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***Cycling for the Environment, for Health, for Pleasure***

4 July 2016

Community Relations Team
DPTI
communityrelations@sa.gov.au
*cc Colin.Maher@sa.gov.au*

Dear Sir/Madam,

**Levels-City Bikeway: Regency Road crossing at Galway Terrace**

Thank you for the opportunity to comment on the above proposal, being coordinated with Port Adelaide-Enfield's Broadview, Enfield and Clearview (south) LATM Study.

The Bicycle Institute of SA has been representing the interests of commuter and utility cyclists in our state for over forty years. We would like to submit the following comments on the crossing options proposed for Regency Road at Galway Avenue, Broadview.

Firstly, we welcome the improvements that have been and are continuing to be made to this important Bikeway. You may be interested to know that 998 people so far have viewed our posting about the Regency Road crossing proposals on our Facebook site (excluding our own committee members). There is considerable interest in the route.

However, we have some concerns with the two proposed options as they stand. Our detailed comments follow, but in summary we feel that neither option caters for the less confident, less experienced cyclists for whom BikeDirect routes – and, we would argue, the Level-City Bikeway – should appeal. This is exactly the type of cyclist that DPTI is (or should be) seeking to encourage through the proposed works.

Our preferred option would be a variant of option 2, which we will refer to as option 3. This involves constructing a path within a large median from Galway Terrace to Robert Avenue, accessed at the western end via the traffic signals – similar to the Cross Road treatment along the Mike Turtur Bikeway.

We understand that this option has been examined in a preliminary way and was not pursued further due to concerns about the adequacy of the median width. We suggest that some finessing of travel lane widths would make this feasible, and commend this as an option that would encourage new cyclists as well as providing for existing cyclists.

Again, thank you for the chance to contribute to creating a better outcome for cycling, for the environment, for health and for pleasure. The Bicycle Institute would be happy to discuss design issues further with you. If you wish to do so, please feel free to contact me on 0409 284 165 or via email at chair@bisa.asn.au. We would also like to continue engaging with you on further development of a preferred option.

Yours sincerely,

Fay Patterson
MAITPM
Chair, Bicycle Institute of South Australia

**OPTION 1: PAC.**

Firstly, our experience with PACs – especially those coordinated with arterial road crossing lights – is that they are phased with a sufficient bias to traffic to provide a very poor level of service for pedestrians and cyclists. Indeed, from Super Tuesday figures (which we analysed for Adelaide City Council), it appears that the lights recently installed at Portrush Road/ Beulah Road intersection have led to a reduction in cyclist numbers.

As we have pointed out to both Minister Mullighan and Minister Malinauskas, the safety of cyclists is not enhanced by a level of service so poor that riders detour to avoid the infrastructure installed. (Our previous Chair is one of these.) In terms of the analogy of a 'cyclist highway', $620 million is being spent at Darlington to reduce travel times by 2 minutes by removing traffic signals – not for installing signals that add wait time. (Could the cyclist phase time at least be lengthened to match the pedestrian walk time, when a pedestrian phase is called? This would have absolutely no impact on traffic but be a minor benefit to cyclists.)

Secondly, this PAC results in a re-alignment of the route from Robert Avenue to Beaven Avenue. As well as being anti-directional, Beaven Avenue is a local rat-run and has traffic volumes that are higher than desirable. To connect to the ongoing route, cyclists would then need to travel along Watson Avenue, which also has high traffic volumes. We are concerned that this detour erodes the principle of using low-volume streets wherever possible for this type of route.

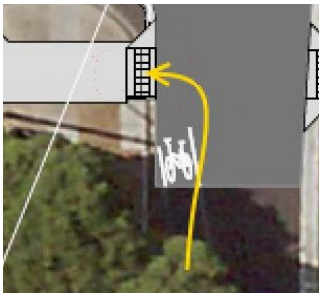
Finally, this PAC caters for only one movement – a north-south movement of pedestrians and cyclists. Nor is this well catered for: the footpath on the north side of Regency Road is narrow and obstructed by a communications bollard, notwithstanding the proposed widening. The entry into Beaven Road involves crossing exiting vehicles and would be achieved using a minimum-width pedestrian kerb ramp. This is not a treatment in keeping with a major cycle route, and we are concerned that directing commuter cyclists to use a footpath will suit neither cyclists nor pedestrians. Meanwhile, cyclists turning right from Regency Road into Beaven Road, or Regency Road into Galway Terrace, or Galway Terrace into Regency Road, are not actively provided for.

Our specific comments on design details follow.

### 1.1 Kerb ramp to path

For over a decade, DPTI has insisted on using an entry kerb ramp design that contradicts Australian design guidance – currently Austroads' *Guide to Road Design: part 3: geometric design* (as per Figure 4.25); previously Austroads' *Guide to Traffic Engineering Practice Part 14: bicycles* in either the original 1996 version or second edition published in 1999. This also contradicts South Australian guidance, which follows Australian guidance except where specifically noted, and as kerb ramps are not a specifically noted exception.

Very simply, to enter a kerb ramp aligned at 90 degrees to the road, a cyclist must swing out into traffic – as shown indicatively in the sketch at right.



This can easily be checked for intuitive sense: at 90 degree intersections, cycle paths should have a minimum splay radius of 2.5m, as per figure 7.13 in *Cycling Aspects of Austroads Guides* (AP-G88-14). A bike lane adjacent to the kerb is less than 2.5m in width, so there isn't enough space to easily conduct this turn.

For Galway Terrace, this isn't as bad as at other places (as long as a cyclist doesn't follow the line of the bike lane), because the bike lane is slightly away from the kerb. However, the swinging out would occur at the same point where left-turning cars are wanting to tend to the left, and drivers would not expect a cyclist to veer into their path of travel. This creates a conflict between motorist and cyclist travel paths, with little opportunity for either party to manage this.

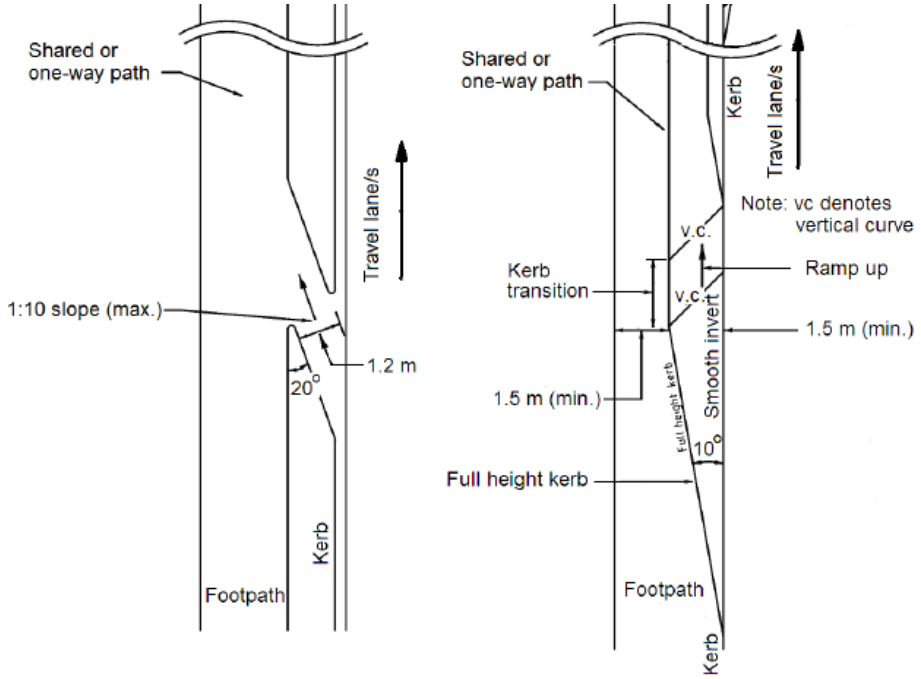
The solution is given by Austroads' *Cycling Aspects of Austroads Guides* (emphasis added).

## 4.7 Ramps

Ramps linking a road carriageway and a path located in the area of the roadside verge may be required in association with protection at curves, narrowing at right-turn lanes and 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. The ramp for re-entering the traffic stream should be placed at an angle that enables cyclists to conveniently view traffic approaching in the left-hand lane. Consideration should also be given to providing a kerb extension to shelter the reintroduction of an exclusive bicycle lane.

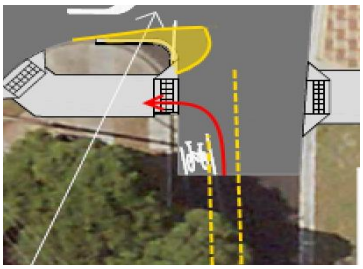
The gradient of ramps to and from raised path sections should be constructed to avoid an abrupt change of grade (in excess of 5%) and in general should not be steeper than 15:1 where high bicycle speeds are likely. Figure 4.10 provides guidance to assist designers to design ramps for low and high-speed movements.



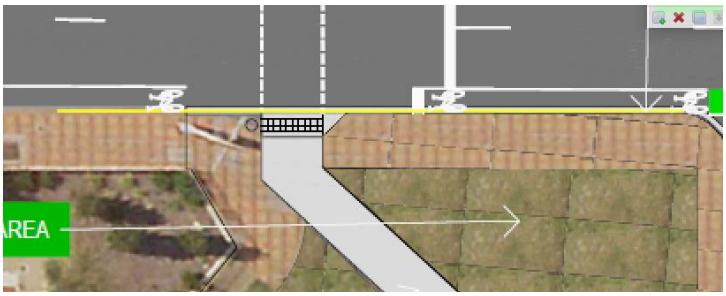

As the path is bike-only, pedestrian use would be low. While the proposed situation is not identical to the guidance situation, Figure 4.10 shows that a kerb ramp for low speed exit from a road should be aligned at an angle of some 20 degrees to the roadway.

If DPTI does not do this, it should prepare a traffic impact statement outlining the reasons for ignoring this design guidance. We would like to see this justification, addressing our points outlined above. We would also like a road safety expert's opinion of this and note that in the absence of either of these, we would contend that DPTI is liable in the event that a cyclist swinging out into traffic is hit by a car, in this or any other similar location.

If DPTI still insists on this unsafe measure, we plead with DPTI to implement an ameliorating treatment by locating the bike lane further away from the kerb to provide an adequate turning circle and a kerb protuberance to encourage drivers to position further right until they have passed the conflict area – as per the following sketch (the red arrow shows how this accommodates the left turn manoeuvre).



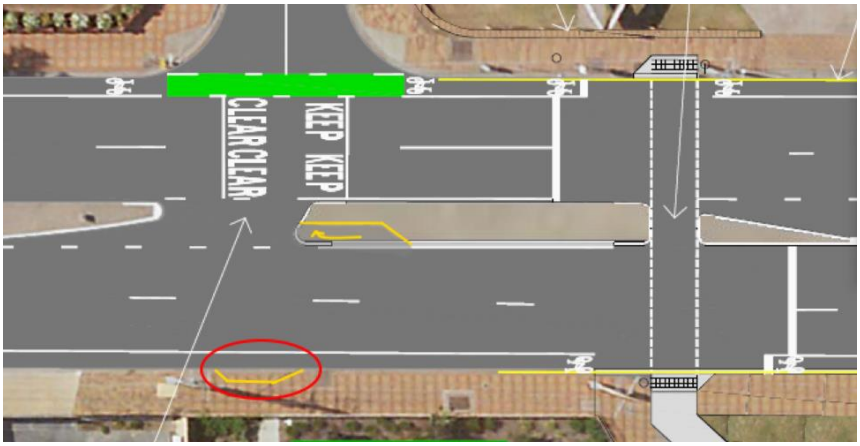
### 1.2 Separate pedestrian entry to PAC




As shown, the bike path proceeds to the PAC entry in a contrasting pavement to the footpath, however there is no separate area for pedestrians to wait and cross. We would like to see a separate pedestrian crosswalk to the east of the bicycle crosswalk (which should be controlled with a bike lantern to permit cyclists to ride across). This would minimise pedestrian/ cyclist conflict on the northern footpath.

### 1.3 Right turn, Regency Road to Beaven Avenue

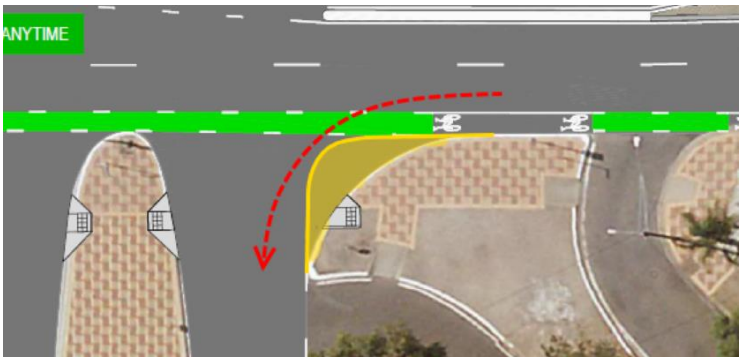
Not all cyclists will be coming from Galway Terrace. We would like to see provision for cyclists to turn right into Beaven Avenue, with a short right turn bike lane in the median and a turning bay on the kerbside providing different options depending on traffic flows. These also provide options for experienced and confident cyclists from Galway Terrace wanting to access Beaven Avenue without having to use the PAC.




### 1.4 South-east corner Regency Road/ Galway Terrace

The kerb radius at this corner is very large. This encourages high speeds for drivers turning left from Regency Road, across through cyclists using the bike lane in Regency Road, and into Galway Terrace. We can see no good reason for such a wide kerb radius.

We would like to see this kerb built out. The following sketch indicates the effectively large turn radius that would remain, due to the generous width of the Galway Terrace travel lane and the space provided by the bike lane. It would be positive if this could be reduced further.



**OPTION 2: SIGNALS.**

As shown, this option would be well suited to confident, experienced cyclists. For others, the level of protection for cyclists is low.

The option is also somewhat uni-directional. The signals facilitate cyclists coming from Galway Terrace to cross Regency Road, but are less useful for any other cyclist movements. The signals would create a break in eastbound traffic, before vehicles turning right from Galway Terrace reach Robert Avenue, but would have no impact on westbound traffic. Instead, the median break for cyclists coming from the reverse direction is not generous or well-designed in relation to their travel paths.

City-bound cyclists could instead use Beaven Road, raising the issues mentioned for Option 1.

Although Mawson Lakes may well be a major destination for users of the Levels-City Bikeway in the morning, we query whether it is significantly easier to cross Regency Road in the afternoon and also point out that the City is a major destination in its own right.

Our specific comments on design details follow.

**2.1 Bicycle stand-up lane**

This would be comfortable for experienced and confident cyclists, but the less experienced and courageous cyclists that the Levels-City Bikeway should be nurturing would be intimidated by this. From this stand-up lane, such cyclists would also find turning right alongside vehicles that could well include buses intimidating.

**2.2 Regency Road bicycle lanes**

Thank you for the generous 1.8m bike lane proposed for the northern (eastbound) side of Regency Road, and removal of conflicting parking. Experienced and confident cyclists will be grateful for the removal of parking in particular. On the other hand, we feel that more timid cyclists would still find cycling for over 100m along a major arterial road intimidating.

The 1.5m bicycle lane on the southern (westbound) side of Regency Road would still be subject to car parking and even experienced cyclists would find little in this environment as being encouraging.

**2.3 Median opening at Robert Avenue**

For cyclists travelling along Regency Road, the short median opening does not allow them to maintain speed to more easily move across multiple lanes of traffic to turn right into Robert Avenue, and we would like to see a short cyclist turn lane. Nor does it allow cyclists who have not been able to find a gap in traffic to pull out of the bike lane to stop and wait with good visibility to oncoming traffic, and we would like to see an indented bay in the southern footpath to facilitate this.

For cyclists turning right from Robert Avenue into Regency Road, the new signals would create gaps in the eastbound traffic but not westbound traffic. The median gap of 2.1m is sufficient for a single bicycle to sit and wait, but no more than this. We would instead suggest a seagull form of median to provide separate space for right-in and right-out cyclists and increasing the storage capacity.

A short section of bike lane in Robert Avenue would help bikes position to access the median break.

**2.4 South-east corner Regency Road/ Galway Terrace**

As per Option 1, we can see no good reason for such a wide kerb radius and would like to see this kerb built out. In conjunction with a pedestrian crosswalk, this could reduce the minimum green time for east-west traffic; but as this is the dominant traffic flow, this would be of little utility.

**2.5 Indent for cyclist crossing**

We can see the issues that having a crosswalk on one side of a T-junction create when trying to provide an alternative for right-turning cyclists to using the right turn vehicular lane – not helped by the private access on the north side of the junction.

As shown, this seems a little awkward – and single-purpose.

To function, through traffic and right turns from Galway Terrace would have to be held. Assuming that left turns from Galway Terrace would run in this phase, this means that cyclists in the stand-up lane would have

moving traffic to their left. This would not be a comfortable environment for less experienced and confident cyclists.

The distance a cyclist would have to travel from the indent to past the crosswalk in Galway Terrace is around twice the distance from the indent to the median. If the design incorporated a pedestrian crosswalk on the eastern side, staged over the median, the additional delay over a right turn cyclist may be minor (say, 14 seconds instead of seven, plus clearance time). Of course, the frequency of activation could well cause greater disruptions, but we would like to highlight that this would add significant utility for pedestrians and assist in accessing public transport.

**OPTION 3: SIGNALS WITH MEDIAN PATH.**

We provide a sketch of option 3 based on the two DPTI concept plans, overleaf.

This assumes the following finessing of travel lane widths:

- Southern (westbound) side of Regency Road: options 1 and 2 both show a kerbside travel lane of about 3.7m and median-side lane of about 3.3m. Currently, the respective lane widths are 3.6m east of Robert Avenue reducing to 3.5m at the start of the median and down to 3.4m at the bus stop; and 3.1m. Given that under option 3 these lanes will be on the approach side of a set of signals, where lower speeds should be expected, a 3.4m kerbside and 3.1m median-side lane should be sufficient.
- Northern (eastbound) side of Regency Road: the kerbside travel lane is currently 3.5m wide, a generous width allowing for the car parking on the northern kerb. Under option 2, this parking (which we believe is mainly used for drop-offs) is no longer allowed. With this restriction, and given that there is an adjacent bicycle lane, a width of 3.1m should be plenty for this travel lane.

This gives a total available median space at the western end of some 4.2m (comprising 0.4m released from kerb side lane; median-side lane increased from 3.0m to 3.1m as it's now against a constructed kerb; existing acceleration area within the median of 3.4m no longer required for buses; 0.5m back-to-back kerb allowance) and at the eastern end of 3.2m (comprising 0.4m released from kerb side lane; current median width of 2.7m; and 0.1m released from standardising the kerbside lane at 3.4m).

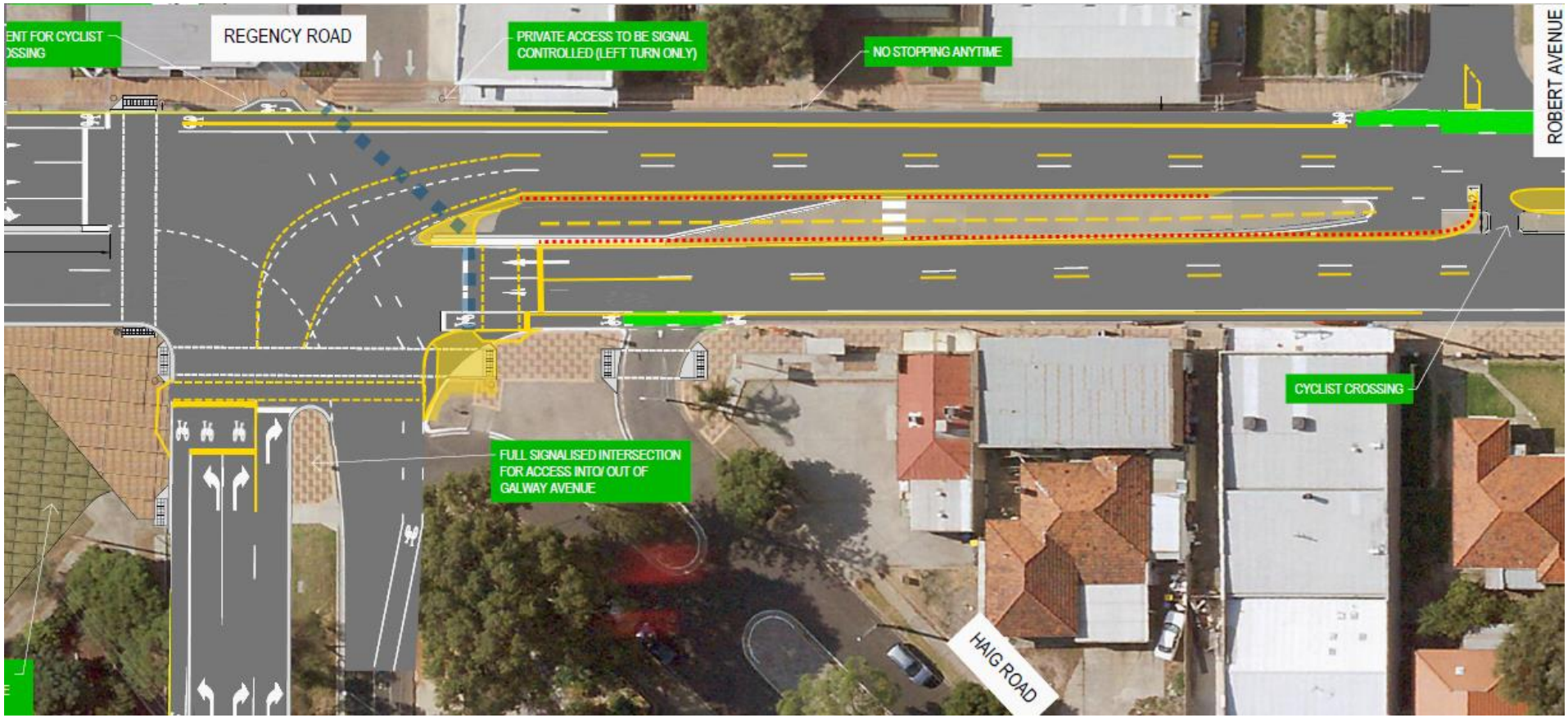
This is more than wide enough at the western end but still narrow at the eastern end for a 3.0m path between fencing installed in back-to-back kerb. We suggest that a narrower path width would be acceptable, especially as the total path length would be some 80m and the minimum width would apply for only about half of this length. Also, experienced cyclists could use the bike lanes on Regency Road, with only those cyclists wanting greater protection using the median path.

We would prefer a minimum width between fences of some 2.5m but note that the effective width (i.e. width between edge lines, once a clearance line to the fence is marked) would be narrower than this. This is acceptable under Austroads guidelines.

With a formalised central median path, the signalisation of option 2 should be extended to providing access to the median path. This could run in conjunction with the left and right-out phase with no impact on traffic, and the right-in phase provided for cyclist right turns in, again with no impact on traffic.

As per our Option 2 comments, this latter phase could support having a staged pedestrian crossing on the eastern side of the intersection.

Proposed Option 3




Yellow = new kerbs and line-marking, compared to option 1 or option 2 concepts (which have been combined to create the above sketch)

Red dotted line = fencing

Blue dotted line = possible pedestrian cross walk (with staged crossing)

Other options to increase the two-way path width include:

- Installing fencing directly into the road surface and providing extruded kerb on the vehicular side only, allowing more of the space to be available to cyclists.
- Using an alternative to standard fencing where the median width reaches its minimum. The standard fencing helps to prevent a cyclist who falls from entering the traffic stream but is higher than handlebar height, which is the widest part of a bicycle for most mountain bikes/ hybrids. A lower fence that enables a cyclist to protrude handlebars and/or elbows over the top of fencing would have a slightly lower capability in preventing cyclists falling into traffic, but is arguably supportable for a short, low-speed section of path. This would enable a cyclist to position closer to the fence when another cyclist is passing.
- Ending fencing in advance of Robert Avenue, with the remainder being line-marked only. While not a preferred option for the entire path, it would be acceptable for a short distance of maybe 10-20m. A 0.3m white line – ideally with tactile line-marking at its outer edge – would provide separation but not be a solid obstacle requiring additional clearances. Practically, this would be little different to a bicycle lane provided adjacent to moving traffic.
- Reducing the northern bike lane width from 1.5m to as little as 1.3m, between Beaven and Robert Avenues. It can be expected that this bike lane will mainly be used by experienced cyclists, and as a full-time bike lane would be a significant improvement over the current peak hour arrangement (which leaves no space for cyclists passing parked cars). We would consider a narrower bike lane tolerable if other options are exhausted.
- Lower width vehicular travel lanes. Narrower width lanes are used in other arterial roads. This could be of assistance even if lanes were only reduced by 0.05m and released even 0.1m overall. The westbound lane in particular could be provided at a narrower width in recognition that it would be on the approach to a set of signals and narrower lanes would encourage lower speeds. This would need to be carefully considered in light of parking.

Design details that need further consideration are:

- Design of the median path for bicycles only or for shared use. The possible path widths support either and shared use would aid pedestrian access, but might increase conflict potential. Prohibiting pedestrians could be difficult. Design detailing would be required around pedestrian kerb ramp access at Regency Road/ Robert Avenue in either case. If the path were made shared use, a mid-block break in fencing to enable pedestrians to access the shops on either side of Regency Road could be considered, with a zebra crossing of the median path. This should not be located in the minimum width section of the median, and fencing should not obscure pedestrians.
- Locating the bike lane in Galway Terrace to the kerbside instead of being between two lanes of traffic. Access to the median is facilitated through an indented bike bay and crossing adjacent to the east-west pedestrian crosswalk.
  This creates a conflict between right-turning cyclists and left-turning drivers. Options to address this include:
  - signal control (holding the left turners for maybe six seconds, noting that the left turn will typically clear quickly and that the phase time will be dictated by right turning traffic);
  - providing a path to the north-south pedestrian crosswalk, with the possible pedestrian conflicts associated with this;
  - installation of a forward storage area: this should function well, given likely phasing, but would mean setting back the left turn and at least one right turn stop bar further;
  - additional road widening to enable both a stand-up lane and kerbside lane to be provided.

  Regarding the last of these options, given that the Galway Terrace median is being cut back to provide an additional right turn lane and the kerb built out around Erin Street, road widening to

accommodate an additional bike lane may not be costly. We would have concerns if the proposed kerbside bike lane were accommodated by using the footpath.

- Providing a better facility for cyclists from Regency Road turning right into Robert Avenue. The cut-through shown does not help cyclists in Regency Road to find a gap to move over two lanes of traffic while maintaining speed, into a right-turn bay. At 2.1m, the median break is not generous; this would be improved with a wider median. A radius suiting cyclists turning out of Robert Avenue is also desirable, for riders who do not wish to use the median path.
- A short section of bike lane in Robert Avenue, leading into the median path.
- Providing solar LED cateyes for added delineation. Light levels have not been assessed and would be relatively high, but from our trial with Adelaide City Council, such guidance would be viewed positively by cyclists as being indicative of a high-quality treatment. This would help with encouraging new cyclists to the facility. Such lights would be relatively inexpensive to use over such a short length. If not provided along the centreline, pairs of lights at entry/ exit and any pedestrian crossing point would help to highlight these.