

Comments on Albion Land's Design for New Roundabout at Catalyst Development, Bicester Version 2.1 6 May 2020 Paul Troop

1.0 SUMMARY

1. This note has been written by Bicester Bicycle Users' Group (BBUG) to respond to a proposed roundabout design set out in a Technical Note written on behalf of the developer of Catalyst, Albion Land.

2. In summary, the Technical Note outlines many positive design aspects for the design of a planned new access roundabout to the Catalyst Bicester, but there remain a number of serious outstanding design and usability issues. In summary:

a. There are pedestrian only links and missing cycle links, which will confuse users, encouraging vulnerable cyclists onto the carriageway, and force vulnerable cyclists to use paths currently envisaged as pedestrian only, leading to unnecessary conflict. This will undermine active travel, and is contrary to the Oxfordshire Cycle Design Standards.

b. The lack of expected links leads to an incoherent design, encompassing a variety of diverse paths and crossing types. This is contrary to the design guidance and will be confusing and discouraging for users, thereby undermining active travel.

c. There is no horizontal separation between the carriageway and the shared paths in a number of areas. This is contrary to

applicable design standards and will discourage vulnerable cyclists.

d. There are no waiting areas for pedestrians and cyclists waiting to cross the road. This will block the shared path, causing serious usability issues for pedestrians and cyclists.

e. There are no transitions between the shared paths and the carriageway, which is dangerous and contrary to design standards.

3. These issues can be overcome by making the following changes to the design, while not changing the geometry of the roundabout:

a. Providing shared cycle / pedestrian crossings across all arms of the roundabout

b. Providing shared cycle / pedestrian paths in front of the Phase 1A land on the west side of the Wendlebury Road North instead of pedestrian only facilities.

c. Making provision to allow the shared cycle facilities on the Catalyst roundabout to be connected to provision on Charles Shouler Way in the future.

d. Introducing horizontal separation between the carriageway and the shared paths of at least 0.5 m.

e. Introducing waiting areas for pedestrians and cyclists waiting to cross the road that do not block the shared paths.

f. Introducing transitions between the shared paths and the carriageway on the Wendlebury Road South.

4. A revised design that overcomes these issues is set out at Figure 7 on page 15 of this note.

5. BBUG have raised these concerns informally with the developer, but other than very minor matters, the developer is not willing to make further changes to the design.

2.0 APPLICABLE STANDARDS

6. This document refers to:

a. Design Manual for Roads and Bridges (DMRB) CD116: Geometric Design of Roundabouts (2019);

- b. DMRB CD195: Designing for Cycle Traffic (2019);
- c. The CROW Design Manual for Bicycle Traffic (2017); and
- d. The Oxfordshire Cycling Design Standards (2017)

3.0 EXISTING DESIGN

7. BBUG notes and supports many of the comments in the Technical Note provided on behalf of Albion Land. In particular, the general geometry of the developers' design accommodates more confident cyclists. BBUG also agrees that a roundabout with priority for bicycle users may pose safety and regulatory challenges and implementation is probably not advisable at this point in time.

8. However, there are a number of issues with the developer's design that appear to conflict with the applicable Oxfordshire and DMRB standards and which will cause serious safety and practical issues for users. These ought to be resolved before planning is granted.

4.0 PROBLEMS WITH CURRENT DESIGN

4.1 Pedestrian Only Links and Missing Links

9. In a number of areas, the developer's design fails to make any provision for cyclists, providing only footpaths. This is contrary to the 2017 Oxfordshire Cycle Design Standards that specifies:

'Any path connecting one street to another must be planned so that it can be used by both pedestrians and cycle users. Pedestrian only paths (footpaths) should not normally be provided. ... This maximises convenience for cycle users and prevents unsatisfactory situations where paths have been designed for pedestrians only but also become used by cycle users.'

10. The developer's design makes no provision for cyclists whatsoever in the area next to the Bloombridge 1A development. The planned downgrading of provision here to pedestrian only facilities by the developer's design does not appear to be justifiable, and is contrary to the Oxfordshire Cycle Design Standards in that it fails to provide any paths for cyclists travelling, to, from, or via this location:

a. There is no path or crossing for cyclists travelling between the Bicester Gateway 1A development, and the South (Bicester Gateway 1B planned office, residential, and retail), Wendlebury, Chesterton (Bicester Sports Association sports facilities), and the Bicester caravan park (Figure 1);

b. There is no path for cyclists travelling between the Bicester Gateway 1A development and the east (Bicester town centre) (Figure 1);

c. There is no path for cyclists travelling between the Bicester Gateway 1A development, the Catalyst development itself, and Bicester Avenue retail centre (Figure 1).

d. There is no provision to connect the cycle and pedestrian facilities on the new Catalyst roundabout with a future cycle path along Charles Shouler Way which connects the Bicester Gateway 1A and 1B developments and the Catalyst development itself to the cycle path parallel with the A41, the existing and planned bus stops on the A41 (providing longer distance services to Oxford, Buckingham, Milton Keynes, and Cambridge), and the A41 'toucan' pedestrian and cycle crossing to Kingsmere and the Bicester Park and Ride (Figure 2).



Figure 1: Lack of provision for cyclists travelling to, from, or via the Bloomsbridge Phase 1A development.



Figure 2: Lack of provision to connect new Catalyst roundabout to existing cycle and pedestrian infrastructure in the future.

11. These missing links and inability to connect these necessary links in the future will lead to confusion for users, meaning that vulnerable cyclists may be forced onto the highway. In addition, some cyclists will use the only available safe routes, namely the pedestrian only paths, breaking the law and causing unnecessary conflict. This is contrary to good planning and to the Oxfordshire Cycle Design Standards.

12. BBUG recommends that:

a. The pedestrian only facilities on west side of Wendlebury Road North become shared pedestrian and cycle facilities;

b. Cycle links be provided across all arms of the Catalyst roundabout; and

c. Provision is made to permit future connection of the shared links on the Catalyst roundabout with shared links on Charles Shouler Way.

4.2 Incoherence

13. The result of the current haphazard provision for cyclists and pedestrians is an incoherent design that incorporates a multitude of diverse crossings and junctions. This may be a result of the iterative design process, but thought needs to be given to resolving these conflicts because they will cause confusion for users. However, if the steps recommended in the previous section are adopted (re-instating cycle links across every arm of the roundabout), the lack of coherence will resolve itself.

14. CD195 summarises the overarching design criteria that shall be used for cycling design. These are: coherence, directness, comfort, attractiveness, and safety. See Table E/1.1.1.

Table E/1.1.1 Cycling design criteria

Coherence	Cycle networks link trip origins and destinations, including public transport access points and are continuous and easy to navigate.
Directness	Cycle networks serve all the main destinations and seek to offer an advantage in terms of distance and journey time.
Comfort	Infrastructure meets design standards for alignment and surface quality, and caters for all types of user, including children and disabled people.
Attractiveness	Aesthetics, noise reduction and integration with surrounding areas are important.
Safety	Cycle networks not only improve cyclists' and other road users' safety, but also their feeling of how safe the environment is (their personal security).

Table E/1.1.1

15. As can be seen from Figure 3, the current design incorporates a profusion of diverse crossings, junctions, and lanes, contrary to DMRB design standards. In addition, these significantly undermine the coherence of the design, confusing users, and discouraging active travel contrary to the explicit policies of OCC and CDC.



Figure 3: Multiple junction types lead to incoherence and confusion for users.

16. BBUG recommends that a single, shared, crossing is used at all four crossing points, and this is the same design at each crossing.

4.3 Lack of Horizontal Separation

17. In four areas, there is no horizontal separation between the shared paths and the carriageway (see Figure 4).



carriageway

18. CD195 recommends horizontal separation between the carriageway and cycle tracks. It states: 'E/3.26 The minimum width of the horizontal separation between the carriageway and the closest edge of a cycle track shall be determined using the values in Table E/3.26.' Table E/3.26 recommends that the minimum horizontal separation is 0.5m. Note 1 explains: 'Horizontal separation between the carriageway and cycle tracks helps protect cyclists from the draught created by passing motor traffic and from debris thrown up by vehicles.'

Speed limit (mph) Desirable minimum horizontal separation (metres) Absolute minimum horizontal separation (metres)		Absolute minimum horizontal separation (metres)
30	0.5	N/A
40	1.0	0.5
50	2.0 (including any hard strip)	1.5 (including any hard strip)
60	2.5 (including any hard strip)	2.0 (including any hard strip)
70	3.5 (including any hard strip)	3.0 (including any hard strip)

Table E/3.26 Minimum horizontal separation between carriageway and cycle tracks

Table E/3.26

19. Horizontal separation is important for providing security for vulnerable cyclists and pedestrians.

20. BBUG suggests that horizontal separation of at least 0.5m is instated between the shared paths and the carriageway.

4.5 Lack of Waiting Areas

21. Currently, there are no waiting areas in three locations (see Figure 5), meaning that users waiting to cross the carriageway will block the shared path for other users, causing serious usability issues, undermining active travel.



Figure 5: Lack of areas for pedestrians and cyclists waiting to cross carriageway will block shared paths for other users

22. This conflicts with the DMRB overarching design criteria of directness and comfort.

23. BBUG recommends that waiting areas be provided. Waiting areas can be created by moving the shared paths away from the carriageway as recommended in the previous section. The developer has informally indicated that it is willing to consider introducing waiting areas on the crossing points on the entry to the Catalyst development only.

4.4 Lack of Transitions between Shared Path and Carriageway

24. There are no transitions between the shared path and carriageway at two points (Figure 6).



Figure 6: No transitions between shared path and carriageway will be dangerous for vulnerable users

25. CD195 requires cycle route transitions:

'Cycle route transitions

E/3.11 Cycle route transitions shall be provided where a cycle lane joins or diverges from the carriageway.

E/3.12 Cycle route transitions between the cycle track and the carriageway shall be a continuous surfacing course.

E/3.13 Where a cycle lane diverges away from the carriageway to become a cycle track, a cycle route transition shall be provided and include a mandatory cycle lane of a minimum of 5 metres length before diverging from the carriageway.

E/3.14 Where a cycle track re-joins the carriageway, a cycle route transition shall be provided and include a mandatory cycle

lane of a minimum of 5 metres length before merging with a subsequent cycle lane.

NOTE A cycle route transition can reduce the risk of cyclists colliding with vehicular traffic from behind whilst not inconveniencing on-carriageway cyclists.

E/3.14.1 A cycle route transition between the carriageway and a cycle track should be smooth and gradual.

NOTE Figure E/3.14.1N provides an indicative layout of a cycle route transition between a cycle track and carriageway.' (Emphasis added.)

26. See Figure E/3.14.1N

Cycle Jane diverge				
Cycle lane	5m minim	um	Cycle track	
		1	Carriageway	
	12	Cycle I	ane	
- Cha Calenda	1		Cycle track merge	
Cycle track	5m minimum	-	Cycle lane	
Carriageway				
	8			
		Cycle lane		

Figure E/3.14.1N Cycle route transition

Figure E/3.14.1N

27. BBUG recommends that transitions are introduced on the Wendlebury Road South. The developer has informally indicated that it is prepared to consider introducing such transitions.

5. ALTERNATIVE DESIGN

28. BBUG suggests that the issues with the developer's design can be overcome by keeping the current geometry of the roundabout, but changing the proposed design by:

a. Providing shared cycle / pedestrian crossings across every arm of the roundabout

b. Providing shared cycle / pedestrian paths in front of the Phase 1A land on the west side of the Wendlebury Road North instead of pedestrian only facilities.

c. Making provision to allow the shared cycle facilities on the Catalyst roundabout to be connected to provision on Charles Shouler Way in the future.

d. Introducing horizontal separation between the carriageway and the shared paths of at least 0.5 m.

e. Introducing waiting areas for pedestrians and cyclists waiting to cross the road that do not block the shared paths.

f. Introducing transitions between the shared paths and the carriageway on the Wendlebury Road South.

29. A suggested design that achieves these goals while preserving the existing geometry is attached (Figure 7).



Figure 7: Suggested design that overcomes identified problems while preserving existing geometry.

30. This design is similar to a tried and tested design commonly used in rural locations in the Netherlands and which has an extremely good safety record (see CROW Design Manual for Bicycle Traffic (2017) pp. 256-57 (Figure 8).



Figure 8: CROW roundabout design with excellent safety record.