GREATER CAMBRIDGE PARTNERSHIP

Growing and sharing prosperity

Delivering our City Deal

Report To:	Greater Cambridge Partnership Executive Board	20 September 2017
Lead Officer:	Chris Tunstall – Interim Transport Director	

Western Orbital

Purpose

1. This report updates the Greater Cambridge Partnership (GCP) Executive Board on further assessment work undertaken since December 2016

2. The Western Orbital is currently being progressed in the context of the developing Highways England (HE) plans for the M11 as a potential 'Smart Motorway', evaluation of Girton interchange and the GCP future investment prioritisation. This report addresses a specific Western Orbital intervention (Park & Ride) and recommends how that can be progressed given short term pressures around Junction 11 of the M11 and access to the nearby Cambridge Biomedical Campus CBC.

3. This report also sets out that at M11 junctions serving Cambridge there are further considerations which should form part of the ongoing work to ensure that the GCP Executive Board can make a fully informed investment decision on medium term proposals including additional Park & Ride/Park & Cycle interventions and associated junction improvements.

Recommendations

4. It is recommended that the Executive Board:
   (a) Note the progress to date
   (b) Delegate to the Chief Executive in consultation with the Chair a response to Highways England (HE) supporting
      - the inclusion of an M11 Smart Motorway upgrade within the next Highways England Route Investment Strategy whilst ensuring that local impacts are fully assessed through the business case development process
      - the upgrade of the functionality and the 'all movement' accessibility of the Girton Interchange subject to full impact assessment.
   (c) Agree to increase the number of spaces at the Trumpington P&R site subject to necessary planning permissions being obtained
   (d) Agree to undertake a more detailed business case analysis as set out in this report in relation to medium term P&R expansion and Park & Cycle options and associated junction improvements.
   (e) Agree the next steps/ timetable detailed.

Reasons for Recommendations

5. To progress the project in line with GCP objectives.

Executive Summary

6. The Western Orbital has a number of specific work streams including P&R expansion (both short and longer term) and engagement with Highways England to consider the strategy for the M11 corridor to improve access to key growth sites and bus priority.

7. Assessment on short term ground level expansion of Trumpington P&R based on demand predications evidences a need for additional P&R spaces as part of the requirements of the growing Cambridge Biomedical Campus (CBC). Additional improvements to bus and coach operations and passenger waiting facilities at the site will also increase its operational effectiveness. As such, subject to the necessary planning permissions being secured, it is recommended to invest in upgrading this site. In the short term it is suggested that at least a further 299 spaces be provided at ground level together with improved bus and coach provision at an indicative cost of £2.1 million.

8. Medium and longer term considerations around a new P&R site at J11 and Park & Cycle at J12 as well as associated junction improvements are part of the on-going Western Orbital assessment work and will be presented at a later date for GCP Board decision. Potential interventions at J13 should also be linked to emerging options for the Cambourne to Cambridge scheme (reported separately)

9. Discussions are ongoing with Highways England (HE) regarding their next Route Investment Strategy (RIS) for the M11 and the strategic studies around Girton Interchange. Although a modelling approach is being developed to assist the GCP Board in understanding the full local impacts of these issues, at this stage of the HE process it is prudent for the GCP to support upgrade of the M11 to Smart Motorway and to improving the Girton interchange to allow for all direction traffic movement.

Background

10. A key objective of the City Deal is to support growth by improving sustainable access to sites of housing and employment expansion. 15,000 new jobs are planned for Cambridge Biomedical Campus including Addenbrooke's Hospital which will also house the relocated Papworth Hospital. The campus will eventually have a working population of around 30,000, making it one of the largest biomedical sites in the world. Park & Ride forms part of the ongoing Western Orbital' scheme development focusing on delivering better transport links along the western edge of Cambridge.

11. Officers have taken forward a feasibility assessment of any potential short term intervention to increase P&R capacity at the existing P&R site at Trumpington. The assessment is set out in full in the **Background Paper**. This shorter term assessment does not currently include a wholly new P&R site and any junction improvements facilitating P&R access but this will need to form part of the next stage of business case development as does the interaction with creation of additional Park & Cycle capacity at J12. An interim report on the wider strategic considerations is programmed to be presented to the Board in November 2017 and a business case presented in 2018.

12. The report to the December 2016 Executive Board identified a number of specific 'work streams' within the Western Orbital project reflecting both the longer term strategic considerations of Highways England for the M11 and the shorter term issues around Junction 11 of the M11 to ensure access to increased employment opportunities at CBC. Additionally the potential future links with the emerging A428 Cambourne to Cambridge Scheme were also a shorter term issue given the ongoing

option development work for this GCP scheme. Specific interventions at J12 (Park & Cycle) were also authorised for further analysis.

13. At this meeting the Executive Board agreed the next steps for the Western Orbital set out in the report including:

> Separate (from the wider Western Orbital strategy) consideration of the potential for phased implementation of a future scheme including specific focus on J11 of the M11 to meet for the aspirations of the City Deal Executive Board to support public transport access to the Biomedical Campus including:
>
> - A full business and implementation plan
> - A full appraisal of the case for a Park & Ride capacity increases at Trumpington
> - A full appraisal of a new Park & Ride to the west of the M11
> - A full appraisal of a new connection between any Park & Ride to the west of the M11 and any new bus priority infrastructure at J11 of the M11
> - A full appraisal of other shorter term measures which may support the successful operation of a bus slip road at J11, including those at J11

14. In effect this approach created a 'modular' approach to the Western Orbital scheme which can be summarised as follows:

Short to Medium Term		**Longer Term**
Bus access to Junction 11 and 13 and potential Park & Cycle at Junction 12		Bus priority on or close to the M11 and wider strategic network issues
Operational	**Strategic**	**Key Work streams**
Potential P&R capacity increases at existing Trumpington site	Potential new P&R site at J11 and P&C site at J12 Integration with A428 scheme at J13	• Work with HE to develop consistent approach to M11 modelling • Influence HE RIS • Girton interchange specific considerations

Engagement and consultation

15. Engagement with HE has taken place including a meeting between the Executive Board and Chief Executive of HE and meetings between senior officers and the HE Regional Director regarding the M11 and Girton interchange. At the present time there is limited movement at this junction. Further detailed work on understanding the impacts of allowing of more movements is currently being undertaken. With this in mind discussions are continuing with Highways England with a view to improving the available movements at the interchange. It is intended to update the Executive Board in a further report once further assessment has been carried out with the HE. The HE is considering Girton as part of the wider Oxford to Cambridge Expressway study and as that study progresses it is prudent for the GCP Executive Board to formally endorse the principle of upgrading the interchange.

16. In addition project officers have organised a number of workshops with HE and their consultants to consider how GCP options at J11 and J13 could best integrate with future HE plans. These workshops have also reviewed approaches to modelling and how this could be based on common principles. This can then better inform future potential proposals at key strategic locations such as Girton. A working group with

Terms of Reference has been established by the County Council's Major Infrastructure Team to oversee this process of joint working.

17. The 2020-2025 RIS 2 will be published by Highways England in 2019. Currently, GCP officers are working with the HE to develop a consistent approach to strategic modelling to inform both the GCP and HE decision making on future proposals. HE submits the RIS to the Department for Transport (DfT) for national prioritisation and local stakeholder support will add to the case for investment in the Cambridge area. Currently there is a window of opportunity promote priorities for Cambridge and South Cambridgeshire with HE and subsequently the DfT. At this stage it is therefore recommended that the GCP support in principle the inclusion of a Smart Motorway scheme for the M11 between J10 to A14 (and potentially further south toward Stansted) within the RIS, as part of a package of measures to manage knock on impacts on the local transport network. This package may include or be in conjunction with GCP investment, improvements at the M11's junctions around Cambridge to address slip road queueing and local road capacity impacts, and measures to facilitate mode transfer to non-car modes for onward trips from the motorway into key destinations around Cambridge. It is intended to update the Executive Board on this process in a separate report once further details have been obtained from HE on their next steps and further transport modelling outputs.

18. A public consultation was undertaken on the Western Orbital scheme in 2016 and reported to the Executive Board in December 2016. A number of stakeholder meetings and workshops have recently been held with Parish Councils along the Western Orbital including Barton, Trumpington and Hauxton.

19. In June 2017 a Western Orbital focused Local Liaison Forum was held. This LLF included attendance from Highways England and presentation from GCP officers of emerging options for assessment at Junction 11. The LLF passed a resolution as follows:

> *P&R should be sited before congestion begins and as a general principal new transport infrastructure should not be allowed to urbanise villages surrounding the city or damage the city's greenbelt. The LLF would like the City Deal to:*
>
> - *investigate sites west of Harston*
> - *would also like to prioritise rail*
> - *consider a heavy rail P&R at Foxton*

20. In response to this resolution, officers refer back to the Western Orbital post consultation report of December 2016 which identified clear support for additional P&R capacity at J11. This location is optimal due to the intersection of the A10 and M11 (2 strategic routes into Cambridge). Analysis presented in that report suggested that P&R sites further to the west will not attract traffic from the M11. Foxton is a significant distance from key destinations such as CBC and Cambridge City centre and creating high quality bus priority along the A10 corridor that would be needed to support a P&R could be costly. The potential creation of a heavy rail based P&R is not excluded by also expanding bus based P&R at J11 but there remain a number of contingencies, most importantly the future plans for East West Rail including a potential new station at CBC and Parkway Station close to Cambridge as well as the passenger capacity of train services into Cambridge at peak times.

Considerations

M11 and Girton Interchange

21. The development of a Smart Motorway for the M11 may address a number of the Western Orbital interventions. With this in mind, the Board should support in principle the inclusion of a Smart Motorway and junction upgrades in RIS 2.

22. In addition, the improvement of Girton Interchange to facilitate greater 'all movements' accessibility could also accommodate some of the strategic issues the GCP is currently seeking to address, and as such will be the subject of further discussion with the HE.

P&R site

23. The Trumpington P&R site is a freehold site owned and managed by Cambridgeshire County Council. The site is 74,640m2 sqm with a total of 1340 car parking spaces. Current peak occupancy of the site is 85%. The site is partly in Green Belt and close to proposed and existing residential developments. The site layout is set out in **Figure 1** and highlights the site currently within Green Belt**.**

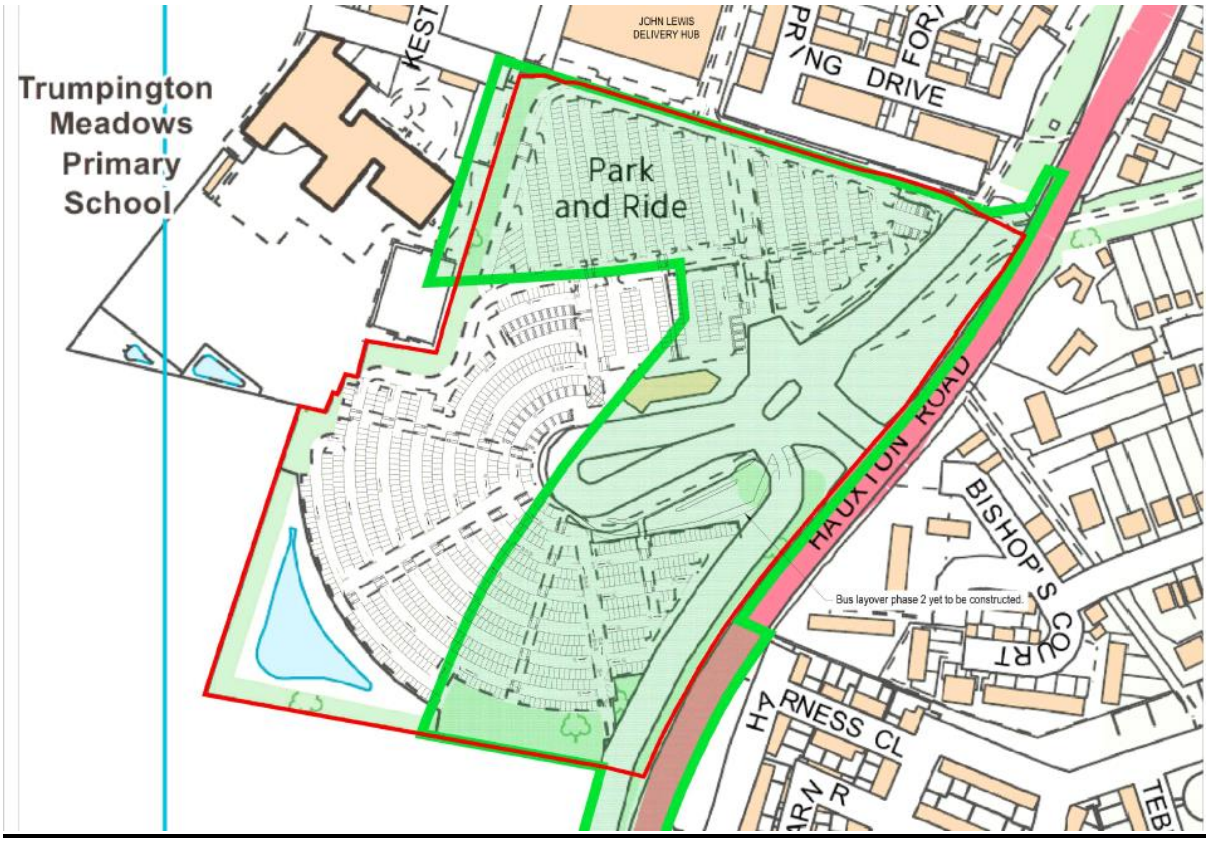


Figure 1: Green Belt elements of P&R site (in green shaded area)

24. This site was granted planning permission in 2001. The planning permission including the following key conditions

- Landscaping
- Lighting & CCTV
- Passenger waiting facilities
- Site access for Cars, Buses/ Coaches and Cyclists
- Drainage
- Operational hours

- Noise

25. The site currently operates 16 P&R buses per hour at peak times serving the City Centre. A further 12 busway services operator from Trumpington at the morning peak all of which serve the CBC site.

26. The County Council is currently developing plans for additional coach/school minibus bays to provide space at Trumpington for the additional services expected over the next year, plus additional school minibus facility and a facility for coaches as including shelters for the long distance and tourist coach passengers.

27. In order to assess the future requirements for car parking at the site transport planning spreadsheet modelling has been undertaken. The potential future requirement for P&R spaces is set out in Table 1 is based on 2 scenarios which are as follows:

Scenario 1 = growth only (without other interventions except removal of P&R parking charge)
Scenario 2 = growth only with parking charge removed AND parking restrictions in place at CBC in line with planning requirements
(Both scenarios are based on normal working days and do not take into account periods of extra demand e.g. at Christmas)

	Scenario 1 Growth only	Scenario 2, accounting for CBC parking restrictions
2017 (base)	1150	1150
2022	1400	1600
2027	1500	1850
2031	1550	2000

Table 1: Total average demand for P&R spaces

28. In summary the projected increases for P&R demand at J11 could be between 400 and 850 vehicles depending on scenario.

29. In terms of additional spaces by 2031, between 190 and 660 spaces could be needed depending on scenario. Adding an operational contingency of 15% to the total figure of spaces increases this to a total of 420 and 960 spaces again depending on scenario (i.e. 15% of 1550 and 15% of 2000). The 15% contingency reflects the observed behaviour that car parks are perceived to be full when 85-90% of spaces are occupied.

30. The projections do not take into account other linked City Deal initiatives which, if implemented, may further change demand for P&R capacity at Junction 11. Specifically the Cambourne to Cambridge scheme, a wider Western Orbital scheme and control measures, such as on street parking/ Resident Parking Zones etc., as part of the City Centre Access scheme are directly linked to potential changes in demand for P&R and will be considered in the next stage of business case development in relation to medium term options for expansion.

Options for expansion

31. In broad terms for the Trumpington site there are 2 types of expansion approaches. The first approach, Option 1, does not involve new structures or significant engineering interventions, but seeks to more intensively utilise the existing site through ground level expansion. The second approach involves new infrastructure at

the site (either above, Option 2, or below ground, Option 3). The second type of approach, given the level of investment, would be best evaluated in comparison with the option of an entirely new P&R site.

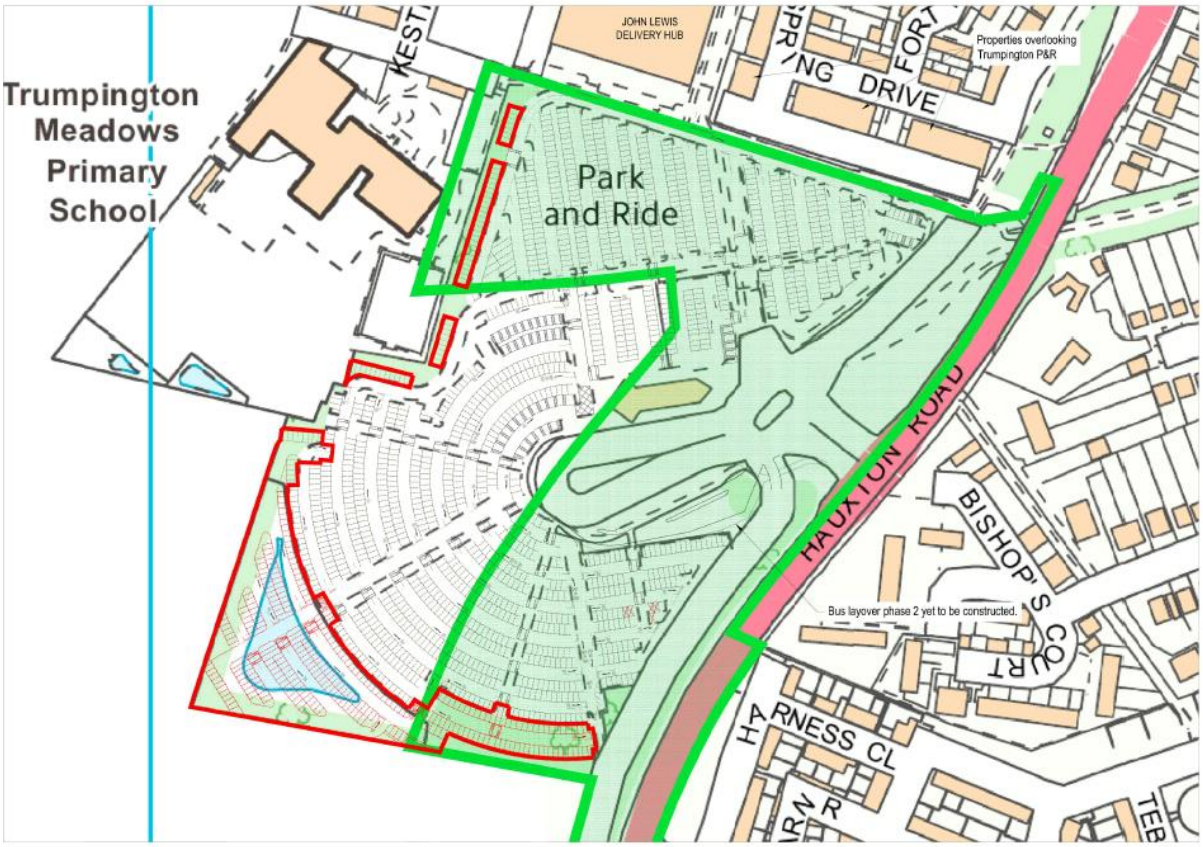
32. Specifically at the existing P&R site a number of options exist for expanding capacity:
    - Option 1: Increase the ground level provision of parking spaces
    - Option 2: Provide decking for additional spaces above ground level
    - Option 3: Provide additional spaces below ground

33. Options could be combined to achieve maximum increases in spaces.

34. Option 1 could be achieved by:
    a) Increasing the overall number of spaces within the existing parked area by redesign of the car park (reducing the allocated size of parking bays),
    b) Increasing the existing parked area (within the footprint of the overall site) by converting landscaped areas into car parking or
    c) Expanding at ground level outside the existing footprint. It is considered that this option is not viable due to proximity of housing development by the site.

35. Work done on Option 1 has focused on b) because a) will require specific car park redesign services and further assessment of the overall impacts on user safety and comfort in using the site. However in the next stage of work it is proposed to request that car park design specialists undertake a review of potential measures to increase density of parking.

36. Option 1 b) has been considered in more detail. Work done to date has identified potential to increase ground level spaces by 299. This would involve loss of landscaping at the site although potentially further landscaping could be introduced in the redesigned site. A possible plan of Option 1B is set out below.



Plan 1: Option 1B – Areas for potential ground level expansion (red outline)

37. The indicative engineering cost (subject to detail site assessment) for Option 1B is **£1,546,000.**

38. Combining Option 1b and 1c (site redesign) may increase the number of spaces further however Option 1b alone does meet the minimum shorter term requirement for providing (at 299 spaces) for at least 190 spaces with some further contingency. Further spaces identified via Option 1a is also possible in combination with Option 1b (although this may not be operationally desirable)

39. Option 2 (decking) has been considered either in addition to or instead of Option 1b. Decking is an established method of increasing car parking space. Given the adjacent proximity of residential properties and priority for speedy implementation it is assumed that only single story deck is preferable at this site. However double deck structures could be considered although these would need a bespoke design and potentially require a more fundamental redesign of the surface level car parking.

40. In terms of Options 2 and 3, these need to be considered in more detail but this should be as part of the overall provision of further long-term Park & Ride capacity at both junctions 11 and 12, and as such will be the subject of a further report.

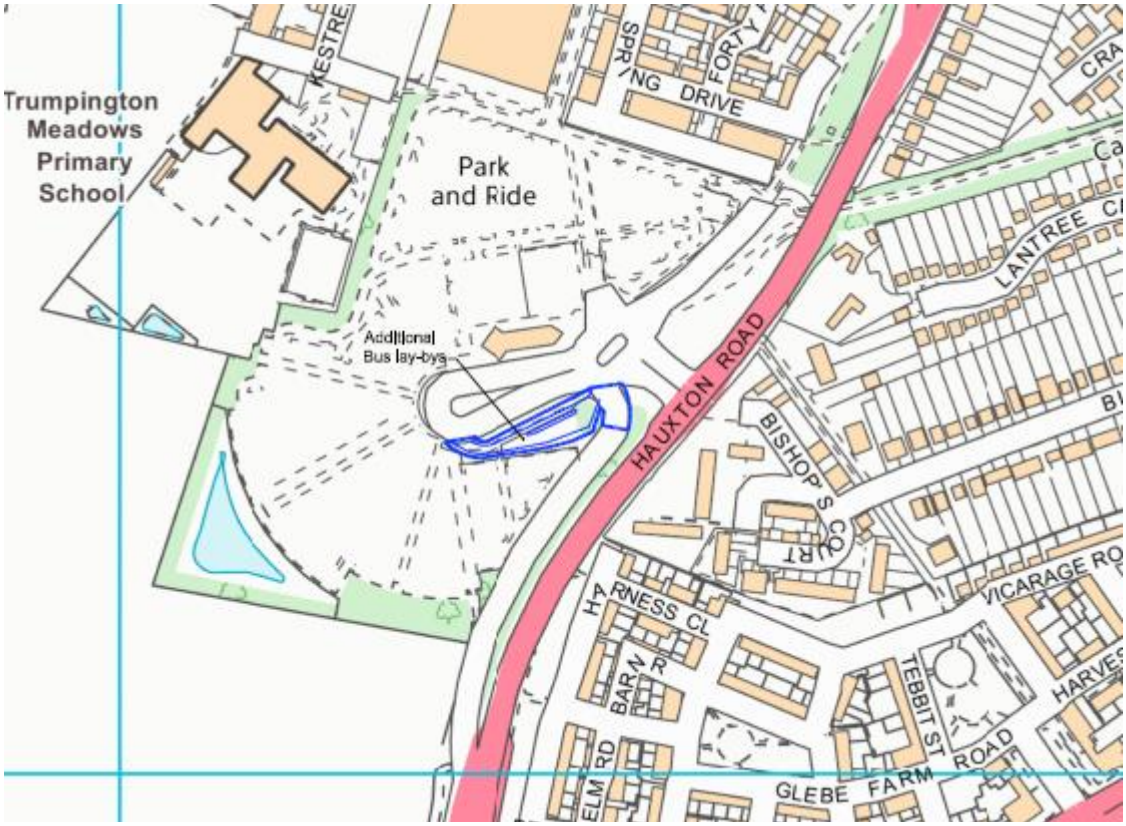
41. The following table 2 summarises the key features of each option.

	Option 1b	Option 2	Option 3	
Option specific constraint	Availability of land	Suitable areas for decking	Cost and buildability	
Expansion of parking area	9,074m2	11,502m2	Similar to Option 2	
Number of potential spaces	299	424	415	
Total Cost	£1.546m	£6.164m	£11.619m	£19.677m
Cost per space	£5.2k	£14.5k	£27k	£47k
Buildability risk	Low	Low	Moderate	
Long term resilience	Good	Moderate	Moderate	

Table 2: Summary of Trumpington Options

Improved school and coach parking

42. As part of the general uplift in demand for the site, additional provision for 5 extra full coach bays or 10 minibus bays for school and long distance/ tourist coaches needed to support traffic reduction measures within Cambridge are proposed. This may help reduce demand for coach parking in areas such as Queens Road. An footprint of the proposals is set out in Plan 2.



Plan 2: Design for improvements to facilitate school and long distance coaches

43. An indicative cost for this improvement is £325k.

44. The ground level expansion/ intensification of Trumpington P&R combined with improved bus capacity and waiting facilities to provide increased capacity for tourist, school and long distance coaches offers a relatively cost effective intervention with a high projected likelihood of increased demand taking up the additional spaces.

Summary

45. The total indicative cost for these measures is approximately £2.1m allowing for contingency, planning and any site intensification identified through Option 1a.

46. In the medium term given the potential short fall of up to 850 spaces by 2031 (excluding the impact of other GCP schemes) it is likely that a combination of Options 1b and 2 could provide the most effective intervention either instead of or in addition to a new site, subject to the further considerations set out below.

47. Work done to date does not identify any significant risk of large scale abortive costs if, as recommended, the GCP Executive Board progress to implement short term expansion measures while in parallel considering the wider medium term case for investment at the site and/or a new site.

Further considerations

Planning

48. All options are likely to require planning permission from the Local Planning Authority which is reflected in the outline programme set out in this report.

49. The current Planning Permission allows for a maximum of 1500 spaces at the site, but due to current operational constrains the sites working capacity is 1340.

50. The site is partly within the administrative boundary for Cambridge City and partly within the administrative boundary for South Cambridgeshire District Council. The Cambridge City Local Plan (2006) allocates its share of the site as Green Belt, but the South Cambridgeshire administrative area no longer forms part of the Green Belt.

51. Other planning considerations (stated in paragraph 24) across the site apply to all of the options to a greater of or a lesser degree depending on which option is considered most suitable. All of the planning constraints will be fully considered as the detailed design and options for the delivery of the scheme is progressed as this may limit the capacity for the options to deliver the additional capacity that the physical endearing solution may provide.

52. A new planning application or a variation to the existing planning permission application would need to be prepared and submitted, and as such a consultation undertaken as part of the preparation of the business case could form part of the Statement of Community Involvement (SCI) that would need to accompany a planning application. The transport planning assessment and transport modelling forecasting of the capacity at Junction 11 and the site access and egress would be a key consideration in relation to the extent to which the Trumpington Park and Ride site could accept additional car parking capacity. It is likely that some enabling measures will be needed to ensure effective access and egress to the site.

Bus priority

53. Extension of Park & Ride capacity may need to be accompanied by additional on road bus priority to ensure maximum reliability of bus services. Further business case work will identify the benefit of bus priority measures to determine if they should form an integral part of any expansions proposal at Trumpington. This is not provided for within the projected project cost for short term measures.

Access

54. The GCP Executive Board has requested that further consideration of bus priority measures at J11 be incorporated within the enhancement of P&R at this junction. This will form part of the further strategic considerations within the business case. However in general the main issue is the extent to which expanding P&R operations at Trumpington would be enhanced by providing additional priority for P&R users at J11 and other approaches and the cost/impacts of these interventions which are not included within the short term proposals in this report.

Next steps

55. This report recommends that further assessment be carried out on increasing P&R capacity at J11 based on outline feasibility and evidence of potential demand**.** This process is set out to the following timetable:

Date	**Key Event**
November 2017	Further report to GCP Executive Board on additional potential interventions at J11 including new P&R and other access arrangements
Summer 2018	Secure planning permission for

	ground level expansion at Trumpington
September 2018	Report to GCP on business case for medium term intervention
Autumn 2018	Implement ground level expansion at Trumpington
Early 2019	Submit planning applications if required for wider proposals
Autumn 2019	Report to GCP Executive Board seeking authority to construct wider medium term expansion proposals
Spring 2021	Completion of scheme

Table 3: Programme

56. A key programme constraint is likely to be planning permission requirements which may be necessary for any significant change to the site capacity.

Options

57. It is recommended that officers seek to implement short term ground level expansion at Trumpington and in parallel continue with the staged business case development as set out in Table 3 bringing a final proposal for investment to the GCP Executive Board in autumn 2018 with implementation of any wider scheme as soon as possible after that subject to planning permission if required.

58. Alternatively the GCP Executive Board may determine at this stage not to expand the Trumpington site, but want to undertake a full review of the Park & Ride provision at both junctions 11 and 12.

Implications

59. 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: Resources are allocated as part City Deal Tranche 1 for Western Orbital scheme development and implementation (£5.9m)
- Legal: There are no legal implications in this report.
- Staffing: Project management undertaken by the City Deal team.
- Risk: A project risk register has been developed and will be updated throughout the course of the project.
- Equality & Diversity: There are no equality & 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

NONE

Background Papers

TECHNICAL REPORT SKANSKA- AITKINS P&R EXPANSION OPTIONS TRUMPINGTON (link below)

https://www.greatercambridge.org.uk/transport/transport-projects/western-orbital/

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