



**Report To:** Greater Cambridge City Deal Executive Board

3<sup>rd</sup> December 2015

**Lead Officer:** Graham Hughes, Executive Director of Economy, Transport and Environment, Cambridgeshire County Council

## Western Orbital

### Purpose

- 1 The list of priority schemes for Tranche 1 of the City Deal was agreed at the Executive Board meeting of 28<sup>th</sup> January 2015. The Western Orbital was not in the list of prioritised schemes but was approved for early development as a Tranche 2 scheme.
- 2 There are strategic links between the Western Orbital and the A428/A1303 scheme. This suggests a case for bringing forward work for the Western Orbital so that full consideration is given to the preferred option for each scheme.
- 3 The report on the early development work for the Western Orbital project and recommends a timetable for further work to link the emerging A428/A1303 scheme.
- 4 The Board has asked officers to assess options for bus priority around J11 of the M11. This is a stand-alone project and an update is provided as a background paper.

### Recommendations

5. The Board is asked to:-
  - a) Note the findings from the early Western Orbital technical report;
  - b) Approve the further development of further work of the scheme for public consultation in February and March 2016 on the basis of the options set out in Appendix 1.
  - c) Note the progress made on assessing stand alone bus priority options for M11 J11.

### Reasons for Recommendations

- A) The Western Orbital is an important proposal within the Local Transport Plan (LTP) 2011-2026. The objective is to provide orbital bus movements to the west of Cambridge linking key sites for housing and growth. It specifically supports the following City Deal objectives
  - Support the delivery of new homes
  - Support access to key employment locations and job creation

- Enhance local public transport infrastructure and potentially support additional investment from third parties
- B) In January 2015 the Executive Board agreed that work on the Western Orbital Project should proceed. This work has generated 4 initial options. The end stage report is attached to this report as a background paper.
- C) The Western Orbital has a direct link with developing Tranche 1 schemes in particular the A428/A1303 project.
- D) The housing and employment sites along the western corridor and the A428/A1303 City Deal scheme are progressing at a rapid pace. There is a risk that if project planning lags behind then opportunities for the Western Orbital scheme may no longer be deliverable because of potential development constraining route selection. This may impact on the overall effectiveness of this scheme to deliver its objectives.
- E) As such it is advisable to initiate further work on the Western Orbital including public consultation to ensure it supports the related schemes.
- F) At the technical level there is a risk of unnecessary costs being incurred if the Western Orbital is not developed further as the work to date may be superseded as implementation of City Deal and other developments roll out. There is also some potential for shared costs between the A428 and Western Orbital schemes in terms of development, design and future implementation of the projects. The City Deal as a programme should seek to capture these shared benefits.
- G) Separately in September 2015, the Board requested an evaluation of potential bus priority measures at J11 of the M11. Given that the Board wishes to see specific consideration of J11 it is essential to ensure that the Western Orbital project is taken forward in together with this.

### **Background**

- 6 Figure 1, taken from the LTP, shows the key locations within the Western Orbital study area:

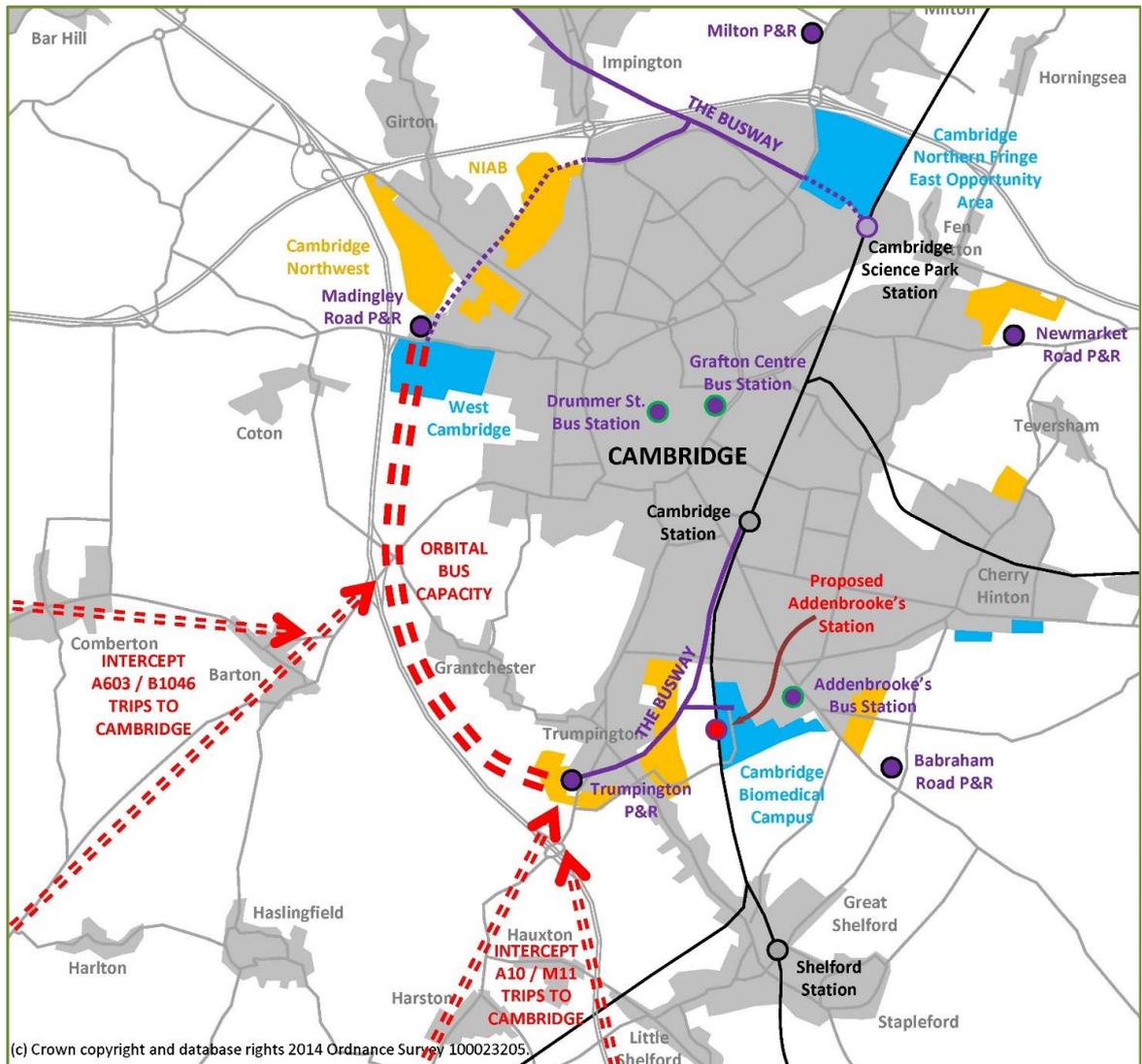


Figure 1: Key locations in the Western Orbital Study Area

- 7 This corridor is currently experiencing considerable growth, particularly in relation to development at Trumpington Clay Farm (housing), Addenbrookes Biomedical Campus (employment), Cambridge West (employment and education) and North West Cambridge (housing and employment).
- 8 Currently the most congested sections of the study area are exiting the M11 in the AM peak at Junction 11 and 13 and the PM peak at Junction 13. At present the journey north from J12 and along the off slip road at Junction 13 takes approximately 50% longer in the morning peak. This also causes unsafe queuing back onto the M11. This issue is mirrored exiting at J13 in the AM peak and PM peak.
- 9 The Draft Local Plan envisages levels of growth that will increase the traffic using the Western Orbital route by up to 21% in the AM period, with similar levels expected in the PM period.

### Considerations

- 10 Early work has identified 4 short listed options (A to D) that are considered suitable for further investigation.

- 11 Detailed feasibility assessment would form part of the next stage including a consultation of the principle of the scheme and further stakeholder engagement.
- 12 At this stage it is difficult to give an idea of the cost of each set of proposals but an initial assessment based on typical engineering costs is provided in the 'Option Summary Table' in Appendix 1.
- 13 The Western Orbital has a number of links with other transport projects being taken forward, some of which are within the City Deal:
- 1) A428/A1303 Project – it is likely that these two schemes will intersect at some point and that because some of the demand on the A428/A1303 corridor is linked to Addenbrookes and the M11
  - 2) City Centre Access Study – travel demand management could impact demand on orbital routes
  - 3) A1307 Haverhill Corridor – need to consider wider bus management and capacity issues at Addenbrooke's and ensure effective measures are put in place
  - 4) East West Rail – could make likelihood of new station at Addenbrooke's more likely
  - 5) J11 – separate study of quick wins around J11 could impact the specific alignment of the Western Orbital.
- 14 For the purposes of this paper it is assumed that both the existing Madingley and Trumpington P&R sites stay. In the A428/A1303 project a new P&R site is envisaged close to Madingley Mulch roundabout. This Western Orbital options include a new P&R at J11 and a P&R or a Cycle and Ride at Junction 12 of the M11. The next stage of Western Orbital work will need to consider how to optimise the existing and proposed P&R sites within both side areas.
- 15 Separately the Executive Board requested that officers investigate the business case for improvements to Junction 11 of the M11 as soon as possible with an update at the December Board meeting. Given the short time scale between this report and the Board's decision, at this stage Officers have agreed a methodology of assessment and proposed a brief to consultants (see Background Paper)
- 16 At this stage Members are asked to note that there are clear overlaps with the Western Orbital project with the work that has been requested to be carried on a Junction 11 study in particular the link between the alignment of the Western Orbital and how it intersects with J11 and also the impact of any new P&R on how buses may wish to use J11 in the future.
- 17 In addition, given the close geographical link between the Western Orbital project and the A428/1303 project there could be potential for a 'linked construction' programme at the start of City Deal Tranche 2 where the construction of the A428/A1303 could be rolled on to the Western Orbital. This may result in savings in terms of procurement, timescales and financial costs.

### **Options**

- 18 The recommended option is as follows:
- It is proposed to undertake the next stage of the Western Orbital project in more detail and in particular to more fully assess costs and benefits.

- To undertake a consultation on the options within this paper to establish the degree of support for the concepts.
- The outcome of this consultation would be reported to the Board in September 2016

19 Appendix 2 sets out a revised development timetable for the Western Orbital project. This timetable proposes completion of all development work including statutory permissions during Tranche 1 to allow for immediate implementation at the start of Tranche 2 of City Deal.

20 Figure 2 sets out a summary flow chart of the short and long term project development steps.

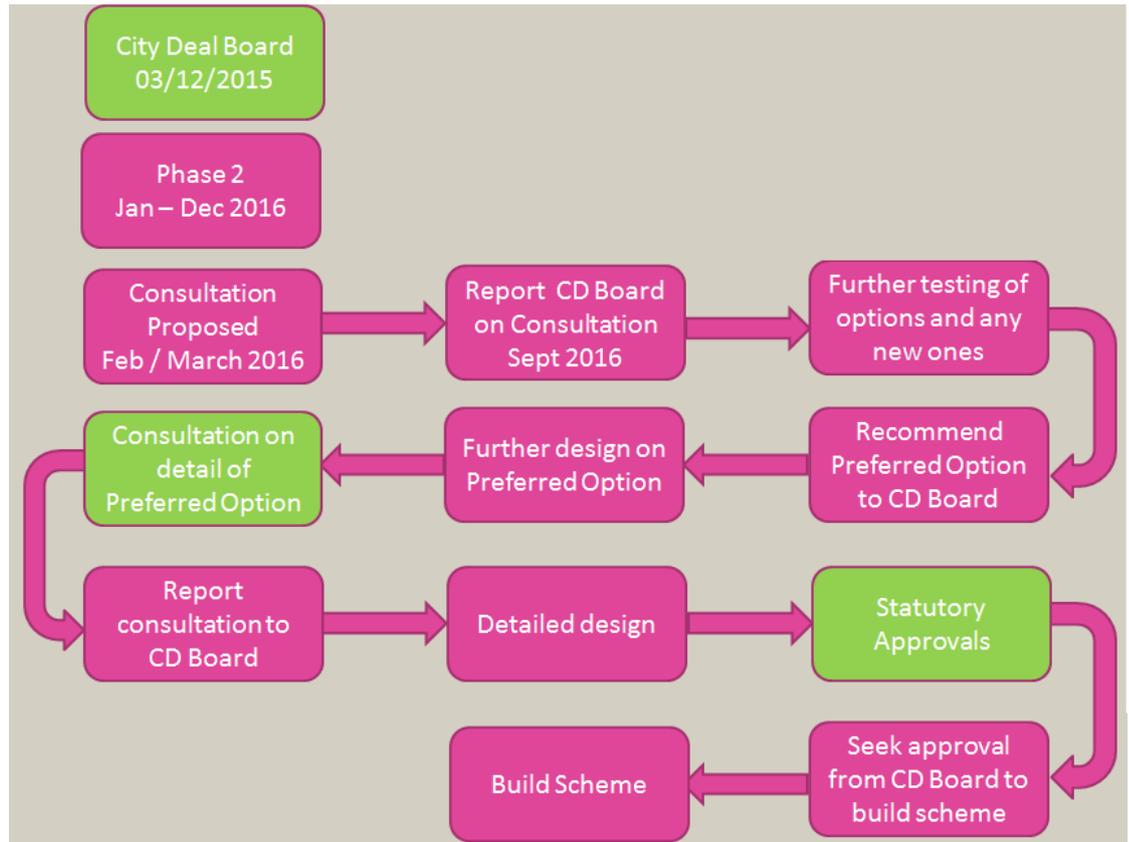


Figure 2: Summary of Scheme Development Process

21 An alternative approach would be to now stop any further project development until further decision has been made on the Tranche 2 delivery priorities. This would avoid any abortive scheme development expenditure should the Western Orbital not be determined a priority scheme. However, it could result in a restricted set of options for an eventual Western Orbital scheme as other key decisions on the corridor would have been already made. In addition it possible that some of those the other projects and development e.g A428/A1303, would be better informed by agreement of a preferred option for the Western Orbital.

### Implications

22 In the writing of this report, taking into account financial, legal, staffing, risk management, equality and diversity, climate change, community safety and any other key issues, the following implications have been considered: -

- Financial: The Board has already agreed to release £9m funding from Tranche 1 for the early development of Tranche 2 projects including the Western Orbital
- Legal: There are no legal implications in this report.
- Staffing: Project management is undertaken by the Cambridgeshire County Council Major Infrastructure Delivery team.
- Risk; A full project risk register has been developed.
- Equality & Diversity There are no equality or diversity implications in this report.
- Climate Change: There are no climate change implications in this report.
- Community Safety: There are no community safety implications in this report.

## **APPENDICES**

1: Option Summary Table

2: Scheme Development Timetable

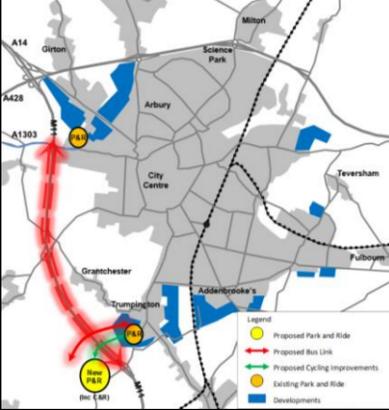
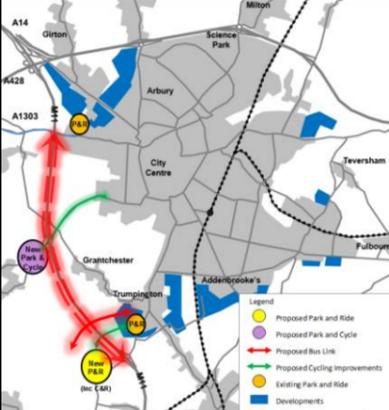
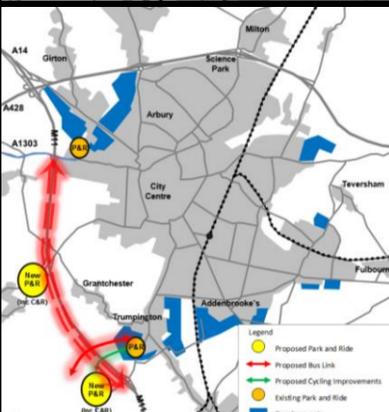
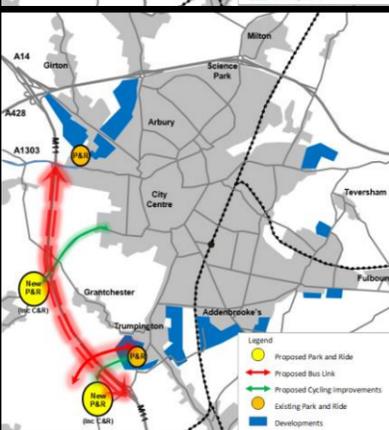
### **Background Papers**

1: Option Review Study Update

2: Western Orbital Study – Phase 1 End Stage Report

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**Appendix 1: Option Summary Table** (for a more detailed description and larger plans see Technical Report)

Plan	Option Description Summary:	Key Benefits	Early Estimated indicative Costs
<p>A</p> 	<ul style="list-style-type: none"> <li>• New Park &amp; Ride west of M11 Junction 11.</li> <li>• This new P&amp;R will be linked across the M11 with the new busway at Trumpington.</li> <li>• Bus link between J11 and J13 of the M11 which may be online or offline (further work is required to determine journey time reliability forecasts for the M11)</li> </ul>	<ul style="list-style-type: none"> <li>• Traffic from M11 northbound and A10 would not have to cross M11 Junction 11 to access P&amp;R</li> <li>• Traffic would be removed from the M11 before reaching the junction. Uncongested bus travel between J11 and J13 on the M11 (exact infrastructure required to be determined).</li> <li>• Connection to existing Busway enables journeys to Addenbrookes and City Centre. Cycle link connects proposed Park and Ride to existing busway, providing a cycle route which starts west of the M11.</li> <li>• Provides orbital bus connection between peripheral employment hubs.</li> <li>• Potential to run some services from Madingley Mulch P&amp;R to the Science Park and Cambridge North station via new developments.</li> <li>• Potential to link all three peripheral employment sites through a circular bus service.</li> </ul>	<p><b>Estimated</b> between £7m and £45.5m.</p> <p>Infrastructure required for <b>lowest estimate</b> only includes new J11 Park and Ride provision.</p> <p>Infrastructure required for <b>upper estimate</b> includes new J11 Park and Ride, new bus only route alongside the M11, New structure over M11 and slip roads off M11.</p>
<p>B</p> 	<ul style="list-style-type: none"> <li>• This option has all the improvements included in Option A.</li> <li>• Park &amp; Cycle at Junction 12,</li> <li>• Cycling improvements on Barton Road.</li> <li>• However, no bus improvements are proposed on Barton Road at present as early forecasts suggest that it would be more expedient to continue on the bus to Trumpington</li> </ul>	<ul style="list-style-type: none"> <li>• As Option A plus:</li> <li>• Park and Cycle at J12 will intercept some traffic bound for Barton Road by encouraging travellers to cycle for the last part of their journey into the City. Bus services using the M11 would not stop at J12, hence journey times would not be affected.</li> <li>• Providing a Park and Cycle at J12 may encourage travellers to cycle for the last part of their journey into the City, reducing congestion on Barton Road</li> <li>• Locating Park and Cycle to the east of the M11 would reduce the distance to travel by cycle from the P&amp;C to the city centre, while locating it to the west may abstract traffic from the road earlier, and reduce queues on approach to Junction 12 from Barton.</li> </ul>	<p><b>Estimated</b> between £10m and £50m.</p> <p>Infrastructure required for <b>lowest estimate</b> only includes new J11 Park and Ride and J12 Park and Cycle provision.</p> <p>Infrastructure required for <b>upper estimate</b> includes new J11 Park and Ride and J12 Park and Cycle, new bus only route alongside the M11, New structure over M11, slip roads off M11 and Barton Road improvements.</p>
<p>C</p> 	<ul style="list-style-type: none"> <li>• This option has all the improvements included in Option A.</li> <li>• P&amp;R at Junction 12 (which includes cycle provision).</li> <li>• Bus services would include a stop at the P&amp;R at J12 and passengers using this stop would be able to travel to the employment hubs in the north west and south of the City using the bus.</li> <li>• There could be a potential link between a P&amp;R at J12 and a southern route of the A428/A1303 scheme should this be taken forward to provide a segregated bus route through to the city centre.</li> </ul>	<ul style="list-style-type: none"> <li>• As Option A plus:</li> <li>• Intercepting journeys from A603/B1046 (although the additional stop at J12 may increase journey times).</li> <li>• Intercepts south bound M11 traffic which cannot access Madingley Rise P&amp;R.</li> <li>• This would allow traffic approaching the City from Barton to be intercepted before adding to the congestion on the approach to J12 and on Barton Road.</li> </ul>	<p><b>Estimated</b> between £14m and £48.5m.</p> <p>Infrastructure required for <b>lowest estimate</b> only includes new J11 and J12 Park and Ride provision.</p> <p>Infrastructure required for <b>upper estimate</b> includes new J11 and J12 Park and Cycle, new bus only route alongside the M11, New structure over M11 and slip roads off M11.</p>
<p>D</p> 	<ul style="list-style-type: none"> <li>• This option has all the improvements included in Option A and C.</li> <li>• Cycle improvements along Barton Road.</li> </ul>	<ul style="list-style-type: none"> <li>• As Option A and C plus:</li> <li>• users which may not find it convenient to travel to the City Centre via an orbital route will have the option of cycling using a more direct, radial, route along Barton Road.</li> </ul>	<p><b>Estimated</b> between £14m and £50m.</p> <p>Infrastructure required for <b>lowest estimate</b> only includes new J11 and J12 Park and Ride provision.</p> <p>Infrastructure required for <b>upper estimate</b> includes new J11 and J12 Park and Cycle, new bus only route alongside the M11, New structure over M11, slip roads off M11 and Barton Road improvements</p>

## Appendix 2: Scheme Development Timetable

Target Completion Date	December 2015	September 2016 <sup>1</sup>	May 2017 <sup>2</sup>	October 2017	April 2018	December 2019	April 2020 <sup>3</sup>	August 2022
Stage								
Approval City Deal Board for outline options in Phase 1 (Key Decision 2)	☑							
City Deal Board report on Public Consultation as Part of Phase 2		☑						
Approval City Deal Board for preferred option at end of Phase 2 (Key Decision 3)			☑					
City Deal Board report on further Public Consultation on detailed proposals				☑				
Approval City Deal Board for final scheme (Key Decision 4)					☑			
Completion of all necessary statutory approvals						☑		
Approval City Deal Board for commencement of works (Key Decision 5)							☑	
Possible Completion of Construction								☑

Planning Phase

Construction Phase



- Notes: <sup>1</sup>It is intended to bring a report on the Preferred Option for the A428/1303 to this Board  
<sup>2</sup>It is intended to bring a report on the full business case for the A428/1303 to this Board  
<sup>3</sup>This approval would be dependent on agreement to proceed with Tranche 2