Representations to Greater Cambridge City Deal

Cambourne to Cambridge better bus journey
On behalf of St John's College, Cambridge

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Representations by St John's College, Cambridge to Greater Cambridge City Deal 'Cambourne to Cambridge better bus journeys'

1.0 Background

1.1 Savills Planning Team in Cambridge are instructed by St John's College to make the necessary representations on their behalf to the consultation exercise currently being carried out as part of the Cambridge City Deal as it relates to the West of Cambridge.

2.0 Context

2.1 The context for the work that has been carried out by the Agents acting on behalf of the City Deal Programme is the A428/A1303 corridor which is a high priority scheme for the City Deal programme and is a key proposal for the Local Transport Plan 2001 – 2026. Within this corridor we are aware that there are a large number of developments that are underway or proposed within the new emerging Plan for South Cambridgeshire District Council (SCDC) and Cambridge City Council (CCC). They include Cambourne West, Bourn Airfield new village, the densification of West Cambridge and ongoing development at North-West Cambridge. If the City Deal priority is the investment in the efficient and convenient movement between new developments and employment areas then the growth in the West Cambridge area provides a significant reason of itself to look at various options for promoting such movement.

2.2 Of course, the creation of new or adapted movement corridors in the form of bus priority lanes as well as pedestrian and cycling routes provides the basis of two way movements. It is not solely about the movement of people into Cambridge in the morning peaks, nor indeed the movement of those people out of Cambridge in the afternoon. It is also about people leaving Cambridge in the morning and returning in the evening. Whilst we accept that the latter will be a lower figure, nonetheless it is an important factor which needs to be considered as part of those options being presented. In addition to such movements, there are of course many cross-City movements which cut across such corridors and which will effect road numbers and road capacity. Coupled with the transport movements of all the arterial routes in and out of the City at points north, south, west and east, it remains important to ensure that there is a holistic solution being put forward that simply does not move one problem in one location to another. To that end, we are aware that work on the Western Orbital Project is underway and this is another strategic project that needs to be part of a comprehensive assessment of accessibility issues around the edge of a growing City.

2.3 In such a context, the College fully accepts the need to improve the infrastructure for a growing City and in the circumstances where the principle of a new bus lane is being

contemplated, it will be important to equally ensure that such provision goes hand-in-hand with both pedestrian and cycleways – the existing guided busway from St Ives into Cambridge is a good example of how such a route can prove attractive to pedestrians and cyclists for both travel to work and active leisure pursuits.

2.4 The College acknowledges that there is significant commuting into Cambridge from outlying areas, not least because of the mismatch of housing and employment opportunities and as well as significant price differentials between house prices in the City and those further afield. With many dwellings beyond the reach of many whose workplace is in the City, most are forced to live elsewhere which places strain on the network in terms of people seeking to travel to their destination. The stance of the Councils is to restrict development in the Green Belt in the current emerging development plans which means that the pattern of commuting is likely to continue whilst the pace of new investment and new employment clusters continues apace e.g. Addenbrookes and the Bio Medical Campus.

3.0 **The Issues**

3.1 It is vitally important that the Transport Strategy identifies logical, viable and deliverable transport schemes which will include measures to mitigate the impacts of strategic development proposals on the A428/Madingley Road corridor.

3.2 Work to date acknowledges that congestion along the route places costs on the economy and the environment. Particular locations along this route present major issues and this particularly includes the Madingley Mulch roundabout and that stretch of Madingley Road to a point just after the Madingley Road Park & Ride traffic lights. In our view, this is where the problem is most acute since beyond this point, up to the junction of Northampton Street/Queens Road, the traffic is flowing moderately well. It is therefore questionable why options seek to suggest improvements to this stretch of Madingley Road where the problems are not as acute as the stretch to the west or indeed many other locations in Cambridge. In circumstances where severe congestion occurs then it is entirely appropriate for the relevant authorities to consider options which seek to address such issues.

3.3 The proposal are split into two areas. Area 1 is that area between Madingley Mulch and Cambridge. Area 2 is that area from Cambourne to Madingley Mulch roundabout.

3.4 St John's College as an educational institution, a landowner and as a major employer, has interests in the options being presented within this consultation and accordingly considers that its comments should be appropriately assessed. We confirm that for the purposes of this consultation, the College's representations are directed to those options within Area 1 from

Madingley Mulch roundabout into the City. The College is not commenting on those options within Area 2 from Caxton Gibbet to Madingley Mulch roundabout.

3.5 The representations on behalf of St John's College to the consultation document comprise the comments within this paper and include the points made in the attached Technical Note prepared by Peter Brett Associates.

3.6 The authors (Atkins) of the Draft Interim Report dated 1st June 2015 'Madingley Road/A428 Cambourne to Cambridge Corridor Study' state at paragraph 1.6:

"The evidence is clear that without intervention, the A1303 cannot physically accommodate any more vehicular traffic during the morning peak and there is a danger that the current queue could extend onto the dualled A428 having an adverse impact on the fast journey times associated with this section."

3.7 In the event that Atkins are correct, then the College can see no option than to suggest alternative measures are needed to secure improved improvements along this corridor.

4.0 The options within Area 1

4.1 The City Deal funding mechanism indicates that the A428 corridor scheme would be likely to be considered in two distinct tranches. Tranches 1 to 2020, is that part of the corridor that runs from the A428/A1303 junction at Madingley Mulch running east to the City Centre. Tranche 2/3 up to 2030 is that stretch from Madingley Mulch to Caxton Gibbet to the west.

4.2 Since the College is currently concentrating on the Tranche 1 section, its comments are limited to the following 3 options put forward within the consultation process:

- **Area 1 Central** – online eastbound bus lanes from the A1303/A428 junction along Madingley Rise and Madingley Road to Lady Margaret Road.
- **Area 1 North** – a new offline dedicated bus route running north – east from the A1303/A428 junction connecting to Madingley Road just west of the M11. A further eastbound bus lane on Madingley Road would be provided to Lady Margaret Road; and
- **Area 1 South** – a new offline dedicated bus route running north of Coton and parallel to Madingley Road and Madingley Rise to Grange Road, with a connection to the West Cambridge University site.

4.3 Common to each of the above options, is the assumption that Madingley Park & Ride will remain. It is understood that the existing Park & Ride site is leased until 2035 after which its future is yet to be determined.

4.4 When looking at each of the options, it is important to refer to relevant journey analysis in terms of firstly, considering travel time if no option is taken forward and then secondly, the travel time in the event that an option is chosen. Whilst journey time is not a sole determining factor with regard to each option, it is relevant to indentify the time of the journey given that one assumes that the strategy is to achieve a safe, efficient, effective and presumably quicker journey time than currently experienced.

4.5 To that end, below we have replicated Table 2 – 1 of Draft Interim Report dated the 1st June 2015 referred to above. This table suggests that it takes 17 minutes by public transport from Madingley Mulch to Queens Road at present and 12 minutes by private motor car on the same route. Each of the options present quicker journey times in relation to public transport and comparable times using the private motor car.

Forecast 2031 AM Peak Hour Eastbound Journey Time Comparison – Madingley Mulch to Queen's Road

Option 1 (Tranche 1)	**Public Transport (minutes)**	**Highway (minutes)**
Do Minimum	17	12
Area 1 Central	Between 9 and 10	Between 12 and 13
Area 1 North	8	11
Area 1 Central	5	11

Comments on each of the options are set out below.

Area 1 Central

4.6 This route is effectively making the best use of Madingley Road from Madingley Mulch roundabout up to the roundabout at Northampton Street/Queens Road. As stated earlier, a key hot spot is the amount of traffic using that stretch of Madingley Road from Madingley Mulch to a point just past the M11 turn off. This particular junction of the M11 causes real problems in peak times including the back up of vehicles on the M11. Once passed this point, the traffic eases and from the Park and Ride traffic lights to the junction with Grange Road there are few traffic issues given the general free-flow of traffic at this point. It is therefore misguided in our view to target major improvements along this stretch of Madingley Road east of the M11 given that this is not an area that exhibits the most acute problems. In such a context we have not had sight of the technical analysis/data that we assume has been carried out by Atkins to identify the specific areas of the corridor and their particular traffic

characteristics. We consider this to be important information behind the options being tabled and accordingly request that such data is made available .

4.7 In addition to identifying the 'wrong' area for major improvements, one of the main concerns that the College has about the Area 1 Central route is the physical implication of creating a new bus lane on the inbound side of Madingley Road. The SWOT analysis undertaken by Atkins within the Draft Interim Report already identifies this issue and given the number of potential individual parties along Madingley Road that could be significantly affected by the loss of part or all of their frontage as a result of an unknown highway work programme will mean that this Option faces serious questions about deliverability over third party land. We consider that the securing of third party land is not justified in the circumstances especially when, in our view, it fails to tackle the real problem west of the M11.

4.8 The effect of reducing grass verge, potentially removing trees and the general introduction of highways paraphernalia continues to have real visual impact in such sensitive locations. The loss of the trees and the significant impact on the local environment on such an important, attractive route into the City cannot be justified. The stretch of Madingley Road close to the City beyond the West Cambridge site exhibits a strong verdant mixed residential and collegiate character which in our view would be significantly harmed by highway works to deliver a new bus lane in this location. It is simply unacceptable to include such measures as perceived, sensible, deliverable options and in such a context, we know that a number of local residents have submitted comments to express their strongly held views on this matter.

4.9 Even in the circumstances where a bus lane is to be introduced, (notwithstanding the issues raised above), it remains the case that westward traffic along this route would continue to be congested at peak times.

4.10 Whilst we acknowledge that there is some merit in principle of an online route, the College considers the implications of the creation of a new bus lane in terms of the environment and the questions raised over deliverability, plus the relevance and existing problems at the junction as being significant. Cumulatively, all of these factors suggest that the Area 1 Central route is not a favoured option.

Area 1 North

4.11 With regard to the Area 1 North route, this remains the same as Area 1 Central from the Madingley Road Park & Ride to the City. For that stretch of the corridor from Madingley Mulch roundabout to the Park & Ride site, the bus lane would loop to the north of the American Cemetery and then re-join Madingley Road past west of the M11. It is this stretch that exhibits the real problematic traffic issues west of Cambridge.

4.12 Aside from landscape issues, we question whether the benefits of a longer loop around the cemetery to come back in to connect with Madingley Road would be seen as an attractive alternative to motorists who may prefer to follow the most direct desire-line along Madingley Road.

4.13 With Area 1 North still including the online improvements to Madingley Road, east of the M11, we consider the issues plus the landscape constraints including listed buildings and nature conservation interests suggest that this should not be a favoured option.

Area 1 South

4.14 The Area 1 South route put forward within the consultation exercise starts at the Madingley Mulch roundabout and runs off-road to the south and uses a new crossing over the M11, travels eastwards on south of Madingley Road to connect to Grange Road. This route therefore bypasses Madingley Road east of the M11, including the junction of Northampton Street/Queen's Road.

4.15 It is clearly a much more different option from Area 1 Central and North routes since it suggests a fully segregated route which leads to a destination at Grange Road and which buses would then link to West Road and Silver Street to get to the City Centre. On the basis that the journeys along this route are those seeking a City centre destination, this provides the most direct route on a dedicated road. It is considered to be quicker than Area 1 Central and North shown in Table 2–1 above, but is substantially more expensive, currently estimated at £67m.

4.16 The route provides two way movements into and out of the City and has the ability to connect into the West Cambridge site and the existing Park & Ride site at Madingley Road. In addition, the route importantly has the potential to connect into emerging options for the Western Orbital route which we understand will be the subject for public consultation in the New Year. The Area 1 South route and variations thereof, do not jeopardise the principle of a new Orbital route and clearly this must be an important factor in taking a holistic view on the long-term traffic and accessibility issues in and around this City.

4.17 As stated, this option is considerably more expensive than other options. If a significant proportion of this figure is made up of the new segregated route west of the M11 and which would require a new costly M11 crossing, then it would be appropriate to consider another alternative which would combine appropriate elements of each option to produce a new one.

4.18 To this end, we suggest an online route with inbound bus lanes from Madingley Mulch to Madingley Road Park & Ride. This is the western section of the Area 1 South west of the M11.

4.19 If this is combined with a new route from Madingley Park & Ride site, linking into the West Cambridge site on a route to be developed with the University and then connecting in with the Grange Road destination (i.e. the eastern section of the Area 1 South route, east of the M11), then we consider this would constitute a cheaper option but would still retain an element of the fully segregated route east of the M11 . It retains the use of the existing Park & Ride facility, easy access to West Cambridge and ultimately a fast route into Grange Road and onward travel. We have shown such an option within enclosed Plan A which accompanies these representations. This alternative is also referred to in the accompanying Technical Note prepared by PBA (the exact alignment does not match up with Plan A since the route can only be conceptual at this stage.)

4.20 The College fully accepts that such a new route will have an impact on the landscape on the west side of Cambridge but in the context of the need for new infrastructure and the presence of a tightly drawn Green Belt boundary around the whole of the City, then significant consideration needs to be made of identifying a route in the landscape which does not compromise the setting of a City within its landscape, but at the same time, provides for a 21st Century approach to the important movement of people between home and the work place. The work undertaken by the College's Project Team to date suggests there are no critical nor technical matters that cannot be mitigated for in the circumstances that a new bus priority route is established in this part of West Cambridge.

Summary

4.21 The College acknowledges the importance of ensuring infrastructure is in place to serve existing, planned and proposed developments in and around Cambridge. Short term or even medium term fixes provide no certainty of addressing the issues and it is the case that investment and more expensive options given the long term objectives is in the College's view a more robust, professional and responsible approach that needs to be taken. To this end, the College wishes to work with relevant stakeholders to ensure that the option that is eventually decided upon is deliverable and importantly addresses the various issues which are needing to be targeted.

4.22 The College, whilst supportive of the Area 1 South route, also suggests a new alternative route option in Plan A which provides a new online bus lane from Madingley Mulch to existing Park & Ride site and then a new segregated route leading from the West Cambridge site through to Grange Road.

4.23 The College wishes to be kept informed of this project and would be willing to meet with relevant parties at the appropriate time to move the project forward.

Plan A

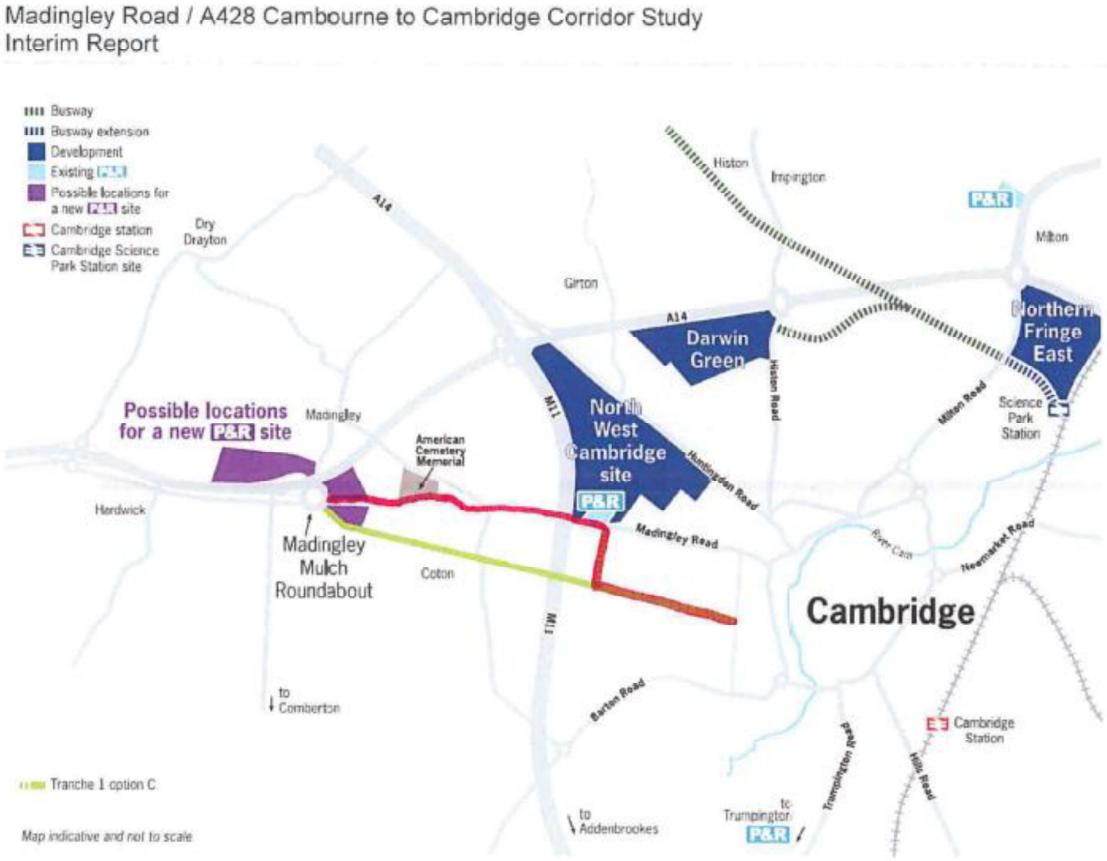


Figure A-3 Option 1C

This line shows an alternative option where on-line improvements are made from Madingley Mulch roundabout to West Cambridge and then a new route through the West Cambridge site and then a fully segregated link leading to Grange Road.

PBA Technical Note

TECHNICAL NOTE

Job Name: Land North of Barton Road (RP)

Job No: 32285-5501

Note No: TN/01

Date: 17th November 2015

Prepared By: Paul Murray/Margaret Theobald

Subject: **Greater Cambridge City Deal, Cambourne to Cambridge: Better Bus Journeys Consultation**

1. Introduction

PBA have been commissioned by the Landowners of Land North of Barton Road (BRLOG) and St John's College, Cambridge to examine the options proposed by the Greater Cambridge City Deal for bus improvements between Cambourne and Cambridge with special reference to the potential for development of the Land between Madingley Road and Barton Road.

North BRLOG comprises four landowners, as follows: Corpus Christi College, Downing College, Jesus College, and University of Cambridge. To the north of these ownerships is land in the ownership of St Johns College. A land ownership plan is included at Appendix B.

North BRLOG owns land to the North of Barton Road which is on the south western built-up edge of Cambridge. The site is currently located within the Green Belt. It crosses the administrative boundary between Cambridge City and South Cambridgeshire. In September and October 2013 representations were submitted on behalf of North BRLOG to both draft Cambridge Local Plan (Draft CLP2014) and draft South Cambridgeshire Local Plan, highlighting that the site was capable of being developed in a sustainable way.

The St Johns College land also lies within the Green Belt and falls entirely within the administrative area of Cambridge City Council. Representations have also been made by the College to the City Local Plan confirming their view that the land is suitable, available and deliverable for new residential-led sustainable development.

Taking both the North BRLOG and St Johns College land together a co-ordinated development could be delivered with appropriate transport connections and an orbital transport route, including for walking, cycling and public transport trips, providing links between housing and employment.

The delivery of the City Deal proposals along both the A428 corridor and the Western Orbital Route show that this land west of Cambridge is ideally located to benefit from these connections and will lead to a highly sustainable, residential led development that would be well connected to the key employment sites.

At peak periods the transport network in the city already operates at or near capacity and additional vehicular trips would be difficult to accommodate, increase congestion and delay, damage the environment and worsen the quality of life of those who live and work in the city.. The Transport Strategy for Cambridge and South Cambridgeshire (TSCSC) and the Cambridge and South Cambridgeshire Submitted Local Plans identify a series of transport proposals to provide for increased travel demand over the period to 2031 including that arising from future development. The TSCSC therefore focuses on achieving reliable, safe and convenient access to and around the city for non-car modes of transport. For shorter trips walking and cycling are the focus, while for medium and longer distance trips public transport is the primary focus.

The A428 corridor is one of the key radial routes into Cambridge with high levels of current and planned housing growth. Parts of the route currently suffer from heavy congestion, queuing traffic, poor journey times and journey time reliability during peak hours.

TECHNICAL NOTE

The proposals for the corridor form part of the TSCSC and have key objectives to provide for the following:

1. Congestion free public transport serving the corridor (including new developments) in order to avoid an increase in current congestion levels and PT journey times.
2. Public transport serving key current/future trip generators in the A428 corridor (west of the M11), including Cambourne and Bourn Airfield.
3. Public transport serving key current/future trip attractors in Cambridge – City centre and other employment sites (i.e. Science Park, Addenbrooke's Hospital)

There is a lack of information about where the proposals finish at the eastern end of the route and how access to the City Centre, the Science Park and Addenbrooke's will be achieved. Options for the Area 1 north and central appear to terminate at the Northampton Street/Queens Road junction, whilst Option Area 1 South appears to terminate at Grange Road with no indication of further connections.

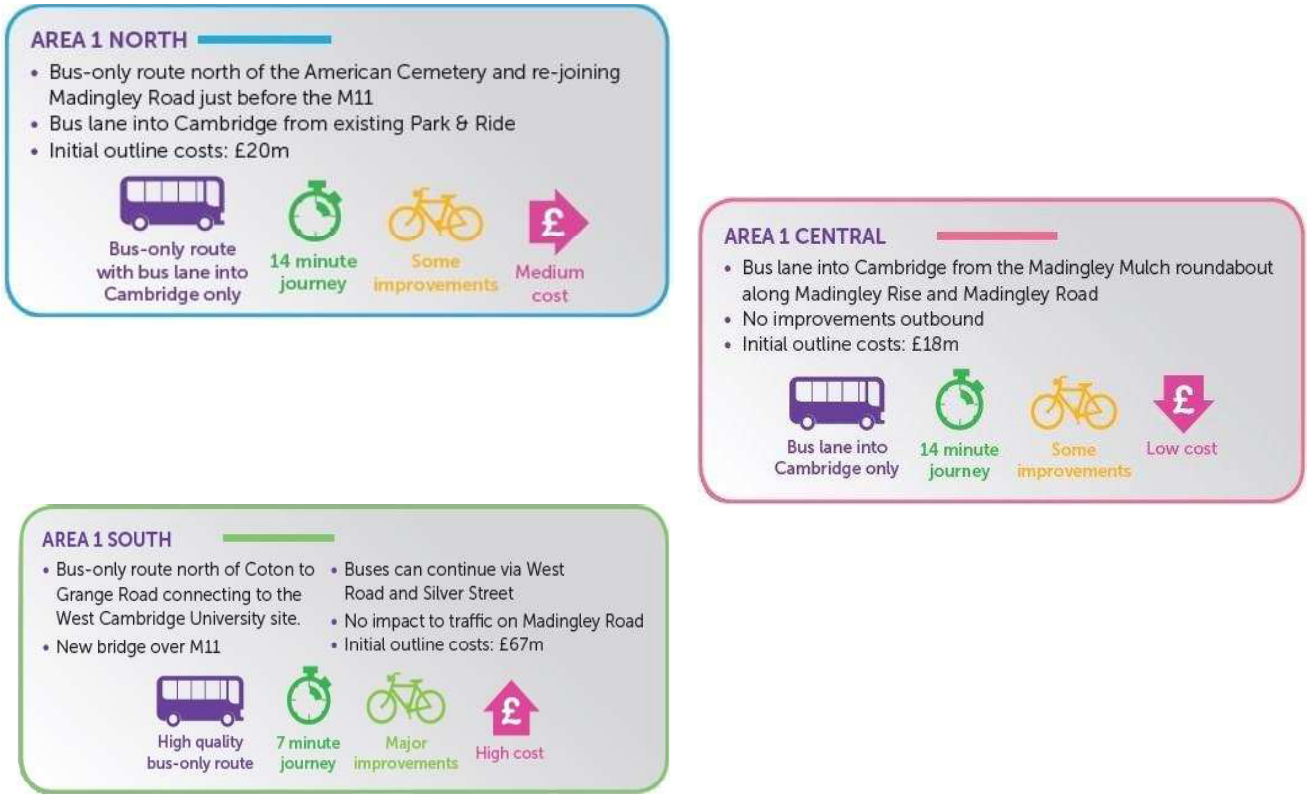
It is critical that these radial route options are considered together with the recent proposals for the Western Orbital route otherwise the radial route only appears to provide limited benefit in terms of meeting the objectives above.

This analysis looks only at the options to the east of the M11, as options to the west of the M11 do not have significant effects on our client's landholdings east of the M11.

Figures 1 and 2 below summarise the routes and the key characteristics as presented in the consultation documentation.

Figure 1: Consultation Routes

Figure 2 Consultation Route Summaries



2. Option Assessment

The options put forward in the consultation and the PBA alternative option have been assessed against a number of criteria. The table in Appendix A shows the results of that assessment

The criteria used were:

- Are the Stated Objectives of the Scheme met?
- Land issues
- Engineering challenges
- Environmental Impact
- Costs/funding
- Access
- Bus journey times
- Access to city centre
- Highway journey times
- Walking/Cycling

As part of this assessment the Landowners have also considered a further option (Area 1 Alternative – that considers access through West Cambridge and into the City further to the south potentially using Rifle Range Road and land in the ownership of both St Johns College and Jesus College.

Key Issues

Area 1 North and Central
This route does not meet the objective to provide congestion free public transport serving the corridor, as it only provides east bound bus improvements and terminates at the congested Northampton Street Queens Road junction. Additionally the does it meet the objective to provide public transport to serve the city centre and other employment sites as an interchange at the existing park and ride would limit the connectivity with the West Cambridge and North West Cambridge development sites.

The proposed scheme will be constrained by the existing corridor and the constrained junction at Northampton Street/ Queens Road. This may require the acquisition of land by CPO and require the relocation of utilities and services.

Madingley Road between the existing Park and Ride site and Northampton Street does not currently experience intensive congestion and the provision of a dedicated bus lane and improved cycle facilities is likely to fundamentally change the character of the street, with the loss of verges, trees and potentially hedgerows with little local benefit,

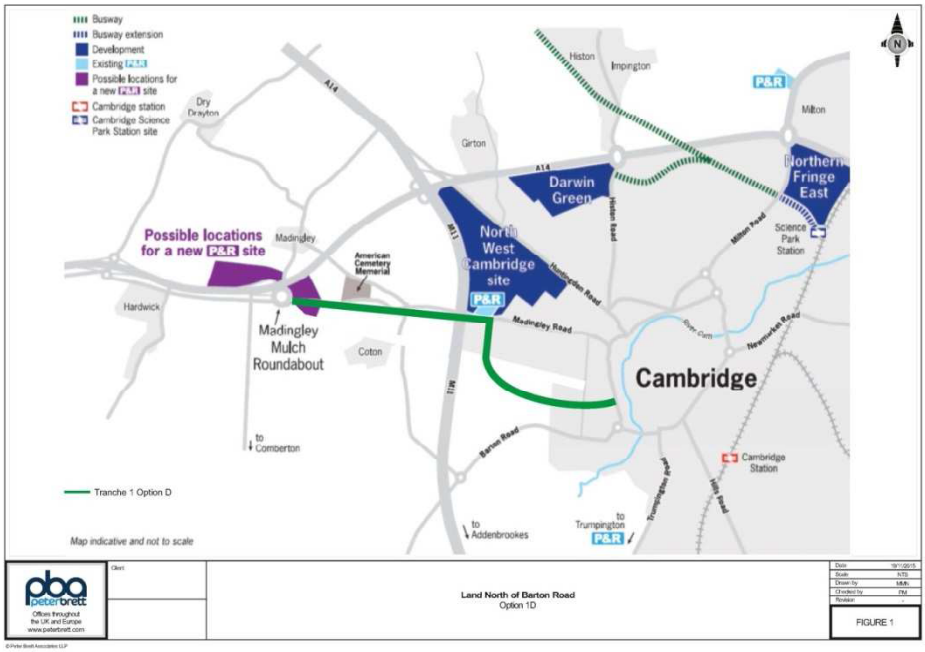
Area 1 South
Area 1 South meets the objectives defined for the scheme to provide congestion free public transport along the corridor with public transport links to the west of the M11 and links to the city centre and the employment sites. As a suggested route it provides a quicker service into the city centre than the other options, plus it provides an improvement for west bound journeys not addressed by other options.

The route has the ability to connect into the West Cambridge and North West Cambridge development sites as well as the established Park and Ride site at Madingley Road and significantly it has the potential to integrate with the emerging options for the Western Orbital Route.

Area 1 Alternative

Figure 3 below presents an alternative proposed option.

Figure 3:Area 1 Alternative



The Area 1 Alternative route would utilise existing infrastructure to the west of the M11 including the M11 junction itself. It is likely that some improvement to the junction would be required but more detailed investigation is needed to determine what would be required

This option is likely to deliver the benefits highlighted above for the Area 1 South option at a reduced cost as a new bridge over the M11 and an extensive new road link would not be required.

3. Other Matters

We understand that the Western Orbital Route options will come forward for consultation some time in the first half of 2016. However, the success of both Madingley Road/ A428 Cambourne to Cambridge corridor scheme and the western orbital routes will be highly dependent on each other. It is therefore essential that schemes are considered as an entire strategy to meet the objectives and aspirations of the Greater Cambridge City Deal.

To this end further investigation work is required for both initiatives and we would suggest joint consultations are undertaken.

4. Conclusion

From the above assessment our recommended preferred options are Area 1 South and Area 1 Alternative. This is because:

- only these options meet the stated objectives of the proposals
- They provide benefits to both east and west bound travellers
- Interchange with the proposed orbital routes is more accessible for W and NW Cambridge development sites
- There are significant journey time savings compared to Area 1A ad Area 1B as well as the do minimum.
- Only these routes avoid the current congestion hot spot at Northampton Street and give easier access to the city centre
- They provide public transport benefits which enable a more sustainable development to come forward as part of the LNBR proposals and Local plan Representations.

There are a number of additional benefits of the Area1 Alternative option:

- It utilises existing infrastructure through west Cambridge
- It provides similar benefits to Area1 C but does not need a new bridge over the M11 and is therefore likely to have lower costs.
- It can link with the Park and Ride, a new interchange within West Cambridge and the new orbital route

Further detailed feasibility assessment will be required particularly at the eastern end of the route.

These proposals should be considered in a coordinated approach alongside the proposed Western Orbital and City Centre Public Transport Strategy.

Our clientsare happy to enter into discussions with the authorities in relation to the Area 1 South and Area 1 Alternative routes.

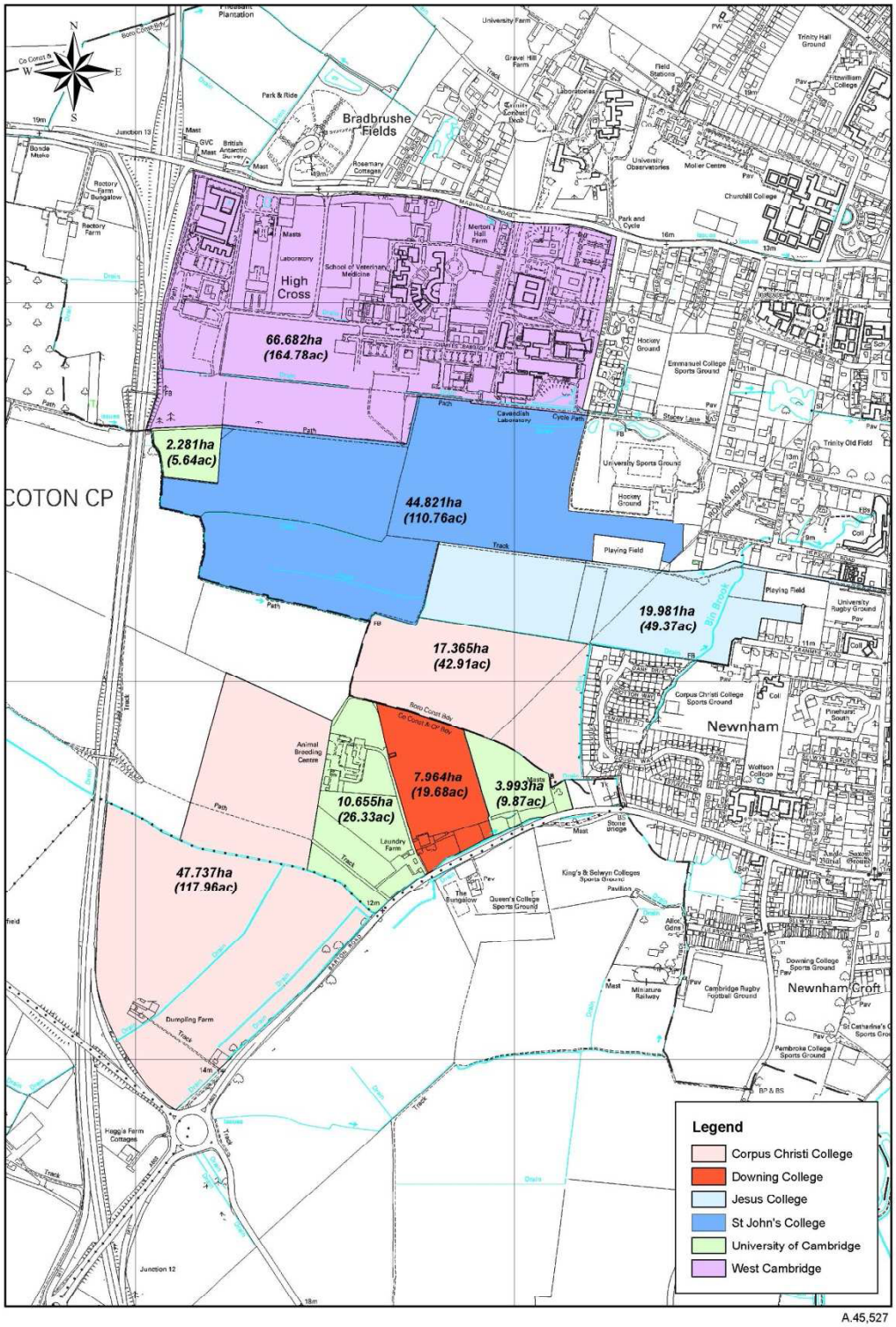
Appendix A

Area 1 North	Area 1 Central	Area 1 South	Area 1 Alternative
Are the Stated Objectives of the Scheme met?			
1. Does not meet objective as may be increase in congestion only addresses eastbound. 2. Meets this Objective. 3. Does not meet this objective as may increase congestion at Northampton Street junction which is a barrier to access to the city centre and provides poor interchange with potential Orbital routes to Science Park and Addenbrooke's.	1. Does not meet objective as may be increase in congestion only addresses eastbound. 2. Meets this Objective. 3. Does not meet this objective as may increase congestion at Northampton Street junction which is a barrier to access to the city centre and provides poor interchange with potential Orbital routes to Science Park and Addenbrooke's.	1. Meets this Objective. 2. Meets this Objective. 3. Meets this Objective.	1. Meets this Objective. 2. Meets this Objective. 3. Meets this Objective.
Land Issues			

Area 1 North	Area 1 Central	Area 1 South	Area 1 Alternative
• Uses existing road space from M11 to park and ride and into the city centre • Lack of clarity with scheme results in difficulty determining land requirements • Additional land may need to be acquired by CPO • Very constrained site at Northampton Street/Queens Road/mini roundabout	• Uses existing road space from M11 to park and ride and into the city centre • Lack of clarity with scheme results in difficulty determining land requirements • Additional land may need to be acquired by CPO • Very constrained site at Northampton Street/Queens Road/mini roundabout • Land not available for outbound bus lanes	• Through third party land (potentially multiple landowners) • Potential for slow delivery of route and slowing delivery of the site if agreements are protracted; • Land required for two way bus route + pedestrian + cycle infrastructure -potentially 6.75m+2m (footway)+3.5m (footway/cycleway) = 12.25m • Potential constraints on West Cambridge master plan (Cambridge University making separate representations)	• Through third party land (potentially multiple landowners) • Potential for slow delivery of route and slowing delivery of the site if agreements are protracted; • Land required for two way bus route + pedestrian + cycle infrastructure - potentially 6.75m+2m (footway)+3.5m (footway/cycleway) = 12.25m • Potential constraints on West Cambridge master plan (Cambridge University making separate representations)
Engineering challenges			
• Utilities/Services • Constrained Corridor	• Utilities/Services • Constrained Corridor	• Entirely new route - through third party land; • New bridge over motorway	• Entirely new route - through third party land; • Upgrade existing M11 junction
Environmental Impact			
• Increased severance • Landscape constraint to north of Madingley Road – protected fields (Ridge and Furrow) adjacent to Park & Ride and west of Madingley Rise • Impacts on hedge rows on Madingley Road	• Increased severance • Landscape constraint to north of Madingley Road – protected fields adjacent to Park & Ride(Ridge and Furrow) and west of Madingley Rise • Impacts on hedge rows on Madingley Road	• New route may have protected species (may need to find receptor sites); • Other environmental designations • Visual impact of elevated bridge	• New route may have protected species (may need to find receptor sites); • Other environmental designations
Cost / Funding			
• Medium cost however, this could have increased costs due to utilities in the verges/footways on Madingley Road. • Lack of information provided for schemes, therefore difficult to comment on price	• Low cost - however, this could have increased costs due to utilities in the verges/footways • Lack of information provided for schemes, therefore difficult to comment on price	• High cost - largely due to new bridge construction over the M11	• Medium to High Cost – However, the cost would be significantly less than Option C due to junction improvements rather than a new bridge • The scheme also makes use of some existing highway, therefore less new

Area 1 North	Area 1 Central	Area 1 South	Area 1 Alternative
			road will be built compared to Tranche 1 Option C
Access			
• Only provides eastbound bus lanes	• Only provides eastbound bus lanes	Would create a more direct route into the City Centre and other destinations	Would create a more direct route into the City Centre and other destinations
Bus Journey Times			
• Eastbound direction journey time is improved to 14 minutes • It does not appear that there is any beneficial change in the westbound direction journey time	• Eastbound direction journey time is improved to 14 minutes • It does not appear that there is any beneficial change in the westbound direction journey time	• Eastbound and Westbound directions journey times are both 7 minutes. • However, it is not clear where the route ends	• Eastbound and Westbound directions journey times are both 7 minutes. • However, it is not clear where the route ends
Access to City Centre			
• Terminates at Northampton Street junction – a current congestion hotspot that has limited scope for improvement.	• Terminates at Northampton Street junction – a current congestion hotspot that has limited scope for improvement	• Potential to route via Rifle Range Road, Grange Road and Sedgewick Avenue to the city centre directly into Silver Street. Thus, avoiding Northampton Street and Queens Road	• Potential to route via Rifle Range Road, Grange Road and Sedgewick Avenue to the city centre directly into Silver Street. Thus, avoiding Northampton Street and Queens Road
Interchange with potential Orbital Routes			
•Interchange likely at P&R •Poor connectivity with West Cambridge and North West Cambridge development sites and beyond.	•Interchange likely at P&R •Poor connectivity with West Cambridge and North West Cambridge development sites and beyond.	• Interchange possible at the Park and ride, and: Interchange possible with orbital links to the south of the West	• Interchange possible at the Park and ride, and: Interchange possible with orbital links to the south of the West Cambridge development site
Highway Journey Times			
• Potential loss of vehicular capacity on Madingley Road	• Potential loss of vehicular capacity on Madingley Road	• No impact along Madingley Road	No impact along Madingley Road
Walking and Cycling			
• Additional cycling capacity is provided	• Additional cycling capacity is provided	• Additional cycling capacity is provided • Opportunity for new dedicated cycling route	• Additional cycling capacity is provided

Appendix B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COTON CP
Bradbrushe Fields
High Cross
Newnham
Newnham Croft
Legend
Corpus Christi College
Downing College
Jesus College
St John's College
University of Cambridge
West Cambridge
A.45,527