CAMBRIDGE CITY COUNCIL

Crossings for cyclists

Gonville Place, Cambridge. ‘Puffin Style’ Crossing. Photo: Rob Marshall

Summary

Choice and design of crossings is fundamental to an effective cycle network. The distinction between a junction for cyclists and a crossing must be appreciated.

In spite of mode hierarchy commitments to pedestrians and cyclists, many crossings do not reflect this. The Cambridge Local Authorities are urged to consider more user-friendly crossings over the expectations of motorised vehicles.

The Gonville Place ‘Puffin-style’ crossing in Cambridge has operational shortcomings over the previous ‘Toucan’ crossing.

The ‘Puffin’ crossing principle (including its application to cycle crossings) is favoured by the DfT. There are compelling advantages, though there is reluctance to accept their wider use by some. Well-designed Puffin-style crossings can serve cyclists.

Where there are high numbers of cyclists and on key strategic cycle routes, the choice and design of crossing must reflect this. Of particular importance is crossing width, minimising delay and inconvenience and the use of segregation.

1. Background

A crossing facility at Gonville Place, in Cambridge City Centre, on a well-used walking/cycling route has recently been changed from a 'Toucan' to a 'Puffin Style Toucan'. This has caused some concern from local users groups, particularly cyclists, who believe that the new facility provides a lower level of service than what was available previously.

The City Council has sought to examine the appropriateness of this crossing type and to learn lessons for future crossing types. A meeting on 1 December 2006 in Cambridge was well attended by a range of user stakeholders, staff from the City and County Councils, a representative from the DfT and Rob Marshall of Transport Initiatives, on behalf of Cycling England (through the Professional Support Advisory Service).

2. The Gonville Place crossing changes – 'Toucan' to a 'Puffin-style' crossing

Essentially, the previous Gonville Place Toucan layout has been changed to a 'Puffin' configuration, the main technical differences being:

- near-side demand buttons and crossing information with supplementary high-level units (no traditional, far-side signal heads)
- detection of both waiting and crossing pedestrians and cyclists

In addition, the following physical changes are also associated with the new crossing:

- narrower shared-used crossing area where previously it was wider and segregated
- widespread use of posts and guard railing
- loss of advance detection for approaching cyclists

The main concerns from local cyclists, visually handicapped and disabled users about the new crossing include:

- the width and configuration is inappropriate for the level of use, resulting in.conflict, delay and inconvenience between crossing users
- advance detection loops for approaching cyclists should be reinstated
- "full size traffic signal" aspects should be reinstated on the far side of the crossing
- the number of posts and other obstructions should be reviewed
- access to and from the crossing via the vehicular carriageway is not available
- consultation shortcomings prior to deciding upon the changes

The Cycling England representative concurs with the *most* of the user comments and adds:

- the crossing is much narrower than the previous arrangement and given the very high levels of crossing user flows, particularly the numbers of cyclists, the potential for conflict and inconvenience is, therefore, relatively high

Standard width specification Puffin-style crossing at Gonville Place. Note pedestrians crossing outside the crossing area in order to avoid cyclists. Photo: Rob Marshall.

- the number of timber and metal posts seems inappropriate and excessive and this adds to the conflict and inconvenience already a problem due to the narrower provision. Their use should be reviewed and posts removed where possible (e.g use of 'cranked' poles for signal heads)

- there is an assumption that the new Puffin-style crossing has been installed correctly and is up to current specification. Things like the effectiveness of kerbside detection, location, positioning and number of demand units, and the operating width of the crossing itself, should be checked, reviewed and where appropriate, and changed to improve performance and convenience

- a review of the crossing timings should better reflect mode hierarchy priorities in order to allow more frequent crossing opportunities and shorter kerb-side waiting delays for priority modes

- a useful improvement would be to provide access lanes to the crossing from the main carriageway. This would appear possible from a site inspection. This will allow on-road cyclists to make safer, more convenient use of the crossing point to access the adjoining network – more like a junction

- it is likely that the dissatisfaction with the loss of far-side signals is more about familiarity and a natural reluctance to change on the part of crossing users. It is a new approach that will take some time to get used to. The Puffin-style near-side signal and demand unit should work just as well, and is arguably safer where use by both cyclists and pedestrians is required

The last point concerns the question of fundamental approach, crossing choice and consequent operational compromise. See – the 'Junction or a crossing?' at section 5 below.

3. Resistance to Puffin Crossings

Cycling England is aware that some Local Authorities are either unwilling to use Puffin crossing principles more widely or that some may have some form of 'moratorium' on their use. There does appear to be a lack of acceptance on the part of many crossing users, particularly concerning the absence of far-side signals. This may be to do with people's habituation to expecting signals 'where they always used to be', and not to the side, where they can also see waiting or approaching traffic – one of the claimed key safety benefits of Puffins. This 'reluctance to change' is naturally shared by Local Members who also may end up sceptical about the Puffin design. Publicity about Puffins has been very limited, at the DfT's own admission. Most people's first experience and any awareness of them is actually coming across one whilst out on a walking or cycling trip.

However, the DfT evidence about the operational benefits of Puffins is compelling and is set out below.

4. The DfT and Puffin crossings.

It is clear that the DfT sees the Puffin and its application to Toucans (Puffin-style Toucans) as the way forward where a signal-controlled crossing is being considered. The latest guidance includes: "It is the DfT's intention that Puffin pedestrian facilities will become the standard form of provision of signalled pedestrian crossings. This will provide a consistent approach at junction traffic signal and mid block crossings (including Toucans and equestrian crossings) as well as operational benefits for all road users. Local authorities should therefore be planning migration to Puffin style facilities particularly for new works and refurbishment/upgrades." (Puffin Good Practice Guide, August 2006, section 2.2, p.7).

Given this, it is clear why Local Authorities feel obliged to install Puffin (or 'Puffin-style Toucan') crossings for new facilities or upgrading opportunities.

The DfT are adamant that well-designed and implemented Puffin facilities:

- better assist crossing users
- reduce delays for drivers
- reduce congestion and emissions
- improve road safety

Evidence based on more recent trial sites (in York) are cited by the DfT for crossing performance when converted from traditional to Puffin facilities with kerbside and on-crossing detection:

- 32% crossing demands cancelled (*though this begs the question about 'why', particularly if users are kept waiting too long perhaps?*)
- average crossing user clearance fell by 8 seconds
- average cycle time fell from 96 to 76 seconds
- average crossing user delay reduced by 10 seconds
- 400% annual rate of return claimed

DfT acknowledged that the introduction of Puffins has not been as easy or as straightforward as hoped for and that there has been 'resistance' to use them more widely:

- requirements for new crossings published in August 1992
- early experiences 'did not meet expectations' – design, installation and operation
- 'learning experience' in four major areas – advice, equipment, understanding and publicity
- changing perceptions – crossing users, designers and installers

The latest DfT guidance, published in August 2006, stresses the importance of getting the design of Puffin and 'Puffin Style' crossings right. It reiterates that Puffins work well and are better than standard Pelican and Toucan designs, hence their push for all future crossings to be of this design. It's understandable that local authority highway staff will wish to consider Puffins as the default crossing option.

5. Junction or a crossing?

The choice of how best to provide for cyclists at junctions or crossings is fundamental to creating an effective cycling environment. A significant proportion of accidents to cyclists take place at or near to junctions and it's at junctions where cyclists usually face delay and inconvenience. So, taking the right approach in the first place is very important.

Many planners and designers instinctively see a 'crossing' where really, thinking about the issue as a 'junction', is more appropriate. This goes back to first principles about treating cyclists as welcome, slow moving, vehicles rather than pedestrians on (or with) a bicycle. Designing for pedestrians is different to designing for cyclists. Cycle lanes should be considered as an important, integral traffic lane, and cycle tracks should be thought of as 'small roads'. In common with a driver's expectations, a cyclist should not be made to 'seek permission' to cross a junction, particularly where cycle use is relatively high as a proportion of other traffic – as it is in Cambridge. An appropriate point in the traffic signal stages, or advance detection, should reflect the number and importance of cyclists. Augmenting a crossing or junction with pedestrian/cyclist priority and/or a speed reducing crossing ramp is further recommended where possible (see below).

6. Choosing an appropriate crossing

Not withstanding the above discussion about whether a junction or a crossing is the appropriate approach, Cycling England has recently posted information (a series of Design Portfolios) on its website www.cyclingengland.co.uk covering a wide range of design aspects on providing for cyclists. This includes information about the general choice of crossing facility based on 85%tile vehicle speeds and traffic flows.

The following URL brings up the relevant design portfolio on crossings:

http://www.cyclingengland.co.uk/documents/B.03.pdf

This is, however, general guidance, and Cycling England stresses that crossing choice should be further scrutinised on a 'case-by-case' basis – again, back to fundamentals.

In the UK, simplistic choices on crossing options have usually been made in the past, based on vehicle flows and speeds. This has often failed to give appropriate priority, convenience and safety benefits to cyclists and pedestrians and is at variance with most LA mode hierarchy policy commitments. In towns and cities like Cambridge (where there are significant levels of local cycling), what may be an acceptable solution for a 'typical' UK town or city is unlikely to be appropriate.

Cambridge generally has a good record for giving pedestrians and cyclists priority over vehicular traffic within the City, though there are inevitable and difficult compromises. Commendably, much has already been done in the way of traffic restraint and is one reason why the high level of cycling in Cambridge is being sustained. Mode hierarchy policy commitments (pedestrians and cyclists first, etc….) must continue to guide management and politicians when making decisions about choosing the right crossing option – even if this has an effect on vehicle capacity.

In Cambridge the numbers of cyclists using key routes and crossing points can be very large indeed. For example, at Gonville Place, the crossing in question, the local cycling campaign recorded 529 cycles and 199 pedestrians using the crossing in a single hour (8-9am, 2 October 2006). Layouts that can service this amount of crossing use must be used if walking and cycling is to be sustained and positively encouraged.

For general use in Cambridge, wide, segregated or 'parallel' type Toucan or 'Puffin-style' crossings will be the most appropriate configuration where there is shared use.

On routes where cyclists are considerably in the majority, the default provision should be for a 'junction approach' or at least a wide, parallel crossing. The crossing in Cambridge at Burrell's Walk is a good example of such a default crossing specification.

Advance detection of cyclists is always desirable and shows that an authority takes cycling seriously. It is understood that there are technical reasons and DfT reservations why advance detection cannot be used with 'Puffin-style Toucan' crossings. Where the benefits of advance detection would be useful (i.e. where there are large numbers of cyclists) then it would seem appropriate to install a Toucan crossing rather than a Puffin-style crossing if this is the only way to include this useful facility.

Learning from the Gonville Place 'experience', it would also be prudent to seek early involvement with local cyclists and other stakeholders where there is a wealth of usually balanced and informed knowledge.

Toucan crossing, Burrell's Walk, Cambridge.
Photo:Cambridge Cycling Campaign

7. Greater priority for crossing users

The Cambridgeshire Local Authorities should consider the use of crossings that offer priority over traffic and/or enhanced convenience and safety for pedestrians and cyclists using crossings. Remember too, that wheelchair users, and others with mobility issues, will usually benefit from this approach, particularly if augmented by a flat-top ramp. Most of these crossings are DfT approved with a growing number of examples of their effective use throughout the UK. Such crossings include:

Priority crossings – preferably on flat-top crossing ramp

Priority crossing, Thetford, Norfolk. Photo: Rob Marshall.

Give-way crossings – preferably on a flat-top ramp

Example of a ramped, give-way crossing (with priority working for traffic) on a new residential development in Peterborough. Photo: Rob Marshall.

'Cycle-friendly' zebra crossings, 'Cycle Zebra' – preferably on a flat top ramp

A number of mainland European countries make good use of 'zebra-style' pedestrian crossings bfor cyclists. At present in the UK, cyclists may not lawfully cycle across zebra crossings. There is growing interest in and pressure for some kind of 'approved' Cycle Zebra, though the DfT, so far, is resisting this. Practitioners will be aware that rarely do cyclists using zebra crossings dismount and walk across, or when doing so, are there significant problems. There is a growing view that cyclists ought to be able to do this lawfully, reflecting what normally takes place at zebra crossings throughout the UK.

Using zebras over signal-control has significant advantages, including:

- a zebra crossing is considerably cheaper to install than a light-controlled crossing
- zebras are much more convenient to use – not having to wait for a demand button requested crossing signal (so often biased in favour of vehicle through-flow rather than crossing user convenience)
- studies show that they have a good relative safety record – ramped crossings are even safer of course, and are welcomed by wheelchair users
- zebras are physically much less intrusive that signal-controlled options

To this end, several authorities have installed non-complying, 'Cycle Zebra' crossings, following their own internal risk assessments in lieu of the standard Safety Audit that would not normally allow them due to the non-compliance with existing DfT guidance (TSRGD). The configurations generally are based on wider than average crossings, often over a flat-top ramp.

One attempt to create a 'cycle zebra'. Note that this design does not comply with current crossing guidelines.

Given that Cambridge is one of the few places in the UK with high levels of cycling, it might be felt appropriate to trial 'Cycle Zebras'.

This immediately brings up the issue of Local Authority highway safety audits. Where safety audits identify circumstances where normally recognised design standards cannot be met, projects should be the subject of a 'risk assessment'. Further information and references may be found at the CYCLING ENGLAND website in the Design Portfolio:

http://www.cyclingengland.co.uk/documents/A.15.pdf

Post-report additional note on audits and risk assessment

There is further discussion about quality auditing, road safety audits and risk assessment in the new Manual for Streets, DfT et al, 2007 (Section 3, pp: 36-37).

On road safety audits (RSA), MfS states:

"One area of concern with the existing system is that RSAs may seek to identify all possible risks without distinguishing between major and minor ones, or quantifying the probability of them taking place. There can also be a tendency for auditors to encourage designs that achieve safety by segregating vulnerable users from traffic. Such designs can perform poorly in terms of streetscape quality, pedestrian (and cyclist) amenity and security and, in some circumstances, can actually reduce safety levels." (3.7.11, p.37).

A risk assessment to consider the severity of a perceived safety problem and the likelihood of occurrence would help decision makers to strike an appropriate balance. An example of a risk assessment framework is given in 'Highway Risk and Liability Claims' UK Roads Board (2005).

Careful monitoring (such as through conflict studies) of the ways in which people use the completed scheme can identify potential safety or practical use problems. This can be particularly useful when designers move away from conventional standards.

"It is important to note that the design team retains responsibility for the scheme, and is not governed by the findings of the road safety audit." (3.7.8, p.37).

Manual for Streets makes the case for quality audits rather than a single RSA. See 3.7.1 – 3.7.4, p.36. Those in the cycling world have long espoused the usefulness of undertaking a cycle audit in advance of any changes to the built environment.

A quality audit comprises a series of assessments that might include a walking audit, cycling audit, access audit, visual quality audit, road safety audit, etc. By grouping the assessments together any compromises in the design or use of innovatory proposals will be apparent, making it easier for decision makers to view the scheme 'in the round'

A new approach to scheme, street and safety audits is, therefore, recommended.