

Via email to: [eng-consultation@charlessturt.sa.gov.au](mailto:eng-consultation@charlessturt.sa.gov.au)

Dear Sir/Madam,

## **Let's Reimagine Chief Street! – Concept Options**

Thank you for the opportunity to comment on the latest proposals for Chief Street.

Bike Adelaide (formerly the Bicycle Institute of SA) has been advocating for utility cycling since 1974. We represent the interests of people who cycle to work, school, shops and for other daily activities rather than for recreation or sport. Our aim is to not only represent existing cyclists but to assist all levels of government in their aims of converting “proto-cyclists” – the significant proportion of the population who say that they would cycle if conditions were safe enough – into active cyclists, and protecting the safety of the cyclists who do use our roads and other public facilities.

In line with this philosophy, two priority concepts that Bike Adelaide highlighted in our previous submission are:

*2. Separated facilities – from both traffic and pedestrians. To attract the most cyclists, cycle routes need to be separated (or mostly separated) from traffic. Off-road paths designated for shared use create their own issues with pedestrians, particularly when volumes of walkers and/or cyclists are high, tidal and/or concurrent; being a second-best result in these conditions.*

*3. An “8-80” network – this will be achieved in the first instance with a coarser grid of separated routes that can be accessed by low-stress connections, low speed limits (40km/h to 30km/h) in residential streets helping to establish the appropriate local cycling environment, and safe crossings of major roads.*

We did not include “meets design requirements” as a priority concept as we would take that as a given.

Regrettably, we have to advise that none of the proposed options for Chief Street currently meet all of the above priority criteria. On this basis, we cannot support any of the options as presented. However, we see significant opportunity for changes to enable one or more options to be supportable and hope that our feedback will not only encourage but support Charles Sturt to more effectively achieve its objectives for Chief Street and maximising its safety for all road user groups.

In terms of our future support, we offer initial, brief observations on the proposed options as follow.

- **Option 1** – Conditionally, this would be our preferred option. Our conditionality is based on the proposed shared use path being designated as an exclusive bicycle path rather than for sharing with pedestrians, in order to minimise pedestrian/cyclist conflicts harmful for both user groups; and that this option is arguably the easiest to amend.

No justification has been given for why the path has been designated for shared use, noting that footpaths are provided on either side of Chief Street and these footpaths are each generous, being significantly wider than the existing 1.5m footpaths. Pedestrians often feel threatened by cyclists passing on paths and this would be expected on the proposed shared use path. Designating one path for exclusive cyclist use helps to ensure that the footpath becomes a pedestrian-only space by clearly separating the road user types.

The path also needs to be straightened somewhat before it can provide a comfortable and convenient travel path.

- **Option 2** – This is our preferred general layout, however the inadequacy of bike path width mean that this is not our preferred option.

*Austrroads Guide to Road Design Part 6A: Paths for Walking and Cycling (“AGRD6A”)* notes (Table 5.5, p30) that the desirable minimum width for a one-way bicycle path is 1.5m. 1.2m, as proposed under option 2, is only allowable as an absolute minimum width – i.e. for use over short, constrained sections.

Highlighting this distinction between absolute and desirable minimum could open the way for the design to feature 1.5m generally, narrowing to 1.2m past parking, noting that while a 1.0m buffer to car doors is desirable, this buffer can be as narrow as 0.7m where car parking is not provided. In addition, passing bay areas of 2.0m width should be provided to allow for overtaking opportunities.

If adequate width and passing opportunities could be achieved for at least the majority of each path, we could reconsider whether Option 2 might become our preferred option.

- **Option 3** – Although this is a well-designed bike lane, Bike Adelaide believes that this does not adequately capitalise on the opportunity presented by the nearby Outer Harbor Greenway. An on-road bike lane simply does not offer the separation to traffic that many proto-cyclists require before they will take up cycling, or allow their children to ride, for simple, daily purposes.

Our detailed comments are provided in the following pages. We would particularly draw your attention to our recommendations for the Port Road Transition Zone, common to all options; and note that our commentary includes addressing safety issues that we have identified.

Again, we hope this feedback is viewed positively and encourages and assists you in assessing and refining your design options for this important project. We are aware of and appreciate the effort Charles Sturt has invested in the design process to date.

Yours sincerely,



Fay Patterson  
Vice Chair, Bike Adelaide  
0409 284 165

## Port Road to Chief Street

As the Gateway elements appear to be common amongst the three options, Bike Adelaide would like to provide feedback on this section separately. We note that no dimensions are given for design features in this section, which makes this task more difficult.

Firstly, we are supportive of the overall approach in terms of improved consistency and greening. However, the design of cycling (and other) facilities is not clear, which means that we cannot provide support of any of these per se. In terms of what we can gather from the plans:

- Bike lanes could be supportable between Port Road and the railway line, given a lack of kerbside car parking, if enhanced separation to traffic is provided. Enhanced separation (e.g. flexible posts) are advised to help maintain the perception of a high level of safety for people accessing the Outer Harbor Greenway.
- The western footpath should be at least 2.0m wide, matching the width in Chief Street on the other side of the railway line. This also enables a degree of safety for path users if cyclists opt to use the footpath in this area. This footpath appears to be up against the property boundary. We recommend that it be located at least 0.3m from the property boundary. In our experience, this assists to maintain adequate sightlines. (We further draw your attention to the need to maintain sight triangles as indicated by Figure 3.3 in AS 2890.1 Parking facilities Part 1: Off-street car parking. This is a “shall” not “should” provision.)
- It is not clear whether the ramp on the eastern side also helps cyclists to access from/egress to the roadway.
- The art statement on Port Road should not reduce the footpath width.
- The underpass road treatment is proposed to be cobbled. However, cobblestones are known as being uncomfortable and treacherous for cyclists – who are transitioned on-road at this point. They are also a trip hazard for pedestrians, who have a crossing desire line at this point. (At cobbled thresholds in Rundle Street east, cement was in-filled as a fix for the trip hazard created.) A more appropriate surface treatment is required. Given the transition from the treatment further north to on-road cycling through the Arrival Point, some form of transition should also be provided for cyclists.
- As shown, the cobbled area is poorly defined. In this case, the extension of the ambiguity past First Street into the high-gradient underpass section has the potential to dissipate attention rather than provide a focus on road user interactions at the junction. We would like to see more detail on the treatment in this area, including art concept.
- Seating proposed on the western side of Chief Street affords views of the historic wall, but the southern seat is between the roadway and footpath and is likely to feel exposed. This seat should be relocated, or an additional seat provided, between the path and the wall on the eastern side, as shown following – preferably with a small deciduous tree to the north, to provide shade in summer, and a bicycle parking rail nearby.



### Car parking layout, western side

All plan layouts show a “landscape design” approach to on-street parallel car parking provided on the western side, rather than a “traffic engineering” design.

The “landscape design” shows spaces as entirely rectangular, for reasons of aesthetics. This implies that a car wishing to park pulls up alongside the space and then moves at 90° to the original direction and slides into the space. However, cars have wheels, which mean that they cannot slide but must turn to access a parking space and the space has to be long enough to accommodate the manoeuvring.

This is a technical way of noting that all of the on-street parking marked appears to be provided at 5.4m in length, which is too short. Australian Standard AS28090.5 *Parking facilities Part 5: On-street parking* notes that only end spaces where vehicles may enter or leave the space directly (e.g. one located next to a driveway, where vehicles can turn in the space adjacent to the driveway and then pull directly into/out of the provided parking space) can be provided at this minimum 5.4m length. Intermediate spaces have a minimum length of 6.0m and end spaces that are obstructed at one end have a minimum length of 6.3m.

To illustrate: the angled off-street parking spaces do not have the parallel parking space length requirement because a car can pull directly in (similarly to an unobstructed end space.) They have a nominal length of 5.4m. Marking one in pink below and then copying/pasting this, the highlighted spaces have a length of 5.4m but need to be a minimum of 6.3m. (A tree also appears to be obstructing the driveway access to the off-street car park.)

Implications on the parking layout may influence how the Options pan out, but this is not clear from the information provided.



(An alternative is that end and single parking spaces of 5.4m can be provided **IF** 45° chamfers are provided at obstructed ends, as this allows cars to pull in/out easily. Since the minimum car space width is 2.1m, this will result in an additional 1.05m of length in any case. One advantage of the 45° chamfer is that just as cars cannot slide at 90° to their direction of travel, nor can street sweepers. The chamfer enables car parks to be cleaned if no car is parked in the space. Rectangular spaces instead tend to accumulate trash at their ends.)

## Option 1: “Shared use path” Option

### Overview

As mentioned, this option is not supported with shared use of the proposed path.

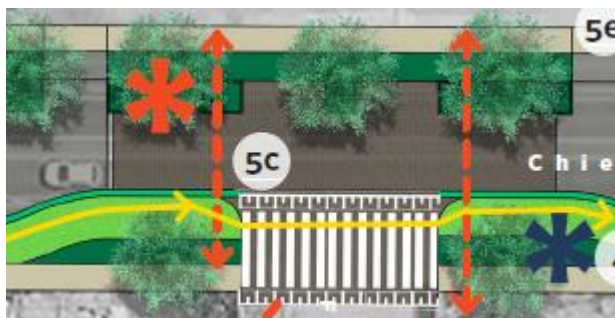
- The proposed streetscape section illustrates exactly the sort of situation cyclists dislike, with a pedestrian walking a dog on the path. Dogs are very unpredictable and having a degree of latitude, even when on a leash, that is sufficient to get in front of a cyclist and cause a crash.
- In more concrete terms, the path width of 2.8m is arguably narrower than desirable for shared use. From AGRD6A, 3.0m is also the desirable minimum width for a regional shared use path. Regional paths can also form part of a Principal Bicycle Network (in SA terms, the Bike Direct network – which would apply for Chief Street), in which case 3.0m would again be the desirable minimum width.  
(AGRD6A further notes that a width in excess of 3.0m may be desirable for a local access shared use path if “...there is a high probability of conflict between users (e.g. people walking dogs, in-line skaters etc.)” – which may be more debatable.)
- 2.8m for a two-way separated bike path plus 2.0m for a pedestrian footpath would be quite comfortable, and even more so given 2.0m footpaths on both sides of Chief Street.

We recommend that options for entering/exiting the path be considered. Local visitors and people from the surrounding area should be able to easily use the path.

### Fourth Street

We question whether the path should be extended past Fourth Street, with its connection to the Outer Harbor Greenway, towards Port Road; and whether the design of the wombat crossing could be reconsidered to better protect both cyclists and pedestrians.

- A path on one side of Chief Street does not provide a good transition from the on-street environment to the path. An apparent central median cyclist turning slot does not align well with the path; as shown, it is likely that on-street cyclists will veer across Chief Street to access the path.
- The wombat crossing introduces a ramped section. As shown following, the path is chamfered to avoid aligning with the ramp, which means that the effective path width reduces. Northbound path users are effectively forced to dodge the ramp into the oncoming path of path users in order to safely cross the wombat crossing (yellow line). Or, they must negotiate the sloping face of the ramp; and if a cyclist, this comes with a risk of possibly crashing or being directed into oncoming traffic.



Given the pedestrian desire lines shown, we suggest that a plateau also providing a crossing of Chief Street would be more desirable for both pedestrians and cyclists, as shown following (indicatively.)



With a small section of path/ facility on the western side, this would provide a point at which on-street cyclists could cross Chief Street at a safe location to access/egress the eastern path, or the Outer Harbor Greenway.

Bending a bike path out (towards traffic) at a side street is the opposite of best practice, which is to bend the path inwards (away from traffic). This proposal would comply with such best practice. The best practice approach provides cars turning into the side street improved visibility to cyclists travelling parallel/alongside/behind them, by allowing the driver to turn in slightly before they need to yield.

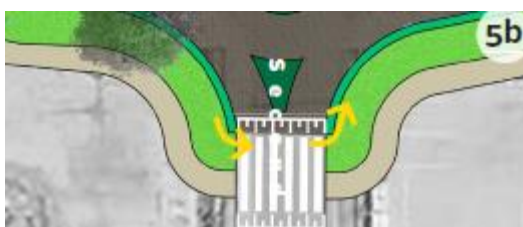
This approach also provides a straighter path for cyclists, with the need to bend in past parking and then back out, then in again, being somewhat tedious.

The design could incorporate a narrower verge (e.g. 0.5m) between the footpath and cycle path to maintain separation between the facility, but still deliver the preceding benefits.

## Second Street

Given the known hazard presented to cyclists by roundabouts, we would prefer the raised threshold treatment. If a roundabout is countenanced, we recommend adopting radial design and note that our Vice Chair, Fay Patterson, has recently completed a PhD that (amongst other things) identifies a geometric risk factor for roundabouts to be hazardous to cyclists. We recommend that any roundabout design also take this into account.

While we generally appreciate the provision of the path around the roundabout, we note that the travel line is very tight for northbound cyclists. AGRD6A specifies a minimum radius of 2m for cyclist paths, which we doubt would be met in this instance.



As at Fourth Street, on either side of Second Street, the path bends in around on-street parking, bends back out to the travel lane and immediately bends in to pass around the roundabout. The tedious nature of this travel path for any path user is shown by highlighting it in yellow, below.



The path could easily be straightened on either side of Second Street by not bending out past the parking, with street trees instead being planted on the outer (travel lane side) of the path.

It would be somewhat difficult for cyclists from the western side of Second Street to join the bike path at this point.

### Ethelbert Square

Our comments regarding the chamfering of the path at the wombat crossing of side streets and the bending out/in/out/in around on-street parking are similar as for Fourth Street.

A more desirable path alignment is shown indicatively following, in pink.



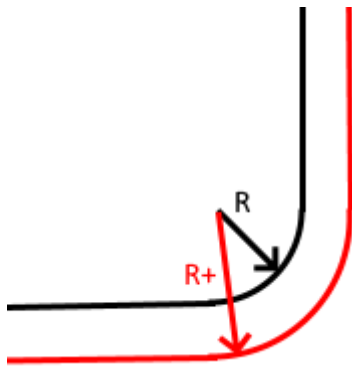
This demonstrates that:

- Street trees could be planted as proposed, separating the footpath from the bicycle path, but in a narrower verge area. Additional verge for landscaping would then be available at the kerb edge.
- Even with a landscaped separator between the footpath and the bicycle path, a straighter alignment could be achieved for the bicycle path.

### Hawker Street

The design for path termination is not shown, so cannot be discussed. While the use of traffic phasing to achieve separation between bicycles and motorised traffic is appropriate, it is also true that signal phasing in Adelaide generally provides a low level of service to cyclists. We would want to see signal phasing and likely delays to cyclists before we could support the approach at this location.

It appears that the kerb radius provided may be greater than the minimum. We would recommend checking this. This commonly occurs where kerbs are built out and the new radius is basically provided as an offset from the original. As shown conceptually below, the result is that the new radius is greater than the original and vehicles can turn at higher speeds. Instead, the new kerb should be provided at the original (standard) radius, to ensure that vehicle speeds are maintained as moderate.



## Option 2: Kerb-Separated Bike Lanes Option

### Overview

As mentioned, this option is not supported with the continuous bicycle path widths being below the desirable minimum of 1.5m, and having no locations at which faster cyclists could overtake slower cyclists for the length of Chief Street.

However, what is actually proposed is difficult to ascertain as only one streetscape section is provided. It appears that when parking is provided on the eastern side, this uses all of the (2.1m) eastern verge. This indicates that the eastern parking is provided at 2.1m wide, but would also imply that either the bike path and/or the footpath has to be narrowed to achieve the stated 1m buffer between the bike path and parking (a note regarding the footpath narrowing below 2.0m is only provided on the western footpath.) Footpaths at 1.8m are still wide, but it is undesirable to narrow footpaths to accommodate parking.

Wombat crossing markings are also missing on the plan layouts. These are assumed to exist, similarly to Option 1 when appropriate.

- The path on the western side has virtually none of the alignment issues that affect the Option 1 path. We note that where the buffer is not 1m past on-street parking, it could be provided at 0.7m, which would enable the path to be widened to 1.5m; however, there are (currently) few locations where this applies.
- The use of the eastern verge for parking implies that the width of this verge is designed around this use. As an alternative, it could be narrowed to (say) 1.9m, and the buffer to 0.7m when no parking is provided, to give a 1.5m wide bike path.
- If parking provided on the eastern side is acceptable at 2.1m (the minimum allowable under AS2890.5), this raises the question of why the western parking is provided at 2.3m – noting that the traffic engineering design philosophy is not documented. This might imply that this parking width could in fact be reduced by 0.2m to 2.1m – which we believe should be acceptable given 3m traffic lanes and a 40km/h speed limit, and noting that this is the standard configuration in Adelaide CBD despite this having 50km/h zoning – and the 0.2m reallocated into the bike lane width.

With paths on both sides, entering/exiting the facility is simpler than for Option 1.



## Fourth Street

We assume similar alignment issues with the bike path and the ramp of the wombat crossing as for Option 1, with similar comments applying.

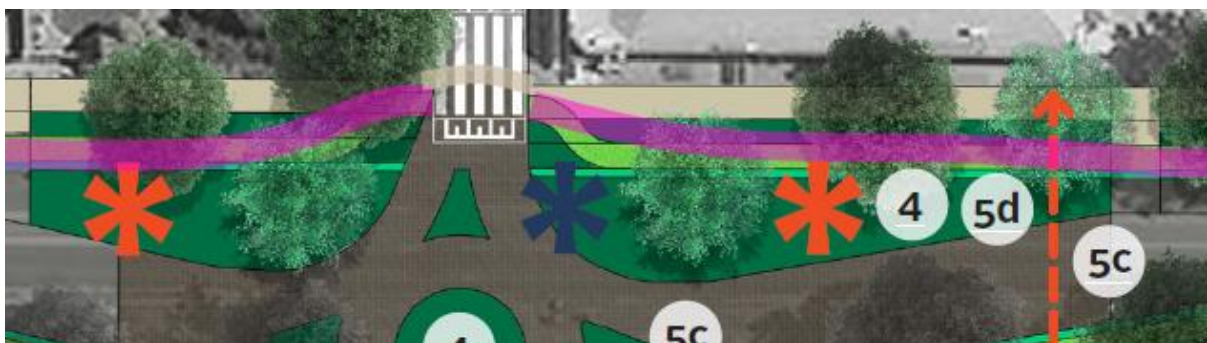
In addition, in this Option, path straightening, driveway location and reconsideration of parking may provide opportunities to provide 1.5m bike paths with overtaking opportunities, as sketched indicatively below. Pink = straightened, widened path (eastern side), additional width from use of buffer and driveway (western side). Yellow = reconsidered parking space.



## Second Street

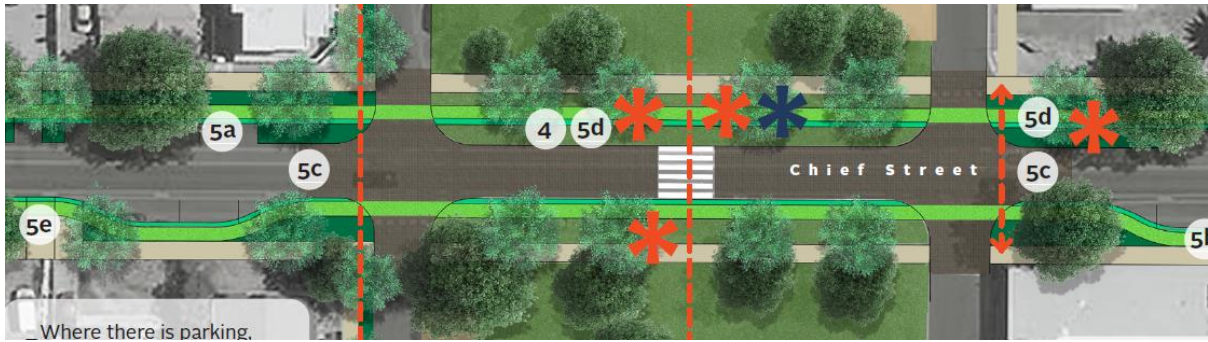
Given the known hazard presented to cyclists by roundabouts, we would prefer the raised threshold treatment. If a roundabout is countenanced, we recommend adopting radial design and note that our Vice Chair, Fay Patterson, has recently completed a PhD that (amongst other things) identifies a geometric risk factor for roundabouts to be hazardous to cyclists. We recommend that any roundabout design also take this into account.

Again, comments regarding straightening the path on the eastern side are similar to Option 1. For Option 2, this would present an opportunity to provide the western path as a 1.5m path with passing opportunities (no buffer is required in landscaping, if plants are low.)



## Ethelbert Square

Similar comments as for Option 1 regarding the wombat crossings and alignment of eastern path, also extending to the western path.



This would be an area where paths could be provided at 1.5, with possible passing opportunities able to be developed.

- On the eastern side, apart from two car spaces, this situation extends to Hawker Street.
- On the western side, the frequency of driveways means that parking arrangements generally meet length requirements. These also present locations at which the bike path is functionally 1.5m.
- There are three locations where changing parking to meet length requirements could be strategically used to provide 9m lengths of at least 1.5m bike path and potentially 2.0m passing opportunities. This would be desirable because given a wide footpath with good access via driveways on the western side, and potentially low pedestrian levels, it is possible that the footpath would be used as a de facto overtaking (or slow vehicle turnout) lane if no formal passing opportunities exist.

### Hawker Street

This Option provides the best transition to a standard street layout. Again, however, detail of the on/off path transitions are not well shown, and we would recommend that the kerb radius be checked.

### Option 3: On-street bike lanes

#### Overview

As mentioned, although the design shown in the proposed streetscape section indicates well-designed bike lanes, we do not consider that this option would optimally increase cycling levels as it does not provide a high level of separation commensurate with the separation sought by people who would use the Outer Harbor Greenway.

Noting that there is 0.4m allowed as an enhanced separation between the bike lane and traffic, if this could be increased sufficiently to allow flexible posts to be installed, this would provide a higher level of separation than one with no physical separation. However, such enhanced separation is not possible adjacent to parallel parking, which under this Option comprises the majority of both sides of Chief Street. Indeed, the additional on-street car parking provided under this Option adds to the risk presented to cyclists by traffic in Chief Street, and is likely to generate additional traffic, reinforcing that the bike lanes option would give the poorest result for cyclists.

### **Fourth Street and Ethelbert Square**

It appears that wombat crossings giving priority for pedestrians crossing side streets will not be provided under this Option. Compared to Options 1 and 2, which feature these, this Option is a further undermining of priority and safety.

### **Second Street**

Given the known hazard presented to cyclists by roundabouts, we would prefer the raised threshold treatment. If a roundabout is countenanced, we recommend adopting radial design and note that our Vice Chair, Fay Patterson, has recently completed a PhD that (amongst other things) identifies a geometric risk factor for roundabouts to be hazardous to cyclists. We recommend that any roundabout design also take this into account.

The western bicycle lane appears, at this point, virtually identical to the Option 2 bike path. Option 2 comments apply.

Regarding the eastern bicycle lane, taking a painted bicycle lane around the outside of the roundabout is an interesting proposal. It is not evident whether this is in fact proposed, or whether the bike lane is proposed to be kerb protected in the same way as for Option 2. If so, then our Option 2 comments apply. If the bike lane is only painted, it is likely that at least some vehicles will intrude into the bike lane, reducing at least the perception of safety.