

Aberdeen Cycle Forum response to proposed design of Western Peripheral Route.

1 Summary

The Aberdeen Cycle Forum (ACF) welcomes this opportunity to provide an early response to the proposed design of the WPR. There are a host of measures available to engineers to ensure that the infrastructure associated with the WPR is cycle-friendly. Junction design is likely to be the critical factor in ensuring the WPR has minimum impact on cycle traffic. Additionally, the ACF believes the WPR offers an opportunity to add to the existing cycling infrastructure around Aberdeen.

2 Introduction

The purpose of this report is to provide recommendations to ensure that the WPR has the minimum impact on cycle traffic. Aberdeen has a significant number of leisure and utility cyclists, many of whom are likely to encounter the WPR during trips. The report has been authored on behalf of the Aberdeen Cycle Forum (ACF), which has been established to encourage and promote cycling in Aberdeen.

The report will consider the impact of the WPR on crossing cycle traffic, and will discuss the opportunity for additional cycling infrastructure to accompany the WPR. Appendix A provides detailed comments for specific locations, and Appendix B contains diagrams.

3 Crossing Cycle Traffic

The ACF spent some time examining the plans for each of the potential WPR crossings. In many cases these will be reasonably cycle-friendly. There are however, some exceptions. Discussion of crossings has been broken down by junction type. The assumption is made that there are no At-Grade junctions on the WPR.

3.1 Bridges and Underpasses

The ACF is pleased to see that where existing routes used by on-road cyclists meet the proposed route of the WPR, they appear to be largely maintained by the use of bridges, underpasses and / or re-routing of the existing roads.

3.2 Grade Separated Junctions

Around three-quarters of cyclist casualties occur at or near to junctions. (CFI 14.1 Ref 3). In a nutshell, the simplest way to make junctions cycle-friendly is to "think small". Generally speaking, the larger the junction, and the faster the potential traffic speed around / across the junction, the more difficult it becomes to negotiate by bicycle. Multi-lane junctions, large roundabouts and gyratories are the most hazardous for cycle users. The ACF appreciates that designers will be working to maximize junction capacity, but it should be borne in mind that large high-speed junctions are likely to discriminate against cycling and pedestrian transport modes.

3.2.1 Signal Controlled junctions.

There appeared to be no proposed signal controlled junctions. On the whole signal controlled junctions are the most favourable to cycle traffic, whether (a) signal controlled roundabouts, or preferably (b) signal-controlled T-junction / crossroads (see Fig 1).

(a) An example of a grade-separated signal controlled roundabout is the Halbeath intersection between the M90 and the A92 / A907. Although rather large to be

comfortably traversed by bicycle, without traffic lights it would be a near impossibility.

- (b) An example of a grade-separated signal controlled crossroad style junction is the Hammersmith junction (A4) in West London. (This is not an ideal example – there are other junctions that resemble Fig 1 more closely, but the ACF has not been able to identify a suitable example in time for inclusion in this report.)

The key point in both these cases is that traffic exiting the off slip road (likely to be the most hazardous to cyclists given any junction type) is controlled by a signal. Cyclists then have the greatest opportunity to cross in safety, without facing the risk of side-impact from a vehicle whose driver has failed to give way.

3.2.2 Junctions without Signal Control.

(a) Roundabouts

Roundabouts are the big problem when it comes to cyclists. Cyclists are 14-16 times more likely to be involved in a crash on a roundabout than a car driver (Maycock and Hall, 1984 Ref 1).

Cycling By Design (Ref 2) states:

6.176 The replacement of existing at-grade priority junctions which have poor accident records by roundabouts has become common practice and application of the current design standards (DMRB, Volume 6 : TD16/93 : Geometric Design of Roundabouts) has helped improve road safety generally

6.177 However, this improvement does not include cyclists. Some 10% of all reported accidents involving cyclists occur at roundabouts. Of these, 11% are likely to be either serious or fatal and more than 50% involve a motorist entering the roundabout and colliding with a cyclist using the circulatory carriageway.

Cycle-friendly infrastructure (Ref 3) adds: "It is also accepted that roundabouts are less compatible with urban traffic control (UTC) systems. Southampton City Council, for example, has a policy of preferring signals to roundabouts, partly due to the dangers of roundabouts to cyclists."

Given the above statements, the WPR crossings involving unsignalled roundabouts are in general quite good from a cycling perspective, as in many cases the junction design consists of two small roundabouts, one each side of the WPR (with associated slip lanes), and with a single carriageway under/overpass connecting the two. Provided the diameter of the two roundabouts is **kept to a minimum** (see CBD 6.184, 6.185, 6.186 – Ref 2) this junction type is eminently cycleable.

Desirable examples of this type of junction are the Fairmilehead (A702 -gridref NT249676) and Gilmerton (A772 gridref NT305678) junctions with the Edinburgh City Bypass (A720). In the Fairmilehead case, the ON slip roads (in each direction) are actually offset slightly from the roundabout (see Fig 2) If anything this is slightly less cycle-friendly, a preferable solution being to have the ON slip roads leave directly from the roundabout, but this isn't a significant drawback.

Crossings that appear likely to pose **significant dangers to cyclists** include the proposed roundabout at Kingswells with the A944. This appears to be a large multilane gyratory, presumably without signal-control. Cyclists would have no choice but to travel round this system in order to continue their journey and potential hazard points would exist at each of the intersections with the on/off slip roads. There are numerous options

for reducing the risk to cyclists using this junction-type. These include (roughly in order of preference):

- providing underpasses / tunnels that allow cyclists to avoid the roundabout altogether. Examples of these features can be found on the York City Bypass.
- selecting a different junction type (eg signal controlled cross-roads style)
- adding signal-control to the roundabout (CBD 6.192 Ref 2)
- reducing the diameter of the roundabout (see CBD 6.185 Ref 2)
- adding remote cycle track with crossing facilities (see CBD 6.193 Ref 2)

Under no circumstances should any roundabout include an on-road cycle lane around the circumference. This encourages the cycle user to occupy the least visible position on the road, does not allow control of surrounding vehicles, and is at odds with adopting the Primary Position as outlined in Cyclecraft (Ref 5)

(b) Crossroads / T-junctions

There do not appear to be any unsignalled Crossroads / T-junctions.

4 Additional Cycling Infrastructure

4.1 River Crossings

The ACF believes it is **essential** that cyclists (and pedestrians) are considered in the design for the new River Don and River Dee crossings. A safe crossing facility running parallel to the WPR should be provided at each of the river crossings. This should be integrated with existing routes, for example the Old Deeside Railway Line route.

4.2 Parallel Cycle Track

Since cycle traffic is to be prohibited from the WPR itself, the ACF believes that there is the opportunity to provide (at minimal cost compared to the overall cost of the WPR) a segregated cycle facility running parallel to the WPR itself. This should not be seen as a replacement for existing circumferential routes around the city, but rather an addition to the "cycleable network".

There are precedents for this. Some sections of the A9 now have segregated facilities running alongside, provided by Sustrans (Ref 4) as part of the National Cycle Network. Segregated facilities of this nature can provide pleasant alternatives to on-road routes, can be appealing to less confident cyclists, and can also be made shared-use allowing the pedestrian community to benefit as well. They could provide quick and easy "cut-throughs" for cyclists to link from one radial route to another.

The ACF recognises that it may not be possible to provide this facility parallel to all sections of the WPR - but providing it for a subset of links would still be of huge benefit.

5 Conclusion

The ACF welcomes this opportunity to provide an early response to the proposed design of the WPR and hopes that a healthy dialogue can be maintained with the designers, right through the design and build phases. Ensuring a cycle-friendly WPR will lead to the safety and gratitude of the cycling community for years to come.

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On behalf of the Aberdeen Cycle Forum
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References

1. Maycock, G.; and Hall, R.D., "Accidents at 4-arm Roundabouts," TRRL Laboratory Report 1120 (1984)
2. Cycling by Design, A Consultation Document. Scottish Executive, 1999.
<http://www.scotland.gov.uk/library2/cbd/cbd-00.asp>
3. Cycle-friendly Infrastructure - Guidelines for Planning and Design. Department of Transport, 1996.
4. Sustrans, <http://www.sustrans.org.uk>
5. Cyclecraft, John Franklin, The Stationery Office, 1997

Appendix A - Information on specific locations

The following comments have been compiled as a result of a detailed examination of the plans for the WPR.

	Approx. Grid Ref.	Comments
1.	NJ 888008	Having seen only the immediate end of this junction, it is not clear whether the existing road heading south past Blairs College will remain open or be re-routed.
2.	South Deeside Road	There is likely to be a greatly increased traffic volume to and from Aberdeen on the South Deeside Road. Measures, such as cycle lanes, will be required to maintain safe cycle access.
3.	NJ 868062	Kingswells Park & Ride. It is not clear how the existing cycle route between Aberdeen and Westhill will be maintained across the roundabout. It is essential to maintain a safe route linking Lang Stracht out to Westhill as there are no alternative routes. (see 3.2.2 above).
4.	NJ 863077ish	A new minor road is planned to take the place of the existing road on the NW side of Kingswells. Entrances and exits from this new road onto the existing road must be planned so as to be safe for cyclists.
5.	NJ 8714	This route (no longer being considered?) has the WPR following Dyce Drive. The plan shows no provision for cycle access from the industrial estate north to Kirkton. If this route were used then there would need to be separate provision for cycle connection along this part.ed.
6.	NJ 902105	Maintain safe cycle access along Persley to Grandhome Road – this is a commonly used route by cyclists avoiding the busy B997
7.	NJ 894103	Maintain safe cycle access along existing cycle track on Stonewood Road.
8.	NJ 889149	Major roundabout on A947. Likely to be unsafe to cycle across without separate provision.
9.	NJ 908153	Double roundabout on B977. Needs to be safe for cycle access along this route.
10.	NJ 941148	Double roundabout on B999. Needs to be safe for cycle access along this route.

Appendix B – Diagrams

Figure 1

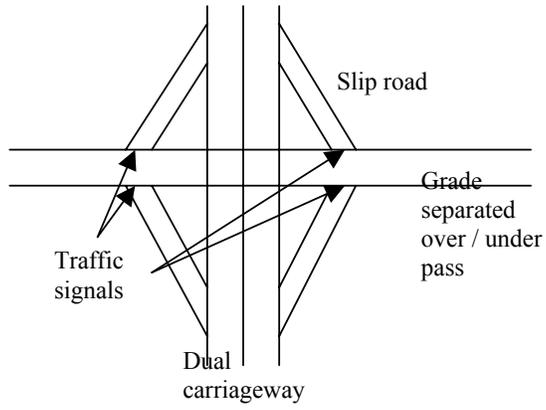


Figure 2

