GREATER CAMBRIDGE PARTNERSHIP

Growing and sharing prosperity

Delivering our City Deal

Report to: Greater Cambridge Partnership Joint Assembly 14 June 2018

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Milton Road: Bus, Cycling and Walking Improvements
Preferred Option Design

1. Purpose

1.1. This report sets out the preferred option design for Milton Road. The design meets the original objectives of the scheme and also takes into account the considerable public engagement that has taken place since previous options were consulted on.

1.2. This scheme supports the Greater Cambridge Partnership's transport vision of implementing public transport, walking & cycling improvements along Milton Road, which is a significant part of a wider public transport strategy to help support the feasibility of delivering proposed housing and employment growth at Cambridge Northern Fringe, Ely, Cambridge Science Park, Northstowe and Waterbeach (collectively around 27,000 new homes and 9,800 new jobs between 2011 and 2031).

1.3. The report sets out a construction cost estimate of £16M that has been produced by the consultant's quantity surveyors. This cost estimate falls within the original budget for this scheme. At this early stage in the design process there are items that are not yet fully accounted for within this estimate but the project remains on track to be delivered within its overall budget of £23M.

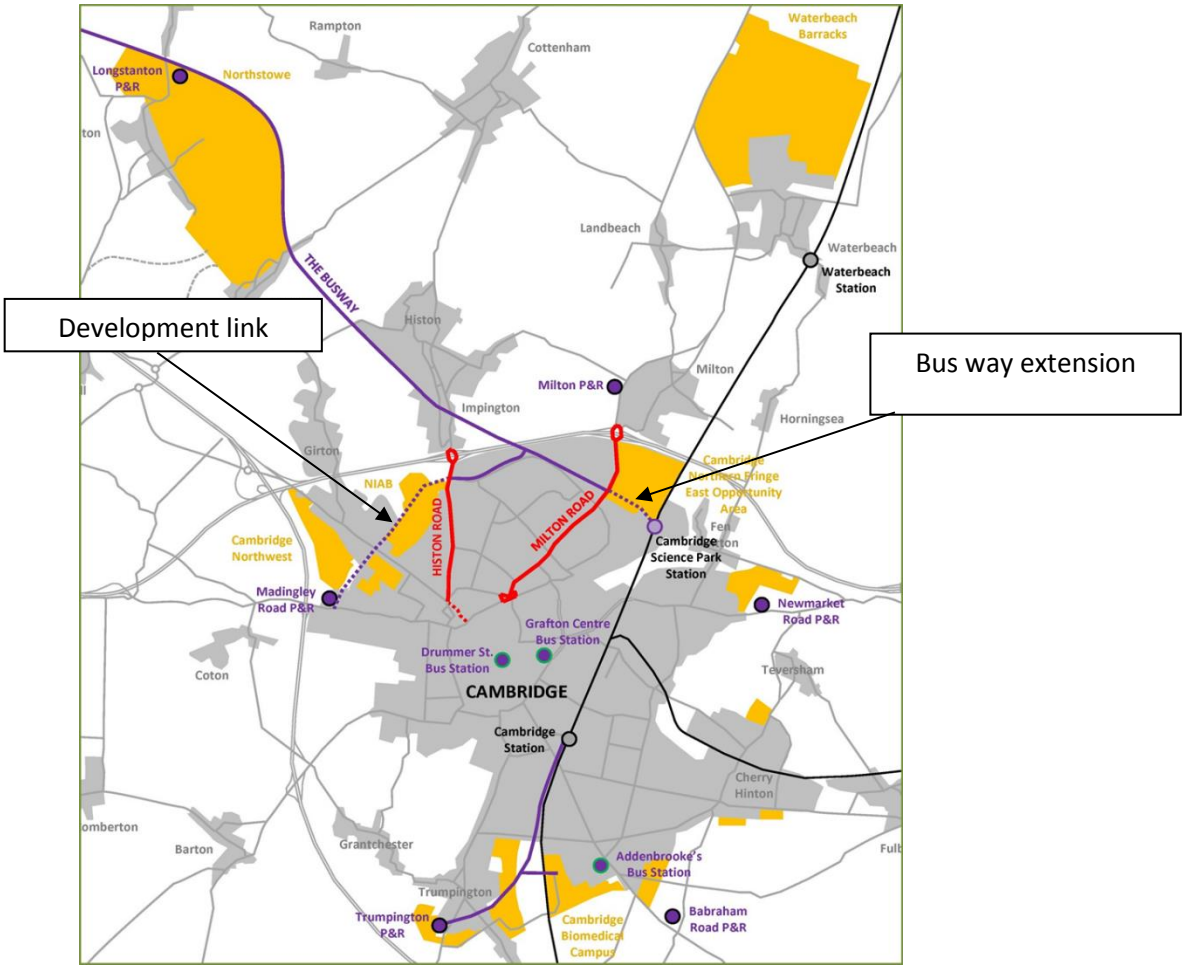
2. Key issues and considerations

2.1. The project has the following key objectives:

a) Comprehensive priority for buses in both directions wherever practicable;
b) Safer and more convenient routes for cycling and walking, segregated where practical and possible;
c) Enhance the environment, streetscape and air quality;
d) Additional capacity for sustainable trips to employment/education sites;
e) Increased bus patronage and new services; and
f) Maintain or reduce general traffic levels.

2.2. **Figure 1** shows the setting of Milton road within the wider strategic context. The report considered by the Executive Board on 3rd November 2015 sets out the strategic and planning background, and broader context for the scheme.

Figure 1: Milton Road in the wider area context



3. Options and emerging recommendations

3.1. On 26 July 2017, the Greater Cambridge Partnership Executive Board approved a preliminary concept design for Milton Road. Following further engagement and public workshops through the autumn of 2017, this final concept design has been developed into a more detailed preferred option design that sets out how the concepts plans might actually be delivered on the ground.

3.2. The design is presented in **Appendix A** and key considerations of the scheme are detailed in the following sections of this report. Consultation materials including designs and schematics will be produced for the public consultation exercise.

Junctions

3.3. The designs for the 4 main junctions along Milton Road have now been considered in detail. This work is supported by detailed traffic modelling in order to assess the benefits or impacts that the proposed designs will have. The modelling work demonstrates that in combination with other City Access proposals and when compared to a do nothing scenario, the preferred option design will improve bus journey times by up to 33% in the outbound direction and by up to 15% in the inbound direction. The reliability of outbound bus journeys will be improved by up to 73% during peak times, and inbound bus journeys by up to 56%.

- **Gilbert Road** – The junction is slightly constrained, however, it has been possible to set out a design that improves the environment for both pedestrians and in particular cyclists, offering complete separation between cyclist and motorised vehicles inbound through the junction in the area where there is a current conflict. It is also proposed to give an advance green signal for outbound cyclists. The benefits seek to be achieved without adverse impact on the ability for traffic to flow through the junction.

- **Elizabeth Way Roundabout** – Previous modelling work has shown that replacing the existing roundabout with a signalised junction design would enable more effective traffic management and would provide greater opportunity to prioritise bus movements and allow coordination with the Arbury Road junction through linked signal timings to optimise the progression of buses. The other advantage is the ability to place signalised pedestrian and cycle crossings at three arms of the roundabout.

  Careful consideration of driveway access onto the roundabout has been required in several locations. Where possible a discussion of these access issues with the property owners has been held and have proposed a worked through solution.

  Pedestrian and Cycle priority in the outbound direction is achieved by placing a zebra crossing over the un-signalised, Highworth Avenue arm of the roundabout. Inbound cyclists are offered a fully segregated toucan crossing of the Elizabeth Way arm of the roundabout.

- **Arbury Road/Union Lane** – Working within the space constraints it has been possible to add fully segregated inbound and outbound crossings for cyclists while retaining the existing signal operation of the junction. However, it is not possible to create fully segregated cycle crossings between Arbury Road and Union lane and visa-versa without creating significant conflicts between cyclists and pedestrians.

- **King's Hedges Road/Green End Road** – The design incorporates fully segregated and single crossing pedestrian and cycle features. These improved facilities slightly impact on the capacity of the junction to handle traffic. Should this design be agreed in principal, it is recommended that further work is done to investigate the possibility of adding an additional segment of inbound bus lane between the Guided Busway and this junction to further enhance bus journey times.

Bus Lanes and Bus Stops

3.4. A key aim of the project is to enhance bus priority on Milton Road. The design therefore includes improved provision for buses where it is most needed. This will effectively improve both inbound and outbound bus journey times and their reliability.

3.5. In developing the final concept design, further attention has been given to the start point of the inbound bus lane in the vicinity of Ascham Road and Milton Road Primary School. In order to provide enhanced crossing facilities for pedestrians and cyclists the bus lane has been shortened slightly in this location to accommodate these design improvements.

3.6. It is intended that future development of the scheme will look to include bus priority measures at the junctions in the form of bus detection and a subsequent hurry call on the signal sequence. At this stage the benefits from early bus detection at traffic signals has not been built into the traffic model, to provide a robust/conservative assessment of potential journey time savings at this time, and further refinements in the model will allow bus journey times to be more accurately reflected.

3.7. The location and design of bus stops was considered during a public design workshop in autumn 2017. The outcomes of these considerations have been broadly reflected in the design. A couple of key changes to the present day locations of bus stops include moving the inbound stop near Arbury Road/Union Lane further from the junction to reduce the potential for blockage, and the removal of one of the inbound bus stops between Arbury Road/Union Lane and Woodhead Drive, and pairing these bus stop closer together.

3.8. The scheme includes floating bus stops which are the preferred solution given the full segregation of the cycling lanes. The design of the floating bus stops follows extensive work that has been undertaken by the County Council in their development alongside disability groups, cycle campaign groups, and other stakeholders, including and independent study to demonstrate their effectiveness and safety. Where floating bus stops are proposed the designs aim to provide a minimum island width of 2.3m, and in most cases it has been possible to provide up to 2.5m, in order to allow adequate space for wheelchair users to manoeuvre. The precise location of the bus stops takes into account amongst other things, driveway location, levels, and locations of side roads.

Cycling and Walking

3.9. The provision of high quality cycling and pedestrian infrastructure is a critical objective of this scheme. As well as major improvements at the main junctions, the design includes fully segregated 2m wide inbound and outbound cycle lanes along most of the length of Milton Road separated from the carriageway by planting areas. The preferred option design has also included Copenhagen style priority crossings for cyclists at side roads.

3.10. An exception to the above is the outbound section of cycle lane between Mitcham's Corner and Gilbert road. Due to the limited visibility and also the volume of traffic using Westbrook Drive, it was considered unsafe to include a Copenhagen style crossing here, as identified within the Stage 1 Road Safety Audit. Instead the cycle lane bends out and continues up to Gilbert road as a raised lane with Cambridge kerb. This achieves cycle priority at Westbrook Drive and places cyclists in the optimum position when they arrive at the Gilbert Road junction.

3.11. In line with discussions that took place in autumn 2017, the section of inbound cycle lane between Gilbert Road and Mitcham's corner has been placed between the parking bays and the pavement with allowance for a half a meter car door opening "buffer" zone. This is considers a much better option than running the cycle lane between parked cars and the bus lane.

3.12. The aim is to provide 2m wide footpaths along the length of the scheme. This is achieved in all but the narrowest section of Milton Road on the inbound side approaching the Gilbert Road Junction.

3.13. The final concept design included a 3m wide 2 way cycle lane between Ascham Road and Ramsden square (on the outbound side). Extensive work was undertaken by the consultants to evaluate the safety and ability to deliver this concept, whilst also achieving priority for cyclists over side roads.

3.14. The results of this work suggested that it would not be possible to deliver this concept safely. Instead, the current design includes a fully segregated 2m wide outbound cycle lane with priority at side roads and a 3m wide shared use pavement aimed at facilitating the school run. Any cyclists using the shared use pavement to travel inbound rather than the fully segregated cycle lane on the inbound side of the road, will not have priority at side roads and will be required to give way to pedestrians.

Removal of on-street parking

3.15. In order to deliver highway improvements it will be necessary to remove the ability to park along Milton Road. The consultants have identified all those properties that will be affected in terms of loss of parking. The project team will work alongside the parking officers at Cambridgeshire County Council to come up with a mitigation plan for residents who are not able to park within their own properties. This also ties in with current proposals for residents parking zones in this area that are being worked on. It is proposed that the parking mitigation plan will be presented for approval along with the final preferred option design, following consultation

Landscape and Environment

3.16. The scheme will result in existing trees being replaced with a fully considered and developed tree planting design along the length of Milton Road taking into account relevant design guidance, in particular that developed by the Tree Design Advisory Group (TDAG) http://www.tdag.org.uk/about-tdag.html.

3.17. A public workshop was held in autumn 2017 and further engagement has taken place with residents and the Tree Officer and Landscape Architect from Cambridge City Council to discuss the species of trees that are to be planted along Milton Road. Officers currently recommend using species such as lime and tulip tree in the wider sections of Milton Road, and smaller species of tree such as flowering cherry, flowering pear, birch, and alder in the narrower southern sections of Milton Road.

3.18. As previously reported, it is planned to replant with semi mature trees with a girth no larger than 16-18cm which in size equates to 3-5m high. At that size the tree planting will have a 'presence' along the road and will have a better chance of becoming successfully established. Improved planting technology with purpose built tree pits will support this. Whilst the final concept design indicates areas of verge, some narrow areas may be hard landscaped where their width is less than 1.5 metre, in line with TDAG guidance.

3.19. Consideration is also being given to the streetscape outside local shops and to various landscape areas along Milton Road. Given approval of the preferred option design, a landscape architect will be commissioned to work up designs for the areas at Kings Hedges junction, Woodhead Drive, Arbury Road shops, Elizabeth Way Roundabout, and the area around Milton Road Library. These designs will build upon ideas gained from previous engagement with the Milton Road Local Liaison Forum. Final designs will be presented alongside the final preferred option design.

Cost Benefit.

3.20. The consultants WSP have prepared an early cost benefit analysis of the scheme which has indicated a benefit to cost ratio (BCR) in the range of 2.3 to 4.2 which is very positive**.**

3.21. The approximate current day capital cost for the preferred option design is estimated to be £16 million. This cost estimate falls within the original budget for this scheme. At this early stage in the design process there still some utility services that are not fully accounted for within this estimate (further detailed design required to enable full costs to be identified) but the project remains on track to be delivered within its overall budget of £23M.

4. Next steps and milestones

4.1. The Joint Assembly is asked to comment on the overall design and approach being recommended to the Executive Board.

List of appendices

Appendix A	Preferred Option Design Layout and Key Features

Background papers

[Paper]	[Link]
Executive Board agenda and minutes Nov 2015	http://scambs.moderngov.co.uk/ieListDocuments.aspx?CId=1074&MId=6537&Ver=4
Executive Board agenda and minutes June 2016	http://scambs.moderngov.co.uk/ieListDocuments.aspx?CId=1074&MId=6632&Ver=4
Executive Board agenda and minutes Jul 2017	http://scambs.moderngov.co.uk/ieListDocuments.aspx?CId=1074&MId=6856&Ver=4