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Cycling for the Environment, for Health, for Pleasure

18 March 2020

The Hon. Steven Marshall MP
Premier of South Australia
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CC James Stevens MP
Member for Sturt
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CC dpti.communityrelations@sa.gov.au

Dear Premier,

Arterial road widening projects/ Magill and Portrush Roads intersection

The Bicycle Institute of SA has been representing the state's utility cyclists for over forty years. Being able to choose cycling and walking for transport is key to developing strong, connected, liveable and healthy communities that can adapt to challenges and capitalise on opportunities. BISA is keenly interested in road projects as these can create – or destroy – conditions conducive to cycling for transport. We note and appreciate that the Minister for Transport, Stephan Knoll, has stated that all new DPTI road projects incorporate cycling facilities as a matter of course.

As an advocacy organisation whose aims are compatible with environmental, health and societal goals of all levels of government, we are dismayed with the community engagement opportunities and process for Magill Road/ Portrush Road project, which mirrors that for Fullarton Road/Cross Road and Glen Osmond Road/Fullarton Road. BISA is concerned that the processes used do not indicate that respondent's feedback will be adequately considered or addressed. For Magill Road/Portrush Road, DPTI is proceeding with property acquisition and has announced that works will commence in mid-2020. Given the degree of our concerns with whether the project should proceed at all, this indicates that our feedback will not be considered in a meaningful way. BISA is taking the step of writing to you as the Premier of South Australia and principal member of the State government to ensure that our voice is heard.

Firstly, the announced budgets for each of these intersection widening projects are based on inadequate cycling facilities, which means that this inadequacy becomes enshrined within the project. For example, for Magill Road/ Portrush Road, changes to cyclist access caused by the project means the north-eastern footpath should be upgraded to a shared use path (or separated two-way bikepath adjacent to the footpath). However, this footpath is excluded from the project scope.

Secondly, the community engagement does not enable the underlying premise of the upgrades to be challenged. In terms of your government's funding of the project, DPTI's Magill Road/Portrush Road webpage references "*…recommendations of the State Government's Keeping Metro Traffic Moving Report".* However, DPTI's Keep Metro Traffic Moving (KMTM) webpage states that "*KMTM focuses on making the best use of existing road and public transport assets through a mix of short to medium term, low-cost actions*."

It is hard to see how a $98 million road widening project involving property acquisition could be described as a low-cost action that makes the best use of an existing road asset.

In terms of Federal government funding, the Urban Congestion Fund webpage states that "*Funding will support upgrades to the urban road network to reduce congestion and to ensure commuters get home sooner and safer…*"

The Magill Road/Portrush Road project is mainly focused on Portrush Road. However, Tables 7-3 and Table 7-4 of Transport Planning for the Australian Infrastructure Audit - Transport Modelling Report for Adelaide (March 2019) does not identify Portrush Road as one of the top ten most congested roads. Further, while the KMTM report does highlight delay on the Portrush Road corridor, this is identified via Austroads' 2016 'Congestion and Reliability' Research Report (AP-R534-16).

It should be no surprise that this report shows that road building projects have a low level of return compared to costs – your government's traffic engineers are well aware of this. In fact, it appears that the cost-benefit assessment for the Magill Road/Portrush Road project was undertaken only after the Urban Congestion Fund grant was made. This has not been released and advice from the project team that it "…is positive" (compared to negative) is not an overwhelming endorsement of the project. Instead, the project is likely to have marginal payoff, which raises execution risks. Austroads advises that *"Agencies should only consider proceeding with such interventions if they are strategically required to mitigate congestion, by enabling higher BCR* [benefit-cost ratio] *interventions to be implemented subsequently."* There is no indication that this is the case for the Magill Road/Portrush Road project.

Further, the aimed-for benefits for freight will not be realised by widening this intersection in isolation, since traffic at Payneham Road/Portrush Road backs up almost to Magill Road, and similarly for The Parade/ Portrush Road. Adding in road widenings for these plus other works, the overall cost could be closer to $500 million. At The Parade, State heritage listed buildings on three corners of the intersection point to the potential that at least one of these would have to be demolished – as DPTI is proposing at Fullarton Road/ Cross Road. Street character influences the way in which people use and engage with their local area. Loss of buildings of such historic value would severely dent the character of the intersection, with implications on the amenity for local cycling conditions as well as others' enjoyment of the area.

A less destructive alternative would be your government's election promise of a bypass route (the road element of Globe Link). As a toll road, the cost of this could be paid by those it will benefit rather than taxpayers at large. Free of commuter traffic, the time savings for road freight would be higher, with spare capacity to cater for the ever-increasing freight task. Being located away from the urban area, it would remove existing air pollution, noise impacts and safety issues associated with heavy vehicles, without requiring the destruction of local heritage. As the BCR assessment for Globe Link has not been released, nor a BCR assessment undertaken of upgrade works for the overall Portrush Road corridor, it is not evident that Magill Road/Portrush Road is a more desirable recipient of an Urban Congestion Fund grant.

This is similarly the case for another alternative: a metropolitan-wide cycling network. Cycling projects have a typical BCR of 3.5 to 1 for stand-alone projects and higher BCRs for projects built as part of a network. Much of this benefit accrues from improved population health. As you would be aware, the costs of overweight and obesity to the State budget are sobering, and predicted to increase. Poor health and chronic health conditions are exacerbating factors for the current coronavirus crisis. The $98 million earmarked for Magill Road/ Portrush Road would instead be sufficient to deliver a high-quality cycling network for Adelaide. This would be a congestion busting measure that relieves traffic demand on both arterial and local roads throughout the metropolitan area, improves car parking availability, delivers preventative health outcomes, and improves rather than diminishes local amenity.

I hope this submission assists you with the difficult task of deciding whether a project of dubious benefit that will destroy part of the urban fabric in your local area is truly warranted for our city and state, compared to improving the liveability of Adelaide and the health of the state's current and future residents.

As I have referred to the inadequacy of the project for cyclists, BISA's detailed comments comprise the remainder of this submission both for your information in terms of understanding the problems and weaknesses of DPTI's approach to cycling in its road projects, and for the information of DPTI staff.

Yours sincerely,

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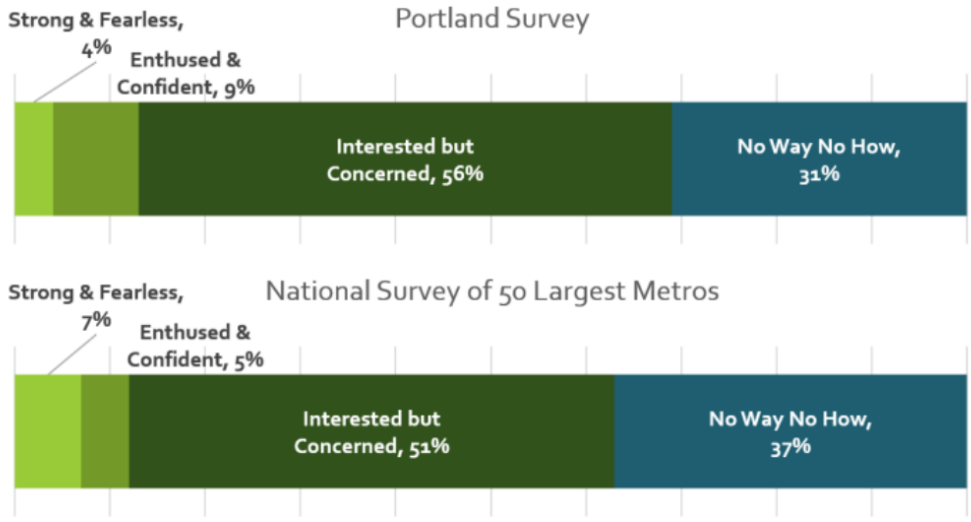
Technical feedback – Magill Road/ Portrush Road intersection widening

The Bicycle Institute of South Australia (BISA) has reviewed the concept plans for this project. Members of the Norwood Payneham St Peters Bicycle Users Group (BUG) also attended the Community Information Session on Saturday 15 February, on our behalf. The feedback provided herein represents the views of both organisations.

1) Design philosophy/ state government planning principles

The philosophy adopted in the design of cycle facilities in the concept plan is not stated, but it appears that the intent is to cater for existing cyclists who are comfortable in sharing arterial roads with high speed heavy vehicle traffic. This caters for only one type of cyclist and would not achieve the government's stated aims of increasing cycling, nor comply with traffic priorities that place walking and cycling above freight or commuter traffic. As such, this approach fails to comply with the State's Strategic Plan, the Integrated Transport Land Use Plan or Health in All principles.

BISA's philosophy (shared by NPSP BUG) is that if an arterial intersection is being upgraded for motor vehicles, compliance with state government principles is achieved by providing cycling facilities that aim to increase cycling rather than only facilitating road use by existing cyclists. One way to look at this is in terms of attitudes to cycling as shown by two U.S. surveys in the following graphic – with surveys in other jurisdictions finding very similar results.



Graphic from Jennifer Dill, Ph.D., Portland State University

While much of the cycling currently occurring on arterial roads involves the "strong and fearless" undertaking long-distance travel, bicycle facility design should cater as much as possible to the "interested but concerned", with the aim being to transition these people to being "enthused and confident" through positive cycling experiences.

As well as attracting new cyclists, such facilities also cater for those who are cycling on arterial roads from necessity rather than choice: traffic signals provide places where cyclists can cross busy arterials, a short length of travel on arterial roads will often be necessary to link local streets, and some land uses are difficult to reach except off arterial roads. New cyclists and tourists often won't know the local routes that offer alternatives to arterial roads, or how to find these.

Further, even experienced cyclists who use arterial roads (those already "enthused and confident") have provided feedback that they would prefer to have greater safety/separation from traffic and can see obvious issues with trying to encourage "interested but concerned" friends and family to cycle in the absence of bicycle lanes designed around safety.

Currently, while arterial road bicycle lanes can be seen as providing a modicum of space, the traffic situation encountered at signalised intersections is far more daunting and unpleasant and is often where the worst cycle facilities exist. Providing good quality facilities at intersections presents a significant opportunity to improve network conditions. Failure to do so will embed lost opportunities into infrastructure for the next several decades.

2) Kerbside bicycle lanes

Where a bicycle lane is provided adjacent to the kerb, the minimum width for a kerbside bicycle lane is 1.5m in a 60km/h zone. The width shown in the concept plan is below this, at 1.2m. However, increasing the width to 1.5m would not in itself satisfy this design standard because bike lane width is supposed to be measured from the edge of seal, not face of kerb. A 1.5m bicycle lane provides only about 1.0m of cyclable road width clear of the water table.

This might be acceptable on local streets, where lower traffic speeds and volumes present a more forgiving environment. On arterial roads, however, buses servicing bus stops tend to rotate the kerb and water table, creating differential movement between the water table and road bitumen and leading to this join area breaking up. Over time, bitumen reseals that add material without planing it back to water table level create a step at the join, while untidy reseals can deposit material in this area. The water table also tends to collect debris. In these situations, the water table cannot be considered to be part of the usable bicycle lane width – although it does provide a buffer clearance to vertical hazards and therefore makes an appropriately sized bicycle lane more comfortable to use.

Further, Portrush Road is subject to high volumes of large trucks travelling at high speed. These create 'suck' that makes it harder for cyclists to maintain their position on the road i.e. centrally in the bike lane. Therefore, additional bike lane width is warranted to help cyclists accommodate this externally-induced wobble.

In this case, then, a 1.8m bicycle lane is warranted, measured from face of kerb. Given the high volume of heavy vehicles, enhanced protection should also be considered.

Enhanced protection

The cross section following illustrates the issues facing a cyclist in a too-narrow bicycle lane with poor tracking in the adjacent travel lane.

The cyclist has very little room to manoeuvre and no escape given an adjacent kerb. The truck's wing mirror is at the edge of the bicycle lane and a hazard to the cyclist, who is working side-to-side out of saddle (as yet unaware of the truck coming up from behind). Even if not hit by the truck, any loose straps on the rear of the truck could swing out and hit the cyclist, potentially leading to swerving and/or crashing.

The red arrows illustrate the distance between the lane line and vehicular wheel path. Under central vehicular tracking, the wheels would be some distance from lane lines. This gives rise to an opportunity to enhance cyclist protection by using wider line marking for the bike lane, or by providing dark (i.e. not intended to be

visible) audio line marking on the outside of the bicycle lane. The latter in particular would provide feedback to drivers when they get too close to the bicycle lane.

This type of enhanced treatment is particularly indicated for grades of 5% or above. Here, the alternative of widening bicycle lanes to above 2.0m may encourage cars to enter the bicycle lane.

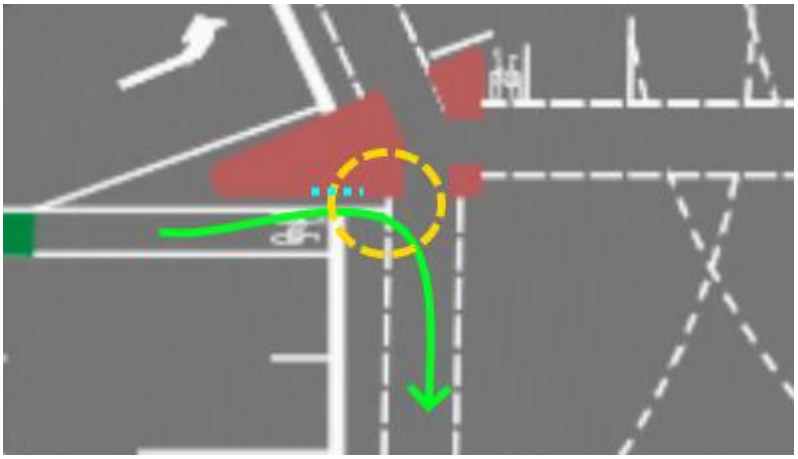
3) Forward bicycle holding line

Bicycle lanes should extend 1.2-1.8m forward of the holding line provided for general traffic. (More than 2.5m leads to cars ignoring their holding line.)

Cyclists are less stable when starting off; at least one South Australian cyclist has died at an intersection after wobbling when starting off and being run over by the adjacent truck. They are also pretty much invisible to truck drivers when located adjacent to them at a red stop signal. Being forward of a truck helps a cyclist stay out of the way – particularly as once they have cleared the pedestrian crosswalk, cyclists can track slightly left and further out of the way as they traverse the intersection.

In recognition of the safety benefits of a forward cyclist holding line, under design standards, the minimum distance between a cyclist holding line and the pedestrian crosswalk is smaller than for vehicular traffic.

Having distance between the cyclist holding line and traffic holding line also creates space in which cyclists can hook turn using the pedestrian signals, if desired – in which case the manoeuvre will be made at low speed and cyclists will benefit from the space provided by a forward cyclist holding line. To facilitate such hook turns, it is also desirable to enable cyclists to easily reach the pedestrian button. The following diagram illustrates the hook turn (green) with the approximate location of the traffic pole and pedestrian push button circled in yellow.



This push button can be difficult for a cyclist to reach from the bike lane, and awkward in any other way. A pedestal with **bicycle push button** installed just before the cyclist holding line should be provided to enable the cyclist to call a through green phase, where these are not automatically called. A similar push button being used to call a transverse pedestrian crossing phase is likely to be confusing. Instead, a minor cut-back of the kerb forming a mini-cyclist turn bay (as shown in dashed aqua) would enable a cyclist to reach the pedestrian button, call the pedestrian phase and be well-positioned to undertake the hook turn. A small right turn arrow would help clarify its purpose. While this area is more prone to attracting debris, such debris would be likely to build up anyway and an indent that helps to clear this from the cyclist path still facilitates the hook turn.

4) Stand-up lanes

Where a through bicycle lane is provided through the intersection with through traffic on one side and left-turn traffic on the other (known as a stand-up lane):

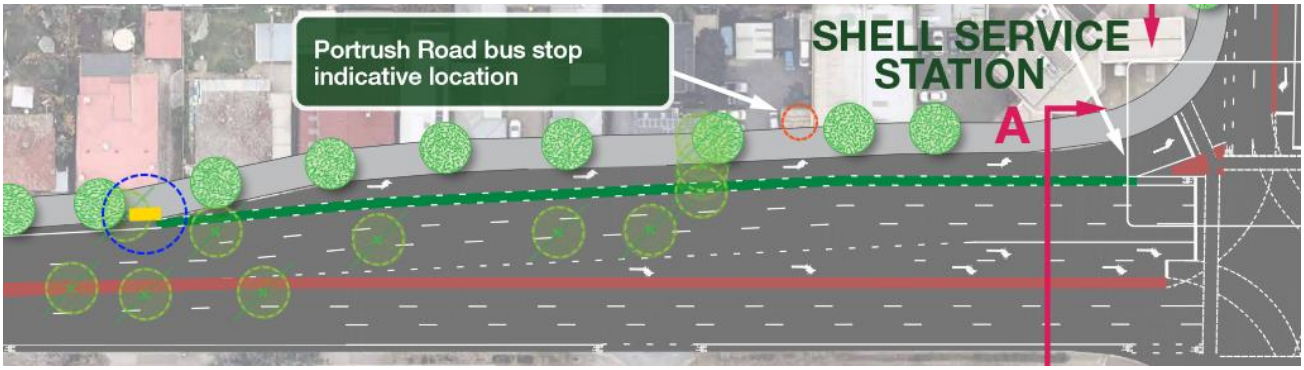
a) Given the arterial road environment, both traffic lanes are likely to have high speed traffic and a relatively large amount of truck traffic. Typical bicycle lane widths assume no potential conflict to

the left of the cyclist, which is not the case for stand-up lanes. Therefore, stand-up lanes should be 1.8m in width to provide an additional 0.3m as a buffer on the left side, and coloured green to highlight their presence.

b) On the western leg of Magill Road, where the left turn comprises a double left turn; and the southern leg of Portrush Road, where the stand-up lane is greater than about 60m in length, "sheltered" bike lanes should be provided – along with convenient access to signalised crossing opportunities. This is explained further in diagram 1, below.

c) Where the bicycle lane transitions into a stand-up lane on the western leg of Magill Road, there should be a minimum "no conflict" length between the two. Diagram 2 explains this concept.

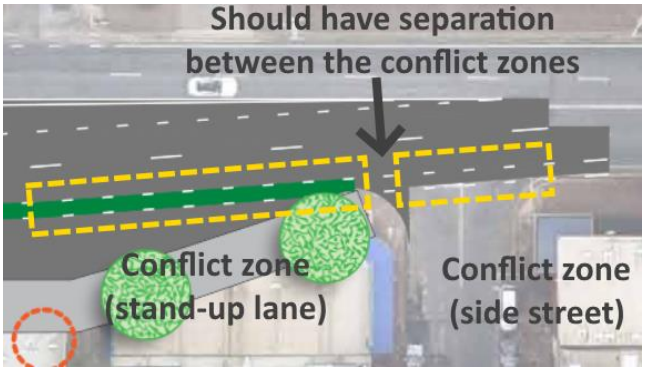
Diagram 1: Sheltered stand-up lane



The long stand-up lane provides access for high-speed ("strong and fearless") road cyclists who are comfortable riding in traffic. For others, providing a convenient kerb ramp in the area shown in yellow (and circled in blue) would enable a footpath-level bike path to be provided, separate to both the footpath and roadway. As this would be adjacent to the kerb, a small additional buffer should be provided between the kerb face and bike path. (This can be as simple as a white line delineating the space or be part of an attractive streetscape design.)

Item 5) applies regarding cyclist kerb ramps.

Diagram 2: Bicycle lane transitioning into a stand-up lane: minimum "no conflict" area



The likely conflicts in the two zones shown are different. A driver turning left out of Adelaide Street and then left at Portrush Road would be tempted to 'nip around the corner' at Adelaide Street. This increases the likelihood that they do not adequately pause and check for cyclists before turning, or yield to an approaching cyclist – drivers often assume they travel much faster than cyclists even when turning, giving rise to a poor sense of relative speeds and distance requirements to safely yield.

A safer design is to provide a section of solid line-marking with no conflict zone between the two types of conflict areas. This indicates cars need to yield when exiting Adelaide Street, and then when crossing the

stand-up lane. It also enables a cyclist to better focus on detecting conflicts. To be effective, the length of separation needs to be at least as long as a car park space, but longer depending on the speed environment (i.e. 6-10m). In this example, this could be achieved by constructing a kerb protuberance in the 'no stopping' area forward of parking in Adelaide Street.

5) Cyclist ramps

For ramps giving access from road to footpath levels/areas (as in **Diagram 1**), Austroads' Guide to Road Design Part 6A: Paths for Walking and Cycling advises that:

> *"For bicycles to be most effective as a means of transport, cyclists must be able to maintain speed without having to slow or stop often… Once slowed or stopped it takes considerable time and effort to regain the desired operating speed.*
> *"Bicycle routes, especially off-road, should be designed for continuous riding, minimising the need to slow or stop for any reason."*

Austroads' Guide to Road Design Part 3: Geometric Road Design (2017), Section 4.8.7 further advises that:

> *"Ramps linking a road carriageway and a path located in the area of the roadside verge may be required in association with … path treatments adjacent to roads. The exit ramp from the road should be oriented to enable the cyclist to leave the road at a speed appropriate to the abutting development and the level of pedestrian usage of the path."*

AGRD Part 3 illustrates the appropriate design for exit ramps, being aligned at 20° to the roadway. In contrast, as cyclists have a turning circle requirement, using a pedestrian ramp angled at 90° to the roadway requires cyclists to hook out into traffic to achieve the turning circle – an awkward and unsafe manoeuvre.

Where cyclists are expected to enter the road from the footpath adjacent to pedestrians, either a wider pedestrian kerb ramp should be provided to facilitate this or a separate ramp for cyclists – they should not be expected to share a minimum-width kerb ramp with pedestrians, and the minimum width ramp for cyclists is 1.5m cf 1.2m for pedestrians. Steep wings should not be provided on either pedestrian or cyclist kerb ramps; these are only acceptable where travel can be assumed to always be directly straight to/from the kerb ramp, and even in these cases their use compared to shallow wings must be justified as it does not comply with Australian Standards.

6) Slip lanes

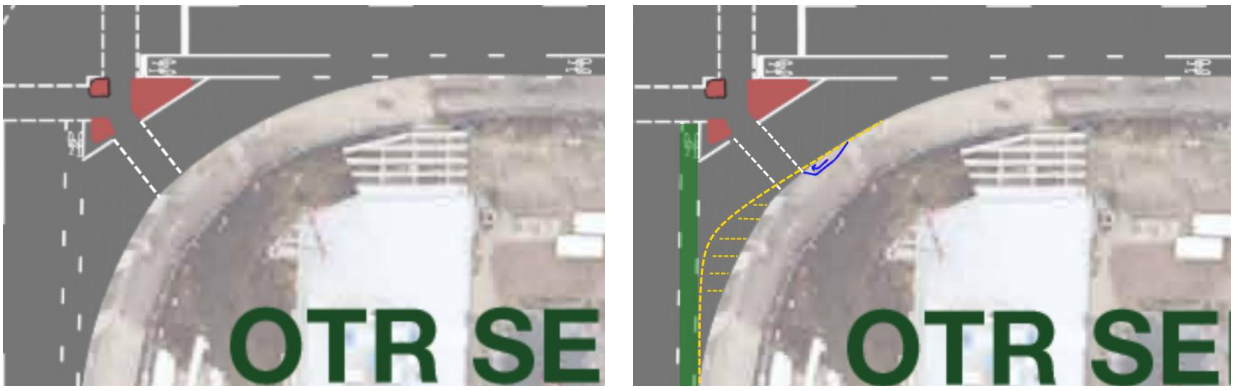
a) Slip lanes are hazardous to pedestrians and must not be provided in high pedestrian areas. Where provided, slip lanes should employ a high angle (70°) design that encourages traffic using the slip lane to see and yield to pedestrians and opposing vehicles.

b) Where a large-radius or large-width slip lane must be provided to enable heavy vehicle to negotiate the left turn, the area not required by cars and smaller trucks should be line-marked with chevrons to create the impression of a high angle slip lane. As this area will be used by left-turning cyclists, it should not include pavement bars or similar to more actively direct traffic.

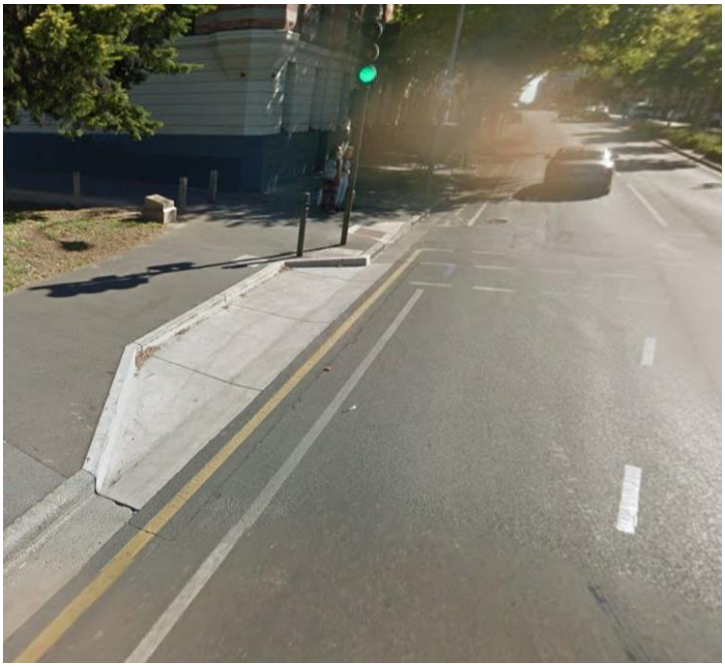
c) A cyclist turn bay should be provided near the pedestrian crosswalk of a signalised slip lane, forming a forward storage area outside the line of traffic for cyclists to wait in if a truck is turning, and also facilitating a hook turn.

d) Where bicycle lanes are provided on the departure side of an intersection over a slip lane, this bicycle lane should be coloured green to highlight its presence and encourage traffic using the slip lane to yield to cyclists.

The following diagram shows the north-western slip lane as per the concept, compared to the same with these features applied.



Yellow = chevroned area, green = bicycle lane, blue = cyclist turn bay.



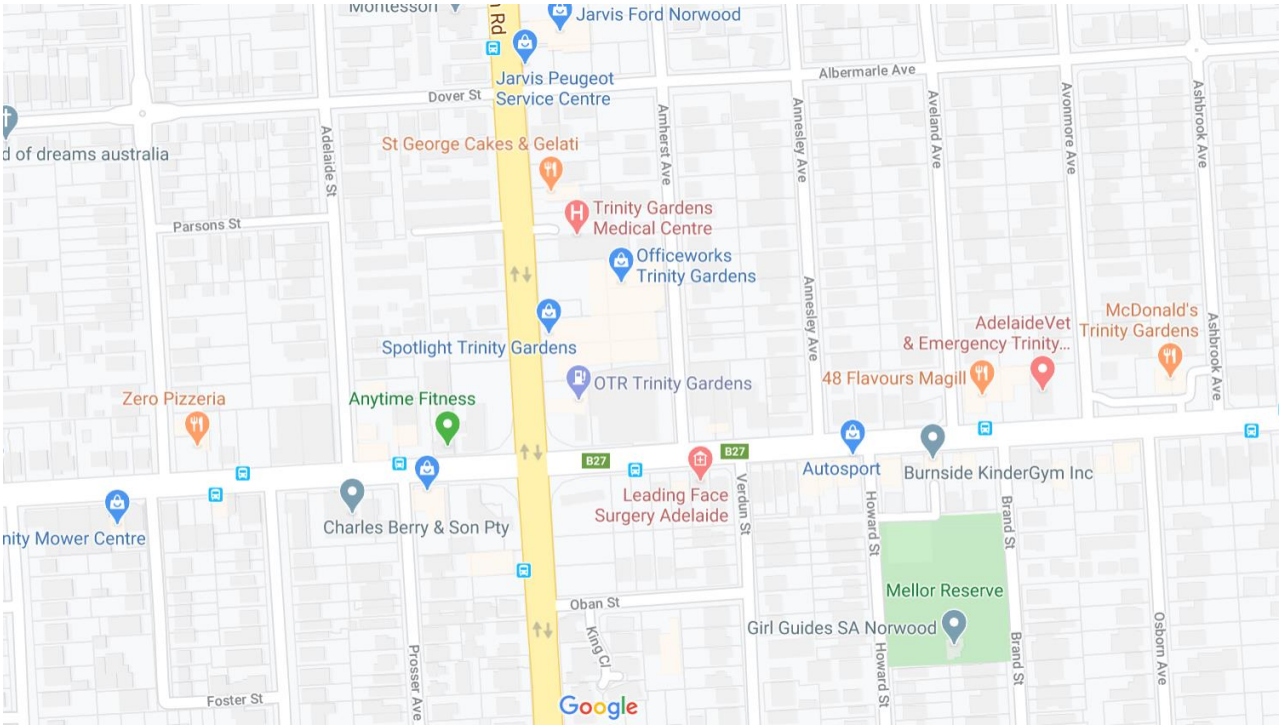
Example of a cyclist turn bay.

7) Connection to local routes

Signalised crossings can provide access across arterial roads and therefore form a useful part of a local cycling route. BikeDirect and Council routes should be reviewed for local route connections within the project footprint, while BISA and local bicycle user groups (BUGs) can provide information about actual travel patterns. Such routes may indicate supplementary travel patterns and therefore works that should be delivered as part of the project, such as an additional kerb ramp, extension of a shared use path, etc.

The Magill Road/Portrush Road concept does not address connection to local routes.

Retail on the north-east corner of the intersection (St George's Cakes and Gelati, Trinity Gardens medical centre, Officeworks and Spotlight) are all likely to produce relatively local travel. (See Google maps diagram, following).



There are no nearby pedestrian crossings of Magill Road, which also doesn't have a median that would help make crossing it easier. Therefore, in terms of accessing these local shops:

- Cyclists from the south-west need to cross both Magill Road and Portrush Road. While Portrush Road has a median for much of its length, at the approach to Magill Road this is used to provide turn lanes. Cyclists are likely to ride down Portrush Road to cross Magill Road (e.g. from Beulah Road), then U-turn using the median when it becomes available or at Dover Street/ Abermarle Street and backtrack along Portrush Road; or use local streets to reach Prosser Avenue, then cycle along the Magill Road footpath to the lights and onto the north-eastern Portrush Road footpath to their destination.
- For cyclists from the north-west, using the traffic signals involves back-tracking. They are more likely to use local streets to reach Dover Street and cross Portrush Road using the road opening; or use local streets to Adelaide Street, then cycle along Magill Road to the lights and onto the north-eastern Portrush Road footpath to their destination.
- Cyclists from the north-east would have few difficulties, accessing these local shops via Abermarle Street and either the southbound bicycle lane or footpath on Portrush Road. The north-eastern footpath would provide a route back, otherwise cyclists would have to cross the Portrush Road median to access the northbound bicycle lane, then cross Portrush Road at Dover Street back to Abermarle Street.
- Cyclist from the south-east also need to cross both Magill Road and Portrush Road. Cyclists are likely to use local streets to access Verdun Street. Road cyclists could then travel down Magill Road to right turn (or hook turn) into Portrush Road, then U-turn using the median when it becomes available or at Dover Street/ Abermarle Street and backtrack along Portrush Road; or use the lights and Portrush Road footpath. Returning would be simple to the traffic signals, then road cyclists could use Portrush Road to Oban Street while footpath cyclists would use either Portrush Road south-eastern footpath (but probably not as it is very narrow) or Magill Road south-eastern footpath, to the local street network.

Also, cyclists from the north-east have relatively poor route choices to the City. Portrush Road to Beulah Road is arguably one of the better routes.

The most significant implication of the intersection road widening design is that crossing Portrush Road at Dover Street/ Abermarle Street will be markedly less safe and convenient for cyclists, due to the extra lanes

of traffic and location of the merge point. To cater for existing cyclists who use the north-eastern footpath, and to provide a safe alternative for cyclists who currently cross Portrush Road at Dover Street:

- cycle paths should be provided on footpaths along Magill Road from Prosser Avenue and Adelaide Street to the lights
- a cyclist median crossing of Portrush Road should be provided at Clifton Street (the next street north of Dover Street) as an alternative for some people
- the north-eastern footpath of Portrush Road should be widened between Abermarle Street and Magill Road to function as a shared use path, or a separated two-way bicycle path should be provided adjacent to the footpath
- the pedestrian splitter islands should be increased in size.

As a fine detail, directional signage to the Magill Bikeway should also be provided at the intersection.