

## Brief

### Western orbital public transport Phase 2 – Identification of Preferred Option or Options

## Background

The Western Orbital is a key 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.

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

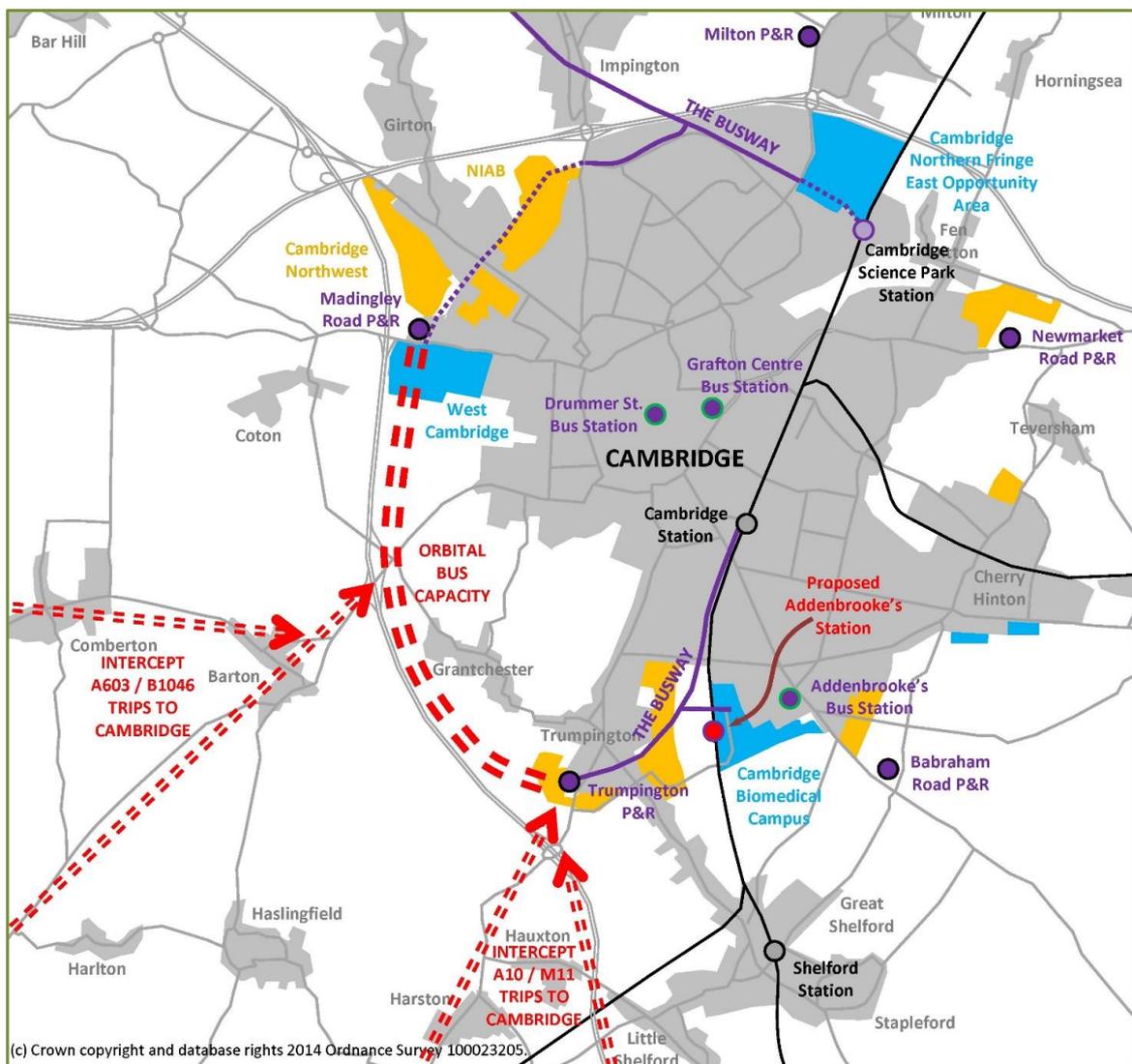


Figure 1: Key locations in the Western Orbital Study Area

The study area includes the M11 corridor between Junction 11 at Trimpington and Junction 13 where it intersects with the A1303. This corridor is currently experiencing considerable growth in jobs, particularly in relation to development at Trimpington Clay Farm (housing), Addenbrooke's Biomedical Campus (employment), Cambridge West (employment and education) and North West Cambridge (housing and employment). These new developments will need enhanced connections as will existing commuter

corridors, such as the A603, B1046 and A10(S). In the wider context it will be important to link to emerging areas of development further afield such as Cambourne and Bourn.

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. It is recognised that this will require additional public transport capacity

Although much demand for orbital travel is future orientated, sections of an orbital route already exist between the north of the City (Science Park and Busway) to the south east (rail station and Addenbrooke's). In addition there is infrastructure connecting the existing Busway at Trumpington Park and Ride (P&R) site to Cambridge Biomedical Campus. The construction of the Darwin Green and Cambridge North West developments has secured further orbital connection linking Madingley Road and Huntington Road. However the lack of public transport catering for orbital movements in the south west of the City is a missing link which may be limiting public transport around the City.

## **Purpose**

Cambridgeshire County Council and its partners would like to understand in more detail the options generated in Phase 1 and any other viable options being brought forward to deliver the preferred, most effective public transport option in this study area.

## **Project work already undertaken**

Phase 1 of the project has completed WebTAG compliant Stage 1 (Option Development), the report for which is appendix 1. The work generated a principle of either on or off road alignment of a new bus line plus 4 further Park/ Cycle and Ride options that can be developed further using a WebTAG fully compliant Stage 2 (Further Appraisal), to generate a preferred option for the scheme

## **Products and actions required**

The next stage of work will be the development of outline business cases to inform the recommendation of a Preferred Option for further detailed consultation.

A mixture of disciplines will be required including transport planning, transport modelling, engineering, planning and economic assessment.

The items underlined have additional supporting information in Appendix 1

- A quantified baseline analysis of key issues
- Modelling refinement
- Option refinement
- An assessment of the existing movements for buses between West Cambridge and the Cambridge Biomedical Campus.
- Preparation of qualitative and quantitative analysis report to support and inform Public consultation documents
- Analysis of Public consultation products and data from CCC communications team
- Provide an origin and destination study of Park and Ride
- Environment Impact assessments
- Impact assessments

- Outline design
- Establish Scheme Costs, Optimism Bias and Risk
- Forecast Modelling
- Identification of a preferred option
- Produce a non-technical summary
  
- Option refinement
- Collaborative Planning Workshop for online, off line (A-East, B- West or C-Mix) hard shoulder or other option
- Modelling
- Stakeholder Workshop for online, off line (A-East, B- West or C-Mix) hard shoulder or other option
- Option refinement
- A quantified baseline analysis of key issues
- Preparation of qualitative and quantitative analysis report to support and inform Public consultation documents
- Analysis of Public consultation products and data from CCC communications team
- Environment Impact assessments
- Impact assessment
- Produce Developer Funding Technical Note
- A separate assessment of the potential usage of and options for a new station at Addenbrooke's to serve the Cambridge Biomedical Campus, A1307, City Centre Access, West Cambridge and housing development in the south of the city, and how this might interact with the above options.
- Outline design
- Establish Scheme Costs, Optimism Bias and Risk
- Forecast Modelling
- Identification of a preferred option
- Outline Business Case
- End of Phase 2 report
- Produce a non-technical summary
- Programme and Cost Estimate
- Produce Methodology for Next Phase

## **Time Scales**

The objective is to substantially complete Phase 2 to allow for Preferred Option recommendation to be made in September 2016. In order to meet City Deal reporting requirements all technical work will be assimilated into the End of Phase 2 report no later than **30<sup>th</sup> June 2016**. This will allow for assembly of the necessary covering report. Further minor textual changes (without substantive impact on the preferred option recommendation) can be made up to 1<sup>st</sup> August 2016.

## **Funding**

The Government's City Deal funding has been signed, guaranteeing £20M/year from 2015/16 to 2019/20 and may help to fund the accelerated delivery of any scheme. The funding is available to unlock economic growth and development, so work should be compliant with WebTag Option Selectio, but it will also be important to understand the contribution of any schemes to the economy. It is still expected that developer funding would contribute to any schemes coming forward both in terms of the capital cost and operating costs.

## **Interfacing projects**

The Western Orbital has a number of links with other transport projects being taken forward, some of which are within in the City Deal and others are outside of it:

- A428/ A1303 –P&R at Madingley Mulch , intersection needs to be established and impacts on J13 of this project
- City Centre Access Study – travel demand management could impact capacity on orbital routes
- A1307 Haverhill Corridor – need to consider wider bus management and capacity issues at Addenbrooke's and ensure effective measures are put in place
- East West Rail – could make likelihood of new station at Addenbrooke's more or less likely
- J11 – separate study of quick wins around J11 could impact the specific alignment of the Western Orbital
- Cambridge West
- Cambridge Southern Fringe (Trumpington Meadows)
- Wider development of Cambridge Biomedical Campus

## **Other relevant available information**

- Greater Cambridge City Deal Executive Board

The minutes, reports and supporting documents that detail the progress of the project

<http://www.cambridgeshire.gov.uk/citydeal/>

- Transport Strategy for Cambridge and South Cambridgeshire & Action Plan

Following large scale public and stakeholder consultation, in March 2014 Cambridgeshire County Council adopted a Transport Strategy for Cambridge and South Cambridgeshire (TSCSC) as part of Cambridgeshire's Third Local Transport Plan (LTP3). TSCSC sets out a large number of transport schemes to help facilitate the housing and jobs growth proposed in Cambridge City Council and South Cambridgeshire District Council's draft submission Local Plans.

The TSCSC Action Plan sets out the expectation to provide a segregated means of buses making orbital movements around the city between the university developments in the north west of the city and the biomedical campus to the south,

without being held up in congestion caused by general traffic (see Scheme Ref. CD13)

[http://www.cambridgeshire.gov.uk/info/20006/travel\\_roads\\_and\\_parking/66/transport\\_plans\\_and\\_policies/2](http://www.cambridgeshire.gov.uk/info/20006/travel_roads_and_parking/66/transport_plans_and_policies/2)

- Long Term Transport Strategy

The Long Term Transport Strategy (LTTS) for Cambridgeshire, currently in draft, examines at a strategic level, the implications of the growth proposed for the whole of Cambridgeshire including that within and on the edge of Cambridge. It is expected that this will be adopted as part of LTP3 in autumn 2014. The draft LTTS identifies a Park & Ride at Hauxton, a bus only link to Trumpington P&R and orbital bus priority between Madingley Road and Trumpington.

[http://www.cambridgeshire.gov.uk/info/20006/travel\\_roads\\_and\\_parking/66/transport\\_plans\\_and\\_policies/5](http://www.cambridgeshire.gov.uk/info/20006/travel_roads_and_parking/66/transport_plans_and_policies/5)

- Cambridge and South Cambridgeshire draft submission Local Plans

<https://www.cambridge.gov.uk/draft-local-plan-2014> and  
<https://www.scambs.gov.uk/content/stages-in-preparing-local-plan>

- Survey data and modelling work

No detailed modelling of these schemes has been undertaken for the purpose of option assessment or Business Case development. Additional traffic survey data may be required, and will be commissioned by the County Council if this is the case.

- Corridor Area Transport Plans

<http://www.cambridgeshire.gov.uk/transport/strategies/transport-plans/atp.htm>

- Cambridge Access Strategy

[http://www.cambridgeshire.gov.uk/transport/strategies/transport-plans/cambridge\\_central\\_area\\_access\\_strategy.htm](http://www.cambridgeshire.gov.uk/transport/strategies/transport-plans/cambridge_central_area_access_strategy.htm)

- Controlled Parking Zones

<http://www.cambridgeshire.gov.uk/transport/parking/restrictions/cpz/>

- Transport Innovation Fund (TIF)

Previous schemes for a new Park & Ride at Hauxton were considered as part of the Transport Innovation Fund process and these may be considered as part of this work.

## **Project Steering**

The consultant will be available for project steering meetings as required by the client which are expected to comprise of the following:

- Emerging ideas review meeting
- Presentation of draft report
- Presentation of final report

The Local Authority and Greater City Deal democratic decision-making processes are critical to the success of this work. The work will need to inform committee reports and the consultants may need to present their work at committee or in a format suitable for this audience.

## Appendix 1

### Product and Deliverables, further information

- Preparation of qualitative and quantitative analysis report to support and inform Public consultation documents

A non-technical identification of the business case work must be provided in plain English and suitable for a non-technical audience. The options, and any others that have been discounted, should be presented. Indicative costs, journey times, benefits and SWOT analysis should be presented in an appropriately understandable manner in order to be appropriately communicated to the user audience

- Provide an origin and destination study of Park and Ride Sites

A study should include a survey of the origin and destination of current users of Trumpington Meadows P&R and Madingley Road sites. The work should also include modelling of future demand and how that will impact on the new P&R sites proposed within the A428 and Western Orbital study areas. There should be an establishment of understanding of the future forecasting of need and Park and Ride capacity requirements with a matrix based assessment of the impacts of one, other or both existing P&R sites ceasing to operate at 5 year intervals.

- Establish Scheme Costs, Optimism Bias and Risk

Outline cost estimates should be provided and benchmarked with similar schemes being implemented or under development, including the A428, Cambridge Guided Bus scheme and the A14 package. Cost estimates should capture scheme development, enabling, construction and commissioning costs. An assessment of the cost of acquisition of any land and property associated with the scheme will also be required. Indicative whole life costs, maintenance and renewal regimes should also be included

A preliminary Quantified Risk Assessment (QRA) will be required and regular risk workshops will be needed to establish probability and impact categorisations.

Application of Optimism Bias (OB) for the purpose of economic appraisal should be provided, consistent with HM Treasury Green Book guidance recognising the standard or non-standard nature of option designs. Final determination of OB should be applied subject a mitigation analysis of the contributory factors to OB in the context of the specific options and corridor characteristics in question.

- Identification of a preferred option
  
- Outline Business Case
  - All deliverables should be WebTAG compliant to fully satisfy Stage 1 (Option Development), but should also consider that as well as the transport case for the schemes, the economic case and benefits of any schemes need to be defined given the City Deal funding stream.
  - An Outline Business Case will be developed by the consultant that establishes the context and need for the schemes, and sets out clearly the reasons why the investment is required.
  - The options that have been considered, including a 'do nothing', and a 'do-minimum' option, should be assessed and presented in a standard format.
  - A fully assessed BCR for each option should be determined.
  - Patronage and PT demand for each option should be assessed and described, with a full analysis of movement / mode split by all modes.
  - Demographics in the western quadrant should be analysed and presented as part of the supporting evidence.
  - Development sites should be identified and described using available information and the relationship of any proposed schemes to them, should be identified.
  - Key employment sites should be identified and compared to unemployment rates in the corridors to identify potential demand for key origins and destinations of journeys.
  - Funding requirements should be identified.
  - Commentary on proposed bus operations and capacity should be provided.
  - Quantified benefits should be demonstrated comparing for example, predicted journey times against the do nothing and do minimum scenarios, for both current and future years.

The Outline Business Case will need to identify the appropriate measures in order to:

- Integrate new development into the existing transportation network;
- Provide a comprehensive network of safe and convenient walking and cycling routes;

- Make provision for High Quality Public Transport Services;
- Reduce the need to travel by car;
- Ensure that there is an appropriate level of highway capacity
- Link effectively to the local and national highways network
- Set out any mitigation measures
- End of Phase 2 report

A review of all options to deliver the objectives for the western orbital should be undertaken, including both the use of just the existing highway or additional land-take. It could include central tidal bus priority interventions, traffic reduction or removal to reallocate road space, highway capacity improvements, guided busway, bus lanes, Park & Ride, a combination of these, or another alternative(s). Key issues and risks associated with each option should be identified and the alignments and schemes suggested compiled into a shortlist that can be discussed with the client before further assessment.

- More detailed assessment of the shortlist must be undertaken and compared against a 'do nothing', and a 'do minimum' option.
- The objective is to have congestion free orbital capacity for buses
- Scheme characteristics should be identified and described
- Use of the Cambridge Area Model is a clear requirement of the option analysis
- Alignments should be clearly shown at a suitable scale, with standard sections, and more detailed drawings showing pinch points, highway interfaces, or other details.
- Work should be mindful of development and pressures on the network on the A10, M11, A428 and A603.
- Journey times for public transport and car journeys should be assessed.
- A cost estimate should be identified for each option, including a breakdown of the different elements (land / civils / structures / etc).
- Key risks / constraints should be identified.
- An assessment should be undertaken to evaluate whether any highway interventions are required, either to improve capacity at pinch points on the network, or to add highway capacity that can be used in either the short, medium, or long term to meet the objectives.
- Consideration of construction requirements should also be made and possible land requirements identified.
- The public consultations should be considered and any new options or considerations should be worked up in a similar format to those proposed.

A preferred option based on the outcomes of the activities listed above should be recommended and suitable for:

Engineering feasibility drawings to be provided

Commentary on Planning requirements and identification of the scope of any potential environmental assessments should be provided.

Description of any consents required (DCO / TWA / other) should be included

All work must be suitable for use in either an EIP in support of the TSCSC or Local Plan, or any Inquiry required as part of future scheme development and implementation. Representation as an Expert Witness may be required and should be assumed as included in the services provided as part of this scope.