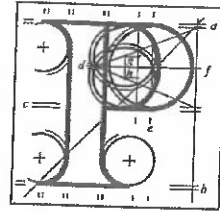


Our Case Number: ABP-314597-22



An
Bord
Pleanála

Shane Foran
68 Gort Greine
Rahoon
Co. Galway

Date: 01 December 2022

Re: BusConnects Galway Cross-City Link Scheme.
University Road to Dublin Road, Galway City.

Dear Sir / Madam,

An Bord Pleanála has received your recent submission in relation to the above-mentioned proposed road development and will take it into consideration in its determination of the matter. A receipt for the fee lodged is enclosed.

Please note that the proposed road development shall not be carried out unless the Board has approved it or approved it with modifications.

The Board has also received an application for confirmation of a compulsory purchase order which relates to this proposed road development. The Board has absolute discretion to hold an oral hearing in respect of any application before it, in accordance with section 218 of the Planning and Development Act 2000, as amended. Accordingly, the Board will inform you in due course on this matter. The Board shall also make a decision on both applications at the same time.

If you have any queries in relation to this matter please contact the undersigned officer of the Board.

Please quote the above-mentioned An Bord Pleanála reference number in any correspondence or telephone contact with the Board.

Yours faithfully,

Niamh Thornton
Executive Officer
Direct Line: 01-8737247

HA02A

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Shane Foran
68 Gort Greine
Rahoon
Galway

087 9935993

17 November 2022

FAO: An Bord Pleanála

Observation Regarding: Case reference: HA61.314597 University Road to Dublin Road, Galway City

Applicant: (Galway City Council)

Development Description: Application to An Bord Pleanála, under Section 51 of the Roads Act 1993, for the proposed BusConnects Galway: Cross-City Link (University Road to Dublin Road) scheme.

I am a Community Representative on the Transport Strategic Policy Committee of Galway City Council. I request an oral hearing into the above scheme. Please find below my observations.

The overall intent of the Bus Connects scheme is welcome. Particularly welcome is the stated intent of reducing private car traffic on some city streets and prioritising public transport and provisions for walking. I note that much of the bus priority proposals, such as bus gates and restricting certain streets to certain types of traffic, could be trialed without major engineering works and could be achieved with temporary road signage and temporary traffic lights or other devices linked to vehicle sensors. In my view this would be a better approach to the scheme at this time.

My main concern with the scheme is the manner of the treatment of bicycle users who it seems are to be systematically obstructed and impeded by the nature of the road designs proposed. The roads engineering proposals are in my view in direct conflict with international best practice and in conflict with long understood principles of urban roads management. The proposals make no attempt to address established barriers to bicycle use in Galway City while at the same time adding more barriers. A particular point of concern is the obstruction of cycling on key routes serving the university and a large teaching hospital.

I am attaching a document that I prepared for the Galway City Community Network containing observations on the treatment of cycling in the Bus Connects proposals and the Galway Transportation Strategy.

Recommendation

The proposals should be rejected in their current form and the applicant instructed to modify the scheme to reflect the recommendations of the National Cycle Policy Framework and the various design sources cited so as to provide for convenient and logical bicycle access consistent with a small university city in Northern Europe.

Yours Sincerely,

Shane Foran

Appendix: Observations on the treatment of cycling in the Bus Connects Galway Cross City Link (University Road to Dublin Road) scheme: Application: HA61.314597

Prepared by Shane Foran, Galway City Community Network representative on the Galway City Council Strategic Policy Committee on Transport.

Date: 18-November-2022

Summary

The 2022 Bus Connects Galway Cross City Link proposals provide for traffic lane widths of 3.0-3.25m on main roads across the city. This represents the systematic removal of road capacity from cyclists and the systematic creation of inconvenience and obstruction for bicycle users who meet slower or halted motor vehicles. The lane width recommendations in Bus Connects Galway are not compliant with international best practice. A likely outcome of the current proposals is to discourage cycling in general and to further encourage and reinforce cycling on footpaths (footways). The Bus Connects Galway designers claim the *National Cycle Manual* (NCM) and *Design Manual for Urban Roads and Streets* (DMURS) as the source of this advice. It is shown that these design sources are not credible in this context. For DMURS, it is shown that the representation of the lane width advice does not reflect the original source material (*Manual for Streets*). It is further shown that the original source findings were based on very low traffic residential roads. The advice in DMURS recommending unsuitable lane widths for arterial and link roads in Ireland cannot be said to be based on research that examined this practice on actual link or arterial roads. In the *National Cycle Manual*, the interpretation of the lane width advice is not compatible with the original source and may result from an error in transcription. With regards to bus lanes shared with cyclists, the default guidance in DMURS is shown to be based on dimensions that prevent buses or bicycles from overtaking each other in the same lane. The default advice on shared bus lanes in DMURS is treated by other sources as an option of last resort to be used only after all other options have been exhausted. A desktop review has been conducted of the sample road cross sections provided in the Bus Connects documentation. It is found that in most cases there is scope for improvements in cycling provision while maintaining footpath and traffic lane widths to accepted standards. A review of the one-way street proposals in Bus Connects shows them to be paradoxical and inconsistent with commonly understood interventions to provide for cycling access. Based on the published drawings, there is no convenient way for cyclists coming from the east to access the new "cycle" bridge at Newtownsmith. The Bus Connects proposals provide only two direct routes for bicycle users from the east of the city to access the mediaeval core of the city and the older western districts of Claddagh, Dominick St etc. One of these two routes is a hostile multi-lane one-way system around the city's docks. There is also concern for the junction and crossing arrangements throughout the scheme which is beyond the scope of this document. These matters are best dealt with through an oral hearing.

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Policy sources:

The Galway City Community Network has incorporated the 2009 National Cycle Policy Framework (NCPF) into its own policy documents. Although the Minister for Transport recently announced that the NCPF was being replaced, there does not appear to be any equivalent replacement document at this time and it remains GCCN policy. This discussion focuses on issues such as the impact for cycling of lane widths, one-way street systems, how to permit people on bicycles to maintain progress and how best to provide space for cycling. These matters are all covered in the NCPF and the advice given in the NCPF supports the concerns raised below. It is also important to note that the NCPF supports interventions to reduce traffic dominance in towns and cities.

The section Extracts from Policy Sources at the end provides extracts from the NCPF regarding these policy areas.

Space for Cycling: The credibility of the design sources used for the Bus connects proposals

The 2022 Bus Connects Galway Cross City Link proposals provide for traffic lane widths of 3.0-3.25m on main roads across the city. This represents the systematic removal of road capacity from cyclists and the systematic creation of inconvenience and obstruction for bicycle users who meet slower or halted motor vehicles. The lane width recommendations in Bus Connects Galway are not compliant with international best practice. The Bus Connects Galway designers claim the *National Cycle Manual (NCM)* and *Design Manual for Urban Roads and Streets (DMURS)* as the source of this road design advice



Figure 1: Photograph showing the impact that using a 3.2m traffic lane on an arterial road has on road space for people on bicycles. Location: Tuam Road, Galway.



Figure 2 Photograph showing the impact that using a 3.2m traffic lane on an arterial road has on road space for people on bicycles. Location: Tuam Road, Galway.

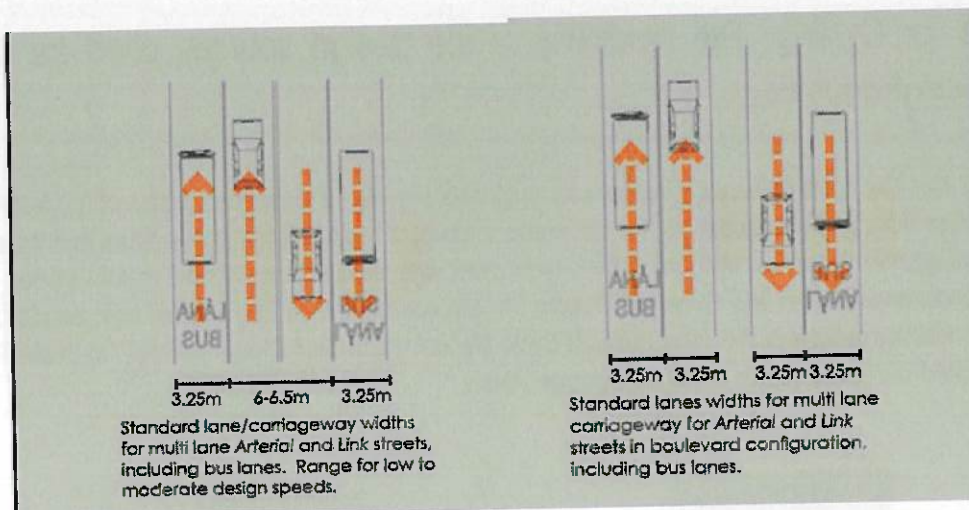


Figure 3 Extracts from DMURS Showing unsuitable lane widths. On page 113 DMURS states: "When carrying out upgrades, or traffic calming works on existing streets, the first priority of authorities should be to narrow existing carrageways where they exceed those standards listed above" Note these examples also show bus lanes of width 3.25m.

It is a long understood principle of designing for cycling that adequate lane width is needed in situations where mixed traffic conditions apply. *Cycle-Friendly Infrastructure* (IHT 1996) argued for a marked lane width of 4.25m; *Cycling: The way ahead for towns and cities*, the 1999 European Commission policy document on cycle promotion, lists "widening of right-hand lanes" as a specific measure for cycling that does not require planning. The 2009 *Irish National Cycle Policy Framework* has a Hierarchy of Solutions that includes "(4) Redistribution of the carrageway - Can the carrageway be redistributed? Such as by marking wide kerb lanes or shared bus/cycle lanes?"

In Section 4.4.2 *Traffic lane widths*, the 2016 *London Cycling Design Standards* (TFL 2016) state: "The rule-of-thumb is to avoid situations where motorised vehicles and cyclists are expected to move together through a width between 3.2 metres and 4 metres [...] Traffic composition also needs to be taken into account. Where there are larger vehicles, the minimum nearside lane width for safe, comfortable overtaking should be 4.5 metres. It should also be noted that widths greater than 4 metres are preferable for most non-standard cycles because of their additional width."

The current *Cycling Embassy of Denmark* guidelines state "On roads where cars drive 30-50 km/ h and often pass cyclists at the same time as cars coming from the opposite direction pass by, the choice should be whether to segregate cyclists from cars or mix cyclists and cars in a wide traffic lane, depending on traffic volumes, parking facilities and available space."

The issue of the negative effects of narrow lanes and engineered pinch points has long been a concern for people who use bicycles and has been raised repeatedly in various submissions. The 2009 *National Cycle Policy Framework* (NCPF) defined road narrowing schemes as a cycling unfriendly intervention that requires remedial treatment. DMURS does not refer to the *National Cycle Policy Framework* anywhere in the text.

NCPF Page 20

2.5 Audits of Existing Infrastructure

We will carry out audits of existing urban infrastructure to assess the quality of the cycling routes using an agreed set of criteria. This would include not only existing dedicated cycling facilities but all of the other

elements of the roads infrastructure used by cyclists – roundabouts, one-way streets, road narrowings, *narrow traffic lanes*

Various sources cited in this document give a kinematic envelope for a moving cyclist that is 1m wide allowing for 75-80cm for the cyclist. The *National Cycle Manual* gives a figure of 75cm for the width of a cyclist. NASA provides dimensions for average human beings that give 55cm as the width of a human male from elbow to elbow. The table given below on page 15 shows the residual space left in a narrow traffic lane (3.0 to 3.25m) if a SUV, a van or an articulated trailer is centrally positioned in the lane. In all cases there is not sufficient width for a theoretical design cyclist. In the cases highlighted in yellow there is not physically enough space for an adult male.

An effect of using narrow lanes on roads with heavy traffic is that unprotected people on bicycles are arguably being used as a form of mobile traffic calming. When queues of vehicles form, cyclists are similarly obstructed from maintaining progress and may take to the footpaths. Examples of this in Galway City can be found on Bishop O'Donnell Road and on Fr. Griffin Road at the fire station where the city council has chosen to remove road space from cyclists for the purpose of storing queueing cars (See specific discussion below). It was also tried previously on the Old Dublin Road at Renmore when, despite warnings from the Galway Cycling Campaign, the outbound lane was narrowed to provide an inbound bus lane. As predicted, outbound traffic could not pass cyclists and a second scheme was required to widen the road.

Parkin 2005 (*Lancashire the Cyclists' County*) discusses the matter as follows;

A "tight" cross-section is too narrow for a motor vehicle to overtake a bicycle within the lane. Motor vehicles following cycle traffic within a tight cross-section, or suddenly braking to do so, can be very intimidating. Cycle traffic can operate comfortably in a tight cross-section only if the speeds and volumes are low and overtaking by using the outside or oncoming lane is easy. The creation of a tight cross-section, for example by footway widening, may be considered in urban central locations, but can be intimidating for cyclists being followed by motor vehicles.

The consensus guidance on cycling infrastructure is simple: mixed or shared street cycling on narrow traffic lanes should only be recommended where there is little or no through-traffic and traffic speeds and volumes are low (particularly HGV volumes). Thus, unless meaningful and systematic reductions in through-traffic, traffic speed, and removal of HGVs is ensured, then this is entirely incompatible with best practice to ensure the safety and appeal of cycling on these streets.

Table 4.1.1 Cross-section comments and mitigation

	Spacious	Critical	Tight
Definition	Sufficient room to safely overtake cycle traffic	Dangerous close overtaking	No room within the lane for overtaking of cycle traffic
Dimensions	At 30 mph: 4.20m (cars only) or 5.05m (HGVs) At 20mph: 3.75m (cars only) or 4.60m (HGVs)	3.10 to 3.75 metres	3.10 metres or less (cars) or 3.60 metres or less (with HGV traffic)
Comment	<ul style="list-style-type: none"> acceptable at most speeds but more space or separation needed as speed increases. 	<ul style="list-style-type: none"> not advised as it encourages dangerous overtaking; more acceptable if it is easy to overtake (e.g. little oncoming traffic, no central island). 	<ul style="list-style-type: none"> only normally acceptable for short distances; speeds lower than 20mph; good visibility; more acceptable if next to lanes that allow easy overtaking (e.g. no barrier, little traffic).
Mitigation		<ul style="list-style-type: none"> reduce speeds; an advisory cycle lane or cycle logos within the main carriageway may help to boost cyclists' confidence and keep traffic to the right. 	<ul style="list-style-type: none"> reduce speeds; wide advisory cycle lane to alert drivers to cycle traffic presence and lack of overtaking space.
Application	Main roads, distributor roads with cycle lanes	Not recommended without off-carriageway cycle path	Residential roads

Figure 4: Derived from Dutch guidance issued in 1993 (*CROW Sign up for the Bike*) this extract from *Lancashire the Cyclists County* (2005) explains why using narrow lanes is only acceptable in particular circumstances.

Unsuitable lane widths: Origins of the lane-width advice in DMURS

The rationale for the advice in DMURS is given on page 101.

4.4 Carriageway Conditions

4.4.1 Carriageway Widths

Research from the UK has found that narrow carriageways are one of the most effective design measures that calm traffic.³¹ The width of the vehicular carriageway is measured from kerb to kerb or from the outside line of a Cycle Lane or from the edges of parking spaces (where the latter facilities are provided).

DMURS gives as its source "31 Refer to Figure 7.16 of UK Manual for Streets (2007)".

However a review of this diagram from *Manual for Streets* does not support the interpretation given in DMURS. What is shown in the *Manual for Streets* is that the speed reducing effect comes from the combination of lane width and visibility along the axis of the road. The diagrams show that an 8m wide (cycling friendly) road with short forward visibility distances has a better average-speed reducing effect than a 5m wide (cycling hostile) road with long forward visibility distances.

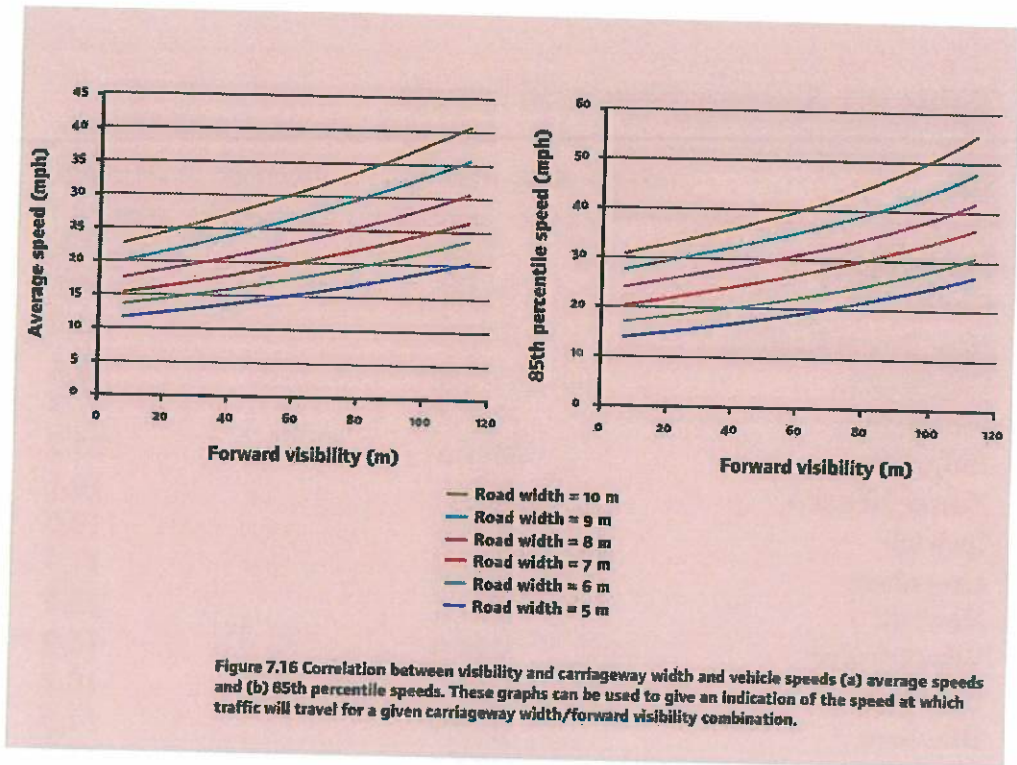


Figure 5: Figure 7.16 of UK Manual for Streets (2007)

The source for the graphs in *Manual for Streets* is TRL Report 661 *The Manual for Streets: Evidence and Research*. This discusses the sites that were surveyed in generating the graphs above. The report looked at 20 sites all of them being residential streets but chosen to include a sample of different layouts - pre war vs new build, grid vs non-grid etc. The most common thing residents liked about their streets was that they were quiet. The most common dislike was issues with car parking. Other concerns included through-traffic and traffic speed. There is a table showing the average daily traffic flows for the sites. Only one site (Belgravia) had more than 2000 vehicle movements per day and this site was excluded from further analysis. Thirteen of the sites have less than 1,000 vehicle movements a day and of these 11 have less than 500 vehicle movements a day. Therefore, the advice in DMURS recommending unsuitable lane widths for arterial and link roads in Irish towns and cities cannot be said to be based on research that examined this practice on actual link or arterial roads.

Table 4.1 Average flows and speeds

<i>Site</i>	<i>Average daily flow</i>	<i>Average speed (mph)</i>
Lower Earley	70.4	11.3
Guildford	481.9	18.2
New Town, Reading	242.6	14.4
Chichester	1372.8	19.4
Eastleigh	427.7	17.3
Belgravia	2029.5	25.7
Tower Hamlets	627.0	19.1
Ipswich	121.6	19.0
Lavenham	221.4	11.7
Newhall	482.9	15.6
Windley Tye	294.9	16.9
Beaulieu	83.8	10.2
Bloxham	112.3	12.5
Portishead	1161.1	15.8
Leicester	528.9	23.5
Manchester	1060.6	19.3
Lichfield	362.6	16.7
Glasgow	1575.4	10.3

Figure 6: Table 4.1 from TRL Report 661 The Manual for Streets: Evidence and Research

Incomplete lane width advice in the National Cycle Manual

It might be offered as a defence of the advice in DMURS that it reproduces the graph below from the 2013 *National Cycle Manual*. This graph is originally taken from Dutch guidance and in the Irish context was first seen in the 1998 document *Provision of Cycle Facilities: A National Manual for Urban Areas* which was the predecessor of the *National Cycle Manual*. The graph as now found in the *National Cycle Manual* allows for mixed lanes at traffic volumes of up to 10,000 vehicles a day and speeds up to 50km/h. The design guidance in the *National Cycle Manual* only discusses very low-traffic mixed streets of width 5.5m-7m. Therefore, a reader with no background in the field might feel permitted to assume that this graph also permits the use of 3m lanes at up to 10,000AADT and 50km/h. This would be a mistake.

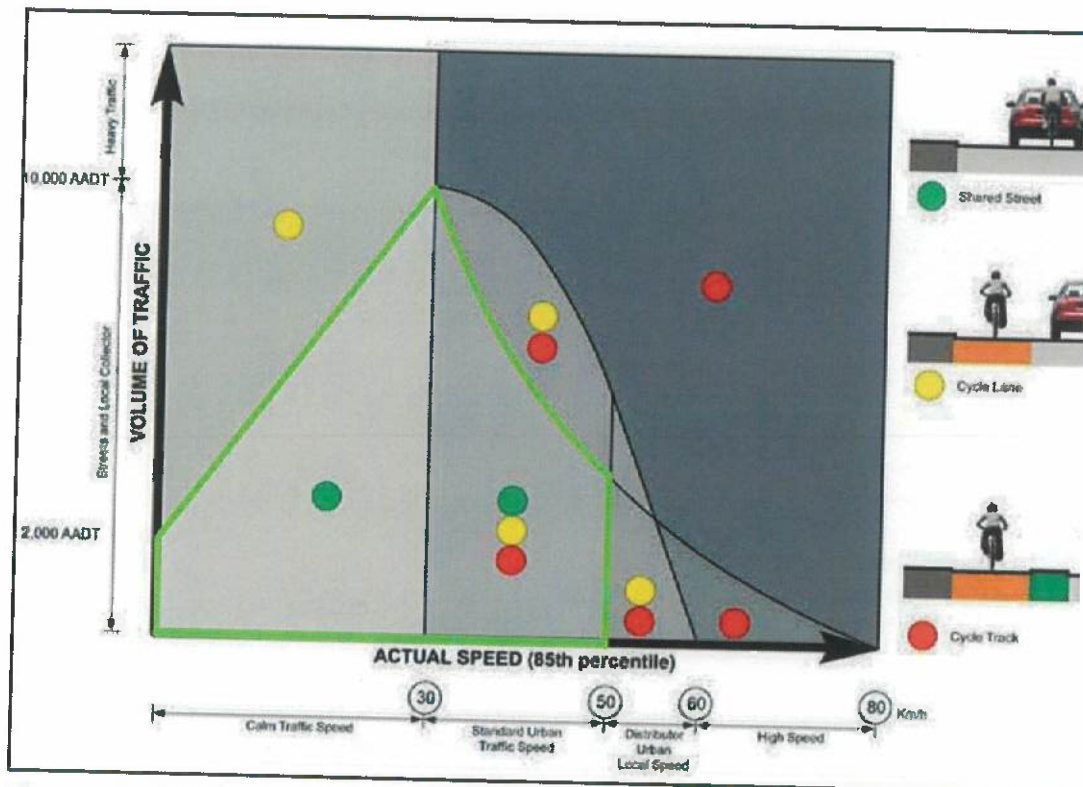


Figure 4.52: Extract from the *National Cycle Manual* (2011) which illustrates the appropriate use of segregated cycle facilities according to the volume and speed of traffic.

Figure 7: Extracts from DMURS/*National Cycle Manual* on when to use cycling facilities -mixed street scenarios outlined in green

The original guidance associated with this graph provided for narrow lane widths only at very low traffic volumes over very short distances – not more than 300m. For higher traffic volumes and situations where heavy goods vehicles were present, the guidance specified that wider carriageway widths were needed to give cyclists adequate road space. (See extracts provided below). Due to some oversight this advice, associated with the same graph, was not transcribed into the *National Cycle Manual*. Using the values given in the original guidance then for mixed traffic at a design speed of 50km/h a carriageway width of 8.4m is needed where motor vehicles are predominantly cars and 10.1m where the traffic includes HGVs. See worked examples below. These values are broadly equivalent to the carriageway widths specified in *Lancashire the Cyclists County* and in *Parkin* 2018.

Table 5.1

Widths of tight, critical and spacious lanes

Speed limit (miles per hour)	Traffic mix	Tight (m)	Critical (m)	Spacious (m)
30	Cars only	<3.1	3.1-4.3	>4.3
	With larger vehicles	<3.6	3.6-5.0	>5.0
20	Cars only	<3.1	3.1-3.8	>3.8
	With larger vehicles	<3.6	3.6-4.6	>4.6

the cyclist should be the same distance that a driver would give to a car that he or she might overtake, but may be acceptable in low-flow situations where there is little oncoming traffic. Mitigation measures

Figure 7: Extract from Parkin (*Designing for Cycle Traffic* 2018) showing 4.3m and 5.m lane widths needed for sharing with passenger cars or HGVs respectively at 30mph (50km/h)

TABLE 3.5 MEASURING DRIVING SPEEDS TO DETERMINE THE WIDTH OF A CROSS-SECTION (SIZES IN METRES)

Driving Speed Measuring-segment	Maximum 30 km/h	Maximum 50 km/h
Cyclist		0.75
Passenger car		1.75
Goods vehicle		2.60
Bicycle to edge (kerbstone)		0.25
Bicycle to parked vehicle		0.50
Bicycle to moving vehicle	0.85	1.05
Vehicle to vehicle (both moving)	0.30	0.80
Moving vehicle to kerb	0.25	0.50

The measurement bicycle-to-vehicle is greater than the measurement vehicle-to-vehicle. This is because the behaviour of bicycle traffic is more difficult to predict than that of motorised traffic. Bicycle traffic is also more vulnerable.

Figure 8: Figure: The original carriageway width calculator associated with the graph given in the *National Cycle Manual*. Source: *Provision of Cycling Facilities a National Manual for Urban Areas* 1998.

FIGURE 3.18 MEASURING SEGMENTS

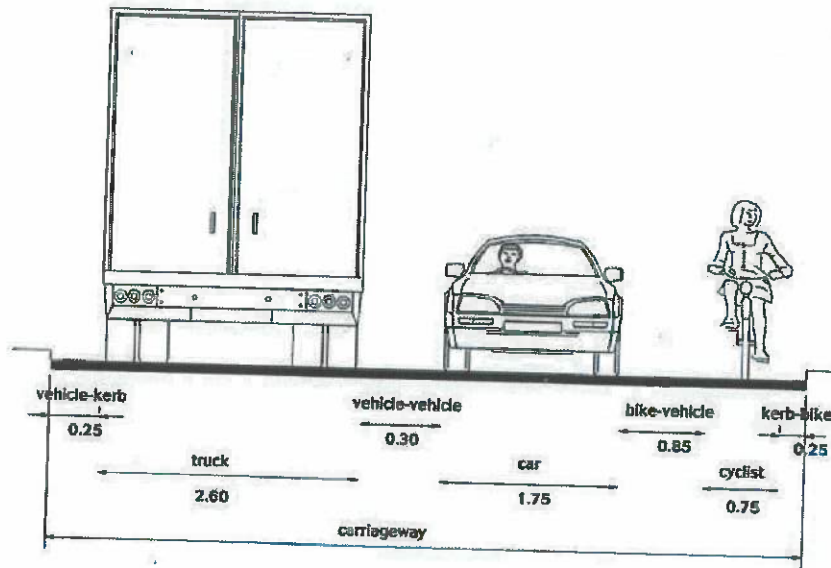


Figure 9: Figure: Diagram showing the use of the carriageway width calculator associated with the graph given in the *National Cycle Manual*. Source: *Provision of Cycling Facilities a National Manual for Urban Areas 1998*.

Lane width calculations passenger cars at 50km/h		Lane width calculations HGVs at 50km/h	
Bike to edge	0.25	Bike to edge	0.25
Person on a bike	0.75	Person on a bike	0.75
Bicycle to moving vehicle	1.05	Bicycle to moving vehicle	1.05
Passenger Car	1.75	HGV	2.6
Vehicle to vehicle	0.8	Vehicle to vehicle	0.8
Passenger Car	1.75	HGV	2.6
Bicycle to moving vehicle	1.05	Bicycle to moving vehicle	1.05
Person on a bike	0.75	Person on a bike	0.75
Bike to edge	0.25	Bike to edge	0.25
Total width (4.2m per lane)	8.4m	Total width (5.05m per lane)	10.1m

Figure 10: Figure Carriageway width calculations for two-way traffic and a design speed of 50km/h passenger cars on the left and HGVs on the right. Source: *Provision of Cycling Facilities a National Manual for Urban Areas 1998*.

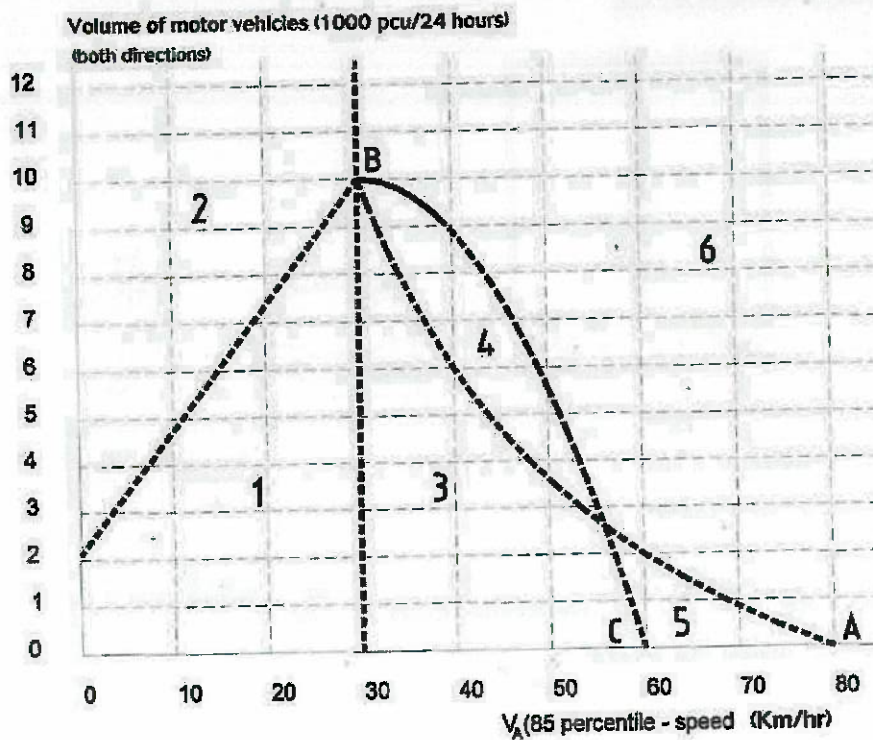


Figure 11: The original graph: Source: *Provision of Cycling Facilities a National Manual for Urban Areas 1998*.

Shared bus and cycle lanes

DMURS does not contain any apparent discussion of the impacts for people on bicycles of the widths chosen for shared bus lanes. The carriageway width recommendations on page 102 of DMURS have two examples showing shared bus lanes of 3.25m in width (See Figure 3 Above). *Cycle-Friendly Infrastructure* (IHT 1996) argued for shared bus lane widths of 4.25m to 4.6m. Current English guidance (LTN 1/20) states "Where cyclists are using bus lanes, the lane should be at least 4m wide, and preferably 4.5m, to enable buses to pass cyclists with sufficient room. Bus lanes less than 4m in width are not recommended and widths between 3.2m and 3.9m wide should not be used." The 2016 *London Cycling Design Standards* (TFL 2016) give a recommended minimum for bus lanes of 4.5m. De Ceunynck et al. report that Danish guidelines recommend a minimum width for shared bus lanes of 4.5m and that Swedish guidelines recommend minimum widths of 4.5m to 5.0m (De Ceunynck et al. 2017). Parkin 2018 states:

"If cycle traffic shares a route with buses and bus lanes are present, the bus lane should be a minimum of 4.5m wide on a 20 miles per hour road and 5.0m wide on a 39 miles per hour road. On higher-speed roads, segregated provision should be made (Highways England, 2016). The critical width of between 3.6m and 4.5m should be avoided; it would be better to create a tight cross-section of 3.0m in these circumstances to ensure that a bus has to pull out of a bus lane to overtake a cyclist. Some bus lanes may have slightly less frequent use, and there could be a case for considering frequency when lane width is being considered."

The current Irish National Cycle Manual provides only for marked shared bus lanes of 3m width but makes the following qualifications.

- Only suitable for short lengths of road, to avoid frustration
- Poor quality of service for cycling if buses are stacked at stops and junctions
- Limited quality of service for buses with significant volumes of cyclists

After that the next level of provision in the *National Cycle Manual* is for 4.5m bus lanes that include a marked 2m cycle lane. The London standards note that narrow bus lane widths of 3.0- to 3.2m mean that buses and cyclists cannot overtake one another but can provide a basic level of service "if all other options have been exhausted".

What this means is that for shared bus/cycle lanes, the DMURS guidance is based on a default assumption that buses and cyclists will not be able to overtake each other within the same lane and is based on a default provision that various other design sources treat as an option of last resort. It was noted above from (Parkin 2005) that tight cross sections "can be intimidating for cyclists being followed by motor vehicles". De Ceunynck et al. compared close bicycle following-situations in a narrow versus a wide shared bus lane and reported that "[...] the issue of close interactions without overtaking can be considered to be more pronounced on the narrower bus lane" (De Ceunynck et al. 2017)

A practical illustration of impact of unsuitable widths on roads- Fr Griffin Road Galway

Fr Griffin Road is a key cycling route in the city as it connects the districts with some of the highest cycling levels to the city centre. In late 2013 Galway City Council implemented the Fr. Griffin Road/Raven Terrace Traffic Management Plan. The effect of the scheme was to remove road capacity from people on bicycles. This happened because the city council implemented right-turn lanes that had the effect of pushing motorised traffic into kerbside lanes of unsuitable width. Images and comments courtesy of Cosain Galway.





9. 22nd December 2013. A line of cars occupy the lane marked for straight-on and left-turning traffic.



10. Fr. Griffin Road, 22nd December 2013. The apparent outcome of the modifications: on one of the busiest cycling routes into the city road capacity has effectively been removed from cyclists in order to give it to motorised traffic.



15. 27th February 2014. Female cyclist mounts footpath to avoid motorised traffic.



16. 27th February 2014. Female cyclist carrying shopping bag waits behind motorised traffic. Note the distance to the kerb.



17. 27th February 2014. Adult cyclist going straight on approaches junction in right-turn lane. Note the truck and bus in the line of vehicles, and the distance to the kerb.



18. 27th February 2014. Cyclist propels himself through a narrow gap using his foot on the pavement.



Worked examples of residual road space for other road users in narrow traffic lanes

Type	Vehicle Width (mm)	Lane Width 3m Residual road space if vehicle is in the centre of the lane (mm)	Lane Width 3.25m Residual road space if vehicle is in the centre of the lane (mm)
Nissan Qashqai mirrors open	1806	597	722
Panel Van - Ford Transit no mirrors	2059	470.5	595.5
Panel Van - Ford Transit mirrors folded back	2112	444	569
Panel Van - Ford Transit mirrors folded out	2474	263	388
Refrigerated Trailer	2550	225	350
Sources			
Nissan Qashqai	https://www.nissan.ie/vehicles/new-vehicles/new_qashqai/price-specifications.html#grade-J11MC-0		

Ford Transit	https://www.ford.ie/content/dam/guxeu/ie/Documents/Feature-PDFs/FT-New Transit Van.pdf
Refrigerated Trailer	Guidelines on Maximum Widths and Dimensions of Trailers Mechanically Propelled Vehicles and Trailers , Including Manoeuvrability Criteria: Road Safety Authority, March 2020

A desktop review of the roadway cross sections in the Bus Connects proposals

Comment: The Bus Connects Galway proposals are characterised by a general absence of cycling provision on key routes in the city. The proposals in many cases involve removing road capacity from people who use bikes and have a likely effect of reducing the convenience, comfort and perceived safety of cycling in Galway City centre. As a desktop exercise, a review was made of the cross sections in "Appendix B4 Cross Sections" in the supplementary documents section of the bus connects website.

<https://www.crosscitylinkgalway.ie/supplementary-information/>

Assumptions used for desktop review of the cross sections.

The desktop review is based on the following assumptions. DMURS states that a footway width of 1.8m allows two wheelchairs to pass each other. This appears to be a matter of dispute. The 2021 UK Department for Transport Inclusive Mobility Guidelines state:

".. under normal circumstances, a width of 2000mm is the minimum that should be provided, as this allows enough space for two wheelchair users to pass, even if they are using larger electric mobility scooters. If this is not feasible due to physical constraints, then a minimum width of 1500mm could be regarded as the minimum acceptable under most circumstances, as this should enable a wheelchair user and a walker to pass each other"

Other assumptions are that traffic lane widths may be reduced to 3m in arterial and link situations (DMURS Page 101). Wider kerb lanes or cycling facilities are needed where bicycle users are being mixed with heavy traffic such as buses (numerous sources - see comments above on the credibility of design guidance).

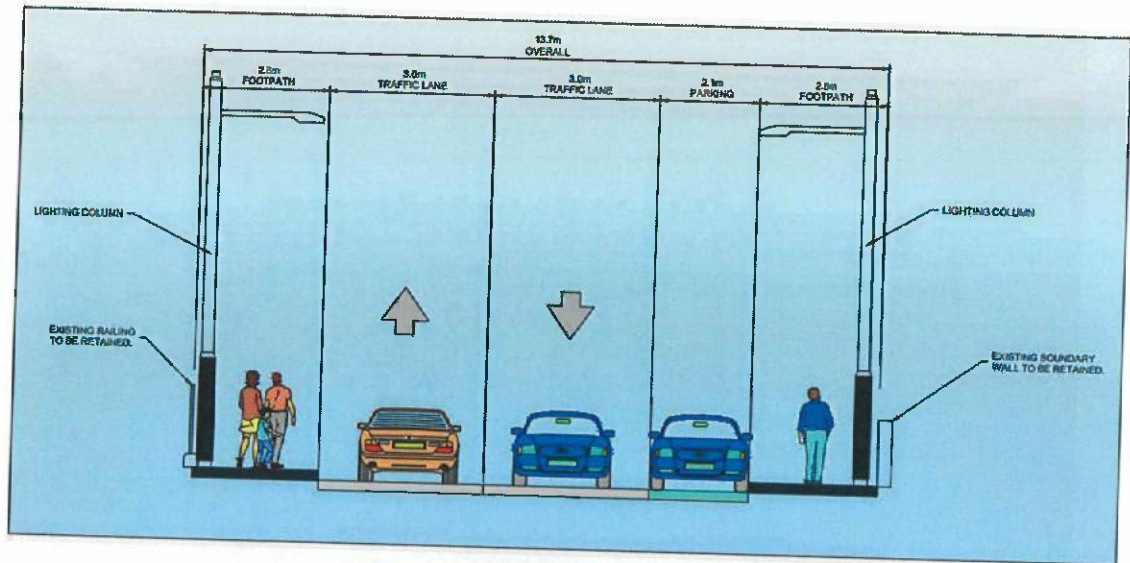
Cross Sections: Summary Findings

Cross Section from 2022 Application Appendix B4 Cross Sections.pdf	Finding of desktop review
TYPICAL SECTION A - A UNIVERSITY ROAD	Significant improvements in cycling provision are available within the published cross section while maintaining pedestrian provision to established standards

TYPICAL SECTION B - B SALMON WEIR BRIDGE	Existing section restricted by historic bridge structure
TYPICAL SECTION C - C SAINT FRANCIS STREET	Improvements in cycling provision are available within the published cross section while maintaining pedestrian provision to established standards
TYPICAL SECTION D - D ST. BRENDAN'S AVENUE	Significant improvements in cycling provision are available within the published cross section while maintaining pedestrian provision to established standards
TYPICAL SECTION E - E ELINGTON STREET (Sic)	Improvements in cycling provision are available within the published cross section while maintaining pedestrian provision to established standards
TYPICAL SECTION F - F BOTHAR BHREANDAIN UI EITHIR	Significant improvements in cycling provision are available within the published cross section while maintaining pedestrian provision to established standards
TYPICAL SECTION G - G EYRE SQUARE	There is no specific provision for cycling. Although the area contains a park and a vehicle restricted area no apparent attempt has been made to find alternative routes for bicycle users.
TYPICAL SECTION H - H FORSTER STREET	Improvements in cycling provision are available within the published cross section while maintaining pedestrian provision to established standards
TYPICAL SECTION I - I COLLEGE ROAD	Improvements in cycling provision are available within the published cross section while maintaining pedestrian provision to established standards
TYPICAL SECTION J - J COLLEGE ROAD	Improvements in cycling provision are available within the published cross section while maintaining pedestrian provision to established standards
TYPICAL SECTION K - K COLLEGE ROAD	Improvements in cycling provision are available by increasing the land take by 2m
TYPICAL SECTION L - L DUBLIN ROAD	Not reviewed yet (SF 7/11/)

Location: University Road

Location: University Road	Elements given in planning application	Alternative 1: Wide kerb lanes wide footpaths	Alternative 2: 3m traffic lanes 1.8m cycle facilities 2m footpaths
Footpath	2.8	2.25	2
Cycle lane			1.8
Lane	3	4.6	3
Lane	3	4.6	3
Cycle lane			1.8
Parking Lane	2.1		
Footpath	2.8	2.25	2
Total	13.7	13.7	13.6



TYPICAL SECTION A-A
 UNIVERSITY ROAD
 LOCATED ON GA SHEET 01
 DRAWING REF: BCG-GA-00-01

Discussion University Road: If the parking lanes are removed there is scope within the cross section for spacious 2.8m footpaths with wide 4.6m kerb lanes. There is also scope for 2m footpaths, 1.8m cycle facilities and 3m wide general traffic lanes.

There are two sections of on-street parking. The section on the northwest of University road runs along a series of properties that have front gardens - in some cases already converted to driveways. This suggests that other properties at this location could implement driveways and off-road parking, removing the need for on-street parking. On the southeast of University Road there is a section of on-street parking opposite the Millennium Park. If the park is under council ownership then the parking could be relocated to a strip that takes in part of the current park lands.



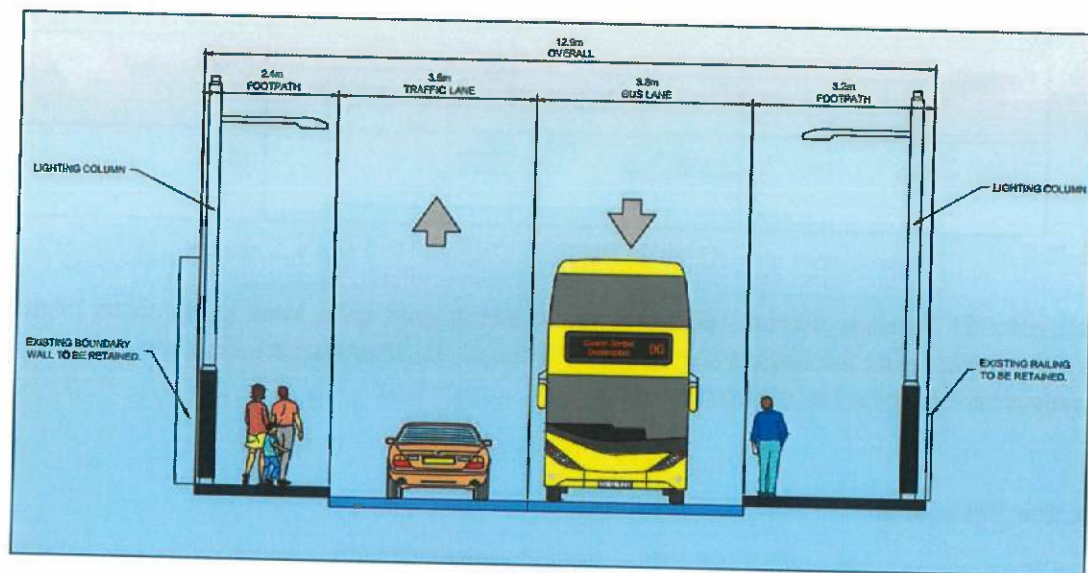
Northwest section of University Road showing the parking lane running along residences with space for driveways.



Northeast section of University Road showing the parking lane opposite the Millennium park.

Location: St Francis St

Location: St Francis St.	Elements given in planning application	Alternative 1: Wide kerb lanes, footpaths
Footpath	2.4	2.1
Cycle lane	0	0
Traffic Lane	3.5	4.4
Traffic Lane	3.8	4.4
Cycle lane	0	0
Footpath	3.2	2
Total	12.9	12.9



TYPICAL SECTION C - C
SAINT FRANCIS STREET

Discussion St: Francis St: The drawings provided in Appendix B2 show that under this scheme Newtownsmith is to be converted to one-way operation going north thus removing it as a means for bicycle users to access

Eglington St. This suggests that Francis St will now be the default way for people on bikes to access Eglington St/Shop St. The dimensions published indicate that there is room for 2m footpaths with wider 4.4m kerb lanes.

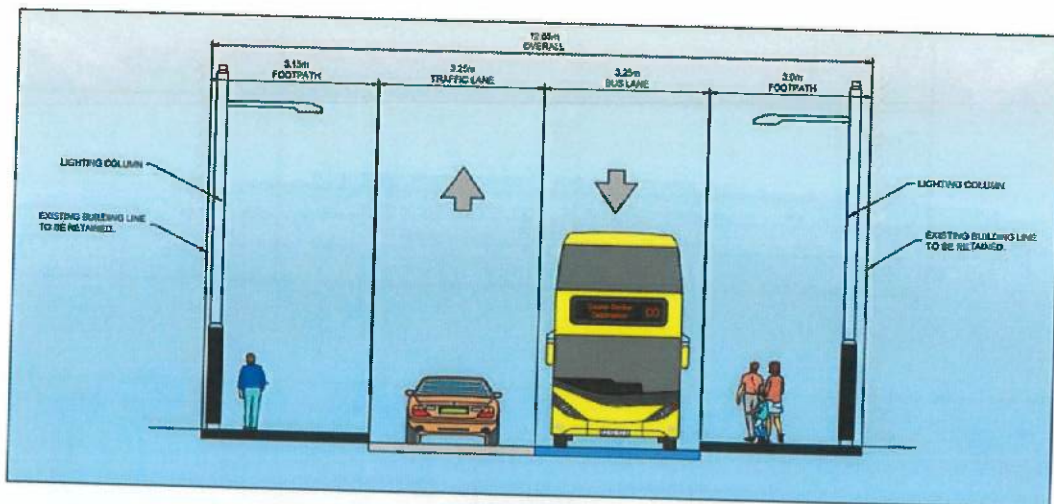
Location: St Brendans Avenue - Bóthar na mBan

Location: St Brendans Avenue - Bóthar na mBan	Elements given in planning application	Alternative 1: Eliminate proposed additional lane, use 3m traffic lanes, 1.8m Cycle lanes, 2m footpaths	Alternative 2: Eliminate proposed additional lane, use wide (4.6m) kerb lanes wider footpaths
Footpath	1.8	2	2.175
Cycle lane		1.8	
Traffic Lane	3.25		4.6
Traffic Lane	3.25	3	4.6
Traffic Lane	3.25	3	
Cycle lane		1.8	
Footpath	2	2	2.175
Total	13.55	13.5	13.55

Discussion: St Brendans Avenue - Bóthar na mBan Adding extra traffic lanes to city centre roads is not consistent sources like the *National Cycle Policy Framework*. By eliminating the extra lane there is space to provide either cycling facilities or wider kerb lanes.

Location: Eglington St

Location: Eglington St	Elements given in planning application	Alternative 1: Wide 4.5m kerb lanes, standard footpaths
Footpath	3.15	2
Traffic Lane	3.25	4.3
Traffic Lane	3.25	4.3
Footpath	3	2
Total	12.65	12.6

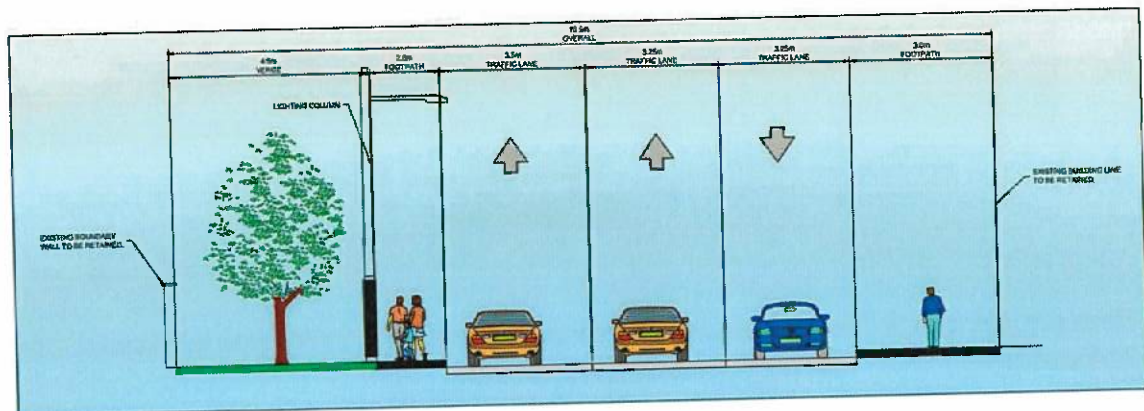


TYPICAL SECTION E-E
 EGLINGTON STREET
 LOCATED ON GA SHEET 04
 DRAWING REF: ECG-GA-05-04

Discussion: Eglington St There is scope within the existing cross section to provide wider kerb lanes of 4.3m and 2m footpaths.

Location: Bothar Bhreadain Ui Eithir

Location: Bothar Bhreandain Ui Eithir	Elements given in Planning application	Alternative 1 - taking the verge allows for 2 x 2m cycle lanes
Verge	4.5	
Footpath	2	2
Cycle lane		2
Traffic Lane	3.5	3.5
Traffic Lane	3.25	3.25
Traffic Lane	3.25	3.25
Cycle lane		2
Footpath	3	3
Total	19.5	19



TYPICAL SECTION - F
 BOTHAR BHRÉANDAIN UI EITHIR
 LOCATED ON GA SHEET 03
 DRAWING REF: BCC-GA-00-36

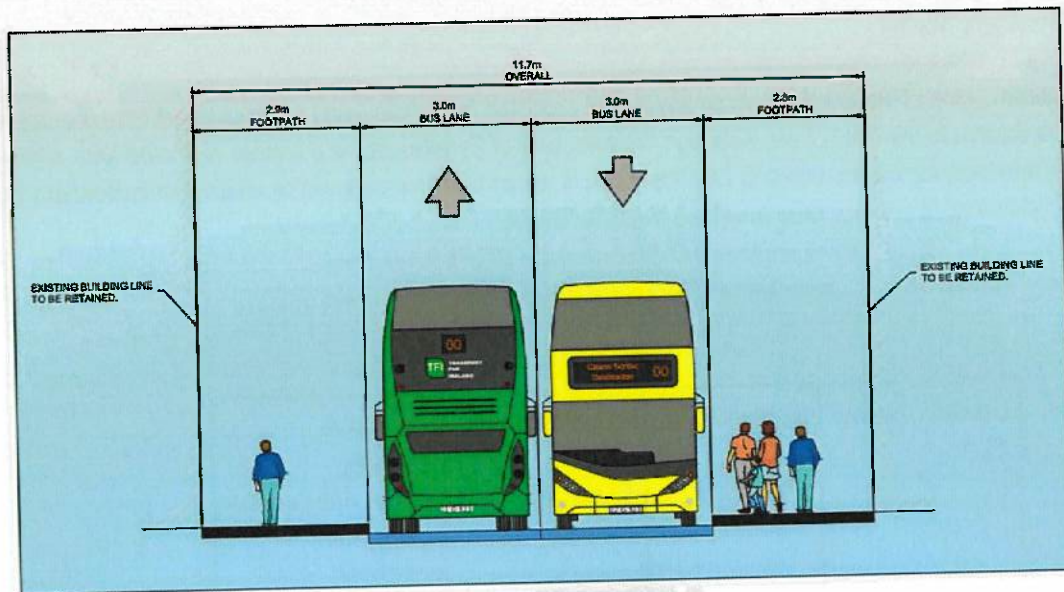
Discussion: Bothar Bhreandain Ui Eithir: By using the 4.5m verge shown in the cross section it is possible to provide 2m cycle facilities on either side of the road.

Location: Eyre Square

Discussion: None of the drawings show any formal provision for people using bicycles to get from the south side of Eyre Square to the North Side. Although the west side of Eyre Square is a vehicle restricted area, there is no formal provision for bicycle users to use this route. It would be common practice elsewhere in Northern Europe for bicycle users to retain access to vehicle restricted zones.

Location: Forster St.

Location: Forster St.	Elements given in Planning application	Alternative 1: Wider kerb lanes, standard footpaths	Alternative 2: Advisory cycle lanes with central traffic lane
Footpath	2.9	2	2
Cycle lane			2
Traffic Lane	3	3.8	3.7
Traffic Lane	3	3.8	
Cycle lane			2
Footpath	2.8	2	2
Total	11.7	11.6	11.7



**TYPICAL SECTION H - H
FORSTER STREET**

**LOCATED ON GA SHEET 07
DRAWING REF. BCG-GA-00-07**

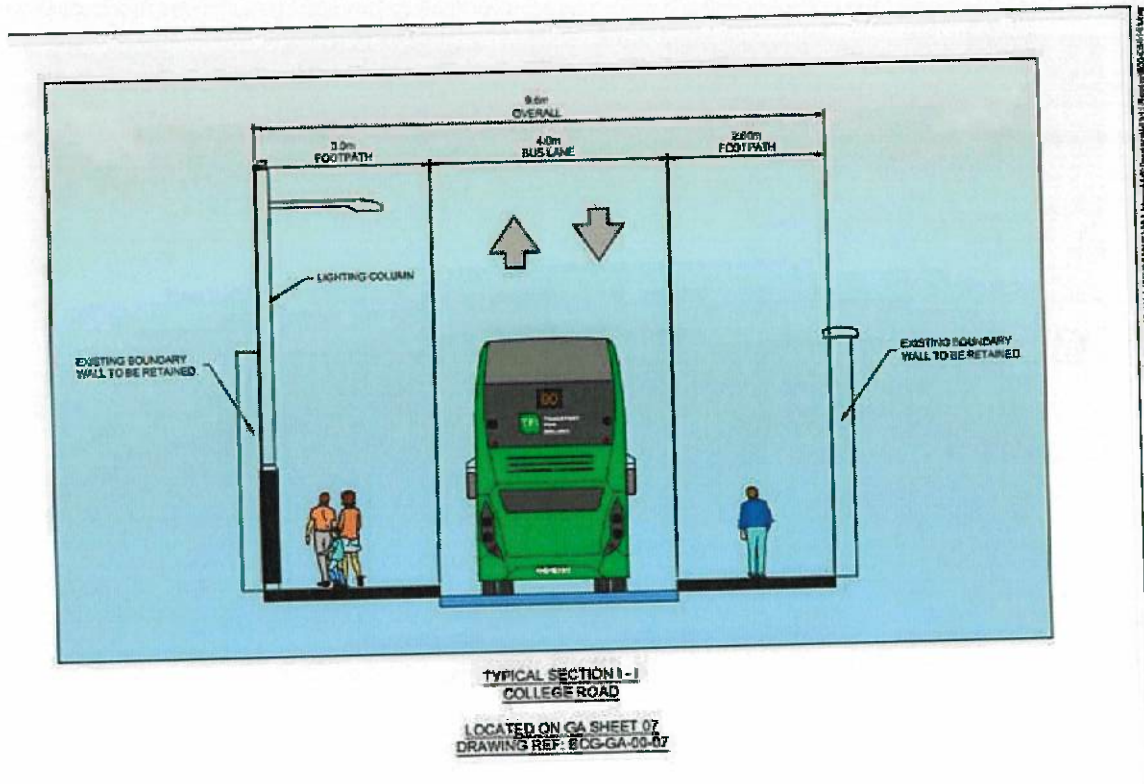
Discussion: Forster St. In the applicant's drawings, Forster street is shown as having bus lanes with no apparent provision for cycling. Alternative 1: By using 2m footpaths it is possible to provide wider bus lanes of 3.8m. 3.8m bus lanes are below the necessary width given by some sources. The problems associated with this lane width might be mitigated by omitting a central lane marking and providing some kind of edge marking (hard shoulder marking etc) Alternative 2: This would involve providing wider footpaths and 2m advisory cycle lanes with a single central traffic lane of 3.7m. In this arrangement motor traffic uses the central lane but oncoming vehicles must merge into the cycle lanes to pass each other. This is a type of treatment (sometimes termed "Edge lane roads") that is established in the Netherlands, Germany and Denmark and has seen some use in the UK.



116 Design Manual for Bicycle Traffic

Figure: Illustration from Dutch Guidance - (CROW Design Manual for Bicycle Traffic) showing a road with a single central lane for motor traffic and advisory cycle lanes on each side.

Location: College road bus gate (City hall)

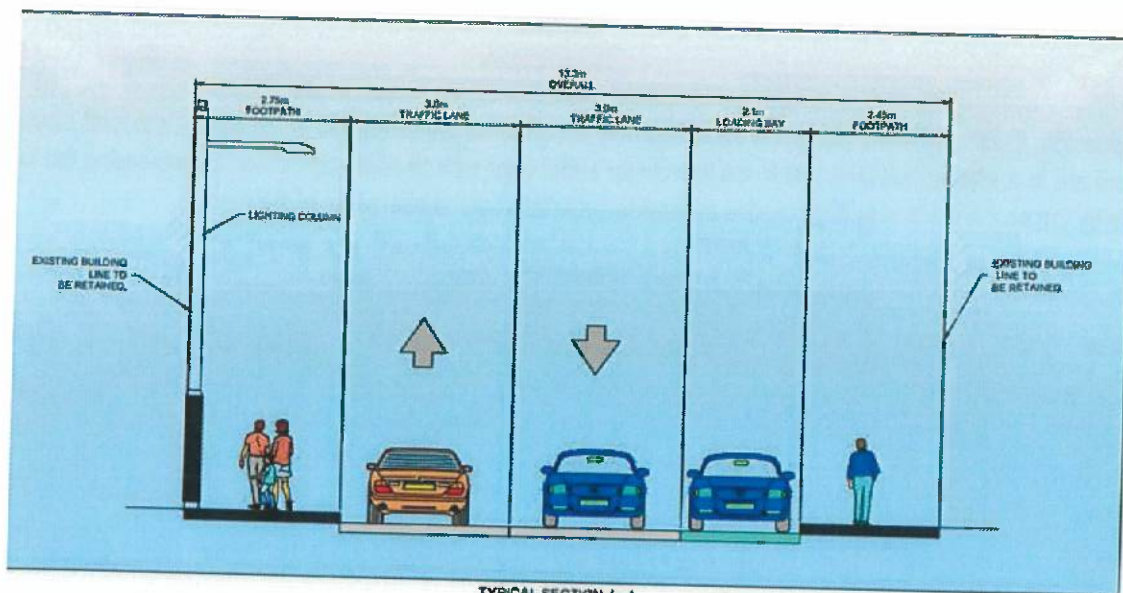


Discussion: College road bus gate (City hall): The location appears to be on a slope. It appears that people on bicycles are to be mixed with buses - including oncoming buses - in a narrow 4m section bounded by kerbs. There was not time to come up with a consensus solution on this site. It is my view that this arrangement will encourage cycling on the footpaths.

Location: College road (Sportsground)

Location: College road (Sportsground)	Elements given in Planning application	Alternative 1: Remove or relocate on street car parking to provide 2m footpaths and 4.6m wide traffic lanes	Alternative 2: Remove relocate on-street parking and provide 2m footpaths and cycle lanes of 1.6m and 3m general traffic lanes
Footpath	2.75	2	2

Cycle lane			1.6
Traffic Lane	3	4.6	3
Traffic Lane	3	4.6	3
Cycle lane			1.6
Parking Lane	2.1		
Footpath	2.45	2	2
Total	13.3	13.2	13.2

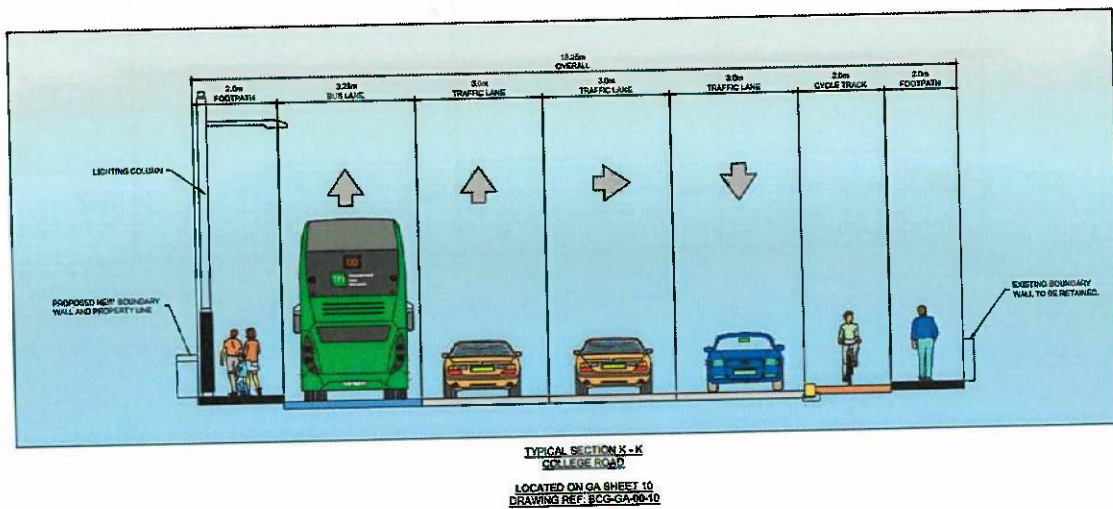


TYPICAL SECTION J-J
COLLEGE ROAD
LOCATED ON GA SHEET 09
DRAWING REF. BCG-GA-00-09

Discussion: College road (Sportsground) The current plans suggest bicycle users sharing with motor traffic in narrow substandard lanes of 3m. Alternative 1: Remove or relocate on street car parking to provide 2m

footpaths and 4.6m wide traffic lanes. Alternative 2: Remove or relocate on-street parking and provide 2m footpaths and cycle lanes of 1.6m and 3m general traffic lanes. Some sources would view 1.6m cycle lanes as being unacceptably narrow and to be avoided, I share that view. However 1.5m cycle lanes are found at other locations in the city. Some of the properties at College road already have ample car parking on site. It is also clear that there are lands north of the road that are already used for parking. Also Galway City Council is in the process of vacating the current site at City Hall for another location. Some of the City Hall lands could be incorporated into the scheme to provide for relocated car parking. There are disabled parking spaces on-street at college road and if there is no suitable alternative location then they could be retained. This would interrupt any cycle lanes so coherent and clear markings would be needed to advise drivers to expect people on bicycles at the obstruction.

Location College road (Lough Atalia)



Discussion: Cycling facilities (2m cycle track) are only provided on the south side of the road. Outbound bicycles users are in a shared bus lane that is too narrow for either user type to pass each other. By increasing the land take by 2m on the north side it is possible to provide cycle facilities on both sides of the road.

Note on city centre access for people on bicycles.

Credibility of the Galway Transport Strategy

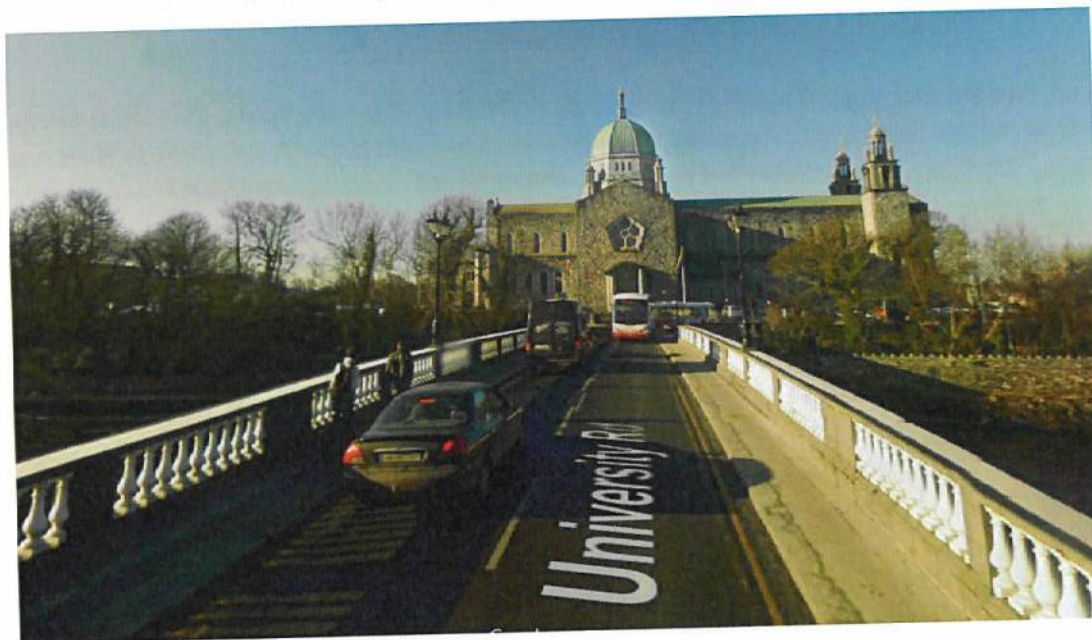
The proposed scheme is stated to be based on the Galway Transport Strategy. In my view there is a serious question mark over the credibility of this strategy with regards to provisions for cycling. A key issue is that Galway City Council operates an extensive system of one-way streets with no provision for contraflow cycling on any of them. The Galway Transportation Strategy does not contain any objectives or proposals to provide contraflow cycling on any existing one-way streets in the city. For people on bicycles coming from the east side of the city in particular, what this means is that any indicative cycle networks essentially disappear when they reach the city centre. For a person approaching from the east there are only two routes into or around the mediaeval core of the city. Either using the Salmon Weir Bridge, which some view as narrow and hostile, or a hostile multi-lane one-way system around the city's docks. Local cycling advocates are not the only contributors to note the negative impact of the one-way streets for cycling access. In 2004, the elected city council voted to include an objective in the city development plan seeking provisions for two-way cycling on one-way streets. In 2011 the National Transport Authority published a report by the Jacobs consultancy on the potential for bike share schemes in Irish cities. This report states:

"Recommendations are made on the complementary measures which would be needed as a new scheme is introduced. Perhaps the most important one would be an increase in permeability for cycle traffic in the city centres through the provision of two-way cycling on one-way streets, and by opening up pedestrianised areas to cycling where conditions allow."

Since 1998 the Irish Traffic Regulations have included provisions for two-way cycling on one-way streets. Despite this also being a recommendation of the elected council, national policy and consultants' reports, Galway City Council roads department has never implemented any meaningful contra-flow arrangements anywhere in the city.



Google Streetview Image of Dock Road in Galway: Note the hostile railings at the road edge. This is part of a cycling hostile one-way system. Under the Galway Transport Strategy and Bus Connects proposals, this is one of only two routes by which people on bicycles might access the old core of the city from the east. This is also the only direct route to locations like the Claddagh and the West End/Dominick St area.



Google Streetview Image of the Salmon Weir Bridge in Galway: Some view this as a narrow and intimidating place to cycle. Under the Galway Transport Strategy and Bus Connects Proposals, this is one of only two routes by which people on bicycles might access the old core of the city from the east.



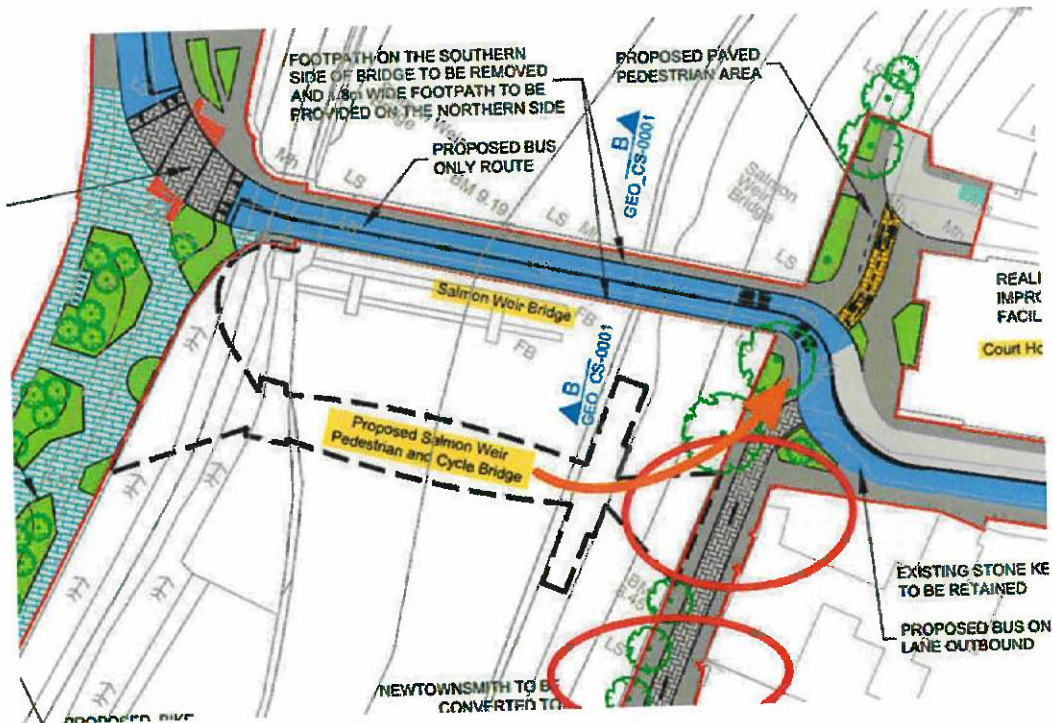
Contraflow cycling in Dublin: Description Junction of Leinster St and Ulster St looking east - There is a no-straight ahead sign with an exemption plate for cyclists. The no-entry markings are interrupted by a short length of on-road cycle track. Picture from Google Streetview



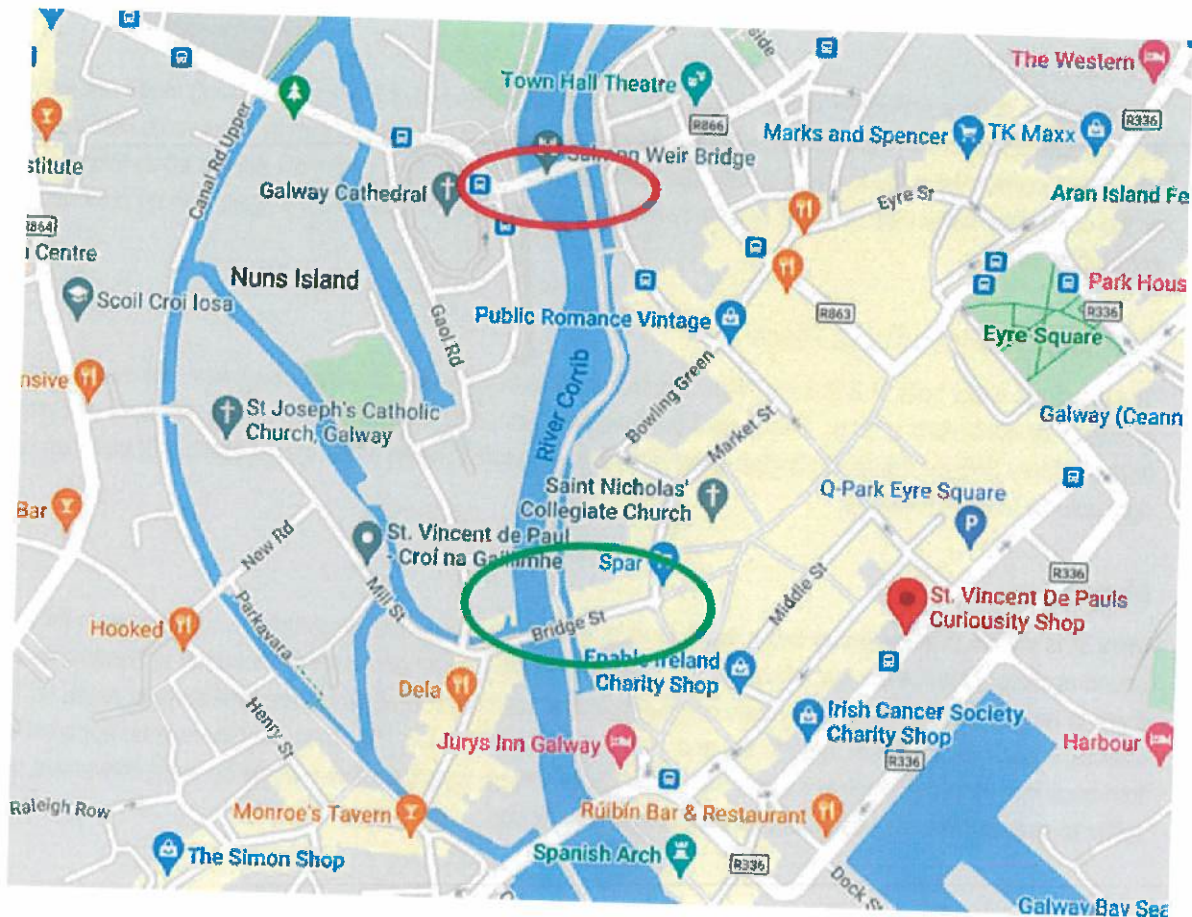
Contraflow cycling in Dublin: Description Junction of Capel St and Ryders Row looking south east. Ryders row is two-lane with a contraflow cycle-track. Picture from Google Streetview.

Access to the new pedestrian cycle bridge at Newtownsmith

The drawings provided by the applicant show a "Proposed Salmon Weir Pedestrian and Cycle Bridge" linking the cathedral side of the river to Newtownsmith - this bridge is currently under construction. The drawings also show Newtownsmith converted to one-way operation as part of this scheme. The drawings do not show any contraflow arrangements for bicycle traffic at Newtownsmith. The text at Section 3.2.3 *Newtownsmith/St. Francis Street* in the preliminary design report does not discuss the conversion of this street to one-way operation. The text states that cyclists will have access to the bridge "from Newtownsmith" but does not discuss how any bicycle user is supposed to access Newtownsmith from the north or east. The drawings also suggest that any bicycle users crossing on the new bridge from west to east will be required to turn left out onto University Road/St Vincent Avenue to proceed any further. This suggests that, in terms of journey times, the new "cycle" bridge will be of no meaningful benefit to bicycle users coming from the direction of the university or the north-western suburbs of the city. For cyclists coming from the east of the city, there also does not appear to be a meaningful means to access the new "cycle" bridge. This is because Galway City Council operates an extensive system of one-way streets in the city centre, none of which have any contraflow cycling arrangements. All pedestrianised streets are also closed to people on bikes during the period of operation. Because of this system, the only permanently available access point to streets that would bring cyclists to the new bridge is via Bridge St and Lombard/Market Streets on the west side of the mediaeval quarter of the city.



Extract from drawing Appendix B2 General Arrangements BCG-GA-02 showing new one-way street restrictions circled in red. The orange arrow shows the imposed direction of travel for people on bicycles who try to use the new bridge.



Extract from Google Maps showing the location of the new Pedestrian Cycle Bridge circled in red. The green circle shows the only place that is permanently available for bicycle users coming from the east to access streets that will bring them to the new cycle bridge. This is because of the restrictions imposed by the pedestrian zone and the absence of any contraflow arrangements on one-way streets in the city. In order to reach this location, a cyclist coming from the east would need to follow the hostile one-way street system around the docks - cross the river at Wolfe tone bridge - and double back via Dominick St - crossing the river again at O'Briens bridge.

Access to the city centre from the east

The observations above on access to the new cycle bridge from the east also apply in general to any bicycle users trying to access the old core of the city. Bicycle users coming from Wood Quay or the Headford Road must follow detours via one-way systems where the river must be crossed twice, first going east to west and then west to east. On the south side there is a potential alternative by following Merchants Road, a hostile multilane system with no cycling provision in either direction. However, bicycle users arriving at Middle Street face a specific ban on cycling through Abbeygate St.

Wood Quay

The drawings show a contraflow cycle lane at Wood Quay. Because Dalys Place is also being made one-way in the opposite direction, it is unclear who this contraflow cycle lane is intended to serve. There is no obvious way for cyclists coming from the Mary St or Eglington St/Eyre Square directions to directly access either Wood Quay or the contraflow cycle lane. Eyre St is already one-way going towards Eyre Square again with no provision for contra-flow cycling.

St Anthony's Place/Dalys Place

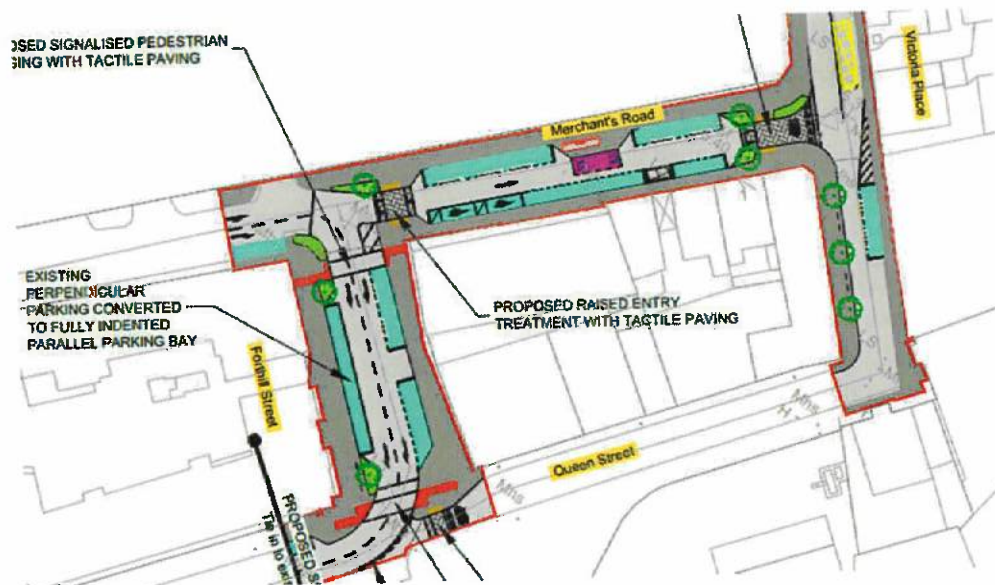
The drawings show both St Anthony's Place and Dalys Place being made one-way going west and south with no provision for contraflow cycling. This means that people on bicycles who wish to access Wood Quay or Eyre St from the Mary St/Eyre Square/Eglington street direction will need to travel to the end of Francis St and then turn right onto St Vincent's Avenue.

Mary St

Mary St is shown in the plans as being retained as one-way going east with no contraflow arrangements for west bound cyclists. This means that although public money is being spent on a new cycle bridge at Newtownsmith, there is no convenient route for cyclists coming from the south east or Eyre square directions to reach it. The shortest route requires them to go to the end of Francis St and turn left. But even then there is no apparent left turn back into Newtownsmith to access the bridge. Even if there was, for many it would be more convenient and faster to stay on the main road and use the Salmon Weir Bridge.

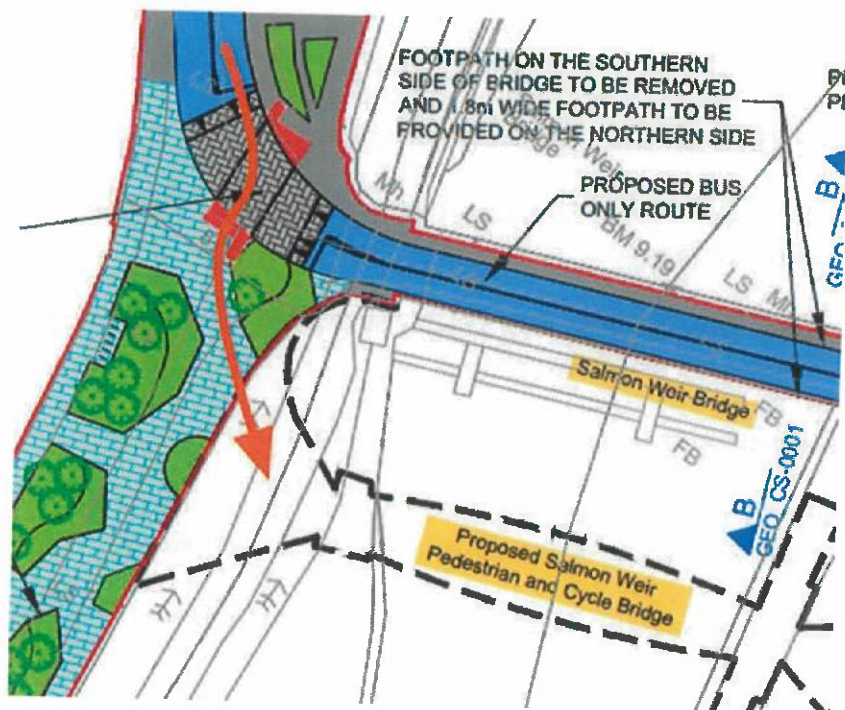
Merchants Road

The drawings show Merchants road retained as a one-way street with no provision for contra-flow cycling. This confirms that under the Bus Connects proposals the unsuitable Dock road remains one of only two routes for people on bicycles to access the core of the city from the east. If contra flow arrangements were provided along Merchants road between Abbeygate St and Victoria Place this could be the beginning of an alternative circulation route for bicycle traffic into and through the old core of the city.



Junctions and crossings

Among various observers of the Bus Connects proposals there is comment about the unsuitable nature of crossing and junction arrangements (see the IrishCycle.com article here for some examples <https://irishcycle.com/2022/09/13/galway-cross-city-bus-link-reduces-traffic-on-some-streets-but-goes-as-far-as-knocking-houses-to-increase-capacity-to-car-parks/>). To give one example the drawings do not show any coherent arrangement so that bicycle users coming from the university might access the new "cycle" bridge. One option is that they must cycle around the cathedral treating it as a kind of anti-clockwise roundabout, this seems counter intuitive. Alternatively they must turn right at the new pedestrian crossing at the western end of the Salmon Weir bridge. This would seem to require people on bicycles to treat the waiting area for pedestrians as a junction for accessing the bridge. A review of all the junction arrangements was outside the time available for preparing this document. The matter might be best dealt with at an oral hearing into the scheme.



Extract from drawing Appendix B2 General Arrangements BCG-GA-02 showing the apparent path for bicycle users to access the new cycle bridge if coming from the university. It appears intended that bicycle users cycle through the space occupied by people waiting to cross.

Sources

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Extracts from Policy Sources

Extracts from the 2009 National Cycle Policy Framework

Hierarchy of Solutions

(1) Traffic reduction

Can traffic levels be reduced, particularly heavy goods vehicles (HGVs)? Measures could include restricting the movements of HGVs from local roads, building by-passes to divert through-traffic, and environmental road closures to discourage through-traffic.

(2) Traffic calming

Can speed be reduced and driver behaviour modified? Here the emphasis must also be on enforcement (whether through increased use of speed cameras or other technologies). The concept of "traffic calming" should also be broadened to include physical measures to revise the perceived design speeds of roads, and other measures, such as the removal of one-way street systems. Multi-lane one-way street systems require cyclists to take detours rather than direct routes. They can also be daunting for cyclists since, if one intends to take a right hand turn at a junction, then one is required to weave across several lanes of (often fast-moving) traffic.

(3) Junction treatment and traffic management

This includes:

- urban traffic control systems designed to recognise cyclists and give them priority;
- contra-flow cycle lanes on one-way streets / making two-way streets for cyclists;
- exemptions to cyclists from certain banned turns and access restrictions;
- combined bus/cycle priority measures - and building upon the successful examples already developed in Irish cities (and learning from examples of QBC/cycle designs in which the route is not perceived to be cycle-friendly);
- on-street parking restrictions;
- advanced stop lines for cyclists at traffic signals - as has already been done in some cities around the country;
- by-passes for cyclists at traffic signals;
- signalling roundabouts, changing priorities at junctions so as to make cycle friendly;
- advanced transport telematics: designing new systems to benefit cyclists.

(4) Redistribution of the carriageway

Can the carriageway be redistributed? Such as by marking wide kerb lanes or shared bus/cycle lanes?

(5) Cycle lanes and cycle tracks

In addition, having considered and, where possible, implemented all of the above, what cycle tracks or cycle lanes (if any) are necessary in order to make a route cycling-friendly?

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Objective 2.3 Through Traffic

We will support local authorities in removing through-traffic from urban centres and school routes through, amongst other measures, the provision of a national programme of ring-roads and town / village by-passes. As these are built, other measures to make the town centre more bicycle friendly should be introduced: environmental traffic cells, bridge / road closures, removal of spare lanes at signalised junctions, dismantling of one-way street systems, removal / modifications of roundabouts etc.

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2.5 Audits of Existing Infrastructure

We will carry out audits of existing urban infrastructure to assess the quality of the cycling routes using an agreed set of criteria. This would include not only existing dedicated cycling facilities but all of the other elements of the roads infrastructure used by cyclists – roundabouts, one-way streets, road narrowings, narrow traffic lanes (in the context of the development of the Quality Bus Network etc)

2.6 Remedial Measures

We will carry out remedial measures on existing cyclist-unfriendly urban roads with a special focus on roundabouts, multi-lane one way streets and road narrowing schemes.

2.9 Urban Cycle Networks

We will develop cycle-networks as part of wider cyclist-friendly local traffic plans / traffic management plans in all urban areas. The use of the concept of "cycle network" will not imply that the routes forming it will only consist of linked cycle-lanes and cycle tracks (as was the original interpretation of much of the network in Dublin). Instead the design philosophy will be based on the "hierarchy of measures" as described above with the focus being on the reduction of vehicular speeds, ensuring that all junctions are cycling friendly etc. We will ensure that designs are created with the principal aim of preserving cyclist momentum. We will also ensure that designs will provide for a safe passing distance of 1.5m between motorised vehicles and bicycles.