



**GREATER  
CAMBRIDGE  
PARTNERSHIP**

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Delivering our City Deal

**Report to:** Greater Cambridge Partnership Executive Board 22 November 2017

**Lead officer:** Chris Tunstall – GCP Director of Transport

### **Western Orbital – Junction and Park & Ride Interventions**

#### **1. Purpose**

- 1.1. Orbital public transport improvements to the west of Cambridge link with wider corridors to significantly improve access to and connections between a range of employment and housing sites. This includes Bourn Airfield, Cambourne West, Cambridge Biomedical Campus, Cambridge Northern Fringe, Cambridge North West, Cambridge Southern Fringe and West Cambridge (collectively around 15,500 new homes and 20,000 new jobs between 2011 and 2031).
- 1.2. This report, as part of the ongoing Western Orbital scheme development, summarises the technical work carried out on assessing future demand for Park & Ride (P&R) spaces at J11 of the M11 and a Park & Cycle facility at J12. It also considers the issues associated with access to expanded P&R facilities and the interaction with the local and strategic road network.
- 1.3. Authority is sought from the GCP Executive Board to develop a full business case for a new P&R site immediately to the north west of J11 of the M11 including new access arrangements for general traffic and priority for buses using the facility. This business case will compare the costs and benefits of a new P&R site against significant expansion of the existing site at Trumpington.

#### **2. Recommendations**

- 2.1. The Executive Board is recommended to:
  - i) Agree to proceed with a Full Outline Business Case for a new Park & Ride site west of the J11 of the M11 and associated access/ bus priority measures North West as outlined in Appendix 1. The Park and Ride site to be based on the emerging Travel Hub concept.
  - ii) Agree not to proceed with a Park & Cycle at J12 of the M11 for the reasons given in this report but to agree to the identification of a pilot park and cycle scheme which has the potential to be expanded if successful.
  - iii) Remove the remit for J11 from the Cambourne to Cambridge LLF and approve the setting up site specific consultation group.

#### **3. Officer comment on Joint Assembly recommendations and issues raised**

- 3.1 The Joint Assembly was supportive on the need to support employment growth in the Greater Cambridge area, and was keen to ensure progress to expand the capacity of park and ride is brought forward at pace.

- 3.2. However, there was a difference of opinion on whether to expand the Trumpington Park and Ride site or develop a new one at Hauxton. An additional recommendation to the Executive Board was proposed. *Further Park and Ride development should be considered only on the Hauxton side of the motorway.* The resulting vote was 5 members in favour, 5 members against and 2 abstentions, and therefore the Board is asked to note that there is an evenly divided view as to the best course of action to deliver additional park and ride capacity.
- 3.3. Some members expressed disappointment that Park and Cycle facilities were not recommended for further study and suggested that a small pilot scheme should be developed that could expand if demand materialised. This has resulted in an additional recommendation being included for the Executive Board's consideration in section 2.1.
- 3.4. The Joint Assembly discussed a number of related issues which included the most effective way of crossing the M11 and the current status of the work to use the existing agricultural bridge. An assurance was given that Highways England have confirmed that the bridge is able to secure access by bus. The Joint Assembly felt that there was a need for a more detailed update on the M11 Smart motorway proposal.
- 3.5. The Joint Assembly also sought clarification about the on-going arrangement associated with the John Lewis facility on the Trumpington Park and Ride site, and officers confirmed that there is a working assumption that the site will continue to operate as a Park and Ride facility.
- 3.6. Some of the Joint Assembly members were supportive of the idea of Park and Ride facilities being considered as 'Travel Hubs' which were more than park and rides, and included places to hold meetings with refreshment opportunities. This will be explored further in the development of park and ride sites.
- 3.7. The Joint Assembly Chair requested that the LLF receives a written response to the resolutions made at both the September and November meetings (see resolutions in **Appendix 2**), and a meeting will be arranged between the Executive Board Transport Portfolio Holder and the Chair of the LLF to discuss the responses.

#### **4. Key issues and considerations**

- 4.1. The information in this report is a summary of the Background Paper "Western Orbital End of Stage Summary – October 2017." <https://citydeal-live.storage.googleapis.com/upload/www.greatercambridge.org.uk/transport/transport-projects/17-11-07%20Western%20Orbital%20Dnd%20of%20Stage%20Summary.pdf>
- 4.2. In September 2017 the GCP Executive Board agreed, as part of the ongoing development of Western Orbital measures to improve sustainable transport along the western corridor of Cambridge, to increase the capacity of the Trumpington P&R site by 299 spaces to address short term capacity constraints at this site in the context of the expansion of the Cambridge Biomedical Campus (CBC).
- 4.3. There is a clear policy background supporting improved sustainable transport infrastructure in the area, particularly in the context of local growth. As such the report in September 2017 set out that additional medium and longer term considerations around a new P&R site at J11 and Park & Cycle at J12 as well as associated junction improvements as part of the on-going Western Orbital assessment work were to be presented at the November and future Boards for decision.

- 4.4. Potential interventions at J13 will be linked to emerging options for the Cambourne to Cambridge Better Bus Journey Scheme.
- 4.5. The requirement for a busway link from J11 to J13 is now being dealt with as part of a 'smart motorway' (hard shoulder running) bid to Highways England (HE) in respect of their Roads Investment Strategy 2020-25 (RIS2).

#### **Junction 11 (Trumpington)**

- 4.6. As stated in the September 2017 report, the existing Trumpington site is 85% full at its busiest period (13:00) and as such potential demand for P&R spaces at J11 has been assessed using 'scenarios' for future conditions in Cambridge as follows
- **Scenario 1** = continued economic growth on the basis of local plan but no demand control measures within Cambridge (the 'do nothing')
  - **Scenario 2** = as per Scenario 1 but with parking restrictions at the expanded CBC site which in effect would only provide for 1 new parking space for every 3 new jobs created on the site
  - **Scenario 3** = as per Scenario 2 but with additional demand management measures within Cambridge.
- 4.7. The modelling assessment of spaces needed for each scenario is set out in **Table 1** below

	Scenario 1	Scenario 2	Scenario 3
<b>2017 (base)</b>	1150	1150	1150
<b>2022</b>	1400	1600	2350
<b>2027</b>	1500	1850	2690
<b>2031</b>	1550	2000	3100

**Table 1: Future Demand for P&R at J11**

- 4.8. Currently there are up to 1639 (1340 + 299) spaces planned to be provided at Trumpington subject to detailed design and approvals. As set out, from an operational perspective, a car park can be considered full at 85% capacity due to the disbenefits to users having to seek out spaces. As such the rounded figures in Table 1 have been uplifted by 15% and then subtracted by 1639 to provide the total additional requirement for P&R spaces (see **Table 2** below)

	Scenario 1	Scenario 2	Scenario 3
<b>2017 (base)</b>	-320	-320	-320
<b>2022</b>	-30	200	1060
<b>2027</b>	140	490	1450
<b>2031</b>	140	660	1930

**Table 2: Total Requirement for P&R spaces**

- 4.9. Table 2 sets out that, depending on the chosen Scenario, there could be a significant shortfall for P&R at J11 by 2031 based on existing growth projections. However if no measures are taken to control vehicle demand within local destinations such as CBC and in Cambridge, the existing Park & Ride will retain capacity until 2027 and only require a relatively small increases in spaces to cater for demand after that.
- 4.10. The future traffic condition at J11 have been assessed. The modelling finds that in the case of all scenarios, the junction will be impacted by congestion back from Trumpington Road by 2022 making access to the Trumpington P&R site delayed at peak times and possibly also impacting P&R bus operations into the City Centre. Any further increase in capacity on the M11 for general traffic (e.g. as part of a Smart

Motorway initiative) could, without mitigation, further exacerbate this congestion at junctions.

### **Junctions 12 (Barton) and 13 (Madingley)**

- 4.11 Other junctions which fall within the scope of the Western Orbital have also been considered as part the strategic evaluation. At J12 a potential Park & Cycle has been considered to intercept some traffic using Barton Road. J13 northbound off slip has also been considered as a component of a bus priority scheme complemented by bus priority measures at J11 southbound off slip, to support a potential 'Western Orbital' bus service that could link key growth sites to the west of Cambridge (such as Cambourne) with CBC.

## **5. Options and emerging recommendations**

### **Junction 11**

- 5.1. The analysis concludes that additional P&R capacity may be needed at J11 but that congestion will reduce the effectiveness of this P&R capacity because vehicles will have to queue for long periods to access new P&R capacity as well as the operational of buses running to and from a P&R site. Officers are recommending that further work be undertaken that supports an approach to J11 that is 'holistic' including both P&R expansion, access arrangements and bus priority.
- 5.2. In this context a number of options have been evaluated for feasibility to determine which, if any, should be taken forward for a full business case assessment.
- 5.3. In terms of Park & Ride, two options are identified as suitable for potential larger expansion. Option A is for further expansion of the existing P&R site at Trumpington and Option B is for a new site on land to the north west of J11.
- 5.4. Table 3 summarises the key issues around each site

	<b>Option A</b>	<b>Option B</b>
<b>Engineering potential for expansion</b>	Expansion of the site would need to be via decking and/or underground provision even for the lowest predicted space requirement as no additional ground level space is available.	Any new site would be at ground level
<b>Constructability</b>	A small decking or underground parking area could be achieved while keeping the existing site open but larger expansion may require closure of the existing site during construction	This site could be delivered without impact on existing P&R operation
<b>Access</b>	Options exist for segregated vehicle access south bound off M11 to the existing site. Access from the M11 northbound and from the A10 would need to be via the existing J11 potentially putting more pressure on the junction	Access north bound off the M11 and east bound off the A10 can be achieved without impacting J11. Access south bound off the M11 would need to be via J11.

	<b>Option A</b>	<b>Option B</b>
	(without high cost engineering interventions)	
<b>Operational issues</b>	This site is closer to the City and CBC via the guideway. Buses could access the guideway directly to CBC. The site would be more attractive for southbound users off the M11 if a segregated access road were provided. Bus priority would need to be enhanced along Trumpington Road for additional city bound bus services.	This site is further from the city and CBC and bus infrastructure would need to be provided across the M11 either across the existing roundabout at J11 or via a new or enhanced overbridge to the north. Bus priority would need to be enhanced along Trumpington Road for additional city bound bus services. The use of the existing guideway could be accessed via the existing P&R site.
<b>Planning considerations</b>	This site is partly in Green Belt but already surrounded by urban development. Decking would have an impact on the adjacent properties.	This is a new P&R site in Green Belt
<b>Environmental Issues</b>	Considerations will include air quality, noise and visual impact in relation to significant site expansion close to residential properties and a primary school	Considerations will include visual impact, loss of openness and impact on green belt purposes in the green belt and impacts on biodiversity
<b>Cost</b>	High cost per space for expansion and decking has limited life cycle unless bespoke structures are considered. Indicative costings for this were provided in the September Report (link below)  <a href="http://scambs.moderngov.co.uk/ieListDocuments.aspx?CId=1073&amp;MId=6851&amp;Ver=4">http://scambs.moderngov.co.uk/ieListDocuments.aspx?CId=1073&amp;MId=6851&amp;Ver=4</a>  Cost estimates range from £50m for above ground to £97m for underground full expansion with cost per space ranging from £25,000 to £48,500	Low cost per space (£3,650) for new construction – total cost £8m

**Table 3: Key Issues for P&R expansion**

- 5.5 A number of access arrangements to a new or expanded P&R site have been considered and modelled for traffic impacts. These options range in estimated cost from £1.1m to 11.2m dependent on scheme (Background Paper Table 1-1 Page 8). The objective of any new access arrangement will be to facilitate both bus and general traffic movement into and out of the P&R site with minimal or no impact on the strategic and local highway network. Further discussions with Highways England are ongoing in terms of ensuring the best strategic and operational fit with the M11.
- 5.6 An outline plan of areas discussed in this report is provided in **Appendix 1** with detailed plans and layouts provided in the Background Paper.

### **Junction 12**

- 5.7 A Park & Cycle (where drivers park and then cycle onwards) has been considered at J12. Five sites were assessed for a potential location (Background Paper Figure 1-1 Page 13) and two were identified as the most feasible. Overall assessment of potential demand is low – around 200 – 300 users per day. On this basis, the cost of developing, constructing and maintaining a Park & Cycle site as well as the environmental impacts of loss of green belt for the site are unlikely to lead to a positive business case when considered in isolation, even taking into account the benefits to cycling. Furthermore a Park & Cycle site at J12 would be larger than the envisaged Rural Travel Hubs, being considered as a separate GCP project. However plans for a Barton Greenway also being developed by the GCP will serve to improve cycling opportunities along this corridor. As such Officers are not recommending further assessment of a Park & Cycle at J12.

### **Junction 13**

- 5.8 J13 has been, to date, within the scope of the Western Orbital project. As such given the existing peak congestion at J13 and impact on a future orbital bus service using the M11, a number of potential bus priority proposals have been considered. These measures range in cost estimate between £200k and £4.1m dependent on option (Background Paper Table 1-2 Page 10.) Similarly to J11, these proposals require further consideration with Highways England in the context of the future M11 strategy. In addition, given the ongoing development of the Cambourne to Cambridge Better Bus Journey scheme, there is a clear case to ensure that any future proposal for J13 is integral to the option development for this project. As such Officers will be recommending that the bus priority at J13 be removed from the Western Orbital project and that it be included as part of the business case development for the Cambourne to Cambridge scheme.
- 5.9 The Cambourne to Cambridge LLF currently also includes for the Western Orbital Scheme primarily as a result of the interconnectivity of the 2 schemes at J13 and the initial intention for a possible Busway parallel to the M11. With the proposal that J13 be now considered as part of the Cambourne to Cambridge Scheme and the recommendation to no longer pursue a Park and Cycle at J12 Officers are recommending that a site specific consultation group be set up for the J11 proposals up to the Planning approval stage and at that point further consideration be given as to the applicability for an LLF

## **6. Next steps and milestones**

- 6.1. This report has identified a number of feasible proposals for interventions at J11. It is now proposed to recommend the development of a 'full business case' for a preferred option to include increased P&R capacity and access/bus priority measures both into/out of the P&R and along Trumpington Road for City bound P&R bus services.

- 6.2. The proposed timetable for this business case development work is as set out in Table 4:

<b>Activity</b>	<b>Target completion date*</b>
Establish a site specific consultation group	December 2017
Develop series of distinct options (including P&R and bus priority/access arrangements)	January 2018
Present options for consultation to GCP Executive Board EB	March 2018
Public Consultation on Options	June/July 2018
Final Option recommendation to GCP EB	December 2018
Detailed design and other preparatory tasks for planning process	2019
Obtain relevant planning powers to construct	January 2020
Start construction	Summer 2020
Scheme completion	December 2021

**\*Subject to statutory permissions**

## 7. Implications

### 7.1 *Financial and other resources*

Resources are allocated as part City Deal first phase for Western Orbital scheme development and implementation (£5.9m)

### 7.2 *Legal*

No implications

### 7.3 *Staffing*

Project management undertaken by the Greater Cambridge Partnership team.

### 7.4 *Risk management*

A project risk register has been developed and will be updated throughout the course of the project.

### 7.5 *Equality and diversity*

No impacts

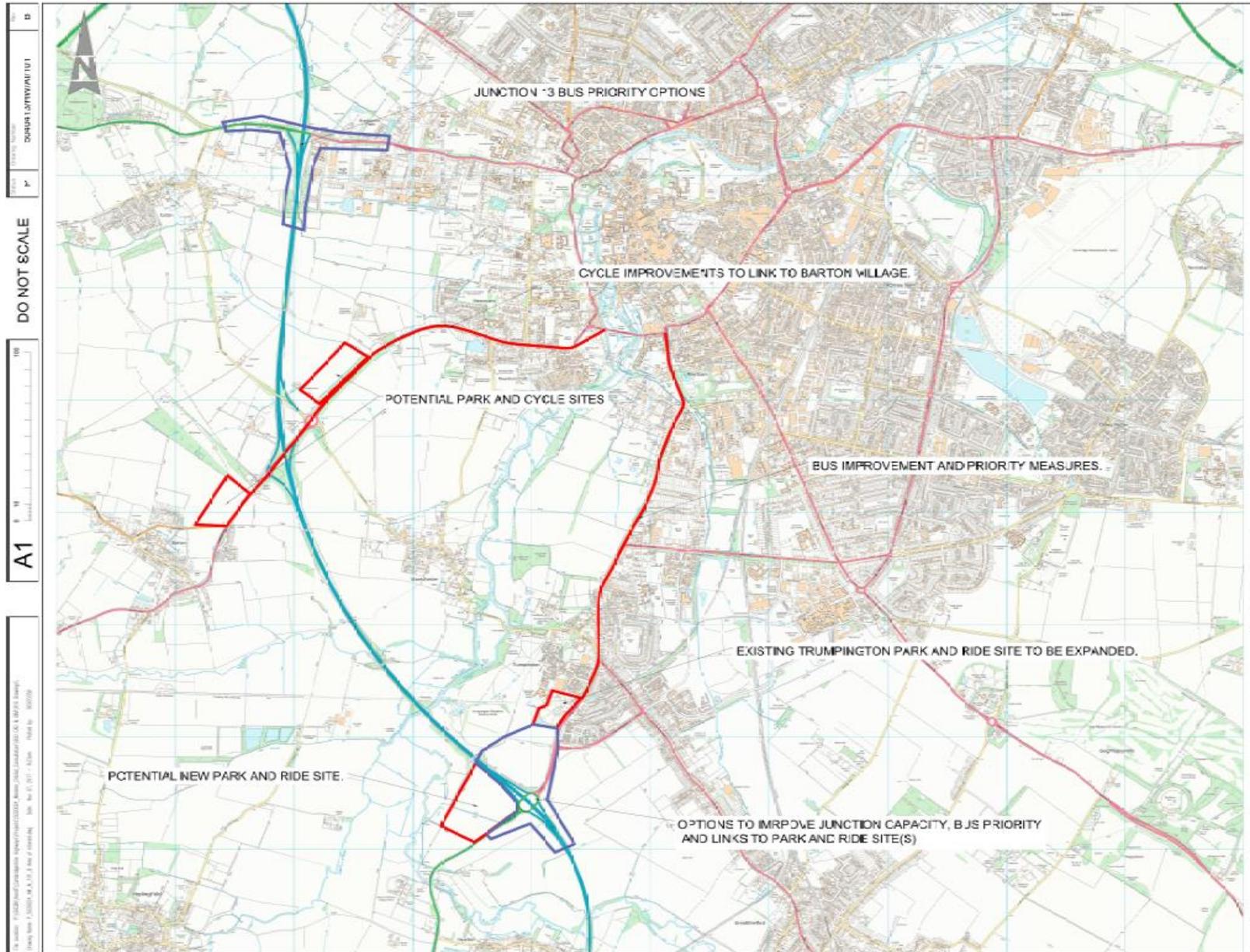
### 7.6 *Climate change and environmental*

No impacts

### 7.7 *Consultation and communication*

Who has been consulted (if anyone)? What were the responses?

# APPENDIX 1: AREAS OF INTEREST IN REPORT



## Appendix 2 – LLF resolutions

### September

The LLF resolved to seek clarification on the following on behalf of CPPF:

1. Regarding the upgrade of the M11 to a Smart Motorway with the possible incorporation of part of the hard shoulder as part of the carriageway, perhaps as a dedicated bus lane.
  - But what are the safety implications of this, and how will the County accommodate this?
  - Could the LLF Technical Group meet with Officers to gain a greater understanding of what this would entail?
2. Regarding the expansion of the current Park and Ride at Trumpington, we ask the following questions on behalf of Trumpington Residents' Association:
  - The current P&R is right in the middle of a residential area with parents/children crossing the site to get to Trumpington Meadows Primary School, so we ask GCP for a full risk assessment for the proposed expansion.
  - Would the 299 extra spaces proposed be accompanied by a decent landscaped/wooded screening area is provided between the P&R and the Primary School/new housing?
  - What evidence supports the statement that the existing road network can cope with yet more demand from this expansion of Tr P&R (pg 38 of report to GCP EB, 13.9.17)? Please also explain what 'measures giving P&R users priority at the approach junctions and other measures to constrain traffic growth in the areas ... to allow full utilisation of the site" means – and what its implications are? [Skanska & Atkins report, Executive Summary.]
3. On behalf of the representatives of Hauxton & Harston PCs who expressed concern that a new P & R at Jn 11 would increase traffic on the A10 through Harston and Hauxton:
  - To avoid this increase in traffic, we ask the Board to investigate establishing travel hubs further out – e.g. rural rail stations, or that commuters are served by shuttle buses from villages to travel hubs.
  - We also ask that the possible integration of rail transport for commuters is fully investigated – e.g. from south of the district to Cambridge South stations, and from the north of the district to Cambridge North.

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**November** Draft LLF resolutions (as the minutes have not yet been signed)

1. Unrealistic time scale for the report required for the Joint Assembly (Helen Bradbury)

One person queried why the information on the joint assembly was released too late for people to be fully informed. Helen Bradbury stated that the documents were made available 9 days prior, but this was still not satisfactory.

2. (Gabriel Fox, Coton PC) Western Orbital connectivity of bus service to Cambourne and Cambridge. End to journey times are key. The LLF requests that end to end journey times and journey qualities are included in all of the documentation. TW stated there was a paper detailing this information (Grange Road bus) and that he would make this available.

3. (David Plank) Park and Ride at Junction 11

To not include the expansion of the existing park and ride site in the development and business case on the grounds of being cost prohibitive, the impact of the surrounding residential area, the impact on the surrounding roads (traffic). The LLF could not vote on this resolution due to the conflicting stance of the representatives.

4. (Cllr Lockwood) Park and Ride at Junction 11

Second park and ride at Hauxton would harm the communities of Hauxton and Harston. City creep should not be allowed beyond the M11. There are possibilities of congestion on the A10. Possible solutions should be to reconsider the option for a multi-storey carpark at Trumpington and the extension of the current site into the Sporting Village application. The LLF could not vote on this resolution due to the conflicting stance of the representatives.