

WEST OF CAMBRIDGE PACKAGE M11 J11 PARK AND RIDE)

Report To: Greater Cambridge Partnership (GCP) Executive Board 11th October 2018

Lead Officer: Peter Blake – GCP Director of Transport

1. Purpose

- 1.1. This report provides an update on progress with the West of Cambridge package.
- 1.2. The West of Cambridge area is one of the key routes in to Cambridge. It suffers from considerable congestion, particularly at the Cambridge end and the junction with the M11. There are some large development sites on this corridor and it provides a key access route to the Cambridge Biomedical Campus (CBC).

2. Recommendations

- 2.1. The Executive Board is recommended to:
 - (a) Note the review of the West of Cambridge Park and Ride options;
 - (b) Agree to consult on increasing the capacity for park and ride to the West of Cambridge by either further expanding the existing site at Trumpington or providing a new site adjacent to Junction 11 of the M11 (ref figure 3);
 - (c) Obtain feedback from the public consultation on the access options and other improvements associated with any development, including regard to the Cambridge and Peterborough Combined Authority's (CPCA's) request that any new sites are temporary; and
 - (d) Include in the consultation strategic options for improving public transport reliability into the City Centre along Trumpington Road.

3. Officer Comment on Joint Assembly Feedback

- 3.1 There was a mixed reaction by the Joint Assembly, including the following:
 - Stressing the need for progress, as the problem was already urgent and Trumpington Road Park and Ride site is now at capacity most days.
 - There was considerable concern about what was meant by 'temporary' park and ride and especially if it was going to involve a segregated bridge over the M11.
 - Highlighted the need to articulate how this scheme would contribute to delivering modal shift.
 - Questioned the absence of data on origin and destination for the use of the current park and ride facility.
 - Concern that the proposals did not provide benefits to the villages of South Cambridgeshire.

- There was a need to tell a more compelling story about some sort of ten year evolving strategy for creating a strategic interchange network.

3.2 The paper has been updated accordingly to address these matters.

4. Key issues and Considerations

Context

- 4.1. Between 2011 and 2031 there are a planned additional 15,500 new homes and 20,000 new jobs in development locations to the west and south of Cambridge, at CBC, Cambridge Northern Fringe, Cambridge North West, Cambridge Southern Fringe, West Cambridge, Cambourne and Bourn. A significant proportion of new residents and new workers will need to make trips between the north, west and south of Cambridge and interventions are required that will support them to make those trips in a way that minimises pressure on the existing network.
- 4.2. Cambridge faces transport supply side threats to its economic growth. Investments in transport infrastructure will be critical, ensuring transport network capacity constraints, high congestion levels and poor reliability issues are addressed to unlock the city's growth potential.
- 4.3. A range of existing and future transport problems, which have the potential to constrain economic growth to the south and west of Cambridge have been identified:
- Congestion on the A1309, between M11 Junction 11 and the Biomedical Campus and city centre. Peak period average speeds are less than 10mph on multiple sections of the road.
 - Congestion at M11 Junction 11, including the A10 approach from the south-west which experiences delays of approximately 16 minutes during the morning peak hour.
 - Higher private car mode share for journeys from the south and south-west.
 - Insufficient parking capacity at the existing Trumpington Park and Ride.
 - Congestion currently affecting Park and Ride bus services along the A1309.

Transport Case

- 4.4 At the present time 34,000 vehicles per day are using J11 from A10, M11 North & South and Cambridge between 0700 and 1900. In those 12 hours 13,600 were travelling from J11 towards Cambridge. The division of movements is as shown in **Figure 1** below:

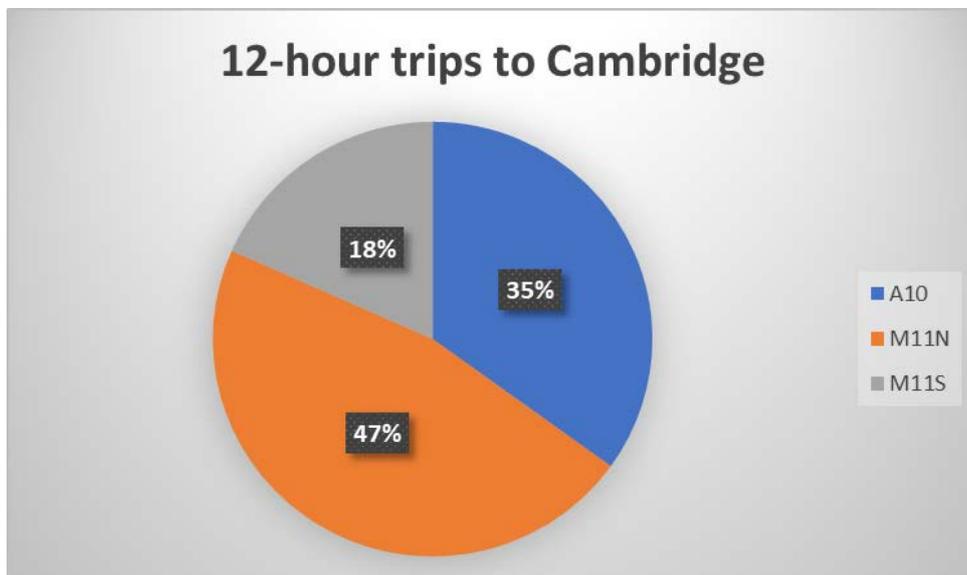


Figure 1 Traffic movements at Junction 11 of M11

- 4.5. Traffic using the Park and Ride was 11% of overall 12-hour trips along this corridor towards Cambridge. The current site is to be expanded to 1690 spaces, which are forecast to fill up almost as soon as they can be built. The traffic growth to 2031 with Local Plan developments requires more park and ride to mitigate the impact on the local network. Transport modelling demonstrates a potential increase in traffic using J11 by 2031 of 23% (AM peak), with the greatest increase coming from the south (M11S).
- 4.6. If the AM peak increases are repeated across 12 hours, the number of vehicles using J11 in 2031 would increase to 41,800. With no extra capacity at J11 this location would be at a standstill causing hard shoulder running and significant network issues.
- 4.7. A review of the demand for Park and Ride to the West of Cambridge has been undertaken to update the earlier estimates reported to the GCP Executive Board in November 2017. Table 1 below outlines the significant increase in park & ride capacity required at Junction 11.

Growth Scenario	Total number of Park and Ride spaces needed at J11		
	2021	2026	2031
Medium (committed developments)	1825	2049	2274
High (committed developments)	2194	3034	3874

Table 1 Potential Demand for Park and Ride at J11

- 4.8. The GCP delivery programme to increase park & ride capacity and improve the infrastructure for public transport is based on the policy framework established by the local planning and transport authorities. These include the emergent transport policy of the CPCA and in particular the compatibility of the project with the proposed Cambridge Area Metro (CAM) - a mass rapid transit scheme.
- 4.9. The Transport Strategy for Cambridgeshire and South Cambridgeshire (TSCSC) was prepared in parallel with the submitted Local Plans and adopted in March 2014. The strategy provides a plan to manage the rising population and increasing demand on the travel network by shifting people from cars to other means of travel, including public transport, walking and cycling. Policy within the TSCSC requires a range of infrastructure interventions on the corridor as a key part of the integrated land use and transport strategy, responding to levels of planned growth. The Local Plan policies for the strategic development sites along the corridor requires high quality public transport (HQPT) to link new homes to employment and services in and around Cambridge.

Cambridgeshire and Peterborough Combined Authority

- 4.10. The CPCA was established in March 2017 and is led by an elected Mayor and Board comprising representatives from the constituent local authorities. The key ambitions for the CPCA include:
- Doubling the size of the local economy.
 - Accelerating house building rates to meet local and UK need.
 - Delivering outstanding and much needed connectivity in terms of transport and digital links.
- 4.11. The CPCA is responsible for the Local Transport Plan. The existing Local Transport Plan 2011 to 2026 remains the existing key transport policy framework at this time which emphasises the need for new developments to be supported by sustainable transport measures such as HQTP.

- 4.12. In December 2017 Steer Davies Gleave delivered an options appraisal report jointly funded by the CPCA and the GCP on CAM. This favoured a mass transit system in Cambridge based on innovative rubber tyred trams.
- 4.13. On 30 January 2018 the CPCA agreed to fund further development of the CAM to Strategic Outline Business Case. CAM was formally adopted by the GCP on 8 February 2018. The CPCA resolved also to *“liaise with the Greater Cambridge Partnership (GCP) to ensure GCP’s current and future plans for high quality public transport corridors were consistent and readily adaptable to the emerging proposition for a CAM network.”*
- 4.14. The potential CAM network is set out in **Figure 2** and includes an alignment toward Junction 11 of the M11 and the Park & Ride site.

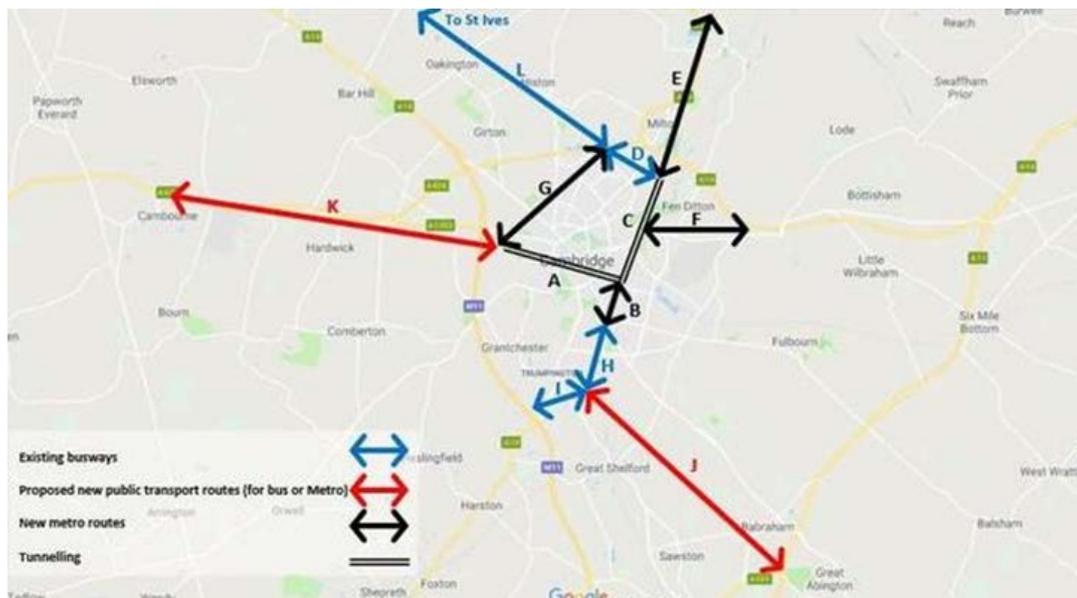


Figure 2– Potential CAM network

- 4.15. The CPCA and GCP have subsequently undertaken a review of alignment between the West of Cambridge scheme and the emerging CAM proposals. The review has concluded that the West of Cambridge scheme is aligned, subject to detailed work on potential Park and Ride proposals. The changes to park and ride referred to are:

“The park and ride elements of the above projects will be implemented as temporary solutions to reflect the MITSS (Mayoral Interim Transport Statement) aspiration to connect the Metro stops with the wider population through innovative transit solutions and not the private car. This includes providing more infrastructure to support greater use of cycle and footpaths, and put in place measures that move away from reliance on private cars for short term and commuter journeys.

5. Work to Date

- 5.1. In early 2016 the GCP undertook a consultation on the initial ideas for the Western Orbital strategy. This consultation addressed a number of wide ranging concepts including alignments of a future bus priority route and park and cycle projects. These elements of the Western Orbital strategy have subsequently been reprogrammed as West of Cambridge measures and subsequent work has focused on Park and Ride improvements at J11. A further phase of work will develop options to improve reliability of public transport services along the corridor and link with the emerging CAM concept.
- 5.2. In the 2016 consultation the majority of respondents supported the concept of a new Park and Ride, with the greatest support expressed for a new Park and Ride site at the Junction 11 exit of the M11 (70.9% of respondents supported or strongly supported this option).

5.3. In September 2017 the GCP Executive Board agreed to increase the capacity of the Trumpington Park and Ride site by 290 spaces to address short term capacity constraints at this site in the context of the expansion of the CBC). Following pre-application discussions with the Local Planning Authorities, an application for 279 spaces was submitted in April and is expected to be determined in the near future.

5.4. In November 2017 the GCP Executive Board agreed to:

“Proceed with a Full Outline Business Case for a new Park and Ride site west of Junction 11 of the M11 and associated access/bus priority measures North West, as outlined in Appendix 1 of the report. The Park and Ride site to be based on the emerging Travel Hub concept”.

5.5. In March 2018 the GCP Executive Board made the following decisions:

“(1) AGREED unanimously that, in respect of any new Park and Ride at M11 Junction 11 and associated public transport/vehicle access on and off the M11 and A10, further analysis should be undertaken and opinions sought and brought back to a future meeting of the Joint Assembly and Executive Board, in the form of an Outline Business Case for these or better options, for further discussion and a decision at that time whether or not to proceed. Any Public Consultation will be deferred until after that decision.

Such analysis should include, as a minimum:

- (a) The rationale for the scheme, including who it would serve and why there is a need for change from existing provisions;
- (b) Traffic modelling along the A10 and M11 including air and noise pollution;
- (c) Dovetailing with the study currently being undertaken on the need to provide better transport links to Addenbrooke’s, the new Papworth Hospital and the growing number of jobs at CBC together with patients and visitors;
- (d) Dovetailing with the potential interventions at Foxton, being greater car parking to serve the train station and/or a bridge/underpass for the A10 road to avoid the level crossing;
- (e) Dovetailing with the emerging plans for a new train station at Cambridge South;
- (f) Dovetailing with the emerging plans for the CAM; and
- (g) A compare-and-contrast exercise as between (i) no new Park and Ride; (ii) a new Park and Ride immediately west of Junction 11; and (iii) expansion of the existing Trumpington Road Park and Ride, either multi-level or on a larger site footprint; (iv) alternative transport options

and such opinions should be sought, as a minimum, from:

- (h) Harston and Hauxton Parish Councils and Trumpington Residents’ Association;
- (i) Addenbrooke’s, the new Papworth Hospital and the CBC; and
- (j) The Mayor for Cambridgeshire and Peterborough and/or the CPCA.

6. Further Work Following March Executive Board

- 6.1 As part of the business case further potential transport interventions have been assessed following the March Executive Board decision:

Traffic Modelling

- 6.2 Traffic modelling has been undertaken to assess the impact of growth on the J11 gyratory and immediate surrounding road network. A VISSIM (multi-modal traffic flow simulation software package) model has been produced to help understand and illustrate traffic flow in current traffic levels as well as to forecast the impact of expected levels of growth will be on the network. Existing problems on the M11 can also be observed that J11 does not cope well with the level of traffic flowing from the M11 in the peak periods. Congestion at J11 can cause queuing on the M11 carriageway and/or hard shoulders on the approaches which is a significant safety issue. Observed delays are manifested by queuing on the main carriageway for significant distances in some cases beyond the existing agricultural bridge. Slower speeds (40 – 60mph in free flowing traffic) are observed on the main carriageway as a result of this queuing to leave the motorway.
- 6.3 The overall modelling methodology uses observed data such as Automatic Number Plate Recognition (ANPR) and traffic counts, the transport model for strategic movements, and a local VISSIM model to look at the operation of specific junctions.
- 6.4 A VISSIM Model has been built around the location of J11 (A1309/A1134 as far as Fen Causeway and A10 to London Road) to understand the specific movements in and around J11 and along the A10/A1309 corridor. This gives a greater understanding of the vehicle movements and interactions in this area. This model is validated against 2018 traffic counts. This also shows the level of expected demand for Park and Ride in 2031 with local plan growth.
- 6.5 An assessment of the current situation and vehicle movements has been taken from traffic surveys and ANPR. The data shows that the Trumpington site is currently full by lunch time 3 or 4 times a week.
- 6.6 The base model is then factored up to a forecast year of 2031, using the traffic growth generated from the Local Plan. That growth includes housing developments and business growth at the designated sites in the Local Plan. As a result the movements at J11 grow by approximately 23% (AM peak) with more vehicles from the development areas (a greater share being in the South).
- 6.7 If the AM peak increases are repeated across 12 hours, the number of vehicles using J11 in 2031 would increase to 41,800. With no extra capacity at J11 this location would be at a standstill causing hard shoulder running and significant network issues.
- 6.8 The modelling demonstrates that forecast increase in growth and traffic at J11 and the surrounding network further exacerbates such issues and demonstrates the need for intervention at that location.

Foxton Park and Ride

- 6.9 A potential rail-based Park and Ride adjacent to Foxton rail station has been considered. The recent increase in train frequencies has increased spare passenger capacity on this line with up to 3000 extra spaces into Cambridge now provided, although some of this additional capacity will be used by passengers boarding trains west of Foxton.

6.10 A new rail based park and ride:

- Would not attract M11 users for Cambridge due its distance from J11.
- Has potential to intercept northbound journeys on the A10 during the morning peak benefiting A10 northbound.
- Is likely to attract London bound travellers from Cambridge direction increasing A10 traffic.
- Has limited attractiveness of rail destinations in Cambridge for commuting due to location of city station.

Whittlesford

6.11 An enhanced rail-based Park and Ride at Whittlesford Parkway close to M11 Junction 10 has also been considered. A new rail based park and ride:

- Could have reduced potential capacity due to crowding issues along this line could reduce potential capacity of future rail based Park and Ride.
- Provides no benefit to A10 or M11 southbound traffic for Cambridge.
- Has potential to intercept M11 northbound journeys but also to attract London bound travellers.
- Has limited attractiveness of rail destinations in Cambridge for commuting due to location of city station.

Foxton Level Crossing

6.12 A potential level crossing bypass at Foxton is currently being assessed. The Foxton level crossing and J11 Park and Ride project teams have been working closely to identify joint issues. The predicted increase in vehicular capacity east of the current level crossing is likely to increase traffic flows on the A10, which if unmitigated will create additional congestion at J11 and CBC. The Foxton level crossing project is due to be reported to the GCP Executive Board in December 2018.

Cambridge South Station

6.13 The proposed new rail station at Cambridge South, serving the Biomedical Campus, aims to improve connectivity between the emerging Biomedical Campus and international gateways, to reduce reliance on Cambridge station for travel to the southern fringe, and to improve sustainable transport access into the Southern Fringe.

6.14 A new station is likely to remove some car trips from the M11 and A10 corridors whose destination is CBC and offer significant benefit for both inward commuters/ visitors to the campus with good rail access and for outward commuters from Trumpington and surrounding areas.

Summary of Alternative Transport Options

6.15 A review of the travel hub options at Foxton and Whittlesford, the Foxton Level Crossing review and the Cambridge South Station scheme demonstrates that additional Park and Ride capacity and future public transport improvements continues to be required around J11 of the M11 given the forecast growth in traffic conditions across the local network.

6.16 Additional Park and Ride capacity is required in the vicinity of Junction 11 to encourage a change of mode, from car to public transport, to reduce the impact of increasing traffic on an already heavily constrained network. Capturing traffic close to the motorway junction minimises the impact of congestion, journey time delays and reducing resilience on the local

road network. Promoting alternate modes, such as public transport and cycling, at that point maximises the capacity of the local network to deliver for south and west Cambridge.

7. Option Appraisal of Park and Ride Locations at Junction 11

- 7.1 Table 2 below outlines the review of the potential options for developing additional Park and Ride capacity at Junction 11. In particular it includes an assessment of alignment with the emerging requirement from the CPCA that Park and Ride facilities are temporary in nature.
- 7.2 The review concludes that whilst it is technically possible to provide additional temporary capacity at the existing Trumpington site, planning considerations and the need for extensive abortive work mean that it may not be practical to pursue such an option. Temporary proposals also limit the amount of off-site works to be included in any proposals, in particular access roads into and out of the site.

	Option	Total Spaces	Additional Spaces	Total construction cost ***	Cost per additional space	Transport - Key Issues	Planning/ environmental - Key Issues	Time	Constructability	Strategic Fit	Mayoral Interim Transport Strategy Statement (MITSS)
1	Do nothing (Current planned Trumpington surface level extension)	1614	274	Site = £3m	£11k	<ul style="list-style-type: none"> Only meets Low Growth Demand in 2021 	<ul style="list-style-type: none"> Loss of attenuation pond 	1Year	<ul style="list-style-type: none"> Temporary loss of spaces during construction 	<ul style="list-style-type: none"> Would have little impact on project strategic objectives 	<ul style="list-style-type: none"> Not Applicable
2	Additional Trumpington Extension (2021 High Growth Demand)	2194	854	Site = £20m Slip road, J11 & access costs = £4m <i>Total = £24m</i>	£28k	<ul style="list-style-type: none"> Junction 11 & A1309 traffic flows remain high Location not ideal for intercepting trips to CBC 	<ul style="list-style-type: none"> Decking – moderate adverse impact (visual, noise, air qual) Potential loss of ground level spaces for mitigation Part Green Belt 	3-4 years	<ul style="list-style-type: none"> Disruption to the site operation and capacity during construction. Stats affected by foundations. Confined working area. 	<ul style="list-style-type: none"> Meets high growth scenario to 2021 only Limited benefits for project strategic objectives (re. traffic flow, mode share etc) 	<ul style="list-style-type: none"> The whole of the site is already surfaced and has an existing building. Temporary car parking would need to be decked A temporary deck would be unlikely to get planning approval without significant screening

	Option	Total Spaces	Additional Spaces	Total construction cost ***	Cost per additional space	Transport - Key Issues	Planning/ environmental - Key Issues	Time	Constructability	Strategic Fit	Mayoral Interim Transport Strategy Statement (MITSS)
3	Additional Trumpington Extension (2021 High Growth Demand) plus remaining 2031 High Growth Demand at new NW J11 site	3874	2534	Sites = £32m Slip road, J11 & access costs for sites = £14m £30m** <i>Total = £46m - £62m</i>	£18k-24k	<ul style="list-style-type: none"> Junction 11 & A1309 traffic flows remain high Impacts on A10 dependent on design specifics for new site 	<ul style="list-style-type: none"> Decking (as above) For new site, slight adverse landscape impact Potential visual impact if new cross-M11 bus link provided Green Belt 	4-5 years	Combination of above and below	<ul style="list-style-type: none"> Meets high growth scenario to 2031 Better fit with project strategic objectives (re. traffic flow, mode share etc) Potential CAM tie-in, capturing external trips at J11 	<ul style="list-style-type: none"> The whole of the site is already surfaced with an existing building. Temporary car parking would need to be decked and include a new temporary site A temporary deck could be removed. A temporary deck would be unlikely to get planning approval without significant screening The new site would be smaller and possibly less viable

	Option	Total Spaces	Additional Spaces	Total construction cost ***	Cost per additional space	Transport - Key Issues	Planning/ environmental - Key Issues	Time	Constructability	Strategic Fit	Mayoral Interim Transport Strategy Statement (MITSS)
4	New site at NW J11 (2031 High Growth Demand)	3874	2534	Site = £12m Slip roads, Structures & access infrastructure = £14m - £30m** <i>Total = £28m - £42m</i>	£11k-16k	<ul style="list-style-type: none"> • Intercepts A10 traffic – reduces flows across J11 • Impacts on A10 dependent on design specifics for new site • Easier for car access from A10 & M11 northbound 	<ul style="list-style-type: none"> • Slight adverse landscape impact • Potential visual impact if new cross-M11 bus link provided • Green Belt 	4-5 years	<ul style="list-style-type: none"> • Disruption to the road network during construction. • Approvals from HE required. • Coverings that can be removed easily. • Reducing the depth of construction of the tarmacked areas could reduce costs. • No central buildings or waiting facilities could reduce costs • Landscaping and other physical works will be kept to a minimum could reduce costs, but may impact on likelihood of planning approval 	<ul style="list-style-type: none"> • Meets high growth scenario to 2031 • Strong fit with project strategic objectives (re. traffic flow, mode share) • Potential CAM tie-in, capturing external trips at J11. 	<ul style="list-style-type: none"> • Only the core of the sites will be tarmacked • The remainder of the areas may consist of temporary ground • Reduced access arrangements would reduce costs

	Option	Total Spaces	Additional Spaces	Total construction cost ***	Cost per additional space	Transport - Key Issues	Planning/ environmental - Key Issues	Time	Constructability	Strategic Fit	Mayoral Interim Transport Strategy Statement (MITSS)
5	Additional Trumpington Extension (2031 High Growth Demand)	3874	2534	Site = £40m Slip road, J11 & access = £4m <i>Total = £44m</i>	£17k	<ul style="list-style-type: none"> Junction 11 & A1309 traffic flows remain high 	<ul style="list-style-type: none"> Decking – more than one new level required – large adverse noise, air qual, visual impacts Part Green Belt 	4-5 years	<ul style="list-style-type: none"> Significant disruption to the site during construction requiring alternative temporary provision. Confined working areas mean this is technically challenging to deliver. 	<ul style="list-style-type: none"> Meets high growth scenario to 2031 Does not work towards meeting project objectives 	<ul style="list-style-type: none"> A temporary structure might not be able to be provided to accommodate such a number of car parking spaces. Significant screening would be needed to mitigate a temporary structure of such scale.

Note: Indirect cost NOT added to the cost (Prelims, Design, Testing and commissioning, Project Management and risk)

** Depends on new site option selected

***Based on Strategic Outline Business Case costs 2Q 2018

TABLE 2: consideration of options

8. Consultation on Park and Ride Options

8.1. The purpose of consultation within the business case process is to gather public views on options and identify further issues and constraints in order to present a full outline business case to the GCP Executive Board. It is now proposed to consult the public on the further details of the Park and Ride:

- The principle of a Park and Ride expansion at J11 (previously consulted on in 2016) of the M11 given that more detail can now be provided on the specific need and location of a site and potential further expansion of the existing site.

Site selection

- Extension of the existing Trumpington Park and Ride site car parking capacity,
- The specific site of a Park and Ride proposed to the NW of J11 of the M11 as set out in Figure 3

Vehicular Access

- Potential access options for each site

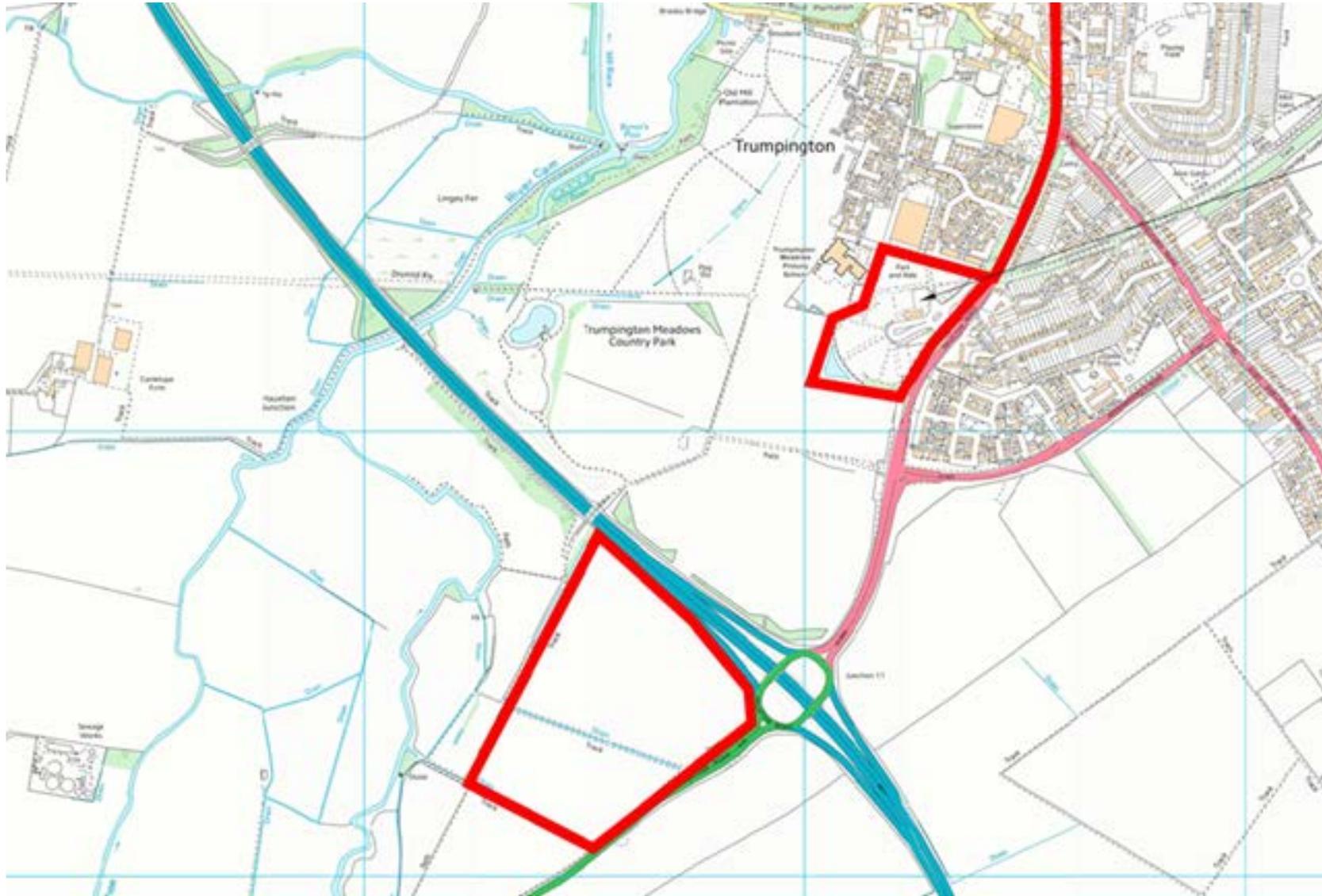


Figure 3 – Site location plan for public consultation

8.2. It is intended to develop these themes into a range of packages of measures which can be shortlisted, with input from the Engagement Group¹ to identify a series of specific options for public consultation. This process will include discussion with:

- Harston and Hauxton Parish Councils and Trumpington Residents' Association;
- Addenbrooke's, the new Papworth Hospital and the CBC; and
- The Mayor for Cambridgeshire and Peterborough and/or the CPCA.

Trumpington Road

8.3. As set out in the report of November 2017, there is a strategic argument for considering potential public transport priority improvements along Trumpington Road to enhance public transport reliability into the City Centre in support of extending Park and Ride provision. It is therefore proposed to consult the public on this principle suggesting a series of possible public transport priority interventions between the existing Park and Ride site and the edge of the city centre in areas set in **Figure 4** below:

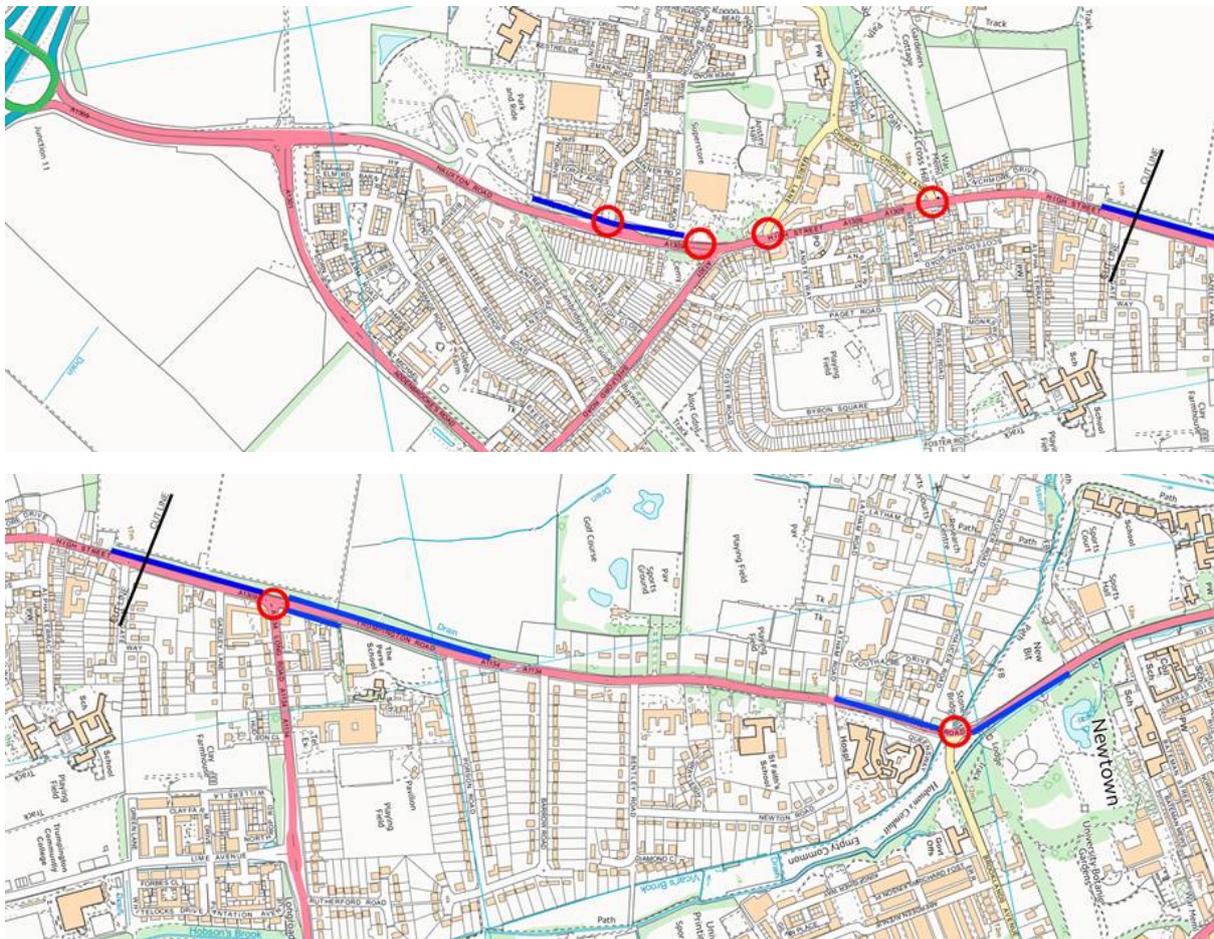


Figure 4: Potential Public Transport Priority Interventions, Trumpington Road

8.4. Proposals to enhance public transport reliability into the City Centre which are complementary to all Park and Ride expansion options would be provided in the consultation including more input from the Engagement Group and also via more site specific engagement with stakeholders along Trumpington Road and adjoining areas.

Coach Parking

- 8.5. Coach parking is essential to supporting the buoyant visitor economy of Greater Cambridge. Attractive parking options and easy access to the City Centre could mitigate some of the parking problems resulting from coaches in Cambridge. The potential for coach parking should therefore be explored as part of the development of the project.

9. Next Steps and Milestones

- 9.1. This report has identified a number of potential themes for inclusion in the public consultation in autumn 2018 for the J11 Park and Ride. The public consultation forms part of the ongoing business case development work. As part of this process, options would be further refined or integrated with other options to deliver the optimal recommended scheme.
- 9.2. The proposed timetable for the West of Cambridge business case development work is as set out in Table 3 below:

Activity	Target completion date <i>*Subject to statutory permissions</i>
Public consultation on Options (including public transport priority)	October – December 2018
Final Option recommendation to GCP Executive Board	Summer 2019
Detailed design and other preparatory tasks for planning process	2019 - 2020
Obtain relevant planning powers to construct*	Early 2020
Scheme completion*	2021

Table 3 – Key Milestones