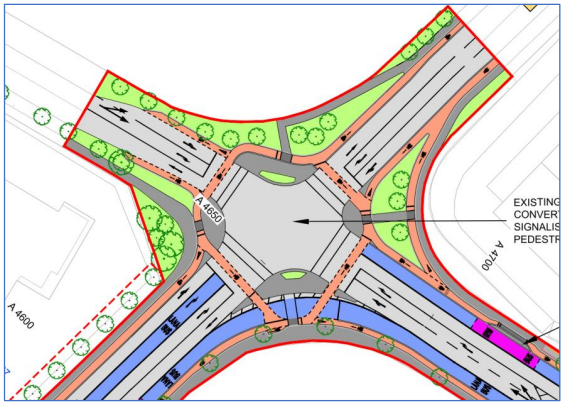
Subject	BusConnects Core Bus Corridors Junction Design Report		
Date	February 2023		
Route	Tallaght/Clondalkin To City Centre	Job No/Ref	60599126

Junction: **Ballymount Ave / Calmount Rd**

EXISTING



FINAL DESIGN



Summary
The existing four arm roundabout junction is to be upgraded as per the BusConnects Preliminary Design Guidance Booklet to enhance pedestrian, cyclist and bus priority infrastructure. The junction will be upgraded to a Junction Type 4 signalised junction.

Pedestrian Infrastructure
It is proposed to introduce controlled pedestrian crossing facilities on all four arms of the junction. A junction type 4 arrangement is proposed, where segregated pedestrian and cyclist crossing facilities are proposed. An orbital cycle track is proposed at the junction, with dedicated pedestrian crossings across the cycle track.

The proposed crossing distances have been reduced due to the proposed compact arrangement at the junction, which will reduce pedestrian crossing time and also the associated intergreen time to clear the pedestrian phase.

Cyclists Infrastructure
A Junction Type 4 arrangement is proposed where an orbital cycle track is to be introduced at the junction. This arrangement is proposed due to the available space to accommodate this design, but also due to the presence of larger vehicles at this junction, this design will offer cyclists with greater protection as the cyclist crossings will be segregated to the vehicular movement phases.

Bus Priority Infrastructure
For bus priority at the junction, a bus lane is proposed along both the inbound (Ballymount Ave) and outbound (Calmount Road) directions upto the stop line at the junction. This will assist to provide bus priority in both directions.

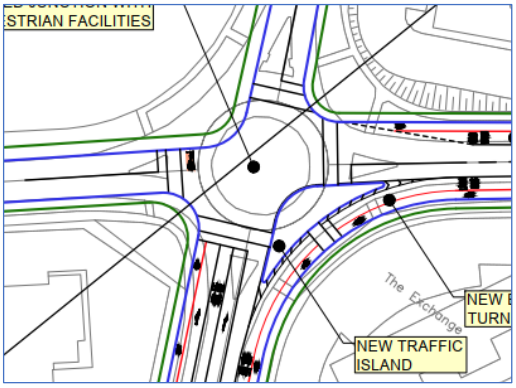
Subject	BusConnects Core Bus Corridors Junction Design Report		
Date	February 2023		
Route	Tallaght/Clondalkin To City Centre	Job No/Ref	60599126

Design Evolution

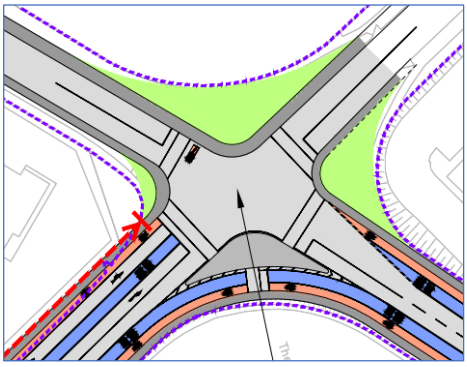
The proposed junction design has evolved on the BusConnects project from initial Concept Design, Emerging Preferred Route, Public Consultation 2, Public Consultation 3 up to the Current Design. The junction design iterations have been undertaken to optimise pedestrian, cyclist and bus priority infrastructure on the scheme.

Existing

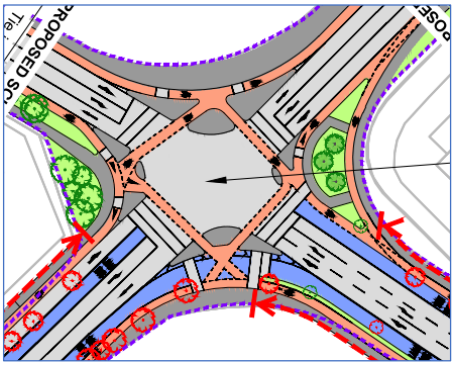
Concept Design Drawing



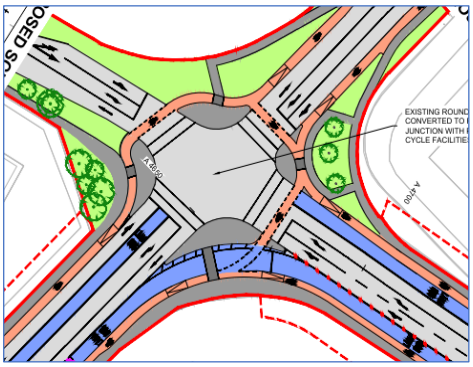
Emerging Preferred Route



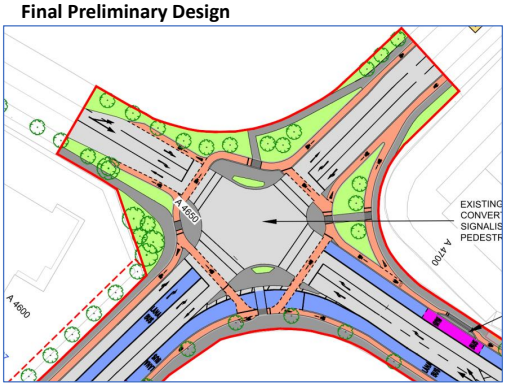
Public Consultation 2



Public Consultation 3



Final Preliminary Design



Subject	BusConnects Core Bus Corridors Transport Modelling		
Date	February 2023		
Route	Tallaght/Clondalkin To City Centre	Job No/Ref	60599126

Ballymount Ave / Calmount Rd– AM peak

2028 AM Peak Hours
Fixed Time LinSig Results

Cycle Time = 120 secs
PRC = -4.7%,
Junction Delay = 40.1 PCUhr

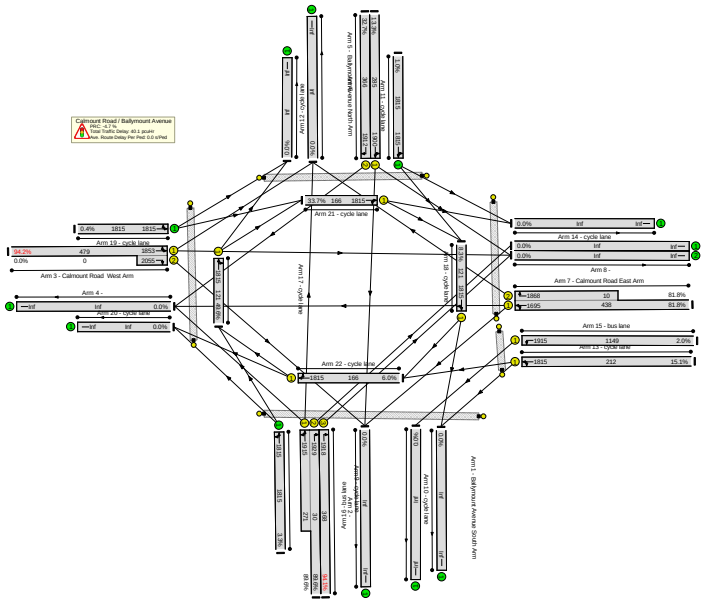
MMQ, CBC arms:
Inbound – 117.3m
Outbound – 76.48m

Bus Av. Delay (s/pcu):
Inbound – 96.4sec
Outbound – 6.7sec

Cyclists Av. Delay (s/pcu):
Inbound – 54.9sec
Outbound – 57.7sec

Car Av. Delay (s/pcu), CBC arms:
Inbound – 103.5sec
Outbound – 63sec

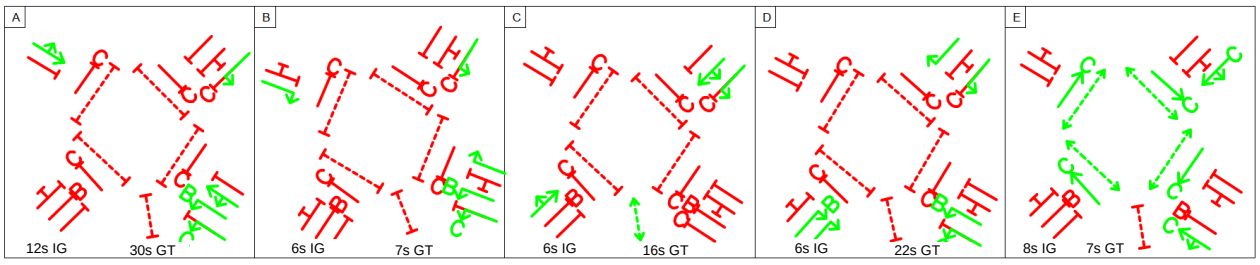
Network Layout Diagram (LinSig) - DS2028_AM



People Movement Assessment DS2028 AM

14. Calmount Rd - Ballymount Ave Junction	CBC		All Arms	
Mode	**People Movement**	**Mode Share**	**People Movement**	**Mode Share**
Car	787	35%	1,877	53%
Bus	1,020	46%	1,020	29%
Walk	65	3%	65	2%
Cycle	370	16%	590	16%
Total	**2,242**	**100%**	**3,552**	**100%**

INDICATIVE METHOD OF CONTROL



Subject	BusConnects Core Bus Corridors Transport Modelling		
Date	February 2023		
Route	Tallaght/Clondalkin To City Centre	Job No/Ref	60599126

Ballymount Ave / Calmount Rd– PM peak

2028 PM Peak Hours
Fixed Time LinSig Results

Cycle Time = 120 secs
PRC = 2.4%,
Junction Delay = 39 PCUhr

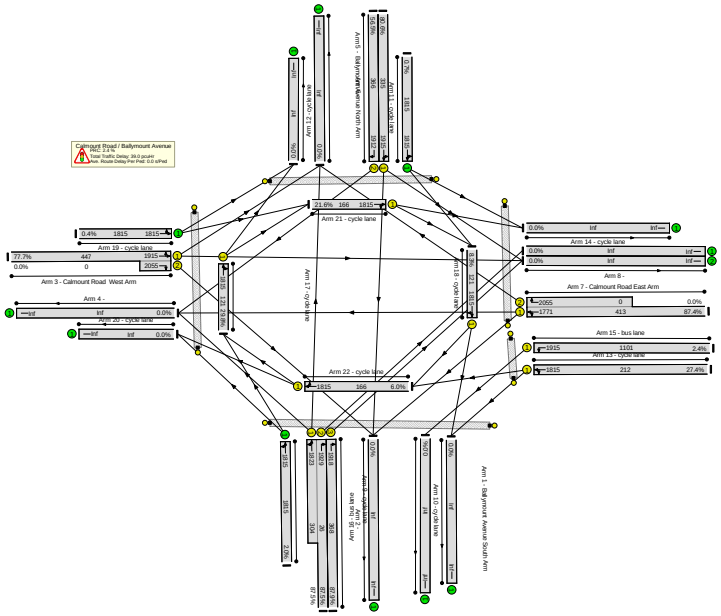
MMQ, CBC arms:
Inbound – 78.20m
Outbound – 83.95m

Bus Av. Delay (s/pcu):
Inbound – 86.2sec
Outbound – 7.5sec

Cyclists Av. Delay (s/pcu):
Inbound – 53sec
Outbound – 60.1sec

Car Av. Delay (s/pcu), CBC arms:
Inbound – 82.5sec
Outbound – 75.1sec

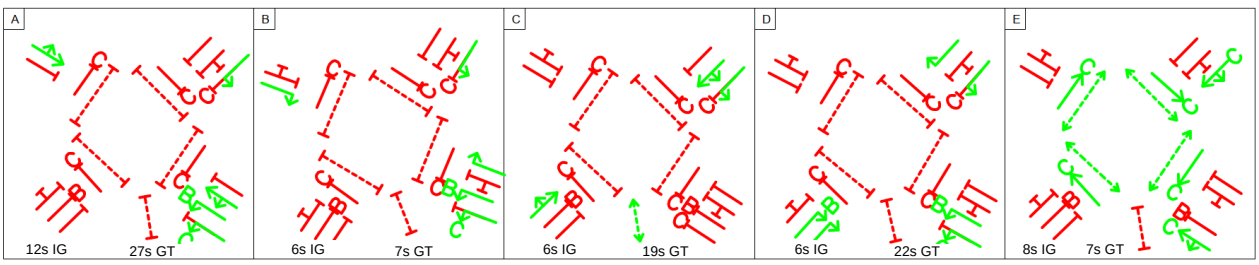
Network Layout Diagram (LinSig) - DS2028_PM



People Movement Assessment DS2028 PM

14. Calmount Rd - Ballymount Ave Junction	CBC		All Arms	
Mode	People Movement	Mode Share	People Movement	Mode Share
Car	623	31%	2,129	58%
Bus	960	47%	960	26%
Walk	35	2%	35	1%
Cycle	400	20%	570	15%
Total	**2,018**	**100%**	**3,694**	**100%**

INDICATIVE METHOD OF CONTROL

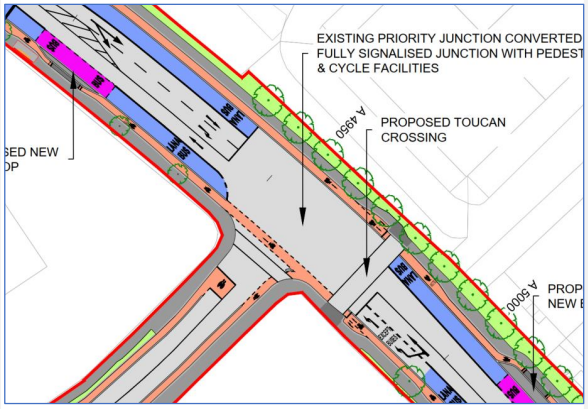


Subject	BusConnects Core Bus Corridors Junction Design Report		
Date	February 2023		
Route	Tallaght/Clondalkin To City Centre	Job No/Ref	60599126

Junction: **Calmount Ave / Calmount Rd**

EXISTING

FINAL DESIGN



Summary
The existing three arm junction is to be upgraded as per the BusConnects Preliminary Design Guidance Booklet to enhance pedestrian, cyclist and bus priority infrastructure.

Pedestrian Infrastructure
The existing junction currently doesn't provide controlled pedestrian crossings at this location. The proposal will introduce controlled crossing on Calmount Road in the form of a Toucan, and also a pedestrian crossing on Calmount Avenue.

Cyclists Infrastructure
It is proposed to introduce new cycle tracks on both sides of Calmount Road to facilitate both inbound and outbound cyclists. A toucan cross is proposed across Calmount Road, to facilitate cyclists wishing to cross the road.

Furthermore, on Calmount Avenue, cyclist entry and exit lanes are proposed to cater for cyclists travelling through the junction. An Advanced Cycle Stop line is proposed to provide cyclist with an advanced position at the junction, to cater for right turning cyclists.

Bus Priority Infrastructure
Bus priority is proposed for the inbound direction along Calmount Road, with the bus lane proposed upto the stop line, which is akin to Junction Type 1.

For the outbound direction, the bus lane is proposed to be curtailed approximately 20m prior to the stop line to facilitate a left turn pocket, akin to junction design 3. From a review of the future traffic data, it is envisaged that the left turning volumes will be low and will not have a detrimental impact upon bus priority at this location.

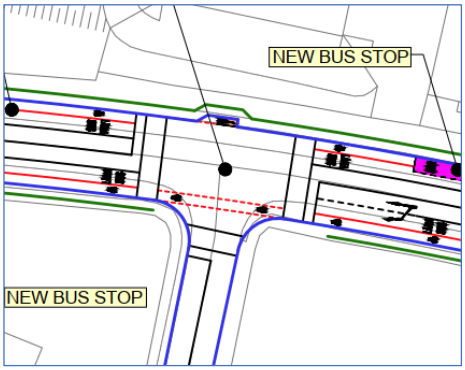
Subject	BusConnects Core Bus Corridors Junction Design Report		
Date	February 2023		
Route	Tallaght/Clondalkin To City Centre	Job No/Ref	60599126

Design Evolution

The proposed junction design has evolved on the BusConnects project from initial Concept Design, Emerging Preferred Route, Public Consultation 2, Public Consultation 3 up to the Current Design. The junction design iterations have been undertaken to optimise pedestrian, cyclist and bus priority infrastructure on the scheme.

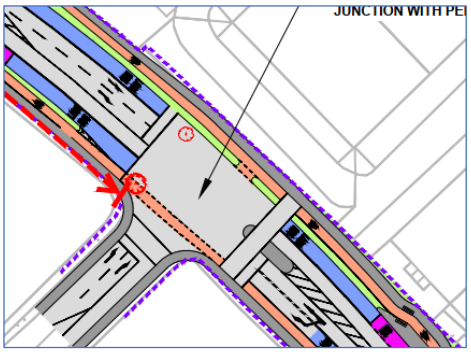
Existing

Concept Design Drawing

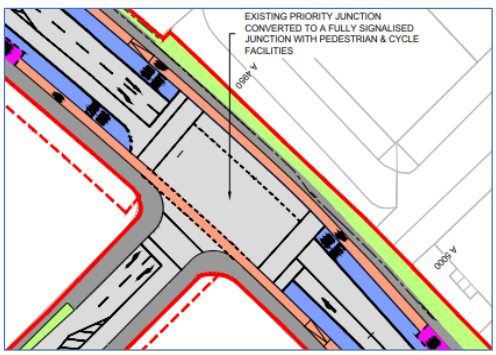


Emerging Preferred Route

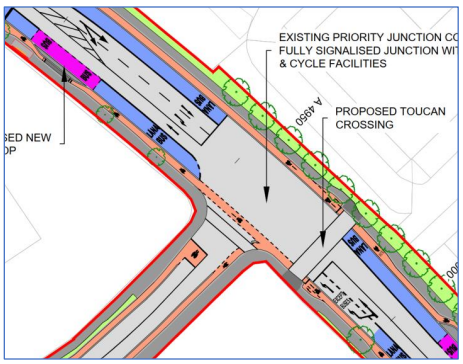
Public Consultation 2



Public Consultation 3



Final Preliminary Design



Subject	BusConnects Core Bus Corridors Transport Modelling		
Date	February 2023		
Route	Tallaght/Clondalkin To City Centre	Job No/Ref	60599126

Calmount Ave / Calmount Rd– AM peak

2028 AM Peak Hours
Fixed Time LinSig Results

Cycle Time = 90 secs
PRC = 27.2%,
Junction Delay = 12.1 PCUhr

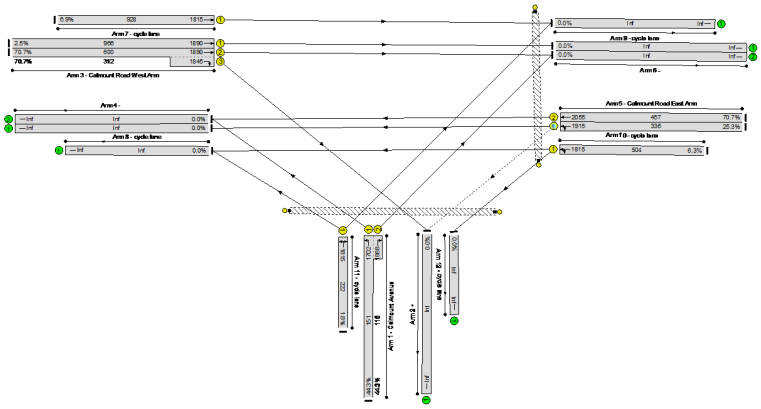
MMQ, CBC arms:
Inbound – 44.85m
Outbound – 49.45m

Bus Av. Delay (s/pcu):
Inbound – 12.9sec
Outbound – 36sec

Cyclists Av. Delay (s/pcu):
Inbound – 13.3sec
Outbound – 27.7sec

Car Av. Delay (s/pcu), CBC arms:
Inbound – 27.3sec
Outbound – 45.5sec

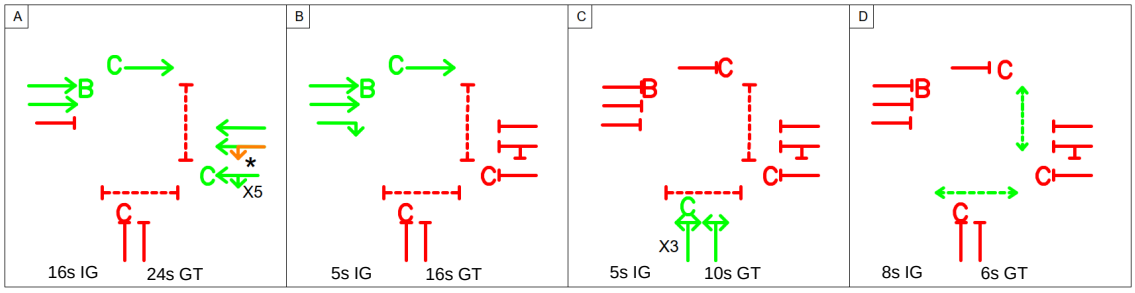
Network Layout Diagram (LinSig) - DS2028_AM



People Movement Assessment DS2028 AM

15. Calmount Ave-Calmount Rd Junction	CBC		All Arms	
Mode	People Movement	Mode Share	People Movement	Mode Share
Car	896	38%	1,378	48%
Bus	960	41%	960	33%
Walk	60	2%	60	2%
Cycle	450	19%	500	17%
Total	**2,366**	**100%**	**2,898**	**100%**

INDICATIVE METHOD OF CONTROL



* denotes Flashing Amber
X3 denotes Advance 3 seconds Start for Cyclists
X5 denotes Advance 5 seconds Start for Cyclists

Subject	BusConnects Core Bus Corridors Transport Modelling		
Date	February 2023		
Route	Tallaght/Clondalkin To City Centre	Job No/Ref	60599126

Calmount Ave / Calmount Rd– PM peak

2028 PM Peak Hours
Fixed Time LinSig Results

Cycle Time = 90 secs
PRC = 26.9%,
Junction Delay = 12.0 PCUhr

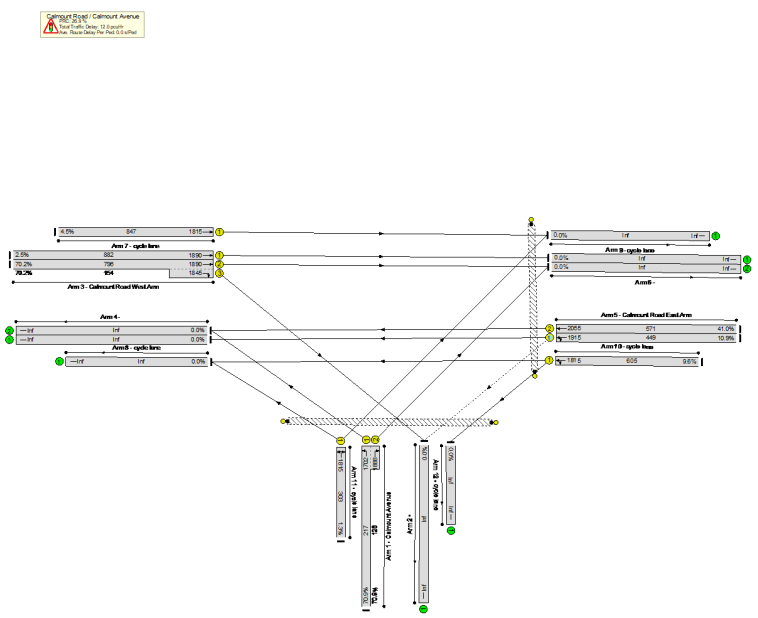
MMQ, CBC arms:
Inbound – 71.88m
Outbound – 29.33m

Bus Av. Delay (s/pcu):
Inbound – 15.2sec
Outbound – 28.7sec

Cyclists Av. Delay (s/pcu):
Inbound – 15.3sec
Outbound – 24sec

Car Av. Delay (s/pcu), CBC arms:
Inbound – 28sec
Outbound – 31.8sec

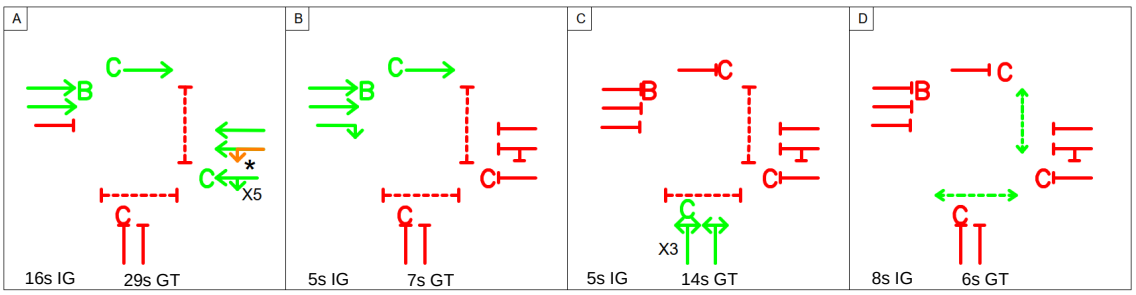
Network Layout Diagram (LinSig) - DS2028_PM



People Movement Assessment DS2028 PM

15. Calmount Ave-Calmount Rd Junction	CBC		All Arms	
Mode	People Movement	Mode Share	People Movement	Mode Share
Car	952	39%	1,403	48%
Bus	960	40%	960	33%
Walk	60	2%	60	2%
Cycle	460	19%	500	17%
Total	**2,432**	**100%**	**2,923**	**100%**

INDICATIVE METHOD OF CONTROL



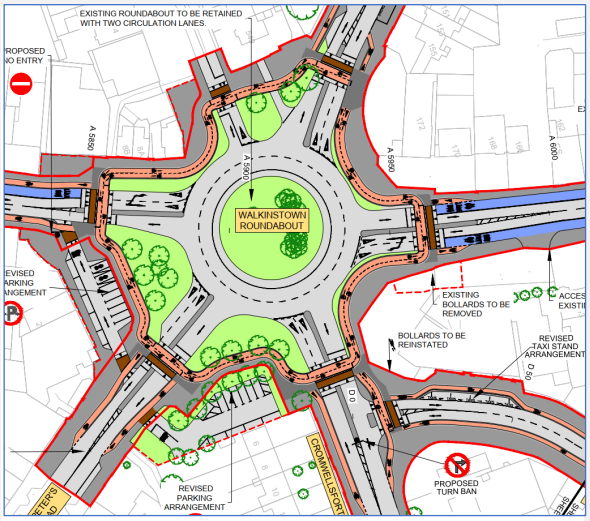
* denotes Flashing Amber
X3 denotes Advance 3 seconds Start for Cyclists
X5 denotes Advance 5 seconds Start for Cyclists

Subject	BusConnects Core Bus Corridors Junction Design Report		
Date	February 2023		
Route	Tallaght/Clondalkin To City Centre	Job No/Ref	60599126

Junction: **Walkinstown Roundabout**

EXISTING

FINAL DESIGN



Summary

The existing major six arm roundabout junction is to be upgraded as per the BusConnects Preliminary Design Guidance Booklet to enhance pedestrian, cyclist and bus priority infrastructure.

Pedestrian Infrastructure

It is proposed to introduce controlled crossings in the form of toucan crossings on all arms of the junction. The crossings are proposed to be offset from the junction by approximately 15-20m to enhance safety and visibility between motorists and pedestrians.

Furthermore the entry and exit lanes of the roundabout junction are proposed to be reduced in width, which will facilitate shorter crossings for pedestrians and cyclists. It is also proposed to raise the pedestrian and cyclist crossings to give greater priority to vulnerable road users.

Cyclists Infrastructure

As noted above, controlled cyclist crossings are proposed on all respective arms of the junction.

The proposed cycle track will travel along Greenhills Road on both sides of the carriageway, connecting onto Walkinstown Roundabout. At the roundabout, a two way cycle track is proposed to cater for cyclists crossing the respective arms of the junction. The cycle route is proposed to continue towards Dublin City Centre via Bunting Road along new proposed cycle tracks.

Bus Priority Infrastructure

It is proposed to provide a Junction Type 3, whereby the bus lane is curtailed prior to the stop line to facilitate left turning vehicles. A bus lane is proposed to be broken at approximately 20m prior to the stop line at the toucan crossing.

A junction type 1 was considered at this location, whereby the bus lane continued upto the stop line, however the proposed arrangement has been adopted as it was considered that this will facilitate greater people movement for all modes of transport.

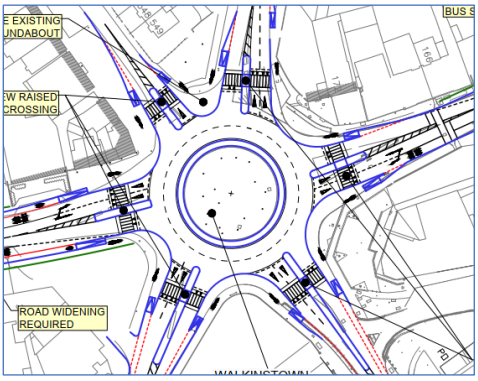
Subject	BusConnects Core Bus Corridors Junction Design Report		
Date	February 2023		
Route	Tallaght/Clondalkin To City Centre	Job No/Ref	60599126

Design Evolution

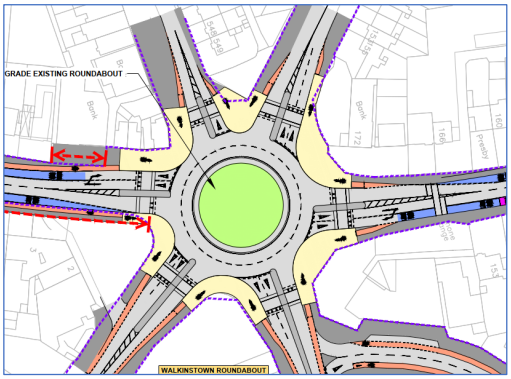
The proposed junction design has evolved on the BusConnects project from initial Concept Design, Emerging Preferred Route, Public Consultation 2, Public Consultation 3 up to the Current Design. The junction design iterations have been undertaken to optimise pedestrian, cyclist and bus priority infrastructure on the scheme.

Existing

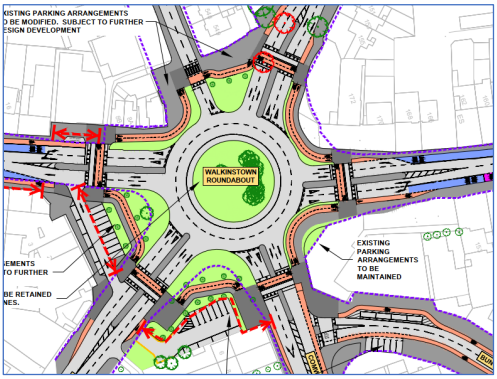
Concept Design Drawing



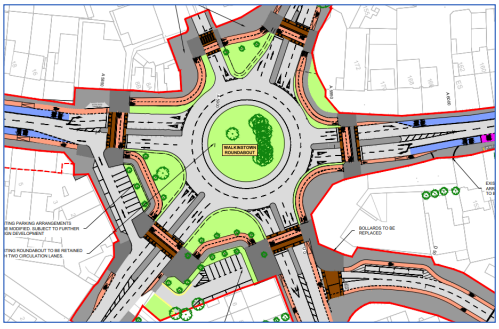
Emerging Preferred Route



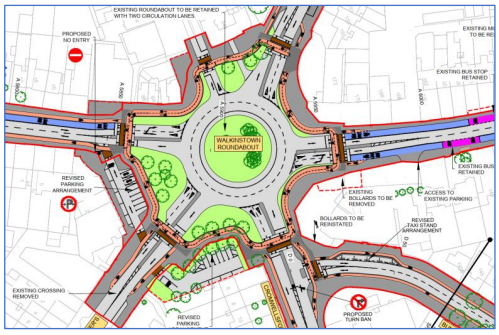
Public Consultation 2



Public Consultation 3



Final Preliminary Design



Subject	BusConnects Core Bus Corridors Transport Modelling		
Date	February 2023		
Route	Tallaght/Clondalkin To City Centre	Job No/Ref	60599126

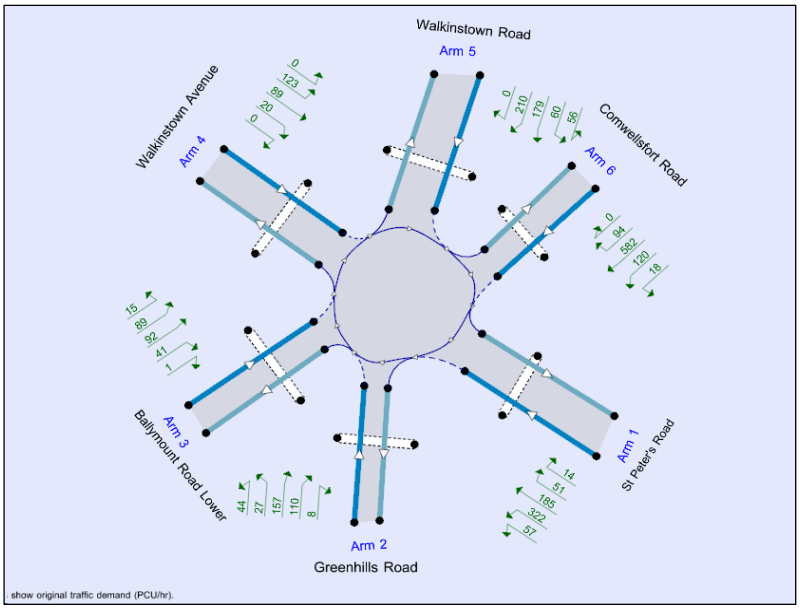
Walkinstown Roundabout – AM peak

2028 AM Peak Hours
ARCADY Results

Network Residual Capacity = 14%,
Junction Delay = 6.96 sec

MMQ, CBC arms:
Inbound – 5.18m
Outbound – 4.03m

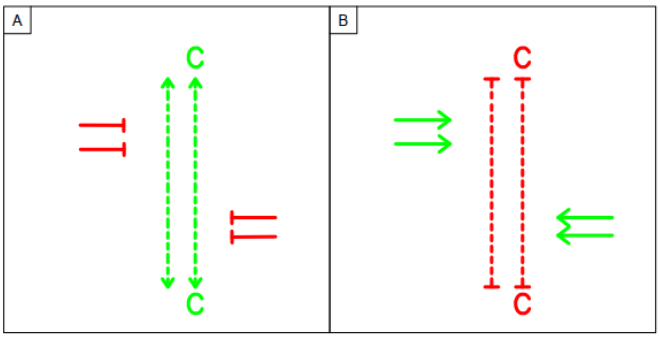
Network Layout Diagram (ARCADY) - DS2028_AM



People Movement Assessment DS2028 AM

16.Walkinstown Roundabout	CBC		All Arms	
Mode	People Movement	Mode Share	People Movement	Mode Share
Car	403	20%	3,834	58%
Bus	960	48%	1,860	28%
Walk	276	13%	276	4%
Cycle	380	19%	660	10%
Total	**2,019**	**100%**	**6,630**	**100%**

INDICATIVE METHOD OF CONTROL



Subject	BusConnects Core Bus Corridors Transport Modelling		
Date	February 2023		
Route	Tallaght/Clondalkin To City Centre	Job No/Ref	60599126

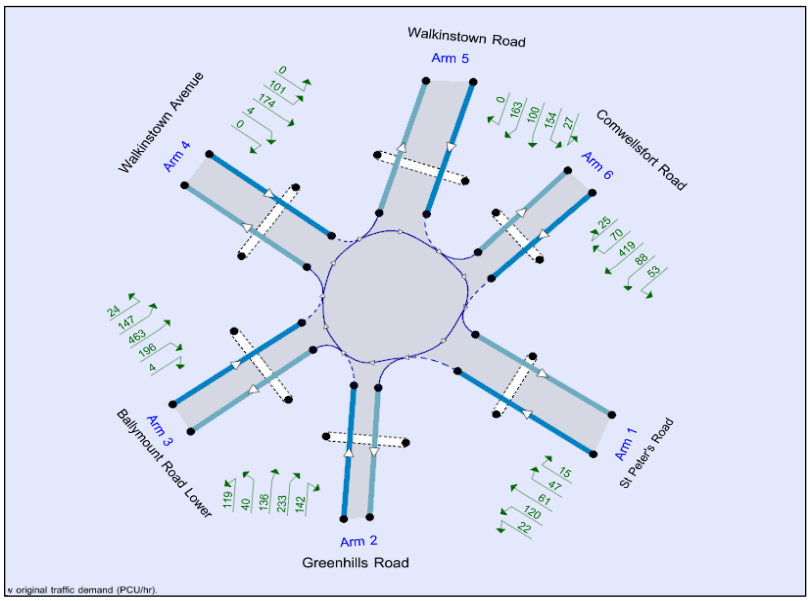
Walkinstown Roundabout – PM peak

2028 PM Peak Hours
ARCADY Results

Network Residual Capacity = 9%,
Junction Delay = 8.89 sec

MMQ, CBC arms:
Inbound – 10.93m
Outbound – 7.48m

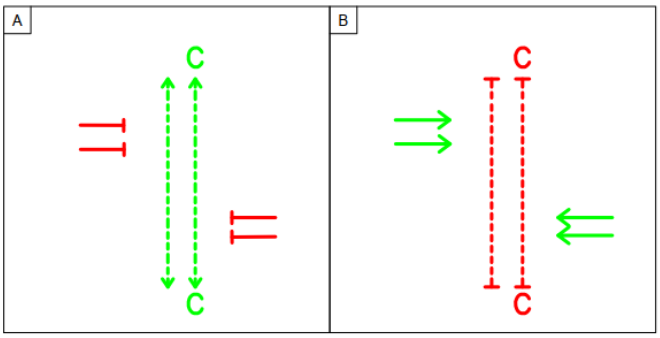
Network Layout Diagram (ARCADY) - DS2028_PM



People Movement Assessment DS2028 PM

16.Walkinstown Roundabout	CBC		All Arms	
Mode	**People Movement**	**Mode Share**	**People Movement**	**Mode Share**
Car	372	17%	3,600	55%
Bus	960	44%	1,920	29%
Walk	428	20%	428	6%
Cycle	400	19%	680	10%
Total	**2,160**	**100%**	**6,628**	**100%**

INDICATIVE METHOD OF CONTROL

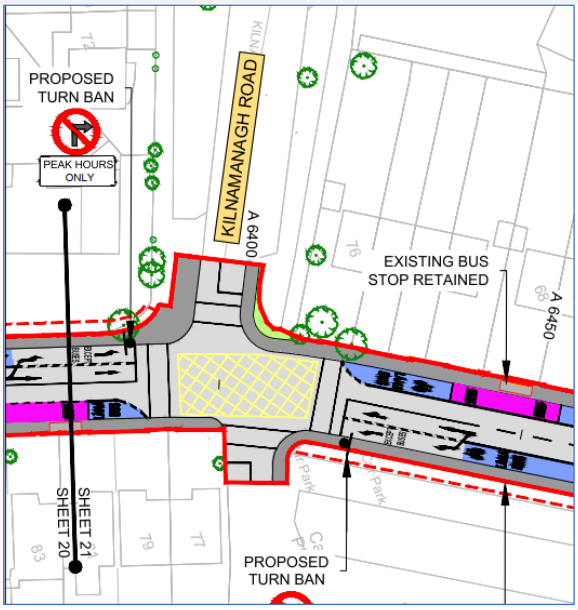


Subject	BusConnects Core Bus Corridors Junction Design Report		
Date	February 2023		
Route	Tallaght/Clondalkin To City Centre	Job No/Ref	60599126

Junction: **Kilnamanagh Rd / Walkinstown Rd**

EXISTING

FINAL DESIGN



Summary
The existing four arm junction is to be upgraded as per the BusConnects Preliminary Design Guidance Booklet to enhance pedestrian, cyclist and bus priority infrastructure.

Pedestrian Infrastructure
The existing junction comprises of controlled pedestrian crossings on all four arms of the junction. The proposal will reduce the corner radius at the junctions as per the DMURS guidelines, to reduce pedestrian crossing distances, whilst also ensuring turning vehicles reduce their speeds when turning at the junction, to enhance pedestrian safety.

Cyclists Infrastructure
The proposed cycle route for the scheme is proposed offline along Bunting Road, where dedicated cycle tracks are proposed to cater for cyclists. At this location along Walkinstown Road the carriageway constraints restrict the ability to introduce cycle tracks. The scheme however proposes to facilitate shared cycle and bus lane, this is denoted by road markings.

Bus Priority Infrastructure
In both inbound and outbound directions, a junction type 3 is proposed whereby the bus lane is curtailed approximately 20m prior to the stop line to facilitate left turning vehicles. A review of the future traffic flow data indicates that the left turning volumes will be relatively low and can be accommodated within the respective left turning pockets.

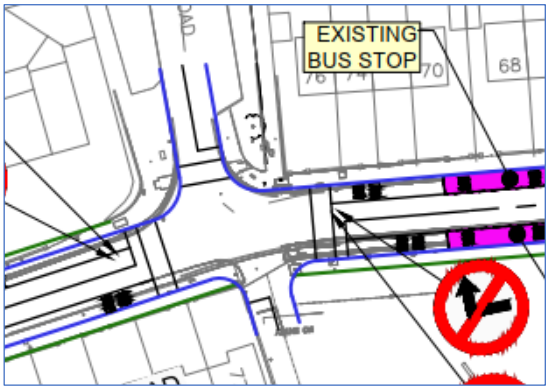
Subject	BusConnects Core Bus Corridors Junction Design Report		
Date	February 2023		
Route	Tallaght/Clondalkin To City Centre	Job No/Ref	60599126

Design Evolution

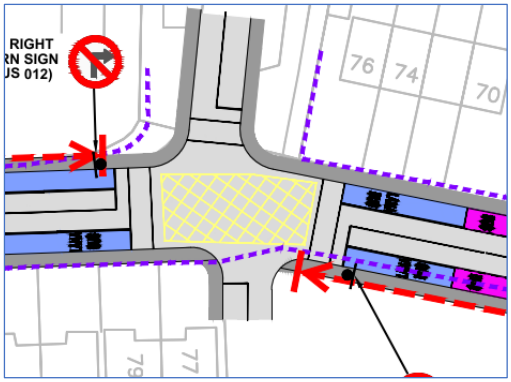
The proposed junction design has evolved on the BusConnects project from initial Concept Design, Emerging Preferred Route, Public Consultation 2, Public Consultation 3 up to the Current Design. The junction design iterations have been undertaken to optimise pedestrian, cyclist and bus priority infrastructure on the scheme.

Existing

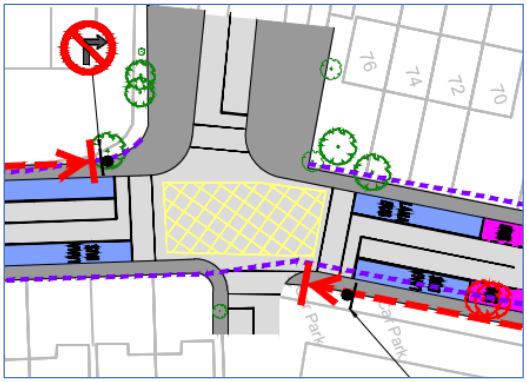
Concept Design Drawing



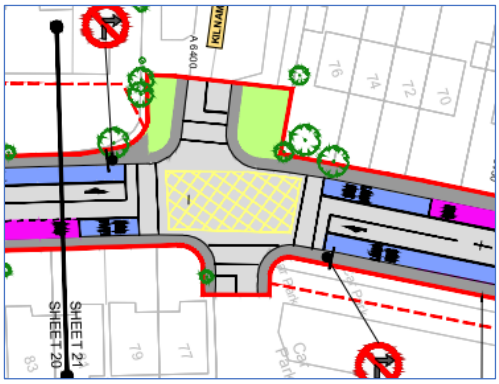
Emerging Preferred Route



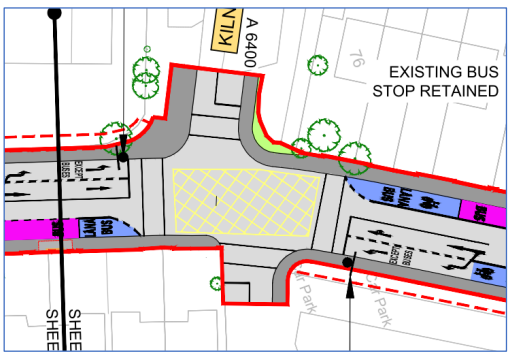
Public Consultation 2



Public Consultation 3



Final Preliminary Design



Subject	BusConnects Core Bus Corridors Transport Modelling		
Date	February 2023		
Route	Tallaght/Clondalkin To City Centre	Job No/Ref	60599126

Kilnamanagh Rd / Walkinstown Rd– AM peak

2028 AM Peak Hours
Fixed Time LinSig Results

Cycle Time = 90secs
PRC = 160.8%,
Junction Delay = 5.9 PCUhr

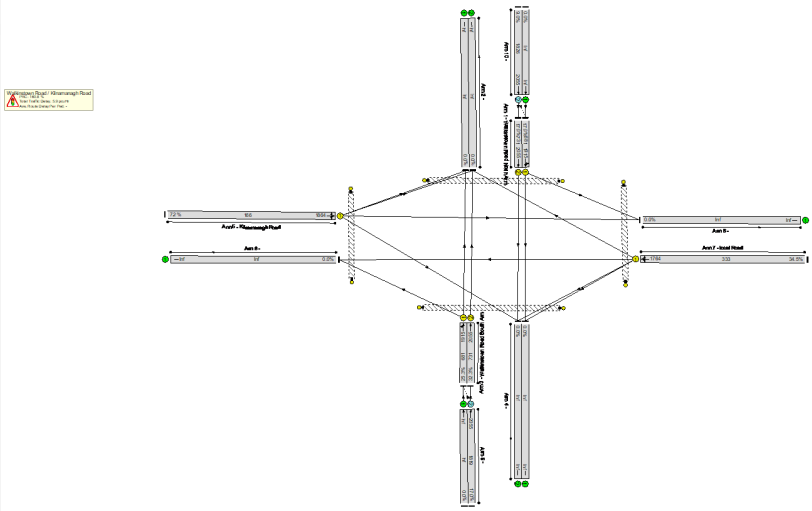
MMQ, CBC arms:
Inbound – 25.88m
Outbound – 12.65m

Bus Av. Delay (s/pcu):
Inbound – 24.1sec
Outbound – 23.1sec

Cyclists Av. Delay (s/pcu):
Inbound –
Outbound –

Car Av. Delay (s/pcu), CBC arms:
Inbound – 24.8sec
Outbound – 22.9sec

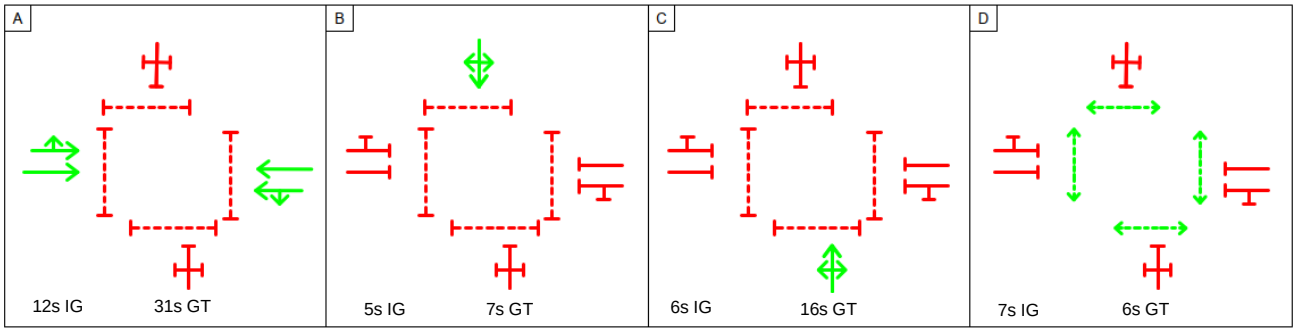
Network Layout Diagram (LinSig) - DS2028_AM



People Movement Assessment DS2028 AM

17. Walkinstown Rd - Kilnamanagh Rd Junction	CBC		All Arms	
Mode	People Movement	Mode Share	People Movement	Mode Share
Car	432	17%	676	21%
Bus	1,380	56%	1,740	55%
Walk	245	10%	245	8%
Cycle	420	17%	520	16%
Total	**2,477**	**100%**	**3,180**	**100%**

INDICATIVE METHOD OF CONTROL



Subject	BusConnects Core Bus Corridors Transport Modelling		
Date	February 2023		
Route	Tallaght/Clondalkin To City Centre	Job No/Ref	60599126

Kilnamanagh Rd / Walkinstown Rd– PM peak

2028 PM Peak Hours
Fixed Time LinSig Results

Cycle Time = 90 secs
PRC = 158.7%,
Junction Delay = 4.8 PCUhr

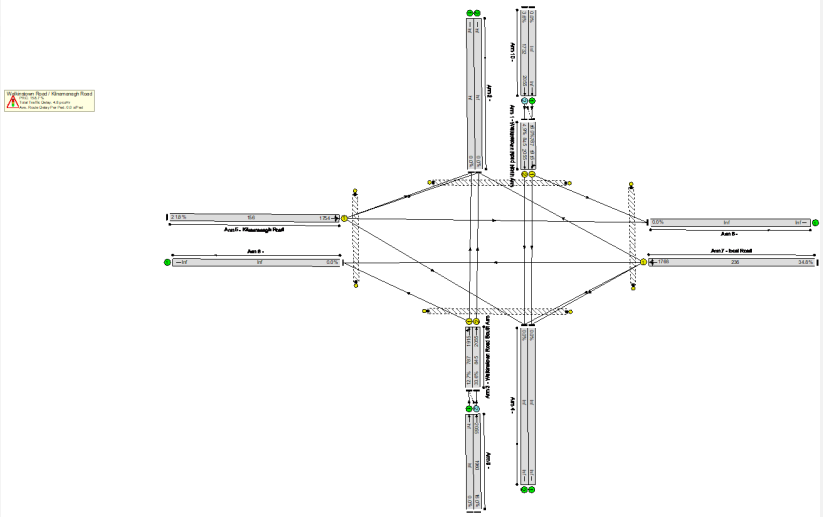
MMQ, CBC arms:
Inbound – 29.33m
Outbound – 12.08m

Bus Av. Delay (s/pcu):
Inbound – 19.1sec
Outbound – 19.4sec

Cyclists Av. Delay (s/pcu):
Inbound –
Outbound –

Car Av. Delay (s/pcu), CBC arms:
Inbound – 21.3sec
Outbound – 18.2sec

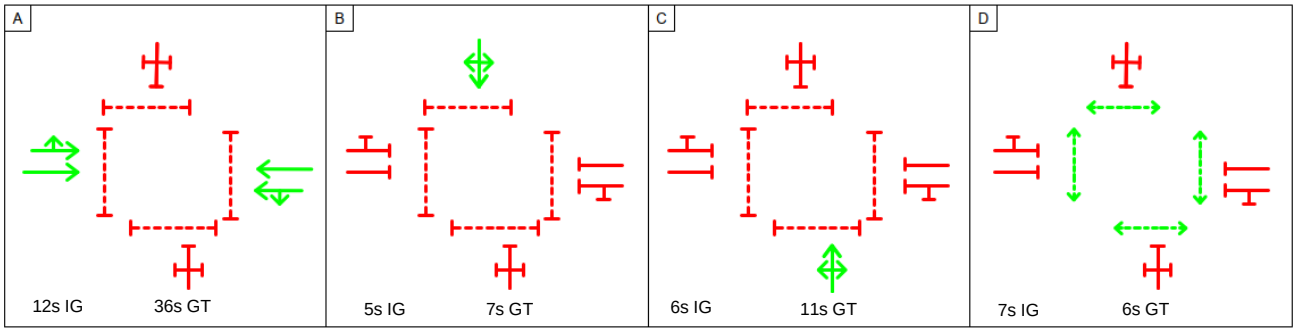
Network Layout Diagram (LinSig) - DS2028_PM



People Movement Assessment DS2028 PM

17. Walkinstown Rd - Kilnamanagh Rd Junction	CBC		All Arms	
Mode	People Movement	Mode Share	People Movement	Mode Share
Car	390	17%	576	20%
Bus	1,380	60%	1,680	57%
Walk	122	5%	122	4%
Cycle	420	18%	550	19%
Total	**2,312**	**100%**	**2,928**	**100%**

INDICATIVE METHOD OF CONTROL

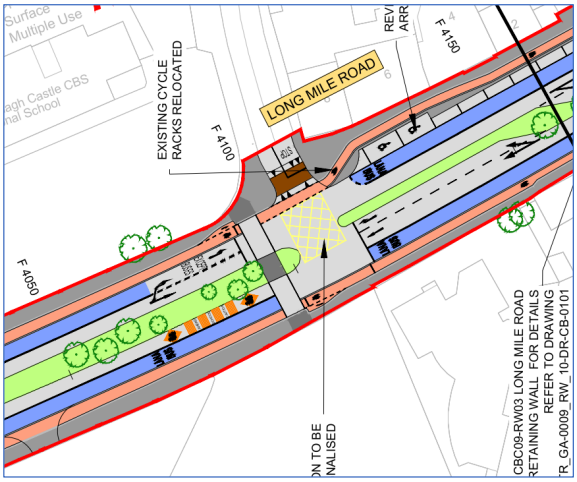


Subject	BusConnects Core Bus Corridors Junction Design Report		
Date	February 2023		
Route	Tallaght/Clondalkin To City Centre	Job No/Ref	60599126

Junction: **Long Mile Rd / Slievebloom Park**

EXISTING

FINAL DESIGN



Summary
The existing three arm junction is to be upgraded as per the BusConnects Preliminary Design Guidance Booklet to enhance pedestrian, cyclist and bus priority infrastructure.

Pedestrian Infrastructure
The design will introduce controlled pedestrian crossing across Long Mile Road. Furthermore, a raised pedestrian and cycle crossing is also proposed along Slievebloom Park to give pedestrian priority across the side arm of the junction.

Cyclists Infrastructure
The proposed cyclist infrastructure comprises of cycle tracks along Long Mile Road on both sides of the carriageway to facilitate inbound and outbound movements.

A toucan crossing is proposed across Long Mile Road to facilitate cyclist crossing movements.

Bus Priority Infrastructure
The proposed bus infrastructure along Long Mile Road comprises of inbound bus lane, which is curtailed approximately 20m prior to the junction stop line to facilitate left turning vehicles. From a review of future traffic flow data, it is envisaged that left turning volumes are projected to be low and therefore any left turners will have a negligible impact upon bus priority at this location. Furthermore the proposed junction design provides greater capacity at the junction for all modes in terms of people movement.

For the outbound direction along Long Mile Road, the bus lane is proposed continuously up to the stop line.

Subject	BusConnects Core Bus Corridors Junction Design Report		
Date	February 2023		
Route	Tallaght/Clondalkin To City Centre	Job No/Ref	60599126

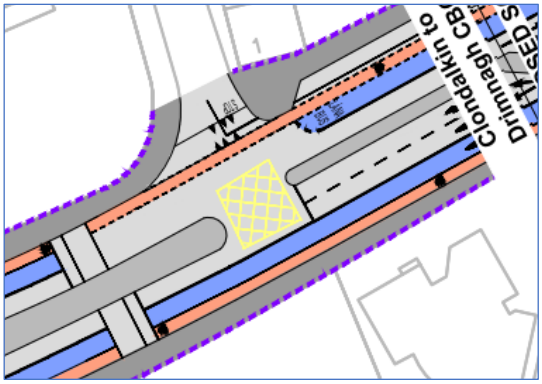
Design Evolution

The proposed junction design has evolved on the BusConnects project from initial Concept Design, Emerging Preferred Route, Public Consultation 2, Public Consultation 3 up to the Current Design. The junction design iterations have been undertaken to optimise pedestrian, cyclist and bus priority infrastructure on the scheme.

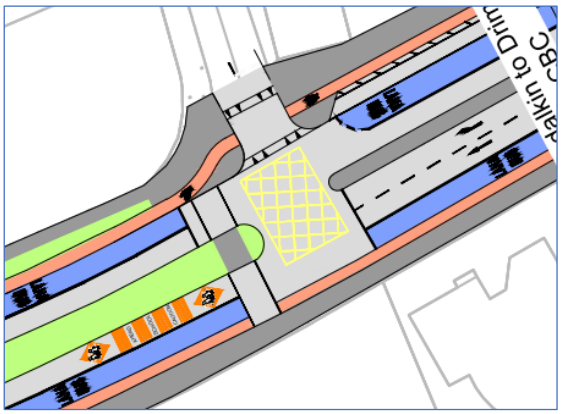
Existing

Concept Design Drawing

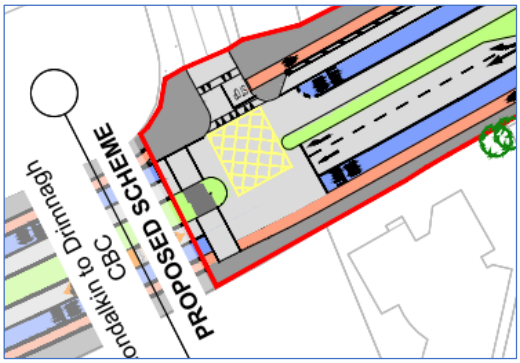
Emerging Preferred Route



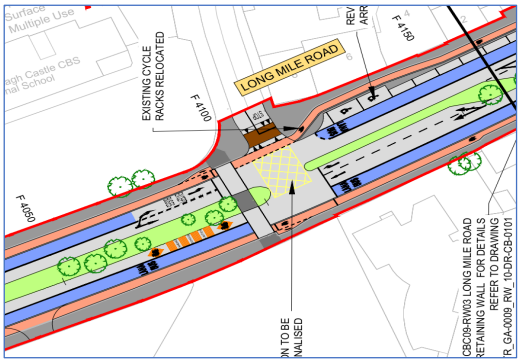
Public Consultation 2



Public Consultation 3



Final Preliminary Design



Subject	BusConnects Core Bus Corridors Transport Modelling		
Date	February 2023		
Route	Tallaght/Clondalkin To City Centre	Job No/Ref	60599126

Long Mile Rd / Slievebloom Park– AM peak

2028 AM Peak Hours
Fixed Time LinSig Results

Cycle Time = 120 secs
PRC = 29.9%,
Junction Delay = 17.8 PCUhr

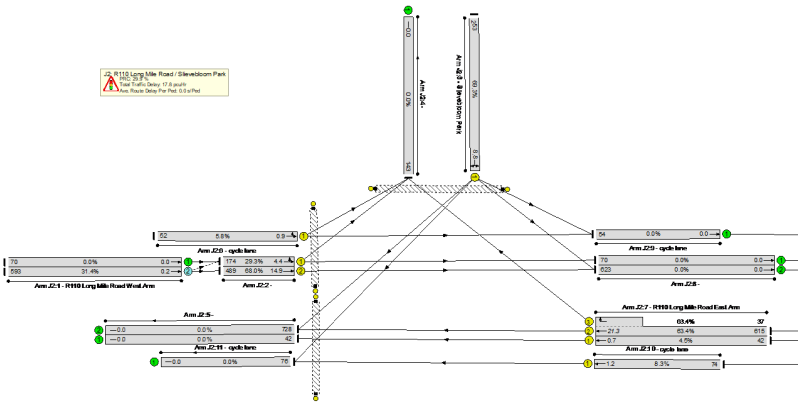
MMQ, CBC arms:
Inbound – 85.68m
Outbound – 60.37m

Bus Av. Delay (s/pcu):
Inbound – 32.5sec
Outbound – 8.2sec

Cyclists Av. Delay (s/pcu):
Inbound – 18.1sec
Outbound – 15.4sec

Car Av. Delay (s/pcu), CBC arms:
Inbound – 41sec
Outbound – 28.4sec

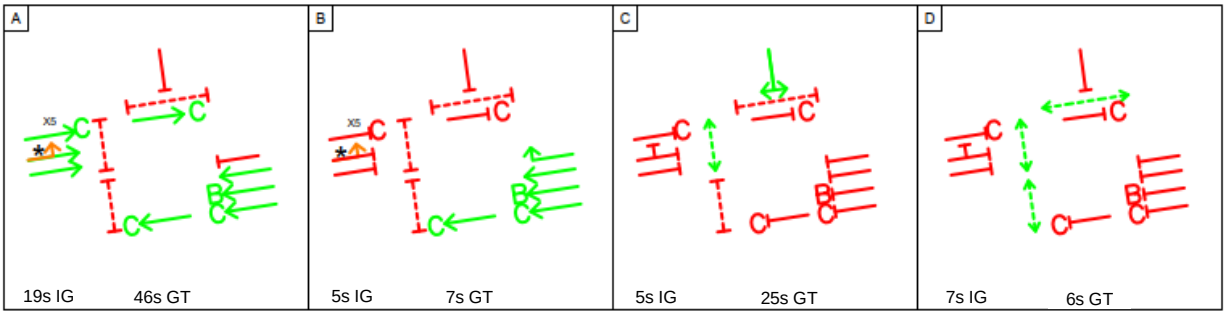
Network Layout Diagram (LinSig) - DS2028_AM



People Movement Assessment DS2028 AM

18. Slievebloom Park - Long Mile Junction	CBC		All Arms	
Mode	People Movement	Mode Share	People Movement	Mode Share
Car	1,325	27%	1,494	29%
Bus	2,220	46%	2,220	44%
Walk	827	17%	827	16%
Cycle	500	10%	560	11%
Total	**4,872**	**100%**	**5,101**	**100%**

INDICATIVE METHOD OF CONTROL



* denotes Flashing Amber
X5 denotes Advance 5 seconds Start for Cyclists

Subject	BusConnects Core Bus Corridors Transport Modelling		
Date	February 2023		
Route	Tallaght/Clondalkin To City Centre	Job No/Ref	60599126

Long Mile Rd / Slievebloom Park– PM peak

2028 PM Peak Hours
Fixed Time LinSig Results

Cycle Time = 120 secs
PRC = 44.3%,
Junction Delay = 12.7 PCUhr

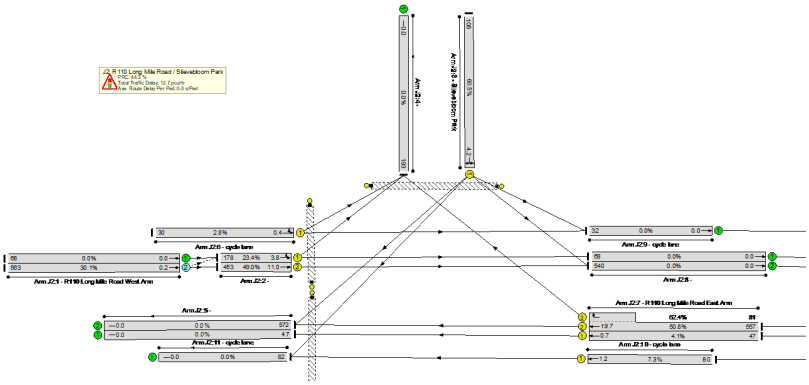
MMQ, CBC arms:
Inbound – 63.25m
Outbound – 28.17m

Bus Av. Delay (s/pcu):
Inbound – 23.4sec
Outbound – 5.3sec

Cyclists Av. Delay (s/pcu):
Inbound – 11.9sec
Outbound – 11.5sec

Car Av. Delay (s/pcu), CBC arms:
Inbound – 27.1sec
Outbound – 22.4sec

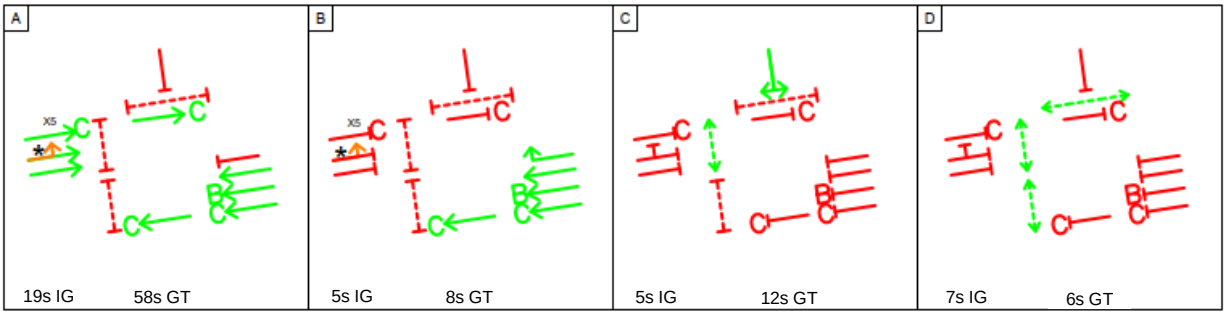
Network Layout Diagram (LinSig) - DS2028_PM



People Movement Assessment DS2028 PM

18. Slievebloom Park - Long Mile Junction	CBC		All Arms	
Mode	People Movement	Mode Share	People Movement	Mode Share
Car	1,212	30%	1,564	35%
Bus	2,280	57%	2,280	52%
Walk	98	3%	98	2%
Cycle	340	10%	410	11%
Total	**3,930**	**100%**	**4,352**	**100%**

INDICATIVE METHOD OF CONTROL

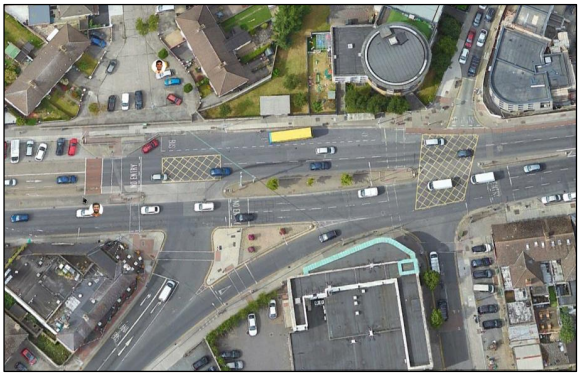


* denotes Flashing Amber
X5 denotes Advance 5 seconds Start for Cyclists

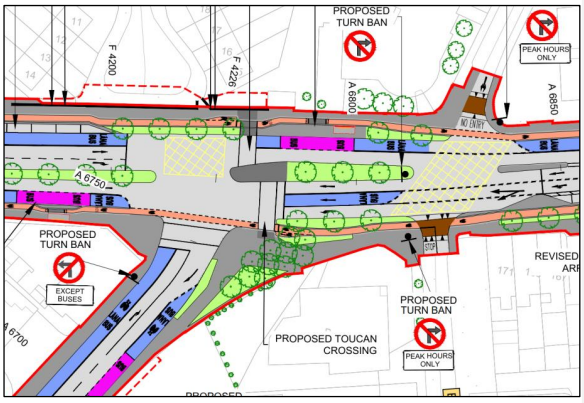
Subject	BusConnects Core Bus Corridors Junction Design Report		
Date	February 2023		
Route	Tallaght/Clondalkin To City Centre	Job No/Ref	60599126

Junction: **Long Mile Rd / Walkinstown Rd**

EXISTING



FINAL DESIGN



Summary

The existing junction is to be upgraded as per the BusConnects Preliminary Design Guidance Booklet to enhance pedestrian, cyclist and bus priority infrastructure.

Pedestrian Infrastructure

The existing pedestrian infrastructure is proposed to be upgraded.
The proposal will relocate the two-stage pedestrian crossing from the western arm to the eastern arm and upgrade it to a toucan crossing to cater for both sustainable modes of travel. Removal of the pedestrian crossing on the western arm will offer efficiency into the junction performance.
The proposal will also introduce a direct single stage crossing across Walkinstown Road due to the removal of an existing left turn slip. This will assist to reduce pedestrian crossing distances, thus enhancing pedestrian permeability. The existing pedestrian infrastructure is proposed to be upgraded. The proposal will remove the pedestrian crossing and be replaced with the toucan crossing to the west at the Long Mile Rd / Walkinstown Rd junction.
Controlled pedestrian crossings are proposed on the side arms of the junction to facilitate pedestrian priority across Slievebloom Road and Balfe Road

Cyclists Infrastructure

The proposal is to upgrade the junction to cater for cycle tracks along Long Mile Road. Dedicated cyclist crossings are proposed through the junction along Long Mile Road. On Walkinstown road it is proposed to introduce an inbound and outbound shared bus and cycle lane. Cycle tracks haven't been provided at this location due to geometric constraints along this road, however the scheme proposals a cyclist quietway along Bunting Road. The proposed cyclist infrastructure comprises of cycle tracks along Long Mile Road on both sides of the carriageway to facilitate inbound and outbound movements. Dedicated cyclist crossings are proposed through the junction.

Bus Priority Infrastructure

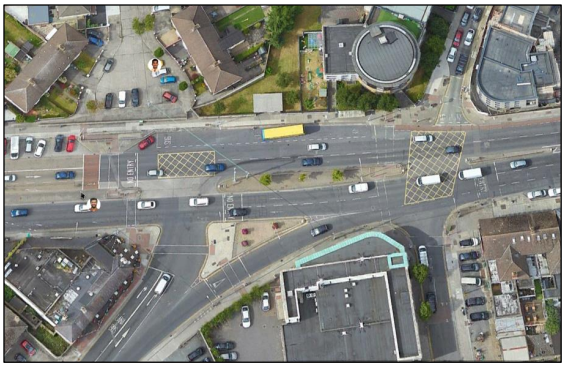
It is proposed to introduce a bus lane along Long Mile road. A shared cycle and bus lane is proposed on Walkinstown Road. For the outbound direction, a break in the bus lane to the east of the junction is proposed to facilitate a new left turning lane inside the bus lane. This will facilitate additional capacity for traffic turning left without impacting on buses. It is proposed to introduce a bus lane along Long Mile Road. For the outbound direction, a break in the bus lane to the east of the junction is proposed to facilitate a new left turning lane inside the bus lane. This will facilitate additional capacity for traffic turning left, from a review of the projected left turning volumes in the Do Something Scenario, it is envisaged the left turning will be low and therefore will not result in delay to buses at this location.
For the inbound direction, a bus lane is proposed up to the stop line

Subject	BusConnects Core Bus Corridors Junction Design Report		
Date	February 2023		
Route	Tallaght/Clondalkin To City Centre	Job No/Ref	60599126

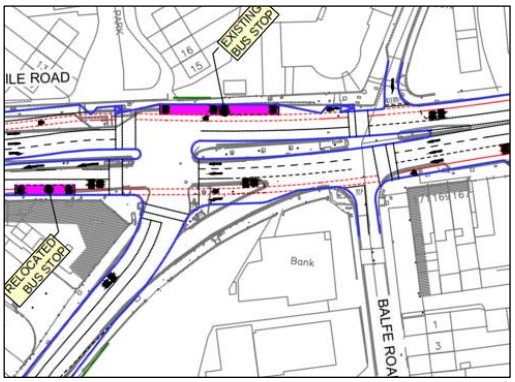
Design Evolution

The proposed junction design has evolved on the BusConnects project from initial Concept Design, Emerging Preferred Route, Public Consultation 2, Public Consultation 3 up to the Current Design. The junction design iterations have been undertaken to optimise pedestrian, cyclist and bus priority infrastructure on the scheme.

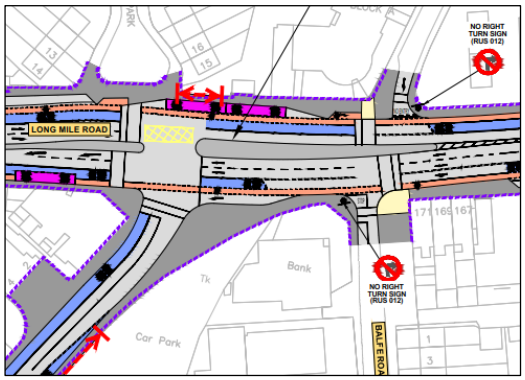
Existing



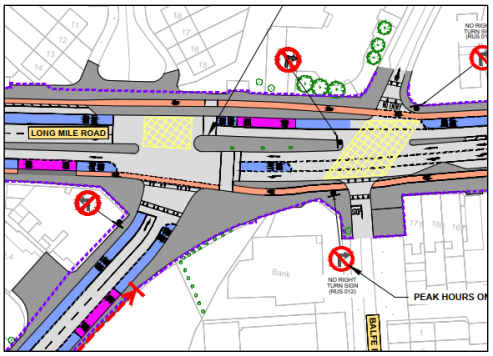
Concept Design Drawing



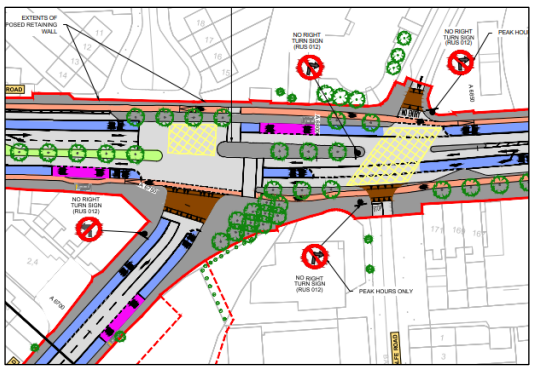
Emerging Preferred Route



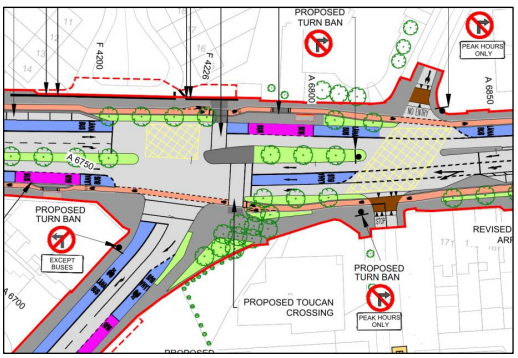
Public Consultation 2



Public Consultation 3



Final Preliminary Design



Subject	BusConnects Core Bus Corridors Transport Modelling		
Date	February 2023		
Route	Tallaght/Clondalkin To City Centre	Job No/Ref	60599126

Long Mile Rd / Walkinstown Rd– AM peak

2028 AM Peak Hours
Fixed Time LinSig Results

Cycle Time = 120 secs
PRC = 49.1%,
Junction Delay = 13.0 PCUhr

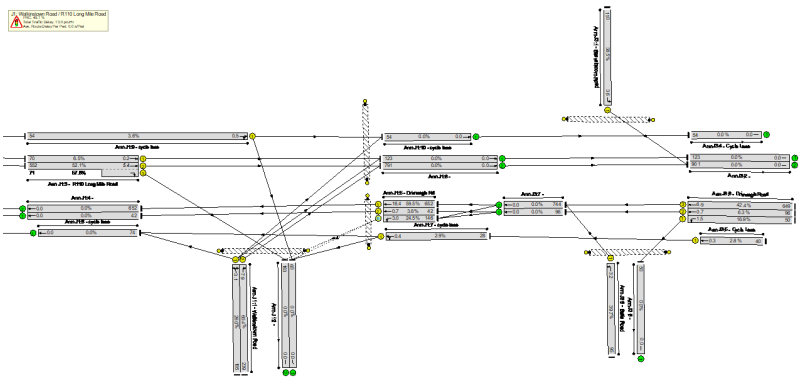
MMQ, CBC arms:
Inbound – 45.42m
Outbound – 94.3m

Bus Av. Delay (s/pcu):
Inbound – 5sec
Outbound – 12.6sec

Cyclists Av. Delay (s/pcu):
Inbound – 4.1sec
Outbound – 15.4sec

Car Av. Delay (s/pcu), CBC arms:
Inbound – 53.7sec
Outbound – 21.8sec

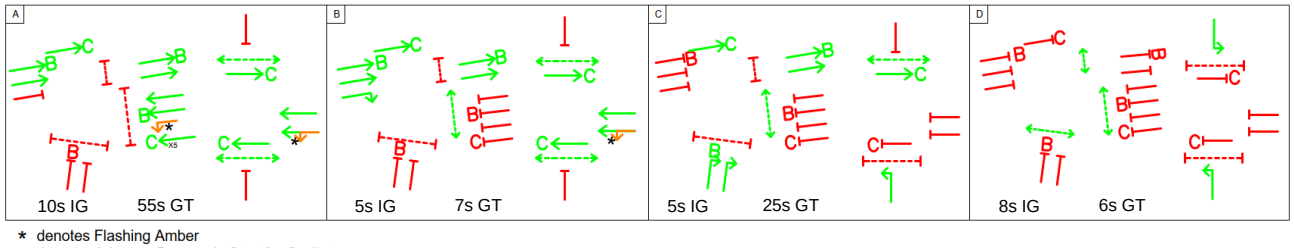
Network Layout Diagram (LinSig) - DS2028_AM



People Movement Assessment DS2028 AM

19. Walkinstown Rd - Long Mile Rd Junction	CBC		All Arms	
Mode	People Movement	Mode Share	People Movement	Mode Share
Car	1,409	33%	1,891	26%
Bus	2,220	52%	4,320	61%
Walk	196	5%	196	3%
Cycle	380	10%	670	10%
Total	**4,204**	**100%**	**7,077**	**100%**

INDICATIVE METHOD OF CONTROL



* denotes Flashing Amber
X5 denotes Advance 5 seconds Start for Cyclists

Subject	BusConnects Core Bus Corridors Transport Modelling		
Date	February 2023		
Route	Tallaght/Clondalkin To City Centre	Job No/Ref	60599126

Long Mile Rd / Walkinstown Rd– PM peak

2028 PM Peak Hours
Fixed Time LinSig Results

Cycle Time = 120 secs
PRC = 37.7%,
Junction Delay = 13.6PCUhr

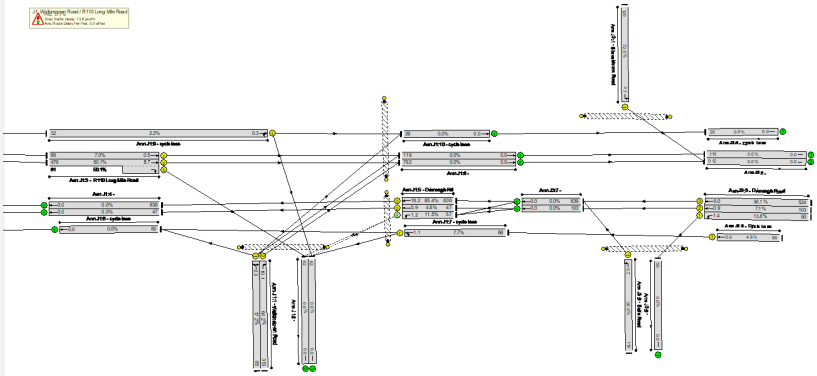
MMQ, CBC arms:
Inbound – 58.07m
Outbound – 104.65m

Bus Av. Delay (s/pcu):
Inbound – 11.2sec
Outbound – 15.2ec

Cyclists Av. Delay (s/pcu):
Inbound – 4.1sec
Outbound – 19.3sec

Car Av. Delay (s/pcu), CBC arms:
Inbound – 49.2sec
Outbound – 28.5sec

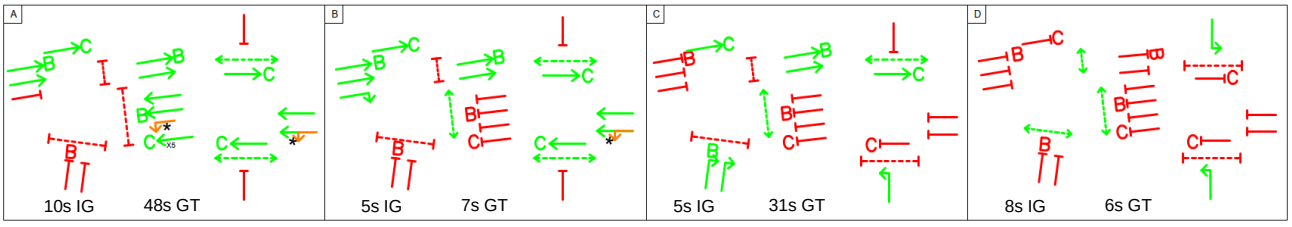
Network Layout Diagram (LinSig) - DS2028_PM



People Movement Assessment DS2028 PM

19. Walkinstown Rd - Long Mile Rd Junction	CBC		All Arms	
Mode	People Movement	Mode Share	People Movement	Mode Share
Car	1,318	31%	1,768	25%
Bus	2,280	55%	4,440	62%
Walk	115	3%	115	2%
Cycle	360	11%	660	11%
Total	**4,073**	**100%**	**6,983**	**100%**

INDICATIVE METHOD OF CONTROL



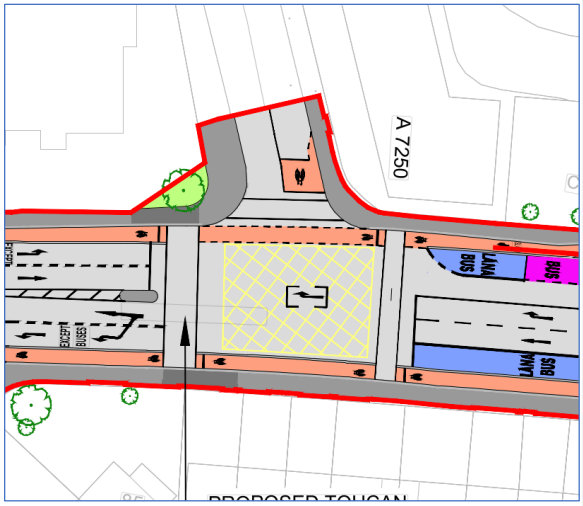
* denotes Flashing Amber
X5 denotes Advance 5 seconds Start for Cyclists

Subject	BusConnects Core Bus Corridors Junction Design Report		
Date	February 2023		
Route	Tallaght/Clondalkin To City Centre	Job No/Ref	60599126

Junction: **Drimnagh Rd / Errigal Rd**

EXISTING

FINAL DESIGN



Summary
The existing three arm junction is to be upgraded as per the BusConnects Preliminary Design Guidance Booklet to enhance pedestrian, cyclist and bus priority infrastructure.

Pedestrian Infrastructure
As per the existing conditions, controlled crossings are proposed on two of the arms of the junction. The crossing on Drimnagh Road is proposed to be a direct crossing in a single stage to facilitate the direct flow of pedestrians.

Cyclists Infrastructure
It is proposed to remove the existing ASL (Advanced Stop Line) markings along Drimnagh Road to provide a safer arrangement for cyclists. The proposal will introduce cycle tracks along Drimnagh Road in both directions, whilst a toucan crossing is proposed to cater for cyclists crossing Drimnagh Road.

Bus Priority Infrastructure
Inbound, it is proposed to provide bus lanes along Drimnagh Road, with a junction type 3 on the inbound direction, whereby the bus lane is curtailed prior to the stop line to facilitate left turning vehicles. From a review of future traffic flow data, the volume of left turners is anticipated to be low and therefore and delay to buses will be negligible.

For the outbound direction along Drimnagh Road, a continuous bus lane is proposed upto the stop line

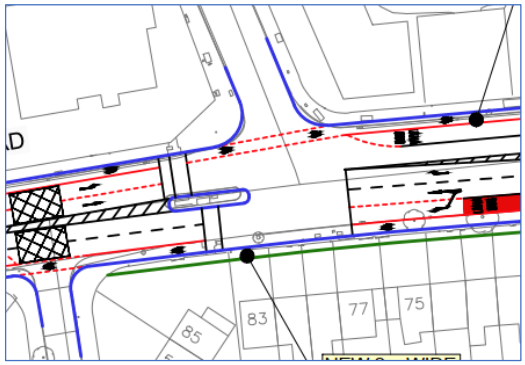
Subject	BusConnects Core Bus Corridors Junction Design Report		
Date	February 2023		
Route	Tallaght/Clondalkin To City Centre	Job No/Ref	60599126

Design Evolution

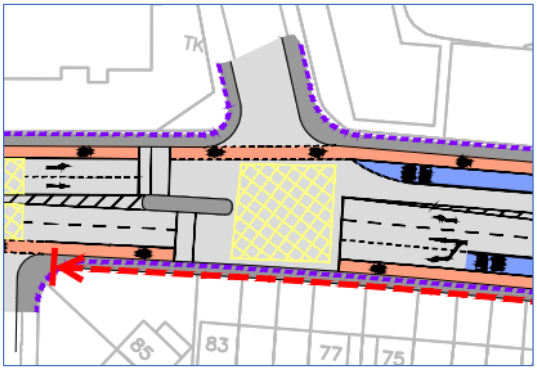
The proposed junction design has evolved on the BusConnects project from initial Concept Design, Emerging Preferred Route, Public Consultation 2, Public Consultation 3 up to the Current Design. The junction design iterations have been undertaken to optimise pedestrian, cyclist and bus priority infrastructure on the scheme.

Existing

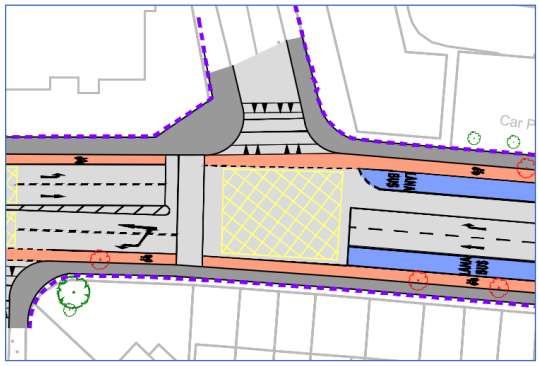
Concept Design Drawing



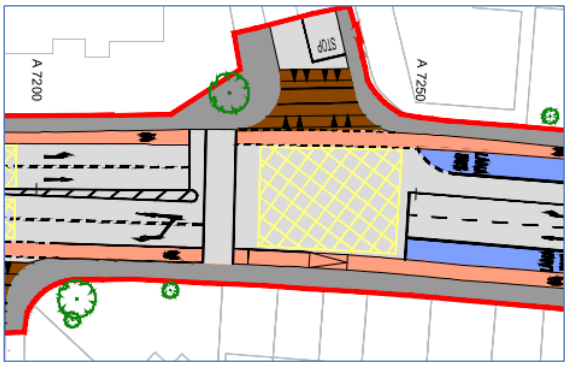
Emerging Preferred Route



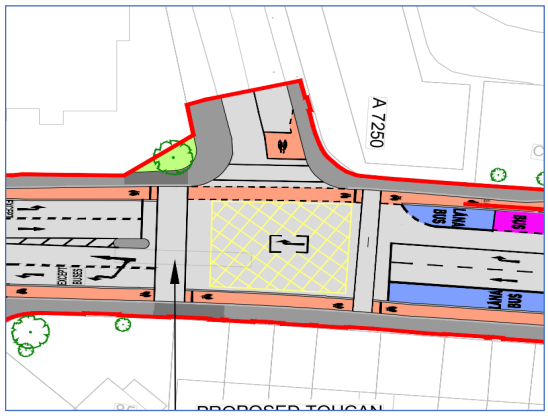
Public Consultation 2



Public Consultation 3



Final Preliminary Design



Subject	BusConnects Core Bus Corridors Transport Modelling		
Date	February 2023		
Route	Tallaght/Clondalkin To City Centre	Job No/Ref	60599126

Drimnagh Rd / Errigal Rd – AM peak

2028 AM Peak Hours
Fixed Time LinSig Results

Cycle Time = 120 secs
PRC = 40.8%,
Junction Delay = 13.1 PCUhr

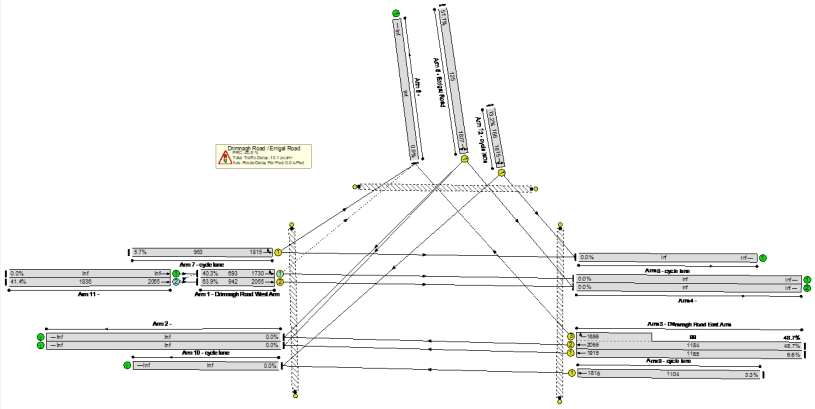
MMQ, CBC arms:
Inbound – 92.57m
Outbound – 62.67m

Bus Av. Delay (s/pcu):
Inbound – 25.9sec
Outbound – 11.2sec

Cyclists Av. Delay (s/pcu):
Inbound – 16sec
Outbound – 11.1sec

Car Av. Delay (s/pcu), CBC arms:
Inbound – 30.2sec
Outbound – 18.7sec

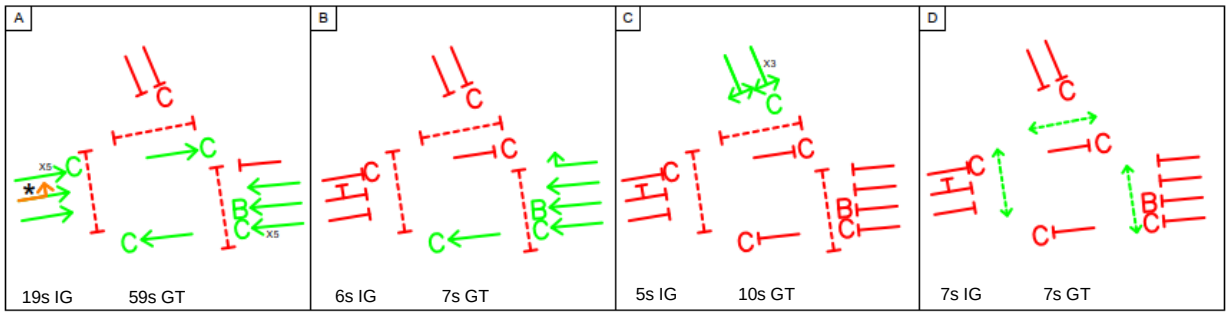
Network Layout Diagram (LinSig) - DS2028_AM



People Movement Assessment DS2028 AM

20. Drimnagh - Errigal Rd Junction	CBC		All Arms	
Mode	People Movement	Mode Share	People Movement	Mode Share
Car	1,415	23%	1,415	22%
Bus	3,960	64%	3,960	62%
Walk	206	3%	206	3%
Cycle	370	10%	560	13%
Total	**5,951**	**100%**	**6,141**	**100%**

INDICATIVE METHOD OF CONTROL



★ denotes Flashing Amber
X3 denotes Advance 3 seconds Start for Cyclists
X5 denotes Advance 5 seconds Start for Cyclists

Subject	BusConnects Core Bus Corridors Transport Modelling		
Date	February 2023		
Route	Tallaght/Clondalkin To City Centre	Job No/Ref	60599126

Drimnagh Rd / Errigal Rd – PM peak

2028 PM Peak Hours
Fixed Time LinSig Results

Cycle Time = 120 secs
PRC = 46.8%,
Junction Delay = 13.4 PCUhr

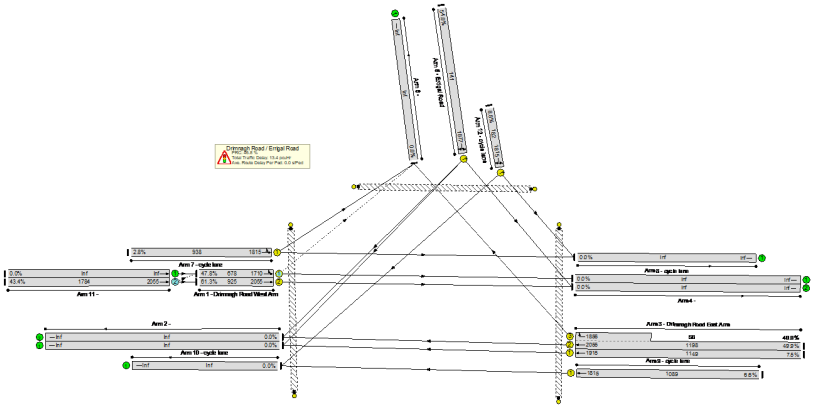
MMQ, CBC arms:
Inbound – 86.82m
Outbound – 66.7m

Bus Av. Delay (s/pcu):
Inbound – 28.2sec
Outbound – 11.8sec

Cyclists Av. Delay (s/pcu):
Inbound – 16.2sec
Outbound – 18.2sec

Car Av. Delay (s/pcu), CBC arms:
Inbound – 26.3sec
Outbound – 15.8sec

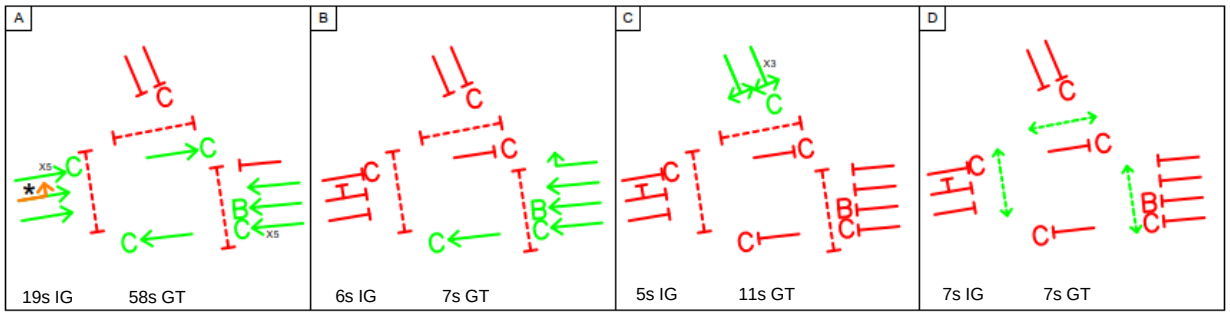
Network Layout Diagram (LinSig) - DS2028_PM



People Movement Assessment DS2028 PM

20. Drimnagh - Errigal Rd Junction	CBC		All Arms	
Mode	People Movement	Mode Share	People Movement	Mode Share
Car	1,398	22%	1,398	22%
Bus	4,080	65%	4,080	64%
Walk	173	3%	173	3%
Cycle	420	10%	570	11%
Total	**6,071**	**100%**	**6,221**	**100%**

INDICATIVE METHOD OF CONTROL



★ denotes Flashing Amber
X3 denotes Advance 3 seconds Start for Cyclists
X5 denotes Advance 5 seconds Start for Cyclists

Subject	BusConnects Core Bus Corridors Junction Design Report		
Date	February 2023		
Route	Tallaght/Clondalkin To City Centre	Job No/Ref	60599126

Junction: **Drimnagh Rd / St Mary's Rd / Kildare Rd**

EXISTING

FINAL DESIGN

Summary
The existing junction is to be upgraded as per the BusConnects Preliminary Design Guidance Booklet to enhance pedestrian, cyclist and bus priority infrastructure.

Pedestrian Infrastructure
The proposed junction will be upgraded to remove the existing left turn slips on Drimnagh Road and Kildare Road. This will facilitate a more compact junction with reduced pedestrian crossing distances. The existing staggered crossings are proposed to be omitted and replaced with new direct single stage crossings on all arms of the junction.

Raised pedestrian controlled crossings will also be incorporated across the orbital cycle track at the junction to ensure pedestrian priority over cyclists.

Cyclists Infrastructure
The proposed inbound and outbound cycle infrastructure will comprise of cycle tracks along Drimnagh Road. Furthermore, the design proposes an offline cycle route along Kildare Road towards Dublin City Centre, with cycle tracks proposed on both sides of the carriageway.

An orbital cycle track is proposed across the junction to connect all arms. The segregated cycling infrastructure and cyclist crossings will facilitate cyclists crossing during the same stage as pedestrians, to maximise capacity at the junction.

Bus Priority Infrastructure
For both inbound and outbound directions, a bus lane is proposed continuously up to the junction stop line along Drimnagh Road. For the outbound direction, a Junction Type 2 is proposed, whereby a break is proposed on the bus lane to facilitate a left turn lane. This will assist to provide additional capacity at the junction to enhance capacity for all modes.

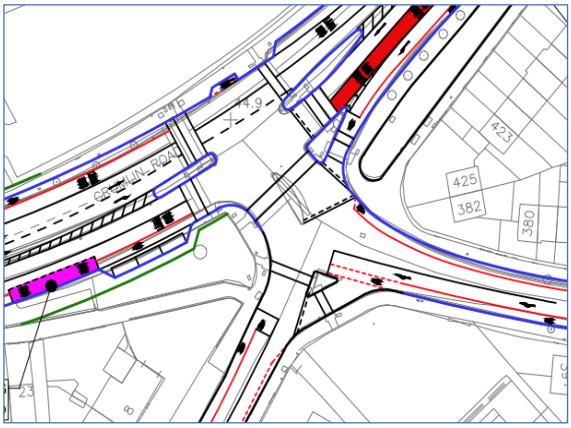
Subject	BusConnects Core Bus Corridors Junction Design Report		
Date	February 2023		
Route	Tallaght/Clondalkin To City Centre	Job No/Ref	60599126

Design Evolution

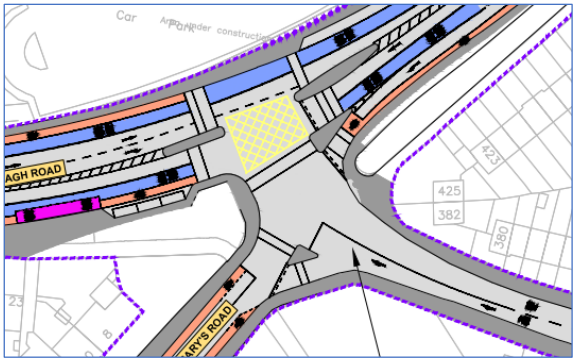
The proposed junction design has evolved on the BusConnects project from initial Concept Design, Emerging Preferred Route, Public Consultation 2, Public Consultation 3 up to the Current Design. The junction design iterations have been undertaken to optimise pedestrian, cyclist and bus priority infrastructure on the scheme.

Existing

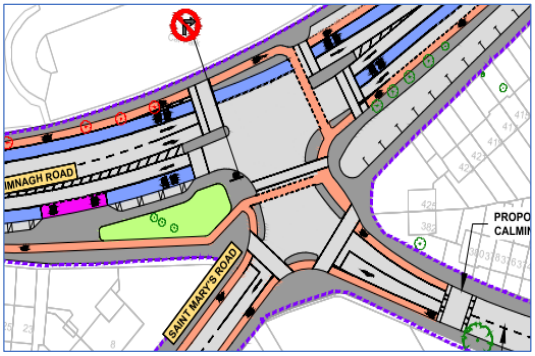
Concept Design Drawing



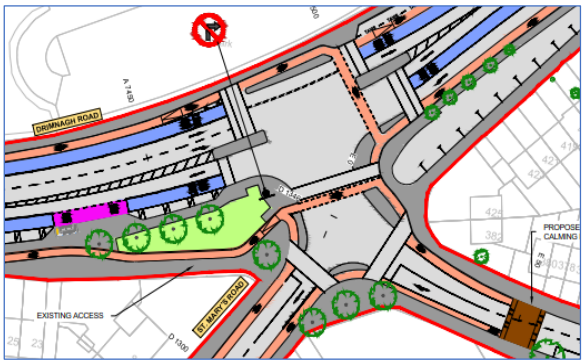
Emerging Preferred Route



Public Consultation 2



Public Consultation 3



Final Preliminary Design

Subject	BusConnects Core Bus Corridors Transport Modelling		
Date	February 2023		
Route	Tallaght/Clondalkin To City Centre	Job No/Ref	60599126

St Mary's Rd / Kildare Rd– AM peak

2028 AM Peak Hours
Fixed Time LinSig Results

Cycle Time = 120 secs
PRC = 17.2%,
Junction Delay = 18.6 PCUhr

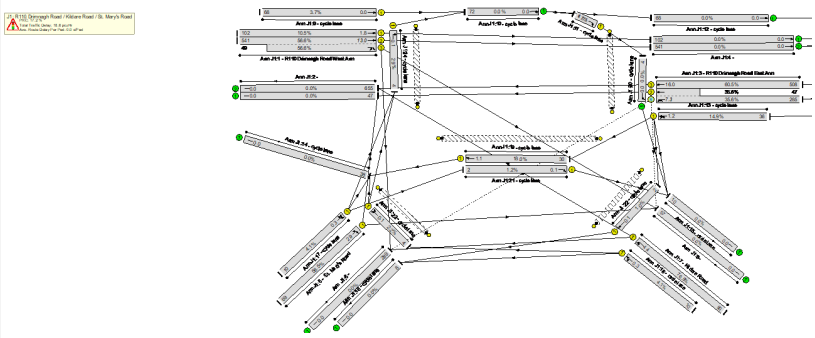
MMQ, CBC arms:
Inbound – 74.75m
Outbound – 98.32m

Bus Av. Delay (s/pcu):
Inbound – 17.4sec
Outbound – 32.8sec

Cyclists Av. Delay (s/pcu):
Inbound – 1sec
Outbound – 58.9sec

Car Av. Delay (s/pcu), CBC arms:
Inbound – 27sec
Outbound – 114.7sec

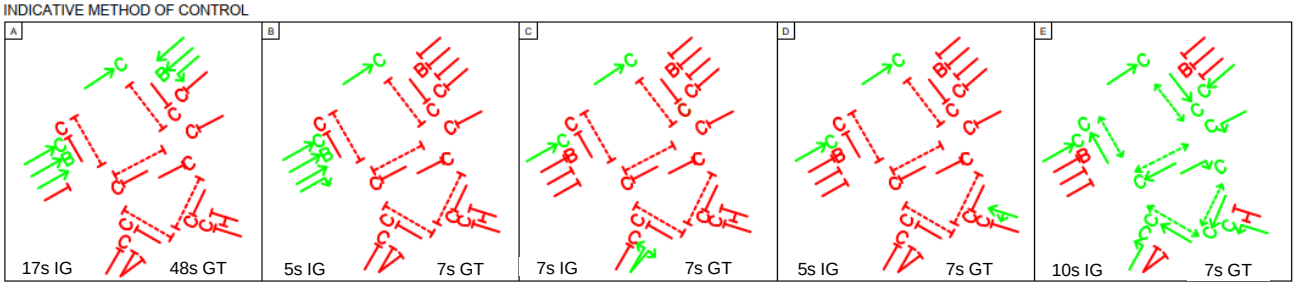
Network Layout Diagram (LinSig) - DS2028_AM



People Movement Assessment DS2028 AM

21. St. Mary's Rd - Kildare Rd Junction	CBC		All Arms	
Mode	People Movement	Mode Share	People Movement	Mode Share
Car	1,259	25%	1,850	32%
Bus	2,940	59%	2,940	52%
Walk	284	6%	284	5%
Cycle	470	10%	620	11%
Total	**4,953**	**100%**	**5,695**	**100%**

INDICATIVE METHOD OF CONTROL



Subject	BusConnects Core Bus Corridors Transport Modelling		
Date	February 2023		
Route	Tallaght/Clondalkin To City Centre	Job No/Ref	60599126

St Mary's Rd / Kildare Rd– PM peak

2028 PM Peak Hours
Fixed Time LinSig Results

Cycle Time = 120 secs
PRC = 6.7%,
Junction Delay = 19.1 PCUhr

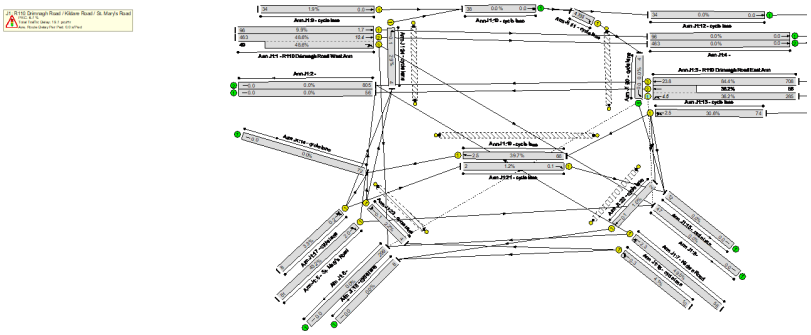
MMQ, CBC arms:
Inbound – 59.80m
Outbound – 149.5m

Bus Av. Delay (s/pcu):
Inbound – 17.3sec
Outbound – 29.1sec

Cyclists Av. Delay (s/pcu):
Inbound – 1sec
Outbound – 68.4sec

Car Av. Delay (s/pcu), CBC arms:
Inbound – 25.8sec
Outbound – 84sec

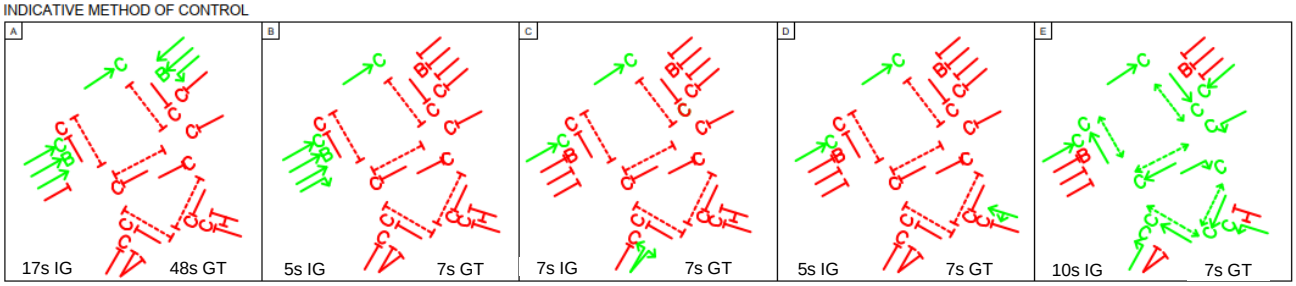
Network Layout Diagram (LinSig) - DS2028_PM



People Movement Assessment DS2028 PM

21. St. Mary's Rd - Kildare Rd Junction	CBC		All Arms	
Mode	**People Movement**	**Mode Share**	**People Movement**	**Mode Share**
Car	1,226	25%	1,758	31%
Bus	3,060	62%	3,060	55%
Walk	143	3%	143	3%
Cycle	480	10%	630	11%
Total	**4,909**	**100%**	**5,591**	**100%**

INDICATIVE METHOD OF CONTROL

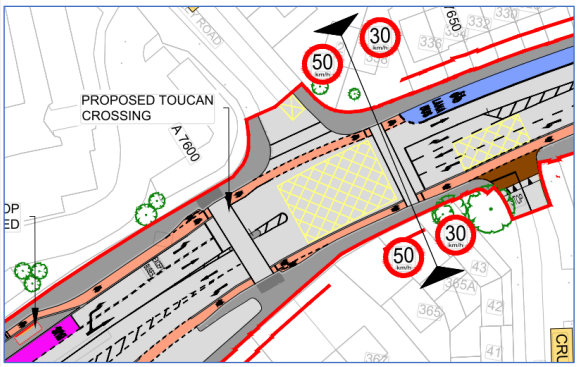


Subject	BusConnects Core Bus Corridors Junction Design Report		
Date	February 2023		
Route	Tallaght/Clondalkin To City Centre	Job No/Ref	60599126

Junction: **Crumlin Rd / Cooley Rd**

EXISTING

FINAL DESIGN



Summary
The existing three arm junction is to be upgraded as per the BusConnects Preliminary Design Guidance Booklet to enhance pedestrian, cyclist and bus priority infrastructure.

Pedestrian Infrastructure
A direct pedestrian crossing is proposed across Crumlin Road.

Cyclists Infrastructure
The proposal comprises of cycle tracks on either side of the carriageway along Crumlin Road. A toucan crossing is proposed across Crumlin Road to facilitate cyclists crossing.

Bus Priority Infrastructure
The bus priority will comprise of a Junction Type 3, whereby a bus lane is proposed on both inbound and outbound directions. It is proposed to curtail the bus lane prior to the stop lines to facilitate left turners into Cooley Road and Crumlin Park respectively. This arrangement provides additional capacity at the junction for all modes of travel, whilst a review of the future traffic data indicates the volume of left turners is anticipated to be low and unlikely to have a material impact upon bus priority.

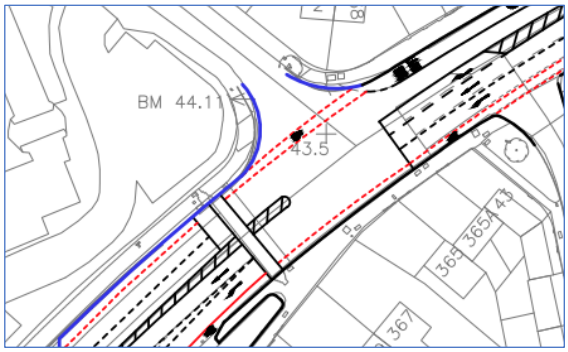
Subject	BusConnects Core Bus Corridors Junction Design Report		
Date	February 2023		
Route	Tallaght/Clondalkin To City Centre	Job No/Ref	60599126

Design Evolution

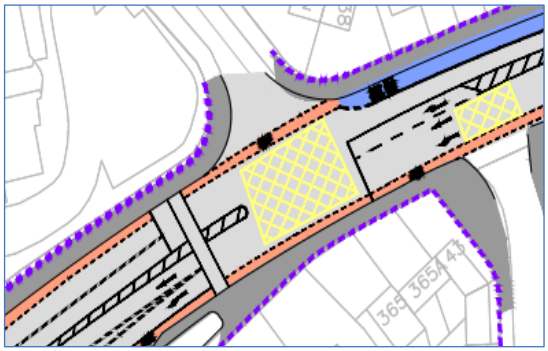
The proposed junction design has evolved on the BusConnects project from initial Concept Design, Emerging Preferred Route, Public Consultation 2, Public Consultation 3 up to the Current Design. The junction design iterations have been undertaken to optimise pedestrian, cyclist and bus priority infrastructure on the scheme.

Existing

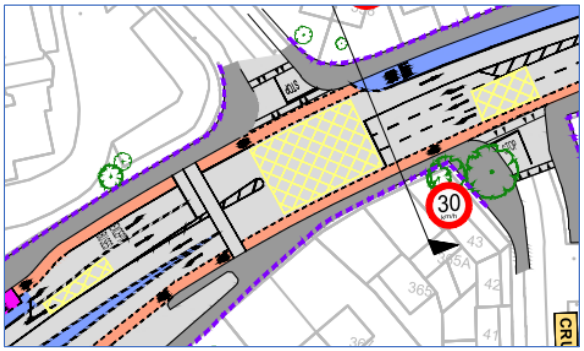
Concept Design Drawing



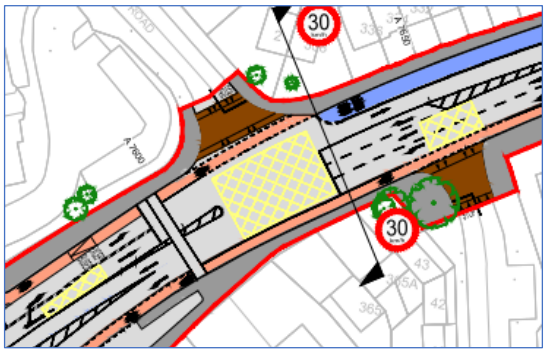
Emerging Preferred Route



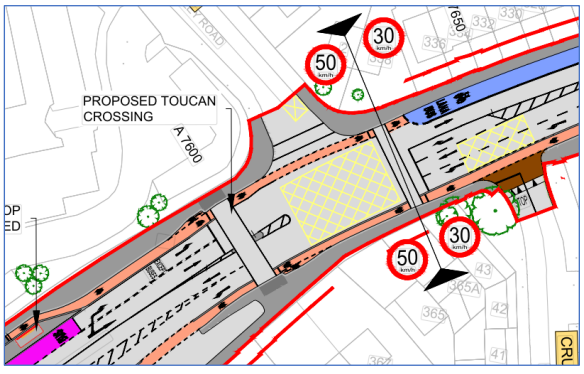
Public Consultation 2



Public Consultation 3



Final Preliminary Design



Subject	BusConnects Core Bus Corridors Transport Modelling		
Date	February 2023		
Route	Tallaght/Clondalkin To City Centre	Job No/Ref	60599126

Crumlin Rd / Cooley Rd– AM peak

2028 AM Peak Hours
Fixed Time LinSig Results

Cycle Time = 120 secs
PRC = 30.3%,
Junction Delay = 16.9 PCUhr

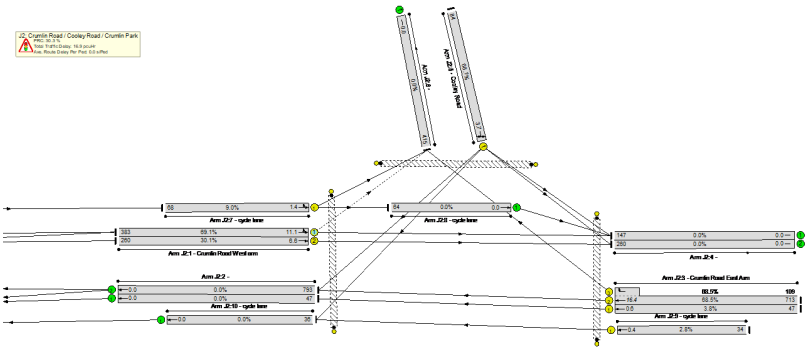
MMQ, CBC arms:
Inbound – 63.82m
Outbound – 94.3m

Bus Av. Delay (s/pcu):
Inbound – 58.7sec
Outbound – 8.7sec

Cyclists Av. Delay (s/pcu):
Inbound – 23.5sec
Outbound – 8.7sec

Car Av. Delay (s/pcu), CBC arms:
Inbound – 98.4sec
Outbound – 20.5sec

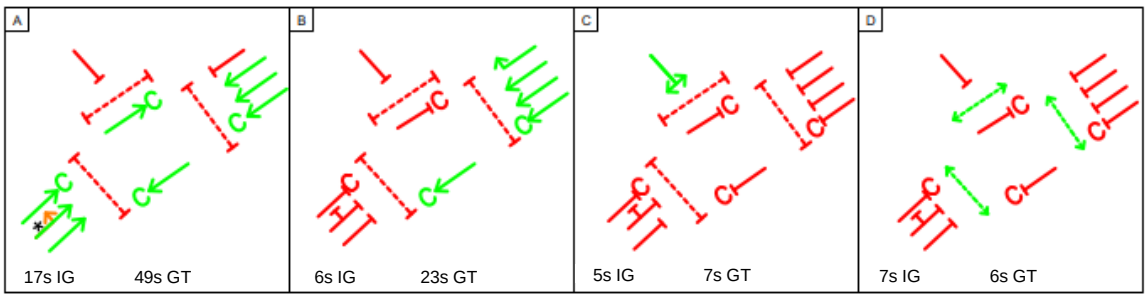
Network Layout Diagram (LinSig) - DS2028_AM



People Movement Assessment DS2028 AM

22. Crumlin Rd - Cooley Rd Junction	CBC		All Arms	
Mode	People Movement	Mode Share	People Movement	Mode Share
Car	1,135	26%	1,724	35%
Bus	2,580	59%	2,580	51%
Walk	175	4%	175	3%
Cycle	490	11%	540	11%
Total	**4,380**	**100%**	**5,020**	**100%**

INDICATIVE METHOD OF CONTROL



Subject	BusConnects Core Bus Corridors Transport Modelling		
Date	February 2023		
Route	Tallaght/Clondalkin To City Centre	Job No/Ref	60599126

Crumlin Rd / Cooley Rd– PM peak

2028 PM Peak Hours
Fixed Time LinSig Results

Cycle Time = 120 secs
PRC = 19.1%,
Junction Delay = 13.4 PCUhr

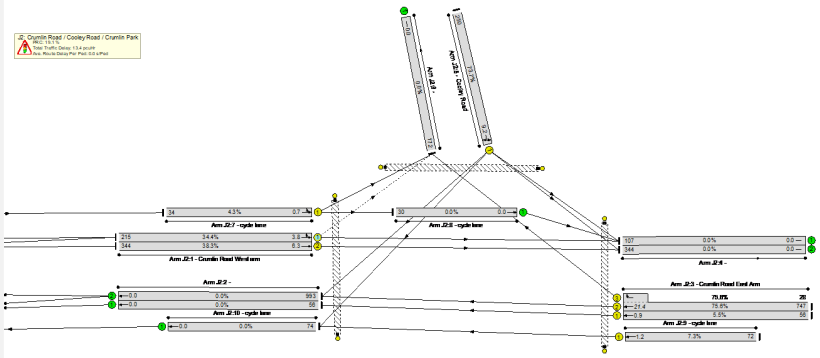
MMQ, CBC arms:
Inbound – 52.9m
Outbound – 123.05m

Bus Av. Delay (s/pcu):
Inbound – 12.6sec
Outbound – 14.9sec

Cyclists Av. Delay (s/pcu):
Inbound – 21.9sec
Outbound – 15.1sec

Car Av. Delay (s/pcu), CBC arms:
Inbound – 65.9ec
Outbound – 27.3sec

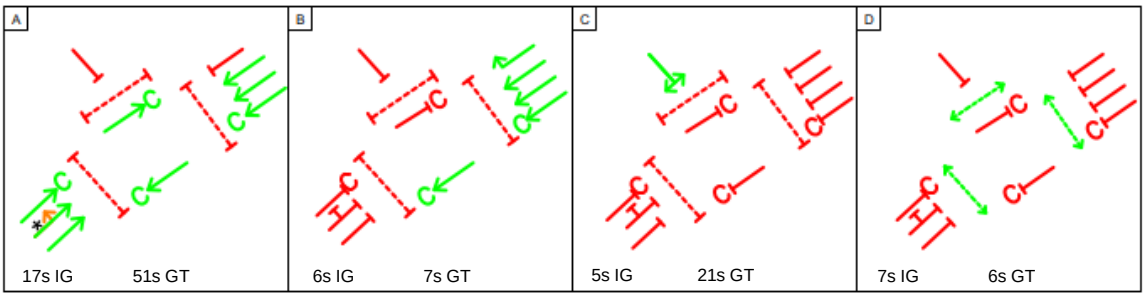
Network Layout Diagram (LinSig) - DS2028_PM



People Movement Assessment DS2028 PM

22. Crumlin Rd - Cooley Rd Junction	CBC		All Arms	
Mode	People Movement	Mode Share	People Movement	Mode Share
Car	1,309	28%	1,806	35%
Bus	2,640	58%	2,640	52%
Walk	122	3%	122	2%
Cycle	510	11%	570	11%
Total	**4,582**	**100%**	**5,138**	**100%**

INDICATIVE METHOD OF CONTROL

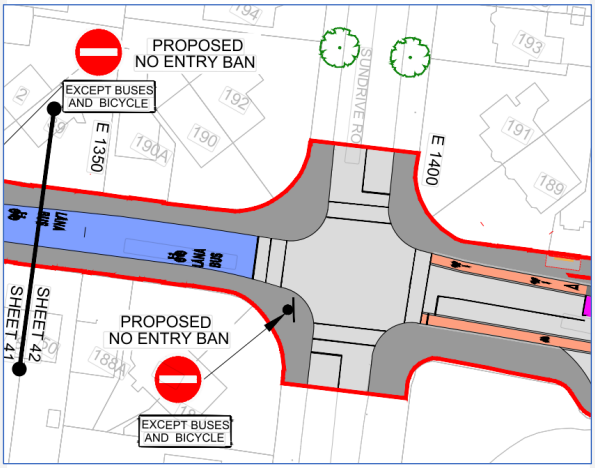


Subject	BusConnects Core Bus Corridors Junction Design Report		
Date	February 2023		
Route	Tallaght/Clondalkin To City Centre	Job No/Ref	60599126

Junction: **Sundrive Rd / Clogher Rd**

EXISTING

FINAL DESIGN



Summary
The existing three arm junction is to be upgraded as per the BusConnects Preliminary Design Guidance Booklet to enhance pedestrian, cyclist and bus priority infrastructure.

Pedestrian Infrastructure
The existing junction is proposed to be upgraded to enhance pedestrian crossing facilities. The existing junction comprises of pedestrian crossing infrastructure on two arms. The proposal will introduce controlled pedestrian crossings on all four arms of the junction.

Cyclists Infrastructure
The proposal comprises of cycle infrastructure along Clogher Road through the junction. The proposed bus gate on Clogher Road will assist to provide a quiet route for cyclists, whilst cycle lanes are proposed to the east of the junction along Clogher Road continuing into the city centre.

Bus Priority Infrastructure
A bus gate is proposed on Clogher Road (western arm) to provide buses with priority at this junction. Bus priority signals will also be introduced to enhance bus permeability at this location.

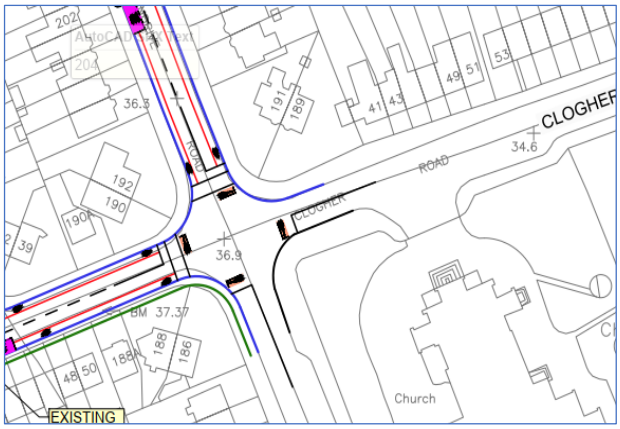
Subject	BusConnects Core Bus Corridors Junction Design Report		
Date	February 2023		
Route	Tallaght/Clondalkin To City Centre	Job No/Ref	60599126

Design Evolution

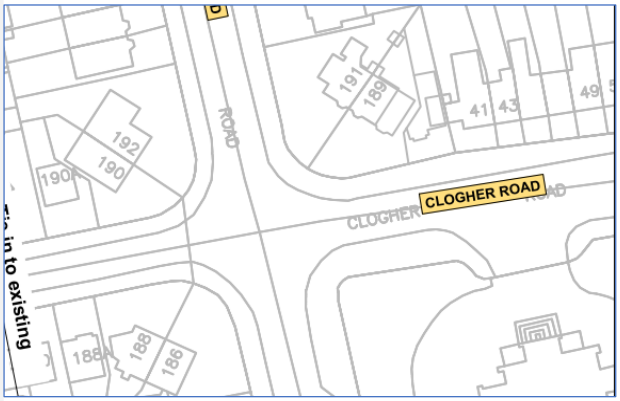
The proposed junction design has evolved on the BusConnects project from initial Concept Design, Emerging Preferred Route, Public Consultation 2, Public Consultation 3 up to the Current Design. The junction design iterations have been undertaken to optimise pedestrian, cyclist and bus priority infrastructure on the scheme.

Existing

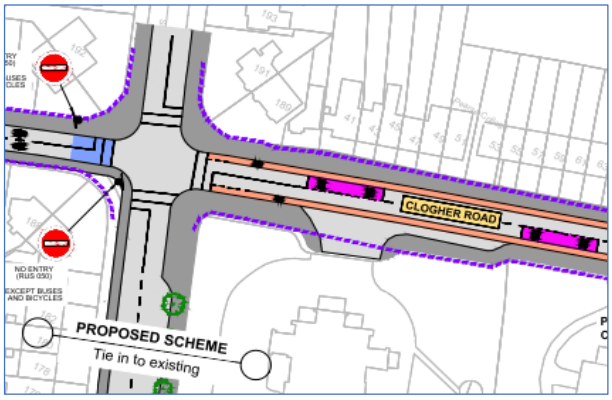
Concept Design Drawing



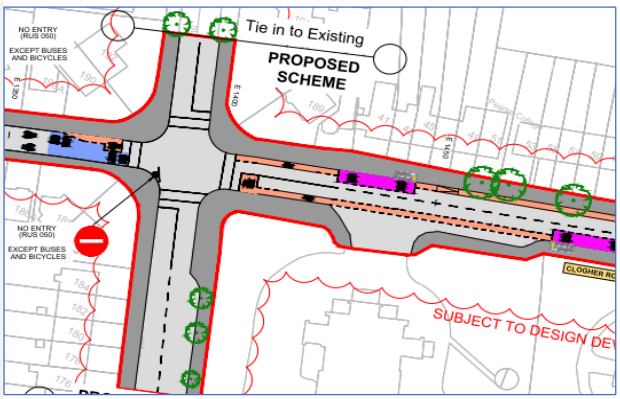
Emerging Preferred Route



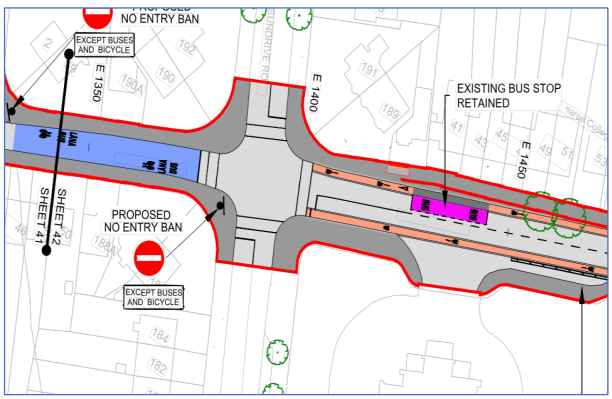
Public Consultation 2



Public Consultation 3



Final Preliminary Design



Subject	BusConnects Core Bus Corridors Transport Modelling		
Date	February 2023		
Route	Tallaght/Clondalkin To City Centre	Job No/Ref	60599126

Sundrive Rd / Clogher Rd – AM peak

2028 AM Peak Hours
Fixed Time LinSig Results

Cycle Time = 120 secs
PRC = -25%,
Junction Delay = 70.9 PCUhr

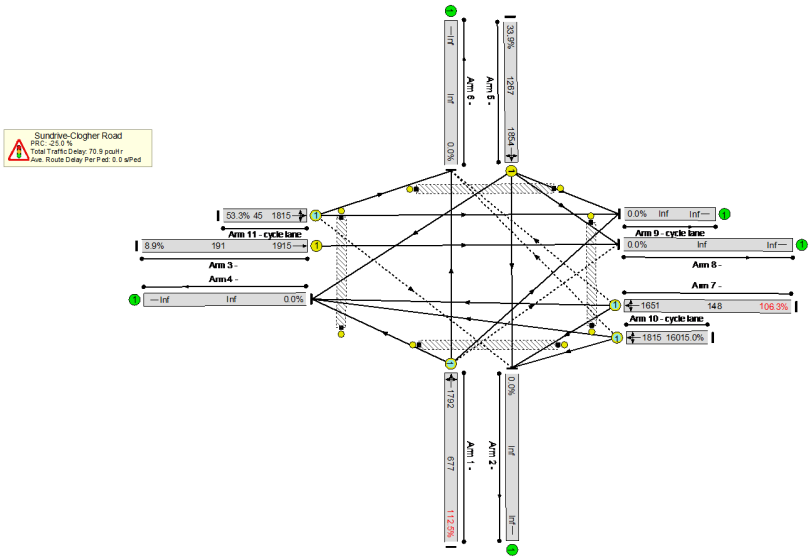
MMQ, CBC arms:
Inbound – 35.07m
Outbound – 83.38m

Bus Av. Delay (s/pcu):
Inbound – 59.4sec
Outbound – 273.6sec

Cyclists Av. Delay (s/pcu):
Inbound – 137.3sec
Outbound – 62.5sec

Car Av. Delay (s/pcu), CBC arms:
Inbound –
Outbound –

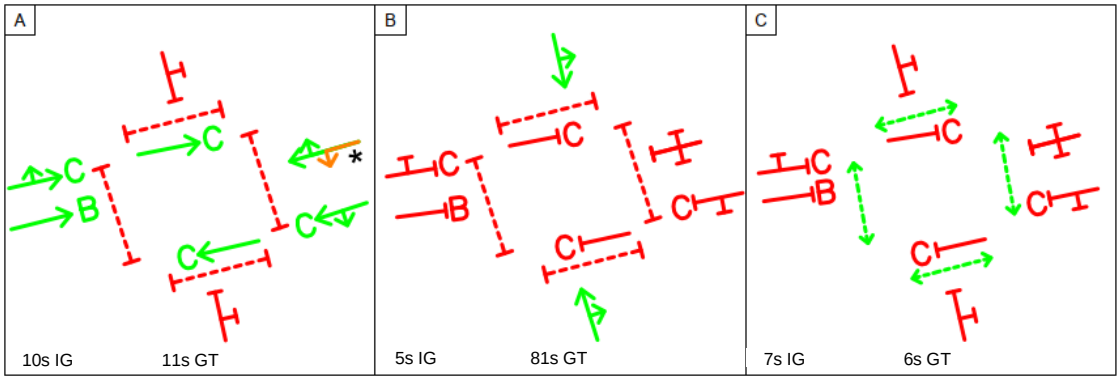
Network Layout Diagram (LinSig) - DS2028_AM



People Movement Assessment DS2028 AM

23a. Clogher Rd - Sundrive Rd Junction	CBC		All Arms	
Mode	People Movement	Mode Share	People Movement	Mode Share
Car	0	0%	1,530	45%
Bus	720	69%	1,440	42%
Walk	120	12%	120	3%
Cycle	200	19%	340	10%
Total	**1,040**	**100%**	**3,430**	**100%**

INDICATIVE METHOD OF CONTROL



Subject	BusConnects Core Bus Corridors Transport Modelling		
Date	February 2023		
Route	Tallaght/Clondalkin To City Centre	Job No/Ref	60599126

Sundrive Rd / Clogher Rd – PM peak

2028 PM Peak Hours
Fixed Time LinSig Results

Cycle Time = 120 secs
PRC = -43%,
Junction Delay = 143 PCUhr

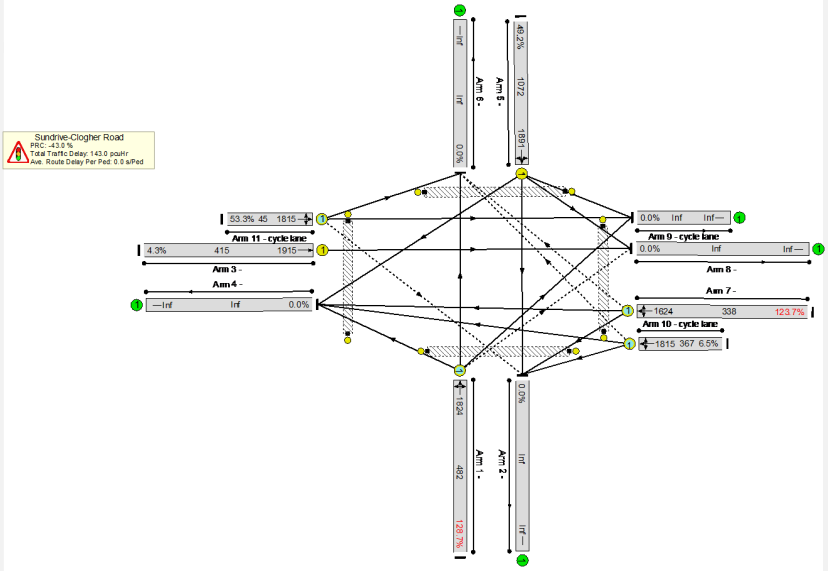
MMQ, CBC arms:
Inbound – 63.25m
Outbound – 339.83m

Bus Av. Delay (s/pcu):
Inbound – 41.7sec
Outbound – 454.5sec

Cyclists Av. Delay (s/pcu):
Inbound – 137.3sec
Outbound – 42.6sec

Car Av. Delay (s/pcu), CBC arms:
Inbound –
Outbound –

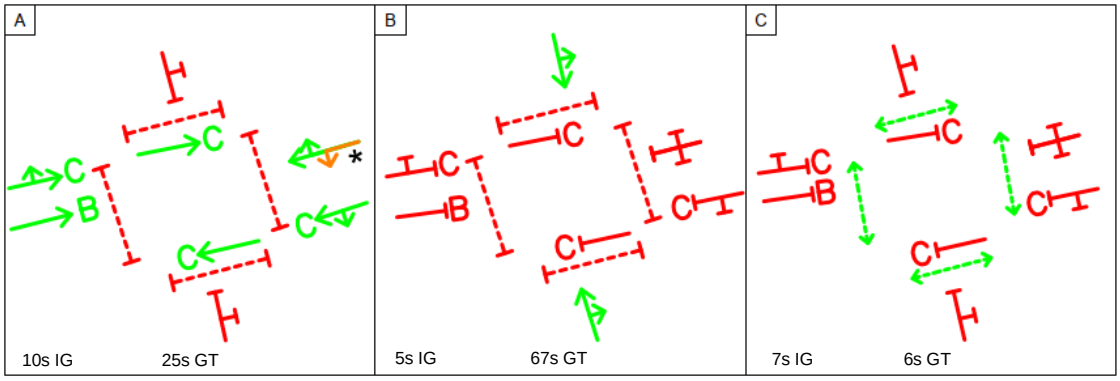
Network Layout Diagram (LinSig) - DS2028_PM



People Movement Assessment DS2028 PM

23a. Clogher Rd - Sundrive Rd Junction	CBC		All Arms	
Mode	**People Movement**	**Mode Share**	**People Movement**	**Mode Share**
Car	0	0%	1,790	49%
Bus	720	69%	1,440	39%
Walk	120	12%	120	3%
Cycle	200	19%	340	9%
Total	**1,040**	**100%**	**3,690**	**100%**

INDICATIVE METHOD OF CONTROL

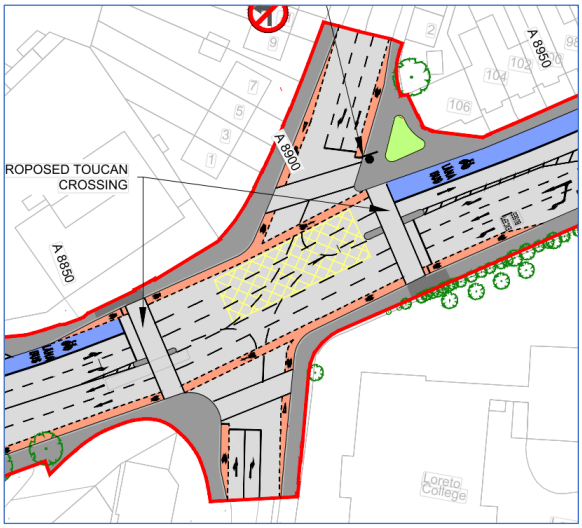


Subject	BusConnects Core Bus Corridors Junction Design Report		
Date	February 2023		
Route	Tallaght/Clondalkin To City Centre	Job No/Ref	60599126

Junction: **Sundrive Rd / Crumlin Rd**

EXISTING

FINAL DESIGN



Summary
The existing four arm junction is to be upgraded as per the BusConnects Preliminary Design Guidance Booklet to enhance pedestrian, cyclist and bus priority infrastructure.

The key changes to the junction is the removal of the existing left turn slips at the junction, which will provide a more compact junction to reduce pedestrian and cycle crossing distances.

Pedestrian Infrastructure
The existing left turn slips on Herberton Road and Sundrive Road are proposed to be omitted. Furthermore the existing staggered crossings will be removed, and replaced with direct pedestrian crossings on all four arms of the junction.

Cyclists Infrastructure
The scheme proposes cycle lanes through the junction along Crumlin Road.

Bus Priority Infrastructure
The proposed bus lane inbound along Crumlin Road is to comprise a Junction Type 1 arrangement whereby the bus lane extends up to the junction stop line. Left turning vehicles will be required to turn left from lane 2 on Crumlin Road into Herberton Road. This arrangement is proposed following a review of the future traffic flow data which indicates a high volume of left turning vehicles. Therefore this will ensure bus lane priority upto the stop line is not compromised.

For the outbound direction along Crumlin Road, the bus lane is proposed to be curtailed prior to the stop line to facilitate left turning vehicles into lane 1 to travel onto Sundrive Road. This arrangement is proposed due to the relatively low volume of left turners which can be accommodated within the proposed left turn lane pocket. This arrangement also maximises capacity for all modes of transport at the junction.

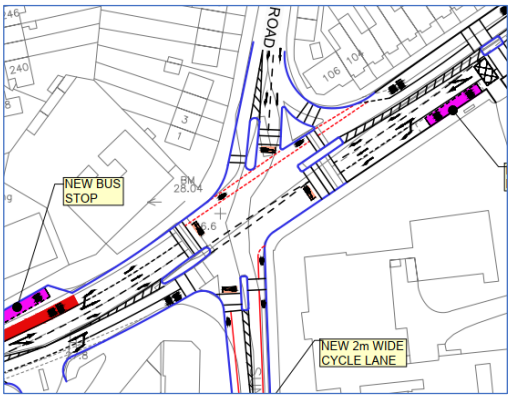
Subject	BusConnects Core Bus Corridors Junction Design Report		
Date	February 2023		
Route	Tallaght/Clondalkin To City Centre	Job No/Ref	60599126

Design Evolution

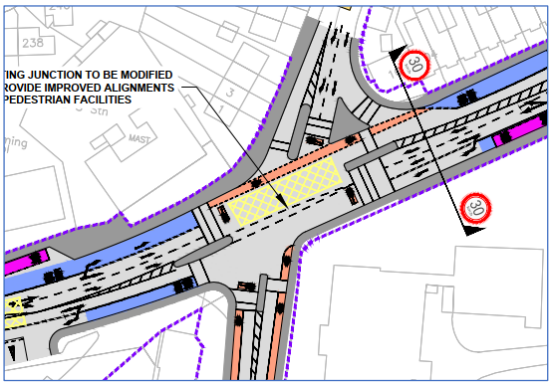
The proposed junction design has evolved on the BusConnects project from initial Concept Design, Emerging Preferred Route, Public Consultation 2, Public Consultation 3 up to the Current Design. The junction design iterations have been undertaken to optimise pedestrian, cyclist and bus priority infrastructure on the scheme.

Existing

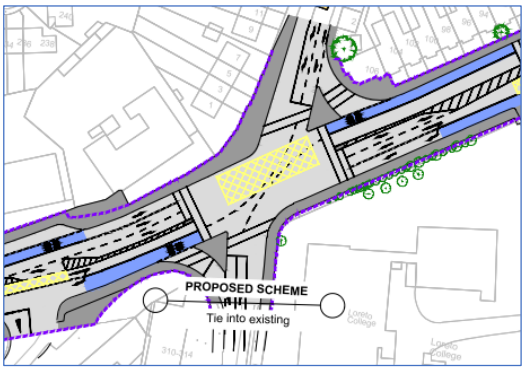
Concept Design Drawing



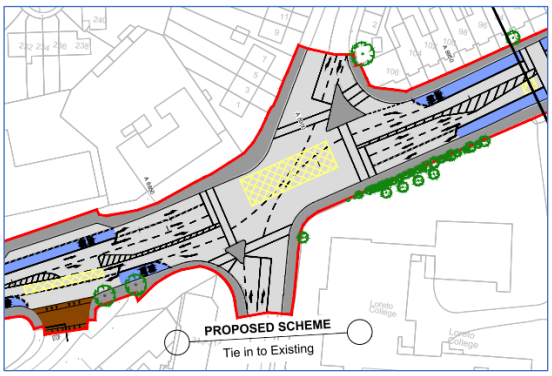
Emerging Preferred Route



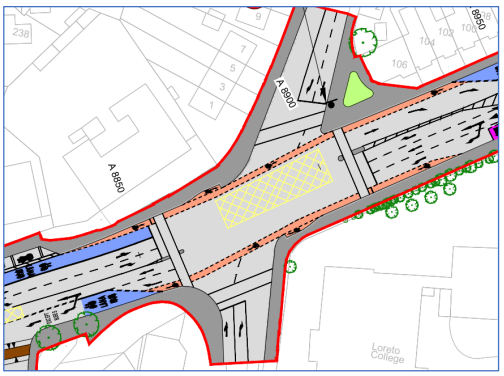
Public Consultation 2



Public Consultation 3



Final Preliminary Design



Subject	BusConnects Core Bus Corridors Transport Modelling		
Date	February 2023		
Route	Tallaght/Clondalkin To City Centre	Job No/Ref	60599126

Sundrive Rd / Crumlin Rd – AM peak

2028 AM Peak Hours
Fixed Time LinSig Results

Cycle Time = 120 secs
PRC = -8.0%,
Junction Delay = 45.4 PCUhr

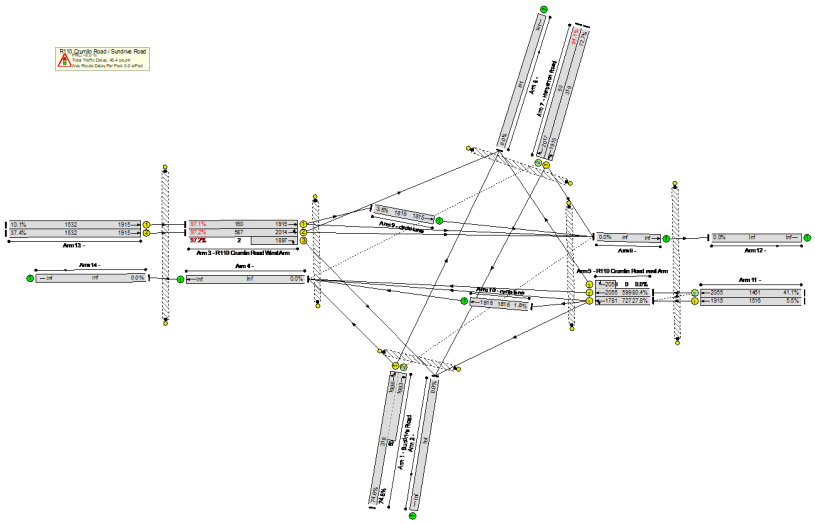
MMQ, CBC arms:
Inbound – 156.4m
Outbound – 96.6m

Bus Av. Delay (s/pcu):
Inbound – 173.1sec
Outbound – 23.6sec

Cyclists Av. Delay (s/pcu):
Inbound – 3.9sec
Outbound – 4.0sec

Car Av. Delay (s/pcu), CBC arms:
Inbound – 92.6sec
Outbound – 256.9sec

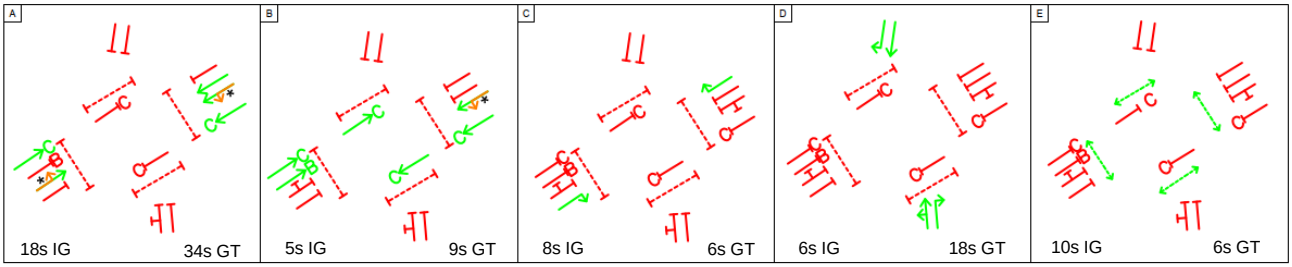
Network Layout Diagram (LinSig) - DS2028_AM



People Movement Assessment DS2028 AM

24. Sundrive Rd - Crumlin Rd Junction	CBC		All Arms	
Mode	People Movement	Mode Share	People Movement	Mode Share
Car	1,134	24%	2,069	36%
Bus	2,700	58%	2,700	48%
Walk	342	8%	342	6%
Cycle	480	10%	540	10%
Total	**4,656**	**100%**	**5,651**	**100%**

INDICATIVE METHOD OF CONTROL



Subject	BusConnects Core Bus Corridors Transport Modelling		
Date	February 2023		
Route	Tallaght/Clondalkin To City Centre	Job No/Ref	60599126

Sundrive Rd / Crumlin Rd – PM peak

2028 PM Peak Hours
Fixed Time LinSig Results

Cycle Time = 120 secs
PRC = -14.2%,
Junction Delay = 56.3 PCUhr

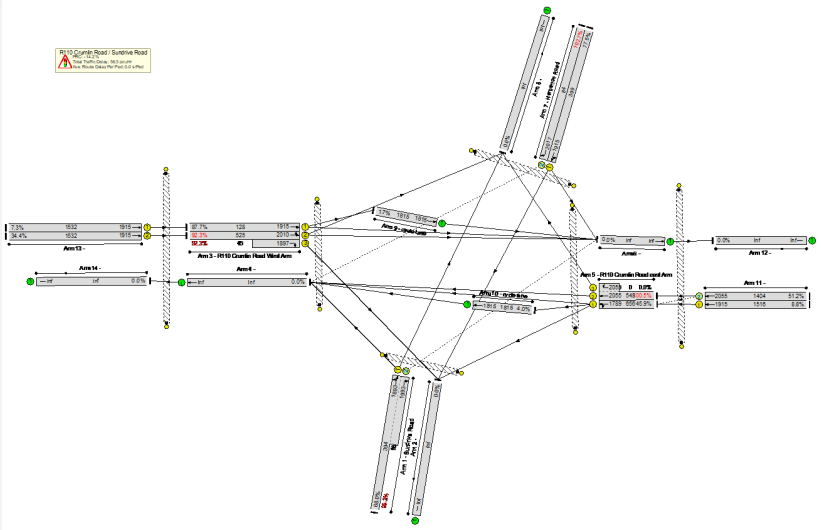
MMQ, CBC arms:
Inbound – 121.32m
Outbound – 178.25m

Bus Av. Delay (s/pcu):
Inbound – 138.9sec
Outbound – 30sec

Cyclists Av. Delay (s/pcu):
Inbound – 3.8sec
Outbound – 4.1sec

Car Av. Delay (s/pcu), CBC arms:
Inbound – 73.9sec
Outbound – 121.7sec

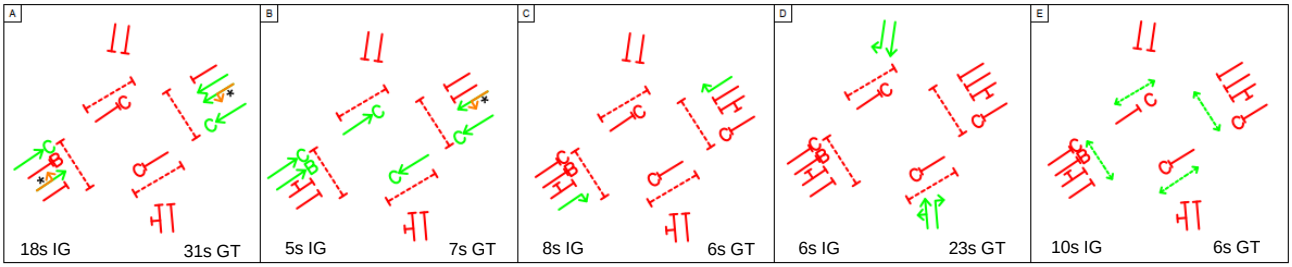
Network Layout Diagram (LinSig) - DS2028_PM



People Movement Assessment DS2028 PM

24. Sundrive Rd - Crumlin Rd Junction	CBC		All Arms	
Mode	People Movement	Mode Share	People Movement	Mode Share
Car	1,121	25%	2,353	40%
Bus	2,760	60%	2,760	47%
Walk	180	4%	180	3%
Cycle	510	11%	570	10%
Total	**4,571**	**100%**	**5,863**	**100%**

INDICATIVE METHOD OF CONTROL

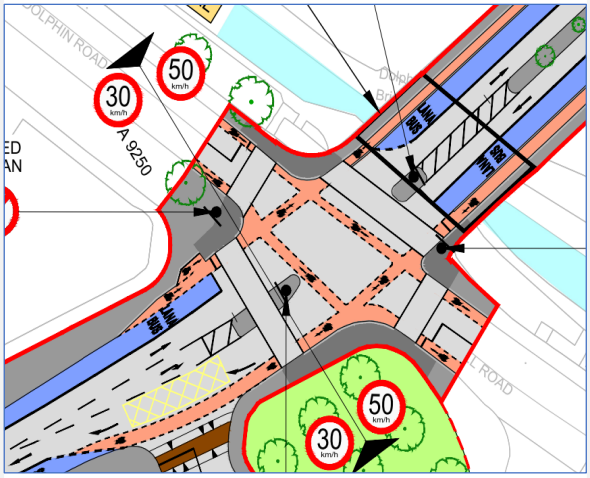


Subject	BusConnects Core Bus Corridors Junction Design Report		
Date	February 2023		
Route	Tallaght/Clondalkin To City Centre	Job No/Ref	60599126

Junction: **Crumlin Rd / Dolphin Rd**

EXISTING

FINAL DESIGN



Summary
The existing four arm junction is to be upgraded as per the BusConnects Preliminary Design Guidance Booklet to enhance pedestrian, cyclist and bus priority infrastructure.

Pedestrian Infrastructure
The proposal will introduce controlled crossings on three of the four arms of the junction. Furthermore the corner radius is proposed to be reduced where feasible to assist in reducing vehicular speeds at the junction.

Cyclists Infrastructure
The proposal will assist to upgrade the existing cycling infrastructure at the junction. Cycle track are proposed on all arms entering and exiting the junction,

The existing ASLs (Advanced Stop Line) are proposed to be omitted and replaced with right turning pockets also proposed to cater for cyclists undertaking right turns at the junction.

Bus Priority Infrastructure
It is proposed to provide junction priority as per Junction Type 1, where the bus lane is proposed upto the stop line in both inbound and outbound directions along Dolphins Barn.

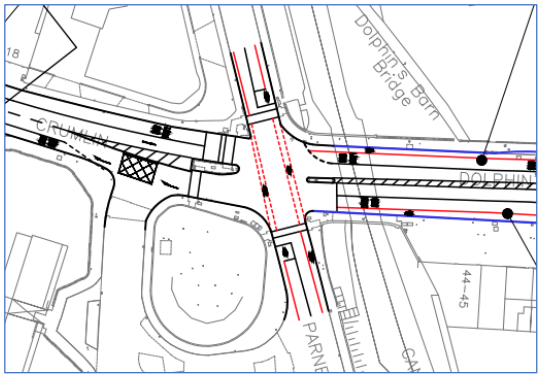
Subject	BusConnects Core Bus Corridors Junction Design Report		
Date	February 2023		
Route	Tallaght/Clondalkin To City Centre	Job No/Ref	60599126

Design Evolution

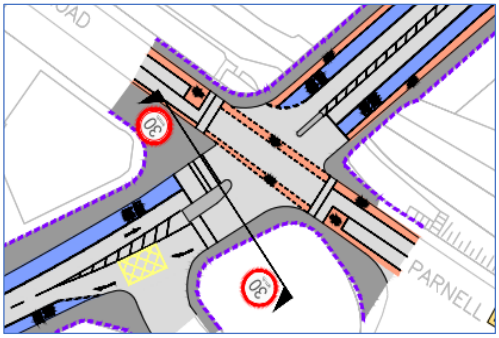
The proposed junction design has evolved on the BusConnects project from initial Concept Design, Emerging Preferred Route, Public Consultation 2, Public Consultation 3 up to the Current Design. The junction design iterations have been undertaken to optimise pedestrian, cyclist and bus priority infrastructure on the scheme.

Existing

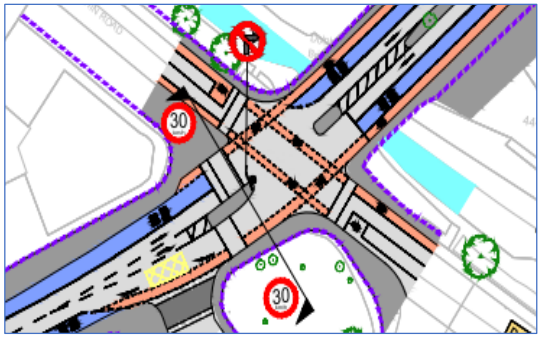
Concept Design Drawing



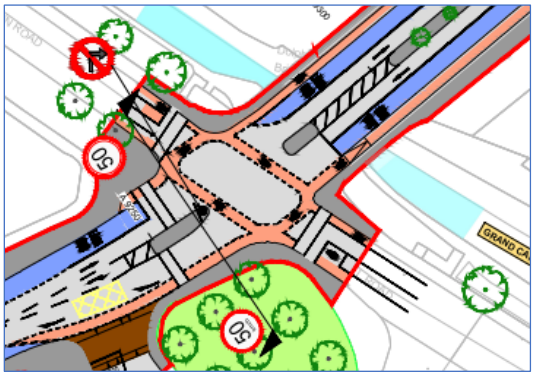
Emerging Preferred Route



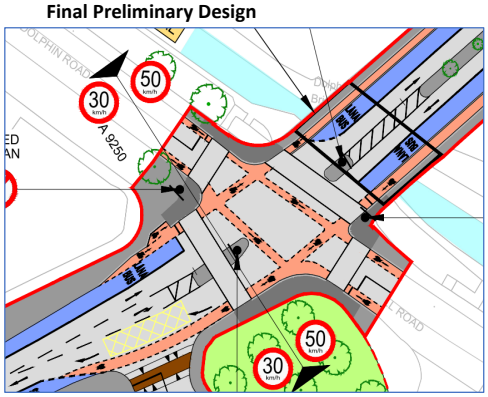
Public Consultation 2



Public Consultation 3



Final Preliminary Design



Subject	BusConnects Core Bus Corridors Transport Modelling		
Date	February 2023		
Route	Tallaght/Clondalkin To City Centre	Job No/Ref	60599126

Crumlin Rd / Dolphin Rd – AM peak

2028 AM Peak Hours
Fixed Time LinSig Results

Cycle Time = 90 secs
PRC = 9.7%,
Junction Delay = 22.6 PCUhr

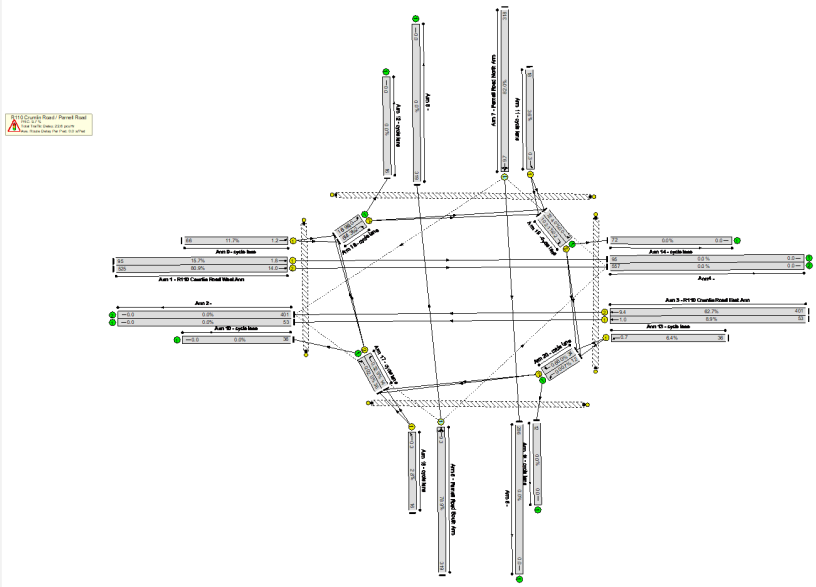
MMQ, CBC arms:
Inbound – 80.5m
Outbound – 54.05m

Bus Av. Delay (s/pcu):
Inbound – 26sec
Outbound – 25.3sec

Cyclists Av. Delay (s/pcu):
Inbound – 25.8sec
Outbound – 25.2sec

Car Av. Delay (s/pcu), CBC arms:
Inbound – 42.6sec
Outbound – 34sec

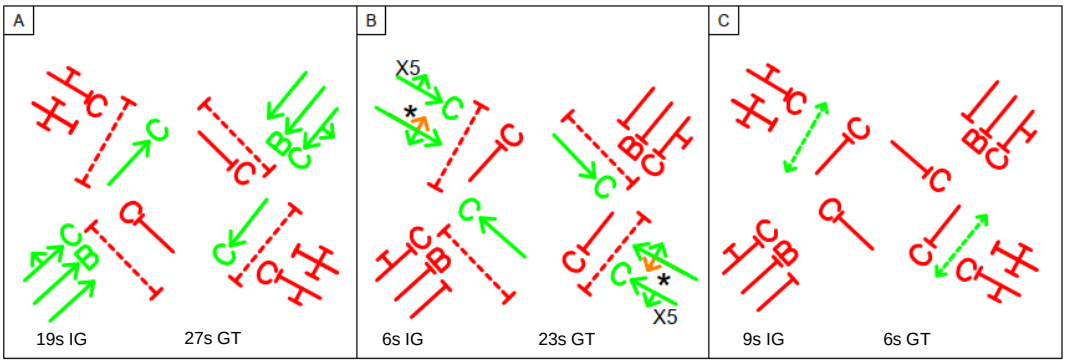
Network Layout Diagram (LinSig) - DS2028_AM



People Movement Assessment DS2028 AM

25. Crumlin Rd - Dolphin Rd Junction	CBC		All Arms	
Mode	**People Movement**	**Mode Share**	**People Movement**	**Mode Share**
Car	1,111	22%	1,876	31%
Bus	2,940	58%	2,940	49%
Walk	478	10%	478	8%
Cycle	450	10%	680	11%
Total	**4,979**	**100%**	**5,973**	**100%**

INDICATIVE METHOD OF CONTROL



* denotes Flashing Amber
X5 denotes Advance 5 seconds Start for Cyclists

Subject	BusConnects Core Bus Corridors Transport Modelling		
Date	February 2023		
Route	Tallaght/Clondalkin To City Centre	Job No/Ref	60599126

Crumlin Rd / Dolphin Rd – PM peak

2028 PM Peak Hours
Fixed Time LinSig Results

Cycle Time = 90 secs
PRC = -39.5%,
Junction Delay = 125.0 PCUhr

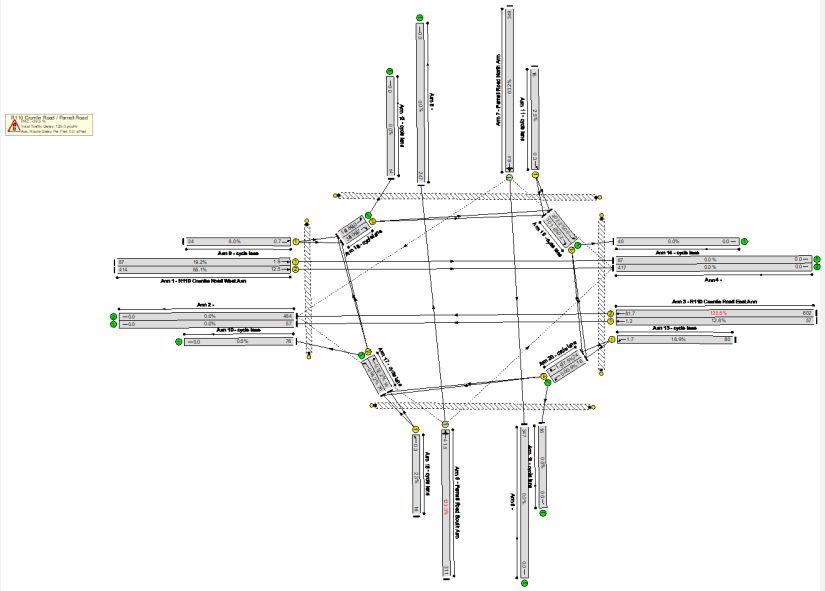
MMQ, CBC arms:
Inbound – 71.88m
Outbound – 469.78m

Bus Av. Delay (s/pcu):
Inbound – 32.6sec
Outbound – 31.9sec

Cyclists Av. Delay (s/pcu):
Inbound –31.6sec
Outbound – 32.9sec

Car Av. Delay (s/pcu), CBC arms:
Inbound – 56.1sec
Outbound – 442.2sec

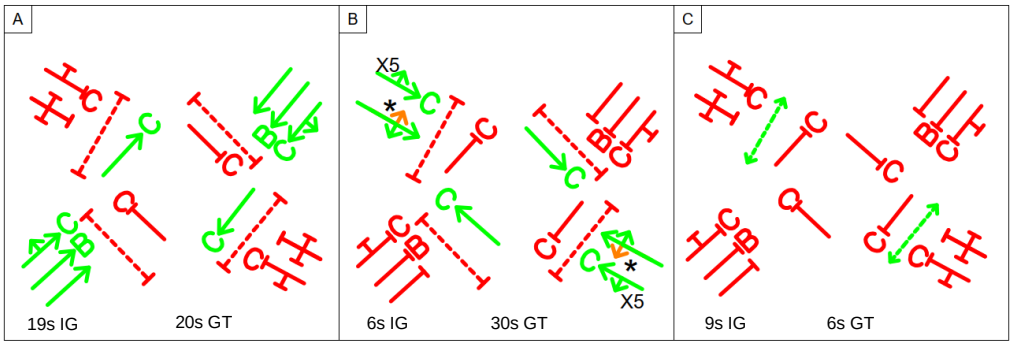
Network Layout Diagram (LinSig) - DS2028_PM



People Movement Assessment DS2028 PM

25. Crumlin Rd - Dolphin Rd Junction	CBC		All Arms	
Mode	People Movement	Mode Share	People Movement	Mode Share
Car	1,219	25%	2,011	34%
Bus	2,880	60%	2,880	49%
Walk	227	5%	227	4%
Cycle	500	10%	730	13%
Total	**4,826**	**100%**	**5,848**	**100%**

INDICATIVE METHOD OF CONTROL



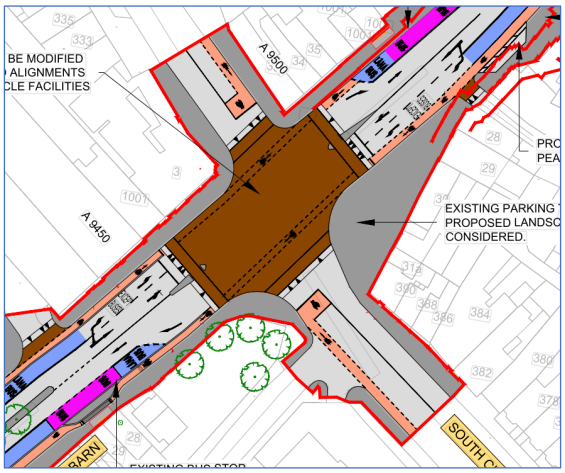
* denotes Flashing Amber
X5 denotes Advance 5 seconds Start for Cyclists

Subject	BusConnects Core Bus Corridors Junction Design Report		
Date	February 2023		
Route	Tallaght/Clondalkin To City Centre	Job No/Ref	60599126

Junction: **South Circular Rd / Dolphin's Barn**

EXISTING

FINAL DESIGN



Summary
The existing four arm junction is to be upgraded as per the BusConnects Preliminary Design Guidance Booklet to enhance pedestrian, cyclist and bus priority infrastructure.

Pedestrian Infrastructure
The junction is proposed to be upgraded to remove the existing staggered crossings and introduce direct pedestrian crossings on all arms. The corner radius is also proposed to be reduced, as per the DMURS guidelines.

Cyclists Infrastructure
Cycle tracks are proposed along Dolphins Barn and along South Circular Road. It is proposed to introduce ASLs (Advanced Stop Lines) road markings on the side roads to assist cyclists entering the junction. Furthermore jug turns are proposed for right turning cyclists from Dolphins Barn onto the side roads.

Bus Priority Infrastructure
In both inbound and outbound directions, a Junction Type 3 is proposed whereby the bus lane is proposed to be curtailed approximately 20m prior to the stop line. This will assist to give greater capacity for all modes of transport, whilst the projected volume of left turners is envisaged to be low and will not materially impact upon bus priority.

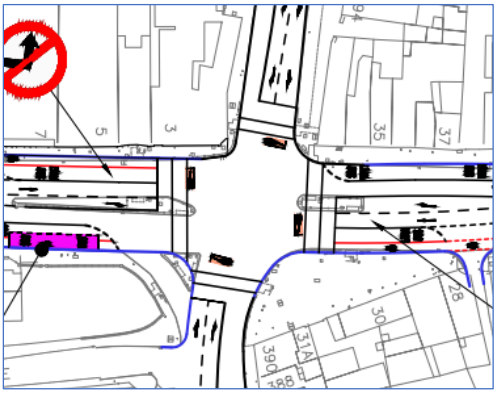
Subject	BusConnects Core Bus Corridors Junction Design Report		
Date	February 2023		
Route	Tallaght/Clondalkin To City Centre	Job No/Ref	60599126

Design Evolution

The proposed junction design has evolved on the BusConnects project from initial Concept Design, Emerging Preferred Route, Public Consultation 2, Public Consultation 3 up to the Current Design. The junction design iterations have been undertaken to optimise pedestrian, cyclist and bus priority infrastructure on the scheme.

Existing

Concept Design Drawing

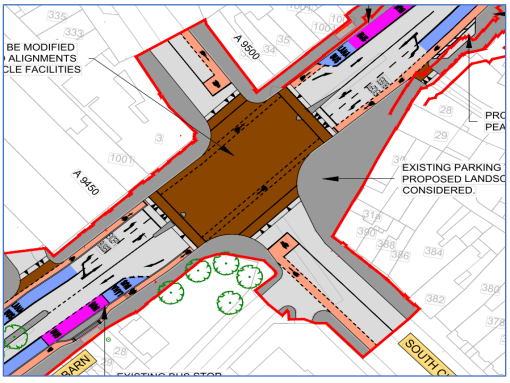


Emerging Preferred Route

Public Consultation 2

Public Consultation 3

Final Preliminary Design



Subject	BusConnects Core Bus Corridors Transport Modelling		
Date	February 2023		
Route	Tallaght/Clondalkin To City Centre	Job No/Ref	60599126

South Circular Rd / Dolphin's Barn– AM peak

2028 AM Peak Hours
Fixed Time LinSig Results

Cycle Time = 120 secs
PRC = -7.0%,
Junction Delay = 47.3 PCUhr

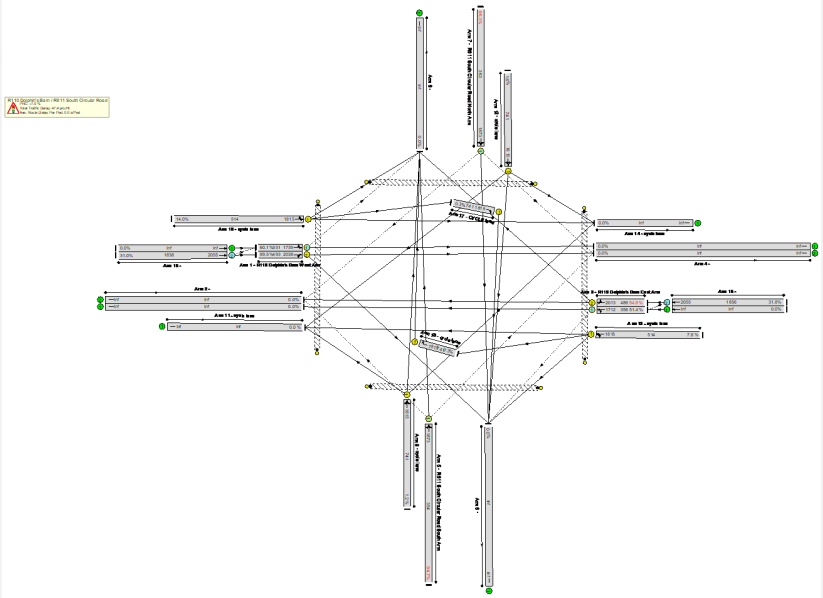
MMQ, CBC arms:
Inbound – 102.92m
Outbound – 121.9m

Bus Av. Delay (s/pcu):
Inbound – 53.5sec
Outbound – 49.7sec

Cyclists Av. Delay (s/pcu):
Inbound – 36.2sec
Outbound – 35.3sec

Car Av. Delay (s/pcu), CBC arms:
Inbound – 74.5sec
Outbound – 92.5sec

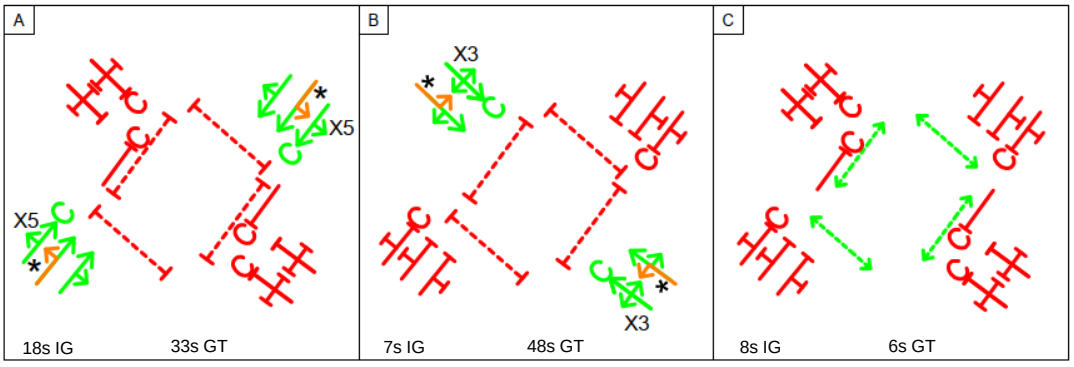
Network Layout Diagram (LinSig) - DS2028_AM



People Movement Assessment DS2028 AM

26. SCR - Dolphins Barn Junction	CBC		All Arms	
Mode	**People Movement**	**Mode Share**	**People Movement**	**Mode Share**
Car	908	19.%	2,214	35%
Bus	2,700	58%	2,700	44%
Walk	594	13%	594	10%
Cycle	490	10%	670	11%
Total	**4,692**	**100%**	**6,178**	**100%**

INDICATIVE METHOD OF CONTROL



* denotes Flashing Amber
X3/X5 denotes Advance 3/5 seconds Start for Cyclists

Subject	BusConnects Core Bus Corridors Transport Modelling		
Date	February 2023		
Route	Tallaght/Clondalkin To City Centre	Job No/Ref	60599126

South Circular Rd / Dolphin's Barn– PM peak

2028 PM Peak Hours
Fixed Time LinSig Results

Cycle Time = 120 secs
PRC = 37.5%,
Junction Delay = 17.9 PCUhr

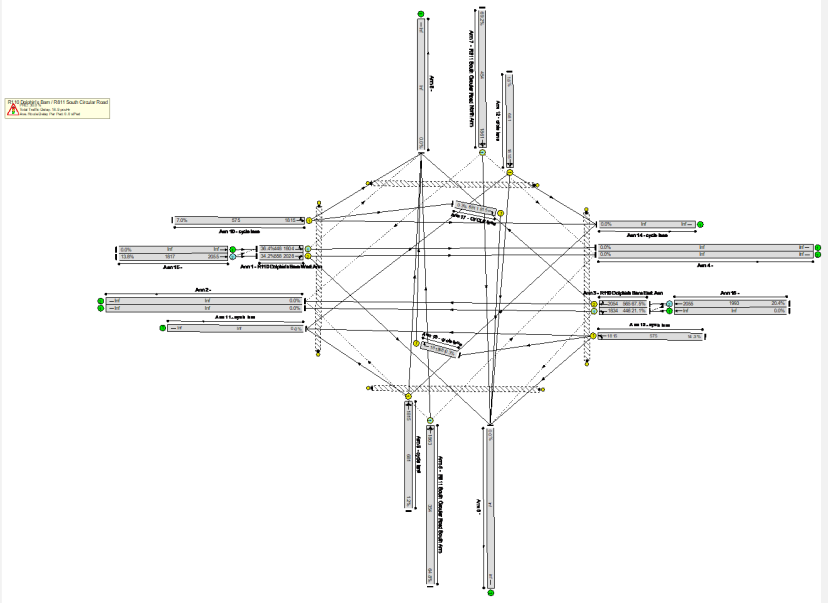
MMQ, CBC arms:
Inbound – 31.05m
Outbound – 70.15m

Bus Av. Delay (s/pcu):
Inbound – 41.4sec
Outbound – 39.3sec

Cyclists Av. Delay (s/pcu):
Inbound – 32sec
Outbound – 33sec

Car Av. Delay (s/pcu), CBC arms:
Inbound – 41.4sec
Outbound – 48.4sec

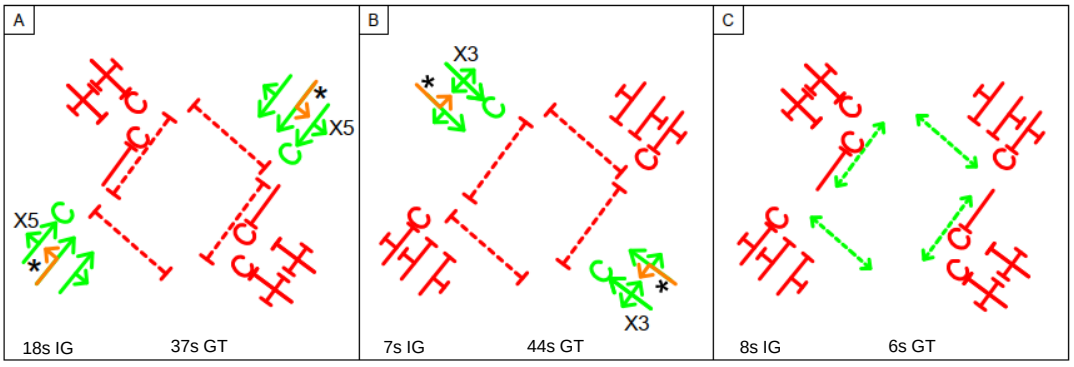
Network Layout Diagram (LinSig) - DS2028_PM



People Movement Assessment DS2028 PM

26. SCR - Dolphins Barn Junction	CBC		All Arms	
Mode	People Movement	Mode Share	People Movement	Mode Share
Car	964	20%	2,012	33%
Bus	2,880	59%	2,880	47%
Walk	486	10%	486	8%
Cycle	540	11%	710	12%
Total	**4,870**	**100%**	**6,088**	**100%**

INDICATIVE METHOD OF CONTROL



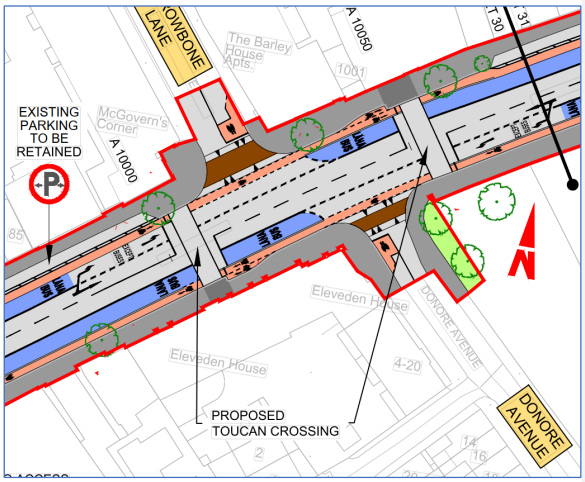
* denotes Flashing Amber
X3/X5 denotes Advance 3/5 seconds Start for Cyclists

Subject	BusConnects Core Bus Corridors Junction Design Report		
Date	February 2023		
Route	Tallaght/Clondalkin To City Centre	Job No/Ref	60599126

Junction: **Marrowbone Rd / Donore Ave**

EXISTING

FINAL DESIGN



Summary
The existing four arm junction is to be upgraded as per the BusConnects Preliminary Design Guidance Booklet to enhance pedestrian, cyclist and bus priority infrastructure.

Pedestrian Infrastructure
The existing direct pedestrian crossings on all the arms are retained. The corner radii are proposed to be reduced, as per the DMURS guidelines.

Cyclists Infrastructure
Cycle tracks are proposed along Cork Street and ASLs (Advanced Stop Lines) are introduced on the side roads to assist cyclists entering the junction. Furthermore jug turns are proposed for right turning cyclists from Cork Street onto the side roads.

Bus Priority Infrastructure
In both inbound and outbound directions, a Junction Type 3 is proposed whereby the bus lane is proposed to be curtailed approximately 20m prior to the stop line. This will assist to give greater capacity for all modes of transport, whilst the projected volume of left turners is envisaged to be low and will not materially impact upon bus priority.

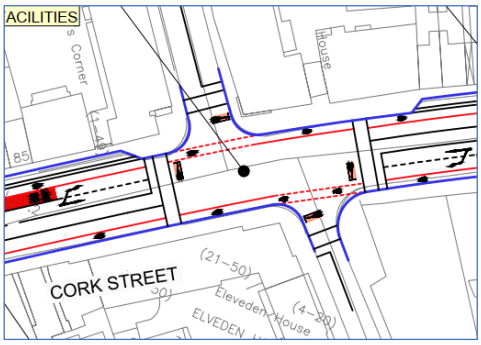
Subject	BusConnects Core Bus Corridors Junction Design Report		
Date	February 2023		
Route	Tallaght/Clondalkin To City Centre	Job No/Ref	60599126

Design Evolution

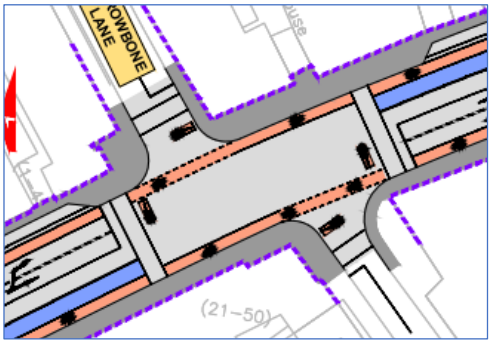
The proposed junction design has evolved on the BusConnects project from initial Concept Design, Emerging Preferred Route, Public Consultation 2, Public Consultation 3 up to the Current Design. The junction design iterations have been undertaken to optimise pedestrian, cyclist and bus priority infrastructure on the scheme.

Existing

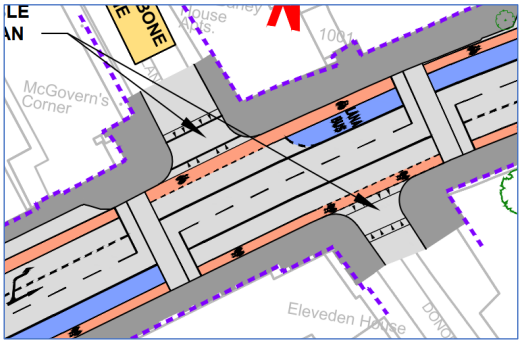
Concept Design Drawing



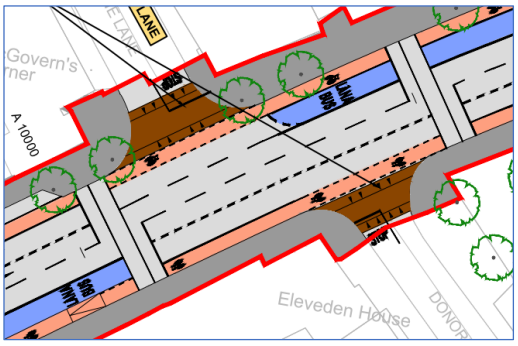
Emerging Preferred Route



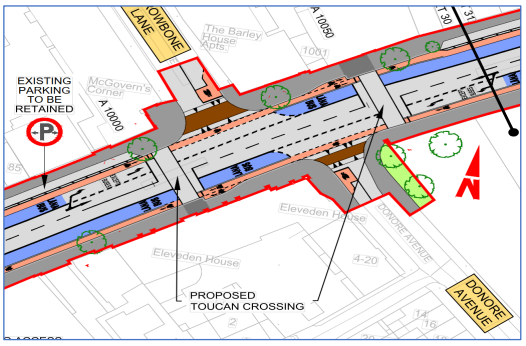
Public Consultation 2



Public Consultation 3



Final Preliminary Design



Subject	BusConnects Core Bus Corridors Transport Modelling		
Date	February 2023		
Route	Tallaght/Clondalkin To City Centre	Job No/Ref	60599126

Marrowbone Rd / Donore Ave– AM peak

2028 AM Peak Hours
Fixed Time LinSig Results

Cycle Time = 120 secs
PRC = 41.1%,
Junction Delay = 11.4 PCUhr

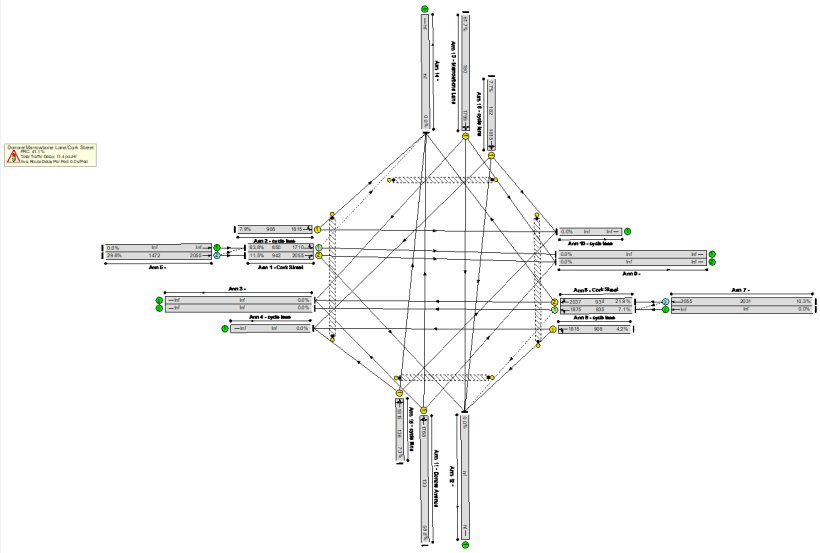
MMQ, CBC arms:
Inbound – 65.55m
Outbound – 24.72m

Bus Av. Delay (s/pcu):
Inbound – 32.5sec
Outbound – 20.5sec

Cyclists Av. Delay (s/pcu):
Inbound – 17.8sec
Outbound – 17.4sec

Car Av. Delay (s/pcu), CBC arms:
Inbound – 20.8sec
Outbound – 22sec

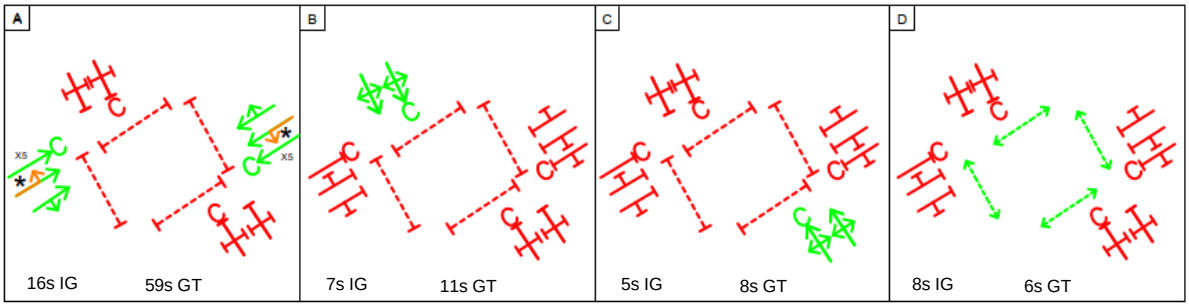
Network Layout Diagram (LinSig) - DS2028_AM



People Movement Assessment DS2028 AM

27. Donore Rd - Marrowbone Lane Junction	CBC		All Arms	
Mode	People Movement	Mode Share	People Movement	Mode Share
Car	359	9%	1,004	21%
Bus	2,760	69%	2,760	58%
Walk	346	9%	346	7%
Cycle	510	13%	690	14%
Total	**3,974**	**100%**	**4,800**	**100%**

INDICATIVE METHOD OF CONTROL



* denotes Flashing Amber
X5 denotes Advance 5 seconds Start for Cyclists

Subject	BusConnects Core Bus Corridors Transport Modelling		
Date	February 2023		
Route	Tallaght/Clondalkin To City Centre	Job No/Ref	60599126

Marrowbone Rd / Donore Ave– PM peak

2028 PM Peak Hours
Fixed Time LinSig Results

Cycle Time = 120 secs
PRC = 113.3%,
Junction Delay = 10.1 PCUhr

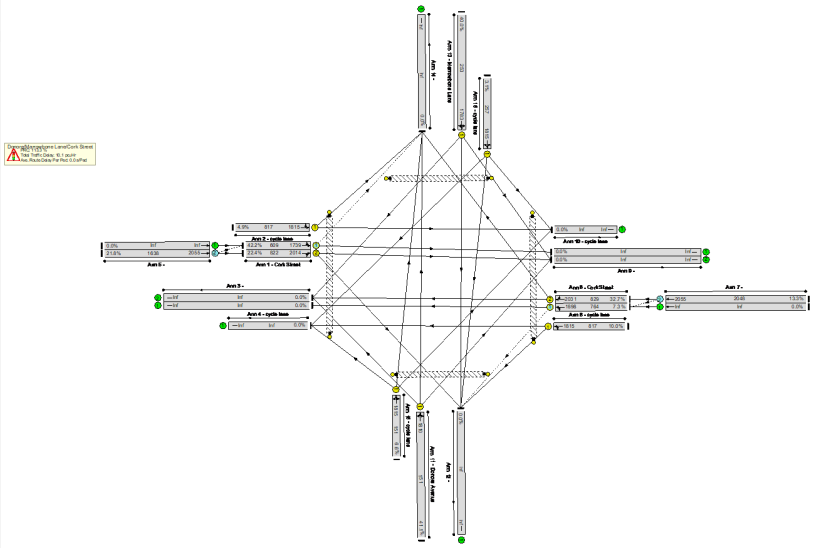
MMQ, CBC arms:
Inbound – 36.8m
Outbound – 36.23m

Bus Av. Delay (s/pcu):
Inbound – 30.5sec
Outbound – 24.2sec

Cyclists Av. Delay (s/pcu):
Inbound – 20.9sec
Outbound – 21.5sec

Car Av. Delay (s/pcu), CBC arms:
Inbound – 27.5sec
Outbound – 25.9sec

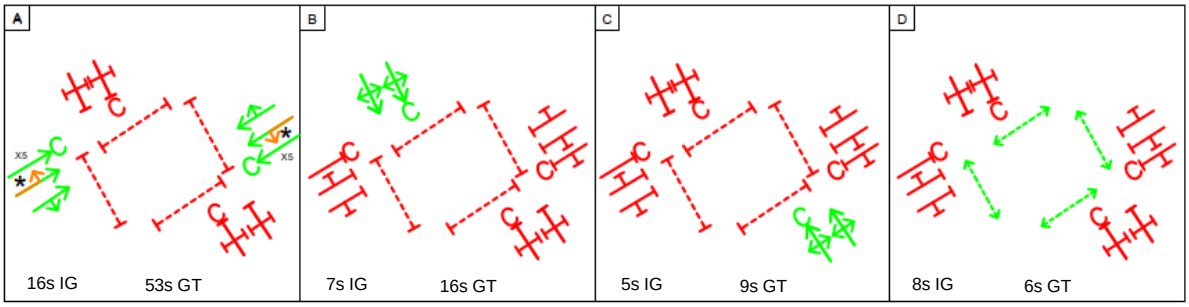
Network Layout Diagram (LinSig) - DS2028_PM



People Movement Assessment DS2028 PM

27. Donore Rd - Marrowbone Lane Junction	CBC		All Arms	
Mode	People Movement	Mode Share	People Movement	Mode Share
Car	476	12%	952	21%
Bus	2,760	68%	2,760	59%
Walk	240	6%	240	5%
Cycle	550	14%	710	15%
Total	**4,026**	**100%**	**4,662**	**100%**

INDICATIVE METHOD OF CONTROL



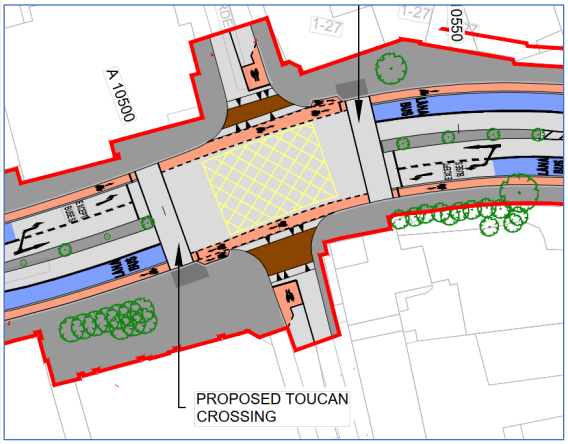
* denotes Flashing Amber
X5 denotes Advance 5 seconds Start for Cyclists

Subject	BusConnects Core Bus Corridors Junction Design Report		
Date	February 2023		
Route	Tallaght/Clondalkin To City Centre	Job No/Ref	60599126

Junction: **Ardee St / St Lukes Ave**

EXISTING

FINAL DESIGN



Summary
The existing four arm junction is to be upgraded as per the BusConnects Preliminary Design Guidance Booklet to enhance pedestrian, cyclist and bus priority infrastructure.

Pedestrian Infrastructure
The junction is proposed to be upgraded to remove the existing staggered crossings and introduce direct pedestrian crossings on all arms. The corner radius is also proposed to be reduced, as per the DMURS guidelines.

Cyclists Infrastructure
The ASLs road markings are proposed to be omitted on the Cork Street/St Luke's Avenue and jug turns are proposed for right turning cyclists from Cork Street/St Luke's Avenue onto the side roads. It is also proposed to introduce ASLs (Advanced Stop Lines) road markings on the side roads to assist cyclists entering the junction.

Bus Priority Infrastructure
In both inbound and outbound directions, a Junction Type 3 is proposed whereby the bus lane is proposed to be curtailed approximately 20m prior to the stop line. This will assist to give greater capacity for all modes of transport, whilst the projected volume of left turners is envisaged to be low and will not materially impact upon bus priority.

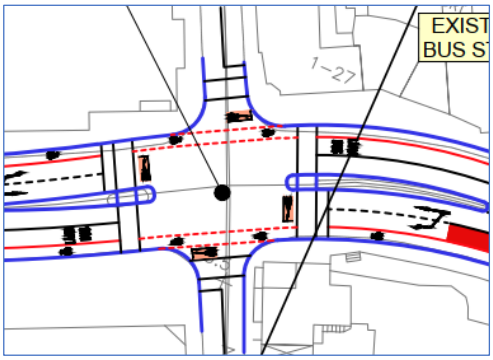
Subject	BusConnects Core Bus Corridors Junction Design Report		
Date	February 2023		
Route	Tallaght/Clondalkin To City Centre	Job No/Ref	60599126

Design Evolution

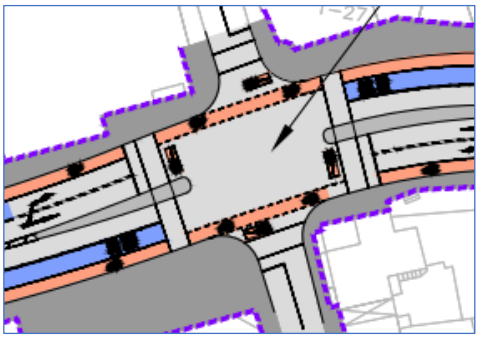
The proposed junction design has evolved on the BusConnects project from initial Concept Design, Emerging Preferred Route, Public Consultation 2, Public Consultation 3 up to the Current Design. The junction design iterations have been undertaken to optimise pedestrian, cyclist and bus priority infrastructure on the scheme.

Existing

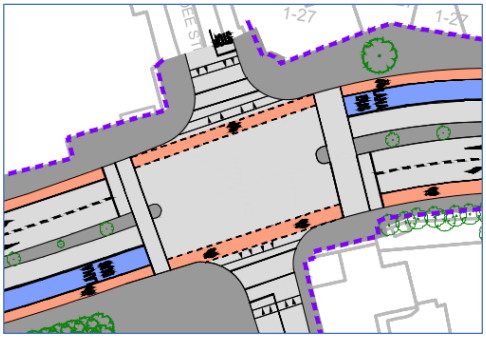
Concept Design Drawing



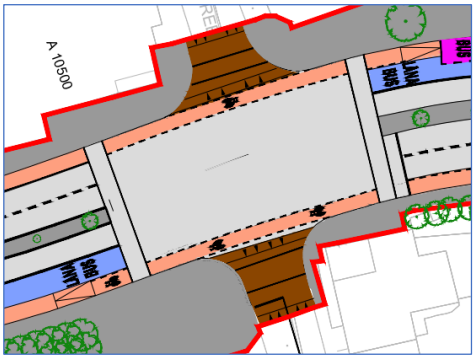
Emerging Preferred Route



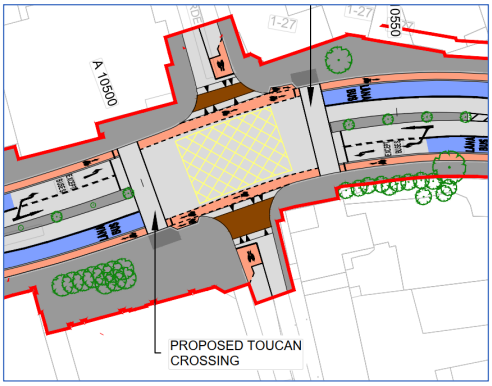
Public Consultation 2



Public Consultation 3



Final Preliminary Design



Subject	BusConnects Core Bus Corridors Transport Modelling		
Date	February 2023		
Route	Tallaght/Clondalkin To City Centre	Job No/Ref	60599126

Ardee St / St Lukes Ave – AM peak

2028 AM Peak Hours
Fixed Time LinSig Results

Cycle Time = 100 secs
PRC = 68.5%,
Junction Delay = 10.1 PCUhr

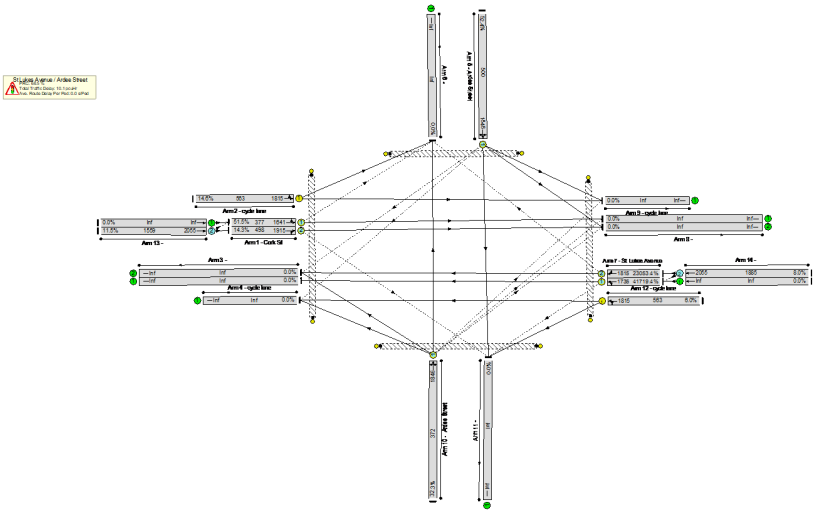
MMQ, CBC arms:
Inbound – 37.95m
Outbound – 37.95m

Bus Av. Delay (s/pcu):
Inbound – 41.6sec
Outbound – 34.2sec

Cyclists Av. Delay (s/pcu):
Inbound – 28.7sec
Outbound – 27.7sec

Car Av. Delay (s/pcu), CBC arms:
Inbound – 32.7sec
Outbound – 52.6sec

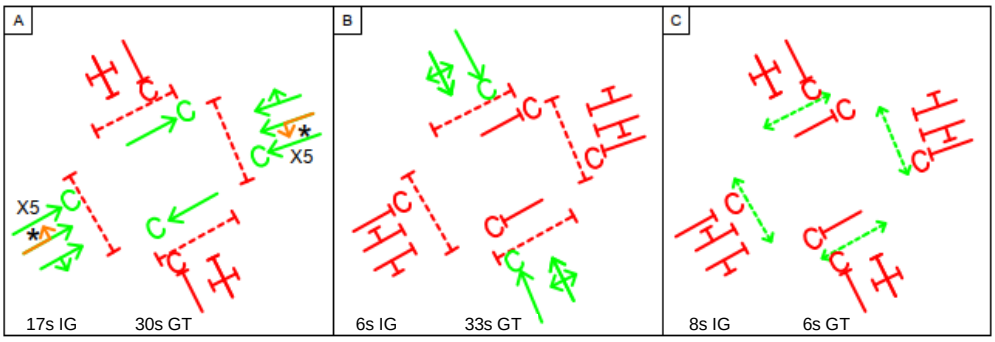
Network Layout Diagram (LinSig) - DS2028_AM



People Movement Assessment DS2028 AM

28. Ardee St - St Luke Ave Junction	CBC		All Arms	
Mode	**People Movement**	**Mode Share**	**People Movement**	**Mode Share**
Car	166	4%	826	16%
Bus	2,760	64%	2,760	54%
Walk	810	19%	810	16%
Cycle	560	13%	720	14%
Total	**4,296**	**100%**	**5,116**	**100%**

INDICATIVE METHOD OF CONTROL



* denotes Flashing Amber
X5 denotes Advance 5 seconds Start for Cyclists

Subject	BusConnects Core Bus Corridors Transport Modelling		
Date	February 2023		
Route	Tallaght/Clondalkin To City Centre	Job No/Ref	60599126

Ardee St / St Lukes Ave – PM peak

2028 PM Peak Hours
Fixed Time LinSig Results

Cycle Time = 100 secs
PRC = 65.9%,
Junction Delay = 10.1 PCUhr

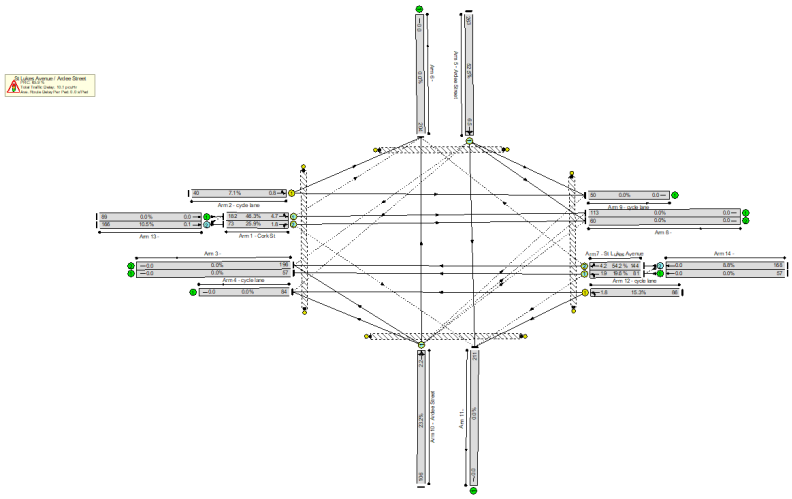
MMQ, CBC arms:
Inbound – 27.03m
Outbound – 24.15m

Bus Av. Delay (s/pcu):
Inbound – 39.6sec
Outbound – 34.5sec

Cyclists Av. Delay (s/pcu):
Inbound – 27.8sec
Outbound – 28.8sec

Car Av. Delay (s/pcu), CBC arms:
Inbound – 38.4sec
Outbound – 50.6sec

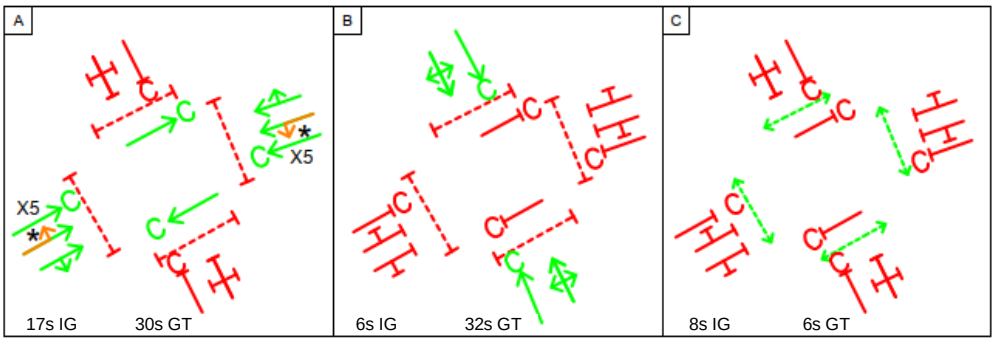
Network Layout Diagram (LinSig) - DS2028_PM



People Movement Assessment DS2028 PM

28. Ardee St - St Luke Ave Junction	CBC		All Arms	
Mode	People Movement	Mode Share	People Movement	Mode Share
Car	208	5%	817	16%
Bus	2,940	69%	2,940	59%
Walk	516	12%	516	10%
Cycle	590	14%	760	15%
Total	**4,254**	**100%**	**5,033**	**100%**

INDICATIVE METHOD OF CONTROL



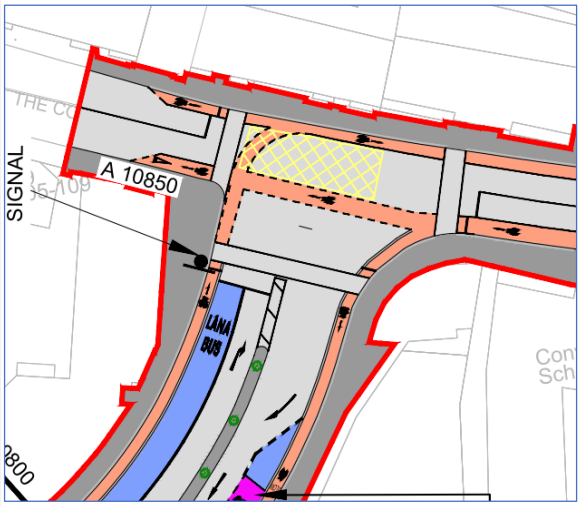
* denotes Flashing Amber
X5 denotes Advance 5 seconds Start for Cyclists

Subject	BusConnects Core Bus Corridors Junction Design Report		
Date	February 2023		
Route	Tallaght/Clondalkin To City Centre	Job No/Ref	60599126

Junction: **The Coombe / St Luke's Ave**

EXISTING

FINAL DESIGN



Summary
The existing junction is to be upgraded as per the BusConnects Preliminary Design Guidance Booklet to enhance pedestrian, cyclist and bus priority infrastructure.

Pedestrian Infrastructure
The direct pedestrian crossings are proposed on all arms of the junction. Furthermore the corner radius is proposed to be reduced where feasible to assist in reducing vehicular speeds at the junction.

Cyclists Infrastructure
The proposal will assist to upgrade the existing cycling infrastructure at the junction. Cycle track are proposed on all arms entering and exiting the junction.

The existing ASLs (Advanced Stop Line) are proposed to be omitted and replaced with cycle track at the junction to cater for cyclists undertaking right turn at the junction from St Luke's Avenue.

Bus Priority Infrastructure
It is proposed to provide junction priority as per Junction Type 1, where the bus lane is proposed upto the stop line in inbound direction along St Luke's Avenue.

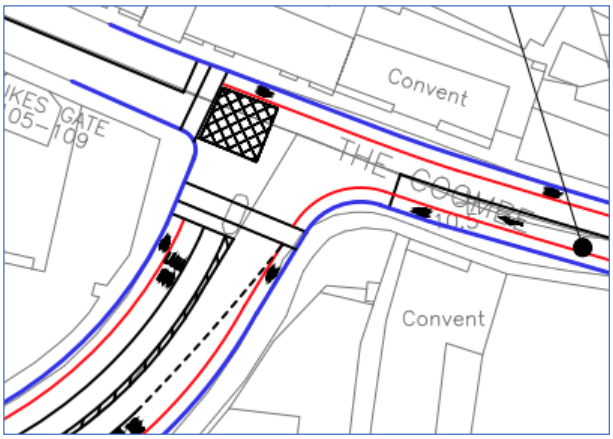
Subject	BusConnects Core Bus Corridors Junction Design Report		
Date	February 2023		
Route	Tallaght/Clondalkin To City Centre	Job No/Ref	60599126

Design Evolution

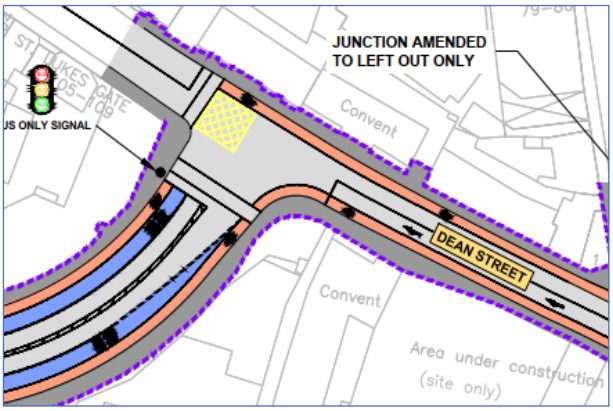
The proposed junction design has evolved on the BusConnects project from initial Concept Design, Emerging Preferred Route, Public Consultation 2, Public Consultation 3 up to the Current Design. The junction design iterations have been undertaken to optimise pedestrian, cyclist and bus priority infrastructure on the scheme.

Existing

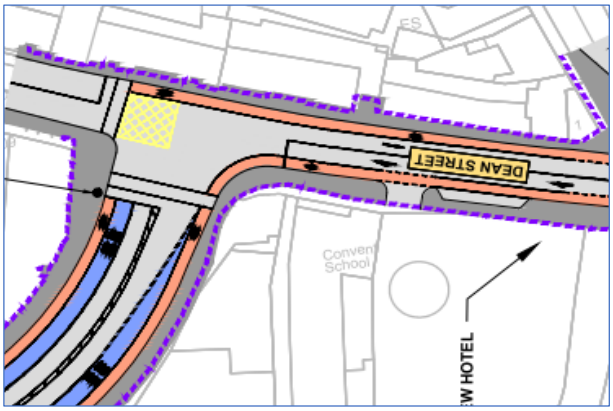
Concept Design Drawing



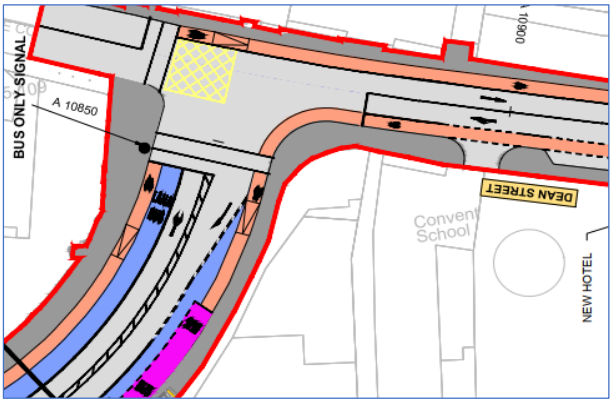
Emerging Preferred Route



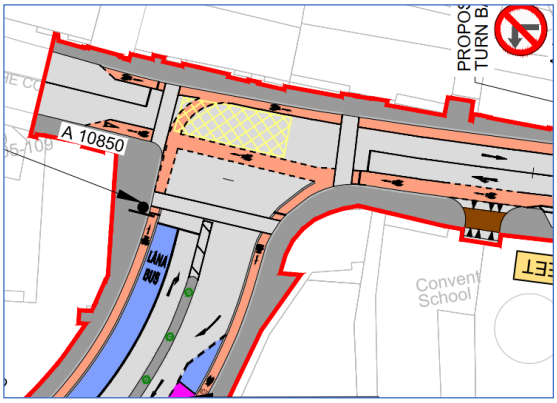
Public Consultation 2



Public Consultation 3



Final Preliminary Design



Subject	BusConnects Core Bus Corridors Transport Modelling		
Date	February 2023		
Route	Tallaght/Clondalkin To City Centre	Job No/Ref	60599126

The Coombe / St Luke's Ave– AM peak

2028 AM Peak Hours
Fixed Time LinSig Results

Cycle Time = 110 secs
PRC = 130.9%,
Junction Delay = 7.0 PCUhr

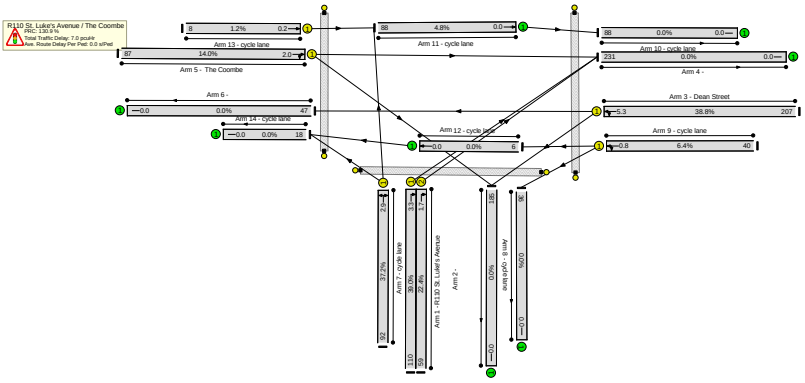
MMQ, CBC arms:
Inbound – 18.98m
Outbound – 30.48m

Bus Av. Delay (s/pcu):
Inbound – 52.3sec
Outbound – 51.1sec

Cyclists Av. Delay (s/pcu):
Inbound – 54.8sec
Outbound – 27.2sec

Car Av. Delay (s/pcu), CBC arms:
Inbound – 51.1sec
Outbound – 36sec

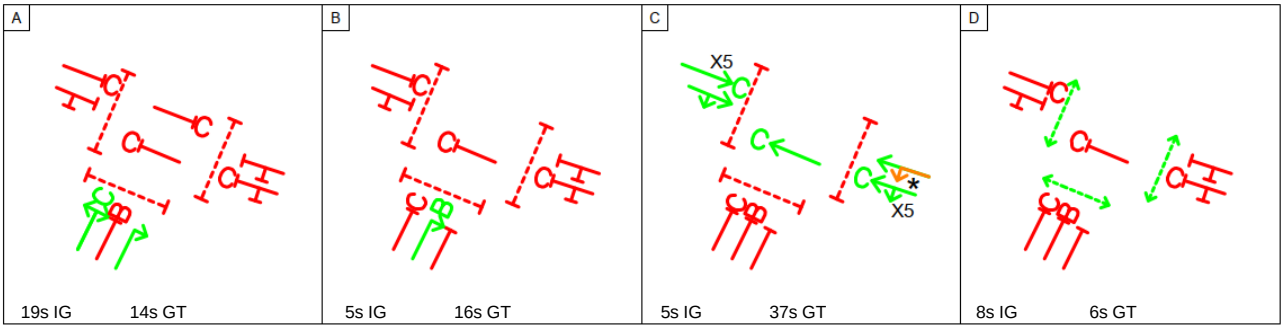
Network Layout Diagram (LinSig) - DS2028_AM



People Movement Assessment DS2028 AM

29. The Coombe - St Luke's Ave Junction	CBC		All Arms	
Mode	People Movement	Mode Share	People Movement	Mode Share
Car	263	5%	424	8%
Bus	3,720	75%	3,720	71%
Walk	406	8%	406	8%
Cycle	570	12%	700	13%
Total	**4,958**	**100%**	**5,249**	**100%**

INDICATIVE METHOD OF CONTROL



* denotes Flashing Amber
X5 denotes Advance 5 seconds Start for Cyclists

Subject	BusConnects Core Bus Corridors Transport Modelling		
Date	February 2023		
Route	Tallaght/Clondalkin To City Centre	Job No/Ref	60599126

The Coombe / St Luke's Ave– PM peak

2028 PM Peak Hours
Fixed Time LinSig Results

Cycle Time = 110 secs
PRC = 128.3%,
Junction Delay = 6.7 PCUhr

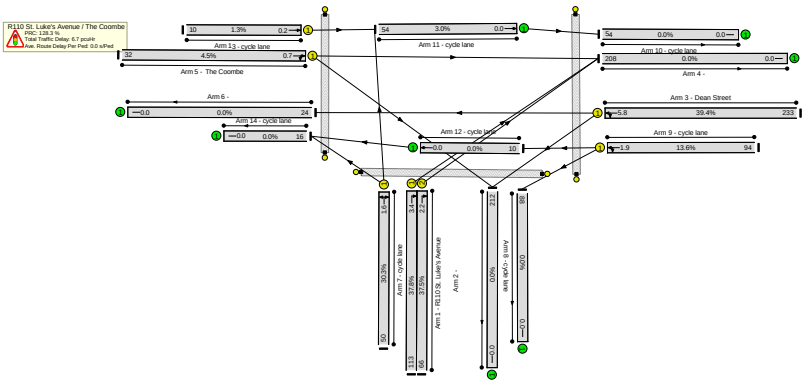
MMQ, CBC arms:
Inbound – 19.55m
Outbound – 33.35m

Bus Av. Delay (s/pcu):
Inbound – 50.7sec
Outbound – 32.0sec

Cyclists Av. Delay (s/pcu):
Inbound – 62.4sec
Outbound – 25.2sec

Car Av. Delay (s/pcu), CBC arms:
Inbound – 63.4sec
Outbound – 32.0sec

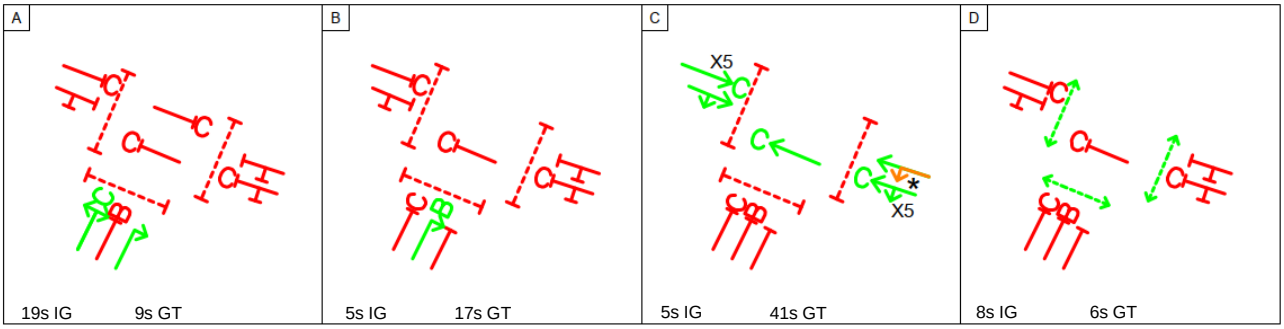
Network Layout Diagram (LinSig) - DS2028_PM



People Movement Assessment DS2028 PM

29. The Coombe - St Luke's Ave Junction	CBC		All Arms	
Mode	People Movement	Mode Share	People Movement	Mode Share
Car	233	5%	300	6%
Bus	3,900	77%	3,900	74%
Walk	271	5%	271	5%
Cycle	640	13%	770	15%
Total	**5,044**	**100%**	**5,241**	**100%**

INDICATIVE METHOD OF CONTROL



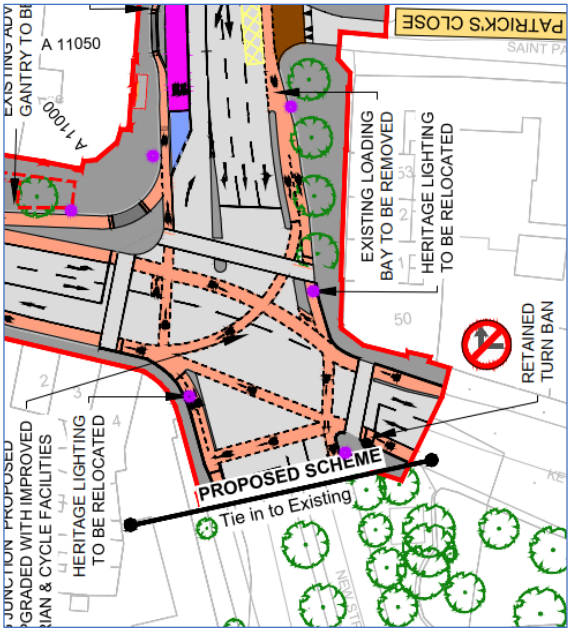
* denotes Flashing Amber
X5 denotes Advance 5 seconds Start for Cyclists

Subject	BusConnects Core Bus Corridors Junction Design Report		
Date	February 2023		
Route	Tallaght/Clondalkin To City Centre	Job No/Ref	60599126

Junction: **Patrick St / Dean St**

EXISTING

FINAL DESIGN



Summary
The existing junction is to be upgraded as per the BusConnects Preliminary Design Guidance Booklet to enhance pedestrian, cyclist and bus priority infrastructure

Pedestrian Infrastructure
The existing pedestrian infrastructure is proposed to be upgraded. The proposal will introduce a new controlled crossing on Kevin Street Upper. The pedestrian island on the corner of Dean Street and Patrick Street will be removed to provide a one stage crossing instead of the existing two stage crossings on both arms of the junction, to provide a more direct crossing facilitate to cater for the high volume of pedestrians at this location.

Cyclists Infrastructure
The existing cycle Advanced Stop Lines are proposed to be omitted. The proposal is to upgrade the junction to cater for cycle tracks on all arms entering and exiting the junction. Dedicated cycle crossings are proposed across the junction. Physical build outs are proposed to offer cyclists greater protection

Bus Priority Infrastructure
Due to the width available and the desire for additional cycle lane capacity along Dean Street there is not a bus lane proposed. However, the bus signal at St Lukes Avenue will be coordinated with this junction, with a view of creating a bus gate at St Lukes Avenue junction to assist buses getting to the stop line of this junction.
On Patrick Street there is a tapered bus lane start for buses travelling north, and on the southbound side there is a proposed bus gate in advance of the junction to cater for left turning vehicles onto Kevin Street Upper

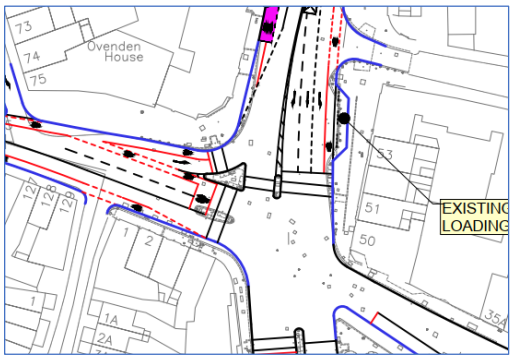
Subject	BusConnects Core Bus Corridors Junction Design Report		
Date	February 2023		
Route	Tallaght/Clondalkin To City Centre	Job No/Ref	60599126

Design Evolution

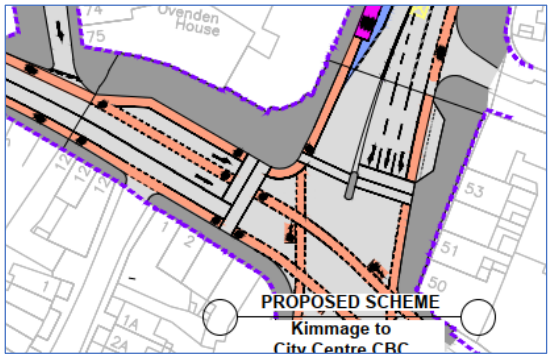
The proposed junction design has evolved on the BusConnects project from initial Concept Design, Emerging Preferred Route, Public Consultation 2, Public Consultation 3 up to the Current Design. The junction design iterations have been undertaken to optimise pedestrian, cyclist and bus priority infrastructure on the scheme.

Existing

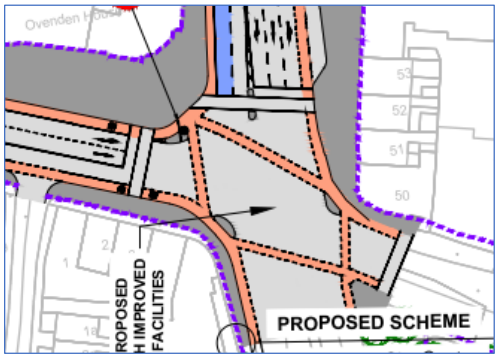
Concept Design Drawing



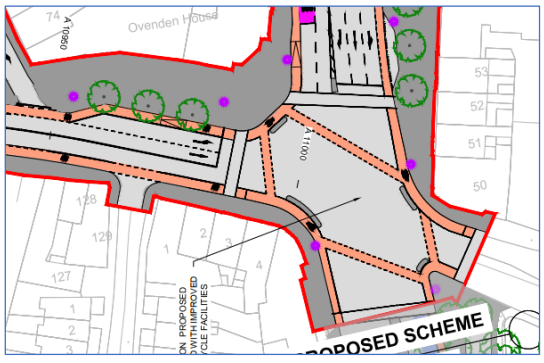
Emerging Preferred Route



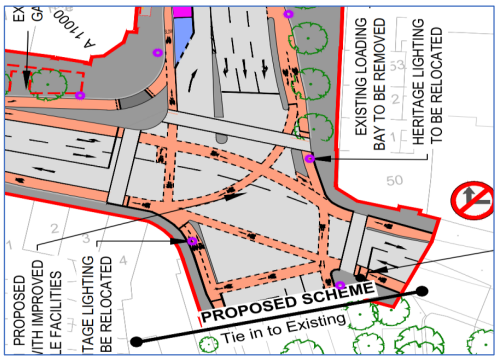
Public Consultation 2



Public Consultation 3



Final Preliminary Design



Subject	BusConnects Core Bus Corridors Transport Modelling		
Date	February 2023		
Route	Tallaght/Clondalkin To City Centre	Job No/Ref	60599126

Patrick St / Dean St – AM peak

2028 AM Peak Hours
Fixed Time LinSig Results

Cycle Time = 120 secs
PRC = -50.4%
Junction Delay = 228.3 PCUhr

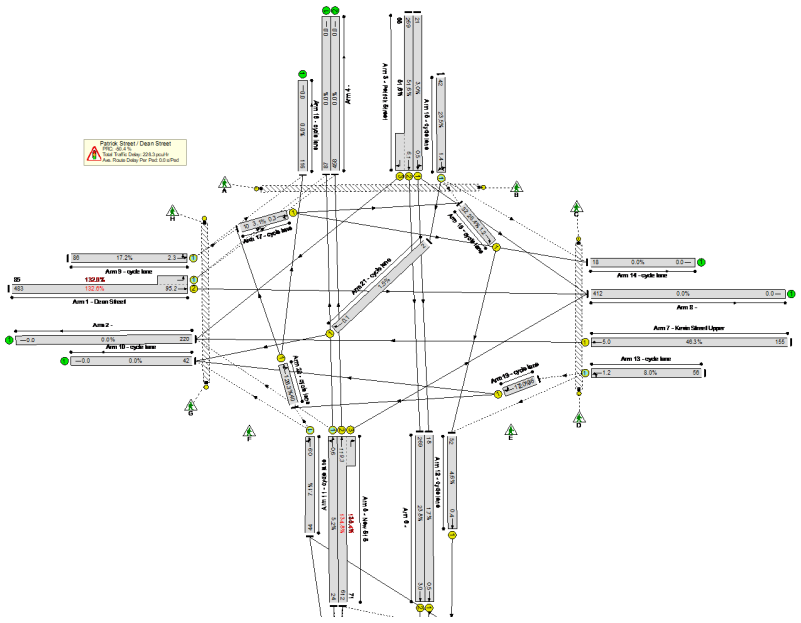
MMQ, CBC arms:
Inbound – 547.4m
Outbound – 28.75m

Bus Av. Delay (s/pcu):
Inbound – 575.7sec
Outbound – 54.4sec

Cyclists Av. Delay (s/pcu):
Inbound – 37.5sec
Outbound – 24.5sec

Car Av. Delay (s/pcu), CBC arms:
Inbound – 541.8sec
Outbound – 59.9sec

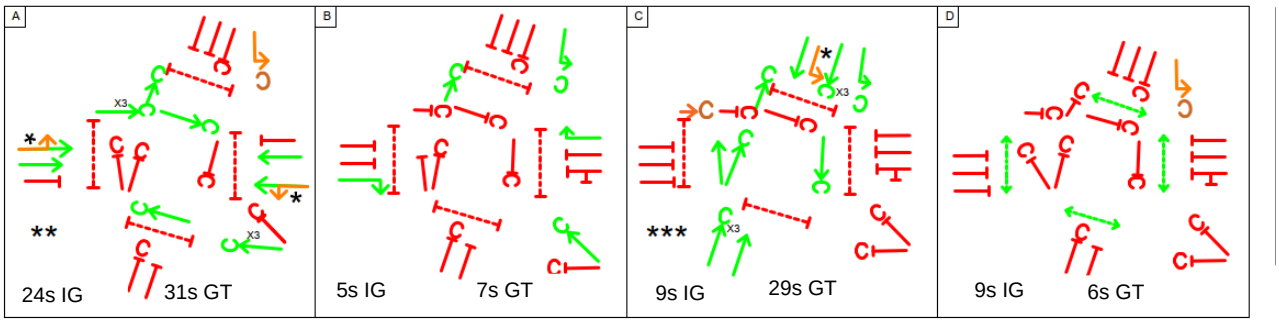
Network Layout Diagram (LinSig) - DS2028_AM



People Movement Assessment DS2028 AM

30.Patrick Street - Dean Street Junction	CBC		All Arms	
Mode	**People Movement**	**Mode Share**	**People Movement**	**Mode Share**
Car	17	1%	1,805	16%
Bus	2,700	44%	5,700	50%
Walk	2,675	45%	2,675	24%
Cycle	410	10%	1,140	10%
Total	**5,802**	**100%**	**11,320**	**100%**

INDICATIVE METHOD OF CONTROL



* denotes Flashing Amber
X3 denotes Advance 3 seconds Early Start for Cyclists

** Kevin Street Upper Parallel Side Road Ped Phase during Phase A

*** Kevin Street Upper Parallel Side Road Traffic Phase during Phase C

Subject	BusConnects Core Bus Corridors Transport Modelling		
Date	February 2023		
Route	Tallaght/Clondalkin To City Centre	Job No/Ref	60599126

Patrick St / Dean St
– PM peak

2028 PM Peak Hours
Fixed Time LinSig Results

Cycle Time = 120 secs
PRC = -33.4%,
Junction Delay = 148.3 PCUhr

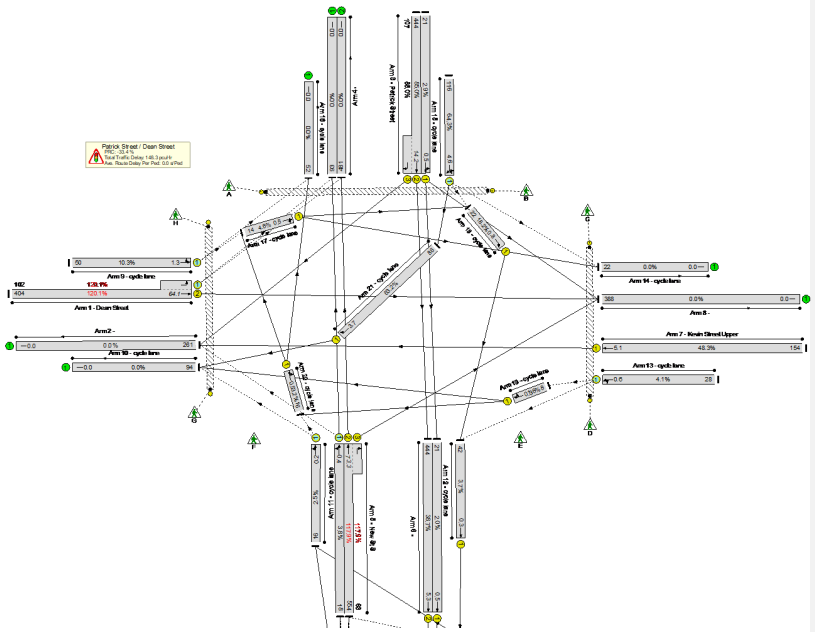
MMQ, CBC arms:
Inbound – 368.57m
Outbound – 29.32m

Bus Av. Delay (s/pcu):
Inbound – 368.3sec
Outbound – 73sec

Cyclists Av. Delay (s/pcu):
Inbound – 37.4sec
Outbound – 24.7sec

Car Av. Delay (s/pcu), CBC arms:
Inbound – 395.3sec
Outbound – 56.2sec

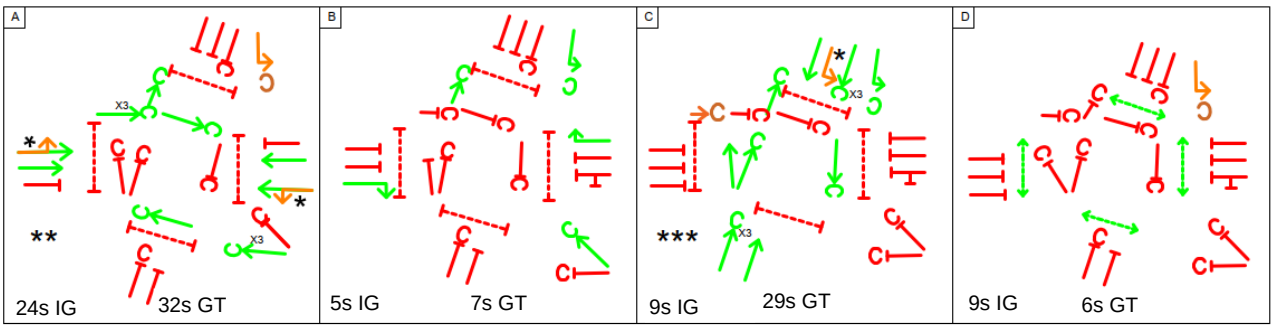
Network Layout Diagram (LinSig) - DS2028_PM



People Movement Assessment DS2028 PM

30.Patrick Street - Dean Street Junction	CBC		All Arms	
Mode	**People Movement**	**Mode Share**	**People Movement**	**Mode Share**
Car	79	1%	1,897	17%
Bus	2,880	51%	5,700	53%
Walk	2,102	37%	2,102	20%
Cycle	630	11%	1,050	10%
Total	**5,692**	**100%**	**10,750**	**100%**

INDICATIVE METHOD OF CONTROL



* denotes Flashing Amber
X3 denotes Advance 3 seconds Early Start for Cyclists

** Kevin Street Upper Parallel Side Road Ped Phase during Phase A

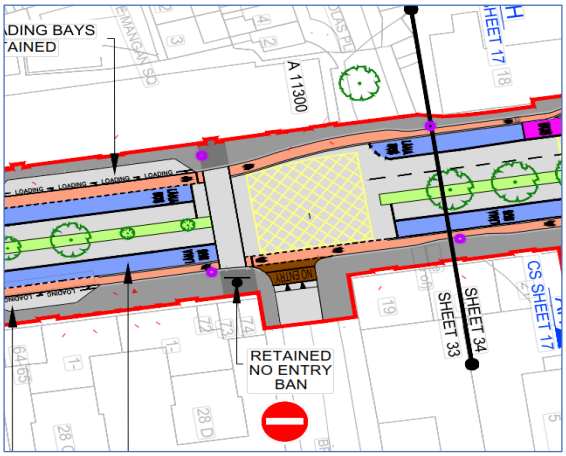
*** Kevin Street Upper Parallel Side Road Traffic Phase during Phase C

Subject	BusConnects Core Bus Corridors Junction Design Report		
Date	February 2023		
Route	Tallaght/Clondalkin To City Centre	Job No/Ref	60599126

Junction: **Patrick St / Bride Road**

EXISTING

FINAL DESIGN



Summary
The existing junction is to be upgraded as per the BusConnects Preliminary Design Guidance Booklet to enhance pedestrian, cyclist and bus priority infrastructure.

Pedestrian Infrastructure
Direct Pedestrian crossing is proposed on the western arm of the junction on Patrick Street. Furthermore the corner radius is proposed to be reduced where feasible to assist in reducing vehicular speeds at the junction.

Cyclists Infrastructure
Cycle tracks are proposed along Patrick Street/Nicholas Street both inbound and outbound directions.

Bus Priority Infrastructure
It is proposed to provide junction priority as per Junction Type 1, where the bus lane is proposed upto the stop line in both inbound and outbound directions along Patrick Street/Nicholas Street.

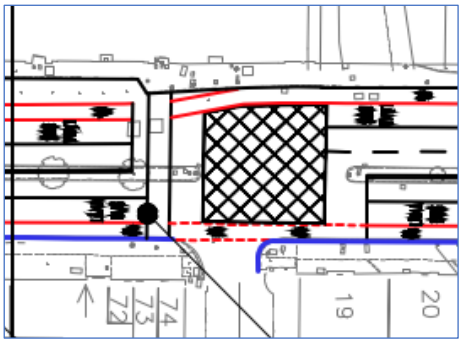
Subject	BusConnects Core Bus Corridors Junction Design Report		
Date	February 2023		
Route	Tallaght/Clondalkin To City Centre	Job No/Ref	60599126

Design Evolution

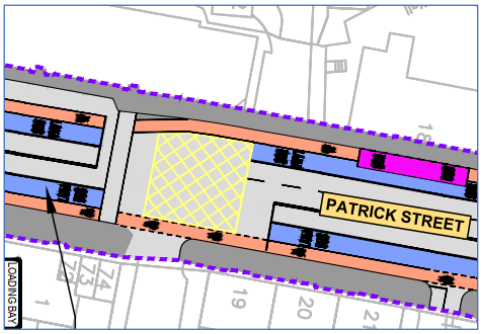
The proposed junction design has evolved on the BusConnects project from initial Concept Design, Emerging Preferred Route, Public Consultation 2, Public Consultation 3 up to the Current Design. The junction design iterations have been undertaken to optimise pedestrian, cyclist and bus priority infrastructure on the scheme.

Existing

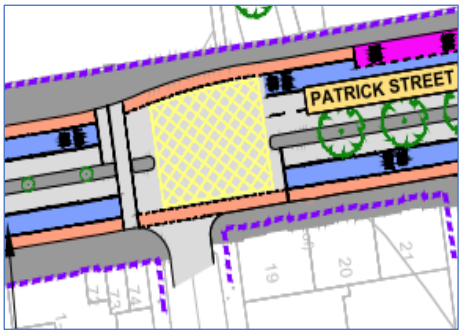
Concept Design Drawing



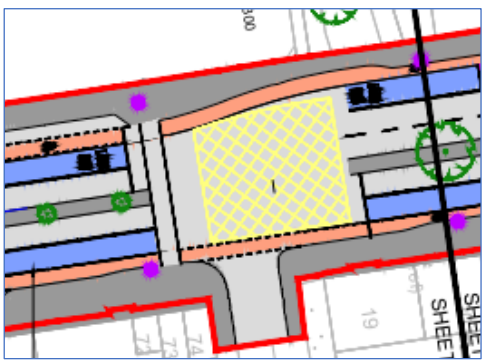
Emerging Preferred Route



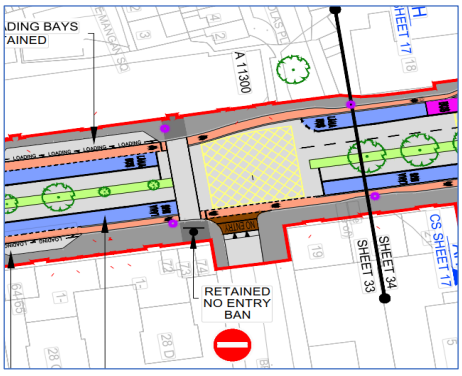
Public Consultation 2



Public Consultation 3



Final Preliminary Design



Subject	BusConnects Core Bus Corridors Transport Modelling		
Date	February 2023		
Route	Tallaght/Clondalkin To City Centre	Job No/Ref	60599126

Patrick St / Bride Road – AM peak

2028 AM Peak Hours
Fixed Time LinSig Results

Cycle Time = 100 secs
PRC = 49.2%,
Junction Delay = 12.1 PCUhr

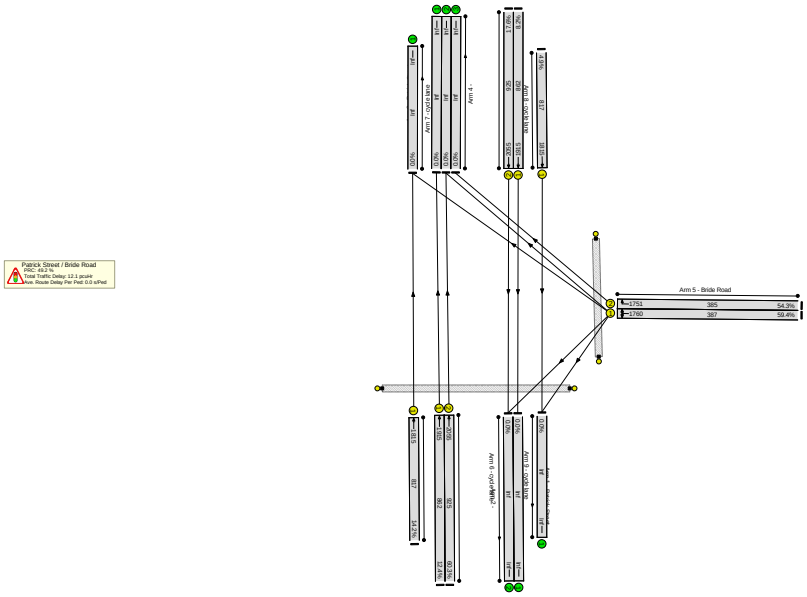
MMQ, CBC arms:
Inbound – 71.30m
Outbound – 16.1m

Bus Av. Delay (s/pcu):
Inbound – 18.4sec
Outbound – 18sec

Cyclists Av. Delay (s/pcu):
Inbound – 18.7sec
Outbound – 17.8sec

Car Av. Delay (s/pcu), CBC arms:
Inbound – 25.7sec
Outbound – 18.8sec

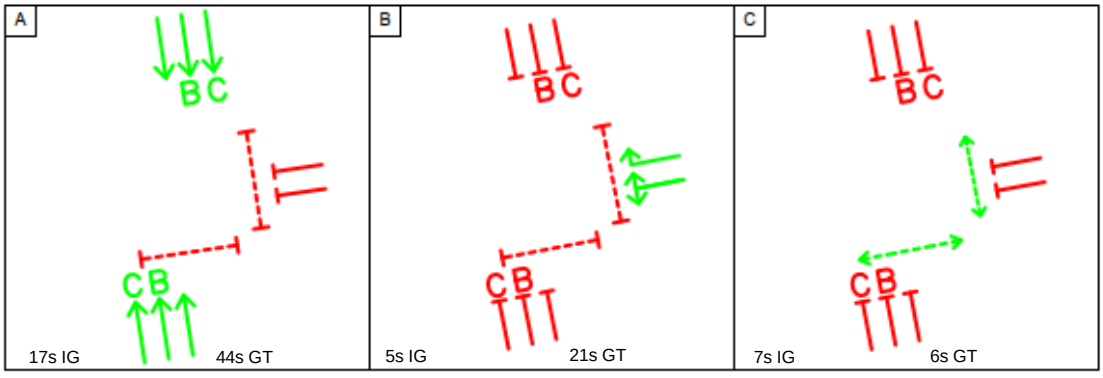
Network Layout Diagram (LinSig) - DS2028_AM



People Movement Assessment DS2028 AM

31.Patrick St - Bride Rd Junction	CBC		All Arms	
Mode	People Movement	Mode Share	People Movement	Mode Share
Car	865	15%	1,387	22%
Bus	3,540	60%	3,540	55%
Walk	696	12%	696	11%
Cycle	780	13%	800	12%
Total	**5,881**	**100%**	**6,423**	**100%**

INDICATIVE METHOD OF CONTROL



Subject	BusConnects Core Bus Corridors Transport Modelling		
Date	February 2023		
Route	Tallaght/Clondalkin To City Centre	Job No/Ref	60599126

Patrick St / Bride Road – PM peak

2028 PM Peak Hours
Fixed Time LinSig Results

Cycle Time = 100 secs
PRC = 91.0%,
Junction Delay = 9.9 PCUhr

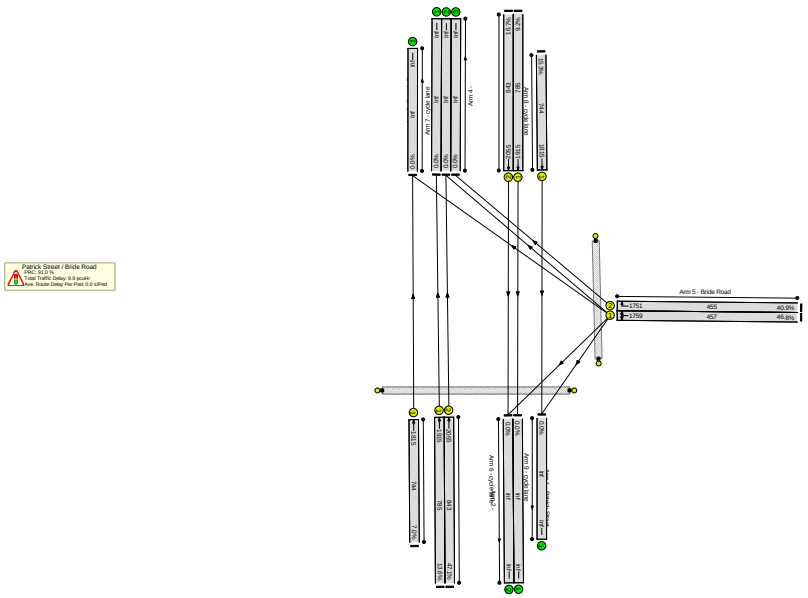
MMQ, CBC arms:
Inbound – 48.88m
Outbound – 14.95m

Bus Av. Delay (s/pcu):
Inbound – 21.1sec
Outbound – 20.6sec

Cyclists Av. Delay (s/pcu):
Inbound – 20.6sec
Outbound – 21.4sec

Car Av. Delay (s/pcu), CBC arms:
Inbound – 25.6sec
Outbound – 21.3sec

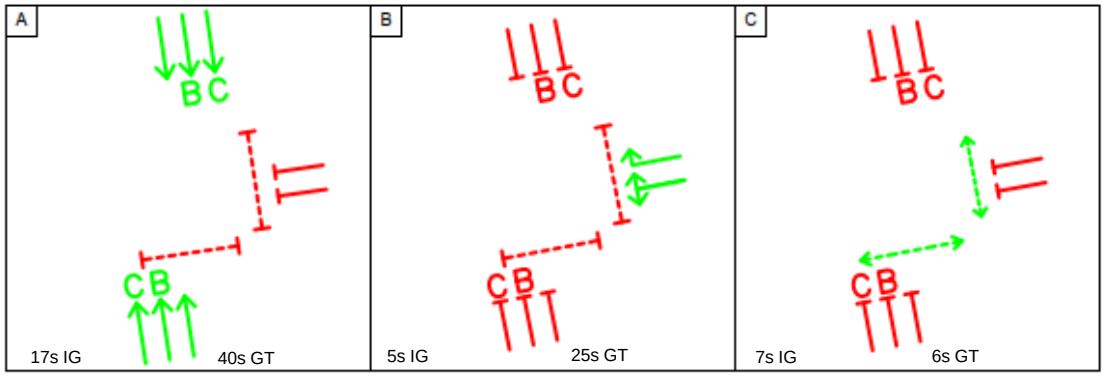
Network Layout Diagram (LinSig) - DS2028_PM



People Movement Assessment DS2028 PM

31.Patrick Rd - Bride Rd Junction	CBC		All Arms	
Mode	People Movement	Mode Share	People Movement	Mode Share
Car	646	11%	1,121	18%
Bus	3,600	64%	3,600	59%
Walk	574	10%	574	9%
Cycle	830	15%	850	14%
Total	**5,649**	**100%**	**6,144**	**100%**

INDICATIVE METHOD OF CONTROL

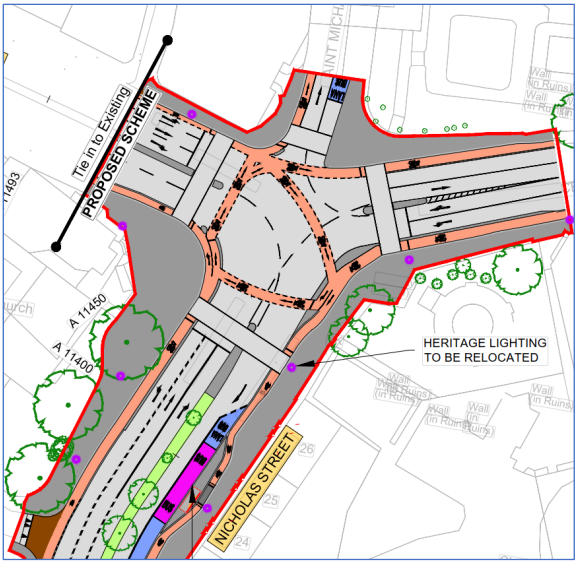


Subject	BusConnects Core Bus Corridors Junction Design Report		
Date	February 2023		
Route	Tallaght/Clondalkin To City Centre	Job No/Ref	60599126

Junction: **Nicholas St / Christchurch Rd**

EXISTING

FINAL DESIGN



Summary
The existing junction is to be upgraded as per the BusConnects Preliminary Design Guidance Booklet to enhance pedestrian, cyclist and bus priority infrastructure

Pedestrian Infrastructure
The existing pedestrian infrastructure is proposed to be upgraded. The proposal will remove the pedestrian island on High Street to allow for a single stage crossing and a larger footway. A single stage crossing is proposed on Christchurch Place instead of the existing two stage crossing. On Nicholas Street the proposed pedestrian crossing has been moved further south to allow for a single stage crossing instead of the existing three stage crossing, to provide a more direct and convenient crossing for pedestrians.
This junction is subject to high volumes of pedestrians in the existing situation. The proposal will assist to capture for pedestrian permeability at this location.

Cyclists Infrastructure
The proposal is to upgrade the junction to cater for cycle tracks on all arms entering and exiting the junction. Dedicated cycle crossings have been proposed across the junction. A direct cyclist crossing is also proposed to cater for movements from High Street to Nicholas Street to cater for the cyclist desire line. Were feasible, physical build outs are proposed to offer cyclists greater protection

Bus Priority Infrastructure
It was not feasible to propose a bus lanes through the junction. On the southbound lane of Patrick Street there is a tapered bus lane start, and on the northbound side there is a break in the bus lane in advance of the junction to cater for vehicle movements and to facilitate buses getting into Lane 2 ahead towards Winetavern Street. On High Street, the bus lane is proposed to be curtailed to facilitate a shared bus and left turn lane into Winetavern street. The projected low volume of left turning vehicles in the projected opening year will ensure traffic can be catered in the shared lane to assist in minimizing the impact upon bus priority

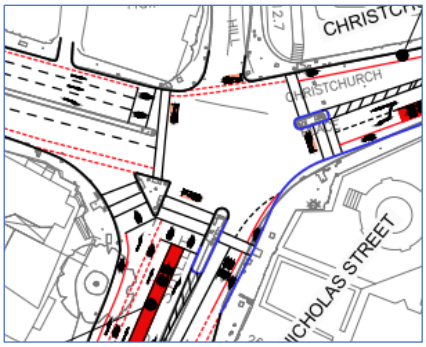
Subject	BusConnects Core Bus Corridors Junction Design Report		
Date	February 2023		
Route	Tallaght/Clondalkin To City Centre	Job No/Ref	60599126

Design Evolution

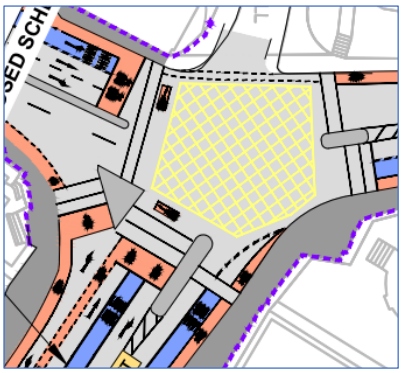
The proposed junction design has evolved on the BusConnects project from initial Concept Design, Emerging Preferred Route, Public Consultation 2, Public Consultation 3 up to the Current Design. The junction design iterations have been undertaken to optimise pedestrian, cyclist and bus priority infrastructure on the scheme.

Existing

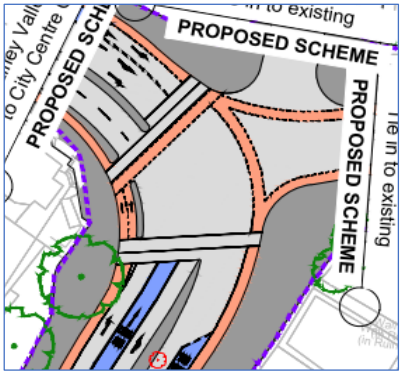
Concept Design Drawing



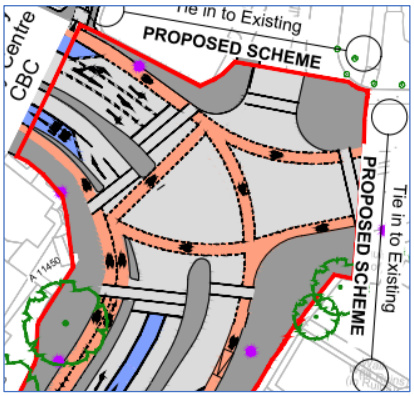
Emerging Preferred Route



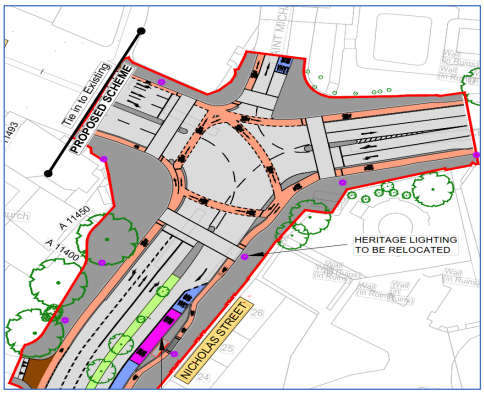
Public Consultation 2



Public Consultation 3



Final Preliminary Design



Subject	BusConnects Core Bus Corridors Transport Modelling		
Date	February 2023		
Route	Tallaght/Clondalkin To City Centre	Job No/Ref	60599126

Nicholas St / Christchurch Rd – AM peak

2028 AM Peak Hours
Fixed Time LinSig Results

Cycle Time = 120 secs
PRC = -27.0%,
Junction Delay = 97.2 PCUhr

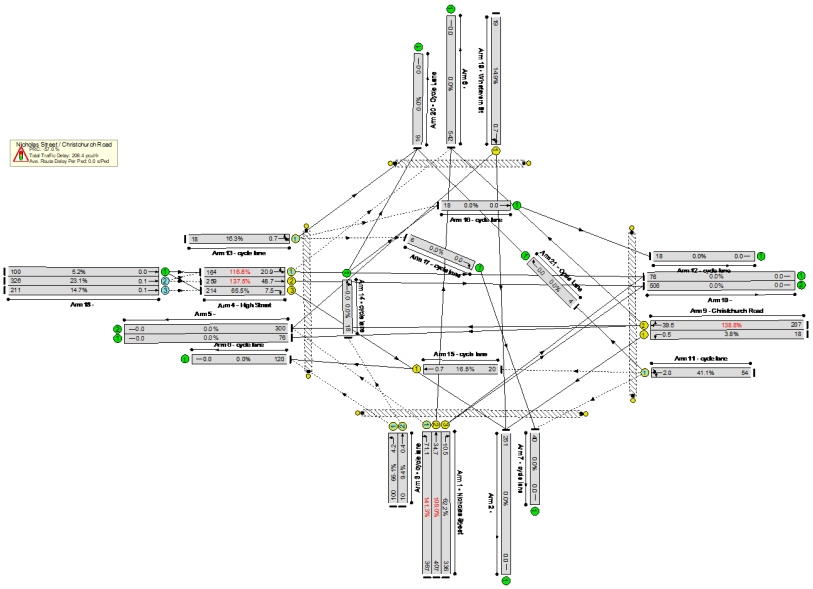
MMQ, CBC arms:
Inbound – 267.85m
Outbound – 408.82m

Bus Av. Delay (s/pcu):
Inbound – 397.2sec
Outbound – 637sec

Cyclists Av. Delay (s/pcu):
Inbound – 71.5sec
Outbound – 74.5sec

Car Av. Delay (s/pcu), CBC arms:
Inbound – 619.2sec
Outbound – 637sec

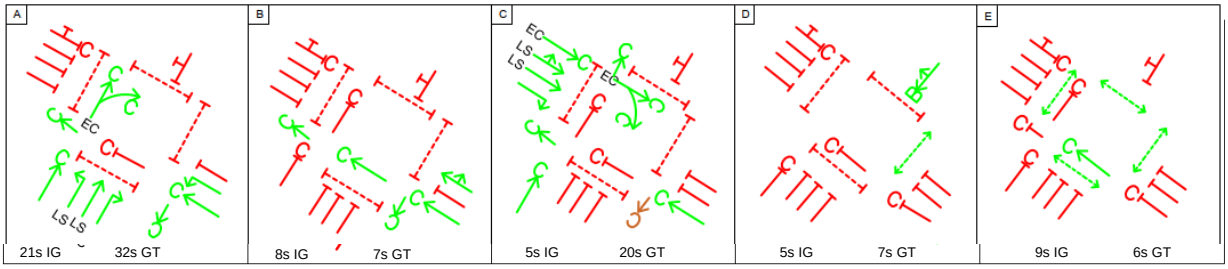
Network Layout Diagram (LinSig) - DS2028_AM



People Movement Assessment DS2028 AM

32.Christchurch Rd - Nicholas St Junction	CBC		All Arms	
Mode	People Movement	Mode Share	People Movement	Mode Share
Car	694	22%	2,046	20%
Bus	60	2%	5,340	52%
Walk	1,908	60%	1,908	18%
Cycle	530	16%	970	10%
Total	**3,192**	**100%**	**10,264**	**100%**

INDICATIVE METHOD OF CONTROL



EC - Early Cut-Off
LS - Late Start

Subject	BusConnects Core Bus Corridors Transport Modelling		
Date	February 2023		
Route	Tallaght/Clondalkin To City Centre	Job No/Ref	60599126

Nicholas St / Christchurch Rd – PM peak

2028 PM Peak Hours
Fixed Time LinSig Results

Cycle Time = 120 secs
PRC = -46.3%,
Junction Delay = 130.6 PCUhr

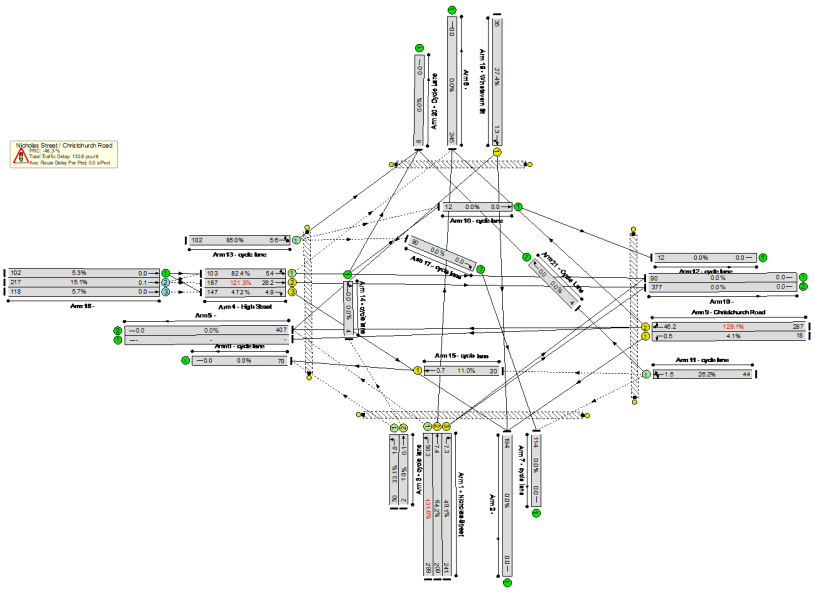
MMQ, CBC arms:
Inbound – 150.65m
Outbound – 289.23m

Bus Av. Delay (s/pcu):
Inbound – 124.1sec
Outbound – 72.6sec

Cyclists Av. Delay (s/pcu):
Inbound – 134.1sec
Outbound – 62sec

Car Av. Delay (s/pcu), CBC arms:
Inbound – 445.6sec
Outbound – 524.6sec

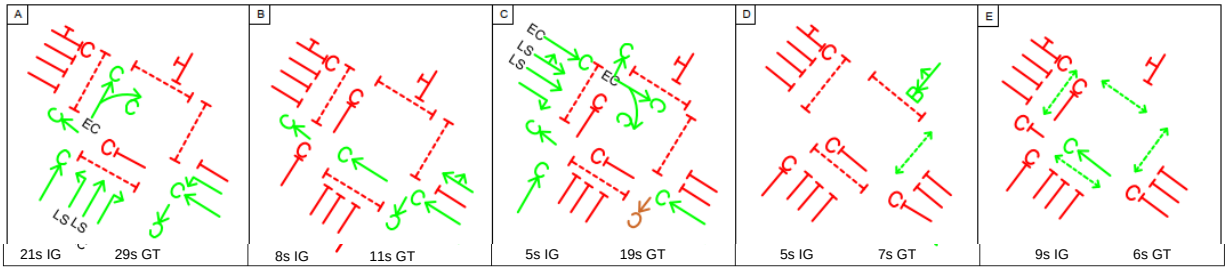
Network Layout Diagram (LinSig) - DS2028_PM



People Movement Assessment DS2028 PM

32.Christchurch Rd - Nicholas St Junction	CBC		All Arms	
Mode	People Movement	Mode Share	People Movement	Mode Share
Car	535	15%	1,465	14%
Bus	0	0%	5,400	53%
Walk	2,336	65%	2,336	23%
Cycle	700	20%	1,020	10%
Total	**3,572**	**100%**	**10,222**	**100%**

INDICATIVE METHOD OF CONTROL



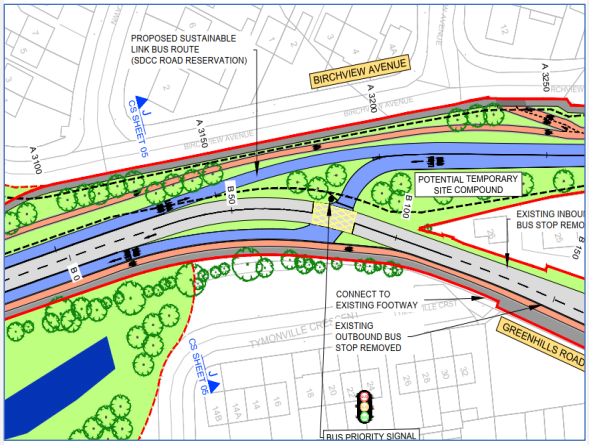
EC - Early Cut-Off
LS - Late Start

Subject	BusConnects Core Bus Corridors Junction Design Report		
Date	February 2023		
Route	Tallaght/Clondalkin To City Centre	Job No/Ref	60599126

Junction: **Greenhills Rd / Old Greenhills Rd**

EXISTING

FINAL DESIGN



Summary
A new bus gate is proposed to enhance bus priority onto the proposed bus route. Upgrades to cyclist and pedestrian infrastructure are also proposed

Pedestrian Infrastructure
The proposal will introduce an offline footway along Birchview Avenue and also along the proposed bus route. An additional footway is proposed along the southern side of Greenhills Road which connects to the existing footway

Cyclists Infrastructure
An inbound and outbound cycle track is proposed along Greenhills Road and the proposed bus route. The inbound cycle track is proposed along the existing green, which eventually connects to Birchview Avenue

Bus Priority Infrastructure
It is proposed to introduce a bus lane along Greenhills Road and construct a dedicated bus route to the north of Greenhills Road. A bus gate across Greenhills Road is proposed to facilitate outbound buses, when an outbound bus approaches the stop line, Greenhills Road general traffic will be held to accommodate bus priority

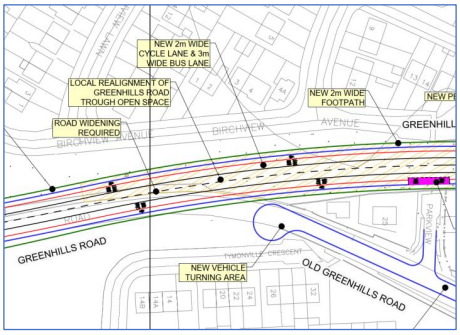
Subject	BusConnects Core Bus Corridors Junction Design Report		
Date	February 2023		
Route	Tallaght/Clondalkin To City Centre	Job No/Ref	60599126

Design Evolution

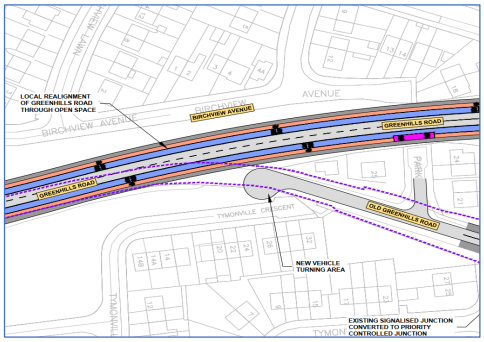
The proposed junction design has evolved on the BusConnects project from initial Concept Design, Emerging Preferred Route, Public Consultation 2, Public Consultation 3 up to the Current Design. The junction design iterations have been undertaken to optimise pedestrian, cyclist and bus priority infrastructure on the scheme.

Existing

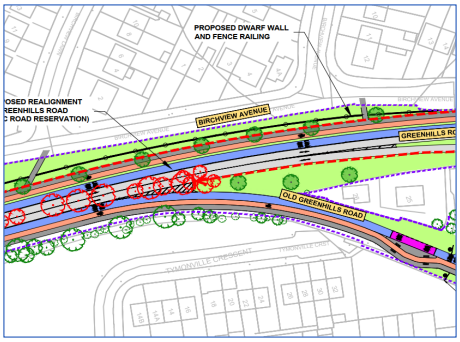
Concept Design Drawing



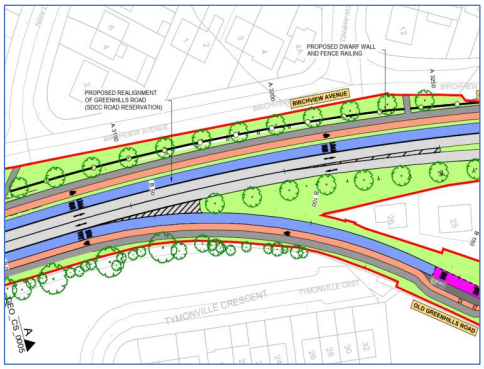
Emerging Preferred Route



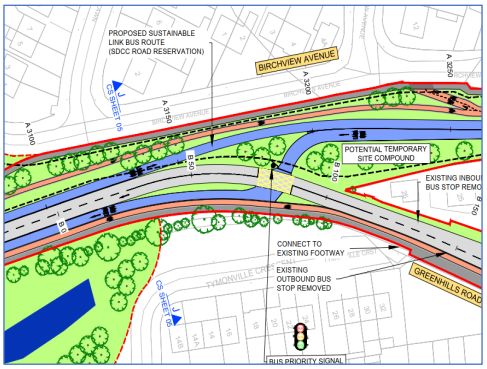
Public Consultation 2



Public Consultation 3



Final Preliminary Design



Subject	BusConnects Core Bus Corridors Transport Modelling		
Date	February 2023		
Route	Tallaght/Clondalkin To City Centre	Job No/Ref	60599126

Greenhills Rd / Old Greenhills Rd – AM peak

2028 AM Peak Hours
Fixed Time LinSig Results

Cycle Time = 120 secs
PRC = 156.6%,
Junction Delay = 1.7 PCUhr

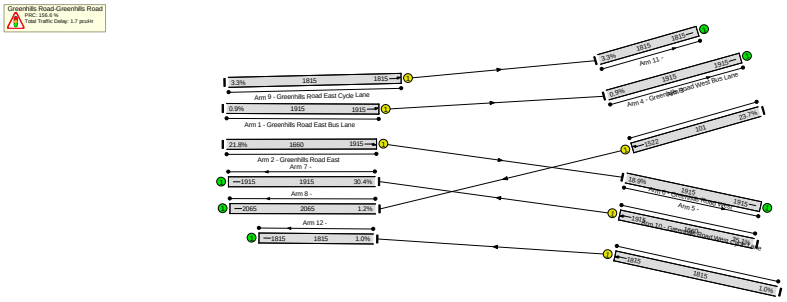
MMQ, CBC arms:
Inbound – 12.07m
Outbound – 21.85m

Bus Av. Delay (s/pcu):
Inbound – 0.9 sec
Outbound – 76.3sec

Cyclists Av. Delay (s/pcu):
Inbound – 1.0sec
Outbound – 1.0sec

Car Av. Delay (s/pcu), CBC arms:
Inbound – 2.7sec
Outbound – 3.2sec

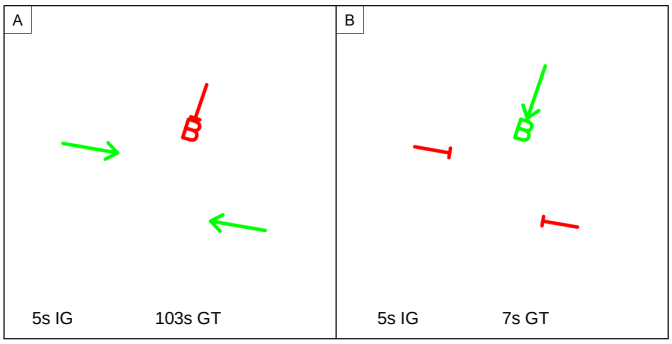
Network Layout Diagram (LinSig) - DS2028_AM



People Movement Assessment DS2028 AM

13a. Greenhills Rd - Castletymon Rd Junction	CBC		All Arms	
Mode	People Movement	Mode Share	People Movement	Mode Share
Car	1,133	58%	1133	58%
Bus	480	0%	480	25%
Walk	0	1%	0	0%
Cycle	325	17%	325	17%
Total	**1938**	**100%**	**2,292**	**100%**

INDICATIVE METHOD OF CONTROL



Subject	BusConnects Core Bus Corridors Transport Modelling		
Date	February 2023		
Route	Tallaght/Clondalkin To City Centre	Job No/Ref	60599126

Greenhills Rd / Old Greenhills Rd – PM peak

2028 PM Peak Hours
Fixed Time LinSig Results

Cycle Time = 120 secs
PRC = 182.9%,
Junction Delay = 1.8 PCUhr

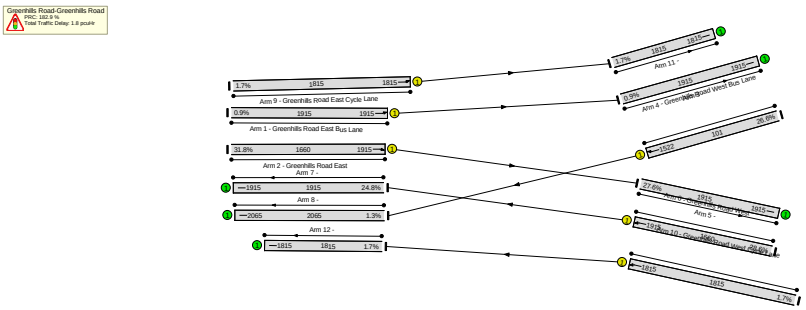
MMQ, CBC arms:
Inbound – 20.12m
Outbound – 17.25m

Bus Av. Delay (s/pcu):
Inbound – 0.9sec
Outbound – 77.3sec

Cyclists Av. Delay (s/pcu):
Inbound – 1.0sec
Outbound – 1.0sec

Car Av. Delay (s/pcu), CBC arms:
Inbound – 3.1sec
Outbound – 2.9sec

Network Layout Diagram (LinSig) - DS2028_PM



People Movement Assessment DS2028 PM

13a. Greenhills Rd - Castletymon Rd Junction	CBC		All Arms	
Mode	People Movement	Mode Share	People Movement	Mode Share
Car	1202	60%	1202	60%
Bus	540	27%	540	27%
Walk	0	0%	0	0%
Cycle	275	14%	275	14%
Total	**2017**	**100%**	**2017**	**100%**

INDICATIVE METHOD OF CONTROL