



Growing and sharing prosperity

Delivering our City Deal

## GREATER CAMBRIDGE PARTNERSHIP

### JOINT ASSEMBLY

**11:00 am**

**Thursday 10<sup>th</sup> June 2021**

**Conservation Hall**

**Imperial War Museum**

**Duxford**

**CB22 4QR**

## AGENDA

### **PART ONE: 11:00 a.m. – 1:00 p.m.**

	PAGE NUMBER
1. Election of Chairperson	( - )
2. Appointment of Vice Chairperson	( - )
3. Apologies for Absence	( - )
4. Declaration of Interests	( - )
5. Minutes	(3 - 16)
6. Public Questions	(17)
7. Petitions	( - )
8. Better Public Transport – Waterbeach to Cambridge	(18 - 249)
9. Better Public Transport - Cambridge Eastern Access Project	(250 - 264)
10. Quarterly Progress Report	(265 - 297)

### **PART TWO: 2:00 p.m. onwards \***

11. Cambourne to Cambridge Independent Audit	(298 – 464)
12. Cambridge South East Transport Scheme	(465 – 617)
13. Date of Future Meetings	( - )

- 2:00 p.m. Thursday 9th September 2021
- 2:00 p.m. Thursday 18th November 2021
- 2:00 p.m. Thursday 17<sup>th</sup> February 2022
- 2:00 p.m. Wednesday 1<sup>st</sup> June 2022
- 2:00 p.m. Thursday 8<sup>th</sup> September 2022
- 2:00 p.m. Thursday 17<sup>th</sup> November 2022

\* Should Part One of the meeting finish later than 1:00 p.m. the start time for Part Two may be later than scheduled. The discussion on Part Two items will not start any earlier than 2:00 p.m.

## **MEMBERSHIP**

The Joint Assembly comprises the following members:

Councillor Tim Bick	-	Cambridge City Council
Councillor Rosy Moore	-	Cambridge City Council
Councillor Simon Smith	-	Cambridge City Council
Councillor Alex Beckett		Cambridgeshire County Council
Councillor Brian Milnes	-	Cambridgeshire County Council
Councillor Neil Shaifer	-	Cambridgeshire County Council
Councillor Ian Sollom	-	South Cambridgeshire District Council
Councillor Heather Williams	-	South Cambridgeshire District Council
Councillor Eileen Wilson	-	South Cambridgeshire District Council
Heather Richards	-	Business Representative
Dr Andy Williams	-	Business Representative
Christopher Walkinshaw	-	Business Representative
Karen Kennedy	-	University Representative
Lucy Scott	-	University Representative
Helen Valentine	-	University Representative

## **IMPORTANT INFORMATION FOR PUBLIC SPEAKERS AND THOSE WISHING TO OBSERVE PROCEEDINGS**

Following the end of temporary legislation allowing for public meetings to be conducted entirely virtually, we are now required to hold meeting in a face to face setting. It is now possible for public speakers to attend a meeting and speak in person, but we need to ensure there is a Covid safe environment for everyone in the meeting. Because we still need to follow Government advice on indoor gatherings and social distancing, the seating available for members of the public will be severely restricted. We therefore would urge you to observe proceedings remotely if possible. If you feel you really need to be present in person, please contact Democratic Services and request a place – see below for contact details.

The meeting will be live streamed and can be accessed from the GCP Facebook page: [www.facebook.com/GreaterCam](https://www.facebook.com/GreaterCam). We support the principle of transparency and encourage filming, recording and taking photographs at meetings that are open to the public. We also welcome the use of social networking and micro-blogging websites (such as Twitter and Facebook) to communicate with people about what's happening, as it happens.

For more information about this meeting, please contact Nicholas Mills (Cambridgeshire County Council Democratic Services) on 01223 699763 or via e-mail at [Nicholas.Mills@cambridgeshire.gov.uk](mailto:Nicholas.Mills@cambridgeshire.gov.uk).



**GREATER  
CAMBRIDGE  
PARTNERSHIP**

**Growing and sharing prosperity**

Delivering our City Deal

## Greater Cambridge Partnership Joint Assembly

Minutes of the Greater Cambridge Partnership (GCP) Joint Assembly

Wednesday 24<sup>th</sup> February 2021

2:00 p.m. – 5:10 p.m.

Present:

### Members of the GCP Joint Assembly:

Cllr Tim Bick (Chairperson)	Cambridge City Council
Cllr Dave Baigent (Vice-Chairperson)	Cambridge City Council
Cllr Mike Sargeant	Cambridge City Council
Cllr Noel Kavanagh	Cambridgeshire County Council
Cllr Lucy Nethsingha	Cambridgeshire County Council
Cllr Tim Wotherspoon	Cambridgeshire County Council
Cllr Ian Sollom	South Cambridgeshire District Council
Cllr Heather Williams	South Cambridgeshire District Council
Cllr Eileen Wilson	South Cambridgeshire District Council
Heather Richards	Business Representative
Christopher Walkinshaw	Business Representative
Karen Kennedy	University Representative
Lucy Scott	University Representative
Helen Valentine	University Representative

### Officers:

Peter Blake	Transport Director (GCP)
Sarah Heywood	Strategic Finance Business Partner (CCC)
Debbie Bondi	Interim Smart Cambridge Programme Manager (GCP)
Niamh Matthews	Head of Strategy and Programme (GCP)
Nick Mills	Democratic Services Officer (CCC)
Gemma Schroeder	Project Manager Smart Cambridge (GCP)
Rachel Stopard	Chief Executive (GCP)
Isobel Wade	Head of Transport and Strategy (GCP)
Wilma Wilkie	Governance and Relationship Manager (GCP)

## **1. Apologies for Absence**

Apologies were received from Dr Andy Williams.

## **2. Declarations of Interest**

Helen Valentine declared a non-statutory disclosable interest in relation to the Public Transport Improvements and City Access Strategy item (agenda item 6) as a resident of Queen Edith's Way.

Christopher Walkinshaw declared a non-statutory disclosable interest in relation to the Quarterly Progress Report (agenda item 7) due to his involvement with Cambridge&. He also declared a general non-statutory disclosable interest due to his employment with Marshall of Cambridge and subsequent involvement with Marleigh.

Cllr Dave Baigent declared a general non-statutory disclosable interest as a member of Cambridge Cycling Campaign.

## **3. Minutes**

The minutes of the previous Joint Assembly meeting, held on 19<sup>th</sup> November 2020, were agreed as a correct record and the Chairperson agreed to sign a copy when possible.

## **4. Public Questions**

The Chairperson informed the Executive Board that three public questions had been accepted and that the questions would be taken at the start of the relevant agenda item, with details of the questions and a summary of the responses provided in Appendix A of the minutes.

It was noted that two questions related to agenda item 6 (Public Transport Improvements and City Access Strategy) and one question related to agenda item 7 (Quarterly Progress Report).

## **5. Petitions**

The Chairperson notified the Joint Assembly that no petitions had been submitted.

## **6. Public Transport Improvements and City Access Strategy**

Two public questions were received from Matthew Danish (on behalf of Camcycle) and Rosalind Lund (on behalf of the Arbury Road East Residents Association). The

questions and a summary of the responses are provided at Appendix A of the minutes.

Councillor Colin McGerty, City Councillor for Queen Edith's ward, was invited to address the Joint Assembly. Drawing attention to the gaps and missing links in the current cycle network, as set out in Table 1 of the report, he emphasised the need for the network to be joined up and integrated to ensure cyclists had confidence in using it, highlighting the importance of engagement and consultation with residents and stakeholders in achieving this. While welcoming the fact that the two schemes identified as highest priority passed through Queen Edith's, he suggested that the A1134 (North-South) scheme appeared comparatively expensive for the proposals and queried whether the cost estimates were cautiously high and how value for money and the greatest potential impact would be evaluated. The Head of Transport and Strategy noted that cost estimates had been produced by independent consultants using standard measurements, while learning from previously completed projects had suggested a benefit from ensuring that early cost estimates included a buffer. She confirmed that engagement had already been held with some stakeholders and reassured the Joint Assembly that this would increase as the projects progressed.

The Head of Transport and Strategy presented the report, which brought together a comprehensive package of measures aimed at supporting a sustainable recovery from Covid-19 by making additional progress towards achieving the GCP's goals of increasing use of sustainable modes of transport, reducing congestion, improving air quality and reducing carbon emissions. Proposals to support sustainable transport included incentivising use of public transport while investing in its post-pandemic economic recovery, as well as enhancing and expanding park and ride sites. Proposals to consolidate active travel included identifying and overcoming missing links in local walking and cycling infrastructure, reallocating road space, and developing an integrated parking strategy.

Noting that zero emission networks would be required to meet the net zero commitments made by the GCP's constituent councils, she identified wider measures for decarbonising cars and the identification of a long-term funding mechanism for wider public transport enhancements as two key elements that had not been covered in the report. These issues would be considered in the future and would be informed by Government policy, as well as transport and workplace trends that emerged following a reduction in the impacts of Covid-19. It was emphasised that the report established momentum for direction, with specific decisions and spending to be made further down the line based on such considerations, while the Transport Director highlighted the impact of the pandemic on overall strategy, with a shift in focus to economic recovery, particularly in the public transport network, which he acknowledged would be extremely challenging.

While considering the aspects of the report related to public transport, the Joint Assembly:

- Expressed concern about the need to find an ongoing revenue source for projects that did not become commercially viable, as indicated in paragraph 5.6 of the report, suggesting that such situations were likely to be increasingly common and severe as a result of Covid-19. It was noted that GCP funding was finite and

therefore suggested that the long-term benefits of the expansion of the network and services would be difficult to maintain if alternative funding sources and arrangements were not secured. While recognising the constraints on City Deal funding and subsequent need to secure additional funding from partners and alternative sources, the Head of Transport and Strategy emphasised the equal importance of deciding where such spending should be prioritised.

- Observed the urgent need for action to avoid the risk of a car-based recovery, as indicated in paragraph 1.2 of the report, and argued that most of the measures described in the report would not be realised until after June 2021, which would be too late to prevent such a recovery.
- Requested an update on progress of the development of the support package with operators and the Cambridgeshire and Peterborough Combined Authority (CPCA), as indicated in section 8 of the report, and sought clarification on the nature of the trigger points that would lead to its deployment. Arguing that neither the pre-pandemic or current bus network would be viable or sustainable in the long-term, the Transport Director informed the Joint Assembly that the current priority was to re-establish the core network before attention could turn to future development. He argued that it was currently impossible to predict future working trends or public transport patronage levels, and said that the national bus strategy currently being developed by the government would largely determine how to move forward, as would the end of financial support being provided to operators. It was noted that operators were equally unable to develop long-term plans for the same reasons. The Head of Transport and Strategy informed members that there was regular dialogue between the GCP, the CPCA and operators, and the trigger points would be decided once a number of variables had been clarified, including the government plan, changes to guidance, and movement levels and trends around Greater Cambridge.
- Welcomed proposals for further investment and expansion to the bus network, although concern was expressed over the cost of running services in areas with low population. The Transport Director informed members that rural areas would have reduced service levels to compensate for lower demand, although he noted the need for early and late services.
- Expressed concern about the shift of focus to economic recovery, arguing that the GCP should remain focussed on long-term objectives.
- Argued that greater attention should be paid to connecting key bus corridors to each other. It was clarified that the key bus corridors on the Future Bus Network Concept map in section 5.3 of the report had been identified in the SYSTRA study as the routes with the largest flow in passenger numbers, and that these represented the core network with connections out to rural areas with smaller flow.
- Drew attention to some features that were missing from the Future Bus Network Concept map in section 5.3 of the report, including a connection between Cambridge South station and the Granta park and ride, as well as the Foxton travel hub. The Transport Director acknowledged the need to revise sections of the map.

- Welcomed the reduced traffic flow towards Cambridge as a result of the pandemic and expressed frustration that the GCP had not developed more initiatives to ensure a continued reduction. It was suggested that consideration could have been given to developing measures such as encouraging and incentivising people to work from home or to make public transport more practical for working while traveling to and from work.
- Suggested that some of the temporary measures, such as the Mill Road bridge closure, could become permanent.

While considering the aspects of the report related to cycling, the Joint Assembly:

- Observed that the potential impact of the Queens Road cycling scheme on coach parking had been identified as negative in Table 1 in paragraph 5.8 of the report and discussed whether the impact could actually be seen as positive. It was argued that the high number of coaches undermined the GCP's attempts to improve air quality and reduce pollution, while also being a danger to cyclists and pedestrians. One member suggested that a coach park outside the city centre with a shuttle service to transport visitors could create revenue and improve air quality. The Head of Transport and Strategy clarified that the impact was listed as negative due to the challenges to delivery that the issue caused, noting that relocating coach parking would not be straightforward. However, she informed members that Cambridge City Council and Visit Cambridge were considering coach and tourist access to the city as part of the development of a destination management plan.
- Argued that gaps identified in cycling schemes that had already been implemented, such as those on Arbury Road and Milton Road, should be resolved before commencing new schemes. It was also noted that the Mitcham's Corner Gyroratory had been identified as a concern for deliverability of the North Cambridge scheme in Table 1 in paragraph 5.8 of the report, while further missing links on Northampton Street and Magdalene Bridge had not been included, and it was suggested that failing to resolve such issues with schemes would potentially dissuade cyclists from using them. It was suggested that in the future funding should be guaranteed until the completion of projects, to avoid missing links remaining.
- Argued that despite the need for further improvements, the overall progress on cycling infrastructure had been one of the GCP's most significant and visible successes. It was suggested that the priority that the GCP placed on cycling when there was such high local appetite for it would naturally lead to an increase in the number of cyclists, leading to significant benefits for relatively low costs, which would help lead to long-term changes in transport choices.
- Highlighted the need to improve cycle routes that served educational facilities, particularly secondary schools, especially given the large number of cyclists within such age groups. It was suggested that the ranking of some projects in Table 1 in paragraph 5.8 of the report had not considered the usage of routes by students. The Head of Transport and Strategy acknowledged the suggestions and undertook to increase focus on those schemes around educational settings.

- Sought clarification on the nature of consultations on the proposed packages, as mentioned in paragraph 5.8 of the report, particularly regarding which schemes would be included, how much funding would be available and the level of input that would be available to participants. It was confirmed that the consultations, which would involve key groups such as parish councils, would provide an opportunity to propose further schemes and identify priorities.
- Expressed concern that £20m would not be sufficient funding to complete many of the proposed projects, and it was confirmed that the final amount of funding would be assessed following the consultations.
- Suggested there was a need for further safe cycle routes in the fringes surrounding Cambridge, such as routes connecting Cottenham to Willingham, Wilburton and Waterbeach train station.
- Welcomed the identification of missing links in access routes to the Biomedical Campus (BMC).
- Expressed concern there had not been a higher level of consultation with parish councils and local residents as part of the analysis of the current cycling network.
- Identified issues with the design of some implemented schemes, such as a lack of dropped kerbs and cycle routes that were too narrow to allow bikes to pass each other.
- Argued that current cycling routes were sometimes mislabelled as underused, and therefore considered to have low cycling potential for development, with the suggestion that the routes were currently underused precisely because of their under-developed and dangerous nature.
- Expressed concern that consolidating funds would lead to the development of schemes only with the greatest impact, which often involved higher costs and longer delivery time, to the detriment of smaller and quicker projects.
- Acknowledged the benefits to cyclists and pedestrians resulting from the Mill Road bridge closure, with one Member suggesting that the road infrastructure along Mill Road could be improved to produce further benefits.

While considering the aspects of the report related to creating space for sustainable transport and discouraging car use, the Joint Assembly:

- Clarified that a revised network hierarchy would be based on the varying purposes and uses of roads, such as for access, residential buildings or shopping. An assessment would be made of how the current network could be categorised in order to promote public transport, cycling and walking. The County Council, as the highway authority, would lead on the project although the GCP would participate, including input from the Joint Assembly and Executive Board, and the resulting hierarchy would be delivered through a strategic framework of road-space

reallocation measures, including Experimental Traffic Regulation Orders alongside standard Traffic Regulation Orders.

- Noted that the parking strategy would seek to improve parking management in a way that promoted sustainable transport, although it was acknowledged that income from parking charges was an important source of revenue to the local authorities. The Head of Transport and Strategy identified several factors that affected people's parking choices, including cost, availability and reliability, and argued that all such factors needed to be considered in the development of an integrated parking strategy.
- Emphasised the importance of persuading a large number of people to change their travel habits by making sustainable options easier, cheaper and more attractive. It was suggested that reallocation of road space and removal of parking were effective ways to achieve this.
- Expressed frustration that the implementation of Resident Parking Schemes (RPS) had been paused by the County Council in 2020, noting residents' widespread support for the measures and their effectiveness in cutting pollution and improving parking behaviour.
- Acknowledged that the Citizens' Assembly had voted strongly for the reallocation of road space as its preferred scheme, particularly for closing roads to cars, while an integrated parking strategy had been third on its list.
- Highlighted the importance of reducing the number of cars entering the city centre given the high levels of growth that were planned around Cambridge.
- Emphasised that pollution levels would not be lowered by simply concentrating congestion on to fewer roads, which would concurrently intensify problems for public transport travelling along such roads.
- Argued that the demand management measures detailed in the report were relatively mild in effectiveness and lacked an over-arching strategy.

While considering the aspects of the report related to reducing pollution and emissions, the Joint Assembly:

- Sought clarification on the timeline for the proposed conversion to a Euro VI bus fleet. The Head of Transport and Strategy indicated that the target was to achieve a complete Euro VI fleet within months, as opposed to years, and she noted that it was possible to upgrade buses instead of replacing them with new ones. Discussions were ongoing with bus operators to identify buses and costs.
- Established that the CPC had not been able to bid for the government's fund for an all-electric bus fleet due to a requirement to be able to upgrade its whole fleet within a certain level of funding, which was not possible due to the size of the Cambridge bus fleet. The Head of Transport and Strategy assured members that the successful bids would be analysed by both the GCP and the CPC in anticipation of similar opportunities arising in the future.

- Argued that the proposed measures were not strong enough, lacked ambition and had already been tried. The Head of Transport and Strategy drew attention to the appraisal of options detailed in paragraph 5.14 of the report, which would identify consider ways to limit access to vehicles not meeting emissions criteria. She also acknowledged that it would be unreasonable to enforce targets on operators in the current climate, as they had no resources with which to upgrade buses.

While considering the aspects of the report related to the overall comprehensive package, the Joint Assembly:

- Expressed concern that the GCP was not taking enough action to counter the risk of a car-based recovery once Covid-19 lockdown restrictions were removed in June 2021. It was observed that the future measures and milestones listed in section 8 of the report would not be considered by the Joint Assembly and Executive Board until after this date, and it was suggested that the package of short-term measures approved by the Executive Board in February 2020 should be implemented by the time lockdown restrictions were eased. The Head of Strategy noted that measures approved in February 2020 were mostly proceeding, although some that were related to public transport had not been able to progress due to a number of reasons, including Department for Transport regulations and restrictions on the use of public transport. The Transport Director emphasised that no local authority or organisation had yet been able to develop a recovery plan for public transport due to its ongoing reliance on financial support from the government.
- Endorsed a holistic and integrated approach to the wide range of schemes and activities across the GCP programme, in a way that aligned the individual schemes but also made it clear to people what their purpose was and how they fitted in to an overarching strategy.
- Argued that the City Access Strategy failed to live up to the Citizens' Assembly call for the GCP to be bold.

As a result of the discussion on members' concerns about the pace of action following the lifting of restrictions not aligning with the Citizens' Assembly's call for a bold approach, it was unanimously agreed to convey the following key message to the Executive Board:

*The Joint Assembly asks the Board to apply a bolder vision and to speed implementation, to get in place actions that can make a difference in relation to the 21st June trigger point and in particular focussing on alternatives to this becoming a car-based recovery.*

## 7. Quarterly Progress Report

One public question was received from Michael Page (on behalf of the Hurst Park Estate and Milton Road Residents' Associations). The question and a summary of the response are provided at Appendix A of the minutes.

Councillor Ian Manning, County Councillor for Chesterton division, was invited to address the Joint Assembly. Noting that the budget proposal included a return of the unspent element of the Residents Parking Implementation budget to the City Centre Access budget, as indicated in section 15.11 of the report, Councillor Manning emphasised that the project had not been completed and multiple areas were still waiting to resolve parking issues. He expressed concern that such a reallocation could be misinterpreted as a lack of funding for future RPS implementations, which could then cause further delays. The Head of Strategy and Programme clarified that there would not be a reduction in RPS funding and explained that the incorporation of the funding into the City Centre Access budget would enable consideration of resident parking as part of the wider integrated parking strategy.

The Head of Strategy and Programme presented a report to the Joint Assembly which provided an update on progress across the GCP's whole programme. Attention was drawn to the completion of the procurement process for a new skills contract, which had resulted in Form the Future being selected to continue working with Cambridge Regional College to deliver the new service from 1<sup>st</sup> April 2021. It was also noted that the report contained the multi-year budget strategy, including the detailed GCP budgets for 2021/22.

While discussing the report, the Joint Assembly:

- Welcomed the new skills contract with Form the Future and endorsed the organisation, recognising its success throughout the previous contract.
- Drew attention to the importance of smart signalling in being able to control the road network and reduce the number of cars entering Cambridge.
- Clarified that the Autonomous Vehicle Project had been delayed due to Covid-19 restrictions impacting on the ability to carry out trials.
- Suggested that the GCP should encourage partners at the BMC to improve communication to the public on transport matters, such as the variety of travel options available for people visiting the site. The Head of Strategy and Programme assured members that the GCP was involved in work that brought together different partners at the BMC in order to achieve such objectives.
- Sought clarification on why the Fulbourn / Cherry Hinton Eastern Access section of the Cross-City Cycle Improvements project had been identified with a red RAG status. It was confirmed that there was an outstanding issue related to a floating bus stop and that further explanation would be included in the report to the Executive Board.
- Observed that the Chisholm Trail project had been identified with a green RAG status despite recently receiving a 45% increase to its budget. The Transport Director confirmed that the status was correct although acknowledged that further context should be included in the Executive Board's report.
- Noted that a decision on the planning application for the West of Cambridge Package scheme had been expected by the County Council Planning Committee

in January 2021 and queried whether its subsequent deferral would impact the development of other travel hubs that had been submitted. The Transport Director informed the Joint Assembly that the County Council had been informed of a possible call-in by the Ministry of Housing, Communities and Local Government, which would be confirmed in May 2021, and any consideration by the Planning Committee would be subject to that decision. He confirmed that each travel hub was considered on a case-by-case basis and any further call-ins would be based on their individual size and location.

- Confirmed that the Cambridge South East Transport project was no longer a study and would cease to be referred to as such.
- Supported the concerns expressed by Councillor Manning regarding the return of unspent RPS funding to the City Centre Access budget. The Transport Director acknowledged that the wording could be misconstrued but assured the Joint Assembly that it was simply an accounting move and that the RPS funding would remain available for the schemes.
- Queried whether any of the £1.5m that had been allocated for the Eastern Access project, as indicated in paragraph 15.7 of the report, would be spent on the development of Coldham's Lane. The Transport Director noted that the inclusion of Coldham's Lane in the project had been discussed during the consultation phase and informed members that an update would be provided when a report was presented at the meeting in June 2021.

## 8. Electricity Grid Reinforcement: Update and Next Steps

Following an introduction by the Chief Executive, the Interim Smart Cambridge Programme Manager presented the report, which contained a proposed programme framework for electricity grid reinforcement and three options that had been identified to deliver the required infrastructure. Noting that further research was required before a decision could be made on which option would be the most appropriate, she drew attention to Figure 1 in paragraph 4.2 of the report, which set out a summary of the application and delivery process, with consultants likely to be able to make a recommendation in late 2021. It was noted that £200k of the £25m budget was being requested to develop the project's next stages.

Emphasising that electricity grid capacity constraints represented a barrier to growth and the delivery of homes and jobs in the region, the Chief Executive argued that they also inhibited the GCP's aspirations around the electrification of transport solutions. She noted that utility providers were restricted to operating reactively to confirmed demand and that this was problematic in the Greater Cambridge area due to its high growth forecasts. While suggesting there was support for change in this method of working at a national level, she observed that any such change would not be realised within the timeframe where the issue in Greater Cambridge would become critical.

While discussing the report, the Joint Assembly considered whether the proposed new infrastructure would be sufficient for the anticipated levels of growth in the area or whether the GCP would be required to install further infrastructure in a few years' time.

Acknowledging the concerns, the Programme Manager reassured members that the GCP was working with the Local Plan team to evaluate future demand levels in order to establish the necessary level of infrastructure. She also suggested that the project would look to deliver step increases in capacity over time.

## 9. Chisholm Trail Project: Implication for Future GCP Project Management Arrangements

The Transport Director presented the report, which detailed the implications of the delivery problems faced by the Chisholm Trail scheme on the GCP's future project management arrangements. Noting that the Executive Board had requested the report at its meeting on 10<sup>th</sup> December 2020 after agreeing to provide additional funding to secure delivery of the Chisholm Trail and Abbey-Chesterton Bridge project, he highlighted that the GCP was looking to increase self-delivery of its projects while reducing its reliance on third parties.

The Chairperson emphasised that the decision to approve additional funding had already been made by the Executive Board, acknowledging that the request had been made without prior consideration by the Joint Assembly due to the fact that the issue was urgent and had arisen in between their respective meetings. He informed members that at the Executive Board meeting he had expressed concern about the situation on behalf of the Joint Assembly and supported the need to review the project's management in order to avoid similar problems in the future.

## 10. Date of Future Meetings

The Chairperson noted that although the next meeting was scheduled for Thursday 3<sup>rd</sup> June 2021, it was likely to be rearranged to accommodate the nomination of members to the GCP by the constituent councils following the local elections on 6<sup>th</sup> May 2021. Details would be confirmed as soon as possible.

Chairperson  
10<sup>th</sup> June 2021

**Appendix A – 1<sup>st</sup> April 2021 Greater Cambridge Partnership Executive Board  
Public Questions and Responses – Listed by Agenda Item**

<b>Questioner</b>	<b>Question</b>	<b>Response</b>
Matthew Danish on behalf of Camcycle	<p><b>Agenda Item 6: Public Transport Improvements and City Access Strategy</b></p> <p>Camcycle is a volunteer-led charity with over 1,550 members that works for more, better and safer cycling for all ages and abilities in the Greater Cambridge region.</p> <p>We have the following comments and questions for the Joint Assembly, stemming from agenda item 6 'Public Transport Improvements and City Access Strategy':</p> <p>We welcome the introduction of new proposals to deal with cycling 'missing links' in the Greater Cambridge region. In general, we believe that the GCP will gain excellent value for its money by building a network of high-quality cycle routes suitable for all ages and abilities. There is much need for improvement throughout the region, and while the routes identified are relevant, we have questions about how they were prioritised in the Active Travel Study document that accompanies the agenda.</p> <p>We ask:</p> <ul style="list-style-type: none"> <li>(1) Why at this stage were certain 'key cycle connections' left out of the evaluation, and will they be added as the project moves forward? For example, Arbury Road (east) is one of the most important cycle links in the area without any infrastructure; it has been identified by the LCWIP, it is marked as a 'key cycle connection', but otherwise it has been left out of the Active Travel Study. Likewise for Barnwell Road and Brooklands Avenue.</li> <li>(2) Will the GCP commit to using LTN 1/20 as the basis for designing high-quality cycling infrastructure? We are concerned that some of the specific 'gap analysis' sections in the Active Travel Study make low-quality suggestions that would be worse than nothing, such as shared-use pavements or narrow advisory cycle lanes.</li> <li>(3) What were the criteria for the ranking of Cycling Missing Links in Table 1 of agenda item 6 and what were the specific numbers for each item?</li> </ul>	<p>The GCP is making a significant investment in the local cycling network, with more than £115m going into 12 Greenways, the Chisholm Trail, A10 cycle route and a series of cross-city cycle projects – as outlined in the Budget presented alongside the Quarterly Progress Report. In addition, active travel routes will also be provided as part of the GCP's four corridor schemes, and both the Histon and Milton Road projects significantly improving these routes for cycling.</p> <p>Beyond this investment, and that made by local partners including the County Council through the government's Active Travel Fund, the study aims to identify potential gaps in the network and consider how these could be addressed. The methodology for selecting routes is set out in the published study. As already stated, Arbury Road is included in the County Council's Active Travel programme. The Brooklands Avenue/Hills Rd junction is included in the Hills Rd route but Brooklands Avenue itself doesn't score highly for cycling potential and is not included in the LCWIP. Officers are proposing that the GCP seeks comments on where any additional City Deal funding for cycling should be targeted through a public consultation.</p> <p>The guidance in LTN 1/20 will significantly inform and influence the design of future measures.</p> <p>The criteria for the initial appraisal of the cycling missing links is set out on pages 25 and 26 of the published study, including the scores and ranking for each link.</p>

Appendix A – 1<sup>st</sup> April 2021 Greater Cambridge Partnership Executive Board  
Public Questions and Responses – Listed by Agenda Item

Rosalind Lund, Chair Arbury Road East Residents Association (ARERA)	<p><b>Agenda Item 6: Public Transport Improvements and City Access Strategy</b></p> <p>Why is Arbury Road South absent from the prioritised list of missing links for the GCP's Future Investment Strategy? Agenda Item 6, para 5.8 on the draft Local Cycling and Walking Infrastructure Plan (LCWIP) provides an initial prioritised list of missing links (table 1 p31). But table1 (p135) shows the Arbury Road "corridor" as complete. It is not. Arbury Road from North Cambridge Academy to Milton Road has no cycle provision. It is a narrow road with parking on pavements. It and Union Lane are a missing link in the corridor to the cycle bridge across to Newmarket Road or to Cambridge North station.</p> <p>When SQW evaluated this 'corridor' in 2019, it only considered Phases 1 and 2 of the GCP's improvements and judged that was 'complete'. Mike Davies, then Director of Cycling for GCP/CCC, disagreed. He offered to hold a workshop on how to improve cycling and pedestrian provision on the remainder of Arbury Road in October 2019. After his departure, the Cycling Team (January 2020) refused to hold this workshop because of imminent improvement works on Histon Road.</p> <p>CCC's LCWIP indicates that Arbury Road South (same section as above) and Union Lane should be treated as a "prioritised cycling route" implemented in the "short term" and recommends "consider making this section of Arbury Road one way in order to provide on-road cycle lanes or put in modal filter". The CCC's Highways Committee has already agreed that such a modal filter should be in the second tranche of government supported measures to combat COVID and reduce pollution. This should be shown high on the GCP's list of priorities.</p>	<p>As you have set out, both Arbury Road and Union Lane are included in the County Council's Active Travel Fund list and therefore are not included in this study as that programme would provide government funding for these schemes.</p>

**Appendix A – 1<sup>st</sup> April 2021 Greater Cambridge Partnership Executive Board  
Public Questions and Responses – Listed by Agenda Item**

<p>Michael Page on behalf of the Hurst Park Estate and Milton Road Residents' Associations and County Councillor Jocelynne Scutt Chair of Milton Road LLF</p>	<p><b>Agenda Item 7: Quarterly Progress Report</b></p> <p>In reference to pages 123 and 129 of Agenda item 7; it is stated in 12.8 that in order to manage network capacity, construction of Milton Road was delayed to coincide with the completion of the Histon Road works - and in 12.9 it states that the Histon Road works remain on schedule for completion by the summer of this year.</p> <p>However in 15.9 there is an assumption that construction on Milton Road will not begin until April 2022 – approx. 10 months later.</p> <p>You may remember that public consultation on the Milton Rd project started in December 2015 and was followed by years of hotly debated but productive work between the project team and stakeholders including residents' associations and the Local Liaison Forum. This resulted in a Final Concept design and Strategic Outline Business Case approved by the Board in the summer of 2018. A Final Design including landscaping was approved by the Board in March 2019 and a frozen 2D design was released in June 2020 with further engineering design details completed by the end of last year.</p> <p>Question 1 to officers: What is the reason for a further 10 month delay to the start of construction? Is it really necessary after all the time that has been available to prepare during the Histon Rd works?</p> <p>Question 2 to Assembly members: Are you content to allow another year to pass by without challenge before construction starts on what should be a shovel-ready, oven-ready project, while sections of Milton Road continue to crumble and disintegrate?</p>	<p>The suggested slight delay to the commencement of construction of the Milton Road scheme to the 1<sup>st</sup> of April 2022, follows previous concerns from a number of stakeholders that we should not run two major projects, both in the north of the city, back to back without allowing a settling in period following the completion of Histon Road.</p> <p>A gap between the project also allows for any snagging issues on Histon Road to be addressed, and provides a small window of opportunity for any urgent utility, or maintenance works that have been on hold while Histon Road has been under construction.</p>
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### **Greater Cambridge Partnership Joint Assembly** **Public Questions Protocol**

Following the end of temporary legislation allowing for public meetings to be conducted entirely virtually, we are now required to hold meeting in a face to face setting. It will not be possible to participate in the meeting virtually. While it is now possible for public speakers to attend a meeting and speak in person, at the same time we need to ensure there is a Covid safe environment for everyone in the meeting. Because we still need to follow Government advice on indoor gatherings and social distancing, the seating available for members of the public will be severely restricted. We therefore would urge you to consider allowing your question to be read out on your behalf and to observe proceedings remotely.

At the discretion of the Chairperson, members of the public may ask questions at meetings of the Joint Assembly. This standard protocol is to be observed by public speakers:

- Notice of the question should be sent to the Greater Cambridge Partnership Public Questions inbox [[public.questions@greatercambridge.org.uk](mailto:public.questions@greatercambridge.org.uk)] no later than 10 a.m. three working days before the meeting.
- Questions should be limited to a maximum of 300 words.
- Questioners will not be permitted to raise the competence or performance of a member, officer or representative of any partner on the Joint Assembly, nor any matter involving exempt information (normally considered as 'confidential').
- Questioners cannot make any abusive or defamatory comments.
- If any clarification of what the questioner has said is required, the Chairperson will have the discretion to allow other Joint Assembly members to ask questions.
- The questioner will not be permitted to participate in any subsequent discussion and will not be entitled to vote.
- The Chairperson will decide when and what time will be set aside for questions depending on the amount of business on the agenda for the meeting.
- Individual questioners will be permitted to speak for a maximum of three minutes.
- In the event of questions considered by the Chairperson as duplicating one another, it may be necessary for a spokesperson to be nominated to put forward the question on behalf of other questioners. If a spokesperson cannot be nominated or agreed, the questioner of the first such question received will be entitled to put forward their question.
- Questions should relate to items that are on the agenda for discussion at the meeting in question. The Chairperson will have the discretion to allow questions to be asked on other issues.

**The deadline for receipt of public questions for this meeting is  
10:00 a.m. on Monday 7<sup>th</sup> June 2021**

## Better Public Transport – Waterbeach to Cambridge

Report to: Greater Cambridge Partnership Joint Assembly

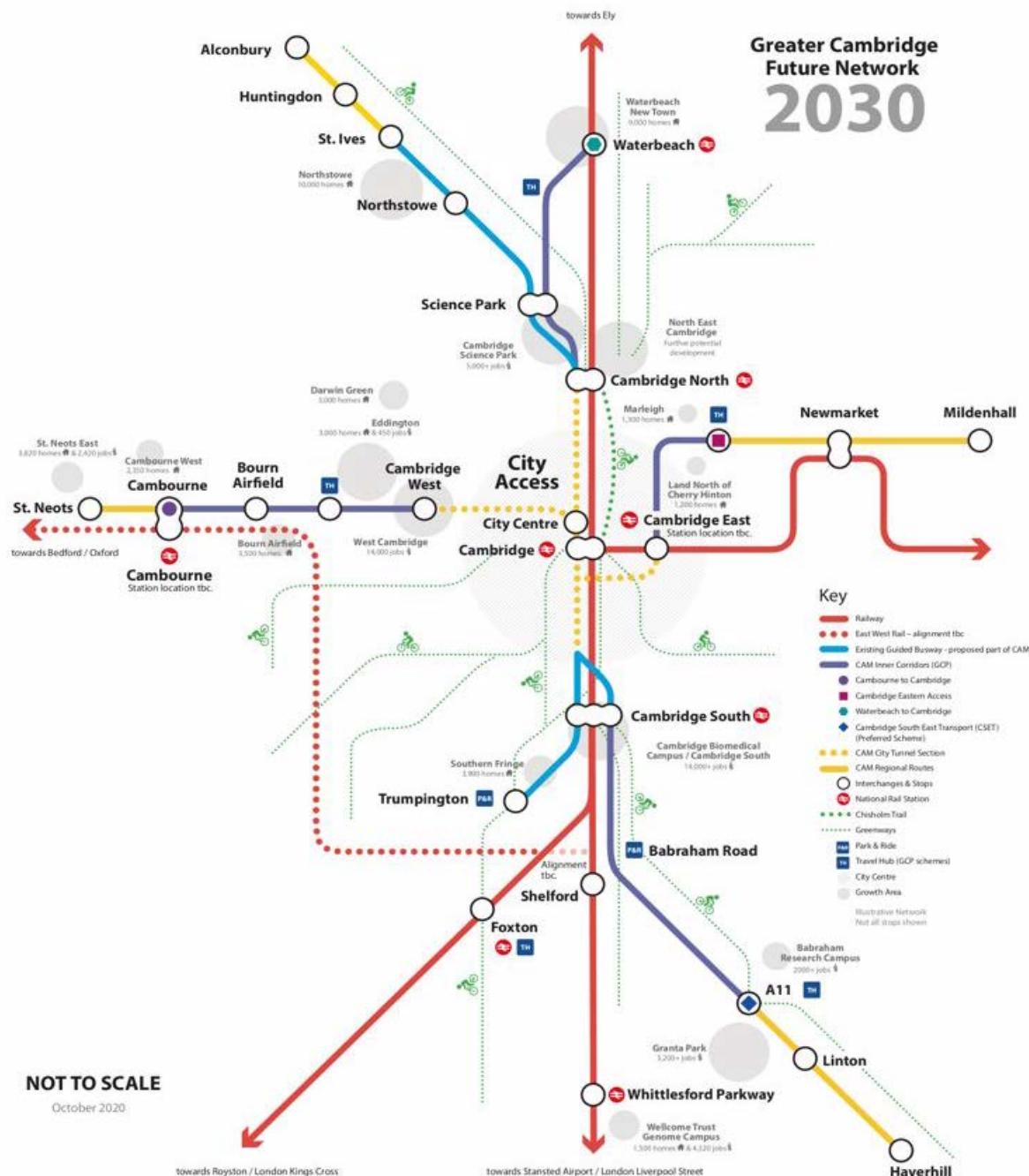
Date 10<sup>th</sup> June 2021

Lead Officer: Peter Blake – Transport Director, GCP

### 1. Background

- 1.1 The Waterbeach to Cambridge (W2C) project is looking at access to and from the city from the planned Waterbeach New Town to enable people to get around more easily by public transport, cycle or on foot. It is one of four corridor schemes that form a key part of the GCP's sustainable transport programme. As the delivery body for the Greater Cambridge City Deal, the Greater Cambridge Partnership (GCP) is delivering a comprehensive programme of sustainable transport initiatives, working with local authority partners to create a comprehensive transport network that can meet the needs of the area now and into the future. In May 2020, a Government 'Gateway review' hailed the 'significant success and progress' the Partnership has made since 2015 on ambitious plans ranging from city cycleways to better public transport routes to transform travel for thousands of people.
- 1.2 The GCP programme has been developed using an extensive evidence base and is designed to support sustainable economic growth and the accelerated delivery of the Local Plan, as well as enabling a broader transformation in the way Greater Cambridge moves and travels, supporting the transition to zero carbon and creating a more inclusive economy. The GCP's vision for a future travel network is particularly important in achieving a green recovery from Covid-19, with sustainable transport options vital to enable communities to access work, study and other opportunities the city-region has to offer.
- 1.3 To create a more sustainable network for the future, reduce congestion, improve air quality and reduce carbon emissions, significantly more people need to travel by public transport, cycling and walking with significantly fewer people travelling by car. Figure 1.0 sets out the future sustainable transport network for Greater Cambridge and how this will be substantially enhanced over the next decade, forming a cohesive network throughout Greater Cambridge and further afield.

## Figure 1.0



- 1.4 The Better Public Transport - Waterbeach to Cambridge project was considered by the Executive Board at its meeting in October 2020. Approval was granted to consult on a series of route options for a high quality, segregated public transport route between the new town at Waterbeach and Cambridge.

**Figure 1: Current Stage of the Project**



- 1.5 The report sets out the preferred options for a new, high quality, segregated public transport route between the new town at Waterbeach and Cambridge. These options are supported by the Strategic Outline Business Case (Appendix A), which supports the case for intervention and therefore further investigation and development of the preferred options. The report also provides feedback from the public consultation exercise that was undertaken in late 2021.
- 1.6 The Joint Assembly is invited to consider the proposals to be presented to the Executive Board and in particular:
- Review the Public Consultation Report and Strategic Outline Business Case, noting the public support (52%) and a strong supporting strategic case for a new, high quality, segregated public transport route between the new town at Waterbeach and Cambridge.
  - Note that the Western route option received the highest level of public support and also scored highest in the economic assessment and is therefore recommended to be taken forward as an option to be taken forward to the next stage of assessment and design.
  - Note the recommendation that a revised Central route option is also taken forward to the next stage of assessment and design an option for further development. The revised Central route option was developed on the basis that:
    - Response to the public consultation suggested that public transport connectivity to the villages of Waterbeach and Milton was also a very important factor that should be considered.

- The main objection to the original Central option was focused on the section that passed through Waterbeach village. The revised route option removes this link and instead follows the same route as the Western Option as it enters Waterbeach new town.
- The revised Central route option scores almost identically to the Western option in the economic assessment. It includes the same strategic links between Waterbeach new town, and North East Cambridge, but with the advantage of allowing more flexibility for additional connections to both Waterbeach and Milton villages.

- (d) Note that both the Western and revised Central route options avoid impacting upon homes or allotments in the Waterbeach village area.
- (e) Note the recommendation that the next stage of the project should include a review of current park and ride provision within the corridor and develop options for future park and ride requirements.

1.7 In addition, as part of the development of the Waterbeach New Town, the existing rail station requires relocation. It is in the wrong location to serve the new development, suffers from a lack of facilities including cycle provision, and doesn't integrate effectively with existing bus provision. Extensive dialogue with the developer, local and national public authorities has failed thus far to produce a viable delivery plan. This report outlines the current situation and proposes a way forward with possible GCP involvement in the project, supporting delivery of the new town and maximising place-shaping opportunities in the area.

## 2. Issues for Discussion

### *Strategic Case - provision of a new, high quality public transport route*

2.1 The Waterbeach to Cambridge project is designed to develop measures to ensure that planned housing and employment growth can be accommodated without increasing levels of vehicular traffic on this northern approach to Cambridge (the study area) by making public transport & active travel journeys more reliable and attractive. This is in line with the GCP's objectives, which include reducing congestion and encouraging people to use more sustainable forms of transport.

2.2 The Waterbeach to Cambridge study area forms part of the wider A10 Ely to Cambridge Corridor, which is one of the key radial routes into Cambridge from the north of the City. Existing congestion poses significant challenges in terms of future development along the corridor, in particular planned development to the north of Waterbeach and at North East Cambridge, located either side of Milton Interchange (see plan on pg.11 of the SOBC) and as listed below:

- a) **New Town to the north of Waterbeach** will include up to 11,000 new dwellings (based on figures provided by promoters of the site), or 8,000 based on Local Plan guidance and other associated infrastructure and uses<sup>1</sup>.

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<sup>1</sup> A Spatial Framework and Infrastructure Delivery Plan (SPD) for the site was adopted by South Cambridgeshire District Council in February 2019.

- b) **North East Cambridge** has been identified for significant potential future development, including intensification of development at Cambridge Science Park and development of the land to the east of Milton Road, known as Cambridge Northern Fringe East. Between them these developments could provide up to 17,000 new homes and 14,000 new jobs.
- c) Alongside these major developments there are also a number of existing employment developments including Cambridge Research Park.
- 2.3 The Strategic Outline Business Case (SOBC) highlights an overwhelming need for transport intervention within the study area to:
- Accommodate the additional housing and employment growth.
  - Reduce dependency on private motor vehicles by providing alternative high quality means of transport between key locations.
  - Support local policy and strategies which identify a clear need to reduce congestion in order to enable the additional sustainable growth to be accommodated within the study area.
  - Provide physical integration with other local transport interventions such as the Waterbeach Greenway, Chisholm Trail, Milton and Histon Road.
- 2.4 As well as overcoming some of the existing issues within the study area, a high quality, segregated public transport & active travel route will provide opportunities to:
- provide a more resilient public transport network that is not dependent on the A10 and thus enable improved journey times and reliability for public transport.
  - transform public transport to a high-quality and attractive travel option along the corridor.
  - provide sustainable infrastructure directly servicing new developments and key travel markets.
  - encourage mode shift from private car to sustainable modes.
- 2.5 The journey time between Waterbeach new town and Cambridge City Centre in the weekday morning peak on a segregated route is anticipated to reliably take around 25 minutes. This compares with a (pre-covid) timetabled bus journey time of around 45 minutes.
- 2.6 Provision of a segregated route is expected to increase the number of people using public transport and park and ride; and reduce the number of journeys made by car. The best performing options provide up to a 2,300 reduction in daily trips by car on the section of the A10 between Waterbeach and Cambridge
- 2.7 It is important to note that the project has accounted for the work that is being undertaken by Cambridgeshire and Peterborough Combined Authority (CPCA) on developing options for upgrading the A10 between Ely and Cambridge.
- 2.8 The impact of not providing new segregated infrastructure for public transport would be to see increasing traffic congestion within the corridor which would significantly reduce productivity whilst increasing carbon emissions. Growth would be stifled and would not be sustainable, particularly impacting upon much need local housing development.

### *Economic Case*

- 2.9 In terms of costs, benefits and overall value for money it is clear from the work done so far that all four route options that were considered would be expected to provide significant transport, environmental, and health benefits. However, in terms of value for money, the Western and Central route options perform significantly better than the other two options.

### *Financial Case*

- 2.10 Initial capital cost estimates have been made based on the four amended route options. Estimates of cost are based on current cost rates, based on unit prices for infrastructure and the associated works. The A10 option is expected to cost significantly more to deliver with a capital construction cost estimate of nearly £200M as compared to the other three options that range between £45-£55M. As set out in the SOBC, these cost estimates do not include land acquisition and are relatively high level at this stage.

### *Commercial and Management Cases*

- 2.11 The basis for the Commercial and Management Cases has been set out, but at SOBC stage there are no particular issues of note. These cases will be substantially developed by the time that an Outline Business Case is produced, as is recommended.

### *Relocating Waterbeach Rail Station*

- 2.12 The relocation of the existing Waterbeach Rail Station is required both to meet existing planning requirements, and to deliver the necessary transport capacity required to support delivery of the Waterbeach New Town development. The new station site has planning permission and thus has been through a statutory consultation and decision-making process. The relocation proposals have been subject to extensive discussions with the national rail agencies.
- 2.13 Whilst there is a clear policy requirement to deliver the station relocation and statutory stakeholders are supportive of the move, the affordability gap on the Waterbeach site's viability means that it cannot be delivered under a traditional planning gain (developer contribution) arrangement. This leaves a funding gap of approximately £20m for the relocation, which, in the short-term, would release up to 4,600 houses for development.
- 2.14 Extensive discussions with local partners and national agencies have thus far failed to produce a funding solution. The GCP has been engaged in discussions over this issue to try and secure delivery of much needed local homes. The GCP identified £20m as part of its Future Investment Strategy to deliver homes within the Greater Cambridge area and, subject to an appropriate commercial arrangement, could use such funds to deliver the station relocation project.

### 3. Consultation and Engagement

- 3.1 The public consultation adopted a multi-channel approach to promote and seek feedback including through traditional and online media, and through the wide-spread distribution of around 6,000 consultation Booklets.
- 3.2 Full public consultation ran for eight weeks from 19 October 2020 to midday on 14 December 2020. The consultation sought views on the concept of providing a new, high quality, segregated public transport route and associated infrastructure to facilitate active travel between the new town at Waterbeach and Cambridge. The consultation also sought views on four proposed route options:
- Western.
  - Central.
  - A10 Alignment.
  - Eastern.
- 3.3 As required by Department for Transport guidance on developing major transport schemes, all options need to be examined in the first instance. Thus, routes into Waterbeach village had to be reviewed and consulted upon, although the GCP has previously made clear it has no wish to demolish local homes.
- 3.4 Due to the Covid-19 pandemic the consultation took a ‘digital by default’ strategy with all activity online:
- 3.5 In light of coronavirus restrictions, 8 online briefings were held, 1 one to one session, 4 parish council meetings, 3 resident meetings and a pre-launch briefing with local district and county councillors. In addition, a social media campaign was undertaken, including a Facebook live session with over 50 questions submitted. There were over 3,000 visitors to the dedicated website and over 1,000 documents (maps, information, and copies of the booklet) downloaded. All parish councils and school in the study area were contacted. Adverts were placed in local newspapers including the Cambridge News, Cambridge Independent and Ely Standard. Adverts were also placed at the Milton Park and Ride site and on Ely, Cambridge North and Cambridge railway stations.
- 3.6 The key findings from the consultation are set out in Appendix B and indicate that:
- just over half (52%) of respondents supported the proposals and 36% opposed.
  - the three route options that passed through the allotments in Waterbeach were all strongly opposed by respondents on the basis that this would have significant detrimental impact on both the allotments and the surrounding residential properties.
  - over half of respondents indicated that low priority should be given to the proposal of creating faster journeys by missing out some locations between the Waterbeach new town and Cambridge:
  - More detailed comments centred on the following themes:
    - Concerns about the loss of housing/personal property.
    - Concerns about negatively impacting the environment.

- Further improvements to active travel in the area.
  - Use of existing infrastructure, and the linkages with the potential dualling of the A10 route.
- 3.7 While the public consultation provided support for the overall concept of providing a new high quality, segregated public transport route, significant objection was raised against a suggested route option through Waterbeach village on the basis that it would severely impact the existing allotments and the adjacent residential area.
- 3.8 Considering these objections, a subsequent review was undertaken of all four options to determine whether amendments should be made before taking them forward for further assessment in the SOBC.
- 3.9 Amendments were made to three of the four corridor options, removing the link through the allotments. For the Eastern and A10 options the amended routes were made to pass directly through Waterbeach High Street, while for the Central option, the revised route passes between Waterbeach and Landbeach, crossing the A10 at the same point as the proposed Western option. The revised route options on which the technical appraisal and economic analysis are based are shown on pg.50 of the SOBC.
- 3.10 *Rail Station Relocation* - The new station site has planning permission and thus has been through a statutory consultation and decision-making process.

## 4. Options and Emerging Recommendations

- 4.1 There are four key recommendations to the Executive Board

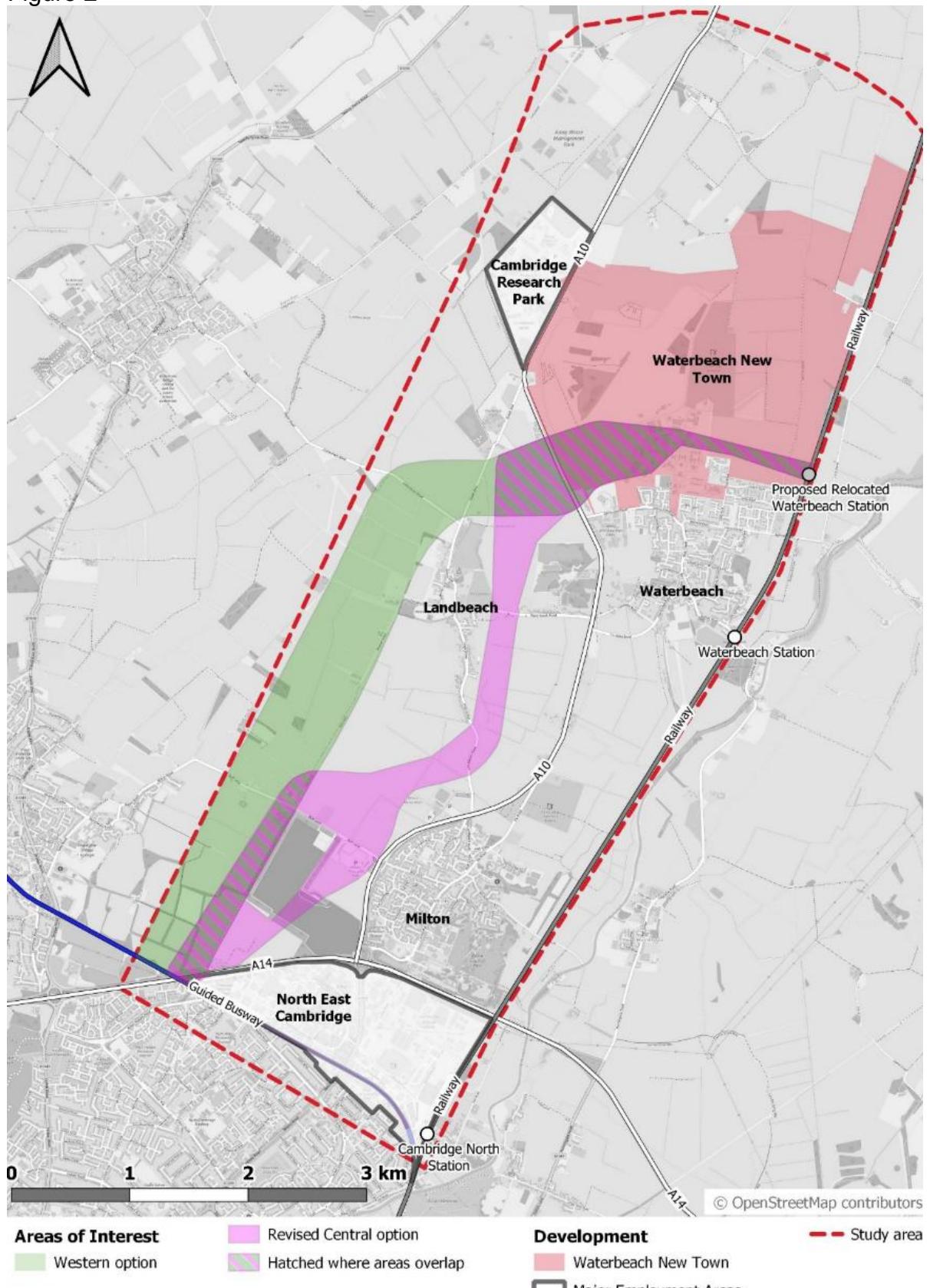
### *Recommendation 1*

- 4.2 On the basis of the public support for intervention and the strong supporting strategic case for the provision of a new, high quality, segregated public transport route with associated active travel infrastructure between the new town at Waterbeach and Cambridge, it is recommended that the Executive Board approve the SOBC as a basis to move forward to the next stage of the project and the delivery of an Outline Business Case for the provision of such infrastructure.
- 4.3 The SOBC sets out a clear case for the requirement of a segregated transport route as opposed to just enhancing on road bus service provision in this corridor.

### *Recommendation 2*

- 4.4 On the basis of the technical work that has been undertaken so far to assess the various merits of various route options, and on the basis of feedback from the public consultation, it is recommended that the Executive Board approve that the Western Route option and an amended Central Route option are taken forward as the preferred options to be reviewed in the next stage of the project (see Figure 2)

Figure 2



4.5 The Western and Central options offer significant advantage over the other two options in that they provide a direct link between the new town at Waterbeach and the whole of the North East Cambridge site (both Cambridge Science Park and the proposed developments to the east of Milton Road. These two options do not rely on a segregated link through Waterbeach village, and also make use of existing

- infrastructure (the current guided busway underpass) to cross the A14. These two options also represent the best value for money,
- 4.6 The Central Option has the additional benefit of better serving the village of Milton and the current park and ride site and provides better opportunities for the provision of linkage to public transport services that might pass through Waterbeach or Milton village on road before joining the segregated route.
  - 4.7 While the A10 option performs well in terms of benefits, the cost of the infrastructure that would be required in order to provide an efficient transition over, or around Milton interchange is prohibitive.
  - 4.8 The Eastern option offered the fewest transport benefits and would not adequately serve the whole North East Cambridge development. The option to take additional land within North East Cambridge development area was also not supported.
- Recommendation 3*
- 4.9 It is recommended that the next stage of the project should include a comprehensive review of park and ride provision within the corridor.
  - 4.10 The corridor is currently served by Milton Park and ride, but it is not clear whether or not this location would best serve the requirements of the proposed public transport route between Waterbeach and Cambridge.
- Recommendation 4*
- 4.11 Delivery of the relocated rail station is strategically important to the area, facilitating as it does some 4,600 new homes. There are also a number of tactical benefits in GCP's involvement in delivering the station relocation, including maximising the integration of the rail station with the GCP's corridor and Greenways proposals in the area. It would also allow the public authorities in place a much more prominent role in place-shaping the new development, linking the relocated rail station, public transport & active travel corridor with the wider Waterbeach New Town environment. It is recommended that the GCP seek to secure delivery of the station relocation by becoming a delivery partner for the scheme, subject to securing an appropriate commercial arrangement.
- ## 5. Alignment with City Deal Objectives
- 5.1 The proposed investment is consistent with the deal agreed between Government and Greater Cambridge which allows Greater Cambridge to maintain and grow its status as a prosperous economic area. Specifically, this initiative removes a barrier to new homes and jobs and enables the provision of better greener transport and improved air quality.
  - 5.2 The proposed measures address existing barriers to growth represented by congestion on the A10
  - 5.3 In addition the proposals set out in this report will support the realisation of a series of benefits, including:

- Securing the continued economic success of the area through improved access and connectivity;
- Significant improvements to air quality and enhancements to active travel, supporting a healthier population;
- Reducing carbon emissions in line with the partners' zero carbon commitments;
- Promoting place-making in the new Waterbeach development;
- Helping to address social inequalities where poor provision of transport is a contributing factor; and
- Wellbeing and productivity benefits from improving people's journeys to and from employment.

## 6. Citizen's Assembly

6.1 Citizens' Assembly members developed and prioritised their vision for transport in Greater Cambridge. The range of solutions being considered for Waterbeach to North East Cambridge directly contributes to delivery of 5 of the highest 7 scoring priorities, namely:

- Provide affordable public transport (32).
- Provide fast and reliable public transport (32).
- Be environmental and zero carbon (28).
- Be people centred – prioritising pedestrians and cyclist (26).
- Enable interconnection (e.g. north/south/east/west/urban/rural) (25).

6.2 In addition, the proposals have the potential to complement delivery of the other highest scoring priorities:

- Restrict the city centre to only clean and electric vehicles (27).
- Be managed as one coordinated system (e.g. Transport for Cambridge) (25).

6.3 The Citizens' Assembly voted on a series of measures to reduce congestion, improve air quality and public transport. Of the measures considered, Assembly members voted most strongly in favour of road closures, followed by a series of road charging options (clean air zone, pollution charge and flexible charge). These will be considered further as packages develop.

## 7. Financial Implications

7.1 High level construction costs associated with the future development of the scheme have been provided within the SOBC. The anticipated construction capital costs approximately £55M.

7.2 The anticipated capital requirements lie within range of the current programme budget for the scheme which is currently set at a figure of £52.6M.

7.3 The Waterbeach Station Relocation project is currently estimated as requiring £20m public sector support which is available in the recently agreed FIS.

Have the resource implications been cleared by Finance? Yes  
Name of Financial Officer: Sarah Heywood

## 8. Next Steps and Milestones

- 8.1 This SOBC has concluded that there is a clear case for change in the north east Cambridge to Waterbeach corridor and has recommended that the Western and Central Alternative options are progressed for further assessment. The recommended next steps are as follows.
- 8.2 To progress the two preferred options to the next step in the Business Case process (the Outline Business Case (OBC) stage). This will include:
- Detailed design around the routing and scheme specifications.
  - Review of Park and Ride provision.
  - A more detailed cost estimation and risk assessment
  - Further modelling work.
  - Work to further integrate the proposed scheme with other developments that are proposed in the corridor including Waterbeach Greenway, Mere Way active travel route, the A10, Waterbeach new town, North East Cambridge development (including Cambridge Science Park), and Cambridge Research Park.
  - Planning Application and Consents.
- 8.3 The next stage will include another public consultation on the final proposed route alignment/s.
- 8.4 It is anticipated that the final preferred detailed route alignment will be presented for Executive Board approval alongside the OBC in early 2023.
- 8.5 The Rail Station Relocation project would be subject to a final commercial agreement with current delivery date of late 2024 / early 2025.

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Appendix B	Waterbeach to Cambridge - Consultation Report

## Background Papers

Source Documents	Location
Waterbeach to Cambridge – October 2020 Executive Board Papers	<a href="#">Council and committee meetings - Cambridgeshire County Council &gt; Meetings (cmis.uk.com)</a>
Ely to Cambridge Transport Study 2018	<a href="https://www.greatercambridge.org.uk/assets/library/Transport/Transport-Projects/Waterbeach-to-Cambridge/18-01-05-Ely-to-Cambridge-Transport-Study-PSOBC-1.0.pdf">https://www.greatercambridge.org.uk/assets/library/Transport/Transport-Projects/Waterbeach-to-Cambridge/18-01-05-Ely-to-Cambridge-Transport-Study-PSOBC-1.0.pdf</a>

Citizens Assembly Report	<a href="\\ccc.cambridgeshire.gov.uk\data\ET Shared\City Deal\Programme Team\Wilma\Governance Matters\Executive Board\3-Executive Board Agenda Papers\2020\2020-06-25\4-Final Versions\PDFs\11b-Citizens Assembly-Appendix.pdf">\\ccc.cambridgeshire.gov.uk\data\ET Shared\City Deal\Programme Team\Wilma\Governance Matters\Executive Board\3-Executive Board Agenda Papers\2020\2020-06-25\4-Final Versions\PDFs\11b-Citizens Assembly-Appendix.pdf</a>
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# Waterbeach to Cambridge Public Transport Study

Strategic Outline Business Case

Greater Cambridge Partnership

21 May 2021

# Notice

This document and its contents have been prepared and are intended solely as information for Greater Cambridge Partnership and use in relation to Waterbeach to Cambridge Public Transport Study

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This document has 185 pages including the cover.

## Document history

**Document title:** Strategic Outline Business Case

**Document reference:** Strategic Outline Business Case

Revision	Purpose description	Originated	Checked	Reviewed	Authorised	Date
Rev 1.0	Working Draft for Client Comment	LI/AB	SA/LB	GJ	GH	16/07/2020
Rev 2.0	First Issue for Client Comment	LB/AT	AB	SA	GH	26/03/2021
Rev 3.0	Third Client Issue	LB	AB	SA	GH	07/05/2021
Rev 4.0	Fourth Client Issue	LB	AB	SA	GH	20/05/2021

## Client signoff

Client	Greater Cambridge Partnership
Project	Waterbeach to Cambridge Public Transport Study
Job number	5192922
Client signature/date	

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# Executive summary

## Introduction

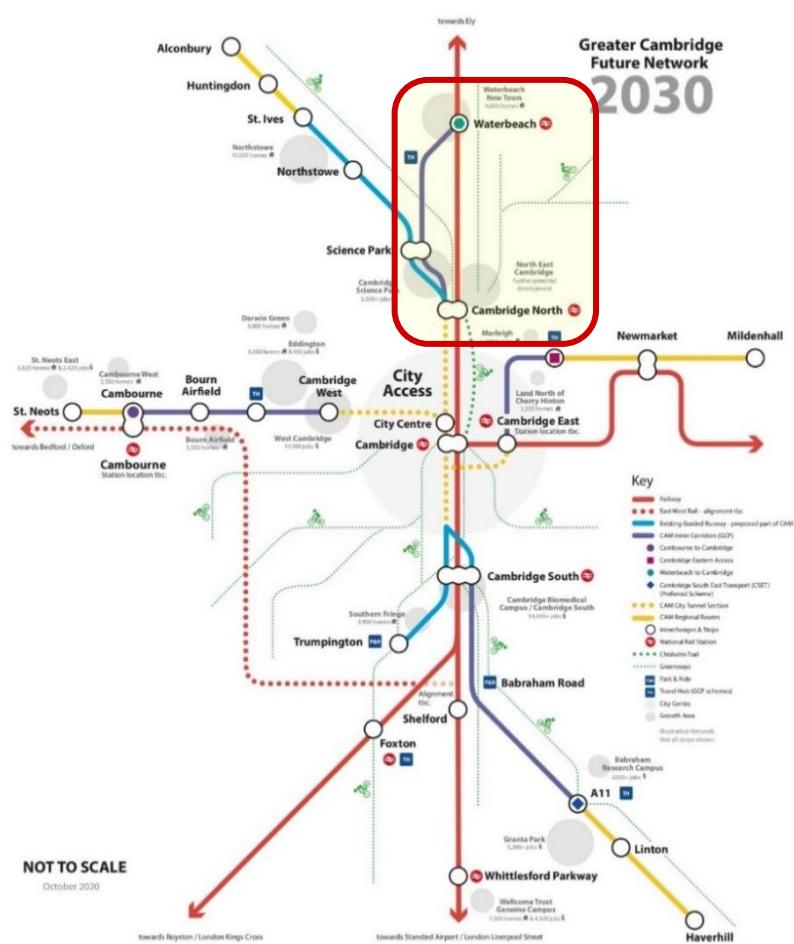
The Waterbeach to Cambridge Public Transport Study explores options to deliver a high-quality, segregated public transport route between Waterbeach New Town and Cambridge. Investment in public transport and associated active travel infrastructure is required to allow new housing and jobs to be accommodated without increasing traffic levels within this corridor and throughout the Greater Cambridge area. The study demonstrates a need for a public transport route which links with other emerging Greater Cambridge Partnership (GCP) projects in order to improve the overall transport network.

## Greater Cambridge Partnership network

The GCP programme has been developed using an extensive evidence base to support sustainable economic growth and the accelerated delivery of the Local Plan. It will enable a broader transformation in the way Greater Cambridge moves and travels, supporting the transition to zero carbon and creating a more inclusive economy. The GCP's vision for a future travel network is particularly important in achieving a green recovery from the Covid-19 pandemic, with sustainable transport options vital to enable communities to access work, study and other opportunities the city-region has to offer.

To create a more sustainable network for the future, reduce congestion, improve air quality and reduce carbon emissions, a significantly higher share of trips need to be made by public transport and active travel modes than at present. Figure ES1 sets out the proposed future sustainable transport network for Greater Cambridge and how this will be substantially enhanced over the next decade, forming a cohesive network throughout Greater Cambridge and further afield.

## **Figure ES1 – Greater Cambridge Partnership Network**



<sup>\*</sup>Waterbeach to Cambridge scheme shown in the red box.

## The proposed scheme

The Waterbeach to Cambridge Public Transport Study area forms part of the wider A10 Ely to Cambridge Corridor, which is one of the key radial routes into Cambridge from the north of the City. The corridor provides the main access into the city from the north east and consists of the single carriageway A10 between Ely and the A14.

The Waterbeach to Cambridge scheme is part of the GCP's transport programme, investing devolved City Deal funding in a comprehensive package of initiatives to tackle the congestion Greater Cambridge faces now and enable it to grow in the future.

The scheme seeks to deliver a new high quality, segregated public transport route between the new town at Waterbeach, the proposed development at north east Cambridge, and onward into Cambridge. The scheme will be deliverable as a free-standing scheme but consideration will be given to other planned infrastructure within the corridor, including proposals to dual the A10, relocation of Waterbeach Station, Waterbeach Greenway, Mere Way active travel route, and Cambridge Autonomous Metro.

New routes will be served by modern, electric vehicles to limit air pollution and noise, complemented by travel hubs to encourage park and ride journeys and end-to-end space for active travel options like walking and cycling.

## Strategic Outline Business Case summary

The Strategic Outline Business Case (SOBC) is the first of three stages in the Business Case development process, preceding the production of an Outline Business Case and finally a Full Business Case. Each Business Case is typically divided into five separate cases as follows:

- **The Strategic Case** describes the need for intervention and the case for change. The Strategic Case for this project demonstrates a strong case for change within the study area to:
  - accommodate the planned housing and employment growth at Waterbeach new town and north east Cambridge;
  - support local policies and strategies which identify a clear need to reduce congestion in order to enable the additional sustainable growth to be accommodated within the study area;
  - transform public transport options in this area into a high-quality, reliable and fast travel option along the route for a wide range of people which will make sustainable journeys more attractive to existing and future users;
  - provide a more resilient public transport network which is not dependent on the A10, which provides access to education, jobs and leisure trips which is currently reliant on a congested highway network;
  - enable quicker, more frequent and more reliable public transport journeys offering benefits to local people from Waterbeach and Milton, as well as further afield including Ely;
  - serve different markets to existing public transport, such as rail (as the infrastructure will provide operators with greater service flexibility); and
  - provide safe and direct active travel connections between residential and employment areas.
- **The Economic Case** describes the economic (including environmental, reliability and safety) benefits of the scheme options, determining if investment in the network would provide value for money. The Economic Case demonstrates that all four route options considered at this stage are expected to provide significant transport, environment and health benefits. The Western and Revised Central route options perform better because they are expected to generate benefits with a monetary value which exceeds the estimated costs; whereas the Revised A10 and Revised Eastern corridor options are expected to generate lower value benefits than their costs.
- **The Financial Case** describes the financial profile of the preferred scheme options and an overview of how the scheme will be funded, through public and private sector sources. The current construction cost estimates for the four options range between £47.8 million and £196.4 million:
  - Western: £54.2 million;
  - Revised Central: £55.4 million;
  - Revised A10: £196.4 million; and
  - Revised Eastern: £47.8 million.

- **The Commercial Case** provides evidence on the commercial viability of the options and the procurement strategy to be used to engage the market. GCP will provide the infrastructure and bus operators will provide the services. In terms of infrastructure, it is likely that the scheme would employ a relatively conventional highway-type construction.
- **The Management Case** describes the ‘deliverability’ of the options. GCP has a recognised track record of developing transport projects through to construction. The aim is to gain the required approval so that construction of this scheme may commence in 2025/2026.

## Conclusions

There is a strong Strategic Case for the provision of a new, high quality, segregated public transport route with associated active travel infrastructure between the Waterbeach New Town and Cambridge. There is also public support for intervention. The SOBC sets out the basis to move forward to the next stage of the project and the delivery of an Outline Business Case for the provision of such infrastructure.

The technical work undertaken to date assesses the various merits of various route options, and on the basis of feedback from the public consultation, the SOBC sets out the case to take forward a Western Route option and a Revised Central route option as the preferred options to be reviewed in the next stage of the project.

# 1. Introduction

## 1.1. About the study

Atkins has been commissioned by the Greater Cambridge Partnership (GCP) to undertake a study to explore the options to deliver the most effective public transport connections between the proposed New Town north of Waterbeach (also referred to as Waterbeach New Town) and North East Cambridge (NEC).

The objective of this study is to identify interventions in the corridor that contribute to local policy objectives to ensure that employment and residential growth can be accommodated without increasing motor traffic levels within Cambridge and the study area. The intention is to progress a Waterbeach to Cambridge Public Transport Scheme along this preferred corridor. The study includes preparation of a Strategic Outline Business Case (SOBC) (this document) for this emerging scheme, which follows on from the Options Appraisal Report (OAR).

## 1.2. Study area

The study area was determined by GCP and is shown in Figure 1-1. The study also takes account of schemes across a wider area where these could affect the selection of options within the study area.

## 1.3. Purpose of a SOBC

The SOBC is the first phase in the Business Case process. This document “sets out the need for intervention (the case for change) and how this will further ministers’ aims and objectives (the strategic fit). It provides suggested or preferred ways forward and presents the evidence for decision”<sup>1</sup> The need for change is evidenced in the Strategic Case (Chapter 2) and summarised in Section 7.1.

An economic appraisal has been provided in line with WebTAG guidance and proportional to this stage of assessment. Given the amount of uncertainties in the study area (such as the A10 upgrade scheme and proposed development, both committed and aspirational), the value for money assessment is considered to be indicative and subject to change as the study progresses, but does indicate the relative performance between options under the current set of assumptions.

The Financial, Management and Commercial Cases have also been provided in line with WebTAG guidance. These cases are considered to be minor at the stage and are included to give an initial indication into cost, management strategies and procurement strategies.

With the above in mind, the primary aim of this document is to demonstrate the need for the scheme which is supported by initial economic assessment.

## 1.4. Structure of this report

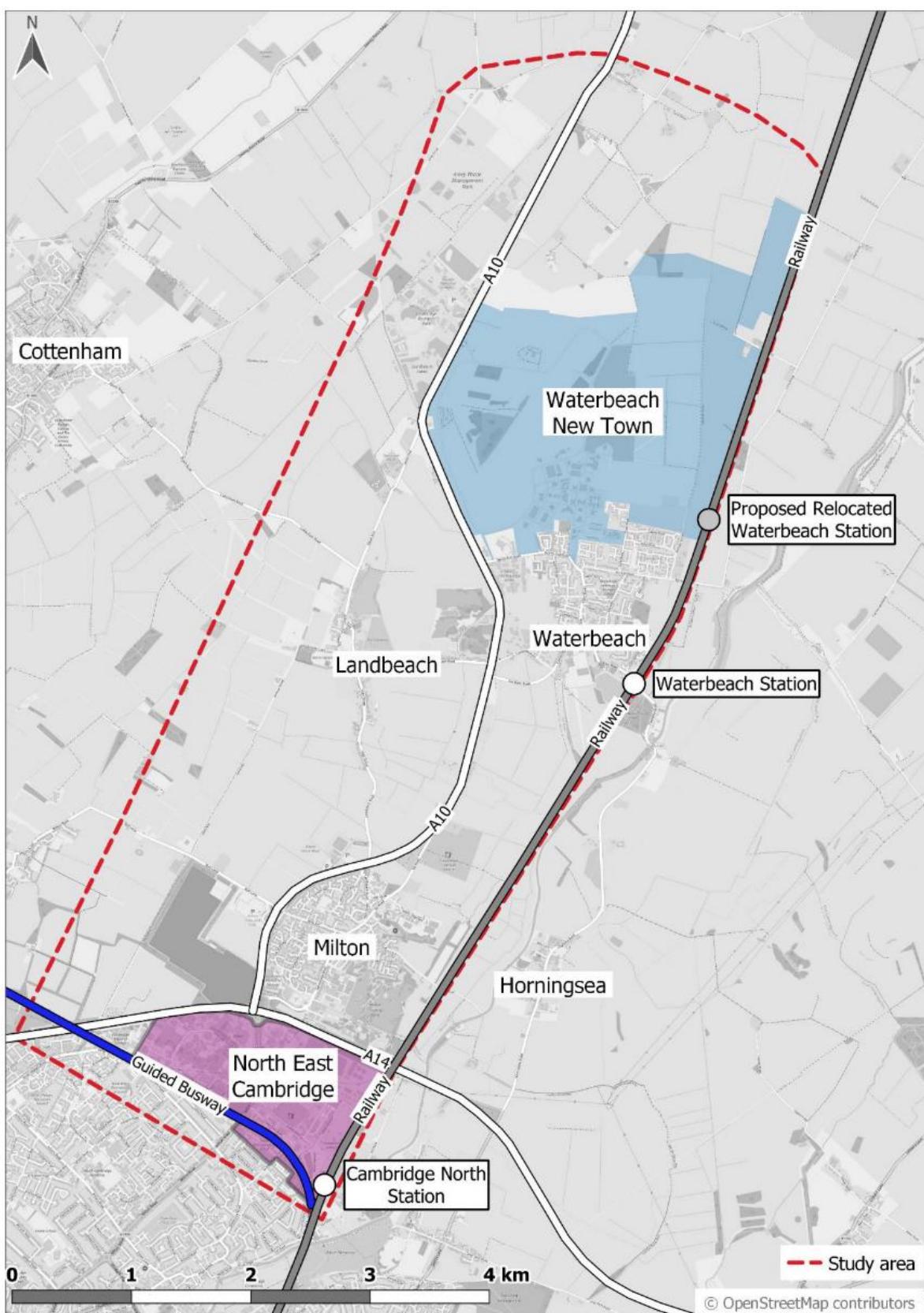
The remainder of this report is as follows:

- Chapter 2 outlines the Strategic Case;
- Chapter 3 outlines the Economic Case;
- Chapter 4 outlines the Financial Case;
- Chapter 5 outlines the Commercial Case;
- Chapter 6 outlines the Management Case; and
- Chapter 7 provides conclusions and recommended next steps.

---

<sup>1</sup> Department for Transport (2013) *The Transport Business Cases*. Page 7.

Figure 1-1 - Study area



## 2. Strategic Case

This Chapter sets out the Strategic Case for the scheme. The objective of the Strategic Case is to provide evidence that an investment is needed, either now or in the future. At SOBC stage, the Department for Transport (DfT) document '*The Transport Business Cases*'<sup>2</sup> requires that the Strategic Case should contain:

- a business strategy outlining the context for the Business Case (Complete);
- a section identifying the problem to be solved (Complete);
- a section describing the impact of not changing from the existing conditions (Complete);
- the objectives that will solve the problem identified (Complete);
- the measures that will define successful delivery of the objectives (Complete);
- the scope of the project and what is out of scope (Complete);
- high level internal and external constraints (In outline);
- internal and external factors upon which the successful delivery of the project depends (In outline);
- main stakeholder groups and their contribution to the project, noting any potential conflict between stakeholders (In outline); and
- the options identified to solve the problem and an evaluation of their impact on the proposal's objectives and wider policy objectives (In outline).

### 2.1. Business strategy

#### 2.1.1. The role of the Greater Cambridge Partnership

The Greater Cambridge Partnership is the local delivery body for a City Deal with central Government, bringing powers and investment, worth up to £500 million over 15 years. The aim of the City Deal Fund is to:

- deliver improvements in infrastructure, supporting and accelerating the creation of 44,000 new jobs, 33,500 new homes and 420 additional apprenticeships<sup>3</sup>; and
- enable growth in the Greater Cambridge area, by investing in infrastructure to sustainably unlock housing and jobs, which would encourage economic development.

The GCP has developed an assurance framework which establishes the responsibilities, processes and principles that will underpin delivery of the City Deal transport schemes. The Greater Cambridge authorities will prioritise projects that will deliver against four key strategic objectives:

- "*to nurture the conditions necessary to enable the potential of Greater Cambridge to create and retain the international high-tech businesses of the future;*
- *to better target investment to the needs of the Greater Cambridge economy by ensuring those decisions are informed by the needs of businesses and other key stakeholders such as the universities;*
- *to markedly improve connectivity and networks between clusters and labour markets so that the right conditions are in place to drive further growth;*
- *to attract and retain more skilled people by investing in transport and housing whilst maintaining a good quality of life, in turn allowing a long-term increase in jobs emerging from the internationally competitive clusters and more university spin-outs.”*<sup>4</sup>

<sup>2</sup> The Transport Business Cases, Department for Transport, Table 2.1 – Contents of the Strategic Case.

[https://assets.publishing.service.gov.uk/government/uploads/system/uploads/attachment\\_data/file/85930/dft-transport-business-case.pdf](https://assets.publishing.service.gov.uk/government/uploads/system/uploads/attachment_data/file/85930/dft-transport-business-case.pdf)

<sup>3</sup> Greater Cambridge Partnership (2021) *Our Vision* <https://www.greatercambridge.org.uk/> [Accessed 03.03.2021]

<sup>4</sup> Greater Cambridge Partnership (No Date) *Greater Cambridge City Deal*

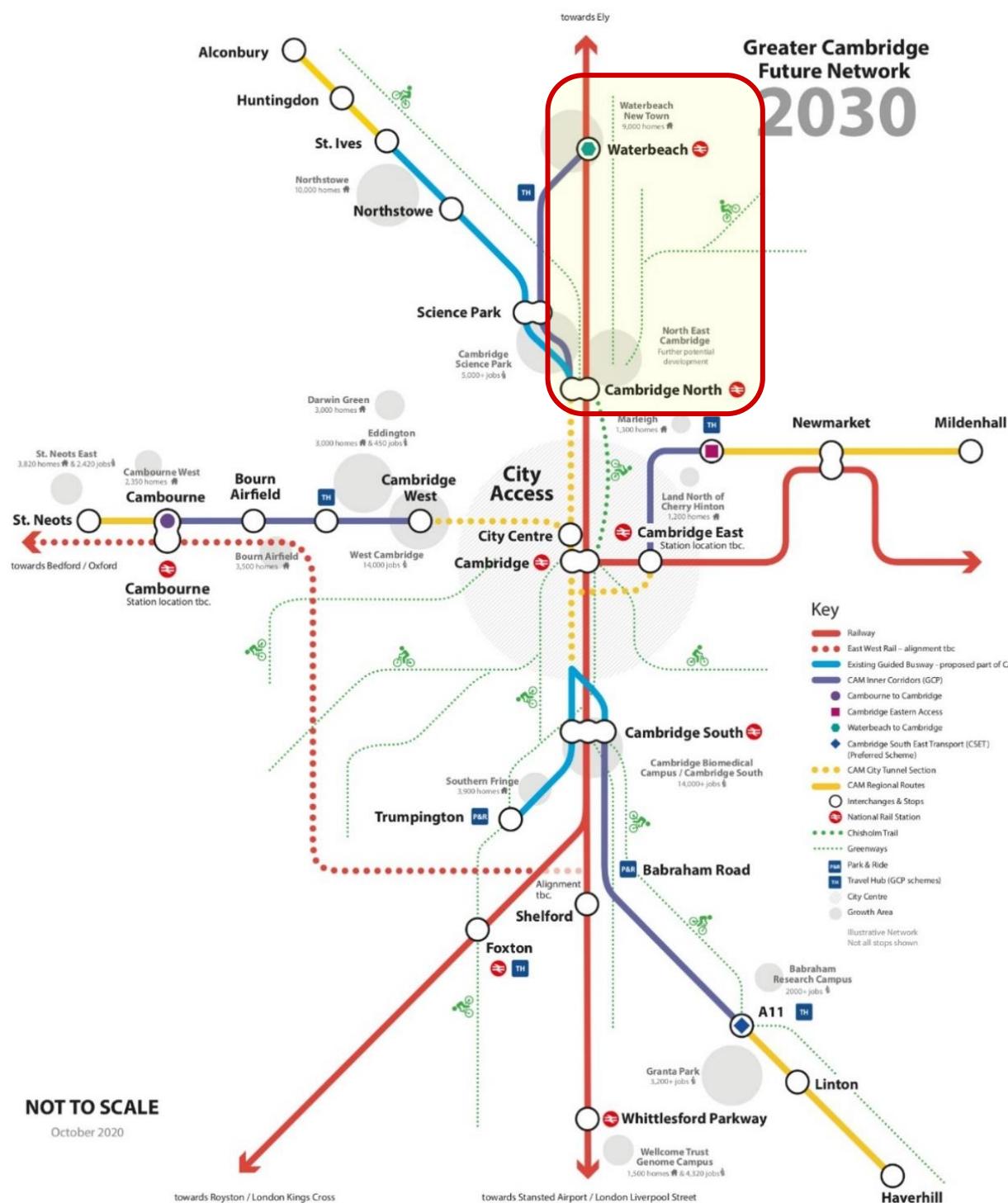
[https://assets.publishing.service.gov.uk/government/uploads/system/uploads/attachment\\_data/file/321722/Greater\\_Cambridge\\_City\\_Deal\\_Document.pdf](https://assets.publishing.service.gov.uk/government/uploads/system/uploads/attachment_data/file/321722/Greater_Cambridge_City_Deal_Document.pdf) [Accessed 15.04.2021]

This SOBC, and in particular this Strategic Case, demonstrates that the proposed Waterbeach to Cambridge Public Transport Scheme supports all four strategic objectives.

#### **Greater Cambridge Partnership Network**

The GCP programme has been developed using an extensive evidence base and is designed to support sustainable economic growth and the accelerated delivery of the Local Plan, as well as enabling a broader transformation in the way Greater Cambridge moves and travels, supporting the transition to zero carbon and creating a more inclusive economy. The GCP's vision for a future travel network is particularly important in achieving a green recovery from the Covid-19 pandemic, with sustainable transport options vital to enable communities to access work, study and other opportunities the city-region has to offer.

To create a more sustainable network for the future, reduce congestion, improve air quality and reduce carbon emissions, significantly more people need to travel by public transport, cycling and walking with significantly fewer people travelling by car. Figure 2-1 sets out the future sustainable transport network for Greater Cambridge and how this will be substantially enhanced over the next decade, forming a cohesive network throughout Greater Cambridge and further afield.

Figure 2-1 - Greater Cambridge Network (2030) Network Map<sup>5</sup>

<sup>5</sup> Greater Cambridge Partnership (No Date) Maps <https://greatercambs.filecamp.com/s/N0QSzHzFpL1mWoXC/fo> [Accessed 15.04.2021]

## 2.1.2. GCP objectives

### Greater Cambridge Partnerships overarching objectives

The GCP has set out three overarching objectives to provide a direction and framework for investment. These provide the basis upon which to develop options between Waterbeach New Town to NEC. These objectives are as follows:

- **Capacity:** Provide the public transport capacity to accommodate the projected increase in travel demand associated with housing and employment growth in the period up until 2026;
- **Connectivity:** Improve accessibility to jobs and opportunities by public transport and active travel modes through a reduction in journey times and increased ease of interchange; and
- **Communities:** Contribute towards the creation of safe and attractive communities by reducing emissions, severance and the dominance of traffic, improving personal security and road safety.

These objectives reflect current national, regional and local policy and GCP schemes should endeavour to support all three objectives. The proposed Waterbeach to Cambridge Public Transport Scheme supports these objectives, as the scheme would improve public transport capacity within the corridor, connect communities with jobs by quicker, more frequent and more reliable public transport journeys, and improved new and existing communities, including Waterbeach and Waterbeach New Town by reducing emissions, car trips and ensuring the proposed routes are as safe as possible.

### Study objectives

The objectives of this study objectives set by GCP at the project inception are as follows:

1. To identify a variety of deliverable options which will improve the reliability, safety, capacity, and speed of sustainable transport connections between the proposed Waterbeach New Town and north east Cambridge. Measures should have the aim of reducing the number of vehicles driving into Cambridge and could include:
  - segregated rapid transit options;
  - bus priority measures;
  - improvements to park and ride provision; and
  - interchange capacity – between car, bus, rail, CAM, walking and cycling.
2. To identify measures that allow for the relocation of Waterbeach railway station as part of the proposals for the Waterbeach New Town. However, the relocation of the station itself does not form part of the study.
3. To ensure integrated walking and cycling routes are inherent in all proposals.
4. To generate options that support the reduction of traffic levels in Cambridge to 10%-15% below 2011 levels, which equates to a 24% reduction from 2018 traffic levels.
5. To generate sustainable options that address transport demand from the proposed Waterbeach New Town and enable development at NEC to proceed.
6. To address known transport problems in the corridor by generating options for ‘quick-wins’ that are deliverable over a period of one to two years.
7. To improve connectivity between existing settlements and to work with Cambridgeshire County Council (CCC), Cambridgeshire and Peterborough Combined Authority (CPCA) and other stakeholders to identify the best package of measures aimed at ensuring connectivity is in place at the opening of new developments, thereby reducing the propensity for trips to be made by private car.<sup>6</sup>

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<sup>6</sup> Greater Cambridge Partnership (2019) New Town North of Waterbeach to Cambridge Public Transport Study Specification. [Pages 6 and 7]

## 2.2. Problem identified

The study area encompasses a transport corridor that already experiences congestion, as identified in previous studies<sup>7</sup>. This will worsen with significant housing (including the development of Waterbeach New Town) and employment developments (including NEC) at either end of the corridor without further transport capacity being provided. Significant transport intervention is required to facilitate growth in the corridor to ensure that transport connectivity does not become more constrained. The sections below outline the policies driving growth in the area and details of the existing transport networks, where current problems are forecast to become worse and new problems are forecast to appear as a result of the growth strategy for the corridor.

### 2.2.1. Policy background

A policy review has been conducted to understand the wider political context and support for interventions within the study area. This policy review is set out in Appendix A of the OAR and is summarised below. The following policy documents have been reviewed:

- the South Cambridgeshire Local Plan (2018);
- the Cambridge Local Plan (2018);
- the Cambridgeshire and Peterborough Local Transport Plan (LTP) (2021);
- the Cambridgeshire and Peterborough Interim Local Transport Plan (2017);
- the Cambridgeshire Local Transport Plan 2011-2031 (2015);
- the Cambridgeshire Local Transport Plan 2011-2031: Long Term Transport Strategy (2015);
- the Transport Strategy for Cambridge and South Cambridgeshire (2014);

the Waterbeach Supplementary Planning Document (2019); and the North East Cambridge Area Action Plan (2020). The policy review shows that the Waterbeach to Cambridge Public Transport Scheme strongly supports local policy, as it will help to facilitate economic growth, create safer and more attractive communities, provide real transport choice through which to reduce reliance on the car and the impact of travel on the environment.

New policies and strategies relevant to the study have been published following the publication of the OAR namely:

- **England's Economic Heartland – Transport Strategy (Summer 2020)<sup>8</sup>:** A new sub-regional strategy to improve connectivity to support the 'Green Recovery' from the Covid-19 pandemic and to support new zero carbon emission targets. Some key aspects of the strategy include:
  - harnessing the region's expertise in clean technologies to deliver a greener transport system;
  - investment in East West Rail and mass transit systems such as the Cambridgeshire Autonomous Metro (CAM) and Milton Keynes Mass Rapid Transit system as a catalyst for transforming public transport across the Heartland;
  - championing digital technologies to make transport smarter; and
  - improving local and rural connectivity.
- **Emerging New Joint Greater Cambridge Local Plan:** Following the adoption of both the Cambridge and South Cambridgeshire Local Plans, both authorities commenced a review and the production of a new joint Greater Cambridge Local Plan spanning both local authority areas, to plan and allocate sites more effectively over the region. The Plan is currently at the 'Call for Sites' stage and could take up to three years to adopt. The new Greater Cambridge Local Plan is for a period up to 2040, and possibly beyond<sup>9</sup>.

The Waterbeach to Cambridge Public Transport Scheme will provide improved connectivity for communities in the study area for onward travel throughout England's Economic Heartland. The scheme would also support additional sustainable growth locations, beyond this Local Plan period.

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<sup>7</sup> Mott MacDonald, on behalf of the Greater Cambridge Partnership (2018) Ely to Cambridge Transport Study: Preliminary Strategic Outline Business Case

<sup>8</sup> England's Economic Heartland (2020) *Regional Transport Strategy* [https://eeh-prod-media.s3.amazonaws.com/documents/Connecting\\_People\\_Transforming\\_Journeys\\_av.pdf](https://eeh-prod-media.s3.amazonaws.com/documents/Connecting_People_Transforming_Journeys_av.pdf)

<sup>9</sup> Greater Cambridge Shared Planning (2020) *The First Conversation* Page 4.

## Policy growth areas

A recurring theme area of these documents is the extensive proposed growth in the study area. The Cambridge and South Cambridgeshire Local Plans identify a need for 33,000 homes and 44,000 jobs by 2031 and the study area has been identified as a key area in which to contribute towards this growth. Development sites include:

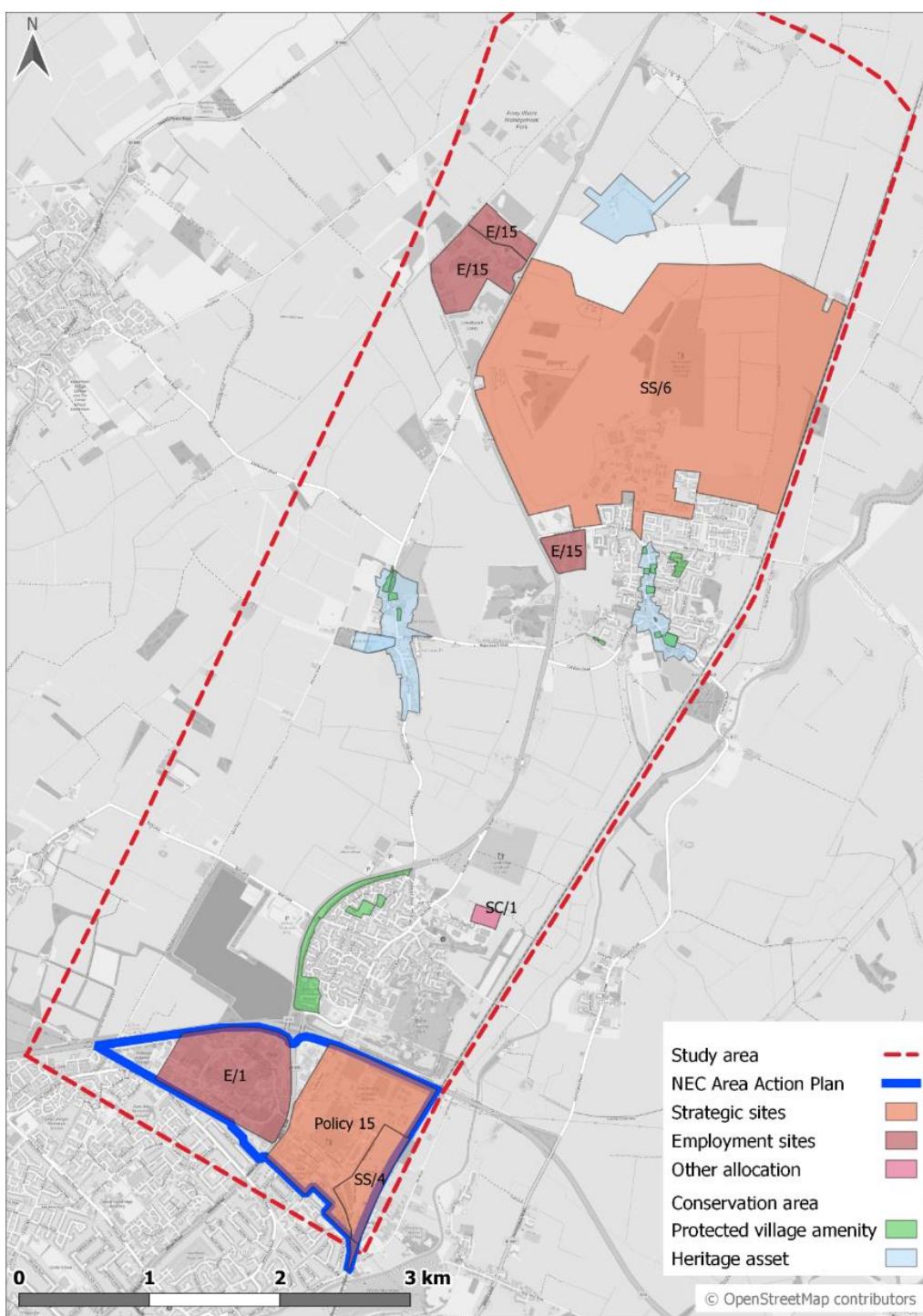
- Waterbeach New Town (up to 11,000 homes<sup>10</sup>), identified under Allocation SS/6; and
- NEC (up to 17,000 new homes and 14,000 new jobs), identified under Allocation SS/4 and Policy E/1, which includes:
  - redevelopment and intensification of existing employment centres in NEC (Cambridge Science Park, Cambridge Business Park, Trinity Hall Farm Industrial Estate, St John's Innovation Park); and
  - mixed-use development of the waste water treatment plant.

The locations of these sites and other relevant allocations and policies are shown in Figure 2-2. Further details on the major developments is in Section 2.3.

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<sup>10</sup> Urban and Civic website: <https://www.urbanandcivic.com/projects/strategic-sites/waterbeach-barracks/site-details> and RLW estates website: <http://www.waterbeach.co.uk/post.php?s=2018-06-05-planning-application-submitted-by-rlw-estates-for-up-to-4500-homes-at-waterbeach>

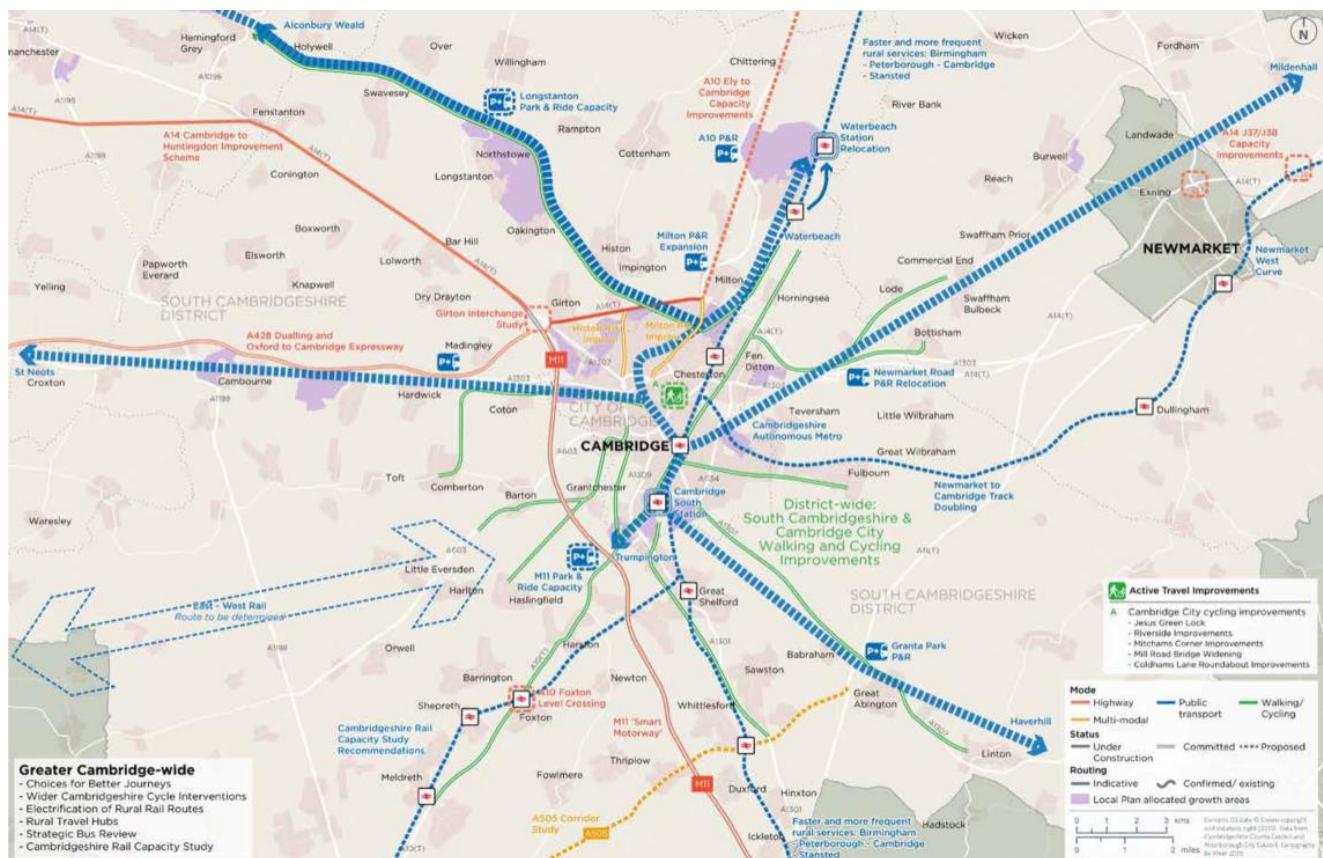
**Figure 2-2 - Location of key allocation and policy sites**



Another key policy area is the need for sustainable transport to solve existing congestion and connectivity issues in the study area, and to enable this growth to occur. The CPCPA LTP identifies that public transport, walking and cycling need to be significantly upgraded to improve people's journeys into and around Greater Cambridge and reduce car dependency<sup>11</sup>. Figure 2-3 shows the key transport projects in Greater Cambridge from the CPCPA LTP that aim to overcome the challenges faced by the Cambridge region.

<sup>11</sup> Cambridgeshire and Peterborough Combined Authority (2021) *The Cambridgeshire and Peterborough Local Transport Plan* [Page 96]

**Figure 2-3 – Key projects in Greater Cambridge<sup>12</sup>**



Public transport schemes are represented in blue in Figure 2-3, with the thick blue dashed line representing the GCP network. A new park and ride on the A10 is also identified in the LTP, as is an expansion at the existing Milton Park and Ride site.

## 2.2.2. Evidence base

Several previous studies have examined the constraints and potential transport options in this corridor. The previous studies that have been referred to are:

- Bus Strategy – Bus Route Option Study (2009);
- A10 Transport Corridor Constraints Study (2012);
- Waterbeach Busway Options Study (2014);
- A10(N) Corridor Constraints Study (2016);
- Ely to Cambridge Transport Study – Preliminary Strategic Outline Business Case (2018); and
- Ely to Cambridge Transport Study: Strand 2 New Town North of Waterbeach Transport Report (2018).

These studies are summarised in Appendix A, including the evidence base they provide and their findings.

## 2.3. Growth and development

### 2.3.1. Committed and planned developments

Waterbeach New Town and NEC are two major mixed-used development sites located within the study area which would increase transport demand once constructed.

<sup>12</sup> Cambridgeshire and Peterborough Combined Authority (2021) *The Cambridgeshire and Peterborough Local Transport Plan* [Page 97]

## New Town North of Waterbeach

A proposed New Town north of Waterbeach, which could accommodate up to 11,000 homes, is being delivered by two developers: Urban and Civic and RLW Estates. Outline planning permission has been granted for the Urban and Civic site, comprising up to 6,500 dwellings in addition to business, retail, community, leisure and sports uses, a hotel, new primary and secondary schools, and green spaces including parks, ecological areas and woodlands<sup>13</sup>. On 11<sup>th</sup> March 2020 a planning application for Key Phase 1<sup>14</sup>, for the first 1,600 homes on the Urban and Civic site, was submitted and is awaiting a decision. A Design Code has also been approved for the development, which specifies the design requirements and guidelines for Key Phase 1<sup>15</sup>.

On the 29<sup>th</sup> January 2021, South Cambridgeshire District Council (SCDC) approved RLW Estates' planning application for a 4,500-dwelling development with business, retail, community, leisure and sports uses, new primary and secondary schools and sixth form centre, and public open spaces including parks and ecological areas<sup>16</sup>.

The proposed Waterbeach New Town represents around a third of the proposed development set out in the Local Plans and therefore will significantly increase demand along the A10 corridor. Without additional transport infrastructure to provide additional travel capacity, this development may be constrained. As such, it is envisaged that Waterbeach New Town will be serviced by quicker, more frequent and more reliable transport links, which are the subject of this study.

The proposed high-quality public transport infrastructure would, as a minimum, extend as far as the proposed Waterbeach New Town centre. The current planning assumption is that it would continue eastwards to the relocated Waterbeach Station, if and when delivered. Transit services would be able to operate off the dedicated infrastructure, so would also be able to serve other areas of the New Town, and/or continue north towards Cambridge Research Park and beyond, as required to meet travel needs.

A high-level initial assessment has been undertaken of the most effective service routing at the northern end of the study area, including whether a service using the high-quality public transport route should serve the relocated Waterbeach Station and/or Cambridge Research Park.

The assessment shows that, to maximise achievement of the aims of the Study to provide a quicker, frequent and reliable services between Waterbeach and Cambridge, the preferred option for routing towards the north of the study area is to run a mix of direct services and services via the relocated station. This option would serve the main areas of demand with fast and direct services and provide connectivity to key transport hubs. A new public transport scheme would offer major benefits for commuters to and from Waterbeach New Town, therefore unlocking sustainable growth in this corridor.

It is proposed that two alternative services are provided; one that serves Cambridge Research Park directly and the other that terminates at the relocated Waterbeach station. Connectivity between Cambridge Research Park and the relocated Waterbeach Station is likely to be covered by a local stopping service and/or the Research Park shuttle.

Figure 2-4 shows the spatial framework for the New Town.

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<sup>13</sup> Planning application: S/0559/17/OL.

<sup>14</sup> Planning application: 20/01649/REM

<sup>15</sup> Planning application: S/4383/19/DC

<sup>16</sup> Planning application: S/2075/18/OL

Figure 2-4 – Spatial framework layout for the proposed Waterbeach New Town<sup>17</sup>



### North East Cambridge development

The NEC development comprises several sites, including (landowner or developer shown in brackets):

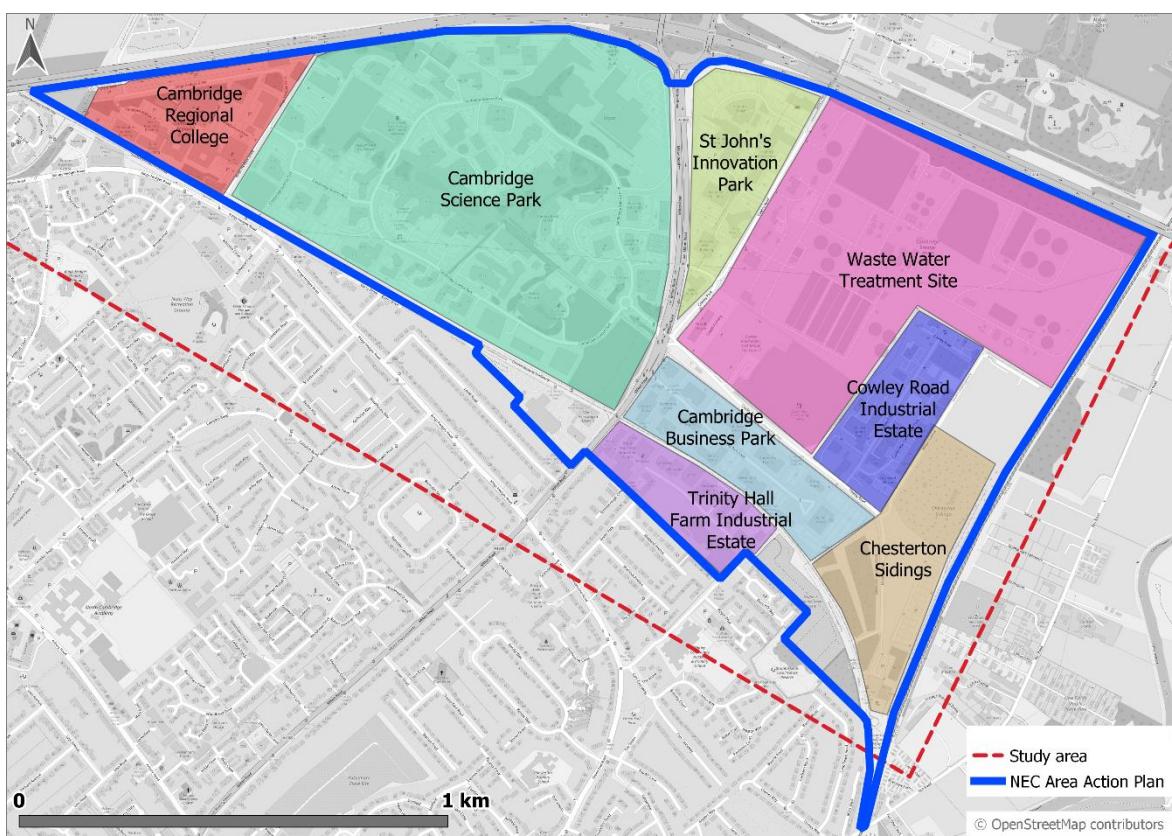
- Cambridge Science Park (Trinity College);
- Cambridge Business Park (The Crown Estate);
- Trinity Hall Farm Industrial Estate (Trinity Hall Farm / Dencora);
- St John's Innovation Park (St John's College);
- Chesterton Sidings (Network Rail / Brookgate / DB Schenker);
- Cambridge Regional College (Cambridge Regional College);
- The wastewater treatment plant (Anglian Water, plus some land owned by Cambridge City Council (CCiC); and
- Nuffield Road and Cowley Road Industrial Estates (various, including CCiC).

The Tarmac Aggregates facility lies within the NEC boundary but as yet does not have any plans for redevelopment.

The existing site layout is shown in Figure 2-5.

<sup>17</sup> South Cambridgeshire District Council (2019) Waterbeach New Town: A Spatial Framework and Infrastructure Delivery Plan. Supplementary Planning Document [Page 72-73].

**Figure 2-5 - Existing sites in NEC proposals<sup>18</sup>**



There are approximately 12,000 jobs across the existing sites. There are plans to intensify the area, providing an additional 18,200 to 27,000 jobs and 8,000 dwellings. As such, the NEC area could account for over half of job growth and a quarter of homes proposed in the Local Plan. Therefore, this area is susceptible to worsening congestion resulting in poorer air quality caused slow moving traffic.

The NEC development is currently served by local bus services, including the Milton Park and Ride service, and is proposed to be serviced by new transport links which have been considered within this study. Figure 2-6 shows the latest indicative concept plan within NEC, which will interact with the proposed schemes set out in this study, from the draft Area Action Plan published in June 2020<sup>19</sup>.

The owners of the Cambridge Science Park development have aspirations for the site to be redeveloped and expand. The developers are seeking to re-design the frontage of the site to abut the existing Cambridge Guided Busway (CGB) alignment, with a view to increasing permeability to the site from the south. The vision is to make the NEC development a sustainable campus and therefore public transport is seen as a vital component.

All the options considered in this report, would support achievement of the strategic vision of the NEC development by enabling quicker, more frequent, and more reliable public transport journeys to and from surrounding villages and Waterbeach New Town. It is expected that the CGB and Waterbeach to Cambridge service patterns would be integrated to maximise service frequency. This would be agreed with service operators at a later stage when the operational aspects are considered in detail. Moreover, all options would support the delivery of economic growth in NEC within current traffic levels.

Providing sustainable infrastructure for NEC will provide access to jobs and education, whilst improving links to other local transport hubs such as Cambridge North Station and Milton Park and Ride for onward travel beyond the study area.

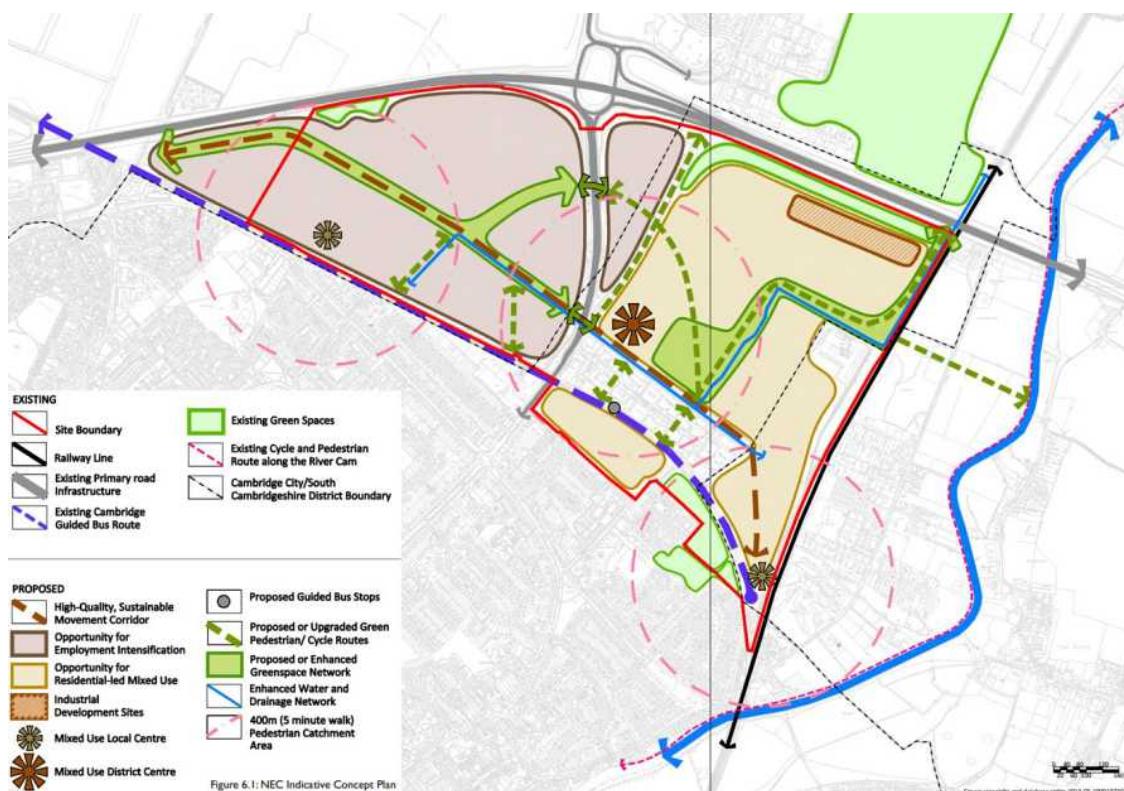
Moreover, additional transport links would support NEC growth aspirations by improving the transport capacity within the local area meaning more people can move between residential and employment areas.

<sup>18</sup> Information provided by the GCP.

<sup>19</sup> Greater Cambridge Shared Planning 'Draft Area Action Plan Evidence Base and Supporting Documents'

<https://www.greatercambridgeplanning.org/emerging-plans-and-guidance/north-east-cambridge-area-action-plan/draft-area-action-plan-evidence-base-and-supporting-documents/> Accessed 29<sup>th</sup> June 2020

Figure 2-6 - NEC indicative concept plan<sup>20</sup>



### 2.3.2. Size of existing and future travel markets

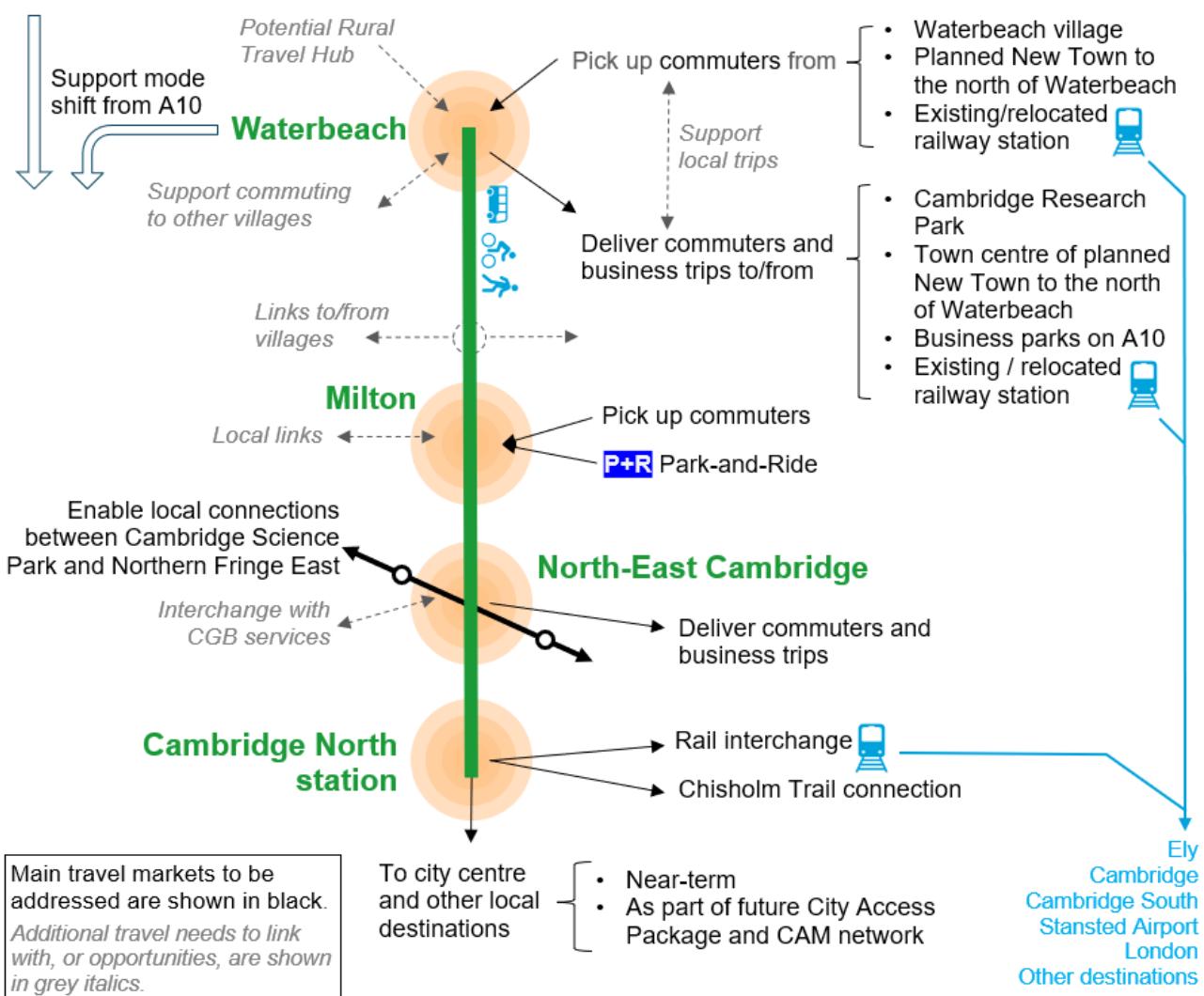
Several key travel markets have been identified, comprising existing communities and future developments. The largest markets are expected to be journeys to or from the following locations within the study area:

- Waterbeach (including the proposed Waterbeach New Town);
- Milton village;
- the NEC development, including Cambridge Science Park and other employment centres; and
- Cambridge North station.

Figure 2-7 highlights the travel markets that could be serviced by new transport links proposed in this study and summarises onward travel links. It should be noted that:

- The central green line shows the overall improved connections required from the project. The black lines and text show the main types of trip that these connections aim to serve;
- Figure 2-7 is not intended to imply that a single, linear intervention is preferred. The requirements could potentially be met through a combination of sustainable travel corridors and does not imply a single public transport route covers all markets;
- Orange circles represent key areas to be connected and not individual 'stops' or entry/exit points; and
- Dotted lines and grey italic text show potential additional synergies to be considered.

<sup>20</sup> Extract from North East Cambridge Area Action Plan – Issues and Options (2019) [Pages 84 and 85].

**Figure 2-7 - Study area travel markets**

As shown in Figure 2-7 the markets served by new transport links vary in size. The proposed Waterbeach New Town (11,000 dwellings and 40,000 sqm of employment use) and NEC area<sup>21</sup> (8,000 dwellings and approximately 330,000 sqm of employment use) represent the largest markets within the area.

Whilst the existing Waterbeach and Milton villages represent smaller markets, they account for approximately 3,700 dwellings in total and therefore proposed transport schemes should aim to service these villages where possible.

The scale of housing and employment for existing and future developments in the study area is shown in Table 2-1 and corresponds to the anticipated level of demand for transport services. As an indication of the relative scale of the commuter markets, Cambridge city centre has between 23,500<sup>22</sup> and 28,500<sup>23</sup> employees, which would equate to approximately 312,000 sqm of general office land use<sup>24</sup>. The figures provided have been obtained from a variety of sources including 2011 Census data and information provided by GCP.

<sup>21</sup> It should be noted that as NEC area covers a significant area (both east and west sides of Milton Road), a proposed scheme should seek to service multiple areas of the development.

<sup>22</sup> CSRM2 2015 estimate for jobs in the area roughly corresponding to the Cambridge 007 MSOA

<sup>23</sup> TEMPRO 2015 estimate for jobs in the Cambridge 007 MSOA

<sup>24</sup> Homes and Communities Agency (2010) Employment Densities Guide

[https://assets.publishing.service.gov.uk/government/uploads/system/uploads/attachment\\_data/file/378203/employ-den.pdf](https://assets.publishing.service.gov.uk/government/uploads/system/uploads/attachment_data/file/378203/employ-den.pdf) Accessed 14th July 2020

**Table 2-1 – Levels of housing and employment in existing and future developments**

Development	Existing scale of development	Proposed scale of development
Waterbeach New Town <sup>25</sup>	Proposed development	11,000 dwellings; 25,500 sqm retail; 39,800 sqm employment use; 21,235 sqm leisure and community use
Waterbeach village <sup>26</sup>	2,070 dwellings	No significant growth planned
Milton village	1,765 dwellings (2011 census)	No significant growth planned
Cambridge Research Park <sup>27</sup>	41,660 sqm employment	315 sqm retail; 27,885 sqm employment
Waste water treatment plant	Approximately 44 ha	5,500 dwellings; 3,700 sqm retail; 23,500 sqm employment; 5,700 sqm community use
Cambridge Science Park	160,000 sqm employment <sup>28</sup>	1,000 sqm retail; 109,969 sqm employment; 100 sqm community use <sup>29</sup>
St John's Innovation Park	24,137 sqm employment <sup>30</sup>	100 sqm retail; 35,000 sqm employment
Cambridge Business Park	30,193 sqm employment <sup>31</sup>	500 dwellings; 1,500 sqm retail; 68,000sqm employment
Trinity Hall Farm Industrial Estate and Nuffield Road Industrial Estate	22,443 sqm employment	550 dwellings; 1,500 sqm employment
Chesterton Sidings	Proposed development	730 dwellings; 1,000 sqm retail; 55,000 sqm employment 100 sqm community use

The residential developments alone could lead to an increased demand of between 15,000 and 20,000 person trips<sup>32</sup> in the AM and PM peak hours across all modes of transport. Whilst not all these trips will be to or from Cambridge or will use the full length of the corridor, a significant proportion are likely to do so. If no interventions to increase capacity are made, this will increase the demand in the corridor and could saturate areas of the existing transport network, such as the currently congested Milton Interchange.

25 Planning applications S/0559/17/OL for Waterbeach New Town (west) and S/2075/18/OL for Waterbeach New Town (east)

26 Waterbeach Parish Council (2019) Waterbeach Neighbourhood Development Plan 2020 to 2031

27 Planning application S/4615/18/OL

28 Odyssey, on behalf of Trinity College Cambridge and Cambridge Science Park (2018) Cambridge Science Park Transport Strategy

29 Greater Cambridge Shared Planning (2020) North East Cambridge Draft Area Action Plan

30 St John's Innovation Park (2020) St John's Innovation Park: Buildings <https://www.sjip.co.uk/buildings/> Site accessed 14th July 2020

31 Cambridge Business Park (2020) Cambridge Business Park <https://www.cambridgebusinesspark.co.uk/> Site accessed 14th July 2020

32 Based on estimates of trip rates from TRICS database, version 7.6.4.

## Demand for travel in the corridor

An assessment has been undertaken of the relative importance, in travel demand terms, of the key markets in the corridor. The analysis is summarised below and presented in full, including methodology and limitations in Appendix B.

The travel markets assessed as part of this exercise are the same as those outlined in Table 2-1 although the NEC development has been divided into eastern and western sections (split at Milton Road) to better understand the impact of corridor options that only serve one side of the NEC development.

Development trips have been calculated using three TRICS<sup>33</sup> land use categories for residential, business and educational developments for the morning peak period (07:00-10:00), evening peak period (16:00-19:00) and daily trips (07:00-19:00). The trip rates are presented in Appendix B.

The total number of trips generated by each travel market in the study area has been estimated by multiplying the level of existing and proposed development (shown in Table 2-1 and in Appendix B), by the trip rates. A summary of the forecast number of trips generated or the morning and evening peak periods and daily totals are shown in Table 2-2.

**Table 2-2 - Total number of trips for existing and future travel market in the study area<sup>34</sup>**

Travel Market	Morning peak period 07:00-10:00			Evening peak period 16:00-19:00			Daily 07:00-19:00		
	Arr.	Dep.	Total	Arr.	Dep.	Total	Arr.	Dep.	Total
Cambridge Research Park	2,500	400	<b>2,900</b>	300	2,200	<b>2,500</b>	4,000	4,000	<b>8,100</b>
Waterbeach New Town	14,600	19,500	<b>34,100</b>	15,600	10,800	<b>26,400</b>	52,400	54,900	<b>107,300</b>
Waterbeach village	1,200	3,100	<b>4,300</b>	2,800	1,400	<b>4,200</b>	7,400	7,900	<b>15,300</b>
Milton village	1,000	2,700	<b>3,700</b>	2,400	1,200	<b>3,600</b>	6,300	6,700	<b>13,100</b>
NEC (west)	9,800	1,400	<b>11,200</b>	1,200	8,500	<b>9,700</b>	15,700	15,600	<b>31,300</b>
NEC (east)	19,400	13,800	<b>33,200</b>	13,700	15,000	<b>28,700</b>	46,100	47,800	<b>93,900</b>
NEC (total)	29,200	15,200	<b>44,400</b>	14,900	23,400	<b>38,300</b>	61,800	63,400	<b>125,200</b>
Total	<b>48,500</b>	<b>40,900</b>	<b>89,400</b>	<b>36,000</b>	<b>39,100</b>	<b>75,100</b>	<b>131,900</b>	<b>136,900</b>	<b>269,000</b>

Table 2-2 shows that Waterbeach New Town and the NEC development are likely to be the key drivers of demand in the corridor, with Waterbeach village, Milton village and Cambridge Research Park making smaller contributions to overall trips and trips in the corridor.

Estimates have been made on the geographical distribution of these forecast trips based on three categories:

- those internal to the larger developments such as Waterbeach New Town;
- those that use the corridor; and
- those that do not use the corridor (for example, where Waterbeach New Town residents travel northwards or eastwards out of the corridor).

The trip distribution for each travel market was derived using trip origins and destinations from the 2011 Census travel to work dataset at the Lower Level Super Output Area level. For new developments, such as Waterbeach New Town, data from the most local postcode area was used (for example, CB25 data was used to calculate the Waterbeach New Town trip distribution).

<sup>33</sup> TRICS is an industry standard software used to predict trip rates for certain types of developments. The software uses empirical data from assessment for new developments. TRICS v7.7.2 was used for this assessment.

<sup>34</sup> Appendix B breaks down the trips by TRICS category for each market by period.

The trip generation totals represent a future scenario in which all developments are built out. It does not reflect a specific time period.

The estimated trip distribution proportions for each travel market are summarised in Table 2-3. A detailed assessment of trip distributions is provided in Appendix B.

**Table 2-3 - Trip distribution for travel markets<sup>35</sup>**

Travel market	Internal (to development) trips		Trips using corridor (to/from the north) <sup>36</sup>		Trips using Corridor (to/from the south) <sup>37</sup>		Trips not using the corridor	
	Proportion of trips	Total daily Trips	Proportion of trips	Total daily trips	Proportion of trips	Total daily Trips	Proportion of trips	Total daily Trips
Cambridge Research Park	31% <sup>38</sup>	<b>2,500</b>	N/A	-	48%	3,900	20%	<b>1,600</b>
Waterbeach New Town	48%	<b>51,500</b>	N/A	-	31%	20,800	21%	<b>22,300</b>
Waterbeach village	27%	<b>4,100</b>	2%	<b>350</b>	43%	6,600	28%	<b>4,300</b>
Milton village	31%	<b>4,000</b>	12%	<b>1,600</b>	36%	4,700	21%	<b>2,700</b>
NEC (west)	15%	<b>4,800</b>	24%	<b>7,400</b>	N/A	-	61%	<b>19,100</b>
NEC (east)	29%	<b>26,800</b>	25%	<b>23,600</b>	N/A	-	46%	<b>43,600</b>

Table 2-3 shows that slightly more trips are likely to be generated from the south of the corridor travelling north than trips coming from the north. Some 68,900 daily trips are likely to use the corridor (either northbound or southbound) travelling between travel markets.

#### The impact of future demand for travel in the corridor

The existing transport network currently accommodates travel to and from approximately 3,800 homes and 300,000 m of employment space (see Appendix B for details); there are aspirations to increase this by up to 19,000 homes and 380,000 m<sup>2</sup> of employment space. As noted in Section 2.3.2, the majority of this development is centred around Waterbeach New Town and the NEC development. As a result, the local transport network will experience increased demand when these developments are occupied. Without investment, it is likely that the local transport network, including the A10 and Milton Interchange will experience significant congestion, causing journeys to become unreliable and slower. Furthermore, this will be put increased pressure on the local public transport network that is already reliant on an efficient transport network.

<sup>35</sup> Percentages may not add to 100% due to rounding.

<sup>36</sup> Trips that access Waterbeach New Town and Cambridge Research Park from the north will not use the corridor as the sites are located on the northern side of the corridor.

<sup>37</sup> Trips that access NEC from the south will not use the corridor as the sites are located on the southern side of the corridor.

<sup>38</sup> Internal to CB24 and CB25 postcode.

## 2.4. Existing and future transport

### 2.4.1. Existing transport networks

#### Local highway network

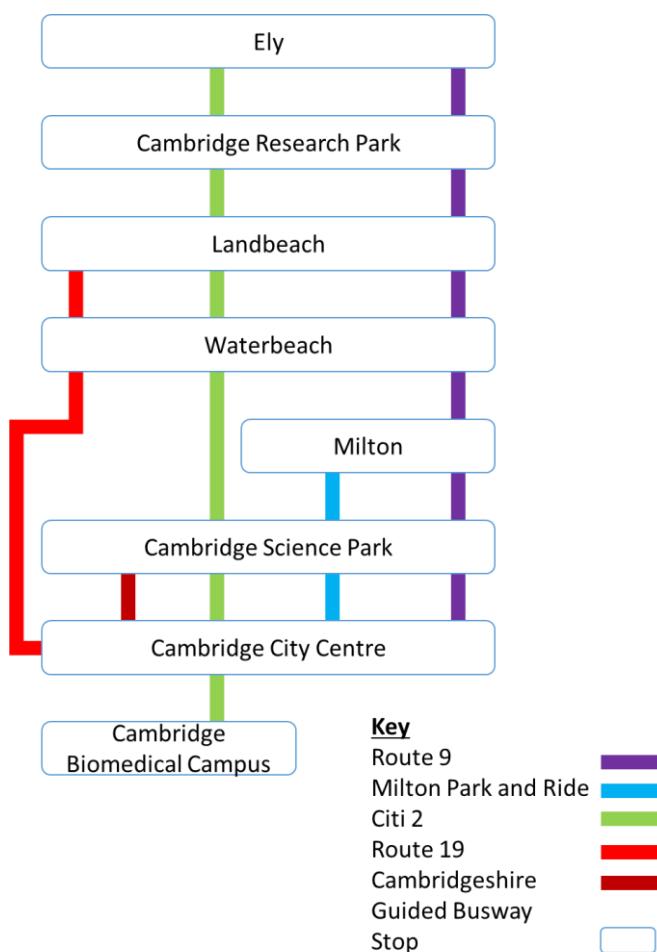
The local highway network includes the A10, which is the main highway connection between Waterbeach, the A14 and the NEC development. This route currently experiences considerable congestion during peak periods, particularly around Milton Interchange where the A10 and A14 converge. The new and improved section of the A14, as well as a new local access road (the A1307) opened for traffic on 5<sup>th</sup> May 2020<sup>39</sup>. The 2019 CCC Traffic Monitoring Report<sup>40</sup> reports a two-way traffic flow of 26,327 vehicles on Milton Road to the south of the A14 across a 12-hour period.

#### Local bus network

The local bus network is currently operating at a reduced service due to the Covid-19 pandemic. Timetables are being reviewed regularly and changed to reflect new restrictions being implemented by the Government. The remainder of this section considers ‘normal service patterns’, i.e. pre-Covid-19 services, and whilst it is recognised that timetabling may change in the future, it is considered that this information is representative of a ‘normal service pattern’.

There are four services that stop in this corridor, as shown in Figure 2-8.

**Figure 2-8 - Local bus network**



39 Highways England (No Date) What We've Delivered, <https://highwaysengland.co.uk/our-work/a14-cambridge-to-huntingdon/what-we've-delivered/> [Accessed 27.07.2021]

40 Traffic Monitoring Report 2019, Cambridgeshire County Council, <https://www.cambridgeshire.gov.uk/asset-library/Traffic-Monitoring-Report-2019.pdf> [Accessed 14.07.2020]

There is currently no bus priority infrastructure on the A10 to the north of the A14, although there are existing bus lanes on Milton Road. There are proposals to improve the bus priority on Milton Road to the south of the study area as part of the GCP Milton Road project.

The CGB runs between St Ives and Cambridge North Station, and busway services A and D use this to serve Cambridge Science Park, Cambridge Business Park and Cambridge Regional College. The CGB also has a bridleway running adjacent to parts of the route which is widely used by non-motorised users. The Waterbeach to Cambridge Public Transport scheme could utilise this bridleway, creating a continuous active travel route for trips such as Histon to Waterbeach.

All options considered in this study would increase the public transport capacity within the corridor and beyond. The scheme will give flexibility to services which can use part, or all of the infrastructure provided. This means that the scheme would allow for future connections to other transport hubs, such as Cambridge North Station and Milton Park and Ride. Existing services, such as Route 9, could use the scheme, thus providing benefits to passengers to and from Chittering, Stretham and Ely.

#### Local rail network

Cambridge North and Waterbeach railway stations are located within the study area and provide connections to the wider UK rail network including London, Cambridge, Ely, Peterborough, Kings Lynn and Norwich. As part of the proposals for the Waterbeach New Town, the existing Waterbeach railway station is planned to be relocated further north to a site within the New Town. The full planning application for the new railway station was approved on 9<sup>th</sup> January 2020<sup>41</sup>.

### 2.4.2. Transport improvements

There are several major transport schemes proposed for the local area to improve transport connectivity in the study area and beyond. These are summarised below.

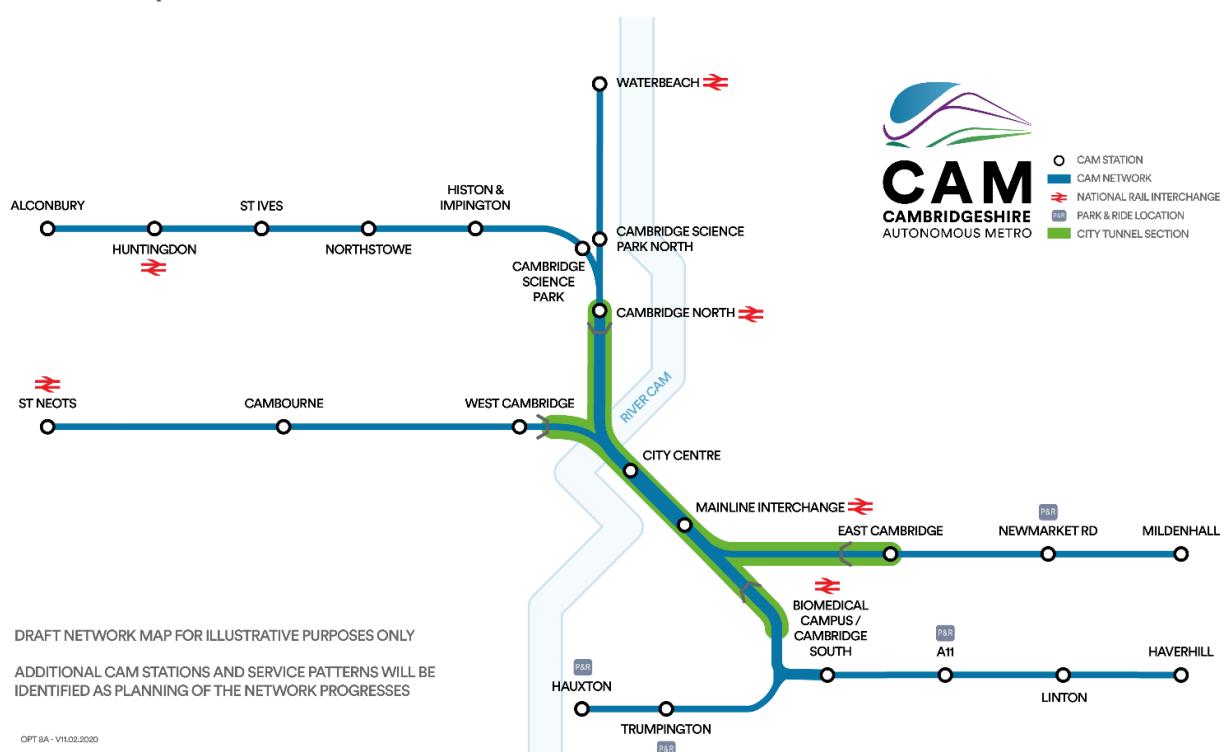
#### Cambridge Autonomous Metro (CAM)

The CAM will provide high-quality, high frequency services in the Cambridge region (including NEC) delivered by the GCP and CPCA. The GCP is leading on delivery of the shorter-term elements of the CAM network (including this scheme, the Eastern Access Study, Cambridge South East Transport Study and Cambourne to Cambridge). As a result, the four corridors can be delivered as standalone schemes. The central section of the CAM will be underground and is being led by CPCA.

This first phase of the CAM network will be served by electric vehicles, which will continue on-street into Cambridge city centre prior to the opening of the tunnels under the city centre. The proposed CAM network is shown in Figure 2-9. The CAM sub objectives from the CPCA LTP are set out in Table 2-4.

<sup>41</sup> Planning application: S/0791/18/FL

Figure 2-9 - Proposed CAM network<sup>42</sup>



<sup>42</sup> Cambridgeshire Autonomous Metro (No Date) *What is CAM?* <https://cam-metro.co.uk/the-proposals/> [Accessed 16.02.2021]

**Table 2-4 - CAM sub-objectives<sup>43</sup>**

Goal	CAM sub-objective
Economy	<p>CAM-E1: Promote agglomeration</p> <p>CAM-E2: Support new employment by enhancing access to and attractiveness of key designated areas</p> <p>CAM-E3: Increase labour market catchment</p> <p>CAM-E4: Serve and support new areas for sustainable housing development</p> <p>CAM-E5: Provide overall transport capacity to enable and accommodate future growth</p> <p>CAM-E6: Improve transport connectivity</p> <p>CAM-E7: Improve journey time reliability</p> <p>CAM-E8: Direct high-quality public transport access to key housing sites (existing designations)</p> <p>CAM-E9: Directly serve and link into transport hubs including existing and planned rail stations</p> <p>CAM-E10: At transport hubs, support easy and rapid mode changes and transfers</p> <p>CAM-E11: At transport hubs facilitate first and last mile connectivity to the local area</p> <p>CAM-E12: Support the development of demand responsive modes</p> <p>CAM-E13: Integration with other modes, including bus</p> <p>CAM-E14: Integrated with main arterial corridors, including the projected East West Rail route and the upgraded A428, and key LTP infrastructure projects</p> <p>CAM-E15: Dedicated segregated routes as default assumption.</p> <p>CAM-E16: CAM will use technology, infrastructure and concepts of operations that deliver safe, reliable, regular, resilient and inclusive transport</p> <p>CAM-E17: CAM must be deliverable within the current decade</p> <p>CAM-E18: CAM must be future proofed and flexible in terms of capacity and technology.</p> <p>CAM-E19: CAM will utilise sustainable, highly flexible, zero emission vehicles</p> <p>CAM-E20: CAM will be designed to maximise passenger trips in both directions and across the whole day.</p>
Society	<p>CAM-S1: Provision of safe and secure CAM network – safe by design, safe in construction and safe in operation – to meet all standards and global best practice</p> <p>CAM-S2: CAM will meet all planning and environmental requirements</p> <p>CAM-S3: Affordable and fair fare structure.</p> <p>CAM-S4: Compatible with county wide future integrated ticketing</p> <p>CAM-S5: Promotes seamless connectivity between regional settlements, major city fringe employment sites and key satellite growth areas across Cambridgeshire and Peterborough</p> <p>CAM-S6: Facilitates seamless cross country and city journeys to outlying regional settlements, urban fringe employment sites and key satellite growth areas</p> <p>CAM-S7: Improve opportunities for all residents and communities</p> <p>CAM-S8: Promotes high quality public realm at stations</p> <p>CAM-S9: Reduces adverse impacts of public transport provision on city, urban and village centre mobility for pedestrians and cyclists</p> <p>CAM-S10: Support and be complimentary to walking and cycling</p> <p>CAM-S11: Improve air quality</p> <p>CAM-S12: Promote low carbon economy</p>

<sup>43</sup> Cambridgeshire and Peterborough Combined Authority (2019) Cambridgeshire Autonomous Metro Strategic Outline Business Case. [Page ix]

Goal	CAM sub-objective
Environment	<p>CAM-EV1: Support environmental sustainability</p> <ul style="list-style-type: none"> <li>- Minimises adverse impacts on conservation areas, heritage and natural community assets, including protecting the character of villages and avoiding encouraging unsustainable village fringe development.</li> <li>- Meets net gain requirements and where possible offers additional visual and environmental enhancements.</li> </ul> <p>CAM-EV2: CAM infrastructure will utilise zero emission vehicles; other public transport zero emissions vehicles should be able to use sections of the CAM infrastructure if they are CAM compatible</p> <p>CAM-S11: Improve air quality</p> <p>CAM-S12: Promote low carbon economy</p>

An assessment of the options taken forward from the optioneering process against the main objectives is included in Table 2-13.

#### Committed S106 schemes

Following the grant of outline planning permission for 6,500 dwellings as part Waterbeach New Town, the Local Planning Authority and Urban and Civic agreed a Section 106 agreement for a number of transport improvements including:

- **Milton:** Advisory cycle lanes, signage and hatch markings on Cambridge Road in Milton.
- **Mere Way cycleway designs:** A shared use path will be built along Mere Way and the Roman Road, passing through Landbeach and on to the A10, where a walking and cycling bridge will cross the A10 and connect with a shared use path into the New Town and to the Greenway through the existing village of Waterbeach.
- **Bus services:** extension of the Milton Park and Ride bus service or a new service to link Waterbeach New Town and Cambridge, and a new bus service between Cambridge Research Park, Waterbeach railway station and Waterbeach New Town.
- **A10 signalisation works (Landbeach Road/Humphries Way Junction):** Traffic signals will be installed at the junction of the A10 with Landbeach Road and Humphries Road to manage demand. The A10 at the junction will also be widened to accommodate turning lanes.
- **A10 improvements at Butt Lane and Milton Park and Ride enhancements:** Widening the southbound lane on the A10 south of Butt Lane.

#### Greenways and trails

There are two proposed Greenway and Trail schemes that are within or connect to the study area:

- **Waterbeach Greenway:** A paved shared use path with a grassed area to one side for horse riders, joggers or ramblers. The path will connect Waterbeach to the NEC development and run alongside the railway. A mass transit corridor option on the eastern side of the study area could tie in with the Waterbeach Greenway, with the greenway forming the parallel walking and cycling route.
- **Chisholm Trail:** A committed walking and cycling route between Cambridge station and Cambridge North station which would improve the link between the proposed NEC development and Cambridge Biomedical Campus. The southern end of a sustainable transport corridor from Waterbeach to the NEC development would connect to the Chisholm Trail, extending the reach possible for people walking or cycling along either route. Some parts of the Chisholm Trail are complete and open for use, including Chesterton Bridge.

Other Greenway projects are being proposed, including the Horningsea and Swaffham Greenways. The Horningsea Greenway will start within four kilometres of Waterbeach and would be an alternative route to the east of Cambridge via Fen Ditton.

## Proposed A10 dualling

Several studies have considered dualling the A10 to the north of Cambridge to increase capacity and improve journey time reliability. The CPCA have commissioned a separate study on the A10, which is currently being undertaken in parallel to this study<sup>44</sup>. The seven options presented in the first round of public consultation for the A10 study are:

- predominantly online full length dualling, bypassing the key pinch points west of Milton and at Stretham (western bypass) and Little Thetford;
- predominantly online full length dualling, bypassing the key pinch points west of Milton and at Stretham (eastern bypass) and Little Thetford;
- offline dualling of the southern section to Cambridge Research Park in addition to the junction improvements;
- full length, offline dualling;
- maximise the extent of online dualling, whilst bypassing the key pinch points at Stretham (western bypass) and Little Thetford;
- online dualling of the southern section to Cambridge Research Park in addition to the junction improvements; and
- junctions only improvements.

None of the options considered in this public transport study are dependent on any of the A10 dualling proposals, although there may be interfaces if both a public transport scheme and an A10 scheme come forward.

There is potential to share part of the public transport corridor with the A10 dualling scheme. This could improve cost effectiveness and reduce any adverse impacts of the two schemes.

## Milton Road Upgrade Scheme

Milton Road is a key arterial route into Cambridge city centre to the south of the study area. The road currently experiences congestion during peak periods, and this is expected to get worse in the future. The Milton Road project aims to improve public transport, cycle and walking infrastructure to make these sustainable travel options a more attractive alternative to the car, and to encourage the continued economic growth of Greater Cambridge, without harming existing communities, and the environment. The Milton Road scheme includes:

- Public Transport priority measures that include new sections of outbound bus lane and new floating bus stops;
- Improved cycle facilities with segregated cycle provision along both sides of Milton Road and priority over side roads. This requires the removal of the existing pavement parking on Milton Road;
- Improved pedestrian and cycle facilities, including Copenhagen style priority crossings at side roads, segregated features at all main junctions, and the relocation of some crossings;
- Landscaping to areas where more greenery can be included; and
- The development of a traffic regulation order to ban all parking on verges.

The Waterbeach to Cambridge Public Transport Scheme would build on this scheme creating a public transport priority corridor between Waterbeach and city centre.

## Summary of transport improvements

The transport improvements outlined in this Section form the basis of the DM scenario, as summarised in Table 2-5.

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<sup>44</sup> CPCA (2020) A10 <https://cambridgeshirepeterborough-ca.gov.uk/about-us/programmes/transport/a10/> Site accessed 14<sup>th</sup> July 2020

**Table 2-5 - Do Minimum scenario**

Intervention or assumption	In Do Minimum?
Waterbeach Greenway	Yes – preferred route approved by GCP
Approved Waterbeach development and its S106 commitments	Yes
A10 junction enhancement schemes	Yes – the Waterbeach Phase 1 development schemes (used as a proxy for final situation)
A10 dualling	No – but taking account of it as part of context
RLW development and Waterbeach station relocation	Yes, plus a sensitivity scenario with neither of these
NEC Area Action Plan	Yes, for its urban realm assumptions
Cambridge South station	Yes
Chisholm Trail	Yes
Bottisham / Swaffhams / Horningsea Greenways	Yes
Local Plan growth sites	Yes
Higher Growth Scenario	Yes – for numeric purposes. This scenario is being used to test all GCP schemes and CAM
Choices for Better Journeys	No specific assumption at this stage If required, use existing CSRM proxy test as a sensitivity test Revised CSRM DM scenario, with other GCP schemes in place, complete summer 2020
Bus network changes and policies	No specific assumption at this stage

## 2.5. Summary of problems, challenges and need for intervention

This Chapter has identified the problems, challenges and need for intervention within the study area, which are outlined in the following Sections.

### Existing problems

There are three key challenges in the study area:

- Proposed and allocated growth in the study area: Local policies (including Local Plans) have identified a need for an additional 33,000 homes and 44,000 jobs by 2031, which would exacerbate transport capacity issues that are currently experienced during peak periods. Whilst it is recognised that there is a need for growth, the existing transport network is unlikely to be able to accommodate this without new sustainable transport infrastructure. As a result, the local authorities will not be able to deliver planned growth in line with Local Plan objectives without further sustainable transport intervention.
- Congestion on A10 north of the A14 from Milton Interchange: Current congestion on the A10 around Milton village causes journey time and reliability issues. The evidence base suggests that this issue is likely to be exacerbated when additional development (such as Waterbeach New Town) is completed. Congestion in and around the A10 corridor will stifle sustainable growth in this area and reduce productivity due to delays caused by congestion.
- Constraints on the eastern side of the study area: Several previous studies (outlined in Section 2.2.2) noted that the eastern side of the study area adjacent to the railway line has a number of constraints. These include the location of existing dwellings and proposed developments, which could hinder future transport infrastructure provision.

## Need for intervention

There is a strong need for intervention within the study area to:

- **Accommodate additional growth:** Additional growth proposed in the area is likely to result in major highway capacity issues in the future. Public transport services providing quicker, more frequent and more reliable public transport journeys along the A10 is a key measure to mitigate against this constraint. A new high-quality public transport scheme would not only accommodate additional growth, but would do so in a sustainable way and support current and emerging environmental policy.
- **Reduce dependency on private motor vehicles:** Due to a lack of quick, frequent and reliable public transport links between Waterbeach and Cambridge, there is a dependency on private motor vehicles to make the majority of these journeys. This causes large amounts of congestion and delays at pinch points (e.g. Milton Interchange). Potential interventions that increase north-south public transport links would significantly reduce the dependency on private car for these trips. Much-improved public transport services would increase the resilience of the transport network and reduce reliance on use of private motor vehicles in the A10 corridor.
- **Supporting local policy and strategies:** Local plans and policies identify a clear need to reduce congestion and enable additional sustainable growth to be accommodated within the study area. The policies demonstrate that the Waterbeach to Cambridge corridor is a key economic growth area and should be supported by the appropriate level of infrastructure to ensure that the transport network has enough capacity to support the movement of people between residential and employment areas sustainably. Moreover, local and regional policies have set goals to reduce car dependence. For example, the GCP has a target to reduce motor traffic levels in Cambridge by 10% compared to 2011 levels. To achieve this goal, investment is needed in sustainable transport modes to enable more people to travel by walking, cycling or public transport. A sustainable transport corridor between two major growth areas will reduce congestion and car dependence, connect more people to major employment areas, and enable the planned growth in housing to proceed.

## Corridor opportunities

To overcome the existing issues within the study area, there are opportunities to:

- provide a more resilient public transport network that is not dependent on the A10;
- transform public transport to a high-quality, segregated attractive travel option along the corridor for a number of people (this would make public transport a more attractive alternative for existing car travellers and as a result could help manage the impacts of growth);
- provide sustainable infrastructure directly servicing new developments and key travel markets;
- encourage mode shift from private car to sustainable modes;
- improve journey times and reliability within the study area corridor by public transport; and
- accommodate growing transport demand in a sustainable way (via increased public transport, walking and cycling links).

## 2.6. Option development

### 2.6.1. Why is a high-quality public transport route the best option?

An assessment has been made of a range of options for delivering sustainable transport in this corridor both with and without a high-quality public transport route. The assessment makes a qualitative judgement on the impacts of each option in terms of:

- the transport outputs and outcomes from this study, and
- a sifting criteria that is consistent with that used by other GCP projects to assess their options which have been used for consistency throughout the GCP programme.

The following options were assessed:

- improvements to bus services;
- improvements to rail services;

- improvements to the walking, cycling and equestrian network;
- measures to manage the number of trips made and mode of travel (demand management);
- Park and Ride;
- a segregated high-quality public transport route; and
- a combination of rail, bus, walking and cycling routes.

Each option has been assessed on a five-point scale including **major positive (dark green)**, **minor positive (light green)**, **neutral (grey)**, **minor negative (orange)** and **major negative (red)**. The sifting criteria, outcome and accompanying notes are provided in Appendix C. The results of the assessment are presented in Table 2-6.

Table 2-6 shows that a segregated high-quality public transport route option, and improvements to walking, cycling and equestrian provision align best to the strategic objectives and offer the biggest benefits compared to other options. Given the high levels of potential modal shift and environment benefits arising from a reduction in car trips from these options, a combination of the two performs best in achieving the overarching objectives of Waterbeach New Town to the NEC development.

The demand management and Park and Ride options score less well.

The combined improvement approach scored well, but only scored 'minor positive' on the public transport objectives because bus and rail services already exist. A new segregated high-quality public transport route scored better in this regard as new infrastructure could serve different markets (such as Cambridge Science Park and Cambridge Research Park) and provided fast, frequent, and reliable connections.

As a result of the strategic option assessment, it is concluded that a segregated high-quality public transport route with accompanying walking, cycling and equestrian infrastructure would offer the best benefits compared to other options.

**Table 2-6 - Strategic option assessment**

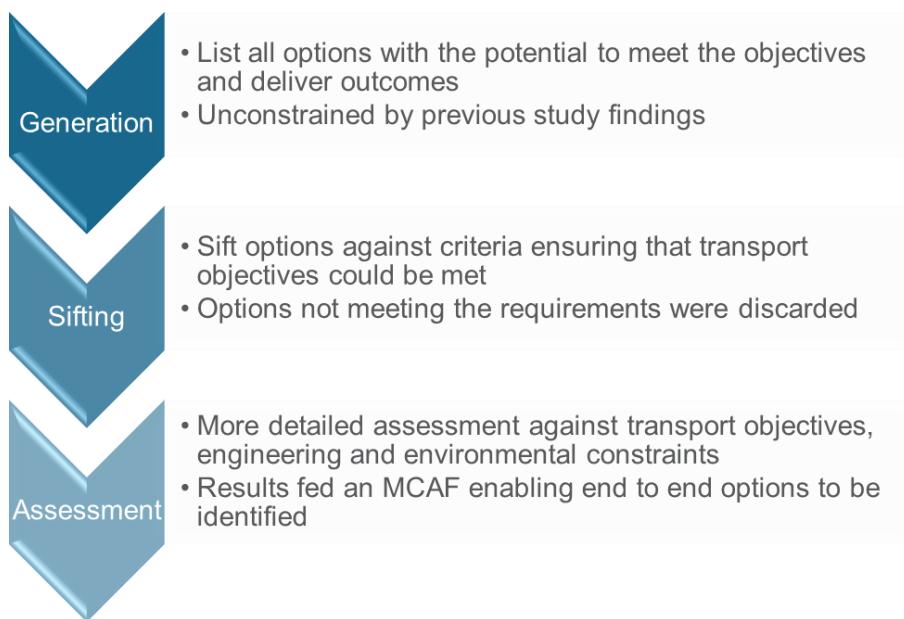
Strategic objective	Improvements to bus services	Improvements to rail services	Improvements to walking, cycling & equestrian facilities	Demand management	Park and Ride	Segregated High Quality Public Transport Route	Combined approach
Increase in public transport capacity	High	Medium	Medium	Medium	Medium	High	Medium
Ability to contribute to 24% reduction in traffic levels	Medium	High	High	High	High	High	Medium
Propensity to reduce congestion / delays	Medium	High	High	High	High	High	Medium
Reduced journey times on public transport	High	Medium	Medium	Medium	Medium	High	Medium
Increased reliability of public transport	High	High	Medium	Medium	Medium	High	Medium
Ease of interchange	High	High	Medium	Medium	Medium	Medium	Medium
Benefits to active travel	Medium	Medium	High	Medium	Medium	High	Medium
Supports CAM	Medium	Medium	Medium	Medium	Medium	High	Medium
Scale of catchment (jobs/housing)	High	Medium	High	Medium	Medium	Medium	High
Ability to unlock growth	High	Medium	High	Medium	Medium	High	Medium
Road safety	Medium	Medium	Medium	Medium	Medium	High	Medium
Protection of green spaces	Medium	Medium	High	Medium	Medium	Medium	Medium
Environment, air quality and carbon	Medium	Medium	Medium	Medium	Medium	High	Medium
Quality of the public realm	Medium	Medium	High	Medium	Medium	High	Medium
Severance	Medium	Medium	Medium	Medium	Medium	Medium	Medium
Engineering constraints	Low	Low	Medium	Medium	Medium	Medium	Medium
Environmental constraints	High	High	Medium	Medium	Medium	High	Medium
Land ownership	Medium	Medium	Medium	Medium	Medium	Medium	Medium
Planning	Medium	Medium	Medium	Medium	Medium	Medium	Medium
Political / public acceptance	High	High	Medium	Low	Low	Medium	Medium
Stakeholders acceptance	Low	Low	Medium	Medium	Low	Medium	Low

## 2.6.2. Optioneering

This Section summarises the work reported in the OAR<sup>45</sup> and outlines the methodology employed and the findings of the option generation, sifting and assessment processes for the segregated high-quality public transport route plus walk / cycle / equestrian improvements option. The process had three stages:

1. The **option generation** stage identified possible options that had the potential to meet the objectives and deliver the outcomes of the study. Option generation was not constrained by the findings of previous studies.
2. Identified options were **sifted** by assessing them using a criteria selected to ensure that the transport objectives of the study could be met. Options that were unable to meet these high-level criteria were discarded at this stage.
3. In the final stage, a **more detailed assessment** of the options remaining was undertaken, assessing their fit against each transport objective and outcome, and engineering and environmental constraints. This assessment fed in to a Multi Criteria Assessment Framework (MCAF) to record the evidence and score each option against the criteria. From this, sets of options were considered in combination to provide corridor options for full connectivity to and from each end of the study area.

**Figure 2-10 - Summary of optioneering approach**



### Option generation<sup>46</sup>

The initial option generation stage was informed by, but not constrained to, previous studies, proposed developments and driven by existing policy. All options with the potential to meet the transport objectives were considered.

Initial options were generated by the wider project team (including Atkins consultants and GCP officers), all of whom were familiar with the study area and the existing issues present within it. Different concepts for connections were considered, such as maximising the use of existing infrastructure, connecting all possible markets together via an indirect route, or providing the most direct end-to-end connectivity. Options that cross known constraints that would be too difficult to mitigate or avoid were not progressed, as they were not considered feasible.

<sup>45</sup> Atkins (2020) Options Appraisal Report

<sup>46</sup> Atkins (2020) Options Appraisal Report [Page 32]

### Option sifting<sup>47</sup>

An options sifting process reviewed and sifted the identified options that had been generated in the previous stage. Each option was assessed against three overarching criteria of Effectiveness, Feasibility and Acceptability. The assessment used a Red, Amber, Green (RAG) approach as follows:

- green represented meeting each criterion individually;
- amber represented a challenge to meeting the criterion that could be mitigated or overcome; and
- red represented options that were unfeasible, unreliable, ineffective or unacceptable on a particular criterion.

Table 2-7 outlines the sifting assessment criteria and the key issues considered under each criterion that reflect the transport objectives and outcomes.

**Table 2-7 - Sifting assessment criteria**

Sifting criterion	Elements considered within each criterion
Effectiveness	Additional sustainable transport capacity
	More reliable public transport journey times
	More public transport journeys in the corridor
	More journeys by walking and cycling
Feasibility	Engineering constraints
	Environmental constraints
	Planning requirements
Acceptability	Stakeholder views
	Alignment with local and regional policies

GCP determined that a reliable system was key and that if options could not improve reliability, then they should be discounted at this stage. If links were online (with traffic) and there was not an option to provide public transport priority, these were discounted as they could not guarantee reliability. Exceptions are very short sections of highway with low traffic volumes that connect two other key pieces of proposed infrastructure.

If an option received one red rating or three amber ratings, it would normally be discounted. However, this was not rigidly applied, and certain options were retained following further assessment. For example, an online option using Milton Interchange was rated red for feasibility due to engineering constraints, however it was retained at this stage as it was considered too early to remove options that used the existing main north-south transport infrastructure. It was also found that some options became obsolete after other options were sifted out, so these were also removed at this stage.

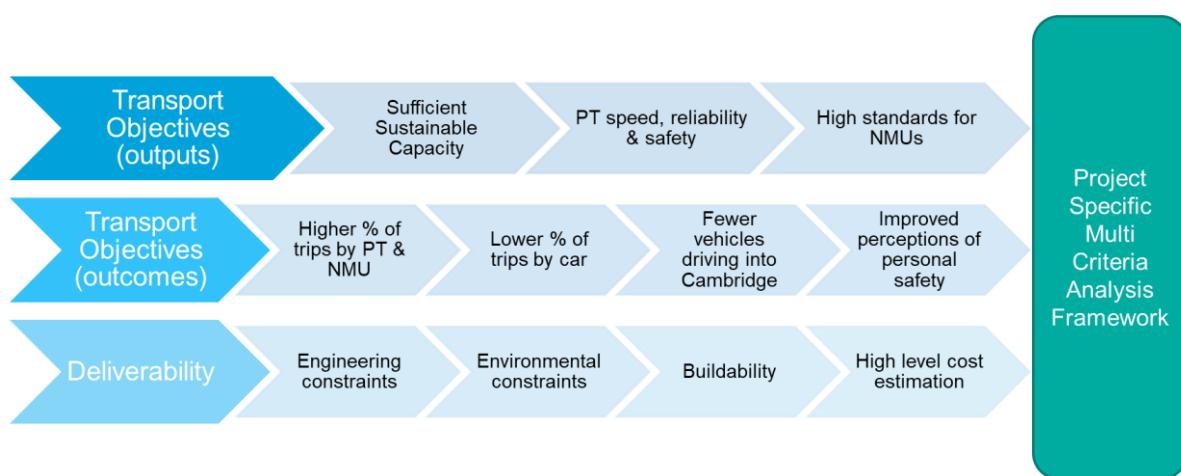
Options that crossed environmental or heritage constraints, such as the Mere Way Roman Road and the Waterbeach Abbey site to the south of Waterbeach, were discounted as the potential negative impact would not be acceptable on planning and environmental grounds. Options on the eastern side of Waterbeach parallel to the railway were discounted due to the land constraints and the complexities of interaction with Clayhithe Road and its level crossing.

### More detailed assessment<sup>48</sup>

The More Detailed Assessment (MDA) considered the options that were carried forwards from the previous stage (option sifting). A summary of the assessment criteria used is provided in Figure 2-11.

<sup>47</sup> Atkins (2020) Options Appraisal Report [Page 34]

<sup>48</sup> Atkins (2020) Options Appraisal Report [Page 38]

**Figure 2-11 - MDA criteria**

In Figure 2-11, “Higher % of trips by Public Transport and Non-Motorised User” are shown together for convenience but were treated as separate criteria. This means there were a total of twelve criteria. Options were assessed using the criteria through desktop studies by specialists in each discipline who were as follows:

- Planning Lead: buildability;
- Environment Lead: environmental constraints;
- Highway Design Lead: engineering constraints, buildability and high-level cost estimation; and
- Transport Planning Lead: transport objectives (both outputs and outcomes).

To summarise the assessments, and to allow intuitive comparison of relative performance, each option was scored against the 12 criteria, using a four-point scale (0 to 3). Scores from each criterion were combined to provide overall informative scores for:

- transport planning (the eight criteria covering transport objectives);
- deliverability (the four criteria in this area); and
- all criteria.

A workshop followed where the assessment was presented to GCP officers who provided feedback and approval on the process and outcomes.

Following the MDA, corridors were identified holistically, drawing together appropriate combinations of better-performing options and nodes in order to create coherent and mutually distinct corridors. These better-performing options were agreed with GCP and are described in Table 2-8 and shown in Figure 2-12. These options were presented at public engagement in July 2020, the results of which are summarised in the following Section.

**Table 2-8 - Corridor options presented at public engagement**

Option name	Description	Key option-specific issues to be considered further at SOBC stage
Western route option (green)	The Western route option originates near Cambridge North Station and follows the CGB under the A14, then turns northeast and continues to the west of Mere Way. The route then bears east north of Landbeach and crosses the A10 at the proposed access roundabout to Waterbeach New Town.	<ul style="list-style-type: none"> <li>• Interaction with Mere Way Roman road</li> <li>• Interaction with A10 at the access roundabout</li> </ul>

Option name	Description	Key option-specific issues to be considered further at SOBC stage
Central route option (yellow)	<p><b>Short Term</b></p> <p>The short-term option could be provided prior to the redevelopment of the NEC development and would service the periphery of the Cambridge Science Park. This option originates near Cambridge North station and follows the CGB under the A14, where it then turns east and traverses the agricultural land between Landbeach and Milton. The route crosses the A10 southwest of Waterbeach at Cambridge Road, then bears north, crossing Denny End Road to Waterbeach New Town.</p> <p><b>Long Term</b></p> <p>The long-term option could be provided following the redevelopment of the NEC, subject to agreement with the landowners. Instead of using the CGB, this route would use an offline route through the NEC, and would cross the A14 at a new crossing north of Cambridge Science Park. This would improve the route's ability to serve employees on site.</p>	<ul style="list-style-type: none"> <li>Interaction with allotments at Cambridge Road, Waterbeach</li> <li>Interaction with properties adjacent to allotments</li> <li>Interaction with the landfill west of Milton</li> <li>Interaction with A10 at staggered crossroads (A10, Car Dyke Road, Waterbeach Road), south west of Waterbeach</li> <li>Whether duplicating CGB infrastructure on a new parallel route through the Cambridge Science Park is necessary</li> </ul>
A10 route option (orange)	<p>The A10 route option originates near Cambridge North station and travels along Cowley Road to Milton Road. From here, the route bears north and crosses the A14 at a new crossing near Jane Coston Bridge, then bears west to the south of Milton Tesco supermarket. The route crosses the northern arm of the Milton Interchange before bearing north to the west of the A10. The route crosses the A10 southwest of Waterbeach on Cambridge Road then bears north through to Denny End Road, and continues north to Waterbeach New Town.</p> <p>There is potential for a more direct routing using a segregated alignment along Milton Road and through Milton Interchange. However, this is assumed to only be practicable if there were separate proposals for highway changes in this part of the A10 corridor that could enable such a routing. This possibility will be reviewed as the current A10 study progresses.</p>	<ul style="list-style-type: none"> <li>Interaction with allotments at Cambridge Road, Waterbeach</li> <li>Interaction with A10 at staggered crossroads (A10, Car Dyke Road, Waterbeach Road), south west of Waterbeach</li> <li>Design of route where it crosses the A14 from the eastern side of the NEC development and A10 at Milton interchange</li> </ul>
Eastern route option (blue)	<p>The Eastern route option originates near Cambridge North Station and bears north through the eastern side of NEC, crossing the A14 south of Milton Country Park. The route traverses the borders of the Country Park on the eastern side, before heading north to the west of the proposed sports lake development and east of the existing Footgolf area. The route reaches Waterbeach at Car Dyke Road, then continues through to Denny End Road, and continues north to Waterbeach New Town.</p>	<ul style="list-style-type: none"> <li>Interaction with the NEC development</li> <li>Interaction with the proposed Waterbeach Greenway, including the Greenway underpass of the A14</li> <li>Interaction with the sports lake complex</li> <li>Interaction with residential properties and allotments on Cambridge Road in Waterbeach</li> </ul>

Figure 2-12 - Plan of options taken forward to SOBC

**Areas of Interest**

West area of interest

**A10 area of interest****Central area of interest****East area of interest****Development**

Waterbeach New Town

Major Employment Areas

**Study area**

## 2.7. Impact of not changing

The Cambridge region is growing rapidly, and Local Plans identify the need for more housing over the next decade to support this growth. If the housing planned for the Cambridge region cannot be delivered, people will continue to be priced out of the Cambridge housing market and will have to live further away from the city, placing increased pressure on the transport network as commutes get longer. The labour market catchment for companies in Cambridge will be reduced if housing supply is limited and transport connectivity is constrained. As a result, Cambridge would see a very congested transport network which would significantly reduce productivity whilst increasing carbon emissions. Sustainable growth could be stifled and would not be sustainable due to the reliance on private cars.

As the city and region already experience congestion, local and regional policies have set goals to reduce car dependence, for example the GCP has a target to reduce motor traffic levels in Cambridge by 10% compared to 2011 levels. To achieve this goal, investment is needed in sustainable transport modes to enable more people to travel by walking, cycling or public transport. A sustainable transport corridor between two major growth areas will help to reduce congestion and car dependence, connect more people to major employment areas, and enable the planned growth in housing to proceed.

## 2.8. Measures of success

For the purposes of quantifying the benefits and therefore the success of this study, the overarching objectives have been developed in more detail into a set of outputs and a set of outcomes. The agreed transport outputs were set out in the Appraisal Methodology Report (AMR) and represent the desired infrastructure capabilities. The transport outputs are:

- sufficient sustainable transport capacity with appropriate frequencies to meet the additional demand for travel due to jobs and housing growth;
- high standards of public transport speed, reliability and safety between Waterbeach New Town and NEC (and beyond); and
- high standards of infrastructure for walking, cycling and other non-motorised modes of travel between Waterbeach New Town and north east Cambridge, including making routes as direct as possible.

The transport outcomes are those which any investment recommended by the study should seek to achieve. The outcomes agreed for this study, which reflect the 'study objectives' set in the brief, are:

- a higher share of journeys along the corridor being made by public transport;
- a higher share of short journeys being made by walking and cycling;
- a smaller share of journeys in the corridor being made by private car;
- fewer vehicles driving into Cambridge (compared to 2011 levels); and
- improved perceptions of safety.

## 2.9. Scope of the scheme

Having set out that there is a strong case for change, the scope of this study is to develop scheme options and prepare an SOBC for a public transport corridor connecting north east Cambridge and Waterbeach. The interventions considered must ensure that employment and housing growth can be accommodated without increasing levels of motor vehicle traffic within Cambridge, accounting for the existing and future needs of large businesses, employment parks and housing developments in the corridor. The scheme can be delivered in isolation to other transport improvements in the Greater Cambridge area but, in the future, it could be part of Phase 1 of CAM as a regional extension towards Waterbeach and Ely. The scheme will also significantly enhance walking, cycling and other non-motorised transport infrastructure between the proposed Waterbeach New Town, NEC and points in between.

## 2.10. Constraints identified

When considering potential transport options, the following constraints need to be investigated:

- Engineering constraints, including:

- any type of crossing over the A14, e.g. north of Cambridge Science Park or Cambridge Northern Fringe East;
- potential to fit through pinch points such as the allotments north of Cambridge Road, Waterbeach;
- potential to accommodate a transit route to the east of Waterbeach alongside the railway without encroaching directly on local properties; and
- any type of interaction with Milton Interchange is a constraint, given the existing capacity issues experienced at the junction during peak periods.
- Environmental constraints, including:
  - the buildability of a transit route over the landfill site west of Milton; and
  - the study area south of Waterbeach is designated Greenbelt.
- A masterplan for the NEC development is in the process of being developed and therefore any option traversing the area will be required to be coordinated with potential development proposals and existing buildings and transport infrastructure.

## 2.11. Interdependencies

A full list of interdependencies is provided in the Management Case, Section 6.3. Major dependencies that could impact the Strategic Case are summarised in Table 2-9.

**Table 2-9 - Interdependencies of this study at the strategic level**

Project	Dependency
Waterbeach New Town	Waterbeach New Town is dependent on a sustainable transport corridor. In turn, the sustainable transport corridor depends on the layout of the development to accommodate the route.
NEC development	Development in this area is dependent on a sustainable transport corridor to meet the trip budget <sup>49</sup> . In turn, under certain corridor options the sustainable transport corridor depends on the layout of the development to accommodate the route, and the ability to do so will influence corridor selection.
Sports Lake development	This development will affect the alignment of the sustainable transport corridor if a route on the eastern side of the study area is selected.
A10 dualling	A new A10 route may require new crossings for the sustainable transport corridor. If an online dualling option is selected, this may impact the ability to deliver a sustainable transport corridor alongside the existing A10.

## 2.12. Stakeholders

Table 2-10 summarises the key stakeholders as identified by GCP and any areas where they have a particular role within this study. These stakeholders, and the public, have had a direct influence on option development.

<sup>49</sup> A trip budget is a planning policy that restricts the amount of highway trips that a development is allowed to generate. If an assessment shows that highway trips may exceed the budget, then the development will not be accepted.

**Table 2-10 - Summary of key stakeholders (listed alphabetically)**

Stakeholder	Role within study
Bus Operators	Existing and potential providers of services within study area. Agreement to be sought regarding operations of potential scheme.
Business Organisations	
Cambridge Ahead	Stakeholder
Cambridge North East Land Owner Forum	
Cambridge Northern Fringe East	Potential for transit route to traverse Cambridge Northern Fringe East. Agreement to be sought regarding operations of potential scheme through land.
Cambridge Past Present and Future	Stakeholder
Cambridge Research Park	Potential service could originate/terminate in Cambridge Research Park. Agreement to be sought regarding operations of potential scheme through land
Cambridge Science Park	Potential for transit route to traverse Cambridge Science Park land. Agreement to be sought regarding operations of potential scheme through land
Cambridge University	Stakeholder
CCC (Local Highway Authority)	Statutory consultee with any proposed planning permission within the study area
Camsight and groups which represent people with limited mobility or a sensory impairment and wheelchair users	Stakeholder
Commuters	
Councillors (Local)	Councillors to provide approval for scheme.
Councillors (Wider)	Statutory consultee with any proposed planning permission within the study area
Cambridgeshire and Peterborough Combined Authority (Local Transport Authority)	Scheme will aim to satisfy key stakeholder policies Consultee with any proposed planning permission within the study area
Emergency Services	Statutory consultee with any proposed planning permission within the study area
Environmental Groups	Stakeholder
GCP Executive Board	Study to be approved by GCP Executive Board
GCP Officers for other GCP Schemes	Provision of wider GCP project information and tie in with parallel projects
Greater Cambridge Planning Service	Consultee with any proposed planning permission within the study area
Highways England	Statutory consultee with any proposed planning permission within the study area
GCP Joint Assembly	Consultee with any proposed planning permission within the study area

Stakeholder	Role within study
Landowners	Stakeholder Negotiations may be required for potential land take (subject to proposed routes)
Local Businesses	
Local Campaign Groups	
Local Developers	Stakeholder
Local Residents	
Media	
Members of Parliament	
Network Rail	Statutory consultee with any proposed planning permission within the study area Potential interaction if any schemes involve or are close to the railway
Parish Councils	Statutory consultee with any proposed planning permission within the study area
Park and Ride	
Residents' Associations	
Schools	
Smart Cambridge	
Technical Consultants	Stakeholder
Transport User Groups	
Utilities Companies	
Youth Groups	

Details of the stakeholder management plan can be found in Section 6.7.

## 2.13. Consultation outcomes

### 2.13.1. Methodology

A public consultation on the four corridor options was held virtually between Monday 19<sup>th</sup> October 2020 and Monday 14<sup>th</sup> December 2020. All events were online/virtual due to Covid-19 restrictions on face-to-face contact. The consultation adopted a multi-channel approach to promote and seek feedback, including the wide-spread distribution of around 6,000 consultation booklets and online media.

Eight online briefings were held, one one-to-one session, four parish council meetings, three resident meetings and the pre-launch briefing with local district and county councillors. In addition, a social media campaign was undertaken including a Facebook live session with over 50 questions submitted. There were over 3,000 visitors to the dedicated website and over 1,000 documents (maps, information, and copies of the booklet) were downloaded. All parish councils and schools in the study area were contacted. Adverts were also placed in local newspapers, at local railways stations and at the Milton Park and Ride site.

Quantitative data was recorded through a formal consultation questionnaire (online and hard copy) with 570 complete responses in total recorded. A large amount of qualitative feedback was also gathered via the questionnaire, email and social media. The GCP also received 72 additional written responses.

The consultation strategy has allowed a wide variety of people to engage within this public consultation, therefore mitigating the lack of face-to-face events as a result of the coronavirus restrictions.

## 2.13.2. Consultation findings

This section summarises the findings in the public consultation report. The full public consultation report can be found on the GCP website<sup>50</sup>.

### Public opinion and support

**Over half (52%) of respondents supported the high-quality public transport route proposals** and 36% opposed. The most supportive groups were those who usually travel in the area by cycle (63% support, 29% oppose), along with those whose usual destination is North Cambridge (64% support, 29% oppose) or South Cambridge (62% support, 31% oppose). Figure 2-13 shows level of support for each of the four corridor options.

Figure 2-13 - Support for proposals amongst respondents<sup>51</sup>

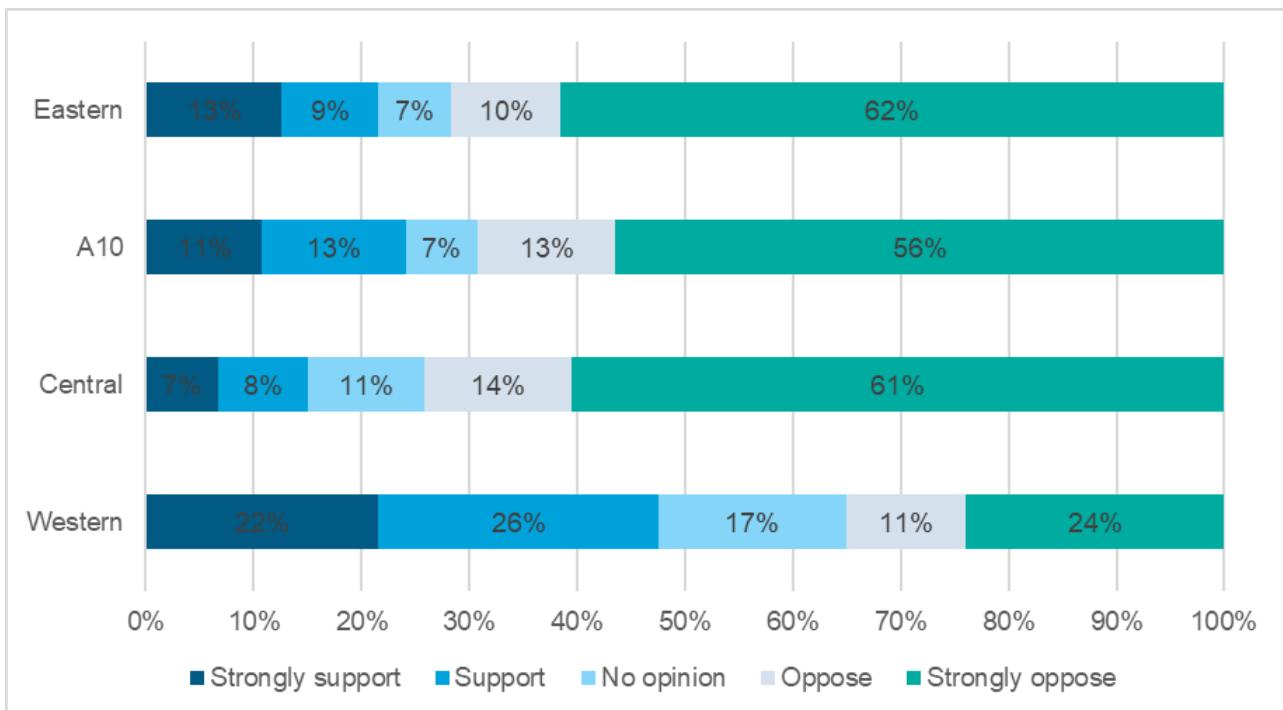


Figure 2-13 shows that the **Western route option had the most positive response** (48% supported proposals), however there was strong opposition to the Central, A10 and Eastern route options (75%, 69% and 72% strongly oppose or oppose the options respectively).

When asked which markets should be served, half the respondents indicated that Waterbeach village (50%), Waterbeach new town (50%) and the relocated Waterbeach railway station (49%) should be given ‘somewhat high’ or ‘very high’ priority on the route which supports the end-to-end objectives of the schemes. Moreover, respondents considered that the provision of connectivity to key markets was more favourable than achieving faster journeys. With this in mind the emerging service patterns should seek to mix a fast service for end-to-end journeys whilst other services should seek to serve local centres to maximise demand and therefore patronage. Service patterns are not restricted to the infrastructure that could be provided as part of the scheme and it is possible for alternate services to run to reach different users. This will be investigated further during the next stage of scheme development.

The GCP received a number of detailed comments, from which the most common areas of discussion were:

- concerns about the loss of housing / personal property;
- concerns about negatively impacting the local environment;
- further improvements to active travel in the area;
- use of existing infrastructure, and the linkages with the potential duelling of the A10 route; and

<sup>50</sup> <https://www.greatercambridge.org.uk/public-transport-schemes/waterbeach-to-cambridge>

51 Cambridgeshire County Council (2021) Waterbeach to Cambridge: Summary Report of Consultation Findings Figure 10 Page 21

- concerns about connections to and from Waterbeach, and loss of existing bus services.

Some responses raised opposition to proposals that could potentially result in the loss of housing / personal property, which contributes to the overall levels of support of the Central, A10 and Eastern route options.

#### **Respondent profile**

The respondent profile has been summarised below:

- Just over half (51%) of respondents stated that they were a resident of Waterbeach, whereas 28% regularly travel in the area;
- Cambridge, Milton and Landbeach residents made up 24% of respondents;
- Up to 79% of respondents usually travel by car, whilst 52% travel by bicycle and 44% walk<sup>52</sup>;
- Nearly one in five (18%) of respondents stated that they would use a scheme like the one being proposed on a daily basis; and
- 21% of respondents stated they would not use the proposed infrastructure.

## **2.14. Route amendments**

Following the consultation exercise and initial technical work, a review was undertaken of the four corridor options to determine which should be taken forward to economic assessment.

As a result of the review, amendments were made to three of the four corridor options, as described below.

#### **Western route option (not revised)**

Initial technical work did not indicate any concerns with the performance of this option. The Western route option is also the most publicly supported option. As a result, no alterations have been made to this option.

#### **Revised Central route option**

Initial technical work indicated that the Central route option alignment could cause severe traffic congestion issues at the Car Dyke Road, Waterbeach Road A10 junction, as the scheme would require an additional set of signals. Moreover, there was strong public opposition to where the potential route traversed Cambridge Road and ran north through the Waterbeach allotments. Finally, the tight alignment around the allotments could cause some possible engineering constraints.

A Revised Central route option has been developed to mitigate these issues. The key features of this option are as follows:

- the same alignment as the original Central route option between Cambridge North Station to Landbeach Road to the north of Milton Park and Ride;
- then following a new alignment due north running roughly mid-way between Landbeach village and the A10 avoiding private and commercial properties;
- running north-east then to a proposed roundabout at Waterbeach New Town on the A10; and
- then following the same alignment as the Western route option through Waterbeach New Town to the proposed relocated Waterbeach Station and Cambridge Research Park.

A plan comparing the original route and the revised route is shown in Appendix D.

#### **Revised A10 route option**

This option in its original form ran around the allotments via Cambridge Road; however there are operational concerns around the tight geometry of this part of the route. Furthermore, the responses to the public consultation do not support this alignment.

The route of this corridor option has been amended so that it joins Car Dyke Road from the south and runs via Car Dyke Road and High Street through Waterbeach village centre and onward to Waterbeach New Town.

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<sup>52</sup> Percentages do not total 100% as some respondents travel by more than one mode.

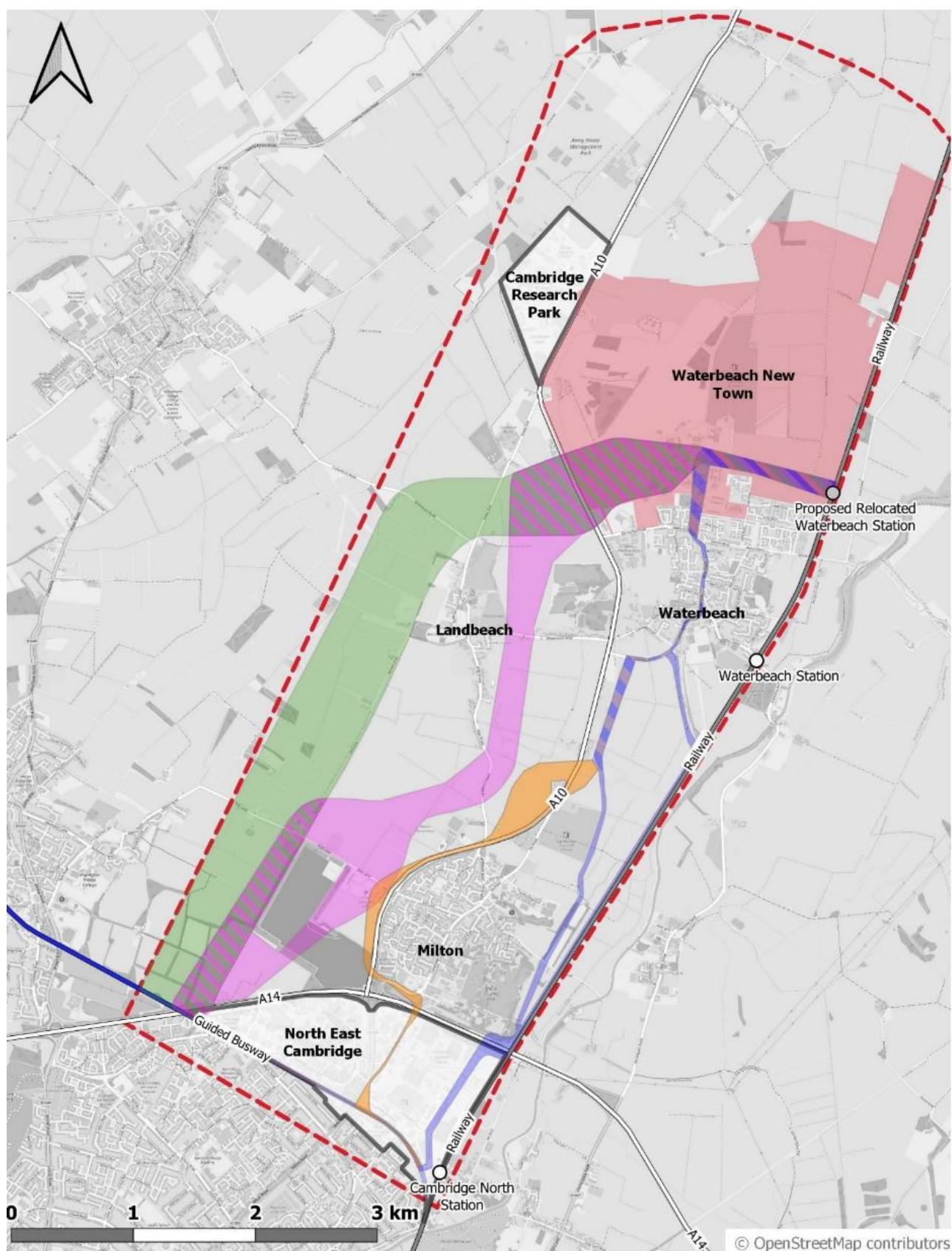
This new alignment would not achieve the high-speed and reliable service that a wholly offline service would provide. However it would mitigate the concerns raised during public consultation. A plan comparing the original route and the revised route is shown in Appendix D.

#### Revised Eastern route option

As with the Revised A10 corridor option, the alignment around the Waterbeach allotments is not supported by the public and there are operational concerns associated with the geometry of that part of the route. As such, the option has been amended to join Car Dyke Road and run on-road to Waterbeach New Town as the Revised A10 corridor option. A plan comparing the original route and the revised route is shown in Appendix D.

The new proposed alignments are shown in Figure 2-14.

Figure 2-14 – Revised corridor option alignments

**Areas of Interest**

- Western option
- Revised Central option

**Revised A10 option**

- Revised Eastern option
- Hatched where areas overlap

**Development**

- Waterbeach New Town
- Major Employment Areas

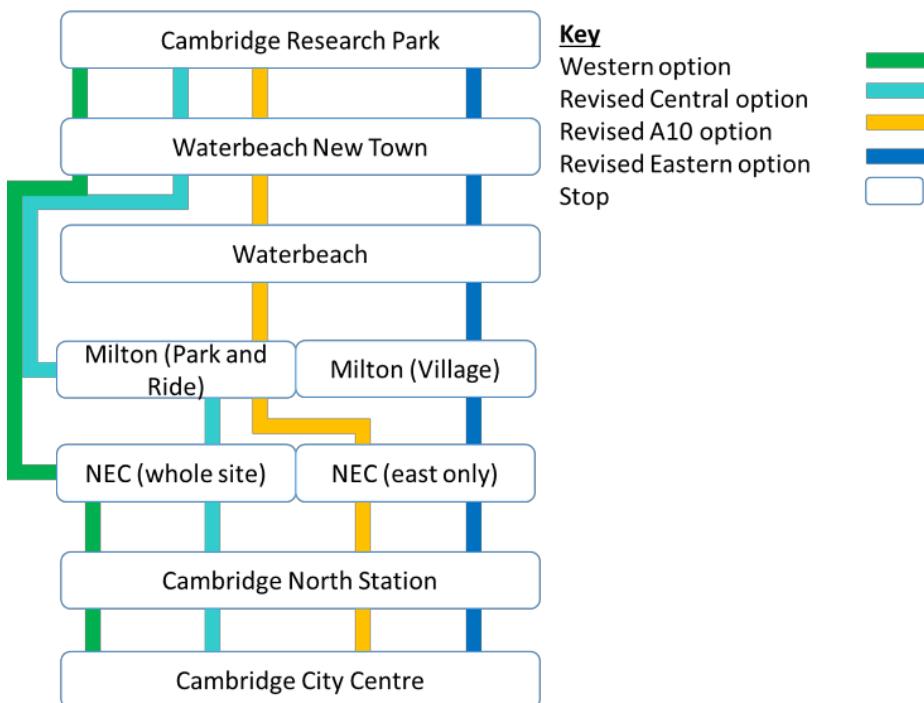
**Study area**

The impacts of the revised options were forecast using CSRM2. The assessment showed that the shift away from car use is forecast to be higher in the Revised Central route option than the Western route option, but less than in the Revised A10 route option. This is reflected in the patronage of park and ride sites: as Milton Park and Ride site is served by high-quality public transport services, the number of users of this site is seen to increase, on top of the trips using Waterbeach New Town Park and Ride site. Guided bus and the proposed Waterbeach to Cambridge Public Transport Scheme patronage is comparable for the Western route option and the Revised Central route option.

### Travel markets served

Figure 2-15 shows the residential and employment areas that would be served by each option. Both the Western and Revised Central route options would not directly serve Waterbeach, but would be accessible via Waterbeach New Town. These two options would serve the whole of Cambridge Science Park. The Revised A10 and Revised Eastern route options would serve both Waterbeach New Town and the existing Waterbeach village but would only serve the eastern side of NEC.

**Figure 2-15 - Areas served by high-quality public transport route**



### Journey times

A high-level assessment has been made of likely public transport journey times. Methodologies used in previous GCP projects (including Cambourne to Cambridge Better Bus Journeys Scheme, Cambridge South East Transport Study and the Western Orbital) have been considered. Following a review of methodologies, the recommended methodology for estimating journey times for Waterbeach New Town to North East Cambridge Public Transport Scheme is as follows:

- for rural areas, the timetable for services along the CGB between St Ives Park and Ride and Histon and Impington will be used to calculate the average speed of the proposed service;
- for urban areas, the timetable for the CGB through built-up areas will be used, for example along the section from the Cambridge Science Park to Cambridge North Station; and
- one of the above average speeds to be applied to each section of the proposed route options based on whether it is passing through primarily urban or non-urban areas.

Using this method, average speeds were derived and are shown in Table 2-11.

**Table 2-11 - Summary of average speeds for different route types**

Section type	Average speed
Non-urban separated route	54 km/h
Urban separated route	27 km/h

Using the plan of corridor options (Figure 2-12), sections of the route were defined as either “rural, segregated” or “urban, segregated”. To reflect the fact that the exact length of each section is currently unknown, a ‘sample maximum’ and ‘sample minimum’ route length within each option was assumed. These are hypothetical lengths for the purposes of bracketing journey times and do not represent actual design options.

Based on this approach, minimum and maximum journey time estimates for each option from Cambridge Research Park to Cambridge City Centre are shown in Table 2-12.

**Table 2-12 – Estimated times for each corridor option**

Option	Estimated journey time range
Western route option	27 to 32 mins
Revised Central route option	27 to 32 mins
Revised A10 route option	26 to 31 mins
Revised Eastern route option	27 to 32 mins

The c. 30-minute journey time between Waterbeach and Cambridge city centre in the weekday morning peak compares with a pre-Covid bus journey time of around 45 minutes<sup>53</sup> for the same journey. **This represents a significant journey time saving (of around 15 minutes (33%)** between Cambridge Research Park and Cambridge City Centre which further highlights the benefits of this scheme.

Moreover, the Waterbeach to Cambridge Public Transport Scheme would significantly increase journey time reliability as it is proposed that the majority of the route will be segregated from the rest of the A10 traffic. This, combined with the Milton Road improvement scheme, would mean that the vast majority of the route would not be subject to delays caused by general traffic. Currently, services such as the Citi 2 and route 9 can experience delays between Ely and Cambridge as they are reliant on the existing non-prioritised highway network. Journey time reliability is further explored in Section 3.4.11.

### 2.14.1. Alignment with policy and objectives

Better-performing corridor options were those which aligned best with local, regional and national objectives<sup>54</sup> as well as the CAM objectives (set out in Table 2-4) and the overall scheme objectives (set out in Section 2.1.2). Consideration was given to whether each option aligns to policy and objectives and it is presented in Appendix D and is summarised in Table 2-13.

**Table 2-13 - Option alignment to policy and objectives**

Policy / Objective	Western route option	Revised Central route option	Revised A10 route option	Revised Eastern route option
Local, regional and national policy				
South Cambridgeshire Local Plan – 2018	✓	✓	✓	✓
Cambridge Local Plan – 2018	✓	✓	✓	✓
Cambridgeshire Local Transport Plan 2011-2031 – 2015	✓	✓	✓	✓

<sup>53</sup> Information from timetables February 2020 for Citi 2, Route 9 and Route X9 services.

<sup>54</sup> Relevant policies are set out in Appendix A of the OAR.

Policy / Objective	Western route option	Revised Central route option	Revised A10 route option	Revised Eastern route option
Cambridgeshire Local Transport Plan 2011-2031: Long Term Transport Strategy – 2015	✓	✓	✓	✓
Cambridgeshire and Peterborough Local Transport Plan – 2021	✓	✓	✓	✓
Transport Strategy for Cambridge and South Cambridgeshire –2014	✓	✓	✓	✓
Waterbeach Supplementary Planning Document – 2019	✓	✓	✓	✓
<b>CAM Objectives</b>				
Promote economic growth and opportunity	✓	✓	✓	✓
Support the acceleration of housing delivery	✓	✓	✓	✓
Promote Equity	✓	✓	✓	✓
Promote sustainable growth and development	✓	✓	✓	✓
<b>Scheme Objectives</b>				
Deliverable option which will improve the reliability, safety, capacity and speed of sustainable transport connections	✓	✓	✓	✓
To identify measures that allow for the relocation of Waterbeach railway station	✓	✓	✓	✓
To ensure integrated walking and cycling routes are inherent in all proposals	All proposals will ensure walking and cycling routes are provided alongside the proposed high-quality public transport route			
To generate options that support the reduction of traffic levels in Cambridge to 10%-15% below 2011 levels	✓	✓	✓	✓
To generate sustainable options that address transport demand from Waterbeach New Town	✓	✓	✓	✓
To generate options for 'quick-wins'	Quick wins have been provided in the OAR (See Chapter 7).			
To improve connectivity between existing settlements and to work stakeholders to identify the best package of measures.	✓	✓	✓	✓

Table 2-13 shows that all options align with the identified policies, CAM and scheme objectives, at least to some extent. There are some nuances where some options align better than others. For example, the Revised A10 and Revised Eastern route option align better to the South Cambridgeshire Local Plan policy SS/4 (Cambridge Northern Fringe East and Cambridge North railway station) as both routes traverse through the eastern side of NEC, thus serving it better.

## 2.15. Strategic Case summary

The Waterbeach to Cambridge corridor experiences significant congestion, particularly during peak hours, and the A14 Milton Interchange acts as a significant pinch point to motor traffic travelling between Cambridge and the north of the region. Significant housing and employment growth is planned at either end of the corridor, concentrated at Waterbeach New Town and north east Cambridge. There is a clear need for significant change which has been outlined in this Strategic Case and summarised in Table 2-14.

**Table 2-14 - Need for change**

Area	Need for change
In its own right	Enables quicker, more frequent, and more reliable public transport journeys for: <ul style="list-style-type: none"> <li>Waterbeach residents to and from Cambridge Science Park, Cambridge Research Park, Cambridge Regional College and the city centre;</li> <li>Waterbeach residents to and from Cambridge North station, West Cambridge, Addenbrooke's and other destinations (depending on service patterns, may be direct or via interchange); and</li> <li>Similar benefits for Milton residents (subject to route decision).</li> </ul>
	More resilient public transport, which is less reliant on the A10
	Faster journey times – saving up to around 15 mins between Waterbeach and city centre
	Unlocks transformation of public transport into a high-quality, attractive travel option along the route for a wide range of people
	Supports access to education and jobs
	Supports access to existing and proposed leisure attractions
	Some options support Milton Park and Ride users
	Unlocks potential for a future park and ride that can directly serve Waterbeach New Town residents
	Supports air quality goals
	Supports the delivery of economic growth in NEC within current road traffic levels
Synergy with other schemes	Supports economic recovery from Covid-19
	Supports the Local Plan commitment to delivering necessary growth in a sustainable way, including Waterbeach New Town
	Potential to support additional sustainable growth locations, beyond the current local plan
	Scheme builds upon the Milton Road Public Transport scheme, to create public transport priority corridor between Waterbeach and the city centre
	Options utilise the existing CGB and opens up options for cross-corridor services. For example Waterbeach to and from West Cambridge
Synergy for public transport users	Supports delivery of the Greater Cambridge public transport network vision
	Generates further opportunities for park and ride and local active mode connections along the corridor
	Unlocks transformation of public transport into a high-quality, attractive travel option along the route
	Provides additional flexibility of core corridor routes and local village i.e. local buses have greater choice of routing
	Potential for being a local link to Cambridge North station, as required over time and subject to service planning decisions
Passenger benefit	Supports current Milton Park and Ride users, and potential future park and ride users
	Passengers from the wider area (such as Chittering, Stretham and Ely) would benefit from additional public transport connections

Area	Need for change
Synergy for walking, cycling and other active travel	Dedicated active travel link between Waterbeach and Cambridge (extent of new or existing/planned infrastructure depends on route selection)
	Complements existing and planned greenway projects. There is a choice of route depending on origin and destination
	Particular benefits include for commuting between Waterbeach (also Milton on Revised Central and Revised A10 route options) and Cambridge Regional College or Cambridge Science Park, and for workers in Waterbeach
	Links with existing CGB bridleway, creating a continuous active travel route for trips such as Histon to Waterbeach
	Unlocks opportunities for additional active travel links between the corridor and the wider Greater Cambridge area

Planned transport improvements in the Greater Cambridge area aim to unlock sustainable growth. A number of GCP projects, including this scheme, Eastern Access Study and Cambridge South East Transport Study will provide high-quality, high frequency services in the Cambridge area (including north east Cambridge).

An option identification, sifting and assessment process has been undertaken as part of this Strategic Case resulting in four route options that were taken to public consultation in late 2020. As a result of the further assessment work and the public consultation outcomes various options were amended to mitigate public concern, particularly related to those options that routed through Waterbeach allotments. The four corridor options, with amendments, have been taken forward for further assessment as part of this SOBC:

- Western route option;
- Revised A10 route option
- Revised Central route option; and
- Revised Eastern route option.

In addition, the Strategic Case demonstrates a strong need for segregated infrastructure within the Waterbeach to Cambridge corridor, but it is recognised that service patterns can be flexible and respond to changing demand from travel markets. It is possible for a service to use some of the segregated infrastructure for parts of the route and use the highway for other parts. Therefore, further investigation is required to determine likely service patterns and consider the impacts of proposed routing, which will be undertaken during the next phase of business case development.

The four corridor options identified and consulted on were taken forward for further economic analysis, as reported on in the remainder of this SOBC.

## 3. Economic case

### 3.1. Introduction

The Economic Case sets out the extent to which each package provides good value for money, and the assessments underlying this. The structure is as follows:

- an overview of the options appraised (Section 3.2);
- an overview of the assumptions supporting the analysis (Section 3.3);
- the results of the quantified and qualitative appraisals that have been carried out to date (Section 3.4);
- the summary reporting of the results, including benefit-cost ratios (Section 3.5); and
- a concluding statement of the likely value for money of each option (Section 3.6).

A proportionate approach to economic assessment based on the stage of scheme development (SOBC) has been followed and analysis and evidence continue to be developed as greater depth of information becomes available.

### 3.2. Options appraised

The economic appraisal involves assessing the monetised costs and benefits of each option (DS scenarios), compared to the situation without any of the packages (DM scenario). The scenarios appraised are the four corridor options outlined at the end of the Strategic Case, namely:

- the Western route option;
- the Revised Central route option;
- the Revised A10 route option; and
- the Revised Eastern route option.

These are described in detail in the Strategic Case (Section 2.6).

### 3.3. Assumptions

#### 3.3.1. TAG and Green Book principles

The appraisal follows the principles set out in the Department for Transport (DfT) guidance TAG, which itself is based on principles set out by the Treasury in its Green Book.

All monetised costs and benefits are expressed as present values (PV) in 2010 prices, discounted to 2010. This is in line with DfT and Treasury guidance.

#### 3.3.2. Overview of economic appraisal approach

##### Costs

The costs of each option are based on:

- the investment (capital costs), as estimated by the design teams for each element;
- estimated operation, maintenance and renewal costs over the 60-year appraisal period; and
- any relevant grants, subsidies, developer contributions or equivalent, and revenues that accrue to the public sector.

These costs are outlined in Section 3.3.4

## Benefits

The benefits are estimated from several sources:

- user benefits (including travel time savings for public transport users) and revenue impacts on private sector providers (essentially public transport operators), assessed using TUBA based on the modelling of the options in CSRM2;
- user impacts during construction and maintenance;
- impacts from changes to the number of accidents;
- greenhouse gas impacts assessed using TUBA;
- local air quality and noise impacts;
- physical activity impacts;
- journey quality impacts;
- journey time reliability;
- wider economic impacts;
- social impacts; and
- distributional impacts.

For User Benefits, a trip-weighted average approach to combining all public transport modes has been adopted to minimise the impact of a new transport mode within the corridor. For park and ride, where new connectivity has been made, a pseudo DM journey time has been used equal to the option's journey time for the movements. Whilst this would result in zero journey time benefit for new users, this would be a conservative representation. More detailed assessment would be carried out proportionately in the OBC phase of the study to fully quantify the scale of benefits on offer. More detail is provided in Section 3.3.5.

## Results

The results from different elements of the appraisal are set out in four summary tables for each scenario:

- the Transport Economic Efficiency (TEE) Table (Section 3.5.1);
- the Public Accounts (PA) Table (Section 3.5.2);
- the Analysis of Monetised Costs and Benefits (AMCB) Table (Section H.6); and
- the Appraisal Summary Table (AST) (Section 3.5.6 / Appendix G).

For each corridor option, a benefit-cost ratio (BCR) has calculated (Section 3.5.4). In line with DfT guidance, this BCR excludes the monetised journey time reliability impacts. Certain other impacts, such as non-monetised impacts and are then also taken into account (Section 3.5.5), leading to a final value for money assessment (Section 3.6).

### 3.3.3. Modelling approach

The central modelling tool used in this appraisal is CSRM2. This is a TAG-consistent multi-modal transport model that can be used to test the impacts and benefits of land use and transport interventions. The model has uses 2015 as the base year.

#### Modelling assumptions

Public transport journey times have been estimated based on forecast travel times along the new proposed high-quality public transport route and existing road network (where applicable), considering the potential stop frequencies, the nature of the surrounding environment (rural or urban) and quantum of bus priority on each section of the route.

Headways of six minutes have been assumed for services between Cambridge North railway station and Waterbeach New Town, with headways of 12 minutes for services beyond Waterbeach New Town towards Ely (on the existing highway network). This is a service frequency comparable with the proposed changes to the timetables of Stagecoach routes on the existing Cambridge Guided Busway, which would have taken effect from 29<sup>th</sup> March 2020.

In order to capture the benefits offered by a high-quality public transport service in CSRM2, the additional services along the proposed high-quality public transport route were coded as guided bus routes as these are more attractive to users in the model than regular bus services. The Model Development and Validation Report<sup>55</sup> for the D-series of CSRM2, which still applies to the current E-series, states that: “*the Guided Bus time weighting of 0.9 reflects the high quality and comfort (e.g. leather seats and wireless internet access), and the fact that the ride quality on [segregated high-quality public transport route] sections is superior to normal bus services.*” This compares to a time weighting of 1 for bus and 0.8 for rail. Such changes to the time weighting are in keeping with TAG Unit M3.2 which confirms that: “*in some instances, factors may be applied to the in-vehicle times that reflect people’s preferences for the various modes. This is most likely to be relevant where the influence of fare on the choice of routes and services is likely to be quite weak and, as a result, the fare term may be excluded from the generalised cost formulation used at the assignment stage. These in-vehicle time factors may be interpreted as mode-specific values of in-vehicle time. Thus, instead of an in-vehicle value of time of unity being used, as might be used in models for multimode transport studies, non-unity values of in-vehicle time are used to represent the inherent, relative attractiveness of the various modes*”.

The CSRM2 modelling uses a modified Core Minus development scenario. In the area of interest, around the A10 corridor, this means that Waterbeach New Town is built out at a consistent and reasonable rate, beyond the initial 1,600 dwellings, associated employment and other facilities covered by the first round of planning applications; whilst the NEC development is not included. As NEC is not included, further benefits are likely to be obtained that are not captured in the current modelling if it were constructed.

### 3.3.4. Estimation of capital costs

#### Capital costs

These are the costs of physical interventions that would be implemented as a result of the scheme. Section 4.2 describes these costs and their calculations. The high-level estimates of capital cost are based on the following assumptions:

- 10 services per hour in each direction between Cambridge North railway station and Waterbeach New Town;
- no change to the existing bus network (this includes the retention of the existing No. 9 bus route (and its variants) along with the existing No. 19 bus route);
- infrastructure (both physical and vehicle-type) is based on electric single decker bus operation;
- an allowance for those items which have not or cannot be quantified at this stage of the design (10%);
- an allowance for optimism bias (44% for costs associated with the road sections of the scheme and 66% for costs associated with any structures of the scheme) as recommended in TAG Unit A1.2 – Scheme costs;
- an allowance for risk (10%) of the infrastructure costs;
- an allowance for preliminaries associated with construction (20%);
- a flat rate of £2,000,000 has been added for utilities division in accordance with the nature of interventions; and
- a percentage allowance for traffic management in accordance with the nature of the interventions (25%).

#### Conversion to Present Value Costs

The following calculations were used to convert the costs to Present Value Costs (PVC):

- conversion to 2010 prices using the Treasury GCP deflator;
- discounting to 2010 values using the annual rate as specified in the TAG Data Book, Table A1.1.1; and
- conversion to market prices (using a factor for the average rate of indirect taxation in the economy of 1.19).

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<sup>55</sup> Cambridge Sub-Regional Model 2: D-Series Transport Demand and Public Transport Model Development and Validation Report. Cambridgeshire County Council, October 2018

**Table 3-1 - Present Value capital costs (£m)**

Option	Infrastructure capital cost	Initial bus capital cost
Western route option	£41.5	£2.0
Revised Central route option	£42.5	£2.0
Revised A10 route option	£160.7	£1.8
Revised Eastern route option	£36.9	£1.5

2010 values and prices.

Table 3-1 shows that infrastructure capital costs for the Revised A10 route option are up to four times the amount of the other routes. This is largely caused by the cost of the proposed structure over the A14 and Milton Interchange.

#### Operation, Maintenance and Renewal (OMR) costs

For appraisal purposes, OMR costs for the length of the appraisal period have been estimated. Table 3-2 shows these costs and their basis compilation.

**Table 3-2 – Present Value operation, maintenance and renewals of each corridor option (£m)**

Option	Vehicle operating costs	Vehicle renewal costs	Infrastructure operating costs
Western route option	£13.4	£3.0	£5.0
Revised Central route option	£13.4	£3.0	£6.9
Revised A10 route option	£11.3	£2.7	£6.9
Revised Eastern route option	£9.8	£2.3	£5.0

2010 values and prices.

Table 3-2 was calculated using the following assumptions:

- operational expenditure of vehicles has been calculated for 12-hour weekday, in line with the service provision for which the benefits have been captured;
- operational expenditure of infrastructure costs has been estimated based on a collation of information from previous studies and examples of currently operating infrastructure; and
- capital expenditure of vehicles includes the renewal costs of the vehicles which occurs 15 years after the initial purchase (the renewal cost is with the same base cost as the original purchase in addition to the cost of inflation, which is assumed to be 2.2%).

#### Grants, subsidies, developer contributions and revenue

**Grants and subsidies:** No grants or subsidies are envisaged.

**Third-party funding:** No developer contributions are envisaged.

**Revenue:** There will be an impact on the bus operators' revenue. The extent to which there is an increase in revenue will depend on the uptake of the scheme. The higher the uptake, the higher the increase in revenue for scheme operators.

### 3.3.5. Estimation of programme benefits

#### User Benefits and Revenue to Private Sector Providers

These benefits cover impacts on:

- travel time;
- vehicle operating costs; and
- user charges (any impacts on parking, tolls, fares, etc.).

These benefits have been captured in accordance with TAG unit A1.3 (May 2019) and using TUBA version 1.19.14<sup>56</sup>. For each scenario, outputs from CSRM2 were used as the inputs to TUBA.

The CSRM2 demand model outputs (used for all modes except highway) represent three-hour morning and evening peak periods and a six-hour inter-peak period. The SATURN highway assignment model reports single hours. Conversion factors to convert to modelled periods are included within the model and these factors have been adopted in the TUBA assessment to scale the single hour highway assignment model outputs to peak periods. These factors are shown in Table 3-3.

**Table 3-3 - CSRM2 Hour to time period conversion factors**

Time period	Factor
Morning peak period	2.50000
Inter-peak period	5.98802
Evening peak period	2.70270

Annual impacts were calculated for each modelled year, using an annualisation factor of 253 to convert the average weekday modelled values to a representation of the number of average weekdays within a calendar year. Benefits for non-modelled years were calculated by linear interpolation between the modelled years of 2026 and 2036, and flat-line extrapolation beyond the final modelled year. However, the impact of the discounting on estimated benefits means that the benefit ‘curve’ declines towards the end of the appraisal period. The ‘rule of a half’ was applied as appropriate.

Due to the introduction of a new service for one transport mode in the model, the potential for large cost changes associated with the new mode may be presented within the economic outputs, if each mode was considered in isolation. To account for this, trip weighted average across all public transport modes (excluding bus park and ride which is a sub mode of the main “car” choice, but including rail trips with car access to stations) have been used for the assessments to enable TUBA to assess the benefits of the scheme across public transport for this corridor. Appropriate factors have been employed to convert from model units to those expected by TUBA.

#### Private sector provider impacts

The revenue to private sector providers represents public transport operator’s income. It was captured in TUBA alongside other user benefits. It has also been assumed for this stage of the study that all changes in parking revenue accrue to the private sector.

Their incremental investment and operating costs over the 60-year appraisal period also count as private sector impacts.

#### Indirect tax impacts

Indirect tax impacts represent the change in fuel tax income to the Treasury as a result of drivers using differing amounts of fuel due to changes in the amount of congestion they encounter, or the overall distance driven. It also represents the effect on the wider economy through changes in spend on transport versus incidental spend. It was captured using TUBA alongside the user benefits.

#### Impacts during construction and maintenance

Transport users incur additional costs when construction and/or maintenance works affect the transport network. For the Waterbeach to Cambridge Public Transport Scheme DS options, the main impact in this area will be during the construction of junctions where the high-quality public transport route intersects the existing network. At present, traffic management plans for these schemes have not yet been prepared and it is therefore not possible to assess the impacts during construction. A qualitative assessment of the impacts is provided in Section 3.4.6.

<sup>56</sup> Using economics parameters Economics\_TAGS\_db1\_13\_1.txt.

## Impacts from changes to the number of accidents

The impact of the corridor options on the number of accidents has been assessed qualitatively. The options will result in a change to the forecast traffic flows and movements in the area which may in turn impact on the number of accidents recorded. The use of Marginal External Costs in line with TAG A5.4 has enabled quantification of the marginal changes in accidents across the modelled area in lieu of a full assessment which is not proportionate for this stage of business case development.

## Greenhouse gas impacts

Greenhouse gas impacts were estimated using TUBA, as described in Section 3.4.7.

## Local air quality and noise impacts

Local air quality and noise impacts resulting from changes to traffic volumes and travel patterns on the road network have been assessed qualitatively for each of the options. This follows latest version of TAG guidance (TAG Unit A3 Environmental Impact Appraisal, May 2019) which includes the latest updates to the scoping of noise assessment (Section 2.2.2 of unit A3). As noise impacts are deemed to be minimal TAG states “*a comment should be included on the ‘key impacts’ column of the AST*”. The use of Marginal External Costs in line with TAG A5.4 has enabled quantification of the marginal changes in local air quality and noise across the modelled area in lieu of full noise and air quality modelling which is not proportionate for this stage of business case development.

## Physical activity impacts

Changing levels of walking and cycling represent, in addition to economic efficiency impacts, changing levels of physical activity. These in turn generate health impacts, expressed as impacts on risk of premature death and on absenteeism.

The DfT Active Mode Appraisal Toolkit (AMAT) has been used to provide an indication of the physical activity benefits accrued by the increase in walking and cycling as a result of the scheme options. From the model outputs, only changes in active trips to or from Waterbeach village or Waterbeach New Town are considered in this analysis, excluding trips within or between these settlements. The average length of cycle trips has also been derived using these data to reflect local trip lengths in the corridor, but all other values have been left as the AMAT defaults.

## Journey quality impacts

The provision of additional walking and cycling routes will provide an enhanced public realm and an improved ambience for pedestrians and cyclists. These are represented as journey quality impacts.

At this stage, and particularly as the scheme designs themselves are under development, the journey quality impacts have been assessed at the overall package level using assumptions based on the enhancement afforded to each of the new and existing users of the new infrastructure, monetised using the DfT AMAT. The Revised A10, Western and Revised Central route options assume no cycle route provision exists in the DM, whereas the Revised Eastern route option assumes provision of a segregated cycleway in the DM as this option directly parallels the existing Waterbeach Greenway.

Journey quality associated with the vehicles on the high-quality public transport route is incorporated within the perception factor within the model, so has not been considered separately to avoid potential double counting.

## Journey time reliability

Journey time reliability refers to variation in journey times that individuals are unable to predict. This could come from recurring congestion at the same period each day (day-to-day variability) or from non-recurring events such as incidents. It excludes predictable variation relating to varying levels of demand by time of day, day of week or season. (the above is a paraphrase of Unit A1.3 para 6.1.1) In accordance with DfT TAG, journey time reliability impacts are reported only in the adjusted BCR and the AST.

A qualitative statement has been made on the potential changes to journey time reliability that may accrue because of the scheme.

## Wider economic impacts

Wider economic impacts have been assessed qualitatively at this stage and considered as non-monetised impacts (Section 3.4.12). A proportionate monetised appraisal will be carried out ahead of the final submission of this business case.

## Social impacts

Social impacts (SIs) cover the human experience on the transport system and its impact on social factors, where not considered as part of economic or environmental impacts. SIs include the impacts on accidents, physical activity, security, severance, journey quality, option and non-use values, accessibility, and personal affordability.

## Distributional impacts

Distributional impacts (DIs) represent the variance of impacts across different social groups. DI analysis identifies those who would gain or lose from the interventions, with particular emphasis on equality through identifying the impacts on those who are disadvantaged compared to the majority of people. This means disaggregating the impacts on different socio-economic groups affected by the scheme. A high-level qualitative assessment of DIs has been undertaken at this stage, and the results are entered into the AST.

## 3.4. Results

The following sections outline the results of the economic appraisal.

### 3.4.1. Scale of transport demand

Building on the market analysis presented in Section 2.3.2, an exercise was undertaken to estimate the scale of demand that the transport services; to understand the relative performance of options. As part of this assessment, CSRM2 has been used to test how the different route options might influence travel patterns over the Cambridgeshire Sub-region.

Five scenarios were run to understand the impact of the scheme in the future. These scenarios include assessment years of 2026 and 2036 for each of the four options, plus a DM scenario (i.e. what would happen if the scheme was not developed – see Table 2-5 for what is included in the DM scenario). The results are presented in the following sections for the 2036 scenario.

#### Change in level of demand

Table 3-4 shows the forecast change in level of demand compared to the DM Scenario for the scheme in 2036 for each of the four options across a 12-hour period. The change in trip numbers in the Do Something (DS) options relative to the DM scenario are shown.

**Table 3-4 - Change in daily person trips by mode (12-hour period)**

Mode	Route options			
	Western route option	Revised Central route option	Revised A10 route option	Revised Eastern route option
Highway	-800	-1,900	-2,300	-950
Public Transport	500	900	550	350
Park and Ride	800	2,450	2,700	1,100
Active Travel	-100	-100	100	-150

Table 2-1 shows that, in 2036, the Revised Central route option and Revised A10 route option are expected to lead to the largest mode shift from highway (car/van) to park and ride. This is as a result of both options making park and ride more attractive by:

- serving Milton Park and Ride site directly; and
- using the new public transport connection over the A14, bypassing Milton Interchange, significantly reducing congestion for public transport vehicles at this pinch point.

It is likely that those trips forecast to switch to park and ride with the High-Quality Public transport Route would drive to the park and ride site. Therefore, the highway network to the north of the park and ride site could experience an increase in traffic flow due to a greater demand for park and ride.

Forecast demand for public transport demand is similar across the options, with the exception of the Revised Central route option which would encourage more public transport use as it directly avoids congestion. Forecast ridership is highest for options that directly serve both sides of Milton Road within North East Cambridge, demonstrating the importance of providing this connectivity with any new infrastructure, as would be delivered by either the Western or Revised Central route options.

Levels of walking and cycling are forecast to only change slightly as a result of the scheme. The Revised Eastern route option leads to a larger reduction in walking and cycling as a result of the lack of additional active travel infrastructure proposed as part of this option due to the proximity of the proposed Waterbeach Greenway. Other decreases in trips are likely to be as a result of slight mode shift from active travel modes to public transport or park and ride.

### Impact on highway congestion

The Revised A10 route option is expected to experience the largest increases in delays to traffic due to the signalisation of the A10 to the north of Milton village which results in traffic re-routing through Landbeach, via Waterbeach Road and Landbeach Road. The northbound A10 is predicted to experience an increase in delay of over six minutes in the 2036 evening peak at the Car Dyke Road junction, with most diversionary routes through Horningsea, Histon, Impington, Cottenham and Landbeach experiencing large increases in delay. The Revised Central, West and Revised Eastern route options could cause some delay at junctions with the proposed High Quality Public Transport Route.

### Summary

As shown in Table 3-4, the Revised Central route option clearly outperforms the Revised Eastern and Western route options in terms of mode shift away from car and towards public transport and park and ride. The Revised Central, Revised Eastern and Western route options do not interact with major roads as much as the Revised A10 route option, so the former tend to result in lower increases in congestion. Whilst the Revised A10 route option does have some positive attributes, these come at a significant increase in cost which more than offsets the positive elements of the option.

### 3.4.2. User benefits

The following sections summarise the outcomes from the economic appraisal. Additional information is provided in Appendix H.

#### Overall

Table 3-5 summarises the forecast user benefits for each corridor option. The user benefits consist of journey time savings, plus changes in vehicle operating costs due to changes in levels of congestion, and hence fuel consumption, and user charges related to changes in paying tolls and fares.

**Table 3-5 - Summary of user benefits (£m)**

	Western route option	Revised Central route option	Revised A10 route option	Revised Eastern route option
Journey time savings	£27.9	£29.8	£62.1	£22.7
Vehicle operating costs	£2.2	£3.5	£6.0	£2.0
User charges	-£1.6	-£0.9	£1.5	-£0.5
<b>Total user benefit</b>	<b>£28.5</b>	<b>£32.4</b>	<b>£69.5</b>	<b>£24.3</b>

2010 values and prices.

Source: TUBA Runs for T1001A, T1002, T1004, T1005 compared to T1000D

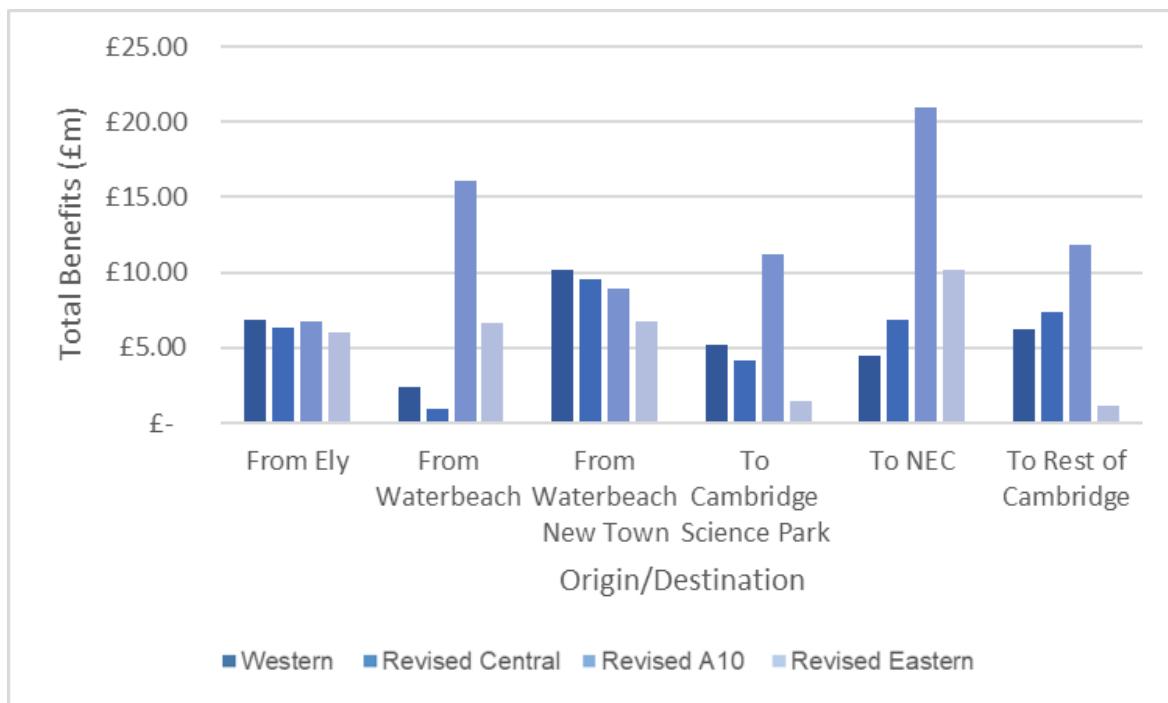
User benefits, shown in Table 3-5, are predominantly journey time savings, with some improvements to vehicle operating costs associated with reduced car use in the corridor and congestion reduction. There are minor changes to user charge benefits across all options, reflective of the balance of change between more users switching to public transport and therefore paying additional fares compared to the DM.

Several detailed analyses were undertaken on the TUBA user benefit outputs, to ensure that the results are logical and in line with expectations. These analyses are reported below.

## Spatial distribution of user benefits

To understand the spatial distribution of benefits, sector analysis was carried out. As well as showing which movements benefit most/least, the analysis shows the extent to which model 'noise' is potentially having an impact on the results produced by TUBA (usually identified by counter-intuitive impacts for movements that are not expected to be affected by the interventions). Figure 3-1 summarises the spatial distribution of user benefits for key origins and destinations within the Study Area.

**Figure 3-1 - Summary of spatial distribution of user benefits**



Analysis of the spatial distribution of benefits for the Western route option shows that the greatest benefits are generated On journeys between Waterbeach New Town and Cambridge Science Park. This reflects the western alignment of the scheme serving Cambridge Science Park directly. Significant benefits are also seen between Waterbeach New Town and Northstowe likely to be as a result of the connection to the existing CGB, and from Ely and surrounding villages.

The Revised Eastern route option provides greater benefits for trips to Waterbeach village than Waterbeach New Town, and less benefits to Waterbeach New Town than the Western route option. This reflects the route alignment to the east of the study area and suggests that this route is not as effective as the Western route option in achieving the overall aim of the study. As a result of the Revised Eastern alignment, the greatest benefits are experienced on trips to NEC, rather than Cambridge Science Park.

The Revised Central route option generates most benefits for journeys to and from the Northstowe corridor, aligned with the CGB. Most of these benefits are attributed to trips to and from Waterbeach, Waterbeach New Town, Ely and surrounding villages. Significant benefits area so seen between Waterbeach New Town and NEC in both directions, with less benefits for those travelling to the Science Park.

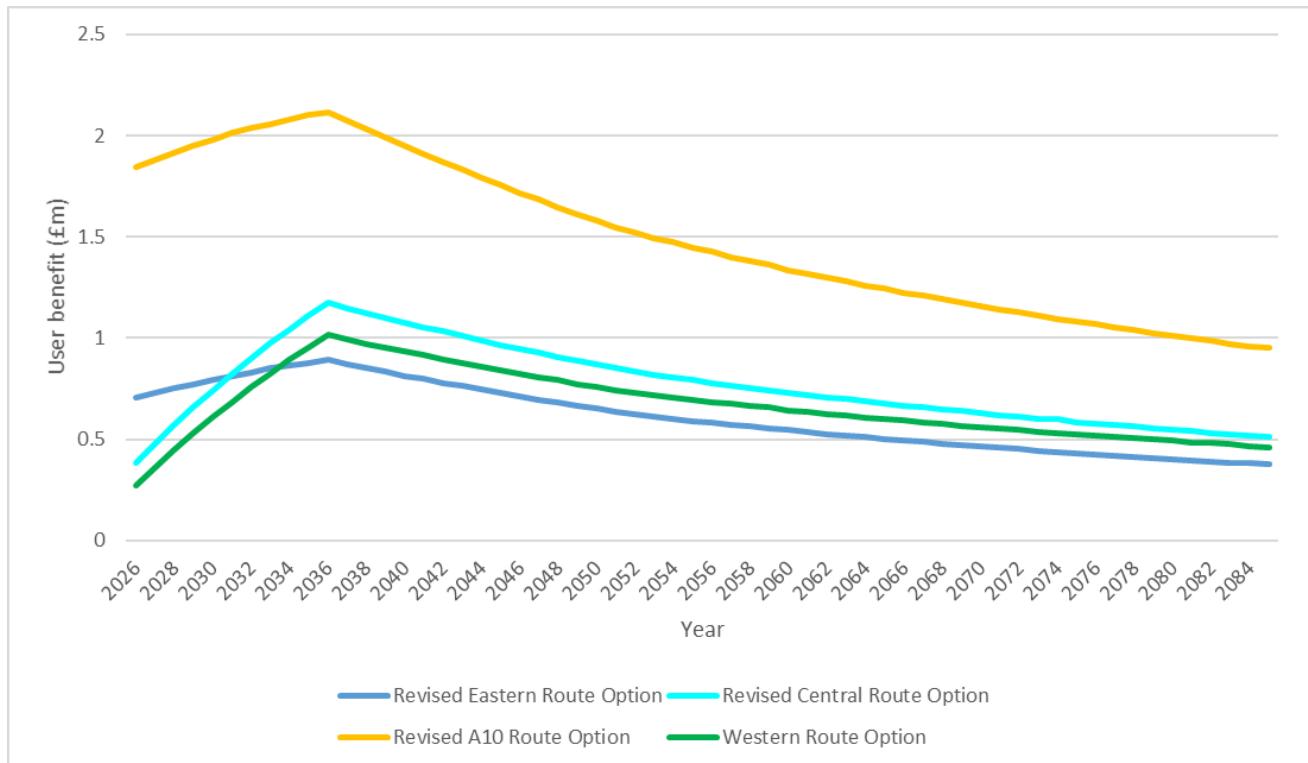
The Revised A10 route option provides most benefits to trips to and from NEC, mostly from Waterbeach, Waterbeach New Town, Ely and surrounding villages. Benefits are also generated for trips to Cambridge Science Park and Northstowe, particularly from the north of the Study area. It is possible to conclude that the Revised A10 route option provides greater and more evenly spread benefits to NEC and Cambridge Science Park. This is likely due to the alignment of the scheme in the centre of the study area and the benefits offered to existing users of Milton Park and Ride. However, in a similar pattern to the Revised Eastern route option, significantly greater benefits are predicted to be experienced on trips to and from the existing Waterbeach village than those to and from Waterbeach New Town.

Overall disbenefits across all options are expected on trips to Ely and the surrounding villages, likely to be as a result of increasing congestion on the A10 northbound towards Ely.

## User benefits profile over 60-year appraisal period

Figure 3-2 shows the forecast profile of the user benefits across the 60-year appraisal period for each corridor option.

**Figure 3-2 - Profile of user benefits over appraisal period**



£m, 2010 values and prices.

Source: TUBA Runs for T1001A, T1002, T1004, T1005 compared to T1000D

The profile of benefits can be split into two different trends. The Revised Eastern and Revised A10 route options have a slower growth from the initial modelled year of 2026 to the second modelled year of 2036, in line with growth in the area and increased scheme performance. In contrast, the Revised Central and Western route options have a much sharper increase in benefits from 2026 to 2036. This is aligned to these options having greater benefit to Waterbeach New Town in line with the scheme objectives, with the profile representative of the growth of the development to 2036. This also indicates that should a further forecast year be available, the benefits stream for these options is likely to grow further in-line with the continued build out of the site.

All options demonstrate a decline in benefits from 2036 onwards, where benefits are held constant in real terms, but decline in-line with discounting through the remainder of the appraisal period.

## User benefits by mode of travel

Table 3-6 shows the user benefits disaggregated by mode of travel, for each corridor option over the appraisal period.

**Table 3-6 - User benefits by mode of travel (£m)**

	Western route option	Revised Central route option	Revised A10 route option	Revised Eastern route option
Road	£12.2	£14.3	£15.1	£5.1
Public transport	£4.3	£5.1	£11.2	£4.7
Park and Ride	£6.1	£10.6	£34.5	£13.8
Active travel	£5.9	£2.3	£8.7	£0.7
<b>Total user benefit</b>	<b>£28.5</b>	<b>£32.4</b>	<b>£69.5</b>	<b>£24.3</b>

2010 values and prices.

Source: TUBA Runs for T1001A, T1002, T1004, T1005 compared to T1000D

The results show a varying mix of benefits across the different modes of travel for each corridor option. The park and ride element of the Revised Central and Revised A10 route options is responsible for the largest share of benefits. There is also mode transfer from highway trips to park and ride and public transport across all options, resulting in benefits to road users as a result of a reduction in congestion, assuming no latent or suppressed demand.

Active travel benefits are higher in the Western and Revised A10 route options when compared to the Revised Eastern route option. This is a result of the Western and Revised A10 route options providing additional active travel facilities whereas the Revised Eastern route option would use the planned greenway.

#### User benefits by journey purpose

Table 3-7 summarises the user benefits disaggregated by journey purpose, for each scenario, over the appraisal period.

**Table 3-7 - User benefits by journey purpose (£m)**

	Western route option	Revised Central route option	Revised A10 route option	Revised Eastern route option
Non-business commuting	£10.1	£13.8	£39.3	£13.2
Non-business other	£13.2	£12.0	£21.6	£6.5
Business	£5.3	£6.6	£8.6	£4.6
<b>Total user benefit</b>	<b>£28.5</b>	<b>£32.4</b>	<b>£69.5</b>	<b>£24.3</b>

2010 values and prices.

Source: TUBA Runs for T1001A, T1002, T1004, T1005 compared to T1000D

The table indicates that there is not an even spread of the benefits between business and non-business users: for all options business benefits are significantly lower than for non-business benefits. With the Revised Central, Revised Eastern and Revised A10 route options, the majority of benefits are experienced by commuters. However, with the Western route option the largest proportion of benefits is derived from non-business other. This is a result of more direct connectivity to Cambridge Regional College, affording greater benefits for education trips than is seen across the other options as a proportion of the overall user benefits.

#### User benefits by size of time savings

The analysis for user benefits by time savings is summarised below and more detail is provided in Section H.2.

The patterns of benefit scale are very similar across all options. Road user benefits and disbenefits are most significant in the two-minute change band, with slightly greater benefits accruing through up to two-minute journey time reductions compared to journey time increases.

Public transport benefits are expected to be significant in journey time improvements above five minutes, in line with the expected impact of the scheme. There are disbenefits from other journey time changes, expected to be from where existing services are impacted by any point increased congestion. The OBC should focus on identifying these locations and understanding if mitigation can be put in place to minimise these impacts and improve the overall performance of the scheme. The positive benefits for travel by park and ride are demonstrated through journey time savings predominantly over above minutes. Active travel benefits are also for significant time savings, in line with opening up of new active mode corridors for three of the options.

#### User benefits by distance travelled

The analysis for user benefits by distance travelled is summarised below and more detail is provided in Section H.3. The vast majority of public transport and park and ride benefits are experienced by journeys between five and 50 kilometres in length. This is the case for all corridor options.

As expected, the main active travel benefits arise from short length trips of between one and five kilometres in length. This is the case for all options however, due to the Waterbeach greenway, the active travel benefits between this range are reduced when compared to other options.

#### 3.4.3. Private sector provider impacts

Table 3-8 summarises the forecast revenue to private sector providers for each scenario. This essentially represents changes in public transport fare revenue.

**Table 3-8 - Summary of revenue to private sector providers (£m)**

	Western route option	Revised Central route option	Revised A10 route option	Revised Eastern route option
Private Sector Revenue	£15.9	£19.4	£29.8	£16.7

2010 values and prices.

Source: TUBA Runs for T1001A, T1002, T1004, T1005 compared to T1000D

The increased public transport patronage results in an increase in public transport revenue raised, which is reflected in the increase shown in Table 3-9. This revenue increase is considerable contribution to the overall proposition benefits stream, being approximately the same as the user time benefits afforded by the rapid transit proposition.

The incremental investment and operating costs, over and above the DM level, also count as private sector provider impacts.

#### 3.4.4. Indirect tax impacts

Table 3-9 summarises the forecast indirect tax impacts, which reflect the forecast change in fuel duty and tax on public transport tickets.

**Table 3-9 - Summary of indirect tax impacts (£m)**

	Western route option	Revised Central route option	Revised A10 route option	Revised Eastern route option
Road	£1.8	£2.8	£5.0	£1.9
Public transport	£1.4	£1.5	£1.3	£0.8
Park and Ride	£1.2	£1.5	£3.2	£1.8
Active travel	£0.0	£0.0	£0.0	£0.0
<b>Total indirect tax impacts</b>	<b>£4.4</b>	<b>£5.8</b>	<b>£9.5</b>	<b>£4.4</b>

£m, 2010 values and prices.

Source: TUBA Runs for T1001A, T1002, T1004, T1005 compared to T1000D

There is a forecast increase in indirect taxation to road users in all corridor options, despite the reduction in congestion leading to fuel savings. The attraction of the high-quality public transport route scheme results in a greater number of people driving to access public transport and park and ride facilities than without the scheme, offsetting the reduction in indirect tax caused by reduced congestion. Therefore, the overall level of indirect tax rises. Public transport users also see a rise in taxation revenues, since the additional (non-taxable) spend on public transport fares results in a more incidental spend elsewhere in the economy on taxable goods.

### 3.4.5. Impacts during construction and maintenance

As much of the high-quality public transport route is, by definition, offline from the existing highway network, much of the construction will have a minimal impact upon existing delays and congestion. An exception to this is where the high-quality public transport route crosses or joins the existing highway network, including the CGB. Typically, this is achieved with new signalised crossings. It may be possible to avoid protracted road closures here as the level of intervention is small and could be achieved in off-peak periods, such as at weekends or during the night. Options that cross the A10 in this manner are expected to incur the greatest disbenefit from this, as it is the most major road encountered. The exception to this being when the junction would be a part of a highway entrance to Waterbeach New Town which would need installing regardless, as a part of the development.

The options that are likely to cause the greatest amount of disruption to the highway network during construction are the Revised A10 and Revised Eastern route options. The Revised A10 route option would require the creation of a new signalised level crossing of the A10, and also a substantial flyover across Milton Interchange, which would likely necessitate the temporary closure of both the A10 and A14 as it was installed. Likewise, the Revised Eastern route option would require tunnelling under the A14, which would, at a minimum, disrupt that road.

During maintenance of the high-quality public transport route, it is assumed that the high-quality public transport route vehicles will be able to divert onto the existing highway network between junctions to avoid the section being maintained, as is the case on the existing CGB. It is also assumed that, except in emergencies, any maintenance would be undertaken outside of peak hours, for instance overnight or during weekends and school holidays, to minimise the amount of congestion and delay the high-quality public transport services would encounter on the diversion, and the number of passengers affected. This is also based on the operations of the existing CGB.

### 3.4.6. Impacts from changes to the number of accidents

The modal shift from highway to public transport, combined with safety improvements incorporated within the scheme designs are likely to have a cumulative effect of reducing the number of accidents on the network. All options are likely to contribute to benefits through moderate mode shift and localised network improvements associated with the core high-quality public transport route schemes. This modal shift away from car is expected to be the principal source of the reduction of accidents regardless of the option adopted.

The provision of walking and cycling routes alongside the high-quality public transport route is also likely to reduce the number of accidents to these users as it will provide an alternative route to the A10 itself. The Revised Eastern route option is the least likely to provide benefits here as it runs parallel to the proposed route of the Waterbeach Greenway. Similarly, the Western route option parallels Mere Way for most of the way between Cambridge and Waterbeach New Town, however it may offer some safety benefits in keeping walkers and cyclists off the highway network between Landbeach and Waterbeach New Town, providing a suitable crossing of the A10 is provided. In this regard the Revised Eastern route option may prove to be the safest as it has no crossing of the A10 and minimal at grade crossings of other roads. The safety benefit to pedestrians and cyclists resulting from the adoption of each of the options is captured as a part of the journey quality impacts in Section 3.4.10.

Minimising the number of at-grade road crossings of the high-quality public transport route also reduces the risk of collisions between regular vehicles on the highway and services on the high-quality public transport route. Likewise, by minimising at grade crossings there would be a reduced risk of unauthorised vehicles entering the high-quality public transport route posing a collision hazard or damaging the high-quality public transport route itself.

The qualitative assessment has been supplemented by the use of Marginal External Cost calculations based on changes to total travel within the transport model. The marginal changes associated have been monetised below.

**Table 3-10 - Summary of accident impacts (MEC) (£m)**

	Western route option	Revised Central route option	Revised A10 route option	Revised Eastern route option
Accidents	£0.42	£0.39	£0.25	£0.06

2010 values and prices.

Source: Marginal External Cost Assessments for T1001A, T1002, T1004, T1005 compared to T1000D

Table 3-10 shows that all four corridor options would result in accident benefits. The Western and Revised Central route options are forecast to achieve slightly higher benefits than the Revised A10 and Revised Eastern route options. These results would be developed through accident impact assessments during the OBC.

### 3.4.7. Greenhouse gas impacts

Table 3-11 summarises the estimated greenhouse gas impacts for each scenario.

**Table 3-11 - Summary of greenhouse gas impacts (£m)**

	Western route option	Revised Central route option	Revised A10 route option	Revised Eastern route option
Greenhouse gases	£0.9	£1.4	£2.3	£0.9

2010 values and prices.

Source: TUBA Runs for T1001A, T1002, T1004, T1005 compared to T1000D

Greenhouse gas emissions are forecast to fall with all four corridor options due to reductions in highway congestion and levels of traffic.

### 3.4.8. Local air quality and noise impacts

A qualitative Air Quality Assessment (AQA) has been conducted. The higher the mode shift from car to public transport or walking/cycling, the greater the reduction in emissions as there are fewer vehicles on the highway. As a result, there is a greater benefit in the AQA because the air is cleaner due to the reduction in air pollutants given off by vehicle exhausts. This approach is in accordance with TAG unit A3, Section 3.3.3 – AQ Impacts Scoping, that states “*The air quality appraisal should be proportional to the scheme and its proposed impact. Analysis should be no more detailed than is required to support robust decision making.*”, therefore as there are not any significant changes anticipated, a quantitative approach will not be undertaken.

As a result of the increased provision of public transport in all options, small reductions in traffic flow and delay are predicted across the built-up area around the A10 corridor north of Cambridge. These are likely to lead to small local air and noise quality benefits. An increase in flow and delay is predicted on the approach to the new park and ride site at Waterbeach New Town and, if it is served by the high-quality public transport route, the existing park and ride site at Milton. Waterbeach New Town Park and Ride site is assumed to be adjacent to the A10 on the north western side of the Waterbeach New Town site, thus any increased queuing or delay approaching the site from the north would not significantly impact air quality or noise pollution in any built up area, although flows exiting the site could cause increases in these issues within Waterbeach New Town itself. This is offset to some degree by trips from Waterbeach New Town using the public transport service offered by the high-quality public transport route instead of trying to leave the development by car, and thus reducing queuing and delays on the main highway exits from the development.

Public transport routes on the high-quality public transport route that serve Milton Park and Ride site (namely the Revised Central and Revised A10 route options) lead to some rerouting to through Impington and Histon without any mitigation, due to car flows attempting to leave the park and ride site and access the A14, as here the most direct route requires crossing the northbound A10 flow. This is likely to lead to localised disbenefits in terms of air quality and noise.

The qualitative assessment has been supplemented by the use of Marginal External Cost calculations based on changes to total travel within the transport model. The marginal changes associated have been monetised below.

**Table 3-12 - Summary of local air quality and noise impacts (MEC) (£m)**

	Western route option	Revised Central route option	Revised A10 route option	Revised Eastern route option
Local air quality	£0.08	£0.07	£0.04	£0.01
Noise	£0.04	£0.06	£0.02	£0.02

2010 values and prices.

Source: Marginal External Cost Assessments for T1001A, T1002, T1004, T1005 compared to T1000D

This monetisation supports the qualitative statements that some very small improvements would be brought about by each of the four options, with Western and Revised Central route options demonstrating slightly higher benefits than the Revised A10 and Revised Eastern route options. These results would be developed through full noise and air quality assessments during the OBC.

### 3.4.9. Physical activity impacts

Table 3-13 summarises the forecast physical activity benefits of each corridor option. A benefit is accrued as a result of increased numbers of users travelling by active modes, with the associated health benefits (reduced mortality and absenteeism) captured below.

The greatest benefit from changes to the levels of physical activity of users is expected from the Revised A10 route option as it provides the most direct link between Waterbeach (village and New Town), Landbeach, Milton and the Science Park and therefore attracts the greatest number of active mode users. The Western and Revised Central route options are not as direct, so attracts fewer new active mode users from the Waterbeach area to the Science Park.

The Revised Eastern route option performs poorly here as there are no additional walking and cycling links provided as it would duplicate the Waterbeach Greenway. Consequently, the provision of improved public transport links along the high-quality public transport route results in a reduction in the number of people walking and cycling. Therefore, the Revised Eastern route option experiences a slight reduction in physical activity benefits.

**Table 3-13 - Summary of physical activity benefits (£m)**

	Western route option	Revised Central route option	Revised A10 route option	Revised Eastern route option
Physical activity benefits	£4.1	£1.5	£8.0	-£0.3

2010 values and prices.

Source: AMAT Assessments for T1001A, T1002, T1004, T1005 compared to T1000D

### 3.4.10. Journey quality impacts

The Revised A10, Western and Revised Central route options assume no cycle route provision exists in the DM, whereas the Revised Eastern route option assumes provision of a segregated cycleway in the DM as it directly parallels the Waterbeach Greenway. Therefore, the Revised Eastern route option would be expected to perform poorly in comparison to the others here. Note that the walking provision is assumed to remain unchanged between the DM and four corridor options due to the length of the routes meaning they are not principally designed for pedestrians. Table 3-14 summarises the benefits for each scenario.

**Table 3-14 - Summary of journey quality impacts (£m)**

	Western route option	Revised Central route option	Revised A10 route option	Revised Eastern route option
Journey quality benefits	£25.5	£25.1	£19.0	£0.0

2010 values and prices.

Source: AMAT Assessments for T1001A, T1002, T1004, T1005 compared to T1000D

As there is no proposed improvement to the quality of the cycleway in the Revised Eastern route option, there is no journey quality improvement. By comparison, the Revised A10 route option is expected to generate more physical activity benefits than the Western route option, due to there being more additional cycling trips in the former. The Western and Revised Central route options have the greater journey quality benefits. This occurs despite both options seeing the same level of improvement (no provision for cyclists to off-road segregated cycleway) because the average cycling trip on the Western and Revised Central route options uses the cycleway for a greater proportion of the entire trip, therefore yielding greater ambience benefits.

### 3.4.11. Journey time reliability impacts

Journey time reliability has been assessed qualitatively. The provision of a segregated high-quality public transport route between Waterbeach New Town and Cambridge North railway station, independent of route, will improve journey time reliability. This is because public transport services on the high-quality public transport route will be off-line and therefore are not subject to existing congestion. As a result, all options are expected to deliver journey time reliability benefits.

Further journey time reliability benefits are expected due to the shift of journeys towards park and ride and public transport trips. This is observed in each of the options indicating there is greater use of the high-quality public transport route resulting in reduced congestion along A10 between Milton Park and Ride and Waterbeach New Town, meaning benefits are delivered to the remaining highway users. For example, highway journey times are expected to become more reliable. The Revised A10 route option appears to deliver the most benefits due to the reduction in congestion along the stretch of the A10 previously mentioned.

The proposed high-quality public transport route will provide a higher level of journey time reliability than the existing bus services on the corridor because all options would bypass Milton Interchange, which is historically the most congested part of the A10 corridor. Journey time reliability may not be improved if portions of the services run on the normal highway network, meaning services may be subject to congestion due to the absence of public transport priority.

### 3.4.12. Wider economic impacts

Wider economic impacts have been assessed qualitatively. The provision of a segregated high-quality public transport route between Waterbeach New Town and Cambridge North railway station will have large positive wider economic impacts. The scheme would provide the infrastructure to support and accelerate the creation in the Greater Cambridge area of 44,000 new jobs (notably, around the North East Cambridge development), 33,500 new homes (including Waterbeach New Town) and 420 additional apprenticeships<sup>57</sup>. In addition, this scheme unlocks employment opportunities from onward travel to Ely and from the Cambridge North railway station will lead to improved employment opportunities through better accessibility to jobs for residents of Waterbeach New Town. As a result, a new segregated high-quality public transport route would vastly improve the connectivity between villages and towns to the north of Cambridge with the wider GCP network, thus avoiding bottlenecks on the transport network (at Milton Interchange, for example).

### 3.4.13. Social impacts

Social impacts have been assessed qualitatively. The provision of a segregated high-quality public transport route between Waterbeach New Town and Cambridge North railway station will generate positive impacts in terms of severance and health.

Currently, based on public consultation feedback, Waterbeach suffers from moderate severance issues in terms of the public transport services and active travel routes to/from Cambridge. Leading to residents feeling isolated, particularly if they do not have access to private vehicle travel. The severance is deemed moderate in accordance with TAG Unit 4-1 where more than 200 people per day are affected by the severance issues but less than 1,000. Therefore, any of the four options would deliver moderately positive social impacts in terms of severance.

The scheme would also provide additional links to education, including but not limited to Cambridge Regional College from Ely, Waterbeach village and Waterbeach New Town. All options would have a positive impact on access to education.

<sup>57</sup> Greater Cambridge Partnership (2021) Our Vision <https://www.greatercambridge.org.uk/> [Accessed 03.03.2021]

As discussed in Section 3.4.8, there will be small air quality benefits due to the reduction of congestion along the A10. This means that local air will be cleaner. As a result, users and non-users alike, of the high-quality public transport route will experience improvements in health attributed to cleaner air.

### 3.4.14. Distributional impacts

Distributional impacts have been assessed qualitatively. The provision of a segregated high-quality public transport route between Waterbeach New Town and Cambridge North railway station will generate positive impacts in terms security.

The security benefits will mainly be driven by the improvements in public transport waiting facilities and interchange infrastructure. Security benefits will also be received from formal surveillance such as CCTV at the public transport waiting facilities as well as the provision of lighting and visibility along the corridor. In accordance to TAG Unit 4-2, the security benefits will largely be felt by the following groups:

- women;
- younger people;
- older people;
- people with disabilities; and
- Black and Minority Ethnic (BME) communities.

These user groups suffer from greater anxiety when using public transport leading to the potential suspension of travel. Therefore, the interventions discussed will not only improve security they will also increase the number of users, using the high-quality public transport route as well as the accompanying active travel provision.

## 3.5. Reporting of results

### 3.5.1. Transport Economic Efficiency (TEE) table

The TEE table brings together the impacts on transport users and providers (Section 3.4.2) and the impacts during construction and maintenance where appraised (Section 3.4.5). The TEE tables are provided in Section H.4 and summarised in Table 3-15.

**Table 3-15 – Summary of TEE table results**

Trip type	Western route option	Revised Central route option	Revised A10 route option	Revised Eastern route option
Non-business: commuting	£10,058	£13,772	£39,266	£13,174
Non-business: other	£13,174	£11,975	£21,647	£6,535
<i>Business: User Benefits</i>	£5,287	£6,636	£8,576	£4,571
<i>Business: Private sector provider impacts</i>	£-2,499	£1,026	£14,167	£3,175
Business Impacts	£2,788	£7,662	£22,743	£7,746
<b>TOTAL<sup>58</sup></b>	<b>£26,020</b>	<b>£33,409</b>	<b>£83,656</b>	<b>£27,455</b>

millions, 2010 values and prices.

Source: TUBA Runs for T1001A, T1005, T1004, T1002 compared to T1000D

Table 3-15 shows that the Revised A10 route option has the most benefits for transport users due to large journey time decreases compared to the other three. The Western and Revised Eastern route options offer comparable benefits, whilst the Revised Central route options offer slightly better benefits because of positive business impacts, including large revenues to private sector providers.

<sup>58</sup> The total is calculated by adding Non-business: commuting, Net non-business benefits: other and Net Business Impacts.

### 3.5.2. Public Accounts (PA) table

The PA table brings together the costs of the option and the revenue and tax changes which would result for the public sector. The costs are as set out in Section 3.3.5. The revenue and tax impacts which follow from changes in traffic routing and speeds are derived from the TUBA output. The PA tables are provided in Section H.5 and in Table 3-16.

**Table 3-16 - Summary of PA table results**

	Western route option	Revised Central route option	Revised A10 route option	Revised Eastern route option
Broad Transport Budget	£46,468	£49,373	£167,571	£41,929
Wider Public Finances (Indirect tax)	£4,376	£5,841	£9,560	£4,448

Table 3-16 shows that the Revised A10 route option would require significantly more funding from local government, approximately three times as much as the next closest options (Revised Central route option). The other three options require a comparable amount of funding from local government funding and wider public finances.

### 3.5.3. Analysis of Monetised Cost and Benefits (AMCB) table

The AMCB table brings together monetised scheme costs and benefits, to help determine value for money of each option. The table is based on those elements of the economic appraisal which are considered to produce robust monetised estimates of the impacts and therefore contribute to the Initial BCR. It includes, where available:

- user benefits, including changes in user charges (Section 3.4.2);
- revenue to private sector providers (Section 3.4.3);
- impacts during construction and maintenance (Section 3.4.5);
- indirect taxation impacts (Section 3.4.4);
- accident impacts (Section 3.4.6);
- environmental impacts (Sections 3.4.7 and 3.4.8);
- journey quality impacts (Section 3.4.10); and
- physical activity impacts (Section 3.4.9)

The AMCB table presents four key overall measures:

- Present value of benefits (PVB): The sum of the discounted benefits over the appraisal period, reduced by the discounted value of any developer contributions or equivalent (in this case, the operators' share of the investment costs).
- Present value of costs (PVC): The sum of the discounted costs over the appraisal period, reduced by the discounted value of any developer contributions or equivalent (in this case, the operators' share of the investment costs). In effect this represents the cost to government.
- Net present value (NPV): The PVB minus the PVC. This indicates whether the net benefits are positive or negative, and their scale.
- Benefit-cost ratio (BCR): The ratio of the PVB and the PVC. A BCR above 1.0 indicates that the benefits exceed the costs (i.e. the net benefits are positive).

Table 3-17 shows the Analysis of Monetised Costs and Benefits for the four options.

**Table 3-17 - Analysis of Monetised Costs and Benefits**

	Western route option	Revised Central route option	Revised A10 route option	Revised Eastern route option
Noise	£3	£59	£19	£16
Local Air Quality	£75	£71	£43	£10
Greenhouse Gases	£887	£1,356	£2,326	£887
Journey Quality	£25,538	£25,090	£18,951	£0
Physical Activity	£4,148	£1,478	£7,983	-£288
Accidents	£424	£378	£250	£64
Economic Efficiency: Consumer Users (Commuting)	£10,058	£13,772	£39,266	£13,174
Economic Efficiency: Consumer Users (Other)	£13,174	£11,975	£21,647	£6,535
Economic Efficiency: Consumer Users (Commuting)	£2,788	£7,662	£22,743	£7,746
Wider Public Finances (Indirect Taxation Revenues)	-£4,376	-£5,841	-£9,560	-£4,448
<b>Present Value of Benefits (PVB) – Total of above factors)</b>	<b>£52,753</b>	<b>£55,999</b>	<b>£103,669</b>	<b>£23,697</b>
Broad Transport Budget	£46,468	£49,373	£167,571	£41,929
<b>Present Value of Costs (PVC) (see Table 3-16)</b>	<b>£46,468</b>	<b>£49,373</b>	<b>£167,571</b>	<b>£41,929</b>
Net Present Value (NPV) (PVB – PVC)	£6,285	£6,626	-£63,902	-£18,231
<b>Benefit to Cost Ratio (BCR)</b>	<b>1.135</b>	<b>1.134</b>	<b>0.619</b>	<b>0.565</b>

millions, 2010 values and prices.

Source: TUBA Runs for T1001A, T1005, T1004, T1002 compared to T1000D

### 3.5.4. Benefit-Cost Ratio (BCR)

Table 3-18 summarises the PVB, PVC, NPV and Initial BCR for each of the four corridor options.

**Table 3-18 - Summary of Benefits, Costs and BCRs**

	Western route option	Revised Central route option	Revised A10 route option	Revised Eastern route option
Present Value of Benefits (PVB) (£m)	£52.8	£56.0	£103.7	£23.7
Present Value of Costs (PVC) (£m)	£46.5	£49.4	£167.6	£41.9
Net Present Value (Initial) (NPV) (£m)	£6.3	£6.6	-£63.9	-£18.2
<b>Benefit: Cost Ratio (Initial) (BCR)</b>	<b>1.135</b>	<b>1.134</b>	<b>0.619</b>	<b>0.565</b>

2010 values and prices.

Source: TUBA Runs for T1001A, T1002, T1004, T1005 compared to T1000D

The options fall within two categories of performance. The Western and Revised Central route options both have BCRs that are greater than 1.00, with a positive NPV. These options have the best balance between benefits accrued to users and the cost to implement the scheme.

In contrast, the Revised A10 and Revised Eastern route options exhibit BCRs of less than 1.00, with negative NPV. The Revised A10 route option does yield the greatest benefit stream, but also has the highest costs to deliver the scheme and unlock these benefits. This results in a lower value for money than scheme with lower overall benefit levels, but lower costs of implementation.

The Revised Eastern route option performs more poorly, despite having similar cost levels to the Western and Revised Central route options. This is as a result of lower benefit streams due to the narrower market for public transport and park and ride use and minimal improvements to active travel.

### 3.5.5. Non-monetised impacts

The following non-monetised impacts have been assessed and are summarised in the Appraisal Summary Table (AST) where appropriate:

- Security;
- Severance;
- Accessibility;
- Townscape;
- Historic environment;
- Landscape;
- Biodiversity;
- Water environment;
- Affordability;
- Access to services; and
- Option and non-use values.

### 3.5.6. Appraisal Summary Table (AST)

The AST summarises all the aspects of the appraisal, whether qualitative, quantified or monetised. The ASTs for the scenarios can be found in Appendix G.

### 3.5.7. Sensitivity tests

A number of sensitivity tests of the appraisal have been made, the results of which are described in the following sections.

#### Excluding the impact of Marginal External Cost calculations

Marginal External Costs present a mechanism to give an early indication as to benefits accrued through changes to Noise, Local Air Quality and Accidents, in lieu of formal and detailed assessments. The table below presents the BCRs for each option without the MEC analysis included.

**Table 3-19 - Summary of Benefits, Costs and BCRs - Excluding Marginal External Costs**

	Western route option	Revised Central route option	Revised A10	Revised Eastern route option
Present Value of Benefits (PVB) (£m)	£52.2	£55.5	£103.4	£23.6
Present Value of Costs (PVC) (£m)	£46.5	£49.4	£167.6	£41.9
Net Present Value (Initial) (NPV) (£m)	£5.7	£6.1	-£64.2	-£18.3
<b>Sensitivity Benefit: Cost Ratio (Initial) (BCR)</b>	<b>1.124</b>	<b>1.124</b>	<b>0.617</b>	<b>0.563</b>
<b>Original Benefit: Cost Ratio (Initial) (BCR)</b>	<b>1.135</b>	<b>1.134</b>	<b>0.619</b>	<b>0.565</b>

2010 values and prices.

Source: TUBA Runs for T1001A, T1002, T1004, T1005 compared to T1000D

This demonstrates that the impact of this assessment is marginal in terms of the overall scale of benefit and does not impact upon the value for money category that each option would sit within.

### Excluding estimates for Bus purchase, operation, and maintenance

At the current stage of scheme development, the exact nature of vehicle type or service patterns that will be run on the infrastructure is not yet known. Assumptions have been made for the purpose of transport modelling to inform the economic appraisal and enable an estimation of the initial capital, renewal and operation costs of representative services, assuming single deck electric bus operation. Given the longer-term aspirations for this route to form part of the wider CAM network, these assumptions may not prove to be representative of the longer-term picture. Given this uncertainty, this sensitivity presents the economic appraisal results excluding the current estimates of the capital, renewal and operational expenditure for the Private sector services.

**Table 3-20 - Summary of Benefits, Costs and BCRs - Excluding Bus CAPEX and OPEX**

	Western route option	Revised Central route option	Revised A10 route option	Revised Eastern route option
Present Value of Benefits (PVB) (£m)	£71.1	£74.4	£119.3	£37.2
Present Value of Costs (PVC) (£m)	£46.5	£49.4	£167.6	£41.9
Net Present Value (Initial) (NPV) (£m)	£26.7	£25.0	-£48.2	-£4.7
<b>Sensitivity Benefit: Cost Ratio (Initial) (BCR)</b>	<b>1.531</b>	<b>1.507</b>	<b>0.712</b>	<b>0.888</b>
<b>Original Benefit: Cost Ratio (Initial) (BCR)</b>	<b>1.135</b>	<b>1.134</b>	<b>0.619</b>	<b>0.565</b>

2010 values and prices.

Source: TUBA Runs for T1001A, T1002, T1004, T1005 compared to T1000D

These results show that the impact of removing the OMR costs for the bus services is significant and would move both the Western route option and Revised Central route option BCRs from the 'low' to 'medium' category. The Revised A10 and Revised Eastern route options would remain rated as 'poor' value for money.

This indicates that when quantifying the value for money during the OBC, it will be important to resolve the type and pattern of service that will utilise the high-quality public transport route and accurately account for the incremental costs that are required as a result of this scheme. Should, for example, the vehicles required not be purchased specifically for this scheme, but part of a wider fleet purchase, then the cost implications associated with this scheme directly could have an impact on the value for money categorisation.

### Reduced OB to OBC levels

As the scheme design progresses, the level of Optimism Bias associated reduces as early uncertainties are quantified. To demonstrate the potential impact of reduced Optimism Bias at OBC (15% for all elements except structures at 23%), assuming no other change to project costs, the following summary has been produced.

**Table 3-21 - Summary of Benefits, Costs and BCRs – OBC-level Optimism Bias**

	Western route option	Revised Central route option	Revised A10 route option	Revised Eastern route option
Present Value of Benefits (PVB) (£m)	£52.8	£56.0	£103.7	£23.7
Present Value of Costs (PVC) (£m)	£38.1	£40.8	£130.8	£34.4
Net Present Value (Initial) (NPV) (£m)	£14.6	£15.2	-£27.1	-£10.7
<b>Sensitivity Benefit: Cost Ratio (Initial) (BCR)</b>	<b>1.384</b>	<b>1.372</b>	<b>0.793</b>	<b>0.690</b>
<b>Original Benefit: Cost Ratio (Initial) (BCR)</b>	<b>1.135</b>	<b>1.134</b>	<b>0.619</b>	<b>0.565</b>

2010 values and prices.

Source: TUBA Runs for T1001A, T1002, T1004, T1005 compared to T1000D

These results show that the change in Optimism Bias will not change the value for money category for any option but will result in an increase in the BCR. Assigning the appropriate level of Optimism Bias and undertaking quantification of the risk allowance will therefore be important aspects for considering at OBC.

### High Value for Money threshold

The following tipping point analysis identifies the level of change to the Present Value Benefit stream required for each option to reach the 'high' value for money category.

**Table 3-22 – Present Value Benefits tipping point analysis**

	Western route option	Revised Central route option	Revised A10 route option	Revised Eastern route option
Present Value of Benefits (PVB) (£m)	£52.8	£56.0	£103.7	£23.7
Present Value of Benefits Required for BCR 2.0 (PVB) (£m)	£93.0	£98.8	£335.2	£83.8
Increase in Benefits Required (PVB) (£m)	£40.2	£42.8	£231.5	£60.1
Percentage Increase in Benefits Required (%)	76%	76%	223%	254%

£m, 2010 values and prices.

Source: TUBA Runs for T1001A, T1002, T1004, T1005 compared to T1000D

This shows that the Western and Revised Central route options would require a 76% uplift in their Present Value Benefit stream to move to the 'high' value for money category should no changes to the scheme costs take place. A much larger uplift would be required for the Revised A10 and Revised Eastern route options, with 223% and 254% increases in Present Value Benefits required respectively.

Present Value Cost reductions could also yield a change in value for money categorisation. The sensitivity test below shows the cost reductions that would be required for each option to meet a 'high' value for money category.

**Table 3-23 – Present Value Costs tipping point analysis**

	Western route option	Revised Central route option	Revised A10 route option	Revised Eastern route option
Present Value of Costs (PVC) (£m)	£46.5	£49.4	£167.6	£41.9
Present Value of Costs Required for BCR 2.0 (PVC) (£m)	£26.4	£28.0	£51.9	£11.9
Decrease in Costs Required (PVC) (£m)	-£20.1	-£21.4	-£115.75	-£30.05
Percentage Decrease in Costs Required (%)	-43%	-43%	-69%	-72%

£m, 2010 values and prices.

Source: TUBA Runs for T1001A, T1002, T1004, T1005 compared to T1000D

This demonstrates that as with the benefits uplift, the Western and Revised Central route options require less change to move to the 'high' value for money category, with a 43% cost reduction required. The Revised A10 and Revised Eastern route options again require higher shifts, with reductions of 69% and 72% respectively.

A combination of Present Value Benefit increases and Present Value Cost reductions could also yield the same shift, with the above outlining the extremes of each.

### Sensitivity test economics file

DfT have released a secondary economics file for use in TUBA runs, with revised forecasts for Value of Time changes aligned to the forecast direction that TAG is likely to take in its next update. TUBA has therefore been re-run utilising the sensitivity economics file (version 1\_14\_0) with the results compared to the initial results below.

**Table 3-24 - Summary of Benefits, Costs and BCRs – Sensitivity Test Economics**

	Western route option	Revised Central route option	Revised A10 route option	Revised Eastern route option
Present Value of Benefits (PVB) (£m)	£48.1	£51.0	£94.1	£20.1
Present Value of Costs (PVC) (£m)	£46.5	£49.4	£167.6	£41.9
Net Present Value (Initial) (NPV) (£m)	£1.6	£1.6	-£73.5	-£21.8
<b>Sensitivity Benefit: Cost Ratio (Initial) (BCR)</b>	<b>1.034</b>	<b>1.033</b>	<b>0.562</b>	<b>0.481</b>
<b>Original Benefit: Cost Ratio (Initial) (BCR)</b>	<b>1.135</b>	<b>1.134</b>	<b>0.619</b>	<b>0.565</b>

2010 values and prices.

Source: TUBA Runs for T1001A, T1002, T1004, T1005 compared to T1000D

These results show that the revised Value of Time forecasts would slightly reduce the benefits accrued by the scheme. The impacts are similar across each of the options, demonstrating that while the overall value for money of each option would be influenced, the relative performance would not be affected. It is anticipated that revised TAG guidance and forecasts will be in place to be used during the OBC phase of the study.

## 3.6. Value for money statement

Tests for four different corridor options have been undertaken to demonstrate the current forecast of the economic value for money of the scheme. The initial BCRs of 1.134 and 1.135 for the Revised Central and Western route options respectively represent 'low' value for money, as defined in WebTAG. The value for money of these options has the potential to be enhanced, depending on the future level of growth that comes forward in the corridor and longer modelling forecasts to capture the full build out potential of Waterbeach New Town. For example, the recent call for sites for the Greater Cambridgeshire Local Plan identify a number of potential development sites in this area and should these developments come forward, significant sustainable transport measures will be required to ensure that it does not have a significant impact on the already congested highway network. Sensitivity testing for higher growth scenarios is to take place at OBC stage of the business case process. The benefits of these options are driven by improved journey times for public transport and park and ride users, alongside journey quality benefits for active travel users. More detailed transport modelling at OBC phase would provide greater depth of representation and analysis of the results.

The initial BCRs of 0.619 and 0.565 for the Revised A10 and Revised Eastern route options respectively represent 'poor' value for money, as defined in WebTAG. Whilst there is also a case for these options to result in increased benefit streams as uncertainties are resolved, it is unlikely that these options will represent the same value for money return as demonstrated by the Western and Revised Central route options.

With the above in mind, the proposed scheme provides significant wider economic benefits (see Section 3.4.12), as it enables economic growth and boosts connectivity, particularly to/from:

- settlements to the north of Cambridge, such as Waterbeach New Town and Ely; and
- employment areas, such as NEC and onward travel to Cambridge city centre and beyond.

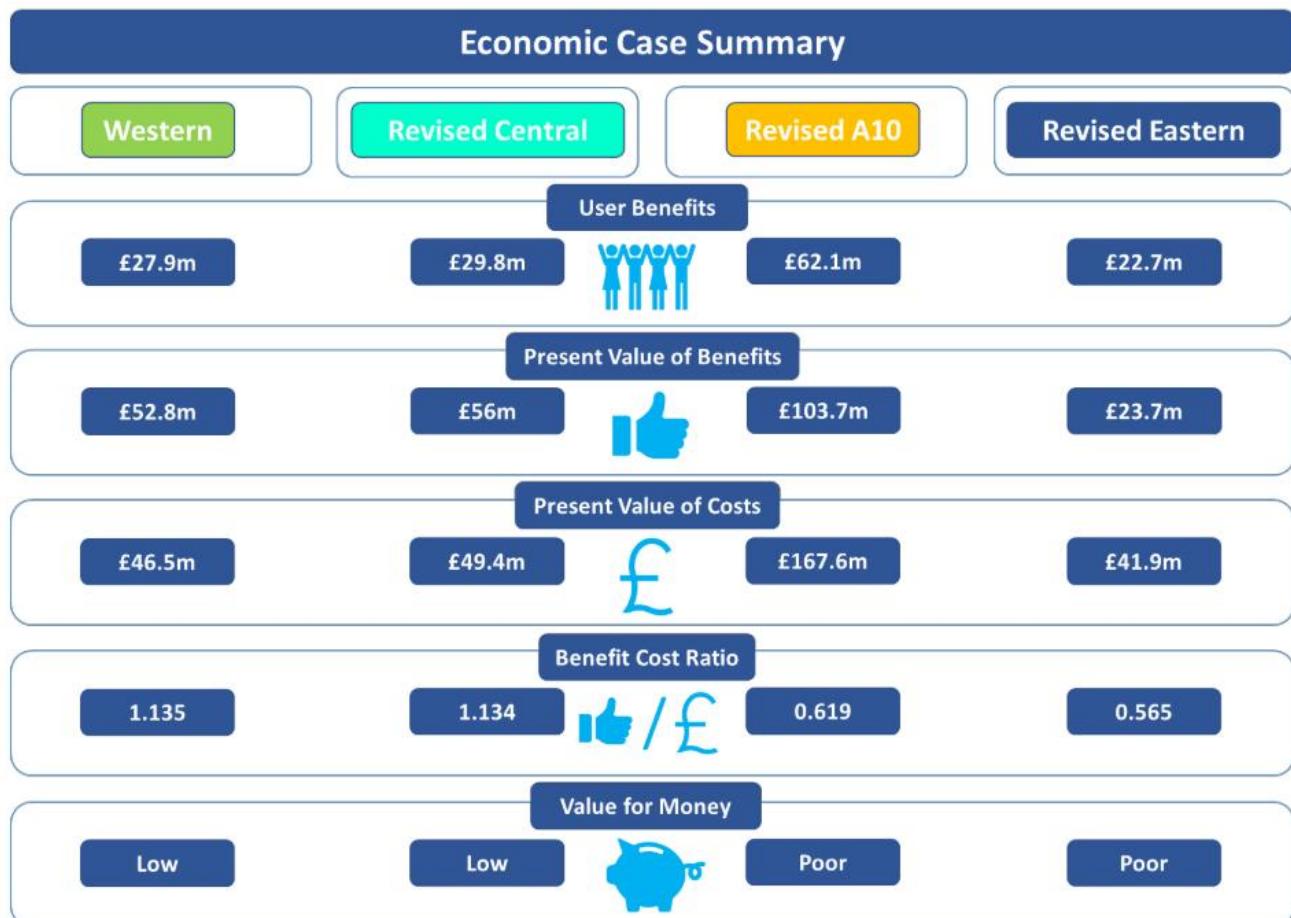
The scheme significantly supports the development of homes and jobs within the Greater Cambridge area and enables sustainable travel between travel markets in the study area too.

Key uncertainties remain in terms of the interaction with other schemes in the area, including the proposed A10 upgrade. The option to be taken forward for the A10 highway improvement would have an impact on the economic performance and strategic fit of the options considered here and should be taken into account once further details are known. Possible enhancements to the transport model have also been identified through this and other studies as part of a process for continual improvements. These enhancements will enable a more detailed representation of the corridor and the schemes, which alongside clarification over a number of uncertainties in the area will enable a more accurate qualification of the scheme value for money as the study progresses to OBC.

### 3.7. Appraisal results

Figure 3-3 summarises the key quantified benefits and costs from the economic appraisal which is set out in the Economic Case.

**Figure 3-3 - Summary of appraisal outcomes**



## 4. Financial Case

### 4.1. Introduction

This chapter sets out the Financial Case for the Waterbeach to Cambridge Public Transport Scheme. The objective of the Financial Case is to provide evidence as to the affordability of the proposal including funding arrangements and technical accounting issues. At SOBC stage the DfT document '*The Transport Business Cases*'<sup>59</sup>, requires that the Financial Case contains the following:

- an introduction outlining the approach taken to assess affordability (Outline); and
- analysis of budgets / funding cover for the project (Outline).

The following aspects of the Financial Case are not required at SOBC stage and will therefore be considered at Outline Business Case (OBC) and beyond:

- costs (not required at SOBC, but high-level capital cost estimates are nevertheless included in this Chapter); and
- accounting implications.

### 4.2. Capital costs

Initial capital estimates have been made based on the Waterbeach to Cambridge network structure presented in Strategic Case (see Figure 2-1). Estimates of cost are based on current cost rates, based on unit prices for infrastructure and the associated works.

The costs produced are based on the following assumptions:

- the prices are as at Q1 2021 and exclusive of VAT;
- ground conditions are generally good with no soft spots (except for Milton Landfill, where a separate allowance has been identified for ground stabilisation);
- "shallow foundations" for the entire length of the guideway i.e. no piling;
- stabilisation of soils not required over and above risk allowance;
- services are generally not diverted but protected;
- no major ecological impacts i.e. badgers, owls, newts, etc. over and above risk allowance;
- a cost for a park and ride has been included at £10,586,000;
- an allowance for 20% preliminaries, 25% traffic management and 30% contingency.

There are also a number of exclusions from the costs as follows:

- works arising from asbestos surveys or analyses;
- works arising from the identification of hazardous materials;
- treatment of contaminated ground over and above allowance;
- abnormal ground conditions over and above risk allowance;
- client direct order works;
- requirements imposed by Planning Authority or Fire Officer;
- landfill tax higher level for active waste;
- agency costs, legal fees and finance charges;
- development taxes, levies or other "planning gain" items;
- Section 106 costs/278 agreements;
- VAT;

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<sup>59</sup> The Transport Business Cases, Department for Transport, Table 5.1 – Contents of the Commercial Case.  
[https://assets.publishing.service.gov.uk/government/uploads/system/uploads/attachment\\_data/file/85930/dft-transport-business-case.pdf](https://assets.publishing.service.gov.uk/government/uploads/system/uploads/attachment_data/file/85930/dft-transport-business-case.pdf)

- statutory fees;
- land acquisition and associated costs (CPO), provided separately; and
- piled foundations other than at Waterbeach Landfill (Revised Central route option).

Table 4-1 shows the initial capital costs per option.

**Table 4-1 - Capital costs (£m)**

	Western route option	Revised Central route option	Revised A10 route option	Revised Eastern route option
Capital cost estimate	£54.2	£55.4	£196.4	£47.8

Table 4-1 shows that the Revised A10 route option has the largest capital costs which is as a result of a new structure across the A14 and a 'flyover' over the A10 to the north of Milton Interchange is required. The Revised Central route option and the Western route option capital costs are similar (around £55m). The Revised Central route option is anticipated to cost slightly more than the Western route option as it may be required to traverse Milton Landfill.

### 4.3. Funding

Funding for the north east Cambridge to Waterbeach Public Transport Scheme is expected to be sourced through the Greater Cambridge City Deal. City Deals provide a funding framework for central Government and local partners to agree investment programmes, centred on the promotion of local economic growth and development. The Greater Cambridge City Deal is worth up to £500 million over 15 years for transport infrastructure and other investments to boost economic growth. It is considered that another £500m could be provided in match funding.

The Greater Cambridge City Deal, which was agreed between Government and local authorities allows GCP to maintain and grow its status as a prosperous economic area. The deal:

- creates an infrastructure investment fund with an innovative Gain Share mechanism;
- accelerates delivery of 33,480 planned homes;
- enables delivery of 1,000 extra new homes on rural exception sites;
- delivers over 400 new Apprenticeships for young people;
- provides £1 billion of local and national public sector investment, enabling an estimated £4bn of private sector investment in the Greater Cambridge area;
- will create 45,000 new jobs; and
- creates a governance arrangement for joint decision making between the local councils.

The Waterbeach to Cambridge Public Transport Scheme, will accelerate the delivery of Waterbeach New Town by providing future users with sustainable transport options to key employment areas and travel hubs. This will also support the creation of new jobs in the area and support sustainable growth. Therefore, this scheme supports the City Deal aims and objectives.

£100 million of government funding was made available for the period to 2020. Following the recent successful 'Gateway review' of GCP by the Government, a further fund of £400 million is available up to 2030. The latter will be the Waterbeach to Cambridge Public Transport Scheme's main funding source.

To meet funding requirements, CCC will be seeking to recover a proportion of the cost from local developer contributions, secured through the planning process. The local developer contributions are dependent upon on-going negotiations and may vary between options.

# 5. Commercial Case

## 5.1. Introduction

This chapter sets out the Commercial Case for the Waterbeach to Cambridge Public Transport Scheme. The objective of the Commercial Case is to provide evidence as to the commercial viability of the proposed scheme and outline the procurement strategy that will be used to engage the market. At SOBC stage the DfT document '*The Transport Business Cases*'<sup>60</sup>, requires that the Commercial Case contains:

- an introduction outlining the approach taken to assess commercial viability (Complete);
- an output-based specification which summarises the requirement in terms of outcomes and outputs, supplemented by a full specification as annex (In outline); and
- a procurement strategy detailing procurement / purchasing options including how they will secure the economic, social and environmental factors outlined in the Economic Case (In outline).

The following aspects of the Commercial Case are not required at SOBC stage and will therefore be considered further at OBC and beyond:

- sourcing options;
- payment mechanisms;
- pricing framework and charging mechanisms;
- risk allocation and transfer;
- contract length;
- human resource issues; and
- contract management.

### 5.1.1. Outline approach to assessing commercial viability

The Commercial Case sets out options for the potential procurement strategies available to engage the market, setting out the financial implications of each strategy and the commercial strategy that drives best value for money.

At this stage of SOBC development, the Commercial Case has been prepared at a high level, to provide a strategic outline or overview. The Commercial Case would be developed in future stages following the steps in the approach outlined below:

- set the procurement objectives, define desired outcomes and identify potential constraints;
- identify potential procurement / purchasing options;
- assess the procurement options in terms of pros and cons, to develop a rationale for selecting the preferred sourcing option;
- confirm the preferred payment mechanism and pricing framework; and
- assess how different types of risk might be apportioned / shared, with risks allocated to the party best placed to manage them.

GCP should work to secure infrastructure associated with this scheme whilst securing operators to run services on the infrastructure in parallel to ensure a holistic approach to procurement. In terms of infrastructure, the scheme itself is considered major however it would be generally relatively conventional highway-type construction. In terms of operations, the Commercial Case must reflect both the legal context for local transport services and the emerging policy landscape including the CPCA Bus Review and CAM proposals. At this early stage the Commercial Case sets out a range of potential procurement routes for infrastructure and operations that will require further consideration.

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<sup>60</sup> The Transport Business Cases, Department for Transport, Table 5.1 – Contents of the Commercial Case.  
[https://assets.publishing.service.gov.uk/government/uploads/system/uploads/attachment\\_data/file/85930/dft-transport-business-case.pdf](https://assets.publishing.service.gov.uk/government/uploads/system/uploads/attachment_data/file/85930/dft-transport-business-case.pdf)

### 5.1.2. Summary of options

Four corridor options for the north east Cambridge to Waterbeach Public Transport Scheme (as described in the Strategic Case) have been considered within this Commercial Case. In identifying an appropriate procurement strategy for the infrastructure (capital) outputs for these options, it is important to understand both the engineering and logistical complexity of each option. In terms of infrastructure, the key characteristics of the four options are as follows:

- segregated high-quality public transport route;
- crossing of the A14;
- utility works;
- crossing of the landfill site (Revised Central route option); and
- bus priority traffic signals.

Different elements of the packages are likely to be implemented using different routes depending on the nature of the infrastructure delivered. Some measures may also be implemented by third parties such as developers, via S106 or S278 agreements, or Network Rail. As the scheme is developed, further work is required to determine the exact procurement routes taken, which could include:

- for large scale schemes (up to £20m), the Eastern Highways Alliance Framework;
- for smaller scale schemes, the CCC Highway's services contract;
- potential open invitation to tender (OJEU procurement) to select a contractor for the works from the open market;
- Network Rail procurement mechanism for rail-related works; and
- developer-led works on the public highway and on-site via S278 Highways Act Agreements or S106 agreements via a planning condition.

## 5.2. Output-based specification

Section 2.8 of the Strategic Case sets out the strategic objectives and intended outcomes for the scheme. The scheme objectives as defined by GCP are as follows:

1. Provide additional sustainable transport capacity to provide for the transport demands of economic and housing growth.
2. More reliable journey times by public transport.
3. More journeys along the corridor being undertaken by public transport.
4. More short journeys along the corridor being undertaken by non-motorised modes (because people feel safer and have direct routes between origins and destinations).

The objectives have been developed into a set of outcomes and outputs as follows:

- Scheme Outputs:
  - sufficient sustainable transport capacity with appropriate frequencies to meet the additional demand for travel due to jobs and housing growth;
  - high standards of public transport speed, reliability and safety Waterbeach New Town and NEC (and beyond); and
  - high standards of infrastructure for walking, cycling and other non-motorised modes of travel between Waterbeach New Town and NEC, including providing as direct routes as possible.
- Scheme Outcomes:
  - a higher share of journeys along the corridor being made by public transport;
  - a higher share of journeys being made by walking and cycling;
  - a smaller share of journeys in the corridor being made by private car;
  - fewer vehicles driving into Cambridge (compared to 2011 levels); and
  - improved perceptions of safety.

For the purposes of highlighting the ability of different procurement methodologies to deliver these outputs, it is helpful to simplify the list into key concepts for contracts: Cost, Quality and Time. In this case Quality is understood more widely as covering not just the immediate passenger experience of ride quality but also the ease and speed of undertaking a journey. Time is important in the delivery of both Quality and Cost; delivering a transport system quickly increases utility of the new transport scheme due to earlier use and increases value for money derived from earlier income streams for the service provision. Time and Cost are key differentiating factors between possible procurement methodologies.

Developing a set of requirements for the outputs will be key to a successful procurement process whether that process is Traditional, Design and Build (D&B), Develop and Construct (D&C) or Develop and Operate (D&O). As the Commercial Case develops, a specification will be developed to achieve the outcomes set out above.

## 5.3. Tendering procedure

The Public Contracts Directive 2014 issued by the European Union was implemented in the UK through the Public Contracts Regulations 2015. CCC as the public authority responsible for procuring the Waterbeach to Cambridge Public Transport Scheme on behalf of the GCP, are required to comply with these regulations. The regulations describe several options for procurement processes for contracts and the criteria that determine which of these options can be applied. The options given are outlined in the following sections.

### 5.3.1. Open procedure

Bids for the contract are received from any applicant who fulfils certain minimum criteria. This procedure requires a fully developed scheme design and proposal and may result in the receipt of numerous bids. This procedure allows an unlimited number of interested parties to tender against defined parameters.

There are no restrictions (e.g. pre-qualification) on the parties who are permitted to tender, meaning that some parties may not be suitable to carry out the work. This procedure is straightforward and transparent but can attract numerous potential bidders (which will require a greater degree of assessment and resource requirements).

It also takes considerable time and resource, as well as limiting time for Early Contractor Involvement (ECI), and buildability input from the contractor.

### 5.3.2. Restricted procedure

Applicants are required to submit a pre-qualification application from which a short list of the most suitable applicants is drawn up. Bids are invited only from those applicants on the short list. This is a two-stage procedure.

The first stage allows the contracting authority to set the minimum criteria relating to technical, economic and financial capabilities that the potential bidders must satisfy and suppliers are alerted to express an interest to a contract opportunity by obtaining and submitting a Selection Questionnaire which is used to establish such aspects as their capability, experience and suitability.

The second stage involves shortlisted suppliers which meet the selection criteria being invited to tender. All tenders are evaluated in line with the methodology and award criteria set out in the tender documentation.

### 5.3.3. Competitive dialogue procedure

This may be used where the needs of the contract cannot be met with readily available solutions and the Open or Restricted procedures are not considered suitable. In this case applicants are short listed but the solution for the scheme is developed with the applicants, at which point a reduced number of applicants are asked to submit a final tender.

This procedure is appropriate for complex contracts where contracting authorities are not objectively able to define the technical means capable of satisfying their needs or objectives; and / or are not objectively able to specify the legal and / or financial make-up of a project.

This is a multi-stage procedure. The first stage is a pre-qualification to select the potential bidders to participate in the dialogue. In the second stage the contracting authority enters a dialogue with the potential bidders to identify and define the means best suited to satisfying their needs.

Any aspect of the contract may be discussed, including technical requirements for the works to be delivered and the commercial / contractual arrangements to be used. The dialogue may be conducted in successive phases with the remaining bidders being invited to tender.

By the end of the dialogue phase the contracting authority's requirements will have been determined such that the scheme can be tendered. In the final stage, the remaining bidders from the dialogue phase are invited to tender for the scheme.

### 5.3.4. Competitive procedure with negotiation

This relatively new procedure is intended to be used where minimum requirements can be specified but negotiations with bidders may be needed to improve the initial tenders. The grounds for using this procedure are as follows:

- Where needs cannot be met without adaptation of readily available solutions;
- Where the contract includes design or innovative solutions;
- Where the requirement is complex in nature, in its legal and financial makeup or because of its risks;
- Where the technical specifications cannot be established with sufficient precision; and
- In the case of unacceptable/irregular tenders.

Within this procedure, bidders initially submit tenders based on the information issued by the contracting authority. The contracting authority is then able to review the tenders it has received and negotiate with the bidders, following which the tenders will be resubmitted. This procedure may therefore be useful where the requirements are well developed initially and full tender documents can be produced, but it is felt that there may be advantage in retaining the ability to negotiate if there are certain aspects which bidders raise.

### Summary

This scheme is likely to be procured using the Restricted Procedure because it will be possible to publish a well-defined tender package for bidders to price against. The Restricted Procedure also has defined timescales for each stage which will allow GCP to ensure that the tenders can be received by the dates required by the overall project programme. A Direct Award is unlikely to be justified and an Open Tender Procedure has potential to attract multiple submissions with a protracted length of time required to evaluate tenders.

Whilst the Restricted Procedure is the likely procurement procedure, this will not be confirmed until Outline Business Case (OBC) and / or Full Business Case (FBC) stage following further consideration of the procurement procedures available.

## 5.4. Procurement strategy

A procurement strategy has been prepared to address the output risks for the infrastructure options identified within the Strategic Case. As the scheme is at an early stage, routes to procurement are still open. The GCP is expected to procure many of its professional services through frameworks with suppliers that have been pre-selected by virtue of their capabilities, experience, capacity and behaviours.

Risks to operational performance should sit with the scheme promoter and the outline designer, whereas risk to time and costs, especially during implementation, would sit with the contractor.

Currently, operator involvement in providing infrastructure is generally limited and there are very few precedents of operator involvement in any public-private partnership infrastructure schemes or public transport infrastructure schemes in the UK. This is distinct from operators contributing to the capital or revenue costs of infrastructure, of which examples include an access charge (CGB), contribution to capital cost (Leeds) or profit share mechanism (South Hampshire Eclipse). Therefore, the procurement strategy for the Waterbeach to Cambridge Public Transport Scheme has considered parallel procurement routes for both capital works and public transport services.

CCC's 'Contract Procurement Rules' allow for either the Infrastructure Conditions of Contract (ICC) or New Engineering Contact (NEC) standard from to be adopted for the delivery of major projects. In practice, CCC has adopted NEC for tendered civil engineering, maintenance and professional services contracts such as the CGB. As a result, the Council's internal support services and 'in-house' term consultants Skanska, have greater experience and capability procuring works under the NEC suite. The NEC3 suite of contracts has been used on similar schemes so is the most familiar. However, the NEC4 Contract Suite was introduced in 2017 and has subsequently been adopted by the Council and is therefore currently considered appropriate for administration of the scheme.

In the following Sections the term 'client' is used as this is the title given by many standard form construction contracts and is synonymous with 'scheme promoter' or the organisation via which the scheme promoter decides to enter into contract with construction organisations for the infrastructure works.

#### 5.4.1. Capital works procurement strategy

The Capital Works Procurement Strategy must acknowledge appropriate risk allocation, work with the design strategy, and set the appropriate engagement of consultants and contractors for the detailed design and implementation. The capital works strategy is realised through the resulting project organisation, project management, contracting strategy and the consistency and coordination of the contract terms between the client and external organisations.

One of the fundamental decisions when addressing the procurement strategy for infrastructure works is how to source the design elements of the work. The design requirements for the infrastructure will vary between options. There may be elements in some of the options that are challenging and may present risk of delay either because of design complexity or necessary interface with third parties. Examples of risk accruing from relative technical complexity are:

- crossing the A14;
- a route across the landfill site (Revised Central route option);
- any online works to the A10;
- crossing of Milton Interchange;
- relative ground conditions in the different areas of interest; and
- relative archaeological investigations required in the different areas of interest.

Examples of risk accruing from design interfaces with third parties are:

- land assembly; and
- design approvals from the respective statutory bodies for planning and highways amendment consents.

Infrastructure design is a process with distinct but related stages. Operational design, sometimes referred to as 'Preliminary', 'Outline' or 'Reference', defines the performance criteria of the scheme and what the actual outputs will be, whereas detailed design defines the construction of the project and how it is delivered on the ground.

Given that the key external constraints and risks on the project (land assembly and statutory utilities diversions) are largely defined during the initial phases of the design of the selected option, the procurement strategy can be effective in partially managing these risks before the delivery mechanism is set in train.

In terms of the construction phase of the project, the key risks identified include the planning and logistics of crossing the A14 (all options), and the sensitivity to the quality and reliability of the operational life of the infrastructure. This latter risk accrues from a lack of direct control during construction of the junction signals, the park and ride facilities and the segregated public transport itself.

As the project progresses the risk assessment will be applied to decide on appropriate contracting strategies for the infrastructure under the 'sourcing options' requirement for the OBC. Based on work undertaken for previous similar corridors it is anticipated that the forms of contract that could be considered are:

- **A traditional arrangement**, where one contract secures a detailed design and specification for the construction, which is then tendered as a separate contract.
- **Design and Build**, where detailed design and construction are both undertaken by the same organisation.

- **Develop and Construct**, a hybrid of traditional and Design and Build where part of the design is prepared before the contractor is appointed.
- **Construction management**, where design by the client's consultants and construction of the works overlap. A fee-earning construction manager defines and manages the work packages. All contracts are between a client and the trade contractors. The final cost of the project may only be accurately forecast when all packages have been let.
- **Management Contracting**, where design by the client's consultant and construction overlap. A management contractor is appointed early to let elements of the work progressively by trade or package contracts ('work packages'). The contracts are between the management contractor and the works contractors. As with construction management, the final cost can only be forecast with reasonable certainty when the last package has been let.
- **Private Finance Initiative / Public-Private Partnership (PFI/PPP)** is typically where a public sector client buys services with defined outputs from the private sector on a long-term basis, typically for 25 years. This will typically involve constructing and maintaining the delivered asset, and consequently the supplier is incentivised in this model to have the highest regard to whole-life costing as it has the risk of future operation and maintenance costs for a substantial period of time.

Each of these arrangements have their advantages and disadvantages as outlined below. The final strategy will be developed at OBC stage taking into account lessons learnt from earlier GCP corridors.

**Table 5-1 - Comparison of capital works procurement options**

Procurement Type	Description	Risk Transfer	Advantages	Disadvantages
Traditional	Client completes a full detailed design followed by tendering for a contractor, who is passed the design to construct.	The contractor assumes responsibility and financial risk for the building works whilst the client takes the responsibility and risk for the design team performance.  Therefore, if the contractor's works are delayed by the failure of the design team to meet their obligations, the contractor may claim against the client for additional costs and/or time to complete the project.	<ul style="list-style-type: none"> <li>• Design-led, facilitating a higher level of control over the design;</li> <li>• Reasonable price certainty at contract award based on market forces;</li> <li>• The strategy is satisfactory in terms of public accountability;</li> <li>• The procedure is well known; and</li> <li>• Changes are easy to arrange and value.</li> </ul>	<ul style="list-style-type: none"> <li>• Overall programme may be longer than for other strategies;</li> <li>• Limited 'buildability' input by the contractor; and</li> <li>• The strategy often results in adversarial relationships developing.</li> </ul>

Procurement Type	Description	Risk Transfer	Advantages	Disadvantages
Design and Build	<p>Client goes to tender based on performance criteria for the asset design and logistical constraints, potentially with very limited design information. The successful contractor then becomes responsible for completing the design and construction in accordance with the stated requirements.</p>	<p>Design risk is carried by the contractor. The client develops a detailed knowledge of risk, enabling a more informed negotiation of risk transfer at the tender stage.</p>	<ul style="list-style-type: none"> <li>• The client only has to deal with one firm;</li> <li>• More construction efficiency benefits ('buildability') are prioritised in the design;</li> <li>• Price certainty is obtained before construction starts providing the client's requirements are adequately specified and changes are not introduced; and</li> <li>• Reduced total project time through early completion is possible because of overlapping activities. Detailed design is completed by the contractor to suit its own construction programme, with advanced site works being undertaken whilst the design for later activities is still in progress.</li> </ul>	<ul style="list-style-type: none"> <li>• There are very few true D&amp;B construction organisations and what is usually being procured is a collaboration between a contractor and a design organisation;</li> <li>• The client is required to commit itself before the detailed designs are completed;</li> <li>• There is no design overview unless separate consultants are appointed by the client for this purpose;</li> <li>• Difficulties can be experienced by the client in preparing an adequate brief;</li> <li>• Bids are difficult to compare since each design, programme and cost will vary;</li> <li>• Client changes to project scope can significantly add to the scheme cost; and</li> <li>• Practical difficulties are possible if, despite contractual checks, a contractor is intent on implementing a programme of cost savings</li> </ul>

Procurement Type	Description	Risk Transfer	Advantages	Disadvantages
Develop and Construct	<p>The client submits for tender an outline design together with performance criteria for the asset together with other design and logistical constraints. The successful contractor then becomes responsible for the outline design that it has inherited and completes the detailed design and construction in accordance with that outline design modified as necessary to comply with all the contract requirements. It is typical under this model for the client's designer to be transferred to the contractor to maintain knowledge and continuity.</p>	<p>Generally as D&amp;B above but the contractor's design is constrained with certain parameters derived and defined by the outline design already undertaken by the client.</p>	<ul style="list-style-type: none"> <li>• As D&amp;B above but because of the pre-contract outline design and continuous checking of the developing detailed design the client has more control over the main characteristics of the asset as constructed.</li> </ul>	<ul style="list-style-type: none"> <li>• As D&amp;B above, but the difficulties and uncertainties of outcomes arising from representing the brief purely in words is mitigated by the client's 'pre-contract' partial design;</li> <li>• Loss of contractor buildability input into the outline design stage however this can be mitigated by inviting alternative proposals with tenders; and</li> <li>• Additional programme time spent before the tender although limited net delay to achievement of the construction completion.</li> </ul>

Procurement Type	Description	Risk Transfer	Advantages	Disadvantages
Management Contracts	<p>There are two different types of management contracts: 'management contracting' and 'construction management'. Procurement approaches, although technically different, are very similar. 'Construction management' is characterised by the provision of a construction management consultancy service and management contracting is effectively traditional contracting but with the contractor working for a fee based on the total value of the work packages procured and managed by it.</p>	<p>Under both regimes the work is let in separate work packages (generally by trade which may include design responsibility). Under the construction management regime, all work package contracts are placed directly by the client whereas under 'management contracting' the contractor places these contracts.</p>	<ul style="list-style-type: none"> <li>• The strategy offers time saving potential for overall project time due to the overlapping procedures;</li> <li>• Buildability advice potential is inherent;</li> <li>• Breakdown of traditional adversarial barriers although a certain amount of contractor / client barriers remain under the 'management contracting' regime;</li> <li>• Parallel working is an inherent feature;</li> <li>• Clarity of roles, risks, and relationships for all participants; and</li> <li>• Changes in design can be accommodated later than with some other strategies, without paying a premium, provided the relevant trade packages have not been let and earlier awarded packages are not too adversely affected.</li> </ul>	<ul style="list-style-type: none"> <li>• Price certainty is not achieved until the last trade packages have been let; and</li> <li>• An informed, proactive client is required in order to operate such a strategy.</li> </ul>

Procurement Type	Description	Risk Transfer	Advantages	Disadvantages
PFI/PPP	<p>In this procurement route a public sector client typically buys services with defined outputs from the private sector on a long-term basis, typically 25 years. This will involve maintaining or constructing and maintaining the asset, and the supplier is incentivised to consider whole-life costing as it will benefit directly from reduced spending on maintenance.</p>	<p>All risk is carried by the PFI Operator</p>	<ul style="list-style-type: none"> <li>• Total cost of the scheme including maintenance and operation is effectively spread over the whole lifecycle of the project; and</li> <li>• Long-term investment in maintenance helps ensure quality driven approach to the design and construction of the scheme.</li> </ul>	<ul style="list-style-type: none"> <li>• Increased procurement process duration will lead to significantly later start date of construction and therefore potential for increased cost to completion;</li> <li>• Generally more expensive overall than self-funded procurement models;</li> <li>• Very long 'lock-in' time with the contractor may be problematic if relationships are not satisfactory; and</li> <li>• Strong differences of political opinion exist on the use of PFI models of procurement. This may generate political difficulty in obtaining sanction for use.</li> </ul>

## 5.4.2. Operational public transport procurement strategy

As described in the Strategic Case, the intent is for the corridor to be used:

- Initially by CAM Phase 1 services, which are assumed to come under the same legal framework as local buses, plus local bus services where appropriate; and
- subsequently the full CAM service, plus again local bus services where appropriate.

The way these services are secured will be influenced by:

- the legal framework for commercial and tendered operation of local bus services;
- the legal framework for the full CAM service, if different (depending on the ultimate nature of the CAM system); and
- the GCP's and Combined Authority's overall approach to securing or procuring local transport services.

The public transport procurement strategy will be heavily influenced by the Transport Act 1985 which deregulated the provision of bus services outside of London. Any licensed bus operator is able to provide whichever bus service it chooses on a commercial basis, with the freedom to determine routes, frequencies, fares and vehicle type provided that it complies with relevant legislation and accepts any local or national requirements for concessionary travel. Stagecoach currently provides travel along the A10 corridor via the Citi2, Route 9 and Milton Park and Ride services. This regime has been modified by subsequent legislation: Transport Act 2000, Local Transport Act 2008, and Bus Services Act 2017. Each one of these pieces of legislation provides local transport authorities with the means of influencing the provision of bus services.

Local authorities also have other duties to consider in developing their procurement strategies. They have a legal duty to consider what, if any, additional services are required to supplement those provided commercially, and a related requirement under the Equality Act 2010, to ensure that no one group of people is disadvantaged by their actions. Ongoing engagement is taking place between the GCP and bus operators, along with CCC and the CPC. Successful partnerships with Stagecoach and Whippet Coaches on the CGB are testament to this engagement. At this stage, and subject to any changes arising from the Bus Reform Strategy (see information below), it is considered that an arrangement similar to the CGB, where CCC own the infrastructure and provide access to operators, would be appropriate for the Waterbeach corridor as it is similar in nature to the CGB corridor. The Waterbeach corridor is an existing bus corridor with significant expectations of a strengthened public transport provision as a result of large-scale planned developments.

### CPCA Bus Reform Strategy

In 2019 the CPC established a Bus Reform Task Force to review and implement the region's bus strategy and thereby improving services. The project is exploring the best operating and delivery model for Cambridgeshire's public transport network to:

- establish an integrated framework to assess subsidy requirements;
- identify and implement tangible short-term improvements to bus services; and
- develop and examine the business case for a number of alternative delivery options in Cambridge and Peterborough.

As a result of the initial work, the CPC has identified four options that could support the transition to an integrated transport network which include:

- deregulated bus services – the current structure for bus services;
- Advanced Quality Partnership Scheme (AQPS);
- an Enhanced Partnership (EP); and
- franchising.

The CPC has also commissioned an Outline Business Case (OBC) to consider what the best option could be. A public consultation took place in September and December 2019.

The overarching Bus Reform Strategy will ultimately impact on the transport strategy for the area, including for CAM and the GCP public transport schemes.

## 5.5. Procurement to date

Procurement to date has solely been the commission of consultants Atkins to identify and prepare the preliminary scheme and SOBC. No contractors have yet been commissioned for delivery of the physical infrastructure, vehicles or services.

## 5.6. Procurement Timescales

Timescales for the procurement process will be developed within the OBC for the Waterbeach to Cambridge Public Transport Scheme. This will set out projected timescales for the procurement of infrastructure, vehicles and services.

## 5.7. Procurement frameworks

This section sets out the in-principle strategy for procurement of consultant and contractor services to deliver the Waterbeach to Cambridge Public Transport Scheme. Consultant services extend to design and advisory services to the GCP and contractor services include construction of the scheme.

The highways industry uses several recognised procurement methods for delivering civil engineering and highway schemes. Each procurement method can be used for selecting a Service Provider. Several procurement methods, in this instance Frameworks, will be further considered at the OBC and FBC stages.

## 5.8. Summary

This Commercial Case has set out the procurement options and objectives in line with the desired outcomes from the scheme. The procurement strategy is being developed with the outcomes and outputs at the forefront to ensure that the preferred route is the most suitable to achieve the desired end result. The Capital Works Procurement Strategy is based on a number of contract options, likely to be managed through an NEC4 contract, which have been assessed in terms of pros and cons to develop a rationale for selecting the preferred sourcing option.

The Operational Procurement Strategy is heavily influenced by local and national legislation and is likely to be further impacted by the CPCA Bus Reform Task Force, which is currently exploring the best operating and delivery model for Cambridgeshire's public transport network. Ongoing engagement and a successful partnership with bus operators will enable the scheme approach to adapt to changing strategies as they emerge to ensure the most effective operational strategy for the scheme. Following this SOBC, the Commercial Case for the Scheme will be further considered as part of the OBC. This will develop the strategies identified in this SOBC and consider the following:

- sourcing options;
- payment mechanisms;
- pricing framework and charging mechanisms;
- risk allocation and transfer;
- contract length;
- human resource issues; and
- contract management.

# 6. Management Case

## 6.1. Introduction

This Chapter sets out the Management Case for the north east Cambridge to Waterbeach Public Transport Scheme. The purpose of the Management Case is to assess if the proposal is deliverable. At SOBC stage the DfT document '*The Transport Business Cases*'<sup>61</sup> that the Management Case contains:

- an introduction outlining the approach taken to assess if the proposal is deliverable (Complete);
- evidence of similar projects to support the recommended project approach (Complete);
- a summary of programme / project dependencies including deliverables and decisions that are provided or received from other projects (Outline);
- a description of the governance, organisational structure and roles (Complete);
- a programme and project plan (Outline);
- an assurance and approvals plan (Complete);
- a communication and stakeholder management strategy (Outline);
- a description of programme and project reporting (Outline);
- a risk management strategy (Outline); and
- a summary of the overall approach for project management at this stage of the project (Outline).

The following aspects of the Management Case are not required at SOBC stage and will therefore be considered at OBC and beyond:

- implementation of workstreams;
- key issues for implementation;
- contract management;
- a benefits realisation plan;
- monitoring and evaluation; and
- a contingency plan.

## 6.2. Evidence of similar projects

### Cambridgeshire Guided Busway

The CGB is a 42 kilometre long, open access route with high segregation that provides a high-quality public transport connection between Huntingdon and St Ives, to the north west of Cambridge and Addenbrookes Hospital and Trumpington to the south of Cambridge, with direct access to Cambridge city centre.

The route comprises 25 kilometres of guided busway and 17 kilometres of on-street routes, incorporating bus priority. Benefits of the scheme include travel time savings and road decongestion, modal shift in an area where the car is dominant, improved journey time reliability and increased interchange opportunities. The scheme also improved access to key services in rural areas, generates construction and operational jobs and enables development that was identified in the Regional Spatial Strategy and Structure Plan. A four-metre-wide bridleway runs alongside the guided busway sections of the route and has contributed to a significant level of benefit from improved walking, cycling and equestrian trips.

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<sup>61</sup> The Transport Business Cases, Department for Transport, Table 5.1 – Contents of the Commercial Case. [https://assets.publishing.service.gov.uk/government/uploads/system/uploads/attachment\\_data/file/85930/dft-transport-business-case.pdf](https://assets.publishing.service.gov.uk/government/uploads/system/uploads/attachment_data/file/85930/dft-transport-business-case.pdf)

Construction began in March 2007 and the busway opened on 7<sup>th</sup> August 2011 with 2.5 million journeys in the first year of operation. Whilst there are lessons learnt from the difficulties encountered, including track construction methodology and contract specification, the system delivered the desired outcomes in terms of service levels, service quality, mode shift and patronage. The commercial response by the operators has also been very positive, with very high frequency services being operated and additional destinations, such as Peterborough, being served.

Many of the elements of the CGB are directly comparable with this Scheme, in that they provide a shared corridor for public transport users, pedestrians, cyclist and equestrians. More recent sections of the busway close to Cambridge North Station have been delivered differently with an alternative approach to enforcement and track design based on a bus-only road with guiderails at the entry and exit to the route. This provides confidence that this scheme can be delivered.

#### Greater Cambridge Partnership corridor schemes and Cambridge Autonomous Metro

The north east Cambridge to Waterbeach Public Transport Scheme will form part of the wider strategy to be delivered under a coordinated framework with elements common to all corridors being proposed to form part of the CAM network.

#### Delivery achievements

The GCP undertook a gateway review in May 2020 and as a result of the 'significant success and progress' that the Partnership has made on its plans the Government have unlocked a further fund of £400 million for the GCP to create better transport infrastructure, support housing delivery and build sills for the future. Successes that contributed to this review are as follows:

- construction has commenced on the Histon Road scheme, creating a new bus lane and significantly improved walking and cycleways to make it quicker and easier for people to travel into the City from the A14;
- construction of the Milton Road scheme will commence upon completion of the Histon Road scheme and will provide improved public transport, walking and cycling connections along the corridor;
- the Abbey Chesterton Bridge, a key part of the Chisholm Trail that will provide a mainly off-road walking and cycling link between Cambridge Station and Cambridge North Station, will be installed later in 2020; and
- upgrades have been made across the proposed Greater Cambridge Greenways network, and Cross City Cycling schemes have been opened to improve cycle connectivity.

#### Lessons learnt

Several the GCP schemes such as Cambourne to Cambridge Better Bus Journeys and the Cambridge South-East Transport Study are more advanced in their programme than the Waterbeach to Cambridge Public Transport Scheme. Therefore, this provides an opportunity for sharing of key lessons learnt from other GCP schemes to help improve the scheme and streamline the programme. These include:

- building more detail into later stages of the project programme based on other projects;
- early structured and measured stakeholder, developer and public engagement to help secure buy-in as early in the process as possible – develop a robust communications strategy;
- defining assessment criteria early to allow scrutiny; and
- early identification of developer funding streams to allow for conditions to be made at the right planning stage.

The Cambridge Eastern Access Study is running in parallel to this study. This provides opportunity for joined up thinking and processes at several stages of the project including stakeholder engagement, option development and design.

### 6.3. Programme and project dependencies

Given the strategy coordination between GCP corridor schemes, CAM, and planned and consented development in the region the north east Cambridge to Waterbeach Public Transport Scheme has a number of programme and project dependencies. These are outlined and considered in terms of scheme risks in Table 6-1.

**Table 6-1 - Programme and project dependencies**

Project	Dependency	Risk for Waterbeach to Cambridge Public Transport Scheme
NEC Redevelopment	Developers are to provide a corridor within their site masterplan for the transit route.	Different route options through the site may emerge based on the redevelopment, with some more aligned to the Waterbeach to Cambridge options than others
CAM	The location of the tunnel head for access to the underground network	Location of tunnel head will determine the southern section of the route
Milton Road	Bus lanes and bus priority infrastructure on Milton Road	Required to continue the journey time and reliability benefits of the Scheme to the south of NEC into Cambridge city centre
Waterbeach New Town	Developers are to provide a corridor within their site masterplan for the transit route	Different route options through the site may emerge based on the redevelopment, with some more aligned to the Waterbeach to Cambridge options than others
Waterbeach Greenway	The Greenway is a walking, cycling and equestrian route to the east of the Study area which could align with the Revised Eastern high-quality public transport route option	The scheme would be required to provide a non-motorised user route alongside a Revised Eastern route option alignment.
A10 dualling	Any A10 route option that involves dualling the highway would require a crossing point for the West, Revised Central and Revised A10 route options. Online dualling of the A10 would interface with the Revised A10 high-quality public transport route option.	Public transport scheme delayed as a result of highway scheme programme or the highway scheme programme is in advance of the public transport scheme and therefore rules out certain route options due to land take
Science Park Redevelopment	Developers would be required to provide a corridor within their site masterplan for the transit route	Proposals for the development may not be far along enough to safeguard a route for the scheme however the scheme has the alternative use of the CGB which could serve the science park without traveling through it

## 6.4. Governance, organisational structure and roles

This Section describes the key roles and lines of accountability and how they will be resourced. The project processes and resources are set out in a separate Project Management Plan (PMP) and Project Initiation Document (PID) agreed by the Project Board. The project process is based on the DfT major scheme development methodology, which means the following key aspects:

- the overall scope of the project is set by the GCP Executive Board;
- the project is governed by a Project Board that will receive reports on project activity including spend, quality, programme and risks;
- the Project Board can request from the Project Manager all the information required for it to perform its governing role;

- the Project Manager must present all information to the Project Board that is required for the Board to perform their governing role;
- the two key project governance documents are the PMP and PID. They set out the need and aims of the project and the method for achieving the outcomes; and
- the Project Manager has full day to day responsibility for delivery of technical work streams and is employed by GCP.

### Executive Board

The GCP Executive Board consists of the Leader or equivalent of each of the partner organisations, as the key decision-making group. There is also an Assembly with appropriate representation from the Local Authorities and other Stakeholders which plays an advisory and scrutiny role.

A key role of the Executive Board is to agree and oversee the delivery of a programme of major schemes that will help achieve the GCP aims and support the sustainable growth and continued prosperity of the Greater Cambridge region, in line with national and local policy objectives and the Local Enterprise Partnership's (LEP) overarching economic strategy for the area. In particular, the Executive Board:

- takes responsibility for ensuing value for money is achieved;
- identifies prioritised list of investments within the available budget;
- makes decisions on individual scheme approval, investment in decision making and release of funding, including scrutiny of individual scheme Business Cases;
- monitors the progress of Scheme delivery and spend; and
- actively manages the budget and programme to respond to changed circumstances (delay to programme, scheme alteration, cost increases etc).

### Joint Assembly

CCC, CCiC and SCDC each have representatives on the Assembly, with political balance in each Authority's membership reflecting the balance of the political parties on the relevant Council. The other places on the Assembly are filled by members representing various stakeholder groups.

### Programme Board

GCP is focussed on both programme and project level governance with the principle that issues of key importance are addressed at the highest levels of governance and that issues of a more technical nature are addressed by officers.

At the programme level, an officer technical group (Programme Board) made up of key officers and stakeholders develops the overall scheme prioritisation and seeks to manage programme level risks and capture shared benefits. This Board, in consultation with Chief Executives, raise programme level issues with the GCP Executive Board and Joint Assembly as required.

### Project board and project team

At the project level a Project Team works up the scheme details and reports to a Project Board which will guide the overall development of the project at the technical level. At key project milestones, reports are made to the Executive Board on progress to seek decisions on key matters to allow the project to progress.

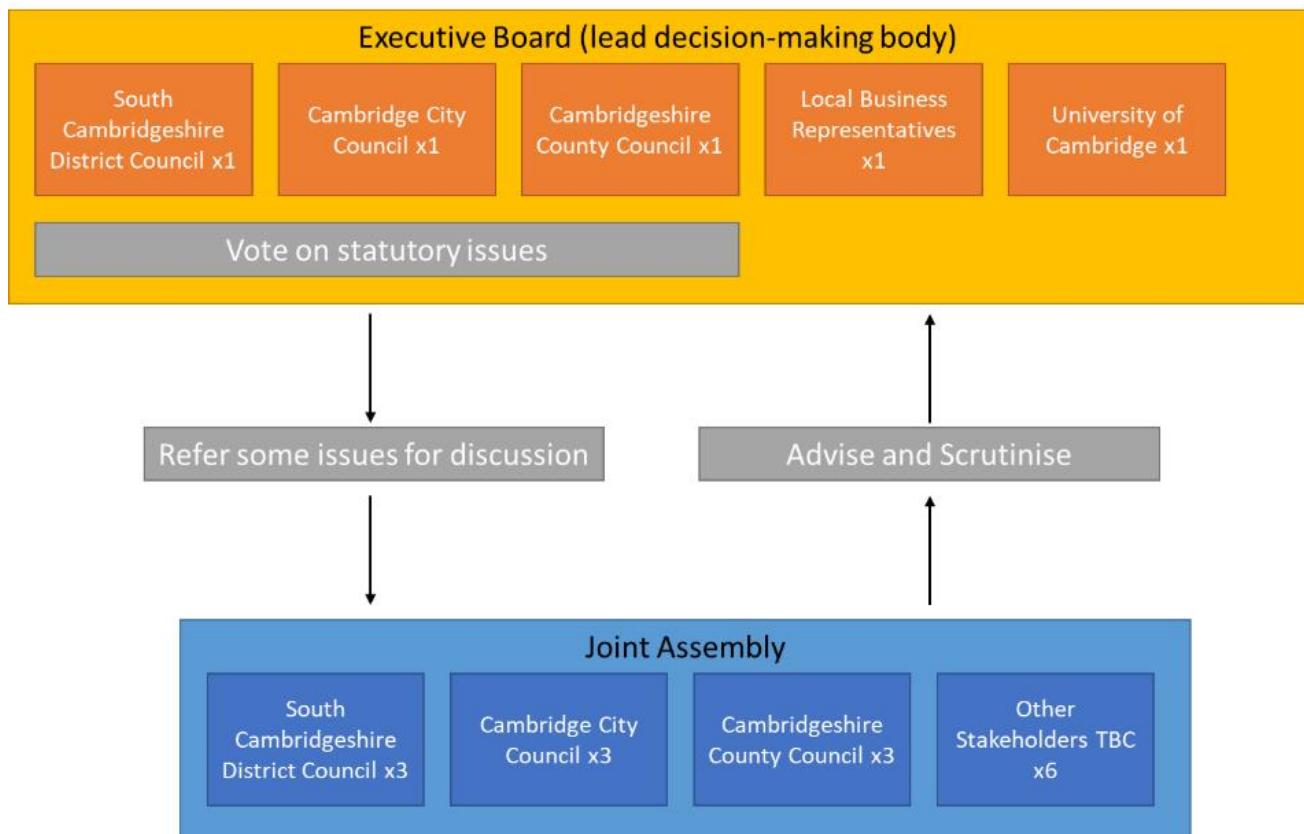
The Project Board has full decision-making powers within the scope of a project, except for 'key decisions' which are defined in Section 6.4.1. The Project Board consists, as a minimum, of senior representatives from the following organisations:

- Cambridgeshire County Council;
- South Cambridgeshire District Council;
- Cambridge City Council;
- the University of Cambridge; and
- Cambridge Network.

The Project Board can add to its membership as it sees fit to discharge its function. The Project Manager produces a monthly report for the Project Board which contains key activities undertaken and planned for the upcoming period, a budget update, a risk review and any new decisions under the four project decisions headings, outlined in Section 6.4.1.

Figure 6-1 sets out the GCP Governance Structure.

**Figure 6-1 - GCP governance structure<sup>62</sup>**



#### 6.4.1. Decision making and change control

The Project Manager determines which of the following four categories a decision falls under:

- **Key Decision:** these decisions are major gateway decisions to allow the project to continue. These decisions form the outer scope of the project and define the 'project parameters'. Key decisions are the sole responsibility of the GCP Executive Board with advice provided from the GCP Assembly and Chief Executives.
- **Scope Change Decisions:** these decisions take the project out of scope of the 'project parameters' agreed at the key decision-making stage. They will impact on cost, quality time and/or will require a change of the PID. As such, these decisions are the sole responsibility of the GCP Executive Board with advice provided from the GCP Assembly and Chief Executives.
- **Major decisions within Scope:** these decisions are within the 'project parameters' but are still considered major decisions because they have an impact on cost, quality time and/or will require a change of the PID. A major decision is the sole responsibility of the Project Board.
- **Project Management Decisions:** these are decisions which do not impact cost/quality or time for example, a technical decision on detailed options. These decisions include moving budget between work streams and are the responsibility of the Project Manager.

<sup>62</sup> Style from: Tetra Tech (2021) Cambridge Eastern Access Strategic Outline Business Case Part 5: Management Case Page 18 (Figure 4.2).

## 6.5. Programme and project plan

This Section sets out the high-level approach to project planning with key milestones and progress, including the critical path. A more detailed, scheme specific project plan will be developed at OBC stage. The project will be governed using the PRINCE 2 project method and will pass through a number of gateways to ensure that progress is approved. The gateways are, as a minimum, in line with GCP key decision points. The Project Board may, at its discretion, create additional gateways if it considers this necessary for the effective governance and delivery of the project.

As such the project is divided into six phases that broadly align with the five key decisions and the construction phase as follows:

- Phase 1 – work needed to establish the project (leading to Key Decision 1);
- Phase 2 – work needed to identify outline concepts (leading to Key Decision 2);
- Phase 3 – work needed to identify a preferred option (leading to Key Decision 3);
- Phase 4 – work needed to achieve Full Business Case and Statutory Approvals (leading to Key Decision 4);
- Phase 5 – work needed to achieve the final design scheme for approval (leading to Key Decision 5); and
- Phase 6 – work needed to construct the scheme and hand over to a final operator.

Phases 2, 3, 4 and 5 are the main technical stages of the project and these are being taken forward using the DfT TAG major scheme development methodology. TAG sets out the scope of the two main assessments – OBC and Full Business Case (FBC). As such, Phases 2, 3, 4 and 5 are themselves split across the following TAG related Stages:

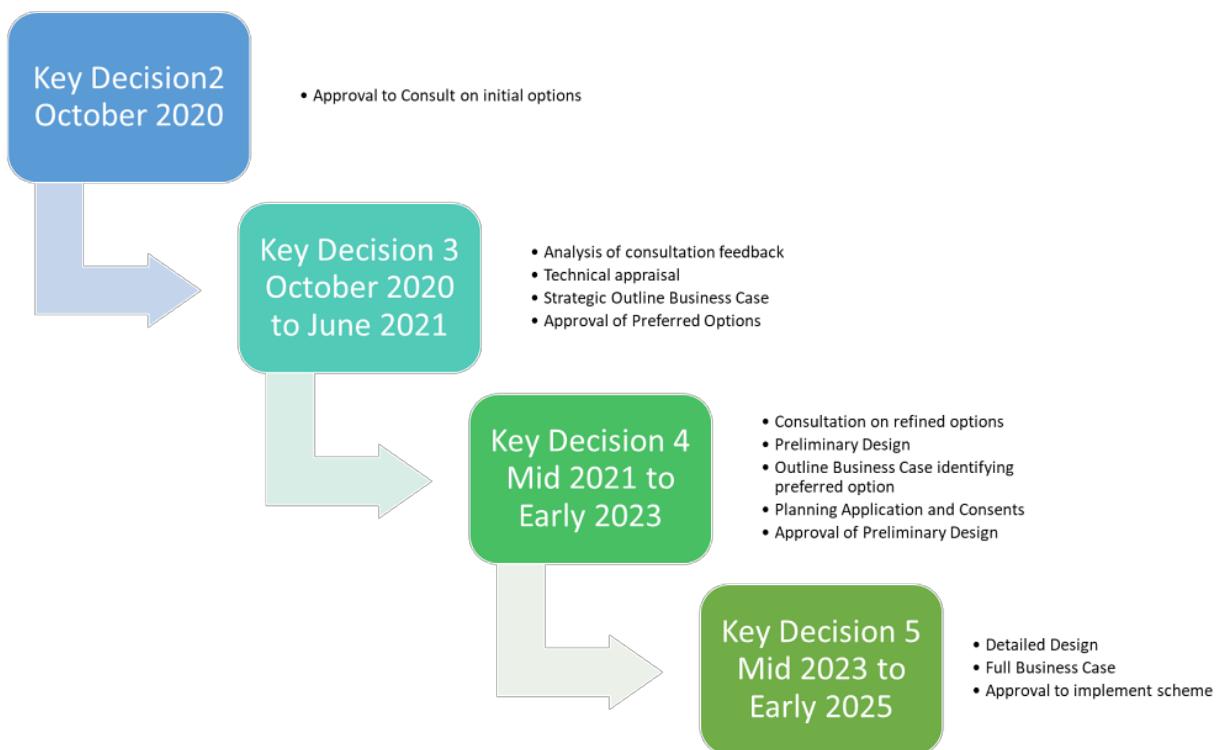
- Stage A – high level options assessment – identify feasible options;
- Stage B – identify preferred option on the basis of OBC;
- Stage C – FBC on preferred option; and
- Stage D – Approval of preferred option.

The relationship between Phases, Stages and key technical outputs is shown in Table 6-2.

**Table 6-2 - Relationship between project and TAG stages**

Project Phase	1	2	3	4	5
TAG Stage	A	A	B	C	D
Key Technical Output	Early economic assessment of benefits of a scheme	High level feasibility report recommending specific range of feasible concepts for further work	OBC for feasible concepts with recommended preferred option	FBC for preferred option	Detailed Scheme Design

The overall scheme programme including indicative timescales are set out in Figure 6-2.

**Figure 6-2 - Overall Scheme Programme**

The scheme is likely to require a Transport and Works Act (TWA) Order. Consents to enable delivery of the scheme would likely include compulsory purchase of land, planning permission, Traffic Regulation Orders (TRO) and Public Right of Way (PRoW) Orders.

The construction works may involve the following operations, depending on the preferred option:

- significant traffic management;
- construction of offline high-quality public transport route;
- construction of high-quality walking and cycling route alongside high-quality public transport route;
- construction of bridges, underpasses or other structures including upgraded junctions;
- construction of on-road public transport priority measures;
- signal upgrades;
- landscaping;
- construction of park and ride sites; and
- demolition of structures.

## 6.6. Assurance and approvals plan

There are several key milestones in the Project Plan where internal and/or external approvals will be required in order for the project to progress. As described above, the project will go through several key decision gateways to ensure that progress is approved.

The GCP have developed an Assurance Framework for the Greater Cambridge City Deal that outlines the proposed membership, responsibilities, processes, and principles to deliver a robust transport infrastructure programme as part of the overall City Deal aims of integrating transport and strategic planning. Local partners are committed to ensuring that robust systems and processes will be in place, in line with DfT guidance to develop and agree a deliverable programme that offers value for money.

The Framework ensures compliance with DfT's minimum requirements for Assurance Frameworks.

## 6.7. Communications and stakeholder management

This Section sets out the strategy for communications and stakeholder management on the project. All communication will be signed off by the Project Manager. The strategy ensures that all internal and external stakeholders are informed of relevant project information and that timely and accurate messages about the project are disseminated to a range of identified stakeholder groups. Stakeholders are outlined in Section 2.12 of the Strategic Case.

Key stakeholders will be identified and involved in the delivery of the project in a number of ways. Public and stakeholder engagement is an important means of solving problems and making decisions that directly impact upon those living, working, using services and doing business in the local area. Such engagement may include informing, consulting with, involving, collaborating with and empowering stakeholders to understand the issues to enable them to make informed choices.

The key communication objectives are to:

- provide all relevant stakeholders with clear, well-structured details of the GCP vision, project objectives and possible options, as well as being clear about that this project will not cover;
- create opportunities for stakeholders to freely and openly express their opinions, and encourage the opportunity to impact the outcome of the project;
- use an appropriate methodology for collecting the stakeholder responses and analysing them;
- ensure wide feedback from the public and stakeholders across the relevant areas to assist in decision making;
- create a consistent message across all projects to ensure stakeholders are aware that the north east Cambridge to Waterbeach public transport scheme is part of a wider vision set forward by the GCP;
- identify advocates for the project;
- manage any reputational risks associated with the project; and
- raise the profile of the GCP and its work.

Project communication is governed through the communications plan developed by GCP and outlined in Appendix B. Table 6-3 outlines the Stakeholder Engagement Overview timeline.

**Table 6-3 - Stakeholder engagement overview**

Phase	Time	Activity	Events
<b>Pre-consultation Engagement</b>			
Phase 1	November 2019-December 2019	Re-engagement with stakeholders important to the delivery of the project	Pre-consultation Workshop 1: 27 <sup>th</sup> November 2019
Phase 2	January 2020 – September 2020	Light engagement during options stages with politicians/members, specialist audiences and national bodies (including those critical to the delivery of the project)	Meetings between project team and identified stakeholders
	July 2020	Pre-consultation Cam Consult	No events planned due to Covid-19 restrictions – consultation to be online only
<b>Consultation Engagement (8 weeks)</b>			
Phase 3	October 2020 – December 2020	Public Consultation with all audiences	Format of consultation TBC
<b>Post-Consultation Engagement</b>			
Phase 4	Early 2021	Publish consultation results	Results to be taken to Joint Assembly and Executive Board along with recommendations for next steps
<b>SOBC Engagement</b>			
Phase 5	TBC	TBC	TBC

The Project Manager will maintain a Communications Log for the lifetime of the project including the following information regarding engagement:

- meeting purpose;
- date;
- attendees;
- subject matter; and
- organisations represented.

Procurement of public transport services is discussed within the Commercial Case and the cooperation of the service operator(s) will be essential but potentially difficult. If a TWA approach is followed, then specified operator quality standards will have to be achieved to enable access to the infrastructure. The scheme will depend on the operators to:

- provide vehicles of appropriate quality, including features such as on-board Real Time Passenger Information (RTPI);
- operate the required routes;
- operate the required frequencies including operating sufficient vehicles at peak times to avoid overcrowding;
- operate for the required time periods including evenings and weekends; and
- agree appropriate ticketing arrangements.

The project team will engage closely with the operator(s) to plan and deliver high quality, reliable and frequent services. In the deregulated environment the service proposal must be commercially attractive to the operator(s) for them to deliver the required services and thus the system to work as planned.

## 6.8. Programme and project reporting

The Project Manager and the delivery team will continue to report to the Project Board and GCP Executive Board as described in the communications plan in Appendix B and provide regular updates to the GCP website.

## 6.9. Risk management strategy

The key risks to delivery are captured within a project risk register and have been quantified in accordance with their likelihood and impact. There are 11 types of risk:

- City Deal governance;
- consultation / communications;
- design;
- external and internal stakeholders;
- project funding;
- project management;
- project scope;
- resources;
- scheme development;
- statutory processes; and
- supply chain issues.

Risk management processes will be employed and recorded throughout the project lifecycle. The risk register will be monitored and, if necessary, updated at regular workshops and meetings. Roles, responsibilities and reporting lines for risk management should be clearly defined within the project team.

At key strategic project level risk will be the appointment of a contractor prior to full completion of statutory processes and formal approval. Mitigating this risk will be a key issue with the contractual arrangements. GCP schemes are very time sensitive with programme level issues around the timely delivery of successful schemes. In that context it is essential that the appointment of a main contractor is well considered and planned and that an effective form of engagement is put in place and managed.

Risks are already being mitigated through early engagement with key stakeholders, technical experts and project teams on those projects for which the north east Cambridge to Waterbeach Public Transport Scheme has dependencies.

The current project risk register is in Appendix J.

## 7. Conclusions and next steps

Atkins was commissioned by the GCP to undertake a study to explore the options to deliver the most effective public transport connections between north east Cambridge and the proposed New Town north of Waterbeach (also referred to as Waterbeach New Town). Preliminary work has shown that a segregated high-quality public transport route is the most effective option to deliver a high-quality link between key travel markets in the study area, including Waterbeach New Town and the NEC development.

This document presents a SOBC for this emerging scheme, which follows on from the Options Assessment Report (OAR).

The purpose of a SOBC is to demonstrate that there is a strong need for change and intervention which is caused by existing and emerging problems which is caused by current traffic levels and would be exacerbated by major growth plans. This need is evidenced in the Strategic Case and summarised in Section 7.1. An economic appraisal has been provided in line with WebTAG guidance and proportional to this stage of assessment and therefore indicates the relative performance between options under the current set of assumptions.

### 7.1. Need for change

The Cambridge region is growing rapidly, and Local Plans identify the need for more housing over the next decade to support this growth. Local policies (including Local Plans) have identified a need for an additional 33,000 homes and 44,000 jobs by 2031. More specifically to the study area, there are significant housing and employment developments at either end of the corridor, such as Waterbeach New Town (11,000 dwellings and 40,000 sqm of employment use) and the NEC area (8,000 dwellings and approximately 330,000 sqm of employment use). This means that the study area is a large contributor to local growth ambitions and targets, making this a focus area for development.

However, the study area encompasses a transport corridor that already experiences congestion, as identified in previous studies<sup>63</sup>. The current congestion on the A10 around Milton village causes journey time and reliability issues. This is likely to worsen with increased development, which could see demand jump to some 68,900 daily trips that are likely to use the corridor (either northbound or southbound) travelling between travel markets.

Development would therefore exacerbate transport capacity issues that are currently experienced during peak periods. Whilst it is recognised that there is a need for growth, the existing transport network is unlikely to be able to accommodate this without new sustainable transport infrastructure.

With the above in mind, there is a clear need for intervention within the local area with the following objectives.

- Accommodate additional jobs and homes growth: Additional growth proposed in the area is likely to result in worsened highway capacity issues in the future. To mitigate this, public transport infrastructure could provide quicker, more frequent and more reliable public transport journeys for key travel markets, specifically along the A10. A new high-quality public transport scheme would not only accommodate additional growth, but will be able to do so sustainably, support emerging environmental policy;
- Reduce dependency on private motor vehicles: Due to a lack of quick, frequent and reliable public transport links between Waterbeach and Cambridge, there is a dependency on private motor vehicles to make these journeys which causes large amounts of congestion at network pinch points (e.g. Milton Interchange). Potential interventions that increase north-south public transport links would significantly reduce the dependency on private car for these trips.
- Supporting local policy and strategies: Local plans and policies identify a need to reduce congestion and accommodate additional growth in the study area. The policies demonstrate that the Waterbeach to Cambridge corridor is a key economic growth area and should be supported by the appropriate level of infrastructure. Moreover, local and regional policies have set goals to reduce car dependence, for example the GCP has a target to reduce motor traffic levels in Cambridge by 10% compared to 2011 levels. To achieve this goal, investment is needed in sustainable transport modes to enable more people to travel by

<sup>63</sup> Mott MacDonald, on behalf of the Greater Cambridge Partnership (2018) Ely to Cambridge Transport Study: Preliminary Strategic Outline Business Case

walking, cycling or public transport. A sustainable transport corridor between two major growth areas will help to reduce congestion and car dependence, connect more people to major employment areas, and enable the planned growth in housing to proceed.

## 7.2. Option development and assessment

### 7.2.1. Option development

#### Option Appraisal Report

The option development process was undertaken at the start of the project, the details of which can be found in the OAR<sup>64</sup>. The process had three stages which are described below.

1. The **option generation** stage identified possible options that had the potential to meet the objectives and deliver the intended outcomes of the intervention. Option generation was not constrained by the findings of previous studies.
2. The identified options were **sifted** by assessing them using a criteria selected to ensure that the transport objectives of the study could be met. Options that were unable to meet these high-level criteria were discarded at this stage.
3. In the final stage, a **more detailed assessment** of the options remaining was undertaken, assessing their fit against each transport objective and outcome, and engineering and environmental constraints. This assessment informed a Multi Criteria Assessment Framework (MCAF) to record the evidence and score each option against the criteria. From this, sets of options were considered in combination to provide corridor options for full connectivity to and from each end of the study area.

#### Public consultation and Business Case development

Four route options were identified in the OAR and these were taken forward to the SOBC stage which included a public consultation. The public consultation took place virtually because of the Covid-19 pandemic but was well attended. The feedback from the public consultation, along with further technical work has been used to develop the SOBC.

The Business Case has identified a strong need for a new dedicated, high-quality public transport link between Waterbeach New Town and NEC. In addition, the analysis has demonstrated that two of the four options (Western and Revised Central route options) offer benefits in excess of their currently-estimated costs. Furthermore, the SOBC has demonstrated that the scheme is deliverable, commercially viable and can be funded.

### 7.2.2. Option performance

Following robust assessments undertaken to date, a summary of option performance has been presented in Table 7-1.

**Table 7-1 - Option performance summary**

Option	Opportunities	Issues
Western route option	<ul style="list-style-type: none"> <li>Serves Waterbeach New Town and NEC development directly</li> <li>Least amount of construction risk i.e. using existing A14 underpass</li> <li>Cost is cheaper than Revised A10 and Revised Central route options</li> <li>Most supported route</li> <li>~2,300 additional public transport trips</li> <li>The option is the joint best value for money with a BCR of 1.135</li> </ul>	<ul style="list-style-type: none"> <li>Does not serve Milton village and potential users to south of Waterbeach are some distance from the route</li> <li>Does not serve Milton Park and Ride</li> <li>The junction CGB / high-quality public transport route would interact via a priority junction, the geometry of the junction means that the vehicle would be required to come to a complete stop, thereby increasing journey time, albeit by small amount</li> </ul>

<sup>64</sup> Atkins (2020) Options Appraisal Report

Option	Opportunities	Issues
Revised Central route option	<ul style="list-style-type: none"> <li>Serves Milton Park and Ride</li> <li>Offers similar journey times to the Western route option</li> <li>Serves Waterbeach New Town and NEC development directly</li> <li>The joint best value for money with a BCR of 1.134</li> </ul>	<ul style="list-style-type: none"> <li>Constructions risk over landfill site</li> <li>The junction CGB / high-quality public transport route would interact via a priority junction, the geometry of the junction means that the vehicle would be required to come to a complete stop, thereby increasing journey time, albeit by small amount</li> </ul>
Revised A10 route option	<ul style="list-style-type: none"> <li>Offers significantly better transport benefits (increases public transport trips by around 4,200)</li> <li>Serves all travel markets</li> </ul>	<ul style="list-style-type: none"> <li>Cost of scheme significantly higher than all other options (£202.4m)</li> <li>Significant construction risk due to the bridge and Milton Interchange 'flyover'</li> <li>Results dependent on Milton Park and Ride remaining</li> <li>Runs on-road through Waterbeach, reducing journey time and reliability</li> <li>Offers poor value for money with a BCR of 0.619</li> </ul>
Revised Eastern route option	<ul style="list-style-type: none"> <li>Could serve the new sporting lakes facility</li> <li>This option is the cheapest with capital costs around £53.9 m</li> </ul>	<ul style="list-style-type: none"> <li>Offers the worst value for money with a BCR of 0.565</li> <li>Does not serve key travel markets well</li> <li>NEC landowners are against new high-quality public transport route through the eastern part of site causing deliverability issues</li> <li>Does not serve new development as well as other options</li> <li>Runs on-road through Waterbeach, reducing journey time and reliability</li> </ul>

### 7.2.3. Preferred options

On the basis of the technical work that has been undertaken so far to assess the various merits of a number of route options, and on the basis of feedback from the public consultation, **the SOBC sets out the case to take forward a Western route option and a Revised Central route option as the preferred options** to the next stage of the project.

These two options provide the greatest user benefits compared to their costs and perform best in terms of their ability to deliver the required scheme outcomes. Whilst all four corridor options offer benefits to the users, the Revised A10 route option is significantly more expensive and less deliverable than the Western and Revised Central route options; whilst the Revised Eastern route option does not serve the travel markets as well as the Western and Revised Central route options.

**The Western route option is a preferred option** for the following reasons:

- It has a BCR of 1.135 representing the best value for money.
- It serves the key travel markets (NEC and Waterbeach New Town) using predominantly segregated infrastructure and thereby meets scheme objectives well.
- It is forecast to increase daily public transport trips by around 2,300.
- Evidence from this document shows that the Western route option would support the development of Waterbeach New Town and NEC within this corridor, therefore encouraging sustainable economic growth which could alleviate transport issues along the corridor.
- The results from the public consultation were supportive, with no major or specific concerns being raised.

**The Revised Central route option is a preferred option** for the following reasons:

- It has a BCR of 1.134 representing the best value for money.
- It serves the key travel markets (NEC and Waterbeach New Town) using predominantly segregated infrastructure and thereby meets scheme objectives well.
- It is forecast to increase daily public transport trips by around 2,500.
- Evidence from this document shows that the Revised Central route option would support the development of Waterbeach New Town and NEC within this corridor, therefore encouraging sustainable economic growth which could alleviate transport issues along the corridor.

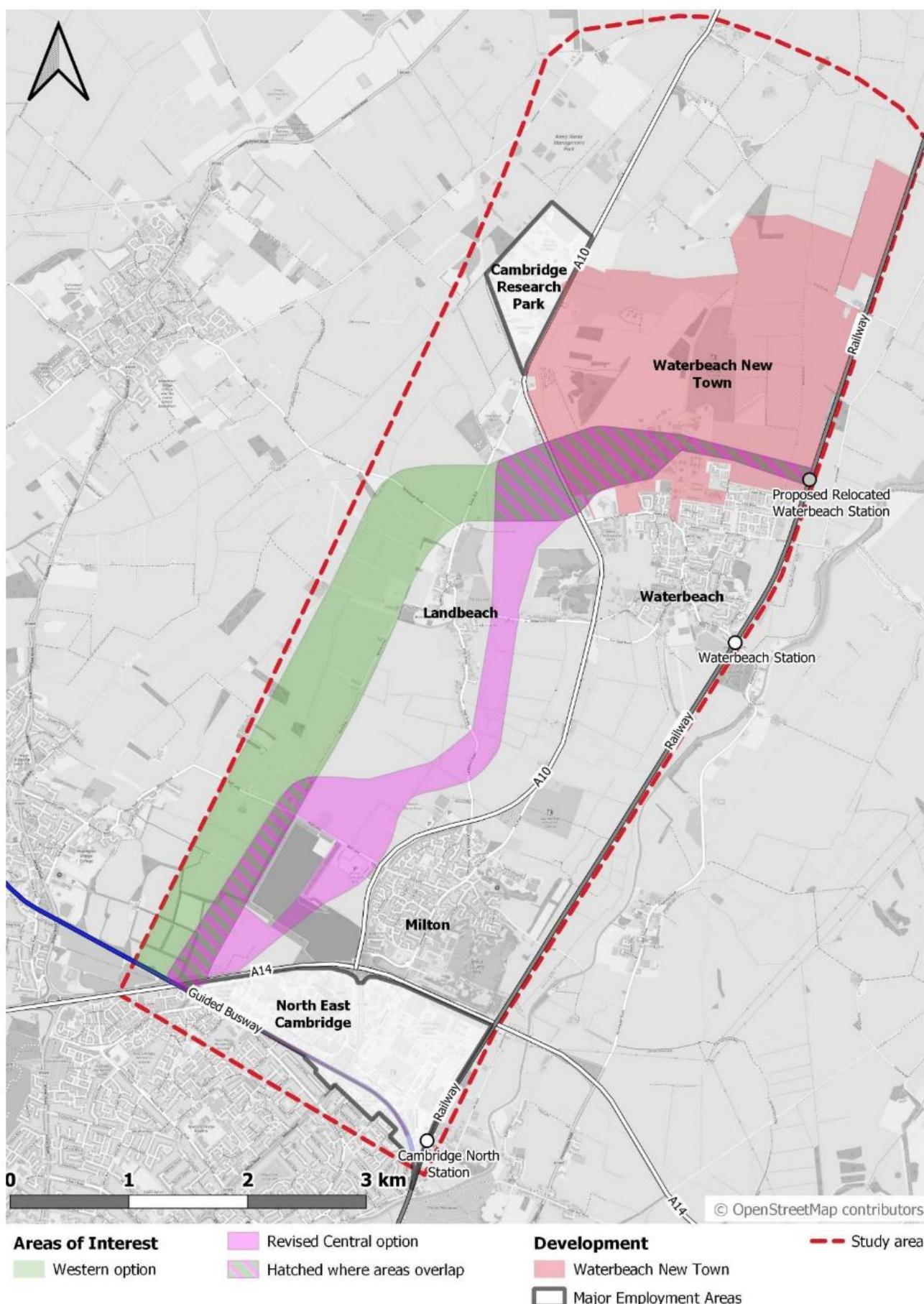
**The Revised A10 route option has been discounted** due to cost and deliverability. The provision of new infrastructure to cross the A14 and Milton Interchange results in significantly higher costs than other options and presents significant deliverability challenges.

**The Revised Eastern has been discounted** as it offers the fewest transport benefits and does not adequately serve the whole NEC development.

The options taken forward will facilitate services that route through Waterbeach New Town to also serve Waterbeach Relocated Station and Cambridge Research Park with alternate services from the local centre. This potential service pattern serves key markets well, with direct services and provides a balance between serving key demand hubs and providing a fast service.

Figure 7-1 shows the preferred options that are recommended to be taken forward to OBC stage. In addition, example service patterns have been shown.

Figure 7-1 - Preferred corridor options



## 7.2.4. Relationships and dependencies

At this stage there are still some unknowns which would impact upon the performance of the options and how they will be developed during the OBC stage. These include:

- Developments proposed in the study area, including the Cambridge Sport Lakes and Milton Police Station, which could conflict with scheme proposals. Moreover, the local planning authority has recently issued a 'Call for Sites' to inform the new local plan. If developments are committed, this could improve benefit streams due to the increased demand for the proposed scheme.
- A study examining the proposed A10 highway upgrade is ongoing. The alignment and nature of any modifications to the A10 could impact the route chosen for the high-quality public transport route and influence the design and cost of the high-quality public transport route, such as junction arrangements where the high-quality public transport route and highway intersect.
- The location and scale of provision for a new park and ride site is yet to be determined, linked to the above. It is also unclear whether Milton Park and Ride would remain should a new site be constructed.

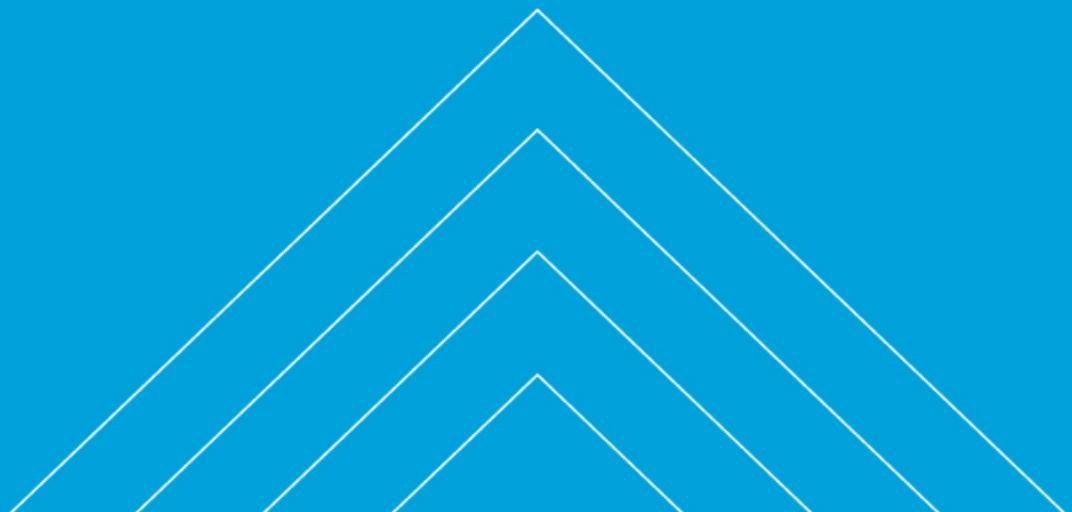
Subsequently, further work will be required to determine how the north east Cambridge to Waterbeach Public Transport Scheme would work alongside other proposed developments and transport improvements.

## 7.3. Recommended next steps

This SOBC has concluded that there is a clear case for change in the north east Cambridge to Waterbeach corridor and has recommended that the Western and Revised Central route options are progressed for further assessment. The recommended next steps are as follows:

- **To progress the two preferred options to the next step in the Business Case process: the OBC stage:** The OBC will provide more detail, or allow progress, on the following issues:
  - more detailed patronage forecasting and traffic modelling;
  - more detailed cost estimation, including detailed assessment of how a route could traverse the Milton landfill site;
  - more detailed risk assessment;
  - further consideration of how the scheme would fit into the wider development context and masterplans for the Waterbeach New Town and NEC developments;
  - further consideration on how other transport interventions could impact on the study such as the operations at Milton Park and Ride;
  - further consideration of wider economic impacts (the scheme will offer significant benefits, such as enabling sustainable growth and connecting homes to jobs, however at SOBC, these impacts have been assessed qualitatively);
  - detailed design of the routing and scheme specifications; and
  - initial environmental assessments.
- **Public consultation on preferred route alignments:** Following development of the preferred options, including the routing and design specifications it is recommended that another public consultation is held.
- **Investigation into potential service patterns:** Whilst this SOBC has considered possible segregated high-quality public transport routes between Waterbeach New Town and NEC, bus operating companies may opt to run on-line services where there is demand for it. With this in mind, it is recommended that further assessment work regarding service patterns is undertaken to determine the impact of service routing. This should be coupled with ongoing correspondence with bus operating companies.
- **Continued liaison with stakeholders:** Given the significant growth that is planned for the area, continued correspondence with local authorities, scheme promoters and developers is recommended to ensure that there is a holistic approach to development within this corridor.

# Appendices



## Appendix A. Summary of previous studies as evidence base

Year	Title and author	Evidence base	Key findings
2009	<b>Bus Strategy – Bus Route Option Study (Capita Symonds)</b>	<ul style="list-style-type: none"> <li>Denny St Francis Eco-town Transport Strategy</li> <li>Land ownership</li> <li>Site reconnaissance surveys, Ordnance Survey data, aerial photographs</li> </ul>	<ul style="list-style-type: none"> <li>Commissioned by RLW to assess the options for a busway between the new town of Waterbeach and Cambridge.</li> <li>The study area was divided into east-west tranches comprising different parts of Waterbeach and the area between Waterbeach and the A14</li> <li>The preferred option was through the farm fields east of Denny End Industrial Estate, to the west of the Sport Lakes complex, across the A10 at the junction with Ely Road, and across the fields and restored landfill to the existing A14 underpass at Mere Way</li> </ul>
2012	<b>A10 Transport Corridor Constraints Study (LDA)</b>	<ul style="list-style-type: none"> <li>GIS data, Tree Preservation Orders</li> <li>Heritage study</li> <li>Ecology study</li> </ul>	<ul style="list-style-type: none"> <li>Assessed constraints in the corridor between Waterbeach and Cambridge</li> <li>Built upon the 2009 Capita Symonds study, and also considered the realignment of the A10</li> <li>Assessed an area 100m either side of the A10 and included the A14 underpass at Mere Way</li> </ul>
2014	<b>Waterbeach Busway Options Study (WSP / Cleowlow)</b>	<ul style="list-style-type: none"> <li>Land ownership records, including council owned lands and property</li> </ul>	<ul style="list-style-type: none"> <li>Further assessed the preferred busway option from the 2009 Capita Symonds study</li> <li>A larger study area was assessed than the 2009 study</li> <li>The preferred option from the 2009 study remained the highest scoring of the options assessed</li> <li>Slight changes were made to the alignment of the preferred option so that where possible the route passed through council land</li> </ul>
2016	<b>A10(N) Corridor Constraints Study (Mott MacDonald)</b>	<ul style="list-style-type: none"> <li>Planning records</li> <li>Mapping of the following constraints:               <ul style="list-style-type: none"> <li>- Green belt</li> <li>- Agricultural land</li> <li>- Heritage/archaeological</li> <li>- Environmental and ecological designations</li> <li>- Townscape and landscape impact</li> <li>- Amenity considerations</li> <li>- Flooding and drainage</li> <li>- Physical considerations (e.g. contamination, land stability)</li> </ul> </li> </ul>	<ul style="list-style-type: none"> <li>Commissioned by CCC, SCDC and CCIC.</li> <li>Assessed the existing environmental, physical and planning constraints within an adjacent to the Waterbeach to Cambridge corridor</li> <li>Assessed three corridors: west (covering Mere Way and the Roman Road), central (A10 corridor) and east (along the railway line and through Waterbeach)</li> <li>Constraints in the west and central corridor could be overcome through route alignment and detailed design incorporating mitigation measures, however the Revised Eastern route option would require further investigation as there are more widespread constraints</li> </ul>

2018	<b>Ely to Cambridge Transport Study: Preliminary Strategic Outline Business Case (January 2018) (Mott MacDonald)</b>	<p>Evidence Base Report accompanies the Strategic Case, which includes evidence on:</p> <ul style="list-style-type: none"> <li>• Populations commuting into Cambridge</li> <li>• House price and sales trends in Cambridge</li> <li>• Indices of multiple deprivation</li> <li>• Rail passenger growth</li> <li>• Existing peak period bus journey time delays</li> <li>• Peak traffic flows</li> <li>• Traffic delays during school term times</li> <li>• Recent and forecast population growth</li> <li>• Forecast traffic flow and junction delay changes resulting from development</li> <li>• Forecast distribution of trips on A10 by origin, with and without development</li> <li>• Forecast changes in traffic levels on routes parallel to A10, with development</li> <li>• Forecast journey time changes on A10, with development</li> <li>• Forecast changes in car mode share, with development</li> <li>• Forecast traffic, mode share and journey time impacts of the modelled improvement packages</li> </ul> <p>The Strategic Case set out the issues and opportunities in the study area that demonstrated a need for intervention. These included:</p> <ul style="list-style-type: none"> <li>• Cambridge's role as the engine of the Cambridgeshire economy</li> <li>• Escalating demand for housing and the city's growing labour catchment</li> <li>• High and growing levels of rail demand, but with performance issues on key corridors</li> <li>• Journey time delays for buses, particularly in the AM peak</li> <li>• Relatively low, and declining, patronage at the Milton park-and-ride site</li> <li>• Relatively high levels of cycle commuting, corresponding to locations where high-quality infrastructure is provided, but the lack of cycle routes serving north-south journeys was a key weakness of the study corridor</li> <li>• Very significant highway congestion, which can extend almost the full length of the A10 from Ely to Cambridge in the AM peak and vice versa in the PM peak.</li> <li>• Key development areas included Cambridge Northern Fringe East, Cambridge Science Park, and north of Waterbeach.</li> <li>• Traffic levels were anticipated to grow, thus exacerbating the existing issues. Travel demand on the A10 and surrounding corridors would increase.</li> </ul> <p>A DM scenario (2031, with developments, but without mitigation) was modelled. It found that:</p> <ul style="list-style-type: none"> <li>• There would be further traffic growth on the A10 but the main impact would be an increase in traffic on nearby routes. This was because the effective capacity of the A10 had already been reached, even without the developments, and the new trips from the development sites would be at the expense of other existing traffic which would be displaced to other routes. (This also means some sections of the A10, north of Waterbeach, would see reduced traffic levels, as the longer-distance traffic would be displaced but the development traffic would not be primarily using those particular sections.)</li> <li>• Journey times would increase on key routes</li> <li>• Car mode share would fall within the study area, due to the concentration of developments in locations close to Cambridge with good public transport and walking and cycling access. However, there would still be a net generation of traffic.</li> </ul> <p>The study modelled the impact of five improvement packages for the corridor:</p> <ol style="list-style-type: none"> <li>5. <b>Mode-shift (DS1):</b> Minimal highway network improvements, relocated Waterbeach station, segregated public transport links between the new town at</li> </ol>
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Year	Title and author	Evidence base	Key findings
		<ul style="list-style-type: none"> <li>• Multi-criteria appraisal of the modelled improvement packages</li> </ul> <p>Other parts of the SOBC include:</p> <ul style="list-style-type: none"> <li>• Cost estimates for the modelled improvement packages</li> <li>• Economic appraisal of the modelled improvement packages</li> </ul>	<p>Waterbeach and Cambridge, comprehensive pedestrian and cycle network, parking restraints and travel planning measures at major development sites</p> <ol style="list-style-type: none"> <li>6. <b>Junction+ (DS2):</b> Same as DS1, plus improvements to provide additional capacity at A10 junctions between Ely and Cambridge</li> <li>7. <b>North-dual (DS3):</b> Same as DS1 and 2, plus dualling the A10 north of Waterbeach to Ely</li> <li>8. <b>South-dual (DS4):</b> Same as DS1 and 2, plus dualling the A10 between Waterbeach and the A14 Milton interchange</li> <li>9. <b>Full dual (DS5):</b> DS1 and 2, plus dualling the A10 between Ely and the A14 Milton interchange</li> </ol> <p>It found that while the mode-shift options without highway improvements provided additional travel capacity and had significant benefits, they did not substantially address the congestion and traffic displacement issues identified. Options with highway improvements were more effective in addressing these issues.</p> <p>The best value for money was found with DS2. However, none of the packages achieved the objectives to maintain traffic at or below 2011 levels.</p> <p>All five packages delivered a car mode share reduction, compared to the DM, with the mode-shift package (DS1) delivering the greatest reduction, and the full-dual package (DS5) the least.</p> <p>The study recommended a three-stage strategy of:</p> <ul style="list-style-type: none"> <li>• Policy, planning and regulation interventions, based around a demand-management approach and development trip budgets</li> <li>• Delivery of multi-modal 'quick wins' comprising both non-car-based service / infrastructure enhancements and active parking restraint, plus a sequence of prioritised on and off-line localised carriageway improvements to create capacity for additional trips and manage potential re-assignment of trips onto less suitable routes. This strand would include (among other things) early progression of the segregated transport corridor from Waterbeach to Cambridge's Northern Fringe.</li> <li>• Wider highways interventions involving increased carriageway capacity. This might be in the corridor itself, or on an alternative corridor, or potentially through improvements to both.</li> </ul>

2018	<b>Ely to Cambridge Transport Study: Strand 2 New Town North of Waterbeach Transport Report (1 February 2018)</b> (Mott MacDonald)	<ul style="list-style-type: none"> <li>• Existing transport network in and around the new town location</li> <li>• Existing highway congestion, in terms of percentage journey time increases compared to free flow</li> <li>• The proposed quantum of development</li> </ul> <p>DM (with development, no mitigation) traffic forecasts:</p> <ul style="list-style-type: none"> <li>• Forecast development trip generation</li> <li>• Forecast trips to/from the new town by mode and destination</li> <li>• Distribution of development traffic</li> <li>• Changes in traffic flow and junction delays</li> <li>• Relative contribution of new town and CFNE/ Cambridge Science Park development traffic to the overall level of development traffic, by link</li> <li>• Journey times on the A10, comparing free flow, without development and with development</li> </ul> <p>DS (with development and South-Dual package) traffic forecasts:</p> <ul style="list-style-type: none"> <li>• Distribution of development traffic</li> <li>• Changes in traffic flow and junction delays</li> <li>• Journey times on the A10</li> </ul>	<p>This report focused on the transport needs, trip generation and impacts of the proposed new town, in the context of other major developments and the overall SOBC. The DM traffic modelling found that the new town represented the majority of development flow contributions on the A10 and connecting routes to the north. Development flows from CNFE and Cambridge Science Park represented the majority contribution on the A14 and M11 and mostly within Cambridge. Milton interchange was the connecting point between these, as it combined the impacts from each.</p> <p>The overall conclusion for the proposed new town was that significant mitigation measures would be required to enable the development to function effectively without causing undue impact on surrounding transport networks.</p> <p>The study went on to look at the impact of the South-Dual (DS4) package on development travel behaviour and surrounding network performance. Compared to the DM, it forecast:</p> <ul style="list-style-type: none"> <li>• A slight increase in person trips during peak periods – due to trips being re-timed into peak hours due to the additional network capacity</li> <li>• A reduction in car mode share</li> <li>• An increase in external car trips, due to this increase in person trips. However, due to the decreased car mode share this increase in car trips was less than it otherwise would have been. The study considered that this underlined the importance of the interventions including a strong suite of non-car measures</li> <li>• An improvement in A10 journey times, mitigating the majority of the increase in journey times seen in the DM.</li> </ul> <p>Overall, the results suggested the package tested would help to mitigate the main local impacts of the new town development. The greatest benefits to the development were seen in the upgrading of the A10 and Milton Interchange, which would help to reduce pressure on parallel routes and on the A10 itself.</p> <p>The conclusions were as follows:</p> <p>Given its proximity to the economically strong centre of Cambridge, the proposed Waterbeach New Town provides opportunity for many new trips to be made in the area by non-car modes. However, with already congested A10 being the only means of accessing the development by highway, it is nonetheless predicted that 10,000 new homes plus ancillary development in this location will generate substantial flow and performance impacts on this key route. The study therefore shows that the non-car mode improvement options considered for the study area are essential for the sustainable delivery of this development and that they should be implemented from the outset of development construction and completed before more than 1,500 homes are built. It is proposed that these measures should be funded by the new developments which necessitate and benefit from them.</p>
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Year	Title and author	Evidence base	Key findings
			<p>However, the study also shows that these measures will not be sufficient in themselves to mitigate the full development's impact on the A10 and on parallel routes and that potentially significant highway intervention will also be required. This, as a minimum, should comprise improvements to existing junctions along the routes, including at Milton interchange, but in the longer term is likely to also involve dualling at least the southern section of the A10, while locking in traffic flow reductions on parallel routes. The funding for these measures will be drawn from multiple sources according to the range of beneficiaries, including new developments and wider public funding streams.</p> <p>Lastly, it is noted that these findings should be reviewed in the event that other schemes come forward that are not within the study area but which could affect it, such as a new highway link between the A47 and the M11. Testing shows that such schemes could potentially reduce the highway intervention requirement within the study area.</p>

# Appendix B. Travel markets assessment

To help with identification of options to be tested further and the selection process for the preferred route, analysis was conducted on the potential markets for this transport corridor. The main aim of this analysis is to inform the strategic assessment of corridor options by showing the relative importance, in travel demand terms, of key markets in the corridor. This analysis also serves to verify other assessments of the transport impacts of the developments.

This analysis outlines the methods, results and conclusions of this analysis.

## Markets

Travel markets comprising existing and proposed developments were assessed in this analysis. Travel markets have been grouped together around key areas, for example the two developments in Waterbeach New Town. The travel markets assessed as part of this exercise were:

- Waterbeach New Town, comprising the Waterbeach New Town (West) development by Urban & Civic and the Waterbeach New Town (East) development by RLW;
- Cambridge Research Park;
- Waterbeach village;
- Milton village; and
- NEC west: Cambridge Science Park; and
- NEC east: St John's Innovation Park, Cambridge Business Park, Chesterton Sidings, Trinity Hall Farm Industrial Estate, Nuffield Road Industrial Estate, and the Anglian Water Waste Water Treatment Plant site.

The NEC development has been divided into its east and west sections so as to better understand the impact of corridor options that only service one side of the NEC.

In these key areas, the level of future travel demand from housing and employment was estimated. The number of trips that would use the study area corridor and would therefore be in-scope for this scheme were then estimated. Quantifying the number of in-scope trips is important as these travel markets and land uses are the main drivers of peak time demand that the scheme is primarily focused on.

This analysis also does not cover park and ride demand, because this is expected to be accommodated at one or more appropriate locations along the route, irrespective of which corridor is selected.

## Limitations

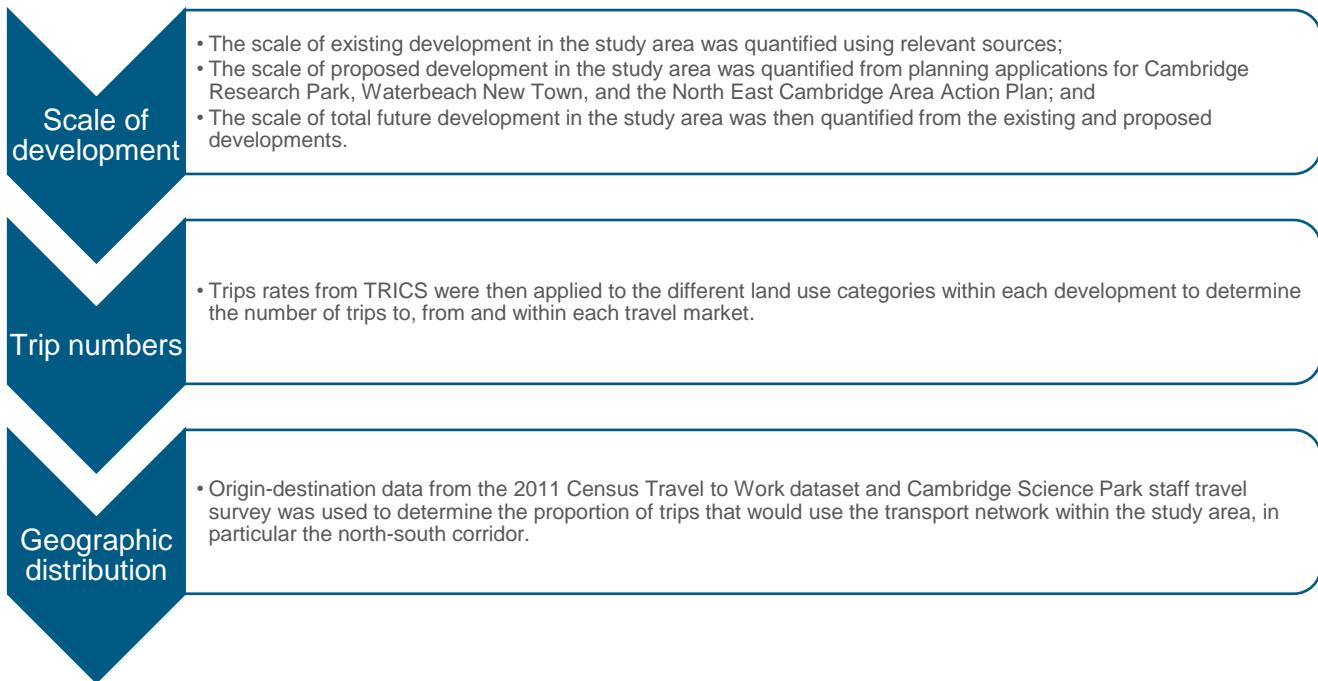
This analysis has the following limitations:

- Origins and destinations for trips were derived from 2011 Census Journey to Work data. Since 2011, areas of employment and housing have changed in the Cambridge region, for example with the opening of the University of Cambridge's West Cambridge campus, and new housing developments at Eddington, Trumpington Meadows and Northstowe. New transport infrastructure built since then would also influence where people choose to live and work, and how they travel in the corridor, for example the opening of Cambridge North station in 2017. Where more recent origin-destination data is available, for example the Cambridge Science Park staff travel surveys, this has been used instead where appropriate.
- The level of trip internalisation for the larger mixed-use developments (NEC and Waterbeach New Town) has been based on the assumptions made in the Transport Assessment for Waterbeach New Town (west) and in the NEC Area Action Plan (AAP) Transport Evidence Base. Actual levels of internalisation may be different to these assumptions, which would affect the number of external trips along the corridor.
- Some trips in this analysis will be counted twice, for example some residential departure trips in the morning peak period will also be employment arrival trips. Double counting has been retained in the analysis as the focus is on determining market sizes, not demand forecasts and therefore they are still considered relevant.
- A common method has been applied across all developments for simplicity and consistency, instead of using data from other sources, for example Transport Assessments or other studies. This allows easy

comparison between the markets. The trip numbers from this analysis have been checked against those from other sources where available.

## Method

The following flowchart outlines the method used in this assessment:



### Scale of development

The following table shows the scale of existing, proposed and total future development in the study area. The scale of existing residential and employment development in each of the markets was estimated using a range of sources, including employment centre websites, planning applications, the NEC AAP Transport Evidence Base and the Cambridge Science Park Transport Strategy. The scale of proposed development in the study area was estimated using information in planning applications and consultation documents for Waterbeach New Town, Cambridge Research Park and NEC.

Market area	Location or development	Data source	Existing		Proposed		Future total	
			Residential (dwellings)	Employment (sqm)	Residential (dwellings)	Employment (sqm)	Residential (dwellings)	Employment (sqm)
Cambridge Research Park		Cambridge Research Park planning application S/4615/18/OL Transport Assessment	None	41,660	None	27,885	None	69,545
Waterbeach New Town	West	Planning application S/0559/17/OL Design and Access Statement	None	None	6,500	15,000	6,500	15,000
	East	Planning application S/2075/18/OL Design and Access Statement	None	None	4,500	24,800	4,500	24,800
	<b>Subtotal</b>		<b>None</b>	<b>None</b>	<b>11,000</b>	<b>39,800</b>	<b>11,000</b>	<b>39,800</b>
Waterbeach village		Waterbeach Neighbourhood Plan draft 2018	2,070	Not available	Limited	Limited	2,070	Not available
Milton village		Census 2011 dataset KS401EW - Dwellings, household spaces and accommodation type	1,765	Not available	Limited	Limited	1,765	Not available
NEC (west)	Cambridge Science Park	Cambridge Science Park Transport Strategy 2018 (existing) Draft North East Cambridge Area Action Plan 2020 (proposed)	None	160,000	None	109,960	None	269,960
NEC (east)	Anglian Water Waste Water Treatment Plant	Draft North East Cambridge Area Action Plan 2020	None	Not available	5,500	23,500	5,500	23,500
	St John's Innovation Park	St John's Innovation Park website (existing)	None	24,137	None	35,000	None	59,137

Market area	Location or development	Data source	Existing		Proposed		Future total	
			Residential (dwellings)	Employment (sqm)	Residential (dwellings)	Employment (sqm)	Residential (dwellings)	Employment (sqm)
	Draft North East Cambridge Area Action Plan 2020 (proposed)							
Cambridge Business Park	Cambridge Business Park website (existing) Draft North East Cambridge Area Action Plan 2020 (proposed)	None		30,193	500	68,000	500	98,193
Chesterton Sidings	Draft North East Cambridge Area Action Plan 2020	None		None	730	55,000	730	55,000
Trinity Hall Farm Industrial Estate	North East Cambridge Area Action Plan Transport Evidence Base 2019 (existing) Draft North East Cambridge Area Action Plan 2020 (proposed)	None	22,443		None	1,500	None	23,943
Nuffield Road Industrial Estate		None			550	None	550	None
Cowley Road Industrial Estate	Draft North East Cambridge Area Action Plan 2020	None		16,000	500	17,500	500	39,250
Merlin Place and Milton Road Car Garage	Draft North East Cambridge Area Action Plan 2020	None		Not available	220	None	220	None
<b>Subtotal</b>		<b>None</b>		<b>98,523</b>	<b>8,000</b>	<b>200,500</b>	<b>8,000</b>	<b>299,023</b>
<b>North East Cambridge subtotal</b>			<b>None</b>	<b>258,523</b>	<b>8,000</b>	<b>310,460</b>	<b>8,000</b>	<b>568,983</b>
<b>Total</b>			<b>3,835</b>	<b>300,183</b>	<b>19,000</b>	<b>378,145</b>	<b>22,835</b>	<b>678,328</b>

## Development trips

### Trip rates

The following table shows the TRICS land use categories and trip rates used to estimate the number of trips to and from each travel market in the study area.

#### Trip rates for residential, employment and school developments

Development type	TRICS land use for trip rate	Calculation factor	Person-Trip rate <sup>65</sup>								
			AM peak 07:00 – 10:00			PM peak 16:00 – 19:00			Daily 07:00 – 19:00		
			Arr.	Dep.	Total	Arr.	Dep.	Total	Arr.	Dep.	Total
Residential	3M – Mixed private/affordable housing	Per dwelling	0.58	1.52	2.10	1.35	0.69	2.04	3.58	3.81	7.40
Employment	2B – Business park	Per 100 sqm	3.62	0.54	4.16	0.44	3.16	3.60	5.82	5.80	11.61
Education	4A – Primary school	Per pupil	1.37	0.51	1.88	0.12	0.39	0.51	2.13	2.13	4.27

### Number of trips

The number of trips for each travel market in the study area was estimated based on the trip rates above, as shown in the following table.

<sup>65</sup> Numbers for total trip rate may not be precisely the sum of the arrivals and departures due to rounding.

Market area	Land use	Future total (residential dwellings or employment sqm)	Person-Trips								
			AM peak 07:00-10:00			PM peak 16:00-19:00			Daily 07:00-19:00		
			Arr	Dep	Total	Arr	Dep	Total	Arr	Dep	Total
Cambridge Research Park	Residential	-									
	Employment	69,545	2,500	400	2,900	300	2,200	2,500	4,000	4,000	8,100
	<b>Subtotal</b>		<b>2,500</b>	<b>400</b>	<b>2,900</b>	<b>300</b>	<b>2,200</b>	<b>2,500</b>	<b>4,000</b>	<b>4,000</b>	<b>8,100</b>
Waterbeach New Town	Residential	11,000	6,400	16,700	23,100	14,800	7,600	22,400	39,400	42,000	81,400
	Employment	39,800	1,400	200	1,600	200	1,300	1,500	2,300	2,300	4,600
	School (pupils)	4,980	6,800	2,500	9,300	600	2,000	2,600	10,600	10,600	21,200
	<b>Subtotal</b>		<b>14,600</b>	<b>19,500</b>	<b>34,100</b>	<b>15,600</b>	<b>10,800</b>	<b>26,400</b>	<b>52,400</b>	<b>54,900</b>	<b>107,300</b>
Waterbeach village	Residential	2,070	1,200	3,100	4,300	2,800	1,400	4,200	7,400	7,900	15,300
	Employment										
	<b>Subtotal</b>		<b>1,200</b>	<b>3,100</b>	<b>4,300</b>	<b>2,800</b>	<b>1,400</b>	<b>4,200</b>	<b>7,400</b>	<b>7,900</b>	<b>15,300</b>
Milton village	Residential	1,765	1,000	2,700	3,700	2,400	1,200	3,600	6,300	6,700	13,100
	Employment										
	<b>Subtotal</b>		<b>1,000</b>	<b>2,700</b>	<b>3,700</b>	<b>2,400</b>	<b>1,200</b>	<b>3,600</b>	<b>6,300</b>	<b>6,700</b>	<b>13,100</b>
NEC (west)	Residential										
	Employment	269,960	9,800	1,400	11,200	1,200	8,500	9,700	15,700	15,600	31,300
	<b>Subtotal</b>		<b>9,800</b>	<b>1,400</b>	<b>11,200</b>	<b>1,200</b>	<b>8,500</b>	<b>9,700</b>	<b>15,700</b>	<b>15,600</b>	<b>31,300</b>
NEC (east)	Residential	8,000	8,600	12,200	20,800	12,400	5,500	17,900	28,700	30,500	59,200
	Employment	299,023	10,800	1,600	12,400	1,300	9,400	10,700	17,400	17,300	34,700
	<b>Subtotal</b>		<b>19,400</b>	<b>13,800</b>	<b>33,200</b>	<b>13,700</b>	<b>15,000</b>	<b>28,700</b>	<b>46,100</b>	<b>47,800</b>	<b>93,900</b>
NEC (total)	Residential	8,000	8,600	12,200	20,800	12,400	5,500	17,900	28,700	30,500	59,200
	Employment	568,983	20,600	3,000	23,600	2,500	17,900	20,400	33,100	32,900	66,000

Market area	Land use	Future total (residential dwellings or employment sqm)	Person-Trips								
			AM peak 07:00-10:00			PM peak 16:00-19:00			Daily 07:00-19:00		
			Arr	Dep	Total	Arr	Dep	Total	Arr	Dep	Total
	<b>Subtotal</b>		<b>29,200</b>	<b>15,200</b>	<b>44,400</b>	<b>14,900</b>	<b>23,400</b>	<b>38,300</b>	<b>61,800</b>	<b>63,400</b>	<b>125,200</b>
All markets	Residential	22,835	17,200	34,700	51,900	32,400	15,700	48,100	81,800	87,100	169,000
	Employment	678,328	24,500	3,600	28,100	3,000	21,400	24,400	39,400	39,200	78,700
	<b><i>Grand total</i></b>		<b><i>48,500</i></b>	<b><i>40,900</i></b>	<b><i>89,400</i></b>	<b><i>36,000</i></b>	<b><i>39,100</i></b>	<b><i>75,100</i></b>	<b><i>131,900</i></b>	<b><i>136,900</i></b>	<b><i>269,000</i></b>

## Trip distribution

Once the number of trips was estimated based on the appropriate trip rates and the size of development, the trips were further analysed to assess the geographic distribution to estimate the number of trips in-corridor, internal to the developments and out-of-corridor, defined as follows:

- Internal capture: these are trips internal to the large mixed-use developments of Waterbeach New Town and NEC (east). These trips are not primarily targeted by this scheme, however the scheme may still capture some of these trips, especially short walking and cycling trips.
- In-corridor: these are the trips primarily targeted by the scheme, further split in to:
  - to/from the south; and
  - to/from the north.
- Out-of-corridor: these trips are not primarily targeted by the scheme, although the scheme may still capture some of these trips.

The trip distribution for each travel market was assessed using origins and destinations from the 2011 Census travel to work dataset. It is noted that since 2011, a lot of employment development has occurred in and around Cambridge, such as the West Cambridge site for the University of Cambridge and the growth of the Cambridge Biomedical Campus. Therefore, the distribution of origins and destinations of some trips will have changed since then, and will change with the proposed development in the corridor.

## Cambridge Research Park

The trip distribution for Cambridge Research Park was estimated as follows:

- residential trips: None; and
- employment trips: distributed according to Census 2011 travel to work data for trips with a destination in the Lower Level Super Output Area (LSOA) containing Cambridge Research Park (South Cambridgeshire 004C). Cambridge Research Park is the main employment destination in this LSOA so the trip distribution is assumed to be representative of Cambridge Research Park commuter origins.

The trip distribution for Cambridge Research Park is shown in the table below. As Cambridge Research Park is at the very northern end of the study area, trips to and from the north of Cambridge Research Park were categorised as not using the corridor.

### Trip distribution for Cambridge Research Park

Category	Origin postcode	Proportion of trips <sup>66</sup>
Internal	CB24, CB25	31%
Uses corridor – to/from the north	-	-
Uses corridor – to/from the south	CB1, CB2, CB3, CB4, CB5, CB8, CB21, CB22, CB23, PE28, PE29, SG8	48%
Does not use corridor	CB6, CB7, PE16	20%

## Waterbeach New Town

The trip distribution for Waterbeach New Town was estimated as follows:

- Residential trips: distributed according to Census 2011 travel to work data for trips originating in the LSOAs containing the existing Waterbeach village (South Cambridgeshire 004B and South Cambridgeshire 004D).
- Employment trips: distributed according to Census 2011 travel to work data for trips with a destination in the LSOAs containing the existing Waterbeach village (South Cambridgeshire 004B and South Cambridgeshire 004D).

<sup>66</sup> Note that due to rounding, percentages do not add up to 100%

The trip distribution for Waterbeach New Town is shown in the table below. As Waterbeach New Town is at the northern end of the study area, trips to and from the north of Waterbeach New Town were categorised as not using the corridor. Since Waterbeach New Town and Cambridge Research Park share the same postcode district, trips between the two are classed as internal trips for the purpose of this analysis and not as using the corridor to/from the north.

#### Trip distribution for Waterbeach New Town

Category	Origin postcode	Proportion of trips
Internal	CB25	48%
Uses corridor – to/from the north	-	-
Uses corridor – to/from the south	CB1, CB2, CB3, CB4, CB5, CB8, CB21, CB22, CB23, CB24, PE27, PE28, SG8	31%
Does not use corridor	CB6, CB7	21%

#### Waterbeach village

The trip distribution for Waterbeach village was estimated as follows:

- Residential trips: distributed according to Census 2011 travel to work data for trips originating in the LSOAs containing the existing Waterbeach village (South Cambridgeshire 004B and South Cambridgeshire 004D).
- Employment trips: not included in the analysis at this time.

The trip distribution for Waterbeach village is shown below.

#### Trip distribution for Waterbeach village

Category	Origin postcode	Proportion of trips
Internal	CB25	27%
Uses corridor – to/from the north	CB6, CB7	2%
Uses corridor – to/from the south	CB1, CB2, CB4, CB8, CB9, CB10, CB21, CB22, CB23, CB24, SG8	43%
Does not use corridor	Other destinations (e.g. London, Peterborough)	28%

#### Milton village

The trip distribution for Milton village was estimated as follows:

- Residential trips: distributed according to Census 2011 travel to work data for trips originating in the LSOAs containing the Milton village (South Cambridgeshire 007A and South Cambridgeshire 007B).
- Employment trips: not included in the analysis at this time.

The trip distribution for Milton village is shown below.

### Trip distribution for Milton village

Category	Origin postcode	Proportion of trips
Internal	CB24	31%
Uses corridor – to/from the north	CB6, CB7, CB25,	12%
Uses corridor – to/from the south	CB1, CB2, CB4, CB8, CB9, CB10, CB21, CB22, CB23, CB24, SG8	36%
Does not use corridor	Other destinations (e.g. London, Peterborough)	21%

### North East Cambridge (west)

The trip distribution for NEC (west) was estimated as follows:

- residential trips: none; and
- employment trips: distributed according to a Cambridge Science Park staff travel survey conducted in 2016.

The trip distribution for NEC (west) is shown below. As NEC is at the southern end of the study area, trips to and from the south of NEC were categorised as not using the corridor. Trips between the east and west sides of NEC are classed as internal trips, but may use the high-quality public transport route and associated infrastructure for travel between the east and west of NEC and also to CRC.

### Trip distribution for North East Cambridge (west)

Category	Origin postcode	Proportion of trips
Internal	CB4	15%
Uses corridor – to/from the north	CB6, CB7, CB24, CB25	24%
Uses corridor – to/from the south	-	-
Does not use corridor	CB1, CB2, CB3, CB5, CB8, CB9, CB11, CB21, CB22, CB23, CM23, IP28, PE19, PE27, PE28, PE29, SG8, SG19, Other	61%

### North East Cambridge (east)

The trip distribution for NEC (east) was estimated as follows:

- Residential trips: distributed according to Census 2011 travel to work data for trips originating in the LSOAs containing NEC (South Cambridgeshire 007C and Cambridge 003B).
- Employment trips: distributed according to a Cambridge Science Park staff travel survey conducted in 2016.

The trip distribution for NEC (east) is shown the table below. As NEC is at the southern end of the study area, trips to and from the south of NEC were categorised as not using the corridor. Trips between the east and west sides of NEC are classed as internal trips, but may use the high-quality public transport route and associated infrastructure for travel between the east and west of NEC and also to CRC.

**Trip distribution for North East Cambridge (east)**

Category	Origin postcode	Proportion of trips
Internal	CB4	29%
Uses corridor – to/from the north	CB6, CB7, CB24, CB25	25%
Uses corridor – to/from the south	-	-
Does not use corridor	CB1, CB2, CB3, CB5, CB8, CB9, CB10, CB11, CB21, CB22, CB23, CM23, IP28, PE19, PE27, PE28, PE29, SG8, SG19, Other	46%

**Distribution of trips**

The geographic distribution of internal, in-corridor or out-of-corridor was then applied to the number of trips for each travel market, as shown below.

## Trips to and from each travel market by category (internal, in-corridor, our-of-corridor)

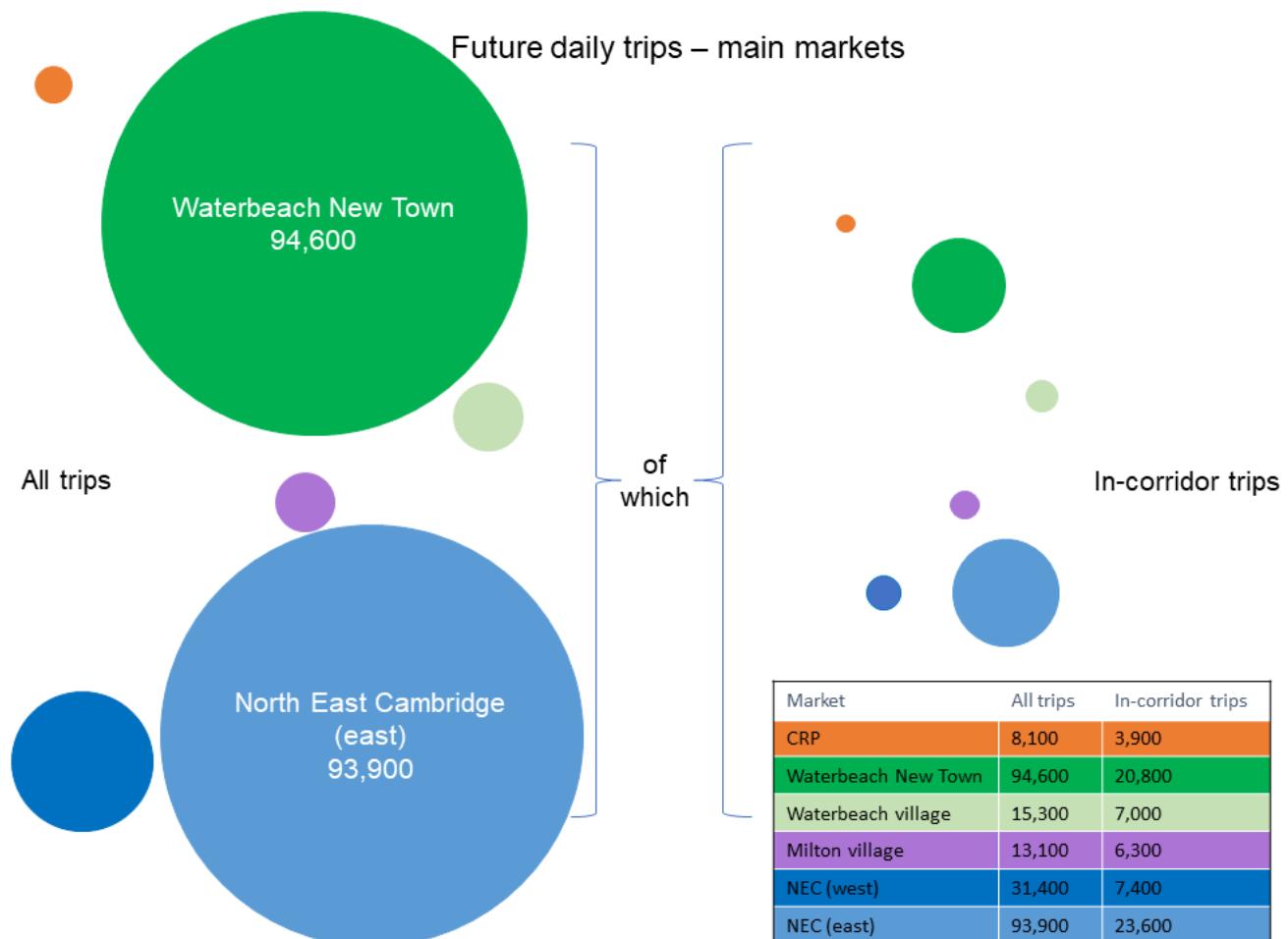
Market area	Distribution	Trips								
		AM peak 07:00 – 10:00			PM peak 16:00 – 19:00			Daily 07:00 – 19:00		
		Arr.	Dep.	Total	Arr.	Dep.	Total	Arr.	Dep.	Total
Cambridge Research Park	Internal	791	117	908	95	690	785	1,270	1,265	2,534
	Uses corridor – to/from the north	-	-	-	-	-	-	-	-	-
	Uses corridor – to/from the south	1,219	181	1,400	146	1,063	1,210	1,958	1,950	3,908
	Does not use corridor	510	76	585	61	445	506	819	815	1,634
	<b>In-corridor subtotal</b>	<b>1,219</b>	<b>181</b>	<b>1,400</b>	<b>146</b>	<b>1,063</b>	<b>1,210</b>	<b>1,958</b>	<b>1,950</b>	<b>3,908</b>
Waterbeach New Town	Internal	9,986	9,794	19,780	4,777	4,466	9,243	25,321	26,211	51,532
	Uses corridor – to/from the north	-	-	-	-	-	-	-	-	-
	Uses corridor – to/from the south	2,967	2,256	5,223	5,688	6,987	12,675	4,545	16,244	20,789
	Does not use corridor	173	3,968	4,141	4,438	2,411	6,849	10,797	11,471	22,268
	<b>In-corridor subtotal</b>	<b>2,967</b>	<b>2,256</b>	<b>5,223</b>	<b>5,688</b>	<b>6,987</b>	<b>12,675</b>	<b>4,545</b>	<b>16,244</b>	<b>20,789</b>
Waterbeach village	Internal	322	845	1,168	750	384	1,133	1,993	2,121	4,113
	Uses corridor – to/from the north	29	76	106	68	35	102	180	192	372
	Uses corridor – to/from the south	515	1,349	1,864	1,197	612	1,809	3,181	3,385	6,567
	Does not use corridor	334	876	1,210	777	398	1,174	2,065	2,197	4,262
	<b>In-corridor subtotal</b>	<b>544</b>	<b>1,426</b>	<b>1,970</b>	<b>1,264</b>	<b>647</b>	<b>1,911</b>	<b>3,361</b>	<b>3,577</b>	<b>6,938</b>
Milton village	Internal	316	829	1,145	735	376	1,111	1,954	2,080	4,034
	Uses corridor – to/from the north	124	325	449	288	147	435	766	815	1,581
	Uses corridor – to/from the south	369	968	1,337	858	439	1,297	2,281	2,428	4,709
	Does not use corridor	214	562	776	498	255	753	1,324	1,409	2,733
	<b>In-corridor subtotal</b>	<b>493</b>	<b>1,292</b>	<b>1,785</b>	<b>1,146</b>	<b>587</b>	<b>1,733</b>	<b>3,047</b>	<b>3,243</b>	<b>6,290</b>

Market area	Distribution	Trips								
		AM peak 07:00 – 10:00			PM peak 16:00 – 19:00			Daily 07:00 – 19:00		
		Arr.	Dep.	Total	Arr.	Dep.	Total	Arr.	Dep.	Total
NEC (west)	Internal	1,498	222	1,720	180	1,307	1,486	2,406	2,396	4,802
	Uses corridor – to/from the north	2,322	344	2,666	279	2,025	2,304	3,730	3,714	7,444
	Uses corridor – to/from the south	-	-	-	-	-	-	-	-	-
	Does not use corridor	5,960	883	6,844	716	5,199	5,914	9,573	9,534	19,107
	<b>In-corridor subtotal</b>	<b>2,322</b>	<b>344</b>	<b>2,666</b>	<b>279</b>	<b>2,025</b>	<b>2,304</b>	<b>3,730</b>	<b>3,714</b>	<b>7,444</b>
NEC (east)	Internal	5,571	4,956	10,526	4,155	3,144	7,299	13,131	13,635	26,765
	Uses corridor – to/from the north	4,651	3,340	7,991	3,629	3,803	7,432	11,528	12,029	23,557
	Uses corridor – to/from the south	-	-	-	-	-	-	-	-	-
	Does not use corridor	9,185	5,470	14,654	5,918	8,023	13,940	21,414	22,176	43,590
	<b>In-corridor subtotal</b>	<b>4,651</b>	<b>3,340</b>	<b>7,991</b>	<b>3,629</b>	<b>3,803</b>	<b>7,432</b>	<b>11,528</b>	<b>12,029</b>	<b>23,557</b>
All markets	Internal	18,484	16,763	35,246	10,692	10,366	21,058	46,075	47,707	93,782
	Uses corridor – to/from the north	7,126	4,086	11,211	4,264	6,011	10,274	16,204	16,750	32,954
	Uses corridor – to/from the south	5,070	4,753	9,823	7,889	9,103	16,991	11,966	24,007	35,973
	Does not use corridor	16,376	11,835	28,211	12,407	16,730	29,136	45,992	47,603	93,595
	<b>In-corridor total</b>	<b>12,196</b>	<b>8,839</b>	<b>21,035</b>	<b>12,153</b>	<b>15,113</b>	<b>27,266</b>	<b>28,169</b>	<b>40,757</b>	<b>68,927</b>

## Summary

This analysis has used trip rates and geographic distribution for each of the travel markets to assess the relative importance of each market and the potential impact of future development on the transport network in the study area. Overall trips for each market area are shown in the figure below, along with the number of trips that are defined as in-corridor.

### All trips and in-corridor trips for each of the travel markets in the study area



The figure above shows that Waterbeach New Town and NEC are the key drivers of demand in the corridor, with Waterbeach village, Milton village and Cambridge Research Park making smaller contributions to overall trips and trips in the corridor. This analysis has been conducted using travel data from the 2011 Census, which may not correspond to current or future travel patterns given the location of new housing and employment developments that have occurred since 2011 and will continue in the future. Some trips will have been double-counted, however these have been retained as this analysis is seeking to understand overall relative travel market sizes. Levels of trip internalisation in the larger mixed-use developments (Waterbeach New Town and NEC) will have an impact on the number of trips in the corridor. A consistent method has been applied to estimating the number of trips for each travel market to enable comparison, instead of using different external sources.

## Appendix C. Strategic option assessment

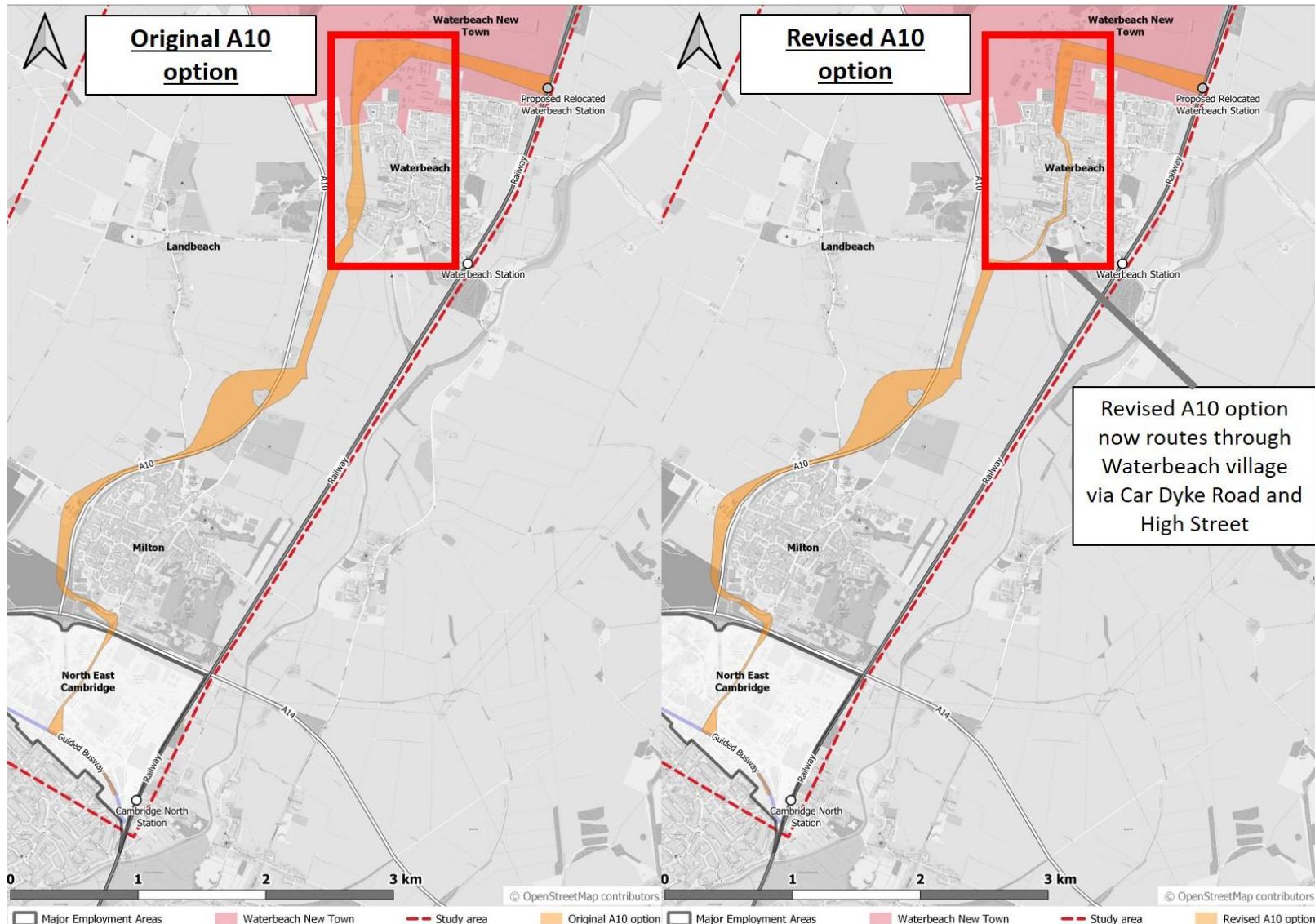
Strategic approaches		Sifting Definitions				
		Major positive	Minor positive	Neutral	Minor negative	Major negative
Capacity	Increase in Public Transport Capacity	Fully matches future demand levels based on assessment of travel markets	Partially matches future demand based on assessment of travel markets	No change	Decreases public transport capacity	Significantly reduces public transport capacity
	Ability to contribute to 24% reduction in traffic levels	Makes non-car journeys attractive and reliable with travel times competitive to private car and serves the markets along the corridor	Meets two of the above points (attractiveness, reliability, markets served and journey time)	Does not reduce or increase traffic levels	Increases traffic levels	Significantly increases traffic levels
	Propensity to Reduce Congestion / Delay	High mode shift capture and no detrimental impact on highways.	Partial mode shift capture with no detrimental impact on highways, or a higher level of mode shift capture with slight impact on the highway	No change, or mode shift capture balances with impact on highway.	Some mode shift capture, but not enough to balance out detrimental impacts on the highway	Detrimental impact on highway, no mode shift capture.
Connectivity	Reduced Journey Time for Public Transport	Significant decrease in journey times; journeys by public transport are competitive or faster than by car	Decrease in journey times	No change	Increase in journey time	Significant increase in journey time
	Increased Reliability for Public Transport	Significant increase in reliability of public transport; no online sections of public transport routes.	Increase in reliability of public transport; some sections of routes are online on non-congested roads	No change	Decrease in reliability of public transport, some sections are online on congested roads.	Large decrease in reliability of public transport, large proportion of routes are online on congested roads.
	Ease of Interchange	Interchange between different modes co-located with short distances (<200m) between modes and combined ticketing between all	Interchange between modes is at close proximity (<500m) between modes. Combined ticketing between some modes but not all.	No change to current ability to interchange	Ability to interchange is made worse by, for example stops being located further from other modes.	Ability to interchange is made much worse, with stops located further than walking distance from other modes.
	Benefits to Active Travel	Attractive, direct, safe, accessible and coherent routes for people walking or cycling. High quality cycling facilities such as cycle	Improvement to existing routes but does not fully meet all of the above criteria	No change to existing routes	Existing routes made worse on up to three of the criteria (e.g. a route is made longer, or barriers are placed on the route)	Existing routes significantly worsened by more than three of criteria.
	Supports CAM	Integrates fully with the CAM network either by physically being a branch of the network, or by directly accessing a CAM station to allow interchange	No CAM branch included, but integrates partially with the CAM network by accessing a CAM station.	Does not support or hinder CAM	Hinders CAM or the ability of people to access CAM by not providing direct routes to a CAM station	Hinders CAM by not providing direct routes to a station and preventing another CAM branch from being built.
	Scale of Catchment (Jobs/Housing)	Serves a large proportion of the travel market.	Serves some of the travel markets, but misses out on some.	No change to markets served	Serves fewer markets than existing services	Serves none of the travel markets
	Ability to Unlock Growth	Connects proposed developments with other growth areas in and around Cambridge and creates opportunities for transit oriented developments.	Does one of connecting proposed developments with other growth areas in and around Cambridge or creating opportunities for transit oriented developments.	Does not affect ability for growth to be delivered	Prevents growth by reducing quality of connections between growth areas.	Prevents growth by severing connections between growth areas.
Communities	Road Safety	Reduces levels of motor traffic and addresses issues at sites with identified patterns of collisions.	Reduces levels of motor traffic or addresses issues at sites with identified patterns of collisions.	No change to safety	Reduces safety by increasing motor traffic levels or making sites with identified patterns of collisions less safe	Reduces safety by increasing motor traffic levels, and creating new sites with potential for safety issues.
	Protection of Green Spaces	Increases available green space to a large scale, with green space incorporated into the transport infrastructure (e.g. linear parks).	Increases green space available by creating new green space, or replacing removed green spaces with a larger area of green space at a different location	No change to green spaces	Removes small portions of a few green spaces.	Removes green spaces in their entirety, or removes smaller portions of multiple green spaces.
	Environment, Air Quality and Carbon	High mode shift capture by serving travel markets with attractive alternatives to the car.	Some mode shift capture by serving travel markets with alternatives to the car.	No change	Reduces mode share of sustainable travel modes	Significantly reduces mode share of sustainable travel modes
	Quality of the Public Realm	Opportunity to significantly improve the public realm.	Opportunity to make some improvements to the public realm	No change to quality of public realm	Decreases quality of public realm	Significantly decreases quality of public realm
	Severance	Does not create new severance and restores previously severed links	Does not create new severance and reduces severance caused by existing infrastructure.	Does not change severance	Creates severance across minor transport or community links	Creates severance across major transport or community links.
Physical	Engineering Constraints	Is physically feasible and deliverable with no constraints or issues	Is physically feasible and deliverable with minor constraints or issues		Has some feasibility or deliverability issues	Has major feasibility or deliverability issues
	Environmental Constraints	Has no environmental constraints	Has minor environmental constraints that can be mitigated		Has minor environmental constraints that cannot be mitigated	Has major environmental constraints
Legal	Land Ownership	No land ownership issues	Minor land ownership issues that can be easily overcome (e.g. cooperative landowners)		Minor land ownership issues that can be overcome (e.g. CPO)	Major land ownership issues that cannot be overcome (e.g. public/stakeholder opposition, not eligible for CPO)
	Planning	No planning issues	Minor planning issues that can be easily overcome		Minor planning issues that would require more resources to overcome	Major planning issues that cannot be overcome
Support	Political / Public	High level of political and public support	Moderate level of political or public support	Neither support nor opposition from political/public groups, or support and opposition balance out	Minor political or public opposition	Major political and public opposition
	Stakeholders	High level of stakeholder support	Moderate level of stakeholder support	Neither support nor opposition from stakeholders	Minor level of opposition from stakeholders, or complicated process for obtaining support from stakeholders	Major opposition from stakeholders, or complicated process for obtaining support from stakeholders

	Strategic approaches	Strategic approaches and their scores					
	Improvements to bus services	Improvements to rail services	Improvements to walking, cycling and equestrian provision	Demand management	Park and Ride / Rural Travel Hub	Segregated transitway	Rail improvements with feeder bus network, travel hubs at rail stations and high quality walking and cycling links to rail stations.
Capacity	Increase in Public Transport Capacity	Major positive	Minor positive	Neutral	Neutral	Major positive	Minor positive
	Ability to contribute to 24% reduction in traffic levels	Minor positive	Minor positive	Minor positive	Minor positive	Major positive	Minor positive
	Propensity to Reduce Congestion / Delay	Neutral	Minor positive	Minor positive	Minor positive	Major positive	Minor positive
Connectivity	Reduced Journey Time for Public Transport	Minor positive	Minor positive	Neutral	Neutral	Major positive	Minor positive
	Increased Reliability for Public Transport	Minor positive	Minor positive	Neutral	Neutral	Major positive	Minor positive
	Ease of Interchange	Major positive	Major positive	Minor positive	Neutral	Minor positive	Major positive
	Benefits to Active Travel	Minor positive	Minor positive	Major positive	Neutral	Minor positive	Major positive
	Supports CAM	Minor positive	Minor positive	Minor positive	Neutral	Major positive	Minor positive
	Scale of Catchment (Jobs/Housing)	Major positive	Minor positive	Major positive	Neutral	Minor positive	Major positive
	Ability to Unlock Growth	Major positive	Minor positive	Major positive	Neutral	Major positive	Major positive
Communities	Road Safety	Minor positive	Minor positive	Major positive	Minor positive	Major positive	Major positive
	Protection of Green Spaces	Neutral	Neutral	Major positive	Neutral	Minor positive	Neutral
	Environment, Air Quality and Carbon	Minor positive	Minor positive	Minor positive	Neutral	Major positive	Major positive
	Quality of the Public Realm	Neutral	Neutral	Major positive	Neutral	Major positive	Neutral
	Severance	Neutral	Neutral	Minor positive	Neutral	Minor positive	Minor positive
Physical	Engineering Constraints	Minor negative	Minor negative	Major positive	Minor positive	Minor positive	Neutral
	Environmental Constraints	Major positive	Major positive	Major positive	Major positive	Major positive	Major positive
Legal	Land Ownership	Minor positive	Major positive	Minor positive	Major positive	Minor positive	Minor positive
	Planning	Minor positive	Major positive	Minor positive	Major positive	Minor positive	Minor positive
Support	Political / Public	Major positive	Major positive	Major positive	Minor negative	Major positive	Major positive
	Stakeholders	Minor negative	Minor negative	Major positive	Neutral	Minor negative	Minor negative

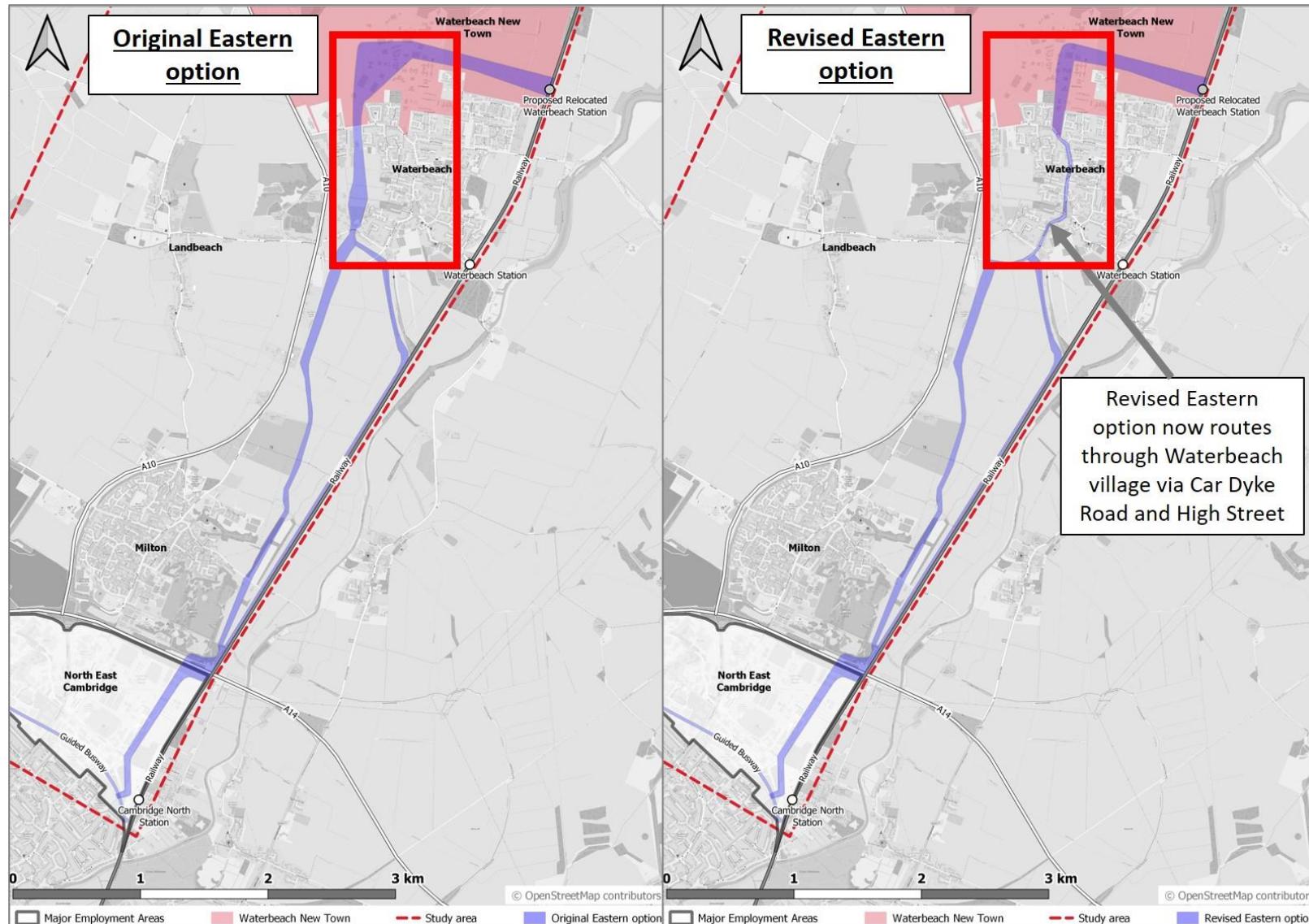
		Notes						
Strategic approaches		Improvements to bus services	Improvements to rail services	Improvements to walking, cycling and equestrian provision	Demand management	P&R / RTH	Segregated transitway	Rail improvements with feeder bus network, travel hubs at rail stations and high quality walking and cycling links to rail stations.
Capacity	Increase in Public Transport Capacity	Potential capacity can be met by bus services at 4-6min frequencies (estimated)	Won't capture all trips that need to be made by public transport	Does not increase public transport capacity	Does not increase public transport capacity	Does not increase public transport capacity	Will have a large increase in public transport capacity due to connecting key travel markets and being an attractive option	Limited to ability for rail to increase capacity, also unknown variables around how much capacity would increase
	Ability to contribute to 24% reduction in traffic levels	Addresses markets served (through new routes) and attractiveness (through more frequent services)	Addresses attractiveness and reliability (through more frequent services and higher capacity)	Addresses markets served, journey times, reliability and attractiveness	Would contribute to congestion reduction through restricting car usage	Would contribute to congestion reduction by being an alternative to driving into the city	Addresses markets served, journey times, reliability and attractiveness	Addresses markets served, journey times, reliability and attractiveness
	Propensity to Reduce Congestion / Delay	Will attract mode shift but this may be balanced out my impacts on the highway from bus lanes/bus gates	Will attract mode shift with no impact on the highway	Will attract mode shift that more than compensates for impact on highway	Would contribute to congestion reduction through restricting car usage	Would contribute to congestion reduction by being an alternative to driving into the city	Would attract mode shift with no impact on the highway	Will attract mode shift that more than compensates for impact on highway
Connectivity	Reduced Journey Time for Public Transport	Journey times would decrease slightly	Journey times would decrease slightly	No impact on public transport journey times	No impact on public transport journey times	No impact on public transport journey times	Journey times would be much faster than equivalent bus journeys	Journey times would decrease slightly
	Increased Reliability for Public Transport	Increased frequency and re-routing of services would improve reliability	Increased frequency and capacity would improve reliability of services	No impact on public transport reliability	No impact on public transport reliability	No impact on public transport reliability	Very reliable as completely offline	Increased frequency and re-routing of services would improve reliability
	Ease of Interchange	Combined ticketing and co-location of stops and services would make interchanging easier	Combined ticketing and co-location of stops and services would make interchanging easier	Improve routes to public transport/RTH would improve ease of interchange	No impact on ease of interchange	RTH would be a co-located interchange point	Listed as minor positive for now as CAM ticketing structure is unknown. If fully integrated with other public transport services then it would be a major positive	Integrated bus and rail services with combined ticketing
	Benefits to Active Travel	Routes to bus stops and cycle parking at bus stops would improve	Routes to rail stations and cycle parking at rail stations would improve	Significant benefit to active travel through new routes and improvements to existing routes and facilities.	No impact on active travel	Improvements to cycle parking at P&R/RTH and improvements to routes to these locations	Route alongside mass transitway and excellent facilities at stops	
	Supports CAM	Bus network would tie into CAM network at stop/station interchange	Rail line would tie into CAM network at Cambridge North	Cycling and walking routes would tie into CAM network	No impact on CAM	No impact on CAM	Would deliver one branch of CAM and tie into rest of network	Would tie into CAM through bus and rail services
	Scale of Catchment (Jobs/Housing)	Bus network would be redesigned to better serve key travel markets	Improved cycling access to rail stations would better serve travel markets	Improve walking and cycling network would better serve travel markets	Does not directly serve travel markets, but would improve traffic congestion	Would be located to better serve some travel markets	All key travel markets served, some travel markets would be missed depending on which routing option is selected	Due to flexibility of modal combinations, all travel markets could be served
	Ability to Unlock Growth	Redesigned network could create new connections between growth areas	Improving rail could connect key growth areas (e.g. with Cambridge South Station)	Improved walking and cycling network could create new connections between growth areas	No impact on ability to unlock growth	No impact on ability to unlock growth	Would connect growth areas and potentially unlock new sites for transit oriented development	Redesigned bus, walking and cycling network and improvements to rail could connect key growth areas and unlock new areas for development
Communities	Road Safety	Could contribute to safety through traffic reduction	Could contribute to safety through traffic reduction	Will make significant improvements to safety for people walking and cycling through traffic-free and protected infrastructure	Could contribute to safety through traffic reduction	No change to safety	Will make significant improvements to safety for people walking and cycling through traffic-free and protected infrastructure	Will make significant improvements to safety for people walking and cycling through traffic-free and protected infrastructure
	Protection of Green Spaces	No change to green spaces	No change to green spaces	Opportunity to incorporate green space into walking and cycling routes, e.g. through linear parks, pocket parks, green bridges/underpasses etc.	No change to green spaces	Chance to create some green space at P&R/RTH sites	Opportunity to incorporate green space along the mass transit route	No change to green spaces
	Environment, Air Quality and Carbon	Improvements to environment, air quality and carbon emissions through traffic reduction	Improvements to environment, air quality and carbon emissions through traffic reduction	Improvements to environment, air quality and carbon emissions through traffic reduction	No change	No change	Improvements to environment, air quality and carbon emissions through traffic reduction: higher degree of potential mode shift	Improvements to environment, air quality and carbon emissions through traffic reduction: higher degree of potential mode shift
	Quality of the Public Realm	No change to quality of public realm	No change to quality of public realm	Opportunity to incorporate public realm improvements through better cycling facilities, walking facilities such as benches	No change to quality of public realm	Opportunity to create pleasant public realm at P&R/RTH sites	Opportunity to incorporate public realm improvements to CAM stations and the walking and cycling route alongside	No change to quality of public realm
	Severance	No severance issues	No severance issues	Opportunity to restore broken links by building new grade separated crossings	No severance issues	No severance issues	Opportunity to restore broken links by building new grade separated crossings, also opportunity to reduce severance created by the CCB if that is the preferred	Opportunity to restore broken links by building new grade separated crossings
Physical	Engineering Constraints	Some of the larger proposals would require engineering work, such as the Mere Way alternative bus route. Deliverability issues in working with Network Rail	Deliverability issues in working with Network Rail	Physically deliverable and feasible	May have some minor deliverability issues (technology choice, etc)	Deliverable	Some engineering issues that can be overcome	Deliverability issues in working with Network Rail and other operators
	Environmental Constraints	No environmental constraints	No environmental constraints	No environmental constraints	No environmental constraints	No environmental constraints	No environmental constraints	No environmental constraints
Legal	Land Ownership	Potentially land ownership issues if routing down Mere Way to avoid the A10/A14 interchange	No land ownership issues	Potentially land ownership issues for new routes	No land ownership issues	Potentially land ownership issues for new sites	Potentially land ownership issues for the new route	Potentially land ownership issues for new walking and cycling routes
	Planning	Potentially some planning issues with using Mere Way route	No planning issues	Potentially some planning issues with new walking and cycling routes	No planning issues	Potentially some planning issues with new sites	Potentially some planning issues with new transit route	Potentially some planning issues with new walking and cycling routes
Support	Political / Public	High public and political support	High public and political support	High public and political support	Demand management initiatives in the Cambridge have had some political and public opposition in the past	P&R sites have had some public opposition in the past	High political support, high public support if framed as CAM and not a busway	High public and political support
	Stakeholders	Potential issues with working with bus operators to redesign network or new routes	Potential issues with working with Network Rail	Stakeholder support for walking and cycling routes in the study area is strong	No issue with stakeholders	Potential issues with working with bus operators to serve new P&R/RTH	High level of stakeholder support	Potential issues with working with bus operators and Network Rail

## Appendix D. Option Amendments

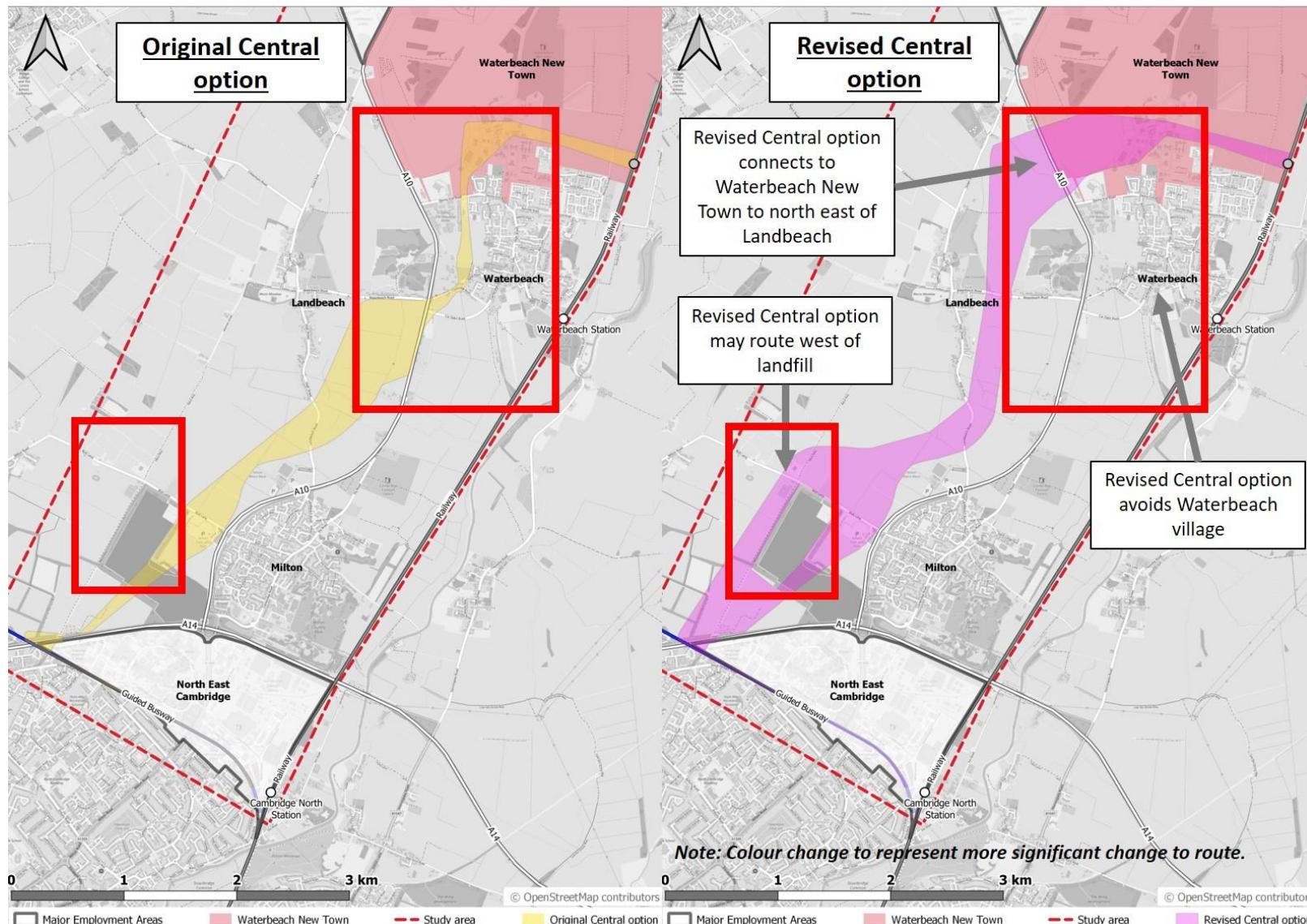
Comparison between the original and revised A10 route options



Comparison between the original and revised Eastern route options



Comparison between the original and revised Central route options



# Appendix E. Alignment to policy and objectives

## Alignment to policy and objectives

Policy / Objective	Western route option	Revised Central route option	Revised A10 route option	Revised Eastern route option
Local, Regional and National Policy				
South Cambridgeshire Local Plan – 2018	The Western route option aligns to this policy as it supports the development of Waterbeach New Town (SS/6) and new employment provision near Cambridge (E/1) by providing a sustainable transport options (also aligning to (TI/2).	The Revised Central route option aligns to this policy as it supports the development of Waterbeach New Town (SS/6) and new employment provision near Cambridge (E/1) by providing a sustainable transport options (also aligning to (TI/2).	The Revised A10 route option aligns to this policy as it supports the development of Waterbeach New Town (SS/6), Cambridge Northern Fringe East (SS/4) and new employment provision near Cambridge (E/1) by providing a sustainable transport options (also aligning to (TI/2).	The Revised Eastern route option aligns to this policy as it supports the development of Waterbeach New Town (SS/6), Cambridge Northern Fringe East (SS/4) and new employment provision near Cambridge (E/1) by providing a sustainable transport options (also aligning to (TI/2).
Cambridge Local Plan – 2018	This option aligns with the Cambridge Local Plan as it provides sustainable transport connections to strategic sites such as the Cambridge Science Park (Policies 2 and 5). This option also supports policy 82 which seeks to reduce car demand within the corridor, thereby supporting parking management in new developments.	This option aligns with the Cambridge Local Plan as it provides sustainable transport connections to strategic sites such as the Cambridge Science Park (Policies 2 and 5). This option also supports policy 82 which seeks to reduce car demand within the corridor, thereby supporting parking management in new developments.	This option aligns with the Cambridge Local Plan as it provides some sustainable transport connections to strategic sites such as the Cambridge Science Park (Policies 2 and 5). This option also supports policy 82 which seeks to reduce car demand within the corridor, thereby supporting parking management in new developments.	This option aligns with the Cambridge Local Plan as it provides some sustainable transport connections to strategic sites such as the Cambridge Science Park (Policies 2 and 5). This option also supports policy 82 which seeks to reduce car demand within the corridor, thereby supporting parking management in new developments.
Cambridgeshire Local Transport Plan 2011-2031 – 2015	This option aligns with the Cambridgeshire Local Transport Plan by supporting the delivery and growth of sustainable communities by providing public transport, pedestrian and cycle links.			

Policy / Objective	Western route option	Revised Central route option	Revised A10 route option	Revised Eastern route option
Cambridgeshire Local Transport Plan 2011-2031: Long Term Transport Strategy – 2015	This option supports this policy as it seeks to extend the busway network to serve new developments, such as Waterbeach New Town whilst providing high quality public transport. This option will also support the development of a new railway station by improving links from the station to employment areas such Cambridge Research Park and Cambridge Science Park.  Moreover the strategy outlines aspirations for the area including a busway link between Waterbeach Station and town centre to north Cambridge and a park and ride along the A10 which this scheme can provide.			
Cambridgeshire and Peterborough Local Transport Plan – 2021	This option is considered to be resilient and adaptive and therefore provides journey time reliability.  In addition to providing environmentally friendly infrastructure to support climate change and environmental policy, specifications for the scheme will include non-motorised user infrastructure such as footways and cycleways and therefore also supporting the policy relating to health and wellbeing.			
Transport Strategy for Cambridge and South Cambridgeshire – 2014	This option supports sustainable growth and therefore aligns with Policy TSCSC 7.			
Waterbeach Supplementary Planning Document – 2019	This option will align with the Waterbeach SPD and will serve the site. The exact way in which it will serve the site is subject to ongoing discussions with the Waterbeach New Town developers and assessment.			

#### CAM Objectives<sup>67</sup>

Promote economic growth and opportunity	This option will promote economic growth by connecting employment and residential areas by a high-quality transport system. By connecting these areas, this option is improving opportunity for those living in rural Cambridgeshire who may not be able to access Cambridge as easily as those with a car.
Support the acceleration of housing delivery	This option directly supports the development of Waterbeach New Town by proving good transport links to North East Cambridge which is one of the conditions for the site. This option also provides transport links to the proposed development in and around the North East Cambridge area.
Promote Equity	This option improves equality for those living in rural Cambridgeshire who may not be able to access Cambridge as easily as those with a car.
Promote sustainable growth and development	This option is providing a high-quality public transport system that connects strategic sites in Cambridge and South Cambridgeshire. The scheme therefore promotes sustainable growth by encourage public transport and active travel trips as opposed to a private car trips.

#### Scheme Objectives

Deliverable option which will improve the reliability, safety, capacity and speed of sustainable transport connections	This option will improve the reliability, safety, capacity and speed of sustainable transport connections between North East Cambridge, Waterbeach New Town and other existing development in the study area. The scheme is a segregated where possible and therefore can operate reliably and with speed.
To identify measures that allow for the relocation of	This option will serve the relocated Waterbeach railway station

<sup>67</sup> It is noted that a number of sub-objectives underpin the main four objectives. For brevity, the options have been assessed against the four main objectives.

Policy / Objective	Western route option	Revised Central route option	Revised A10 route option	Revised Eastern route option
Waterbeach railway station				
To ensure integrated walking and cycling routes are inherent in all proposals	All proposals will ensure walking and cycling routes are provided alongside the proposed high-quality public transport route			
To generate options that support the reduction of traffic levels in Cambridge to 10%-15% below 2011 levels	This option reduced car trips on the local network.			
To generate sustainable options that address transport demand from Waterbeach New Town	This option directly supports the development of Waterbeach New Town by proving good transport links to North East Cambridge which is one of the conditions for the site. This option also provides transport links to the proposed development in and around the North East Cambridge area.			
To generate options for 'quick-wins'	Quick wins have been provided in the OAR (See Chapter 7).			
To improve connectivity between existing settlements and to work stakeholders to identify the best package of measures.	This option will improve connectivity between existing settlements such as Waterbeach, Cambridge Research Park and Cambridge Science Park. Atkins and GCP are working extensively with stakeholders and the public to identify the best package of measures which is being set out in this SOBC.			

# Appendix F. Waterbeach New Town routing considerations

The dedicated high-quality public transport route infrastructure would, as a minimum, extend as far as the proposed New Town centre. The current planning assumption is that it would continue eastwards to the relocated Waterbeach Station if and when the latter is delivered. Transit services themselves would not be confined to the dedicated infrastructure and would also be able to serve other areas of the New Town, and/or continue north towards Cambridge Research Park or beyond, as required to meet travel needs.

This analysis outlines work undertaken to understand the most effective service routing to the north of the study area including whether a service using the high-quality public transport route should serve the relocated Waterbeach Station and/or Cambridge Research Park. Ultimately the final high-quality public transport route routing is dependent bus operators and public sector funding however, at this stage, this analysis aims to help identify the right infrastructure to support the right range of services to feed into future scheme assessment.

## Do Minimum bus network

This Section sets the scene in terms of existing and planned bus services in the local bus network that, without the high-quality public transport route, would make up the DM bus network.

The main existing routes in the local bus network include:

- Stagecoach Citi 2, which during peak hours travels between Ely and Cambridge Biomedical Campus via Cambridge Research Park, Waterbeach, Cambridge Science Park and Cambridge city centre; and
- Stagecoach route 9, which travels between Ely and Cambridge city centre, serving Cambridge Research Park, Waterbeach, Milton and Cambridge Science Park.

Committed under Section 106 agreements<sup>68</sup> as part of the Waterbeach New Town Development are the following services:

- A - extension of Milton Park and Ride bus or another service or a new service to link Waterbeach New Town and Cambridge. Free parking at Waterbeach New Town and route using Landbeach to avoid congestion on the A10;
- B - New bus service on weekdays between Cambridge Research Park, the site and the existing Waterbeach Station timed to coincide with trains. To be routed through the site via the Barracks area to the A10 (7am-7pm); and
- C - A new service within the site using the same vehicles as Bus service B during hours to be determined through a review of the framework Travel Plan.

The GCP Cambridge Bus Network Planning 'Future Bus Network Concept'<sup>69</sup> sets out the principles which can be used to guide detailed development of bus services in and around Cambridge. In terms of the Waterbeach corridor, the concept identifies the future 'key bus corridor' as Cambridge to Ely and Littleport, via Waterbeach and Waterbeach New Town. This includes a segregated corridor between Cambridge Science Park and a new Waterbeach Park and Ride. Under the proposed future scenario, the following additional core services would be introduced:

- *"a direct service providing 4 buses per hour from Waterbeach New town to CBC and Trumpington via the city centre. This service would call at both the new Waterbeach and existing Milton Road P&R sites, making use of the new segregated route, and would also serve the Science Park. The existing busway would also be used between the city centre and the CBC; and*

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<sup>68</sup> Planning Obligation by Deed of Agreement under Section 106 of the Town and Country Planning Act 1990. Relating to land at Waterbeach Barracks and Airfield Site, Waterbeach, Cambridgeshire. 25th September 2019

<sup>69</sup> Greater Cambridge Partnership Cambridge Bus Network Planning 'Future Bus Network Concept' (Systra, 17.1.2020) Greater Cambridge Partnership Media Assets Library - download (filecamp.com)

- *a direct service providing 4 buses per hour between Ely and the West Cambridge site, via the Science Park. This service would also call at both the new Waterbeach and existing Milton Road P&R sites, making use of the new segregated route in between*<sup>70</sup>.

## Market analysis

Market analysis has been undertaken to inform the SOBC for the scheme to understand demand within the study area and the potential demand that the scheme could capture. This analysis has been developed further for the purposes of understanding potential demand for accessing the relocated Waterbeach Station via the Waterbeach to Cambridge Scheme. A qualitative and quantitative assessment has been undertaken to gain a holistic view of potential future demand. The following Sections present the narrative for serving the relocated Waterbeach Station and Cambridge Research Park from the perspective of the markets that the high-quality public transport route service could serve.

### Waterbeach relocated station

#### Existing Waterbeach residents

Existing residents of Waterbeach village could use the scheme to access the relocated Waterbeach Station if the route followed the Revised A10, Revised Central or Revised Eastern route option alignment. Should the Western route option alignment be preferred, the residents of the existing Waterbeach village would not be served by the scheme and therefore the scheme would not capture potential demand from the existing Waterbeach village to the Station.

Existing residents of Waterbeach village would be most likely to travel to the relocated Station by foot or cycle. The existing Waterbeach Station is located to the southeast of the village and is approximately 2.1 kilometres from the furthest residential area within Waterbeach. The relocated Station, proposed to the northeast of the village, will be located approximately 2.4 kilometres from the furthest residential area. Inevitably the relocated Station will be closer than the existing Station for some residents (e.g. those who live in the north of the village) and further away for others (e.g. those to the south of the village). These distances lend themselves well to journeys by foot or cycle. However, it is recognised that some station users may wish to access the Station by public transport.

A high-quality public transport route stop is likely to be located within or close to Waterbeach village. Depending on the location this could require a walk of up to 1.5 kilometres, potentially in the opposite direction to the Station. If these residents were choosing to access the Station by public transport, they are unlikely to want to walk or cycle this distance when they could access a local stopping bus service close to their place of residence. Therefore, depending on the relative frequency of the high-quality public transport route compared to the stopping service, it is assumed that the majority of the existing Waterbeach residents who would access the relocated Station by public transport would do so via a local stopping service. The high-quality public transport route would be viable for those who live close to the western side of the village.

The 2011 Census recorded a total of 94 people within Waterbeach who use the existing Station for journeys to work. This is likely to equate to 188 rail trips a day (94 departures and 94 arrivals). It is important to recognise that there has been significant growth since 2011 and that the census values only account for journeys to work. Therefore, this does not represent total use of Waterbeach Station. The Office of Rail and Road estimates that in 2018-19, over 400,000<sup>71</sup> entries and exits were recorded at Waterbeach railway station. Given the qualitative analysis, it is likely that the majority of these residents would access the relocated Station by foot or cycle with a small proportion using public transport, whether that be the high-quality public transport route or a stopping service within Waterbeach village.

In summary, Waterbeach village represents a small market for the high-quality public transport route when serving the relocated Waterbeach Station.

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70 Greater Cambridge Partnership Cambridge Bus Network Planning 'Future Bus Network Concept' (Systra, 17.1.2020) (para 4.6.9 page 116/177)

71 Estimates of station usage | ORR Data Portal (entries and exits are defined by ORR as the total number of people travelling to or from the station)

## Waterbeach New Town residents

All potential high-quality public transport route options will serve Waterbeach New Town. Residents of Waterbeach New Town are likely to walk or cycle to the relocated Station, as the majority of the proposed development will be within 2km. As with Waterbeach village residents, a small proportion will wish to access the Station by public transport. Those that live close to the high-quality public transport route stop at the local centre within the New Town, will likely use the service for their journey. However, those that live further away would be more likely to use a local stopping service, whether that be a 'normal bus' or a specific local transit service operating around Waterbeach New Town, where the stop is closer to their place of residence.

The Transport Assessment for Waterbeach New Town (Urban & Civic's application for 6,500 dwellings<sup>72</sup>) includes analysis on the predicted number of rail trips to be generated by the full development build out (10,000 dwellings), including those dwellings bought forward by RLW, during the peak hours. The table below summarises the additional rail trips generated by the new development.

### Additional rail trips generated by Waterbeach New Town

No. of dwellings	New rail trips in morning peak hour (outbound)	New rail trips in evening peak hour (inbound)
6,500	107	87
10,000	165	134

Source: Waterbeach New Town Transport Assessment

A proportion of the 299 (165+134) new rail trips predicted to access the Station from Waterbeach New Town following full build out will use public transport. The Waterbeach New Town Transport Assessment predicts that 5% of internal development trips will be made by public transport. This equates to approximately 15 trips across the peak hours, of which some will use the high-quality public transport route.

In summary, Waterbeach New Town represents a small market for the high-quality public transport route when serving the relocated Waterbeach Station.

### Employees of Cambridge Research Park

If the high-quality public transport route served the relocated Station and Cambridge Research Park there is potential for it to capture trips by rail of employees at the Research Park should the services provide a direct connection between the two locations. Analysis is based on the capacity of the Research Park when fully developed to determine the maximum potential demand.

Market analysis, taking into account the full build out of Cambridge Research Park, has shown that 14% of employees who live in postcode CB1 (Cambridge East including Teversham), 7% of employees who live in postcode CB2 (South Cambridge including Trumpington), and 3% of employees who live in postcode CB6 (Ely and villages to the west) access Cambridge Research Park by rail. This equates to a total of 91 people who would be likely to make 91 arrival trips at the Station in the morning peak and 91 departure trips at the Station in the evening peak. Therefore, there is potential that this demand, plus any visitors who use rail, to use the high-quality public transport route to travel the approximately 3km journey between the Station and the Research Park.

Cambridge Research Park currently operate a complementary shuttle bus (minibus) between Cambridge North Station and Cambridge Research Park during the AM peak period, lunchtime, and the PM peak period. Should this continue post-development, demand for the high-quality public transport route between the relocated Station and Cambridge Research Park could be reduced to those who travel from Ely only (approximately 13 arrival trips and 13 departure trips across the peak hours) as these commuters would be more likely to get the train to Waterbeach than Cambridge North Station. Use of the high-quality public transport route or shuttle bus by these Cambridge Research Park employees is dependent on a number of currently unknown factors:

- rail stopping patterns at Cambridge North Station and the relocated Waterbeach Station and their suitability for Cambridge Research Park employees;
- the attractiveness of the high-quality public transport route compared to the shuttle bus from Cambridge North Station e.g. frequency, journey time and relative fares; and

<sup>72</sup> Table 16.3 and Section 13

- Cambridge Research Parks future shuttle strategy e.g. whether they relocate to the new Waterbeach Station.

In summary, there is likely to be a small demand for public transport between the relocated Waterbeach Station and Cambridge Research Park. The level of demand is dependent on whether the Research Park continue to operate their shuttle bus from Cambridge North Station, relocate it to Waterbeach or cease operations.

#### Other markets

The Transport Assessment for the relocated Waterbeach Station suggests that by 2021 62% of demand for the existing Station will originate from within Waterbeach village<sup>73</sup>. This means that 38% of demand will originate from other areas, most likely Landbeach, Milton and Horningsea. Horningsea is outside the study area for this scheme and therefore will not be served by the high-quality public transport route.

Milton could be served by a high-quality public transport route following the Revised A10, Revised Central or Revised Eastern route option alignment. Following the relocation of the Station residents of Milton who currently use Waterbeach Station may be more likely to use Cambridge North Station, especially if they are travelling south, depending on the rail stopping pattern. The increased distance to Waterbeach Station coupled with the improved connections across the A14 as a result of the Waterbeach Greenway could make this a more attractive option for rail travel from Milton. Those travelling north towards Ely may still wish to travel from Waterbeach Station and could be captured by the high-quality public transport route, for those whose place of residence is near the stop, or by a local service.

Landbeach could be served by a high-quality public transport route following a Revised Central or Western alignment option. The likely demand from Landbeach is likely to have a similar pattern to that of Milton, i.e. those travelling south may prefer to travel from Cambridge North Station and those travelling north may prefer to travel from the relocated Waterbeach Station and could access the Station by the high-quality public transport route, for those whose place of residence is near the stop, or by a local service.

A high-quality public transport route service to the relocated Waterbeach Station also has the potential to intercept car trips to the Station should it serve a park and ride located within the study area. This would be dependent upon the location of any Park and Ride, the cost of parking at the site, the high-quality public transport route fare, the cost of parking at the relocated Waterbeach Station, and the connections between the highway network (particularly the A10) and the high-quality public transport route. Should these locations offer good connectivity, then this may increase the attractiveness of the relocated Station to those travelling from surrounding villages, seeking onward rail travel towards London.

In summary, other markets that could be captured by the high-quality public transport route if it served Waterbeach relocated Station consist of Landbeach and Milton. Serving these markets depends on the preferred route alignment.

#### Impact if the relocated Waterbeach station is not served

If the relocated Waterbeach Station is not served the following would be likely:

- Existing residents of Waterbeach, Milton and Landbeach would be required to walk, cycle, drive or use a local bus service to access the site. Those that still choose to use the high-quality public transport route would be required to walk the first/last one kilometre of their journey from the Waterbeach New Town local centre to the Station.
- No fast, direct connection from Waterbeach relocated Station to Cambridge Research Park. This may encourage more trips by car as the Research Park expands. Public transport journeys between the Station and the Research Park will still be possible via a separate local service through Waterbeach New Town.
- Potential for more journeys within Waterbeach New Townsite by car for people who access the Station from outside of the development or cannot walk or cycle between their origin and the Station.
- Lack of direct connectivity between key transport hubs (i.e. relocated Waterbeach railway station and the high-quality public transport route) and destinations (Waterbeach New Town itself and other local destinations including Cambridge Research Park) within the study area.
- Adding additional interchange, or change of mode, for users of the high-quality public transport route to access the relocated Station.

<sup>73</sup> Section 5.4.2 (existing demand plus infill developments in Waterbeach up to 2021)

- Shorter end to end journey times for the scheme vehicles and therefore a requirement for less vehicles on the route.
- Potential for a lower scheme capital costs, depending on the level of infrastructure proposed within Waterbeach New Town and who is responsible for paying for it, and operating costs.

## Cambridge Research Park

Similar to the assessment for the relocated Station, market analysis has been undertaken to understand the potential demand for accessing Cambridge Research Park via the Waterbeach to Cambridge Scheme. Analysis is based on the capacity of the Research Park when fully developed to determine the maximum potential demand.

2011 Census data was interrogated to show the distribution of origins for journeys to work in the Lower Super Output Area (LSOA) containing Cambridge Research Park (South Cambs 004C). An employment trip rate, obtained from the TRICS database, was applied to determine the number of future trips from each origin LSOA. Those that are considered within the catchment for the high-quality public transport route, i.e. those that are in the catchment for the CAM network, are summarised below.

### Future trips to Cambridge Research Park within the catchment for the high-quality public transport route

Origin	All Day (07:00-19:00)	
	Arrivals	Departures
NEC/Chesterton/Kings Hedge/Arbury	522	520
Cambridge East including Teversham	451	449
Waterbeach	368	366
West of Cambridge including Cambourne	225	225
Newmarket Road and Fen Ditton	214	213
South Cambridge	208	207
West Cambridge	95	95
Milton	93	92
South of Cambridge including Foxton	65	65
East of Cambridge including Fulbourn	47	47
North of Huntingdon including Alconbury	47	47
Royston and surrounding villages	42	41
Newmarket and surrounding villages	24	24
Huntingdon and Godmanchester	18	18
<b>Total</b>	<b>2,419</b>	<b>2,409</b>

Source: Scaled 2011 Census

The table above shows that approximately 2,400 two-way trips will originate within the high-quality public transport route catchment and access Cambridge Research Park across the day. The high-quality public transport route has the potential to capture these trips should it provide a fast, frequent, reliable, and direct service.

Existing bus mode share to Cambridge Research Park is low (approximately 2%<sup>74</sup>) as a result of good highway connectivity, ample parking and the existing level and quality of bus service. Existing bus services 9 (Littleport-Cambridge) and 2 (Waterbeach-Addenbrooke's) currently serve Cambridge Research Park and call at NEC, Milton, Landbeach and Waterbeach. Journeys from the centre of Cambridge to Cambridge Research Park are timetabled to take over 30 minutes with no direct, fast service available. The high-quality public transport route could provide a fast, direct alternative to these services depending on which route alignment is preferred, which could lead to a higher uptake of public transport to the site. Residents of villages closer to the Research Park, including Milton and Waterbeach, may however wish to access a service close to their homes rather than walk to the high-quality public transport route stop therefore the markets from each of the villages is likely to be small. The market from Cambridge to the Research Park is likely to be higher, with larger numbers of people originating from the City as well as greater journey time benefits as a result of the longer distance and a direct route when compared to existing services.

There is currently demand for a direct service from NEC to Cambridge, evidenced by the Research Park Shuttle bus that operates during the morning peak period, lunchtime, and the evening peak period. The Research Park Newsletter<sup>75</sup> suggests that this service is used by those travelling by rail to Cambridge North Station as well as those who cycle as far as Cambridge North and then complete the last section of their journey by bus. Proposals to improve cycle connections north as part of the Waterbeach New Town development and the Waterbeach greenway may encourage some users to continue to cycle to Cambridge Research Park. Other users are not likely to transfer to the high-quality public transport route as long as the shuttle bus remains complimentary.

In summary, should the High Quality-Public Transport Route serve Cambridge Research Park it has the potential to capture a large number of trips across the day from within the Greater Cambridge area.

#### **Impact if Cambridge Research Park is not served**

If Cambridge Research Park is not served the following would be likely:

- low public transport mode share to the site and the reliance on the private car would be likely to continue impacting the sustainability of the site for further development;
- a lack of quick, frequent and reliable public transport connections to a key employment destination within the corridor;
- a lack of quick, frequent and reliable public transport connectivity between key employment centres for business trips such as trips between Cambridge Biomedical Campus, NEC and Cambridge Research Park;
- the high-quality public transport route would fail to capture trips to a key demand generator on the corridor;
- those passengers accessing Cambridge Research Park by bus in the current circumstances and after future development would be able to do so via the existing Ely to Cambridge bus service (9 or X9);
- shorter end to end journey times for the scheme vehicles and therefore a requirement for less vehicles on the route; and
- potential for a lower scheme capital costs, depending on the level of infrastructure proposed within Waterbeach New Town and who is responsible for paying for it, and operating costs.

#### **Journey time analysis and routing**

Journey time analysis has been undertaken for the Study to estimate overall journey times for each section of the potential route alignments. For the purposes of this assessment journey times have been calculated from the approximate location of the proposed local centre within Waterbeach New Town<sup>76</sup> to the relocated Station and to Cambridge Research Park.

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74 2011 Census data

75 Discover Cambridge Research Park Newsletter Winter 2020

76 Exact location of the local centre and the exact route to the relocated station are unknown at this stage and are subject to site masterplanning

Two speeds have been used to provide a range of journey times depending on which infrastructure is used for the high-quality public transport route within Waterbeach New Town. If the high-quality public transport route operates with general traffic then a speed of 22km/h<sup>77</sup> is assumed in an urban area. If the high-quality public transport route is segregated from general traffic a speed of 27km/h is assumed in an urban area.

The outcome of this assessment is shown in the table below.

#### Journey times from local centre to the relocated Waterbeach Station and Cambridge Research Park

Destination	With general traffic	Segregated from general traffic
Waterbeach Relocated Station	5 minutes	4 minutes
Cambridge Research Park	11 minutes	9 minutes
Cambridge Research Park via Waterbeach Relocated Station	16 minutes	13 minutes

The table above shows that serving the relocated Waterbeach Station directly would add a 4 to 5 minute additional journey time from the local centre to the relocated Station and back to the local centre (round trip). Providing that the services only access the relocated Station, from the Waterbeach New Town local centre, only those passengers travelling to or from the relocated Station would be subject to the additional journey time therefore no other users would be disadvantaged in terms of journey time to their destination.

A journey from the local centre within Waterbeach New Town to Cambridge Research Park main entrance and back to the local centre will take between 9 and 11 minutes, depending on the location of the local centre and routing within the New Town. Providing that the services only access the Research Park, from the Waterbeach New Town local centre, only those passengers travelling to or from the Research Park would be subject to the additional journey time therefore no other users would be disadvantaged in terms of journey time to their destination.

Routing via both Cambridge Research Park and Waterbeach Relocated Station has a significant impact on journey times at the northern end of the route. This would disadvantage passengers continuing to Cambridge Research Park who are not stopping at the Station and vice versa, however would benefit those accessing Cambridge Research Park by rail.

Splitting the high-quality public transport route service at the local centre would provide direct, fast access to both the relocated Station and Cambridge Research Park without disadvantaging any passengers in terms of journey time. This would also provide the maximum number of services on the core high-quality public transport route between Waterbeach New Town local centre and Cambridge. However, this arrangement would not provide a fast, direct link between the Station and Cambridge Research Park.

An alternative would be to route some buses up the A10 to Cambridge Research Park without serving the local centre in Waterbeach New Town, therefore providing faster journeys for those directly accessing the Research Park, however this has been discounted for the following reasons:

- this route would not capture trips to Waterbeach New Town on half of the high-quality public transport route;
- there is less scope to accommodate trips between Waterbeach relocated Station and Cambridge Research Park as a result of additional distance that services and passengers would be required to take; and
- terminating the service at the research park would not allow for a bus layover.

It is important to note that existing and proposed local services will also serve key origins and destinations within the study area. For example, committed under Section 106 agreements<sup>78</sup> as part of the Waterbeach New Town Development are the following services:

- A - extension of Milton Park and Ride bus or another service or a new service to link Waterbeach New Town and Cambridge. Free parking at Waterbeach New Town and route using Landbeach to avoid congestion on the A10;

<sup>77</sup> Speeds used in this assessment have been taken from the journey time assessment conducted for the end to end scheme.

<sup>78</sup> Planning Obligation by Deed of Agreement under Section 106 of the Town and Country Planning Act 1990. Relating to land at Waterbeach Barracks and Airfield Site, Waterbeach, Cambridgeshire. 25th September 2019

- B - New bus service on weekdays between Cambridge Research Park, the site and the existing Waterbeach Station timed to coincide with trains. To be routed through the site via the Barracks area to the A10 (7am-7pm); and
- C - A new service within the site using the same vehicles as Bus service B during hours to be determined through a review of the framework Travel Plan.

These local stopping services will provide connectivity between areas not directly served by the high-quality public transport route, including between Waterbeach Relocated Station and Cambridge Research Park, should users not wish to use the high-quality public transport route and change services in the local centre.

## Summary

In summary, analysis has shown that trips to and from the relocated Waterbeach Station represent a small potential market for the high-quality public transport route however the additional journey time (4-5 minutes) associated with serving the Station directly is considered small and would not add additional time to other high-quality public transport route users' journeys.

Trips to and from Cambridge Research Park represent a significant potential market for the high-quality public transport route, which makes the additional journey time (9-11 minutes) associated with serving the Research Park directly beneficial to the overall catchment of the scheme. Serving the Research Park directly would also not add additional time to other high-quality public transport route users' journeys.

One service, calling at the relocated Station and Cambridge Research Park would capture some trips to the Research Park by rail but would add a significant additional journey time (13-16 minutes) for users, over the direct service.

Therefore, in order to adhere to the aims of the Study and provide a fast, frequent and reliable service between Waterbeach and Cambridge the preferred option for routing towards the north of the study area would be to serve Waterbeach Relocated Station and Cambridge Research Park with alternate services from the local centre. This option serves key flows well with direct services and provides a balance between serving key demand hubs and providing a fast service. Although this solution wouldn't allow for a fast, direct service between the relocated Waterbeach Station and Cambridge Research Park, demand for this connection is likely to be covered by a local stopping service and/or the Research Park shuttle.

The next step involves engagement with the Waterbeach New Town Developers to secure routes within the site for the high-quality public transport route. This engagement is summarised in Section 5.

## Appendix G. Appraisal Summary Tables

Appraisal Summary Table		Date produced:	24 3 2021	Contact:	
Name of scheme:	Waterbeach - Western Option	Name	Sam Appleton		
Description of scheme:	Public transport connection between Waterbeach New Town and North East Cambridge. The western option originates near Cambridge North Station and follows the Cambridgeshire Guided Busway under the A14, then turns northeast and continues to the west of Mere Way. The route then bears east north of Landbeach and crosses the A10 at the proposed access roundabout to Waterbeach New Town.	Organisation	Atkins		
Role	Project Manager				
Impacts	Summary of key impacts	Assessment		Monetary £(NPV)	Distributional 7-pt scale/ vulnerable grp
Economy	Business users & transport providers	Quantitative		Qualitative	Monetary £(NPV)
	Business users and transport providers are predicted to experience benefits of £4.6 million. This is the result of a reduction in congestion and increased public transport connectivity between business areas which will in turn improve journey times. As a result transportation times of goods will improve, making businesses more efficient.	Value of journey time changes (£) £4.6m Net journey time changes (£) 0 to 2min 2 to 5min > 5min 9.7 0.1 1.7		Improved efficiency through improved transport links.	£4.6 million
	Reliability impact on Business users	Reduced congestion leading to reductions in delays.		Not assessed - not anticipated to be significant.	
	Regeneration	Not assessed - not anticipated to be significant.		Improvements in the movement of labour and static clustering.	
	Wider Impacts	The main benefits for the WEI arise from improvements in the movement in labour and increased static clustering. This is because the transitway connects the CSP, CRP and Cambridge North railway station. The scheme also offers improved access to education facilities at CRC.		A reduction in vehicles on the network leads to noise impact benefits.	£0.04 million
	Noise	A reduction in vehicles and congestion on the network leads to air quality impact benefits.		A reduction in vehicles and congestion on the network leads to Greenhouse gas benefits.	£0.08 million
	Air Quality	A reduction in vehicles and congestion on the network leads to air quality impact benefits.		A reduction in vehicles and congestion on the network leads to Greenhouse gas benefits.	£0.9 million
	Greenhouse gases	Change in non-traded carbon over 60y (CO2e) -20492 tonnes Change in traded carbon over 60y (CO2e) -437 tonnes		Not currently assessed.	
	Landscape	Not currently assessed.		Not currently assessed.	
	Townscape	Not currently assessed.		Not currently assessed.	
Environmental	Historic Environment	Not currently assessed.		Not currently assessed.	
	Biodiversity	Not currently assessed.		Not currently assessed.	
	Water Environment	Not currently assessed.		Not currently assessed.	
	Commuting and Other users	Value of journey time changes (£) £23.2m Net journey time changes (£) 0 to 2min 2 to 5min > 5min 35.4 1.1 22.0		Journey time savings offered by the scheme.	£23.2m
	Reliability impact on Commuting and Other users	Improvement for users due to the transitway being segregated.		This physical activity benefit is due to the additional NMU facilities implemented by the scheme.	£4.1 million
	Physical activity	£4.1 million		This journal activity benefit is due to the additional NMU facilities implemented by the scheme.	£25.5 million
	Journey quality	£25.5 million		The small accident cost savings benefit is a result of the reduction of vehicles on the network.	£ 0.4 million
	Accidents	Slight positive impacts due to increased connectivity.		Small security benefits are expected due to CCTV and lighting along new infrastructure.	
	Security	Slight positive impacts due to the non-taxable nature of public transport.		Slight positive impacts due to the current reliance of the road network and lack of NMU facilities.	
	Access to services	Slight positive impacts due to improvements in air quality.		Slight positive impacts due to improvements in air quality.	
Social	Affordability				
	Severance				
	Option and non-use values				
Public Accounts	Cost to Broad Transport Budget	Present Value Cost (PVC) of £46.5 million		£46.5 million	
	Indirect Tax Revenues	An increase in indirect taxation results from an increase in disposable income following less tax paid on fuel. This is because more disposable income leads to more spending on luxury goods which are taxable.		£4.4 million	

Appraisal Summary Table		Date produced:	24	3	2021	Contact:			
Name of scheme:	Waterbeach - Central Alternative Option	Name	Sam Appleton						
Description of scheme:	Public transport connection between Waterbeach New Town and North East Cambridge. The central option originates near Cambridge North Station and follows the Cambridgeshire Guided Busway under the A14m where it turns east and traverses the agricultural land between Landbeach and Milton. It then heads due north to a mid-point between Landbeach village and the A10 avoiding private and commercial properties. The option would link into the proposed roundabout at Waterbeach New Town on the A10 and would follow the same alignment as the western option through Waterbeach New Town to the proposed relocated Waterbeach Station and Cambridge Research Park.	Organisation	Atkins						
Role	Project Manager								
Impacts	Summary of key impacts	Assessment							
		Quantitative		Qualitative	Monetary £(NPV)	Distributional 7-pt scale/ vulnerable grp			
Economy	Business users & transport providers	Value of journey time changes (£) £5.6m		Improved efficiency through improved transport links.	£5.6 million				
		Net journey time changes (£)							
		0 to 2min	2 to 5min	> 5min					
		10.4	0.2	2.4					
Environmental	Reliability impact on Business users	Reduced congestion leading to reductions in delays.							
	Regeneration	Not assessed - not anticipated to be significant.							
	Wider Impacts	Improvements in the movement of labour and static clustering.							
	Noise	A reduction in vehicles on the network leads to noise impact benefits.							
	Air Quality	A reduction in vehicles and congestion on the network leads to air quality impact benefits.							
	Greenhouse gases	Change in non-traded carbon over 60y (CO2e) -31303 tonnes		A reduction in vehicles and congestion on the network leads to Greenhouse gas benefits.	£1.4 million				
	Landscape	Change in traded carbon over 60y (CO2e) -679 tonnes							
	Townscape	Not currently assessed.							
Social	Historic Environment	Not currently assessed.							
	Biodiversity	Not currently assessed.							
	Water Environment	Not currently assessed.							
	Commuting and Other users	Value of journey time changes (£) £24.1m		Journey time savings offered by the scheme.	£24.1m				
		Net journey time changes (£)							
		0 to 2min	2 to 5min	> 5min					
		41.3	2.1	22.1					
	Reliability impact on Commuting and Other users	Improvement for users due to the transitway being segregated.							
Physical activity	Physical activity	£1.5 million			This physical activity benefit is due to the additional NMU facilities implemented by the scheme.	£1.5 million			
	Journey quality	£25.1 million			This journal activity benefit is due to the additional NMU facilities implemented by the scheme.	£25.1 million			
	Accidents	The small accident cost savings benefit is a result of the reduction of vehicles on the network.							
	Security	Small security benefits are expected due to CCTV and lighting along new infrastructure.							
	Access to services	Slight positive impacts due to increased connectivity.							
	Affordability	Slight positive impacts due to the non-taxable nature of public transport.							
	Severance	Slight positive impacts due to the current reliance of the road network and lack of NMU facilities.							
	Option and non-use values	Slight positive impacts due to improvements in air quality.							
Public Accounts	Cost to Broad Transport Budget								
	Indirect Tax Revenues	An increase in indirect taxation results from an increase in disposable income following less tax paid on fuel. This is because more disposable income leads to more spending on luxury goods which are taxable.							

Appraisal Summary Table		Date produced:	24	3	2021	Contact:
Name of scheme:	Waterbeach - A10 option	Name	Sam Appleton			
Description of scheme:	Public transport connection between Waterbeach New Town and North East Cambridge. The A10 route originates near Cambridge North Station and travels along Cowley Road to Milton Road. From here, the route bears north and crosses the A14 at a new crossing near Jane Coston Bridge, then bears west to the south of Milton Tesco supermarket. The route crosses the northern arm of the Milton Interchange before bearing north to the west of the A10. The route crosses the A10 southwest of Waterbeach on Cambridge Road then bears north and travels on road through Waterbeach through to Denny End Road and Waterbeach New Town.	Organisation	Atkins			
Role	Project Manager					
Impacts	Summary of key impacts	Assessment	Quantitative	Qualitative	Monetary £(NPV)	Distributional 7-pt scale/ vulnerable grp
Economy	Business users & transport providers	Value of journey time changes (£)	£7.6m	Improved efficiency through improved transport links.	£7.6 million	
		Net journey time changes (£)				
		0 to 2min	2 to 5min			
		9.7	0.2			
Environmental	Reliability impact on Business users	Reduced congestion leading to reductions in delays.				
	Regeneration	Not assessed - not anticipated to be significant.				
	Wider Impacts	Improvements in the movement of labour and static clustering.				
	Noise	A reduction in vehicles on the network leads to noise impact benefits.			£0.02 million	
Environmental	Air Quality	A reduction in vehicles and congestion on the network leads to air quality impact benefits.			£0.04 million	
	Greenhouse gases	Change in non-traded carbon over 60y (CO2e)	-53990 tonnes	A reduction in vehicles and congestion on the network leads to Greenhouse gas benefits.	£2.3 million	
		Change in traded carbon over 60y (CO2e)	-1293 tonnes			
	Landscape	Not currently assessed.				
Social	Townscape	Not currently assessed.				
	Historic Environment	Not currently assessed.				
	Biodiversity	Not currently assessed.				
	Water Environment	Not currently assessed.				
Social	Commuting and Other users	Value of journey time changes (£)	£28.6m	Journey time savings offered by the scheme.	£28.6m	
		Net journey time changes (£)				
		0 to 2min	2 to 5min			
		45.3	5.9			
Social	Reliability impact on Commuting and Other users	Improvement for users due to the transitway being segregated.				
	Physical activity	£8.0 million				
	Journey quality	£19.0 million				
	Accidents	The small accident cost savings benefit is a result of the reduction of vehicles on the network.				
Social	Security	Small security benefits are expected due to CCTV and lighting along new infrastructure.				
	Access to services	Slight positive impacts due to increased connectivity.				
	Affordability	Slight positive impacts due to the non-taxable nature of public transport.				
	Severance	Slight positive impacts due to the current reliance of the road network and lack of NMU facilities.				
Public Accounts	Option and non-use values	Slight positive impacts due to improvements in air quality.				
	Cost to Broad Transport Budget	£167.6 million				
	Indirect Tax Revenues	An increase in indirect taxation results from an increase in disposable income following less tax paid on fuel. This is because more disposable income leads to more spending on luxury goods which are taxable.				

Appraisal Summary Table		Date produced:	24	3	2021	Contact:		
Name of scheme:	Waterbeach - Eastern Option	Name	Sam Appleton					
Description of scheme:	Public transport connection between Waterbeach New Town and North East Cambridge. The Eastern option originates near Cambridge North Station and bears north through the eastern side of NEC, crossing the A14 south of Milton Country Park. The route traverses the borders of the Country Park on the eastern side, before heading north to the west of the proposed sports lake development and east of the existing Footgolf area. The route reaches Waterbeach at Car Dyke Road, then continues on road through Waterbeach through to Denny End Road and Waterbeach New Town.	Organisation	Atkins					
Impacts	Summary of key impacts	Assessment			Monetary £(NPV)	Distributional 7-pt scale/ vulnerable grp		
Economy	Business users & transport providers	Quantitative			Qualitative			
	Business users and transport providers are predicted to experience benefits of £4.1 million. This is the result of a reduction in congestion and increased public transport connectivity between business areas which will in turn improve journey times. As a result transportation times of goods will improve, making businesses more efficient.	Value of journey time changes(£)	£4.1m		Improved efficiency through improved transport links.			
	Reliability impact on Business users	Net journey time changes (£)			Reduced congestion leading to reductions in delays.			
	Regeneration	0 to 2min	2 to 5min	> 5min	Not assessed - not anticipated to be significant.			
Environmental	Wider Impacts	7.6	0.1	2.8	Improvements in the movement of labour and static clustering.			
	Noise				A reduction in vehicles on the network leads to noise impact benefits.	£0.02 million		
	Air Quality				A reduction in vehicles and congestion on the network leads to air quality impact benefits.	£0.01 million		
	Greenhouse gases	Change in non-traded carbon over 60y (CO2e)	-20568 tonnes		A reduction in vehicles and congestion on the network leads to Greenhouse gas benefits.	£0.9 million		
	Landscape	Change in traded carbon over 60y (CO2e)	-493 tonnes		Not currently assessed.			
	Townscape				Not currently assessed.			
	Historic Environment				Not currently assessed.			
	Biodiversity				Not currently assessed.			
Social	Water Environment				Not currently assessed.			
	Commuting and Other users	Value of journey time changes(£)	£18.6m		Journey time savings offered by the scheme.	£18.6m		
	Reliability impact on Commuting and Other users	Net journey time changes (£)			Improvement for users due to the transitway being segregated.			
	Physical activity	0 to 2min	2 to 5min	> 5min				
	31.5	0.7	22.1					
	31.5	0.7	22.1					
	Journey quality	-£0.3 million			This physical activity disbenefit is due to the lack of NMU provision on top of that which already exists.	-£0.3 million		
	Accidents				This journey quality benefit is neutral due to the lack of additional NMU facilities implemented by the scheme.	£0 million		
Public Accounts	Security				The small accident cost savings benefit is a result of the reduction of vehicles on the network.	£ 0.06 million		
	Access to services				Small security benefits are expected due to CCTV and lighting along new infrastructure.			
	Affordability				Slight positive impacts due to increased connectivity.			
	Severance				Slight positive impacts due to the non-taxable nature of public transport.			
	Option and non-use values				Slight positive impacts due to the current reliance of the road network and lack of NMU facilities.			
	Cost to Broad Transport Budget				Slight positive impacts due to improvements in air quality.			
	Indirect Tax Revenues				£41.9 million			
	Present Value Cost (PVC) of £41.9 million				An increase in indirect taxation results from an increase in disposable income following less tax paid on fuel. This is because more disposable income leads to more spending on luxury goods which are taxable.	£4.4 million		

# Appendix H. Supplementary information from economic appraisal

## H.1. User benefits by time period

### User benefits by time period

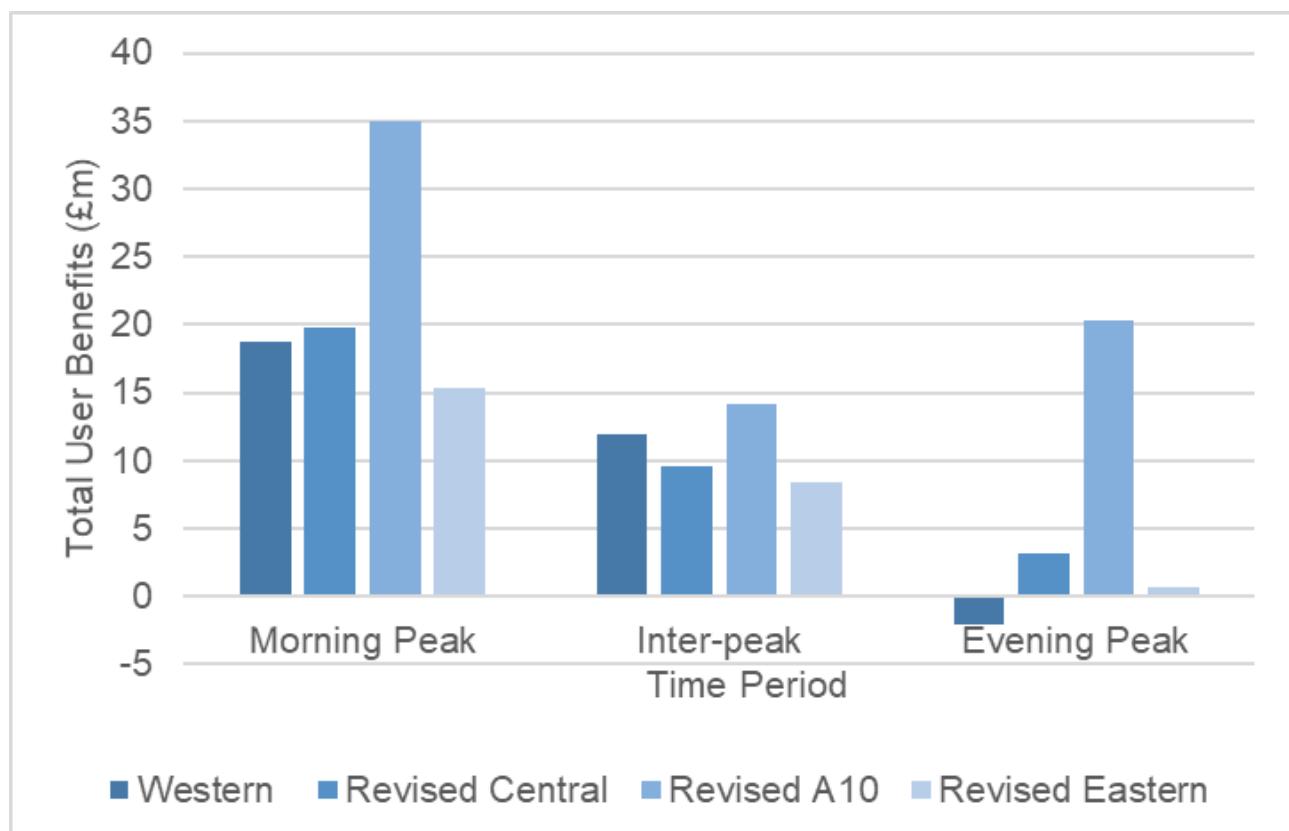
The analysis for user benefits by time period is summarised.

The largest user time savings are forecast for the morning peak for all options. This is due to the tidal nature of demand along the corridor within the study area that sees a number of commuters heading south, towards Cambridge in the morning peak period. The user time savings are generally smaller in the evening peak as commuters leave Cambridge. The congestion in the evening is worse towards the northern end of the A10 which is not affected by the scheme. Therefore, the user time savings in the evening peak are less significant.

In some options there are negative time savings forecast for the inter-peak. This is due to an increase in the number of junctions on the existing A10. This means that journey times are slower, than when traffic is at its free flow speed, due to the increased number of stops. This is not the case for the Revised A10 route option, where the direct connectivity to Milton Park and Ride along its current corridor means that there are benefits accrued by existing users of the site to return to the site quickly via the bus leg of the journey in the evening peak period, avoiding congestion on Milton Road. This benefit stream then counteracts the disbenefits associated with the increased congestion at the Ely end of the corridor, where the increases in highway traffic from returning park and ride users adds to existing highway congestion.

The tables below set out the user benefits disaggregated by time period, over the appraisal period. The figure below summarises the user benefits by time period.

### Summary of user benefits by time period



**User benefits by time period – Western route option (£m)<sup>79</sup>**

Time period	User time savings	User charges	Vehicle operating costs
Morning peak (3 hours)	£18.4	-£0.8	£1.1
Inter-peak (6 hours)	£10.9	-£0.3	£1.2
Evening peak (3 hours)	-£1.4	-£0.5	-£0.1

**User benefits by time period – Revised Central route option (£m)<sup>80</sup>**

Time period	User time savings	User charges	Vehicle operating costs
Morning peak (3 hours)	£19.0	-£0.5	£1.3
Inter-peak (6 hours)	£8.1	-£0.3	£1.7
Evening peak (3 hours)	£2.7	-£0.1	£0.5

**User benefits by time period – Revised A10 route option (£m)<sup>81</sup>**

Time period	User time savings	User charges	Vehicle operating costs
Morning peak (3 hours)	£32.3	£0.5	£2.2
Inter-peak (6 hours)	£12.4	£0.2	£1.6
Evening peak (3 hours)	£17.4	£0.8	£2.1

**User benefits by time period – Revised Eastern route option (£m)<sup>82</sup>**

Time period	User time savings	User charges	Vehicle operating costs
Morning peak (3 hours)	£14.5	-£0.2	£1.0
Inter-peak (6 hours)	£7.6	-£0.1	£0.9
Evening peak (3 hours)	£0.6	-£0.2	£0.2

## H.2. User benefits by time savings

The tables below set out the user benefits disaggregated by size of time saving. These figures are only the time savings and do not include vehicle operating costs and user charges, so the totals here differ from totals in other tables which include both elements. The figure below summarises the user benefits by size of time saving.

79 £m, 2010 values and prices. Source: TUBA Runs for T1001A compared to T1000D

80 £m, 2010 values and prices. Source: TUBA Runs for T1005 compared to T1000D

81 £m, 2010 values and prices. Source: TUBA Runs for T1004 compared to T1000D

82 £m, 2010 values and prices. Source: TUBA Runs for T1002 compared to T1000D

### Summary of user benefit by size of time saving



### User benefits by size of time saving – Western route option (m)<sup>83</sup>

Mode	<-5mins	-5 to -2 mins	-2 to 0 mins	0 to 2mins	2 to 5mins	>5mins
Road	£0.0	-£0.9	-£28.4	£41.5	£0.0	£0.0
Public transport	-£5.6	-£1.4	-£3.7	£2.9	£0.3	£11.9
Park and Ride	£0.0	-£0.2	-£0.9	£0.6	£0.5	£6.1
Active modes	£0.0	-£0.2	-£0.1	£0.1	£0.4	£5.7

### User benefits by size of time saving – Revised Central route option (m)<sup>84</sup>

Mode	<-5mins	-5 to -2 mins	-2 to 0 mins	0 to 2mins	2 to 5mins	>5mins
Road	£0.0	-£2.0	-£31.1	£47.4	£0.0	£0.0
Public transport	-£5.7	-£1.4	-£3.6	£3.1	£0.3	£12.4
Park and Ride	-£1.5	-£0.2	-£0.7	£0.8	£1.3	£10.7
Active modes	£0.0	£0.0	£0.0	£0.3	£0.7	£1.4

<sup>83</sup> 2010 values and prices. Source: TUBA Runs for T1001A compared to T1000D

<sup>84</sup> 2010 values and prices. Source: TUBA Runs for T1005 compared to T1000D

**User benefits by size of time saving – Revised A10 route option (m)<sup>85</sup>**

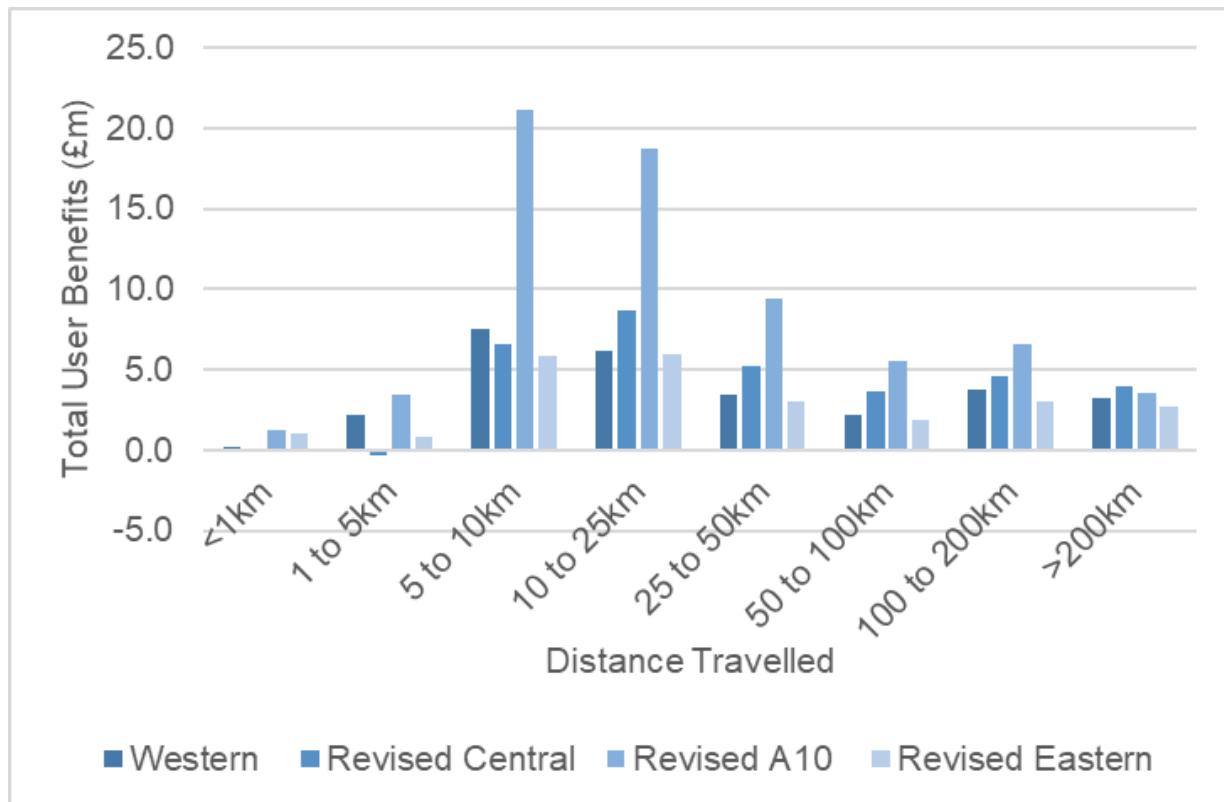
Mode	<-5mins	-5 to -2 mins	-2 to 0 mins	0 to 2mins	2 to 5mins	>5mins
Road	£0.0	-£0.2	-£33.3	£48.6	£0.0	£0.0
Public transport	£5.0	-£1.4	-£4.2	£4.6	£0.9	£16.3
Park and Ride	-£0.1	-£0.1	-£0.7	£1.0	£1.7	£32.7
Active modes	£0.0	£0.0	£0.0	£0.9	£3.4	£4.4

**User benefits by size of time saving – Revised Eastern route option (m)<sup>86</sup>**

Mode	<-5mins	-5 to -2 mins	-2 to 0 mins	0 to 2mins	2 to 5mins	>5mins
Road	£0.0	-£0.1	-£30.2	£35.3	£0.0	£0.0
Public transport	-£3.1	-£0.9	-£4.0	£2.9	£0.4	£9.5
Park and Ride	£0.0	-£0.3	-£0.9	£0.7	£0.2	£14.1
Active modes	£0.0	£0.0	£0.0	£0.2	£0.2	£0.3

### H.3. User benefits by distanced travelled

The tables below summarise the user benefits disaggregated by distance travelled. The distances are grouped into bands as defined by TUBA. The main benefits for road users are driven by medium to long journeys in the range of 25km to 200km. Having said this the Revised A10 route option also experiences benefits from shorter journeys of 10km to 25km as well as longer journeys of more than 200km. The figure below summarises user benefits by distance travelled.

**Summary of user benefits by distance travelled**

<sup>85</sup> 2010 values and prices. Source: TUBA Runs for T1004 compared to T1000D

<sup>86</sup> 2010 values and prices. Source: TUBA Runs for T1002 compared to T1000D

**User benefits by distance travelled – Western route option (m)<sup>87</sup>**

Mode	<1km	1 to 5km	5 to 10km	10 to 25km	25 to 50km	50 to 100km	100 to 200km	>200km
Road	£0.1	£0.3	£1.0	£1.2	£1.9	£1.9	£3.1	£2.8
Public transport	£0.0	£0.6	£1.9	£2.0	-£0.3	-£0.1	£0.2	-£0.1
Park and Ride	£0.0	£0.1	£0.8	£2.1	£1.7	£0.4	£0.4	£0.5
Active modes	£0.0	£1.3	£3.8	£0.8	£0.0	£0.0	£0.0	£0.0

**User benefits by distance travelled – Revised Central route option (m)<sup>88</sup>**

Mode	<1km	1 to 5km	5 to 10km	10 to 25km	25 to 50km	50 to 100km	100 to 200km	>200km
Road	£0.1	-£0.1	£0.2	£1.9	£2.6	£2.6	£3.6	£3.5
Public transport	£0.0	£0.3	£2.7	£2.5	-£0.3	-£0.1	£0.2	£0.0
Park and Ride	£0.0	-£1.0	£2.1	£3.9	£2.9	£1.2	£0.8	£0.5
Active modes	£0.0	£0.4	£1.6	£0.4	£0.0	£0.0	£0.0	£0.0

**User benefits by distance travelled – Revised A10 route option (m)<sup>89</sup>**

Mode	<1km	1 to 5km	5 to 10km	10 to 25km	25 to 50km	50 to 100km	100 to 200km	>200km
Road	£0.2	£0.0	£0.8	£2.7	£2.9	£2.5	£3.0	£2.9
Public transport	£0.0	£0.3	£7.9	£2.6	-£1.2	£0.1	£1.6	-£0.1
Park and Ride	£0.9	£0.9	£7.3	£12.1	£7.6	£3.0	£2.0	£0.7
Active modes	£0.0	£2.3	£5.1	£1.3	£0.0	£0.0	£0.0	£0.0

**User benefits by distance travelled – Revised Eastern route option (m)<sup>90</sup>**

Mode	<1km	1 to 5km	5 to 10km	10 to 25km	25 to 50km	50 to 100km	100 to 200km	>200km
Road	£0.1	-£0.2	£0.3	-£0.9	£0.4	£1.1	£2.3	£2.2
Public transport	£0.0	£0.4	£3.0	£1.8	-£0.4	-£0.1	£0.1	£0.0
Park and Ride	£1.0	£0.3	£2.4	£5.0	£3.0	£0.9	£0.7	£0.6
Active modes	£0.0	£0.4	£0.2	£0.1	£0.0	£0.0	£0.0	£0.0

## H.4. Transport Economic Efficiency (TEE) table

The following tables show the impacts on transport users and providers, also known as the economic efficiencies of the transport system.

87 2010 values and prices. Source: TUBA Runs for T1001A compared to T1000D

88 2010 values and prices. Source: TUBA Runs for T1005 compared to T1000D

89 2010 values and prices. Source: TUBA Runs for T1004 compared to T1000D

90 2010 values and prices. Source: TUBA Runs for T1002 compared to T1000D

**Table 7-2 – TEE table – Western route option**
**Economic Efficiency of the Transport System (TEE)**

<b>Non-business: Commuting</b>		<b>ALL MODES</b>	<b>ROAD</b>		<b>BUS and COACH</b>	<b>RAIL</b>	<b>OTHER</b>
		<b>TOTAL</b>	<b>Private Cars and LGVs</b>		<b>Passengers</b>	<b>Passengers</b>	
<i>User benefits</i>			3162		4896		1334
Travel time		9392					
Vehicle operating costs		685					
User charges		-19					
During Construction & Maintenance		0					
<b>COMMUTING</b>		<b>10058</b>	(1a)	3844	4880	0	1334
<b>Non-business: Other</b>		<b>ALL MODES</b>	<b>ROAD</b>		<b>BUS and COACH</b>	<b>RAIL</b>	<b>OTHER</b>
		<b>TOTAL</b>	<b>Private Cars and LGVs</b>		<b>Passengers</b>	<b>Passengers</b>	
<i>User benefits</i>			3434		5833		4555
Travel time		13822					
Vehicle operating costs		952					
User charges		-1600					
During Construction & Maintenance		0					
<b>NET NON-BUSINESS BENEFITS: OTHER</b>		<b>13174</b>	(1b)	4386	4233	0	0
<b>Business</b>							
<i>User benefits</i>			<b>Goods Vehicles</b>	<b>Business Cars &amp; LGVs</b>	<b>Passengers</b>	<b>Freight</b>	<b>Passengers</b>
Travel time		4683	2405	1029	1247		2
Vehicle operating costs		560	577	-17			
User charges		44		0	44		
During Construction & Maintenance		0					
<b>Subtotal</b>		<b>5287</b>	(2)	2982	1012	1291	0
<b>Private sector provider impacts</b>						<b>Freight</b>	<b>Passengers</b>
Revenue		15892				15768	
Operating costs		-13360				-13360	
Investment costs		-5031				-5031	
Grant/subsidy		0					
<b>Subtotal</b>		<b>-2499</b>	(3)			-2623	0
<b>Other business impacts</b>							124
Developer contributions		0	(4)				
<b>NET BUSINESS IMPACT</b>		<b>2788</b>		(5) = (2) + (3) + (4)			
<b>TOTAL</b>							
Present Value of Transport Economic Efficiency Benefits (TEE)		26020		(6) = (1a) + (1b) + (5)			

Notes: Benefits appear as positive numbers, while costs appear as negative numbers.  
All entries are discounted present values, in 2010 prices and values

£m, 2010 values and prices.

Source: TUBA Runs for T1001A compared to T1000D

**Table 7-3 - TEE table – Revised Central route option**
**Economic Efficiency of the Transport System (TEE)**

<u>Non-business: Commuting</u>		<b>ALL MODES</b>	<b>ROAD</b>	<b>BUS and COACH</b>		<b>RAIL</b>	<b>OTHER</b>
		<b>TOTAL</b>	<b>Private Cars and LGVs</b>	<b>Passengers</b>	<b>Passengers</b>		
<i>User benefits</i>			4209	6972			532
Travel time		11713					
Vehicle operating costs		1431					
User charges		628					
During Construction & Maintenance		0					
<b>COMMUTING</b>		<b>13772</b>	(1a) 5644	7596	0		532
<u>Non-business: Other</u>		<b>ALL MODES</b>	<b>ROAD</b>	<b>BUS and COACH</b>		<b>RAIL</b>	<b>OTHER</b>
		<b>TOTAL</b>	<b>Private Cars and LGVs</b>	<b>Passengers</b>	<b>Passengers</b>		
<i>User benefits</i>			2721	7867			1816
Travel time		12404					
Vehicle operating costs		1259					
User charges		-1688					
During Construction & Maintenance		0					
<b>NET NON-BUSINESS BENEFITS: OTHER</b>		<b>11975</b>	(1b) 3980	6179	0	0	1816
<b>Business</b>							
<i>User benefits</i>			<b>Goods Vehicles</b>	<b>Business Cars &amp; LGVs</b>	<b>Passengers</b>	<b>Freight</b>	<b>Passengers</b>
Travel time		5636	2589	1259	1788		
Vehicle operating costs		850	848	2			
User charges		150		0	150		
During Construction & Maintenance		0					
<b>Subtotal</b>		<b>6636</b>	(2) 3437	1261	1938	0	0
<i>Private sector provider impacts</i>							
Revenue		19417			19297		120
Operating costs		-13360			-13360		
Investment costs		-5031			-5031		
Grant/subsidy		0					
<b>Subtotal</b>		<b>1026</b>	(3)		906	0	120
<i>Other business impacts</i>							
Developer contributions		0	(4)				
<b>NET BUSINESS IMPACT</b>		<b>7662</b>	(5) = (2) + (3) + (4)				
<b>TOTAL</b>							
Present Value of Transport Economic Efficiency Benefits (TEE)		33409	(6) = (1a) + (1b) + (5)				
Notes: Benefits appear as positive numbers, while costs appear as negative numbers. All entries are discounted present values, in 2010 prices and values							

£m, 2010 values and prices.

Source: TUBA Runs for T1005 compared to T1000D

Table 7-4 - TEE table – Revised A10 route option

Economic Efficiency of the Transport System (TEE)

<u>Non-business: Commuting</u>		ALL MODES	ROAD	BUS and COACH	RAIL	OTHER
		TOTAL	Private Cars and LGVs	Passengers	Passengers	
<i>User benefits</i>			5407	25995		2013
Travel time		33415				
Vehicle operating costs		3774				
User charges		2077				
During Construction & Maintenance		0				
<b>COMMUTING</b>		<b>39266</b>	(1a) 9202	28051	0	2013
<u>Non-business: Other</u>		ALL MODES	ROAD	BUS and COACH	RAIL	OTHER
		TOTAL	Private Cars and LGVs	Passengers	Passengers	
<i>User benefits</i>			801	13499		6699
Travel time		20999				
Vehicle operating costs		1703				
User charges		-1055				
During Construction & Maintenance		0				
<b>NET NON-BUSINESS BENEFITS: OTHER</b>		<b>21647</b>	(1b) 2493	12455	0	0
<b>Business</b>						
<i>User benefits</i>			Goods Vehicles	Business Cars & LGVs	Passengers	Freight
Travel time		7640	1886	1031	4723	
Vehicle operating costs		480	474	6		
User charges		456	0	-2	458	
During Construction & Maintenance		0				
<b>Subtotal</b>		<b>8576</b>	(2) 2360	1035	5181	0
<i>Private sector provider impacts</i>					Freight	Passengers
Revenue		29847			29696	
Operating costs		-11278			-11278	
Investment costs		-4402			-4402	
Grant/subsidy		0				
<b>Subtotal</b>		<b>14167</b>	(3)		14016	0
<i>Other business impacts</i>						151
Developer contributions		0	(4)			
<b>NET BUSINESS IMPACT</b>		<b>22743</b>	(5) = (2) + (3) + (4)			
<b>TOTAL</b>						
Present Value of Transport Economic Efficiency Benefits (TEE)		83656	(6) = (1a) + (1b) + (5)			
Notes: Benefits appear as positive numbers, while costs appear as negative numbers. All entries are discounted present values, in 2010 prices and values						

£m, 2010 values and prices.

Source: TUBA Runs for T1004 compared to T1000D

**Table 7-5 - TEE table – Revised Eastern route option**
**Economic Efficiency of the Transport System (TEE)**

<b>Non-business: Commuting</b>		<b>ALL MODES</b>	<b>ROAD</b>	<b>BUS and COACH</b>	<b>RAIL</b>	<b>OTHER</b>
		<b>TOTAL</b>	<b>Private Cars and LGVs</b>	<b>Passengers</b>	<b>Passengers</b>	
<i>User benefits</i>						
Travel time		11908		10785		157
Vehicle operating costs		1226				
User charges		40				
During Construction & Maintenance		0				
<b>COMMUTING</b>		<b>13174</b>	(1a) 2189	10828	0	157
<b>Non-business: Other</b>		<b>ALL MODES</b>	<b>ROAD</b>	<b>BUS and COACH</b>	<b>RAIL</b>	<b>OTHER</b>
		<b>TOTAL</b>	<b>Private Cars and LGVs</b>	<b>Passengers</b>	<b>Passengers</b>	
<i>User benefits</i>						
Travel time		6712		5902		533
Vehicle operating costs		476				
User charges		-653				
During Construction & Maintenance		0				
<b>NET NON-BUSINESS BENEFITS: OTHER</b>		<b>6535</b>	(1b) 747	5255	0	533
<b>Business</b>						
<i>User benefits</i>						
Travel time		4114				
Vehicle operating costs		333				
User charges		124				
During Construction & Maintenance		0				
<b>Subtotal</b>		<b>4571</b>	(2)	1557	596	2418
<b>Private sector provider impacts</b>			<b>Goods Vehicles</b>	<b>Business Cars &amp; LGVs</b>	<b>Passengers</b>	<b>Freight</b>
Revenue		16717	1228	592	2294	
Operating costs		-9768	329	4		
Investment costs		-3773	0	0	124	
Grant/subsidy		0				
<b>Subtotal</b>		<b>3175</b>	(3)	1557	596	2418
<b>Other business impacts</b>					<b>Freight</b>	<b>Passengers</b>
Developer contributions		0	(4)		16554	
<b>NET BUSINESS IMPACT</b>		<b>7746</b>	(5) = (2) + (3) + (4)		-9768	163
<b>TOTAL</b>					-3773	
Present Value of Transport Economic Efficiency Benefits (TEE)		27455	(6) = (1a) + (1b) + (5)		3012	0

Notes: Benefits appear as positive numbers, while costs appear as negative numbers.

All entries are discounted present values, in 2010 prices and values

£m, 2010 values and prices.

Source: TUBA Runs for T1002 compared to T1000D

## H.5. Public Accounts (PA) table

The following tables show a summary of how the scheme could impact on public accounts

Table 7-6 – Public Accounts table – Western route option

**Public Accounts (PA) Table**

	ALL MODES	ROAD	BUS and COACH	RAIL	OTHER
	TOTAL	INFRASTRUCTURE			
<b>Local Government Funding</b>					
Revenue	0	0			0
Operating Costs	4963	4963			
Investment Costs	41504	41504			
Developer and Other Contributions	0				
Grant/Subsidy Payments	0				
<b>NET IMPACT</b>	<b>46468</b> (7)	<b>46468</b>		0	0
<b>Central Government Funding: Transport</b>					
Revenue	0				
Operating costs	0				
Investment Costs	0				
Developer and Other Contributions	0				
Grant/Subsidy Payments	0				
<b>NET IMPACT</b>	<b>0</b> (8)	0		0	0
<b>Central Government Funding: Non-Transport</b>					
Indirect Tax Revenues	4376 (9)	1822	2554		
<b>TOTALS</b>					
<b>Broad Transport Budget</b>	46468 (10) = (7) + (8)				
<b>Wider Public Finances</b>	4376 (11) = (9)				
Notes: Costs appear as positive numbers, while revenues and 'Developer and Other Contributions' appear as negative numbers.					
All entries are discounted present values in 2010 prices and values.					

£m, 2010 values and prices.

Source: TUBA Runs for T1001A compared to T1000D

Table 7-7 - Public Accounts table – Revised Central route option

**Public Accounts (PA) Table**

	ALL MODES	ROAD	BUS and COACH	RAIL	OTHER
	TOTAL	INFRASTRUCTURE			
<b><u>Local Government Funding</u></b>					
Revenue	0				0
Operating Costs	6911				
Investment Costs	42463				
Developer and Other Contributions	0				
Grant/Subsidy Payments	0				
<b>NET IMPACT</b>	<b>49373 (7)</b>		<b>49373</b>	<b>0</b>	<b>0</b>
<b><u>Central Government Funding: Transport</u></b>					
Revenue	0				
Operating costs	0				
Investment Costs	0				
Developer and Other Contributions	0				
Grant/Subsidy Payments	0				
<b>NET IMPACT</b>	<b>0 (8)</b>		<b>0</b>	<b>0</b>	<b>0</b>
<b><u>Central Government Funding: Non-Transport</u></b>					
Indirect Tax Revenues	5841 (9)		2763	3078	
<b>TOTALS</b>					
<b><u>Broad Transport Budget</u></b>	<b>49373 (10) = (7) + (8)</b>				
<b><u>Wider Public Finances</u></b>	<b>5841 (11) = (9)</b>				
Notes: Costs appear as positive numbers, while revenues and 'Developer and Other Contributions' appear as negative numbers.					
All entries are discounted present values in 2010 prices and values.					

£m, 2010 values and prices.

Source: TUBA Runs for T1005 compared to T1000D

**Table 7-8 - Public Accounts table – Revised A10 route option**
**Public Accounts (PA) Table**

	ALL MODES	ROAD	BUS and COACH	RAIL	OTHER
	TOTAL	INFRASTRUCTURE			
<b>Local Government Funding</b>					
Revenue	0				
Operating Costs	6890				
Investment Costs	160680				
Developer and Other Contributions	0				
Grant/Subsidy Payments	0				
<b>NET IMPACT</b>	<b>167571</b> (7)				0 0
<b>Central Government Funding: Transport</b>					
Revenue	0				
Operating costs	0				
Investment Costs	0				
Developer and Other Contributions	0				
Grant/Subsidy Payments	0				
<b>NET IMPACT</b>	<b>0</b> (8)				0 0
<b>Central Government Funding: Non-Transport</b>					
Indirect Tax Revenues	9560 (9)		4996	4564	0
<b>TOTALS</b>					
<b>Broad Transport Budget</b>	167571 (10) = (7) + (8)				
<b>Wider Public Finances</b>	9560 (11) = (9)				
Notes: Costs appear as positive numbers, while revenues and 'Developer and Other Contributions' appear as negative numbers.					
All entries are discounted present values in 2010 prices and values.					

£m, 2010 values and prices.

Source: TUBA Runs for T1004 compared to T1000D

**Table 7-9 - Public Accounts table – Revised Eastern route option**
**Public Accounts (PA) Table**

	ALL MODES	ROAD	BUS and COACH	RAIL	OTHER
	TOTAL	INFRASTRUCTURE			
<b><u>Local Government Funding</u></b>					
Revenue	0				
Operating Costs	4992				
Investment Costs	36937				
Developer and Other Contributions	0				
Grant/Subsidy Payments	0				
<b>NET IMPACT</b>	<b>41929</b> (7)			0	0
<b><u>Central Government Funding: Transport</u></b>					
Revenue	0				
Operating costs	0				
Investment Costs	0				
Developer and Other Contributions	0				
Grant/Subsidy Payments	0				
<b>NET IMPACT</b>	<b>0</b> (8)			0	0
<b><u>Central Government Funding: Non-Transport</u></b>					
Indirect Tax Revenues	4448 (9)		1878	2570	0
<b>TOTALS</b>					
<b>Broad Transport Budget</b>	<b>41929</b> (10) = (7) + (8)				
<b>Wider Public Finances</b>	<b>4448</b> (11) = (9)				
Notes: Costs appear as positive numbers, while revenues and 'Developer and Other Contributions' appear as negative numbers.					
All entries are discounted present values in 2010 prices and values.					

£m, 2010 values and prices.

Source: TUBA Runs for T1002 compared to T1000D

## H.6. Analysis of Monetised Cost and Benefits (AMCB) table

The following tables present the analysis of monetised costs and benefits for the four options.

### Analysis of Monetised Cost and Benefits – Western route option

#### Analysis of Monetised Costs and Benefits

Noise	37
Local Air Quality	75 (13)
Greenhouse Gases	887 (14)
Journey Quality	25538 (15)
Physical Activity	4148 (16)
Accidents	424 (17)
Economic Efficiency: Consumer Users (Commuting)	10058 (1a)
Economic Efficiency: Consumer Users (Other)	13174 (1b)
Economic Efficiency: Business Users and Providers	2788 (5)
Wider Public Finances (Indirect Taxation Revenues)	-4376 - (11) - sign changed from PA table, as PA table represents costs, not benefits
Present Value of Benefits (see notes) (PVB)	52753 $(PVB) = (12) + (13) + (14) + (15) + (16) + (17) + (1a) + (1b) + (5) - (11)$
Broad Transport Budget	46468 (10)
Present Value of Costs (see notes) (PVC)	46468 $(PVC) = (10)$
OVERALL IMPACTS	
<b>Net Present Value (NPV)</b>	6285
<b>Benefit to Cost Ratio (BCR)</b>	1.135

Note : This table includes costs and benefits which are regularly or occasionally presented in monetised form in transport appraisals, together with some where monetisation is in prospect. There may also be other significant costs and benefits, some of which cannot be presented in monetised form. Where this is the case, the analysis presented above does NOT provide a good measure of value for money and should not be used as the sole basis for decisions.

£m, 2010 values and prices.

Source: TUBA Runs for T1001A compared to T1000D

## Analysis of Monetised Cost and Benefits – Revised Central route option

### Analysis of Monetised Costs and Benefits

Noise	59	(12)
Local Air Quality	71	(13)
Greenhouse Gases	1356	(14)
Journey Quality	25090	(15)
Physical Activity	1478	(16)
Accidents	378	(17)
Economic Efficiency: Consumer Users (Commuting)	13772	(1a)
Economic Efficiency: Consumer Users (Other)	11975	(1b)
Economic Efficiency: Business Users and Providers	7662	(5)
Wider Public Finances (Indirect Taxation Revenues)	-5841	- (11) - sign changed from PA table, as PA table represents costs, not benefits

Present Value of Benefits (see notes) (PVB)	55999	$(PVB) = (12) + (13) + (14) + (15) + (16) + (17) + (1a) + (1b) + (5) - (11)$
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Broad Transport Budget	49373	(10)
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Present Value of Costs (see notes) (PVC)	49373	$(PVC) = (10)$
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#### OVERALL IMPACTS

<b>Net Present Value (NPV)</b>	6626	NPV=PVB-PVC
<b>Benefit to Cost Ratio (BCR)</b>	1.134	BCR=PVB/PVC

Note : This table includes costs and benefits which are regularly or occasionally presented in monetised form in transport appraisals, together with some where monetisation is in prospect. There may also be other significant costs and benefits, some of which cannot be presented in monetised form. Where this is the case, the analysis presented above does NOT provide a good measure of value for money and should not be used as the sole basis for decisions.

£m, 2010 values and prices.

Source: TUBA Runs for T1005 compared to T1000D

## Analysis of Monetised Cost and Benefits – Revised A10 route option

### Analysis of Monetised Costs and Benefits

Noise	19	(12)
Local Air Quality	43	(13)
Greenhouse Gases	2326	(14)
Journey Quality	18951	(15)
Physical Activity	7983	(16)
Accidents	250	(17)
Economic Efficiency: Consumer Users (Commuting)	39266	(1a)
Economic Efficiency: Consumer Users (Other)	21647	(1b)
Economic Efficiency: Business Users and Providers	22743	(5)
Wider Public Finances (Indirect Taxation Revenues)	-9560	- (11) - sign changed from PA table, as PA table represents costs, not benefits
Present Value of Benefits (see notes) (PVB)	103669	$(PVB) = (12) + (13) + (14) + (15) + (16) + (17) + (1a) + (1b) + (5) - (11)$
Broad Transport Budget	167571	(10)
Present Value of Costs (see notes) (PVC)	167571	$(PVC) = (10)$
OVERALL IMPACTS		
<b>Net Present Value (NPV)</b>	-63902	NPV=PVB-PVC
<b>Benefit to Cost Ratio (BCR)</b>	0.619	BCR=PVB/PVC

Note : This table includes costs and benefits which are regularly or occasionally presented in monetised form in transport appraisals, together with some where monetisation is in prospect. There may also be other significant costs and benefits, some of which cannot be presented in monetised form. Where this is the case, the analysis presented above does NOT provide a good measure of value for money and should not be used as the sole basis for decisions.

£m, 2010 values and prices.

Source: TUBA Runs for T1004 compared to T1000D

## Analysis of Monetised Cost and Benefits – Revised Eastern route option

### Analysis of Monetised Costs and Benefits

Noise	16	(12)
Local Air Quality	10	(13)
Greenhouse Gases	887	(14)
Journey Quality	0	(15)
Physical Activity	-288	(16)
Accidents	64	(17)
Economic Efficiency: Consumer Users (Commuting)	13174	(1a)
Economic Efficiency: Consumer Users (Other)	6535	(1b)
Economic Efficiency: Business Users and Providers	7746	(5)
Wider Public Finances (Indirect Taxation Revenues)	-4448	- (11) - sign changed from PA table, as PA table represents costs, not benefits
Present Value of Benefits (see notes) (PVB)	23697	$(PVB) = (12) + (13) + (14) + (15) + (16) + (17) + (1a) + (1b) + (5) - (11)$
Broad Transport Budget	41929	(10)
Present Value of Costs (see notes) (PVC)	41929	$(PVC) = (10)$
OVERALL IMPACTS		
<b>Net Present Value (NPV)</b>	-18231	NPV=PVB-PVC
<b>Benefit to Cost Ratio (BCR)</b>	0.565	BCR=PVB/PVC

Note : This table includes costs and benefits which are regularly or occasionally presented in monetised form in transport appraisals, together with some where monetisation is in prospect. There may also be other significant costs and benefits, some of which cannot be presented in monetised form. Where this is the case, the analysis presented above does NOT provide a good measure of value for money and should not be used as the sole basis for decisions.

£m, 2010 values and prices.

Source: TUBA Runs for T1002 compared to T1000D

# Appendix I. Communications plan

Audience	Communication Aims	Channels and Approach	Owner
Manage Closely			
Executive Board	<p>Detailed understanding and shared support for programme aims; detailed understanding of programme elements to reach consensus, ensure co-ordinated approach</p> <p>Advocacy</p>	<p>Executive Board meetings: at least four per year</p> <p>Informal Board briefings: monthly</p> <p>Board/Joint Assembly workshops: bi-monthly</p> <p>Officer meetings and briefings</p> <p>Visits: issue/project-specific</p> <p>Officer reports: meeting cycle</p> <p>Internal e-mail update: weekly</p>	CEO, Transport Director, GCP Core Team, Project Team Leader
Joint Assembly	<p>Understanding and shared support for programme aims</p> <p>Clear on group/individual roles and responsibilities</p> <p>Shared information</p> <p>Advocacy programme/elements</p>	<p>Joint Assembly meetings: at least four per year</p> <p>Executive Board meetings</p> <p>Meeting papers</p> <p>Informal Board/Joint Assembly workshops: bi-monthly</p> <p>Officer briefings, meetings, visits: issue/project specific</p> <p>Regular Programme Director meetings and briefings</p> <p>Weekly e-mail update</p>	CEO, Transport Director GCP Core Team, Project Team Leader
Parish Councils	<p>Understanding and support for wider programme</p> <p>Acceptance/support for project; group/individual roles responsibilities</p> <p>Benefit/impact on constituencies</p> <p>Act as two-way conduit for GCP vision and public sentiment</p> <p>Participation in consultation</p>	<p>South Cambs Parish Council Forum: annual</p> <p>South Cambs parish e-bulletin: monthly</p> <p>Information pack circulated for consultations</p> <p>Officer briefing at start of consultations</p> <p>Attendance at Parish Council meetings as required</p>	Transport Director, Team Leader, Project Manager
Bus Operators	<p>Awareness and understanding of GCP wider aim</p> <p>Their contribution to a functioning and competitive transport network for Greater Cambridge</p> <p>Risks/opportunities for service delivery – short, medium and long-term</p> <p>Shared information</p> <p>Public support for improved travel and services in GCP initiatives</p>	<p>Planned meetings/calls: at least bi-monthly</p> <p>Workshop attendance</p> <p>Reports and papers</p> <p>Executive Board /Joint Assembly meetings</p>	Transport Director, Team Leader, Project Manager
Combined Authority	<p>Public support for improved travel and services in Greater Cambridge</p> <p>Partnership initiatives</p>	<p>CEO and Transport Director meeting</p>	CEO, Transport Director

Audience	Communication Aims	Channels and Approach	Owner
Councillors (local)	Understanding and support for wider programme Acceptance/support for project Group/individual role responsibilities Benefit/impact on constituencies Act as two-way conduit for GCP vision and public sentiment	Full Council/Executive Committee reports Annual all member GCP briefing – City/South Cambs possible by an annual conference Campaign/project specific member briefings Reports/collateral Intranet/website GCP email updates Executive Board /Joint Assembly meetings	Joint Assembly Project Team Leader
Councillors (wider)	Awareness and understanding of GCP wider aim Act as two-way conduit for GCP vision and public sentiment	Full Council/Executive Committee reports Annual all member GCP briefing – City/South Cambs possible by an annual conference Campaign/project specific member briefings Reports/collateral Intranet/website GCP email updates Executive Board /Joint Assembly meetings	Project Manager, Communications Manager
GCP Partners	Awareness and understanding of GCP wider aim Act as two-way conduit for GCP vision and public sentiment.	Full Council/Executive Committee reports Annual all member GCP briefing – City/South Cambs possible by an annual conference Campaign/project specific member briefings Reports/collateral Intranet/website GCP email updates Executive Board /Joint Assembly meetings	Project Manager, Communications Manager
GCP Staff	Detailed understanding, support and advocacy of wider programme and partnership Information to effectively carry out role/support successful programme delivery Awareness and management of programme issues/risks	Fortnightly team meetings Programme board meetings One-to-one manager meetings Induction, training and appraisal Away days/visits Weekly emails GCP Manager meetings GCP Transport Board GCP full team briefing Executive Board / Joint Assembly meetings	CEO, Transport Director, Project Manager, Communications Manager

Audience	Communication Aims	Channels and Approach	Owner
Highways England	Detailed understanding and shared support for programme aims	Specific meetings as required	Transport Director, Project Team Leader, Project Manager
Landowners	Awareness and understanding of GCP wider aims Detailed understanding of the project Engagement in consultation	Specific meetings as required	Project Team Leader; Project Manager
'Place based' Engagement	Awareness and understanding of wider GCP aims Detailed understanding of the project Engagement in consultation	'Place based' engagement even during consultation Information pack circulated for consultations	Transport Director, Project Team Leader, Project Manager
Media	Awareness and understanding of wider GCP aims Detailed understanding of the project Amplifying GCP key messages and facilitating public understanding, engagement and feedback Acting as a credible third party information source Collaborative opportunities and advertising	Regular meetings / calls with key journalists Press releases, interview / photo opportunities and media launches Media briefings Board / Assembly meetings Community Meetings	Board members Communications Manager Communications Team / Officers Communications Group
Residents Associations	Awareness and understanding of wider GCP aims Detailed understanding of the project	'Place based' engagement even during consultation Information pack circulated for consultations GCP email updates	Project Manager, Community Engagement Manager Communications Manager

Audience	Communication Aims	Channels and Approach	Owner
Technical Consultants	<p>Understanding of wider programme aims</p> <p>Their contribution to successful delivery</p> <p>Programme, deadline and reporting requirements</p> <p>Understanding, identifying and reporting key risks and issues</p> <p>Effectively representing City Deal values to stakeholders</p>	<p>Procurement documentation and contracts</p> <p>Government Frameworks – TAG</p> <p>City Deal fact-file / information pack</p> <p>Project Initiation Documents</p> <p>Project meetings</p> <p>Website</p> <p>Executive Board / Joint Assembly meetings</p>	CEO, Transport Director, Project Manager

### Keep Satisfied

Business Organisations	<p>Awareness / Support for wider GCP aim of sustainable economic growth and quality of life</p> <p>Long-term effect on business sustainability and growth in Waterbeach, Cambridge and Greater Cambridge area</p> <p>Benefit / impact on recruitment, retention, housing and quality of life</p> <p>Impact / opportunities customers/clients/service users</p> <p>Benefit / impact on distribution channels</p> <p>Opportunities for sponsorship / partnership</p> <p>Key GCP business contacts/conduits</p> <p>Project-specific detailed information as required</p>	<p>Joint Assembly participation</p> <p>Geographically targeted business briefings/events during consultation</p> <p>GCP briefing – direct or within exiting meeting cycle – at least annually</p> <p>Website, social media</p> <p>Local business and trade media</p> <p>Executive Board / Joint Assembly meetings</p>	GCP Core Team; Project Manager, Communications Manager
Environmental Groups	<p>Awareness and understanding of wider GCP programme</p> <p>Engagement, advice and support for planning and transport projects</p> <p>Engagement in consultations</p>	<p>Planned calls/meetings – at least biannual</p> <p>Shared documents</p> <p>Executive Board / Joint Assembly Meetings</p> <p>Consultation engagement information packs</p> <p>Project Manager meetings</p>	Project Manager, Communications Manager

Audience	Communication Aims	Channels and Approach	Owner
MPs	<p>Understanding and support for wider programme aims GCP narrative, key facts, figures and progress Advocates for sustainable economic growth in Greater Cambridge Awareness, understanding and support for discrete workstreams, benefits/impact on constituents Local/Government champions of discrete projects/innovations, alignment and interdependency with local, regional, national initiatives Policy requirements Key GCP contacts and narrative</p>	<p>Greater Cambridge MPs briefings In person/telephone briefings – Issue/project specific Conferences Community forums Site visits Research/policy publications Media events/releases Local, national, trade media Website/social media Executive Board /Joint Assembly meetings</p>	Board members City Deal core team
Planning	<p>Awareness of GCP programme Access to relevant information Advice and engagement on consultations</p>	<p>Executive Board / Joint Assembly meetings Project Board Project Team liaison GCP email updates</p>	CEO, Transport Director, Strategic Communications Manager, Team Leader, Project Manager, Communications Manager

### Keep Informed

Cambridge Medical Community	<p>Awareness of wider GCP aim of sustainable economic growth and quality of life Awareness of GCP programme; access to relevant information; advice and engagement on consultations</p>	<p>Cambridge Biomedical Campus and Papworth Briefings as part of consultation Mention in the CBC weekly communications update</p>	CEO, Transport Director, Project Manager, Community Engagement Manager Communications Manager
Cambridge North Businesses	<p>Awareness of wider GCP aim of sustainable economic growth and quality of life Awareness of GCP programme; access to relevant information; advice and engagement on consultations</p>	<p>CEO, Transport Director, CNW Development Director, Head of Infrastructure based at WC site</p>	CEO Transport Director, Team Leader Project Manager
Commuters	<p>Awareness of wider GCP aim of sustainable economic growth and quality of life Detailed understanding of project Engagement in consultation</p>	<p>Media, social media, Parish Councils and Residents' Associations, consultation events, correspondence</p>	Project Manager, Communications Manager

Audience	Communication Aims	Channels and Approach	Owner
Local Businesses	<p>Awareness of wider GCP aim of sustainable economic growth and quality of life</p> <p>Long-term effect on bottom line/business sustainability and growth</p> <p>Benefit/impact on employees – recruitment, retention, housing and quality of life</p> <p>Impact/opportunities for customers/clients/service users</p> <p>Benefit/impact on distribution channels</p> <p>How to get involved and influence decision-making for business benefits</p> <p>Key business contacts/conduits</p> <p>Project-specific detailed information as required</p> <p>Gain their views/input on growth/project plans</p>	<p>CEOs</p> <p>Business Networks</p> <p>Business consultation events</p> <p>Industry events</p> <p>Regular newsletter - LEP</p> <p>Joint Assembly participation</p> <p>Website, social media</p> <p>Local, business and trade media</p> <p>Executive Board /Joint Assembly meetings</p>	Programme Board, Project Manager, Communications Manager
Local Campaign Groups	<p>Awareness and understanding of GCP wider aims.</p> <p>Detailed understanding of project.</p> <p>Engagement in consultation</p>	<p>Project Manager and Communications Manger meetings</p> <p>'Place based' Engagement event during consultation</p> <p>Engagement events</p> <p>GCP email updates</p>	Transport Director, Project Manager, Communications Manager
Local Residents	<p>Awareness, understanding and acceptance/support for sustainable economic growth in Greater Cambridge</p> <p>Awareness and understanding of the wider benefits of the GCP programme</p> <p>Feel positive to be part of a globally successful city region</p> <p>Knowledge of how to get involved and where to find information</p> <p>Scheme-specific information as it benefits/impacts on them</p>	<p>Residents'/community groups and Parish Forum and Councils</p> <p>Regular residents' newsletters</p> <p>Website and social media</p> <p>GCP e-bulletin (monthly)</p> <p>Community event or webchat (at least monthly)</p> <p>Board/Assembly meetings – at least 9 p/year</p> <p>Consultations/surveys – issue/project-specific</p> <p>Community workshops, Local Liaison Forum</p> <p>Focus groups – direct or via third party organisations and/or group – project specific</p> <p>E.g. SCDC Youth Council; Independent Advisory Groups</p> <p>Local, regional media</p> <p>Paid-for advertising</p> <p>NGOs/membership</p> <p>Collaborative community initiatives</p>	Board/Assembly members GCP core team Communications managers Project managers/ Communications Officers

Audience	Communication Aims	Channels and Approach	Owner
Park and Ride	Awareness and understanding of GCP wider aims. Detailed understanding of project Engagement in consultation	Project manager meetings with Park and Ride Service Manager	Project Manager
Partner Communications Teams	Detailed understanding and shared support for programme aims; detailed understanding of programme, ensure co-ordinated approach Advocacy Detailed understanding of project Facilitation of consultation through channels	Community Engagement Manager/Communications Manager meetings, emails with South Cambridgeshire Communications Manager and City Communications Manager	Community Engagement Manager, Communications Manager
Transport User Groups	Awareness and understanding of GCP wider aims. Detailed understanding of project Facilitation of consultation through channels to user group members Engagement in consultation	Project Manager meetings Focus group during consultation Consultation public events GCP email updates	Project Manager, Communications Manager
<b>Monitor</b>			
Emergency Services	Awareness and understanding of broader GCP programme Benefit/impact on services, staff and service users of GCP schemes Dissemination of GCP to staff Engagement and advice in consultations	Planned calls/meetings – at least annually Consultation events Executive Board /Joint Assembly meetings	GCP core team Transport Director
Nearby Councils	Awareness and understanding of broader GCP programme Benefit/impact on services, staff and service users of GCP schemes	Executive Board /Joint Assembly meetings Project Manager meetings	Transport Director
New development potential residents	Overall purpose and benefits of GCP investment for them Scheme information, timings, impacts How they can get involved/have their say on proposals and scheme development	Media Social media Via developer updates and promotions Consultation public events	Project Manager, Communications Manager

Audience	Communication Aims	Channels and Approach	Owner
Schools	Overall purpose and benefits of GCP investment for them Scheme information, timings, impacts How they can get involved/have their say on proposals and scheme development	Information via school/college email Parentmail Cambridge sixth form colleges leaflet distribution Media Focus group during consultation	Project Manager, Communications Manager
Youth Groups	Overall purpose and benefits of City Deal investment for them Scheme information, timings, impacts How they can get involved/have their say on proposals and scheme development	Focus group during consultation Information via group organisers	Project Manager, Community Engagement Manager, Communications Manager
City of Ely Council	Overall purpose and benefits of GCP investment for South Cambs/parishes Understanding/acceptance/support for schemes impacting on local community Scheme information, timings, impacts How to get involved/have their say on proposals and scheme development	GCP e-bulletin – monthly 'Place based' Engagement event during consultation Stakeholder e-news – project specific Events – Consultations, site visits, media calls Local media Website, social media Geographically-targeted briefings, webchats – Quarterly Executive Board /Joint Assembly meetings	

## Appendix J. Risk register

Project Risk Ref No.	Project Risk Category	Project Stage	Project Risk Description	Risk Mitigation Measures	Residual Risk Rating			Risk Mitigation Owner
					Likelihood	Impact	Score	
1	City Deal Governance	KD 1-3	There is a risk that the shortlisted options will not be considered politically acceptable	Regular engagement will take place with Members and GCP Executive Board / Assembly	2	2	4	GCP PM
2	External Stakeholders	KD 1-3	There is a risk that the shortlisted options will not be supported by the public	Regular engagement will take place with local residents through both formal and informal consultation. Ensure that local residents receive detailed information about the scheme which covers the benefits and mitigation measures. Ensuring that early public engagement takes place to get buy-in from the public for the principle of enhanced public transport route. The first round of public engagement will give very broad outline for potential routes that new public transport links to give the public a broad steer regarding the proposed options. Consultation will take place to allow the public to submit their views on the scheme and public comments will	3	3	9	GCP PM
3	CCC Resources	KD 1-2	There are insufficient resources to deliver the work	Engagement by senior officers in programme and delivery	2	2	4	GCP PM
4	Statutory Process	KD 2-4	Opponents to the scheme challenge it on procedural grounds and secure a judicial review of the scheme	Ensure that all statutory processes and legal requirements are followed to ensure that there is no scope for judicial review	3	4	12	GCP PM
5	Consultation/Comms	KD 2-4	Local media adopt a negative stance towards the scheme and runs stories that challenge its credibility	The communications strategy aim to ensure that local media coverage is balanced or positive and key messages get out	4	2	8	GCP PM
6	Consultation/Comms	KD 2-4	Responses to the consultation are largely negative and the scheme lacks support among public and private sector organisations	The communications strategy aim to ensure that public and all stakeholders have access to information about the benefits of the scheme from an early stage. Ensure that consultation is effective in terms of scope and reach	3	3	9	GCP PM
7	Statutory Process	KD 2-4	Failure to appropriately consider obtain planning consent / appropriate consents	Follow best practice and observe all statutory procedures in preparing any planning consent applications, allocate adequate time and devote sufficient resources to preparation	2	4	8	GCP PM
8	Scheme Development	KD 2-4	Shortlisted and preferred options found to be unaffordable	The preferred and shortlisted options will be rigorously assessed and costed along with a robust business case.	3	3	9	Service Provider
9	Scheme Development	KD 2-4	Outturn costs are greater than expected	Cost estimates will be rigourously calculated along with a robust business case	3	3	9	Service Provider
11	CCC Resources	KD 2-4	The business case for the scheme will be found to be unviable	Follow best practice and observe all statutory procedures in preparing the business case and devote sufficient resources to preparing the case.	2	5	10	GCP PM
12	Scheme Development	KD 2-4	Environmental issues prevent the preferred scheme from proceeding	An environmental assessment will be undertaken to identify any environmental issues. Environmental mitigation measures will be programmed to limit or avoid environmental harm. Once basic preferred option has been established, further detailed assessments are conducted.	3	4	12	Supply Chain other
13	Project Funding	KD 2-4	The scheme fails to secure sufficient funding or that the funding available is insufficient	Maintain good relationships with funding bodies and submit detailed and rigorous funding bids. Adequate resources will be devoted to maintaining funding bids. Continue to ensure that the City Deal funding is still available throughout project. Ensure S106 funds are available for this project.	2	4	8	GCP PM
14	Scheme Development	KD 2-4	Costs of utilities alterations or diversions exceeds the budget allocation	Scutinise the utility allowance and make sure they are sensible. Conduct a thorough survey of utilities on the route and consult with any utilities companies	2	4	8	Supply Chain other
15	Scheme Development	KD 2-4	Topographical or other surveys highlight significant issues	Conduct preliminary or desktop surveys to ensure that no major unforeseen issues emerge when the full survey is undertaken. Topographical surveys will be undertaken initially with other surveys as appropriate as the scheme progresses.	3	3	9	Service Provider

16	External Stakeholders	KD 2-4	Failure to secure third party land for the project	If possible, align schemes within County land. Identify and begin negotiations with third party landowners at the earliest possible opportunity in order to agree a purchase. If necessary, and as a last resort, the promoters will remind third party land owners of their intention the use CPO powers to secure the land required.	3	3	9	Supply Chain other
17	External Stakeholders	KD 2-4	Interface issues with Third Parties (e.g. developers) cause programme delay and/or increased costs	The communications strategy will also include third parties with appropriate engagement strategies developed. Appoint a property consultant to negotiate with developers	3	3	9	Supply Chain other
18	Project Management	KD 2-4	Interface issues with other GCP / CPCa schemes cause programme delay and/or increased costs	High level programme management will manage out conflicts	2	4	8	Programme Board
19	Scheme Development	KD 2-4	The options presented contradict the requirements of the Local Plans. Uncertainties in Local Plan cause difficulties in project planning.	Ensure that the schemes are consistent with the latest Local Plans as well as ensuring that appropriate development links are considered.	4	2	8	GCP PM
20	Scheme Development	KD 2-4	Modelling work undertaken through to outline business case is not appropriate	Develop modelling strategy for the project that sets out a specification required and methodology to be used. Regularly engage with CCC Modelling lead on CSRM and ensure that the consultants are maintaining agreed standards and controls on any modelling work.	2	4	8	Service Provider
21	Project Funding	KD 3-4	Delivery Options through to construction and operations are not properly considered	Develop an appropriate delivery programme aligning with a procurement strategy for the work. This will be consistent with other emerging GCP schemes whilst considering existing delivery frameworks.	2	2	4	GCP PM
22	External Stakeholders	KD 2-4	It proves not possible to reach an agreement with Cambridge Science Park / Urban + Civic / RLW over bus access	Maintain regular contact with stakeholders / land owners and reach a clarity of understanding in terms of what they need for their development, and what the project team need to provide a good transport link.	3	3	9	GCP PM
23	Scheme Development	KD 2-4	Cost and difficulty of providing a route under or over the A14 near Milton Interchange is prohibitive or causes significant delay	Examine early to establish need for alternative options	3	4	12	Supply Chain other
24	Scheme Development	KD 3-5	Unable to secure agreement with bus operators to service new routes and / or park and ride	Early engagement with bus companies	2	3	6	GCP PM
25	Project Funding	KD 2-4	There is insufficient time in the programme to produce a robust business case	Ensure adequate time is allocated in the programme for preparation of the business case, and data requirements are flagged up early to ensure that all data required is available.	1	2	2	GCP PM
26	Statutory Process	KD 3-4	There is insufficient time in the programme to obtain planning consents	Early discussions with Planning Authority to understand key issues and evidence base required.	2	2	4	GCP PM
27	Statutory Process	KD 3-5	Statutory process stalls due to legal and issues with use of TWA/DCO	Continuous dialogue with DfT. Discussion with programme leads in relation with the earlier projects taking place.	3	3	9	GCP PM
28	Scheme Development	KD 3-5	Project is predicated on immature technology which takes time/cost to develop	Review state of the art technology areas, and establish maturity at early stage. Avoid relying on emerging technologies unless risk can be managed. Design transitway to accommodate 'traditional vehicles' as well as future technologies.	3	3	9	GCP PM
29	Supply Chain	KD 3-5	Supply chain is overstretched and fails to meet quality/time/costs targets	Effective management and a pro-active approach	2	2	4	GCP PM
30	Scheme Development	KD 2-5	Combined Authority does not support proposals and further options work is required	Work closely with the Combined Authority. Design project around supporting CAM sub-strategy. Assess project against CAM sub-strategy objectives.	3	3	9	Executive Board
31	Scheme Development	KD 2-5	Ongoing work on the dualling of the A10 within the Study area to improve access to Cambridge for vehicles erodes the likely benefits of any public transport scheme on the corridor	The Business Case needs to set out how Public Transport still needs to be improved even with the A10 dualling, therefore our proposed interventions are required.	3	3	9	Executive Board
32	Project Management	KD 2-3	Delay in defining the do-minimum	To be defined and agreed at AMR stage	2	4	8	GCP PM
33	Scheme Development	KD 4-5	Coronavirus changes the public's view on the usage of Public Transport and political aspirations.	To monitor the progress of the recovery post Covid-19 linking to work with GCP that will undertake on a programme wide basis.	2	3	6	GCP PM

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## Waterbeach to Cambridge: Summary Report of Consultation Findings

v3

April 2021

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## Executive Summary

Between 19<sup>th</sup> October and 14<sup>th</sup> December 2020 the Greater Cambridge Partnership (GCP) held a consultation on a new dedicated off-road public transport and active travel route between Waterbeach and Cambridge.

The key findings of this piece of work are:

- Just over half of respondents supported the proposal to build a new dedicated transport route and associated active travel route between the new town at Waterbeach and Cambridge.
- Three of the four proposed routing options were opposed by over two thirds of respondents.
- Just under half of respondents supported the western route.
- Around half of respondents indicated that Waterbeach village, Waterbeach new town and the relocated Waterbeach rail station should be given ‘somewhat high’ or ‘very high’ priority on the route.
- Respondents gave a low priority indication to the proposal of creating faster journeys by missing out locations between the Waterbeach new town and Cambridge.
- The majority of people thought that the scheme would have a negative environmental impact.
- A great deal of detailed comments were received, from which the most common areas of discussion were:
  - Concerns about the loss of housing/personal property
  - Concerns about negatively impacting the environment
  - Further improvements to active travel in the area
  - Use of existing infrastructure, and the linkages with the potential dualling of the A10 route
  - Concerns about connections to and for Waterbeach, and loss of existing bus services
- Responses were also received on behalf of 32 different groups or organisations. All of the responses from these groups will be made available to Board Members in full and will be published alongside the results of the public consultation survey.

A petition was received from the Cambridge Independent newspaper, that called on GCP not to demolish homes in Glebe Road/Cambridge Road in Waterbeach when establishing a new public transport route from Waterbeach to Cambridge. 1,661 signatures were received to this petition.

## Methodology Summary

The consultation adopted a multi-channel approach to promote and seek feedback including through traditional and online paid-for, owned and earned media, and through the wide-spread distribution of around 6,000 consultation Booklets.

In light of coronavirus restrictions, 8 online briefings were held, 1 one to one session, 4 parish council meetings, 3 resident meetings and a pre-launch briefing with local district and county councillors. In addition, a social media campaign was undertaken, including a Facebook live session with over 50 questions submitted. There were over 3,000 visitors to the dedicated website and over 1,000 documents (maps, information, and copies of the booklet) downloaded. All parish councils and school in the study area were contacted. Adverts were placed in local newspapers including the Cambridge News, Cambridge Independent and Ely Standard. Adverts were also placed at the Milton Park and Ride site and on Ely, Cambridge North and Cambridge railway stations.

Quantitative data was recorded through a formal consultation questionnaire (online and hard-copy) with 571 complete responses recorded in total.

A large amount of qualitative feedback was also gathered via the questionnaire, via email and social media, all of which have also been analysed.

**This report summarises the core 571 online and written responses to the consultation survey and the 72 additional written responses received.**

## Key findings

### Support for the proposal

- **Just over half (52%) of respondents supported the proposals and 36% opposed.**
- Respondents who usually travel in the area by cycle were more supportive of the proposals (62% support, 29% oppose), along with those whose usual destination is North Cambridge (64% support, 29% oppose) or South Cambridge (62% support, 32% oppose).

### Support for the four proposed options for the scheme

- **Three of the four proposed routing options were strongly opposed by over half of respondents.**
  - 75% strongly opposed or opposed the central route;
  - 70% strongly opposed or opposed the A10 route;
  - 71% strongly opposed or opposed the eastern route.
- **Just under half of respondents (48%) supported the western route.**

### Priority of route

- Around half of respondents indicated that Waterbeach village (50%), Waterbeach new town (50%) and the relocated Waterbeach rail station (49%) should be given ‘somewhat high’ or ‘very high’ priority on the route.
- Just over a third of respondents (34%) indicated that Milton village should be given ‘somewhat high’ or ‘very high’ priority on the route.
- Over half of respondents (53%) indicated that low priority should be given to the proposal of creating faster journeys by missing out some locations between the Waterbeach new town and Cambridge.

### Intention to use the route

- Just under a fifth (18%) indicated that they would use the route daily.
- A fifth of respondents (21%) said that they would never use the travel route, and a further fifth (20%) indicating that they would use the route less than once a month.
- Over two fifths of respondents indicated they would be cycling on the route (42%) and over a quarter indicated they would use a car (27%)

### Environmental Impacts

- **The majority of people thought that the scheme would have a negative environmental impact.**
  - 76% thought that the Central route would have a negative impact
  - 73% thought that the Eastern route would have a negative impact
  - 67% thought that the A10 route would have a negative impact
  - 55% thought that the Western route would have a negative impact.

## Introduction

### Background

The Waterbeach and Cambridge project is a new public transport routes proposed by the Greater Cambridge Partnership. It will be one of four routes around the city linking Cambridge with the surrounding area. All have the same aim: to avoid congestion and provide more reliable journeys into and out of Cambridge by public transport, walking and cycling.

The Waterbeach to Cambridge project is looking at access to and from the city from the north. The A10 from Waterbeach to Cambridge suffers from significant congestion at peak times, particularly at the Cambridge end, meaning that people can be sitting in traffic for lengthy periods.

Planned or potential large developments in the area, such as Waterbeach New Town and Science Park/North East Cambridge expansion, will place considerable additional pressure on the corridor causing further congestion.

The Waterbeach to Cambridge project manages this with a new public transport route to avoid congestion and make quicker journeys, into and out of Cambridge from the north of the county by public transport, walking and cycling.

Features being considered include:

- Segregated high quality public transport options;
- On road public transport priority options including bus lanes;
- Integration with the CAM;
- Use of technology to better manage traffic;
- Connections for sustainable modes across and between existing commercial properties and developments as well as to, from and between new developments;
- Additional or relocated Park & Ride / interchange capacity;
- Cycle and pedestrian links including both strategic and local options (and consideration of other non-motorised users);
- Measures to physically integrate into other proposals such as the Milton Road project, the Chisholm Trail and the Waterbeach Greenways
- Co-ordination with GCP's City Access Project – which builds on the recommendations of the Greater Cambridge Citizen's Assembly to develop measures to step-up sustainable transport connections through Cambridge's historic heart.

## Consultation and Analysis Methodology

### Background

The consultation strategy for this stage of the Waterbeach to Cambridge proposals was designed by the Greater Cambridge Partnership communications team with input from the County Council's Research Team. During the design process reference was made to the County Council's Consultation Guidelines, in particular taking into account the following points:

- The consultation is taking place at a time when proposals are at a formative stage (with a clear link between this consultation round and the previous consultation);
- Sufficient information and reasoning is provided to permit an intelligent response from the public to the proposals;
- Adequate time given for consideration and response given the significance of the decision being taken;
- Plans in place for a full analysis of the results and for these to be presented at a senior level to enable the consultation to be conscientiously taken into account in finalising any proposals.

### Consultation Strategy

#### Identification of the Audience

The consultation was open for anyone to contribute to. The key target audience were individuals or organisations that are interested because they live in the community the scheme may affect, for example interested parties, potential users of the scheme, local businesses, bus operators, developers, landowners and local action groups. Government agencies and local authorities. For example district and parish councils, Environment Agency, Highways England and Natural England. This understanding of the audience was then used as a basis upon which to design the consultation materials, questions and communication strategy.

#### Design of Consultation Materials

It was identified that the audience for the consultation required a great deal of detailed information upon which to base their responses. So whilst the key consultation questions were relatively straight forward (people were asked to express how far they supported the proposals to build a new dedicated public transport route and associated active travel route between the new town at Waterbeach and Cambridge, how far they supported each of the four proposed routing options, how high a priority a range of options for the routes were, how often they would use any part of the dedicated off-road public transport and active

travel route, and what they felt the environmental impact of each of the four proposed routing options were) a 7 page information document was produced and supplemented with additional information available online.

This document explained the Greater Cambridge Partnership's strategy and the time-scales to which it was working and discussed the reasons why a new public transport and active travel route was being developed between Waterbeach and Cambridge. It also provided detailed maps and information on each of the options to enable residents to compare the pros and cons for each element.

#### Design of Consultation Questions

The consultation questions themselves were designed to be neutral, clear to understand and were structured to enable people to comment on all the key areas of decision making. This was done in order to help people to understand and comment on both the Greater Cambridge Partnership's strategy and the local implications of this.

For the first half of the consultation survey there was a focus on questions relating to the options for the Waterbeach to Cambridge scheme. Questions then moved on to capture the detail of why respondents were choosing particular options. The second half of the survey focused on multiple choice questions relating to respondents' journeys and personal details, allowing measurement of the impact of the Waterbeach to Cambridge scheme on various groups.

The main tools for gathering comments were an online survey and a paper return survey. It was recognised that online engagement, whilst in theory available to all residents, could potentially exclude those without easy access to the internet. Therefore the paper copies of the questions were available on request. Other forms of response e.g. detailed written submissions were also received and have been incorporated into the analysis of the feedback.

The survey included the opportunity for 'free text' responses and the analysis approach taken has enabled an understanding of sentiment as well as the detailed points expressed.

#### Diversity and Protected Characteristics

A complete set of questions designed to monitor equality status (gender, ethnicity, sexuality) were not included within the direct questions on the survey. This was because previous feedback from the public has suggested that these questions were overly intrusive given the context of providing comments on the strategic aspects of a new transport route.

Previous consultation has highlighted the importance of taking into account accessibility at the detailed scheme design stage.

It was decided therefore to only collect information on matters pertinent to travel, that is to say age and employment status. A free text option provided opportunity for respondents to feedback on any issues they felt may impact on protected groups.

## Analysis

The strategy for analysis of the consultation was as follows:

- An initial quality assurance review of the data was conducted and a review with the engagement team carried out to identify any issues or changes that occurred during the consultation process.
- A set of frequencies were then produced and checks made against the total number of respondents for each question and the consultation overall. A basic sense check of the data was made at this point with issues such as checking for duplicate entries, data entry errors and other quality assurance activities taking place.
  - **Duplicate Entries.** Measures were in place to avoid analysing duplicated entries. The online survey software collects the timestamp, login details (where a respondent has chosen to sign up to the online survey platform), and a unique user number for anonymous respondents based on cookie data of entries so patterns of deliberate duplicate entries can be spotted and countered.
  - **Partial Entries.** The system records all partial entries as well as those that went through to completion (respondent hit submit). These are reviewed separately and in a few cases, where a substantial response has been made (as opposed to someone just clicking through) then these are added to the final set for analysis.
  - Within the analysis a search for any unusual patterns within the responses was carried out, such as duplicate or ‘cut and paste’ views being expressed on proposals.
- Closed questions (tick box) are then analysed using quantitative methods which are then presented in the final report through charts, tables and descriptions of key numerical information.
- Data was also cross-tabulated where appropriate, for example, to explore how respondents in particular areas or with different statuses answered questions. Characteristic data was then used to provide a general over-view of the ‘reach’ of the consultation in terms of input from people of different socio-economic status and background.
- Free text questions were analysed using qualitative methods, namely through thematic analysis. Key themes are identified using specialist software and then responses tagged with these themes (multiple tags can be given to the same response). At this stage totals of tagged themes are created and sample quotes chosen

for the final report that typify particular tagged themes. Comment themes are listed in order of the number of comments received, from most to least. In the reporting of themes 'most' represents where over 50% of respondents' comments were applicable, 'some' represents 25%-49%, and 'few' represents less than 25% of comments.

- The final report is then written to provide an objective view of the results of the consultation.

## Quality Assurance

### Data Integrity

- A visual check of the raw data show no unusual patterns. There were no large blocks of identical answers submitted at a similar time.
- Date / time stamp of submissions showed no unusual patterns.
- Text analysis showed no submissions of duplicate text.

## Survey Findings

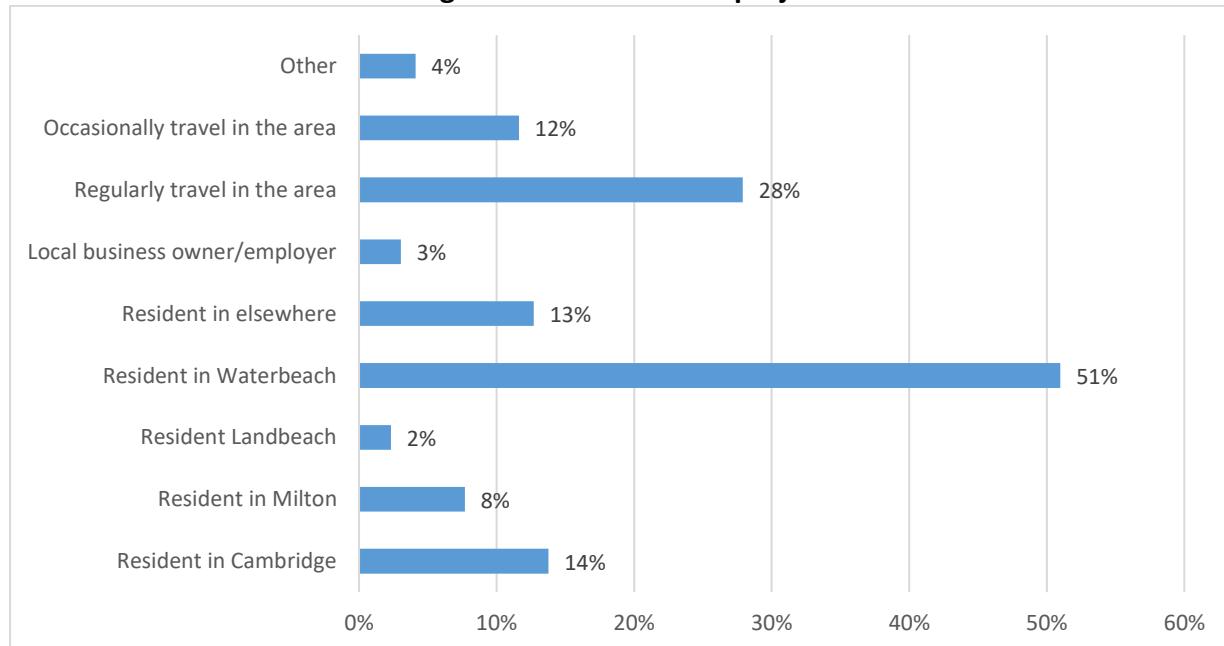
### Respondent Profile

In total, 579 responses were received via the online consultation survey. Two of these were made by district councillors, one county councillor and one parish/town councillor. There were also three responses from groups or companies made via the survey: East Cambridgeshire Access Group, Orchestra Land and Southern and Regional Developments.

#### Respondent's interest in the project

560 respondents answered this question indicating their interest in the project. Respondents could select multiple answers for this question.

**Figure 1: Interest in the project**

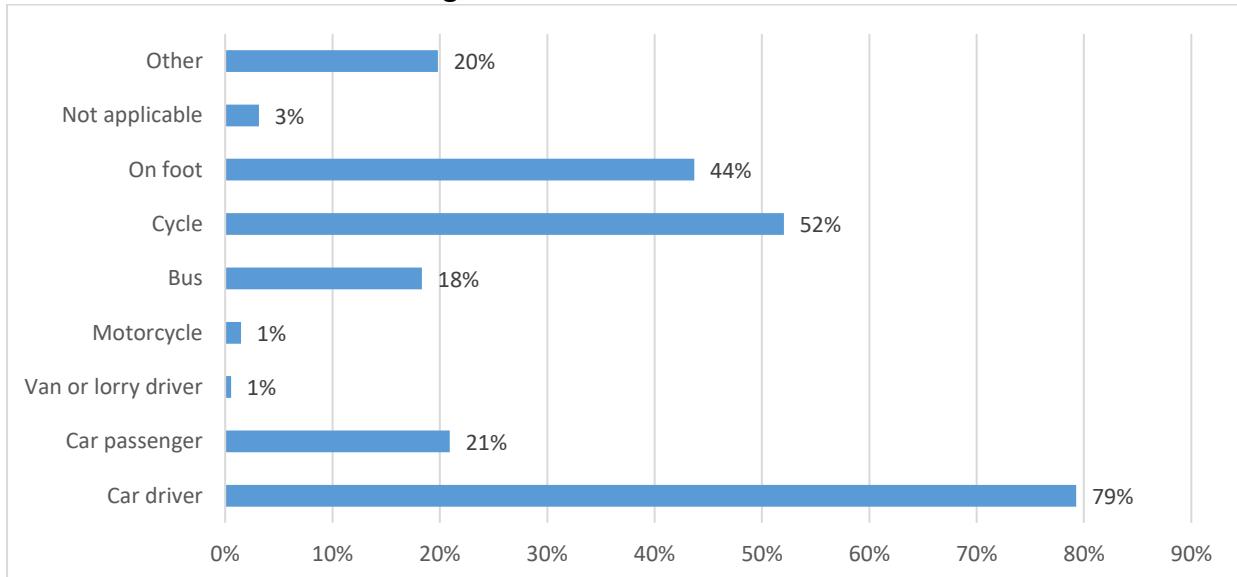


- Just over half (51%) indicated that they were a resident of Waterbeach.
- Other respondents indicated that they:
  - Were a resident of Cambridge (14%)
  - Were a resident of Milton (8%)
  - Were a resident of Landbeach (2%).
- Over a quarter of respondents indicated that they had an interest in the project because they regularly travelled in the area (28%).
- Other respondents indicated that they:
  - Occasionally travelled in the area (12%)
  - Were a local business owner or employer (3%).

## Usual mode of travel

541 respondents answered the question on how, if they do, they usually travel in the area. Respondents could select multiple answers to this question.

**Figure 2: Usual mode of travel**

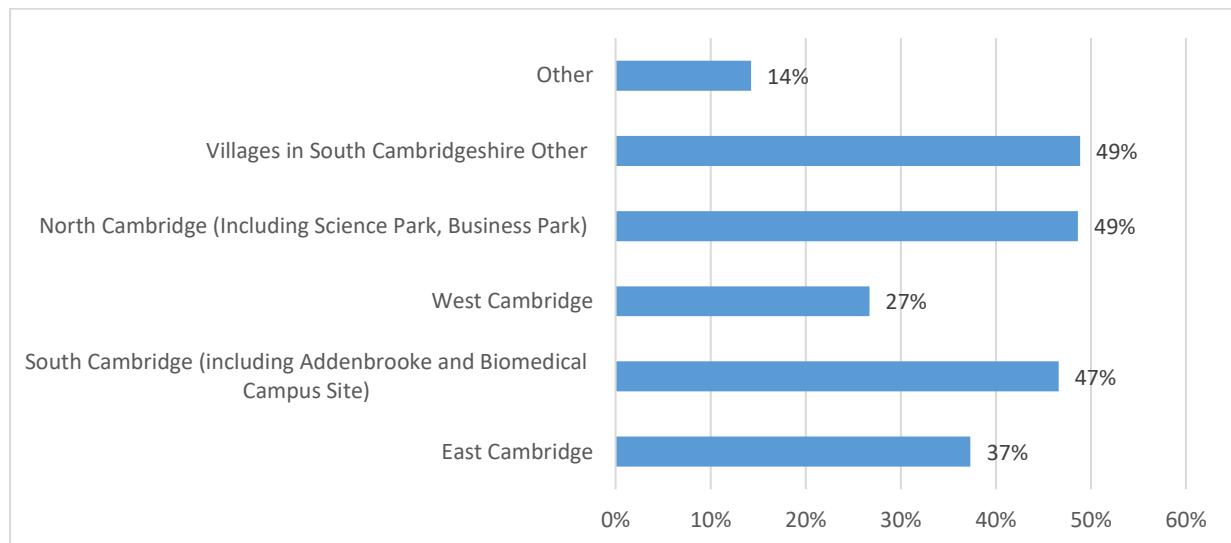


- **The majority of respondents indicated they usually travel as a ‘car driver’ (79%).**
- Just over half of respondents indicated that they usually travel by ‘cycle’ (52%).
- Over a third of respondents indicated that they travelled ‘on foot’ (44%).
- Other respondents indicated that they usually travel:
  - As a car passenger (21%)
  - By bus (18%)
  - By motorcycle (1%)
  - As a van or lorry driver (1%)
- Under a quarter of respondents (20%) selected ‘other’. Most of these travelled by train. There was also mention of horse and also mobility scooter.
- 3% of respondents indicated that this question was not applicable to them.

## Usual destination

Respondents were asked what their usual leisure or other destination was if they usually travelled in the area for this purpose. 442 respondents answered the question. Respondents could select multiple answers to this question.

**Figure 3: Usual Destination**

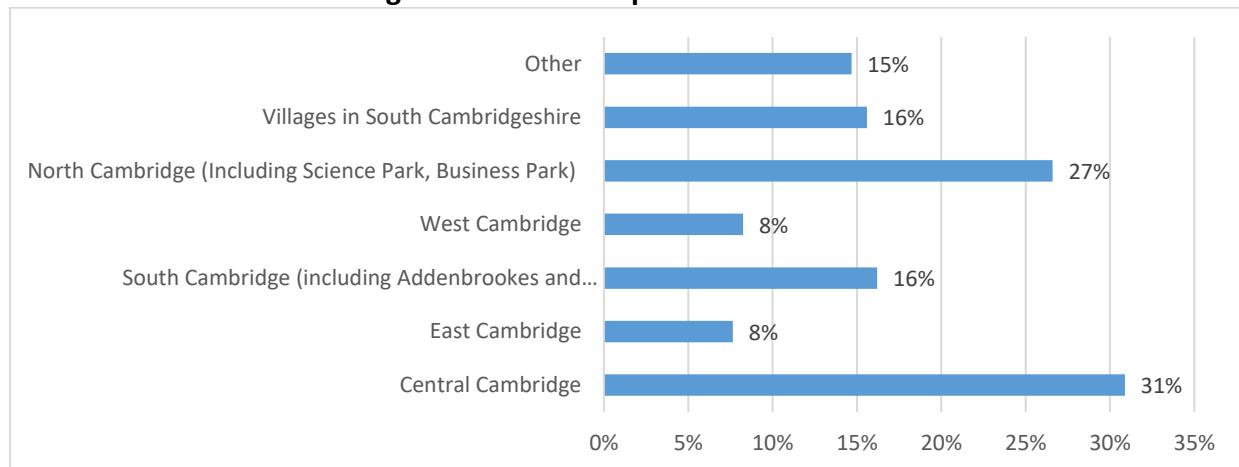


- The respondents indicated a broad range of destination.
- Just under half indicated that their destination was 'Villages in South Cambridgeshire' (49%), 'North Cambridge' (49%) and 'South Cambridge' (47%) if they usually travelled in the area for a leisure or other purpose.
- Over a third of respondents indicated that their destination was 'East Cambridge' (37%) and over a quarter of respondents indicated that their destination was 'West Cambridge' (27%).
- 14% of respondents indicated their usual destination was 'other'. Respondents left comments detailing where this was, and included:
  - Central Cambridge
  - Ely
  - London

## Usual workplace destination

Respondents were asked what their destination was if they commuted into the area for their usual workplace. 327 respondents answered the question. Respondents could select multiple answers to this question.

**Figure 4: usual workplace destination**

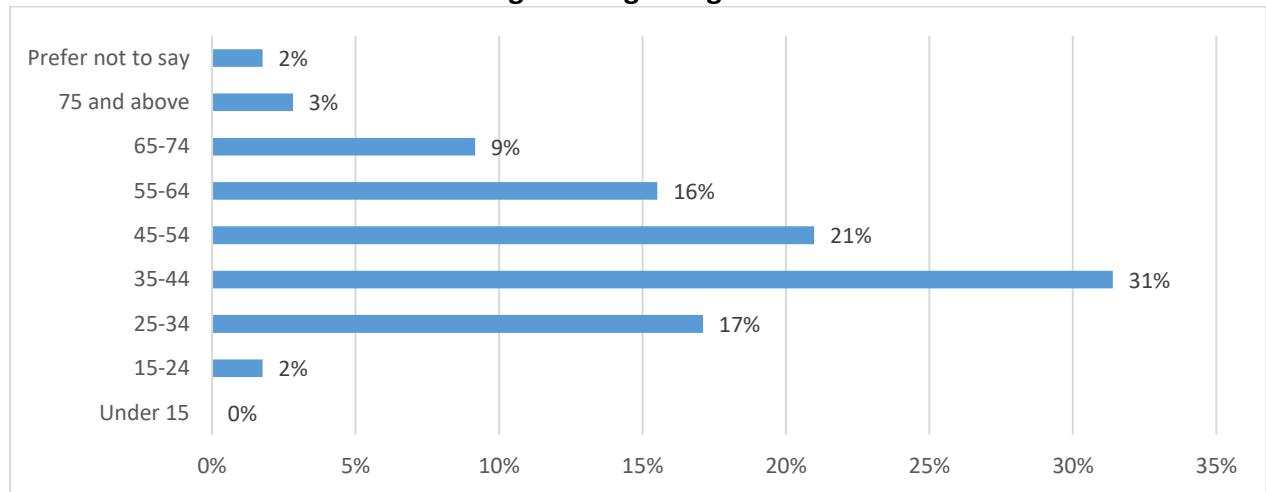


- Just under a third of respondents indicated they usually commute to 'central Cambridge' (31%) a further 27% commuted to work in 'North Cambridge'.
- Some respondents indicated that they travelled to:
  - South Cambridge (16%)
  - Villages in South Cambridgeshire (16%)
  - West Cambridge (8%)
  - East Cambridge (8%)
- 15% respondents indicated that their usual workplace destination was 'other' and left comments detailing what this was. These included:
  - That patterns of travel had changed since COVID
  - That their employment meant they travelled to a range of locations
  - That they worked at home (pre-COVID)

## Respondent Age Range

568 respondents answered the question on their age range.

**Figure 5: age range**

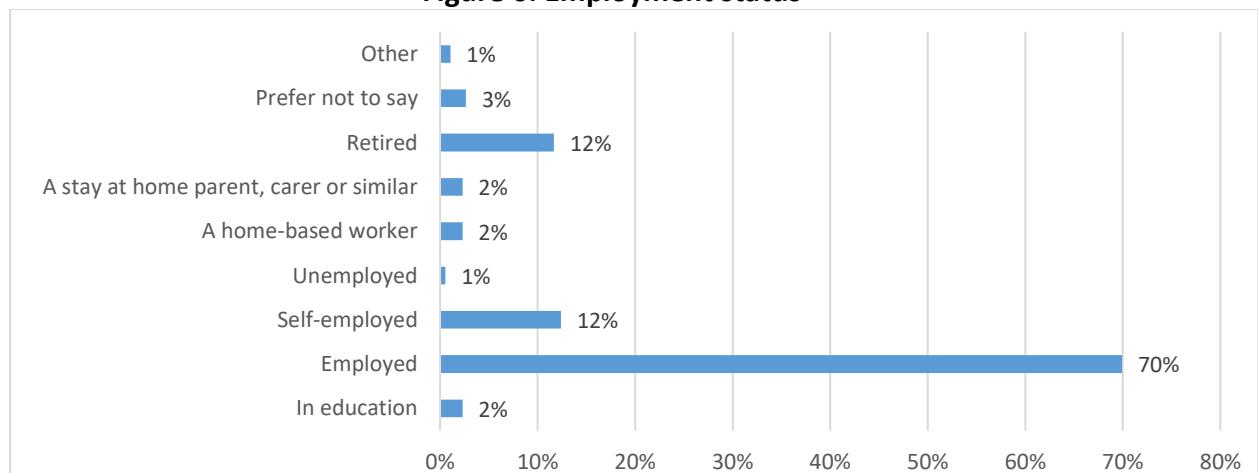


- 85% of respondents were of working age (25-64).
- Ages from '15-24' were slightly under represented compared to the general Cambridgeshire population, only accounting for 2% of respondents.

## Respondent Employment Status

566 respondents answered the question on their employment status. Respondents could select multiple answers to this question.

**Figure 6: Employment status**



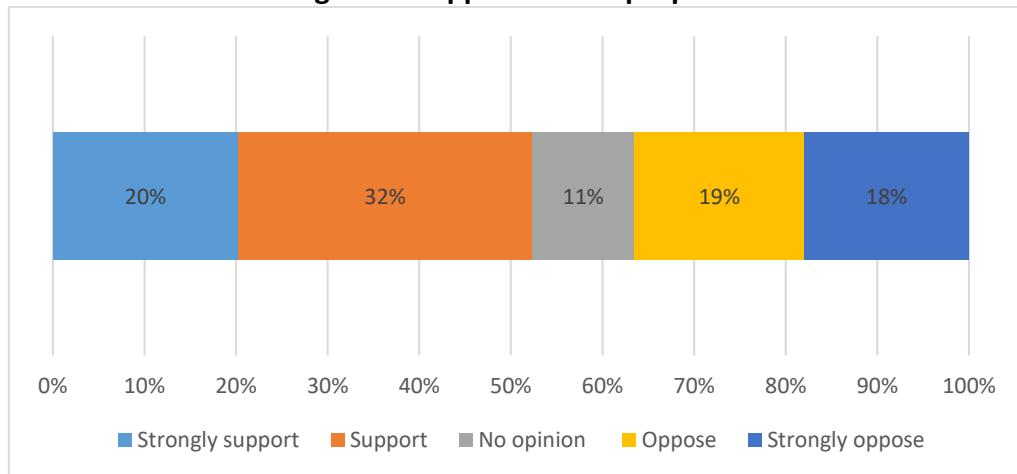
- Just over two thirds of respondents indicated that they were employed (70%)
- A further 13% indicated that they were self-employed
- A smaller number of respondents reported their employment status as:

- Retired (12%)
  - A stay at home parent, carer or similar (2%)
  - In education (2%)
  - A home-based worker (2%)
  - Other (1%)
  - Unemployed (1%)
- 3% of respondents indicated that they would prefer not to say what their employment status was.

How far do you support the proposal to build a new dedicated public transport route and associated active travel route between the new town at Waterbeach and Cambridge?

562 respondents answered the question on how far they supported the proposal.

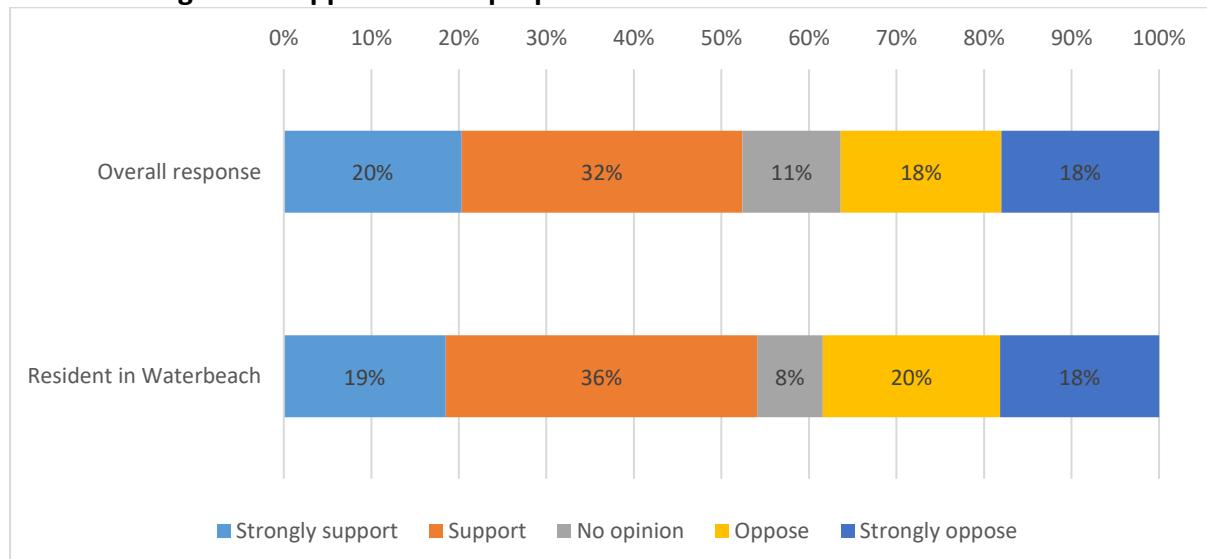
**Figure 7: Support for the proposal**



*N.B. Figures in the graph may not exactly match the text in the report due to rounding*

- Just over half (52%) of respondents supported the proposals and 36% opposed. The remaining 11% had no opinion.

**Figure 8: Support for the proposal for those 'resident in Waterbeach'**



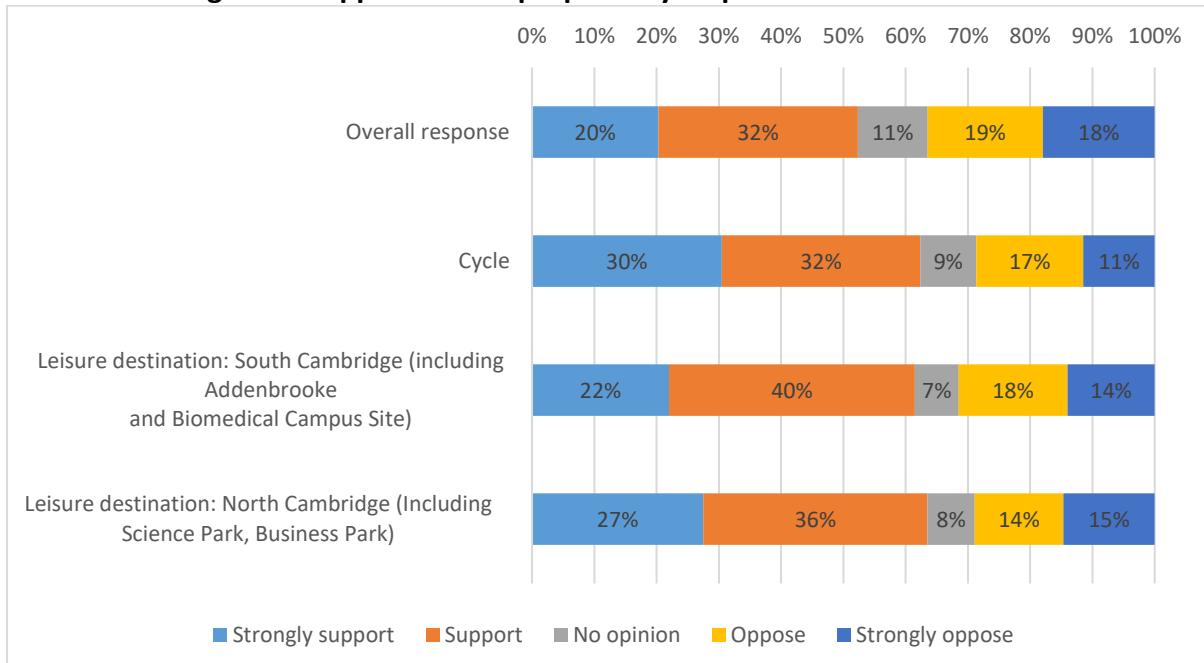
*N.B. Figures in the graph may not exactly match the text in the report due to rounding*

- The opinion from those living in Waterbeach was evenly split with the same percentage (18%) of residents being strongly opposed and strongly supportive of the proposal.

## Differences in support

The data was cross-tabulated based on answers to demographic questions (outlined in the ‘respondent profile’ section), to explore how respondents in particular areas or with different statuses answered the survey questions.

**Figure 9: Support for the proposal by respondent characteristics**



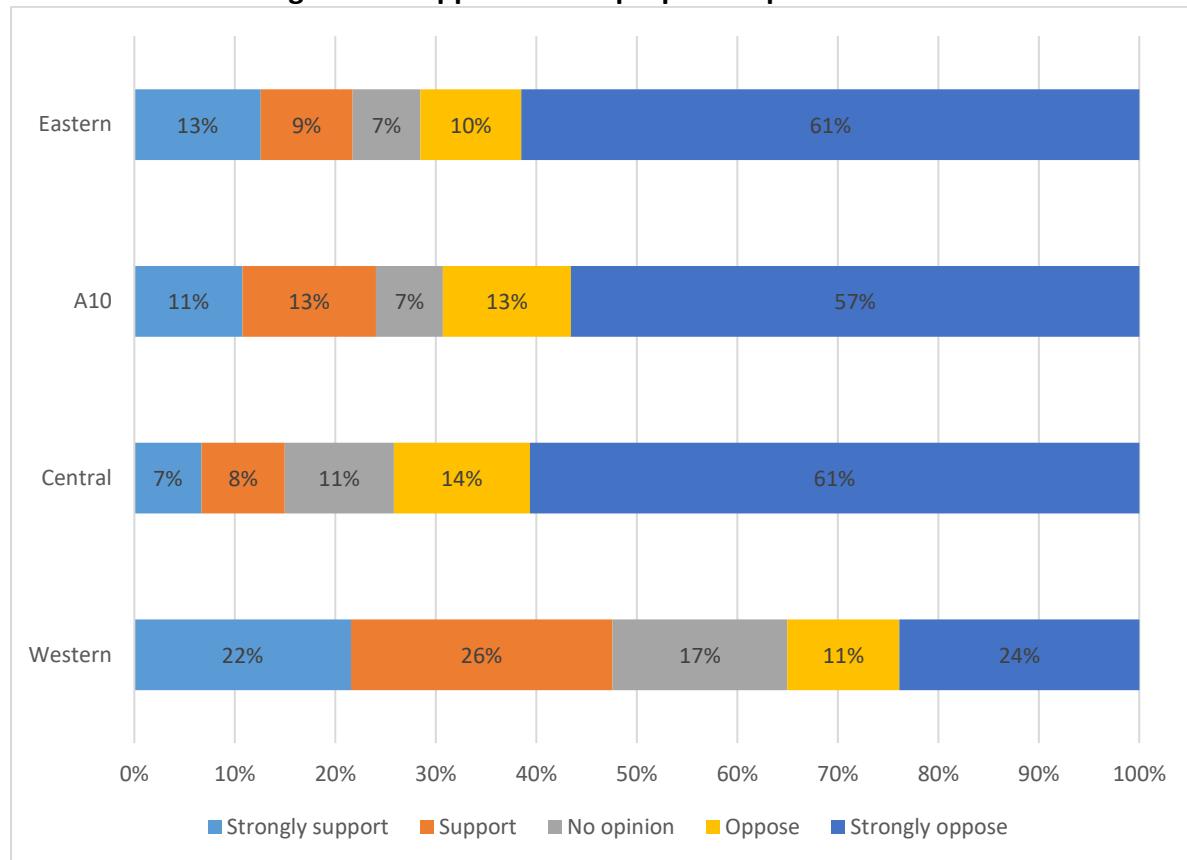
*N.B. Figures in the graph may not exactly match the text in the report due to rounding*

- Respondents who usually travel in the area by cycle were more supportive of the proposals (62% support, 29% oppose), along with those whose usual leisure destination is North Cambridge (64% support, 29% oppose) or South Cambridge (62% support, 32% oppose).

Overall, how far do you support each of the four proposed routing options for a new dedicated public transport and active travel route between the new town at Waterbeach and Cambridge?

Respondents were asked how far they supported the four proposed options for the scheme.

**Figure 10: Support for the proposed options for the scheme**



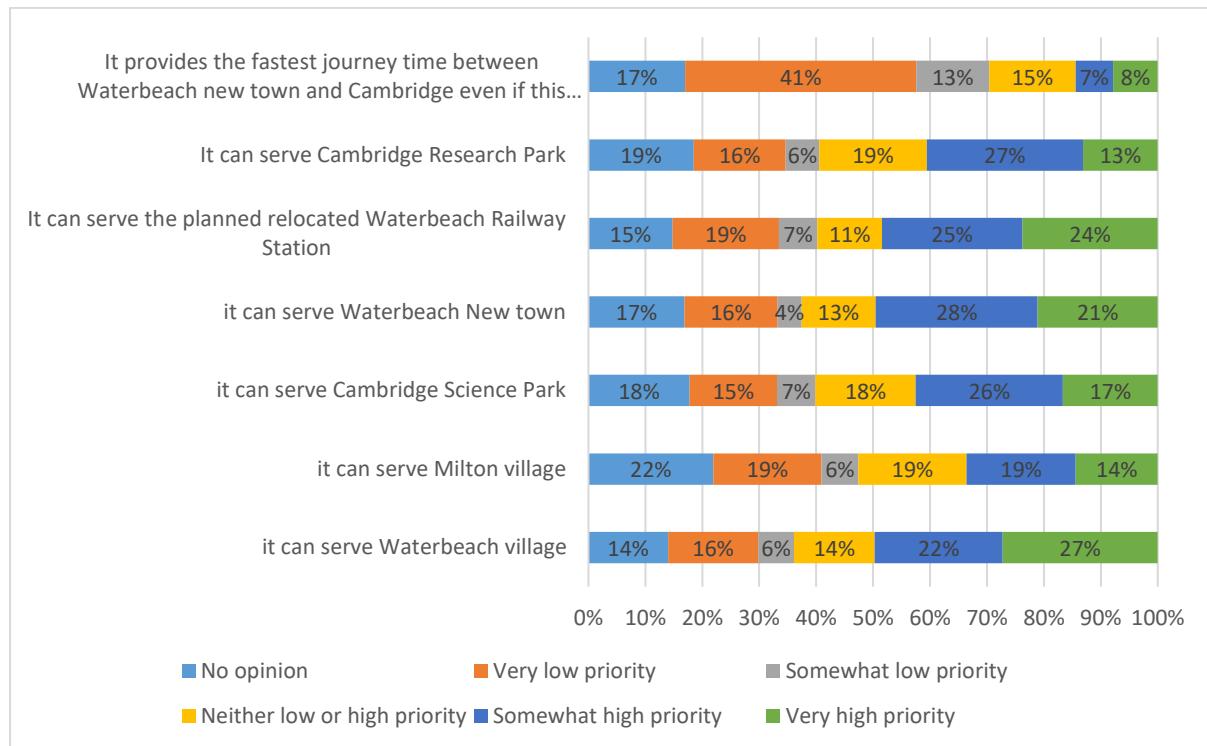
N.B. Figures in the graph may not exactly match the text in the report due to rounding

- **Three of the four proposed routing options were strongly opposed by over half of respondents.**
  - 75% strongly opposed or opposed the central route;
  - 70% strongly opposed or opposed the A10 route;
  - 71% strongly opposed or opposed the eastern route.
- Just under half of respondents (48%) supported the western route.

The new dedicated off-road public transport and active travel route between Waterbeach and Cambridge should follow a route that means:

Respondents were asked for their opinion on the level of priority that should be given to a number of routes.

**Figure 11: Route Priorities**



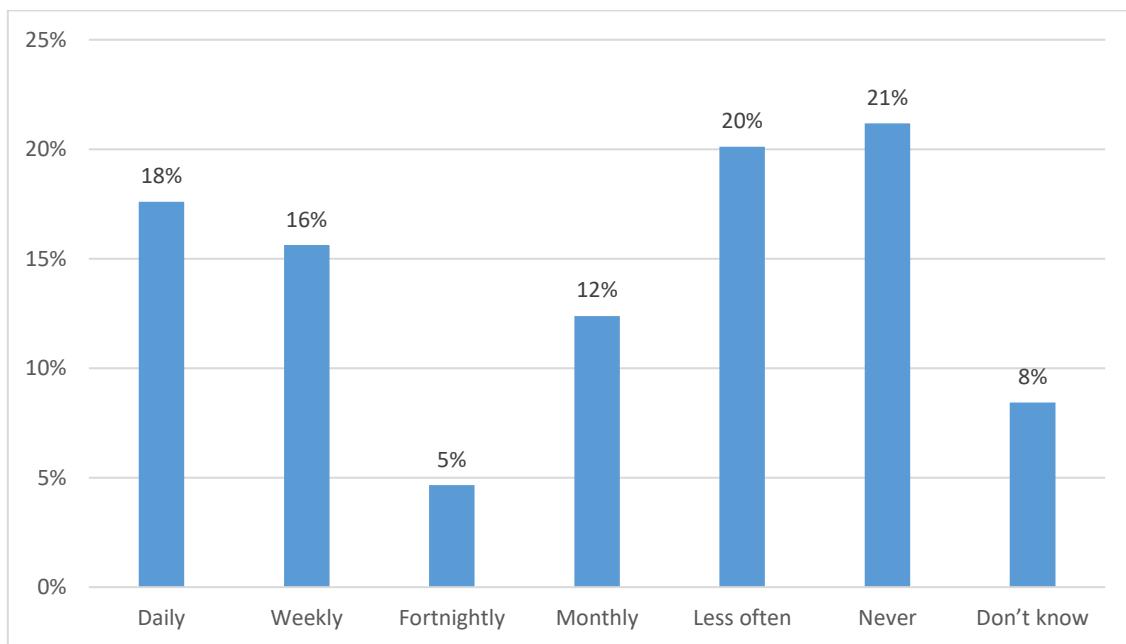
*N.B. Figures in the graph may not exactly match the text in the report due to rounding*

- Around half of respondents indicated that Waterbeach village (50%), Waterbeach new town (50%) and the relocated Waterbeach rail station (48%) should be given 'somewhat high' or 'very high' priority on the route.
- Just over a third of respondents (34%) indicated that Milton village should be given 'somewhat high' or 'very high' priority on the route.
- Over half of respondents (53%) indicated that low priority should be given to the proposal of creating faster journeys by missing out some locations between the Waterbeach new town and Cambridge.

## How often, if at all, would you use any part of a dedicated off-road public transport and active travel route between Waterbeach and Cambridge?

Respondents were asked how often, if at all, they would use any part of the route. 557 people answered this question.

**Figure 12: Use of route**

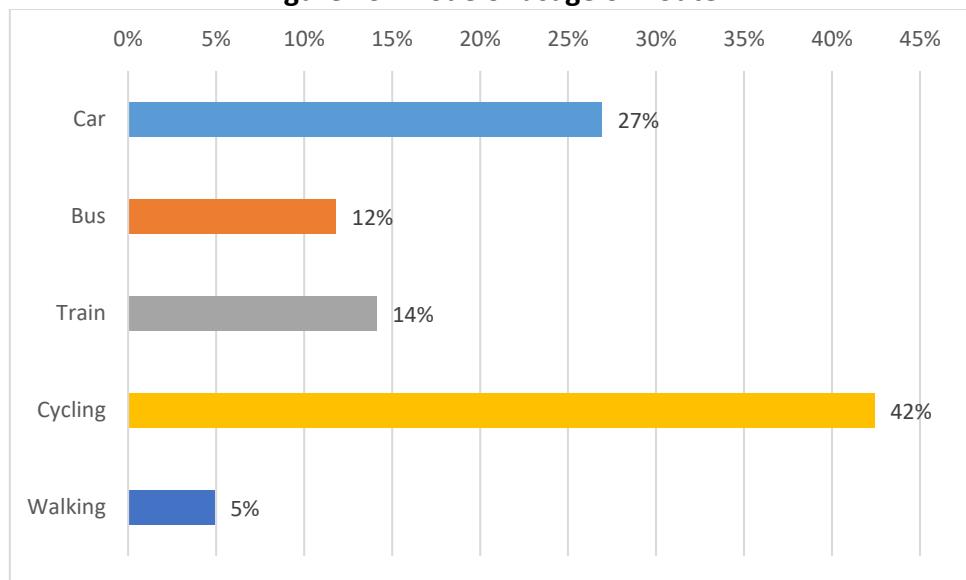


- Just under a fifth (18%) indicated that they would use the route daily.
- A fifth of respondents (21%) said that they would never use the travel route, and a further fifth (20%) indicating that they would use the route less than once a month.
- Some respondents indicated that they would use the route:
  - Weekly (16%)
  - Monthly (12%)
  - Fortnightly (5%)
- 8% of respondents indicated that they were unsure how often they would use the route.

If you indicated that you would use such a route, what would be your main mode of usage?

Respondents were asked, if they had indicated they would use such a route, what their main mode of usage would be. 433 respondents answered this question.

**Figure 13: Mode of usage on route**

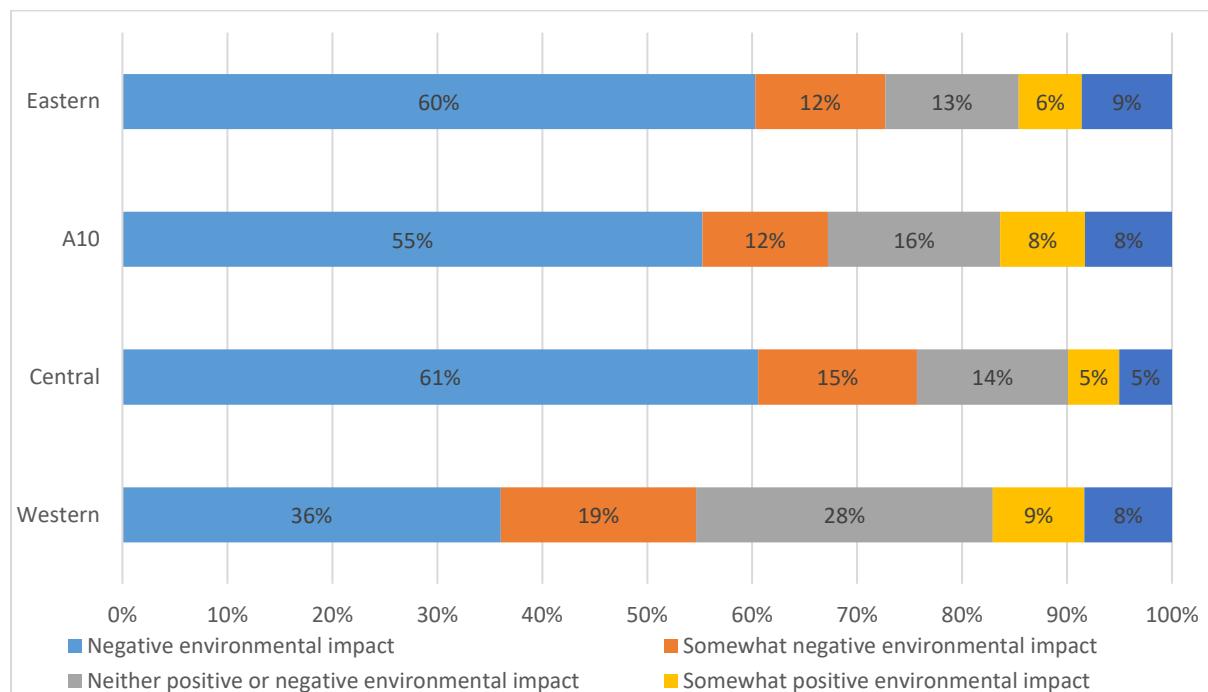


- Over two fifths of respondents indicated they would be 'cycling' (42%)
- Over a quarter of respondents indicated they would use a 'car' (27%)
- Few respondents indicated they would use a 'train' (14%), 'bus' (12%), or would be 'walking' (5%)

Thinking about the environmental impact of each of the four route options, please indicate what impact there might be:

Respondents were asked to consider what impact to each of the four route options might be.

**Figure 14: Environmental impacts**



*N.B. Figures in the graph may not exactly match the text in the report due to rounding*

- **The majority of people thought that the scheme would have a negative environmental impact.**
  - 76% thought that the Central route would have a negative impact
  - 73% thought that the Eastern route would have a negative impact
  - 67% thought that the A10 route would have a negative impact
  - 55% thought that the Western route would have a negative impact.

Are there any other interventions that you feel would complement or improve upon the new public transport and associated active travel routes we have identified so far between the new town at Waterbeach and Cambridge?

334 respondents left comments on question 10, which asked respondents if there were any other interventions that would complement or improve upon the new public transport and associated active travel routes.

#### Summary of major themes

Comment Theme	Respondent comments
<b>Concerns about the loss of housing/personal property</b>	<ul style="list-style-type: none"> <li>• Respondents who discussed this theme were concerned that the public transport route would pose a risk of loss of or damage to housing (particularly around Cambridge Road and Glebe Road), allotment land, and historical land (namely the Roman canal), due to the route passing through/close to these things <ul style="list-style-type: none"> <li>○ Most of these respondents indicated this was particular to three of the possible routes ('Eastern area of interest', 'Central area of interest', and 'A10 area of interest')</li> <li>○ Most of these respondents also felt it would have a negative environmental impact</li> <li>○ Some of these respondents felt the 'Western area of interest' was the only acceptable route option</li> <li>○ Some of these respondents felt that a new public transport route was unnecessary, some because they felt it was already well served by buses/trains, some because they felt increasing the schedule/route of buses/trains would achieve the same goals</li> <li>○ Some of these respondents felt that the new public transport route should make use of existing infrastructure <ul style="list-style-type: none"> <li>▪ Some of these respondents discussed the plans to dual/move the A10 and how this could be a suitable alternative</li> <li>▪ A few of these respondents felt that a route following the rail line would be more suitable</li> </ul> </li> </ul> </li> </ul>
<b>Active travel</b>	<ul style="list-style-type: none"> <li>• Respondents who discussed this theme felt that active travel routes needed improving in the study area <ul style="list-style-type: none"> <li>○ Most of these respondents felt that active travel routes should expand to connect Waterbeach to various locations, such as: <ul style="list-style-type: none"> <li>▪ Waterbeach New Town</li> </ul> </li> </ul> </li> </ul>

	<ul style="list-style-type: none"> <li>▪ Milton</li> <li>▪ Ely</li> <li>▪ Cambridge Research Park</li> <li>▪ Cottenham</li> <li>▪ Cambridge city</li> </ul> <ul style="list-style-type: none"> <li>○ Some of these respondents felt that improvements to existing infrastructure (namely the route along the A10) and planned improvements (Waterbeach Greenway project, Mere Way, and cycle bridge across the A10) were of high importance and that this project should not delay or negatively impact on them <ul style="list-style-type: none"> <li>▪ Some of these respondents wondered how these improvements would integrate with these other plans</li> </ul> </li> <li>○ A few of these respondents felt that active travel improvements should extend north to link up with the National Cycling Route 11</li> <li>○ A few of these respondents highlighted the need for funding to be in place for ongoing maintenance of active travel routes, with the current conditions of the A10 path brought up as an example of somewhere that needed better maintenance</li> </ul>
<b>Dualling of the A10</b>	<ul style="list-style-type: none"> <li>● Some of the respondents who discussed this theme felt that adding a new public transport route was unnecessary when the A10 could be expanded to be a dual carriageway. These respondents felt this would reduce congestion in the area and allow public transport to travel unheeded <ul style="list-style-type: none"> <li>○ Some of these respondents felt the A10 could be moved, leaving the 'old' A10 available as a public transport route</li> </ul> </li> <li>● Some of the respondents who discussed this theme felt that these plans should be integrated with the plans to duel the A10 from Cambridge to Ely, as they could negate the need for some improvements and link well together</li> </ul>
<b>Environmental impact</b>	<ul style="list-style-type: none"> <li>● Respondents who discussed this theme were concerned the new public transport route would negatively impact on the environment, as the route would require building on undeveloped land and Green Belt <ul style="list-style-type: none"> <li>○ Some of these respondents highlighted issues with the routes travelling through/near historical and allotment land</li> <li>○ Some of these respondents felt that it would be more environmentally friendly to make use of existing infrastructure, such as the A10 or</li> </ul> </li> </ul>

	improving current public transport options (both buses and trains)
<b>Connection to Waterbeach</b>	<ul style="list-style-type: none"> <li>• Respondents who discussed this theme were concerned about a lack of access to the new public transport route           <ul style="list-style-type: none"> <li>○ Some of these respondents highlighted the potential moving of the train station as an additional reason for this being a concern</li> <li>○ Some of these respondents felt that connections between the villages and Cambridge Research Park were more important than a direct link to Cambridge</li> <li>○ A few of these respondents felt without access to the new route from Waterbeach or loss of existing services, disabled and older residents would be negatively impacted</li> </ul> </li> </ul>
<b>Use of existing infrastructure</b>	<ul style="list-style-type: none"> <li>• Respondents who discussed this theme felt that more use should be made of existing infrastructure           <ul style="list-style-type: none"> <li>○ Some of these respondents discussed duelling/improving the A10 and how the A10 could be used instead</li> <li>○ Some of these respondents felt that existing public transport could be improved instead, by extending the timetable, running more often, and reducing the cost               <ul style="list-style-type: none"> <li>▪ A few of these respondents felt having cross service tickets would be a useful improvement</li> <li>▪ Some of these respondents were concerned about the potential loss of the train station and service from Waterbeach</li> </ul> </li> </ul> </li> </ul>

**Question 11:** Please comment if you feel any of the proposals would either positively or negatively affect or impact on any such person/s or group/s.

290 respondents left comments on question 11, which asked respondents if they felt any of the proposals would either positively or negatively affect or impact on any person/s or group/s protected under the Equality Act 2010.

#### Summary of major themes

Comment Theme	Respondent comments
<b>Impact on local residents/Concerns about the loss of housing &amp; personal property</b>	<ul style="list-style-type: none"> <li>• Respondents who discussed this theme reiterated the concerns they highlighted in the previous question regarding potential loss or damage to property, allotment, and historical land (See question 10 theme 'Concerns about the loss of housing/personal property')</li> </ul>

<b>Disability</b>	<ul style="list-style-type: none"> <li>• Most of the respondents who discussed this theme felt the proposals would have a negative impact on those with disabilities           <ul style="list-style-type: none"> <li>○ Most of these respondents felt a lack of accessible stops in Waterbeach and nearby villages would reduce the transport options available               <ul style="list-style-type: none"> <li>▪ Some of these respondents were also concerned existing public transport services could be reduced or stopped due to these proposals</li> </ul> </li> <li>○ A few of these respondents felt that the proposals would negatively impact on personal vehicle journeys which were needed for some people with disabilities</li> </ul> </li> <li>• A few of the respondents who discussed this theme indicated that proposals needed to ensure accessibility for disabilities           <ul style="list-style-type: none"> <li>○ Most of these respondents discussed this in relation to active travel routes, feeling the shared use paths needed to be wide enough for wheelchair users and have non-visual indication of cycle/walking separations</li> </ul> </li> </ul>
<b>Age</b>	<ul style="list-style-type: none"> <li>• Respondents who discussed this theme felt the proposals would have a negative impact on older residents for the same reasons as for those with disabilities</li> </ul>
<b>Environmental impact</b>	<ul style="list-style-type: none"> <li>• Respondents who discussed this theme were concerned the new public transport route would negatively impact on the environment, as the route would require building on undeveloped land and Green Belt</li> </ul>

**Question 12:** We would like to thank you for completing our survey. If you have any further comments on the project or the proposed options, please add these in the space available below.

261 respondents left comments on question 12, which asked respondents if they had any further comments. Comments were thematically similar to those detailed in question 10 ('Concerns about the loss of housing/personal property', 'Active travel', 'Duelling of the A10', 'Environmental impact', 'Connection to Waterbeach', and 'Use of existing infrastructure').

One key difference came from some of the respondents who indicated they lived in Waterbeach, who felt they had not been contacted early enough in the development process.

## Stakeholders responses

### Background

32 responses were received on behalf of a number of different groups or organisations.

Agile Working Management Group	District Councillor for the Milton & Waterbeach ward on South
Anglia Water	Cambridgeshire District Council
British Horse Society	East Cambridgeshire Access Group
Cambridge Biomedical campus	Environment Agency
Cambridge Independent	Haddenham Parish council
Cambridge Sports lakes	Keymer Cavendish Ltd
Cambridge University Hospitals	Milton PC
CambridgePPF	Orchestra Land
Cambridgeshire & Peterborough Combined Authority	South Cambs Green Party
Carter Jonas	Southern & Regional Developments
Chartered surveyor	Strutt & Parker
Cheffins	Trinity Hall
Claire Ruskin	Waterbeach Cycling Campaign
Councillor at City of Ely	Waterbeach Neighbourhood plan
County Councillor for Waterbeach Ward	Waterbeach Parish Council
CPRE	WHAT
District Councillor Cottenham	

All of the responses from these groups have been made available to board members in full and will be published alongside the results of the public consultation survey. The following is a brief summary of the common themes expressed through this correspondence; it should be noted that stakeholder responses can contradict each other therefore we've made no reference to the relative merit or otherwise of the information received.

### Summary of major themes

<b>Environment</b>	<ul style="list-style-type: none"><li>Some of the stakeholders who discussed this theme were concerned the proposals would have a negative impact on the environment due to the possibility of developing on Greenbelt land</li><li>Some of the stakeholders who discussed this theme indicated that, whichever route was chosen, it was important that any negative environmental impact was minimised and should result in net biodiversity gain</li></ul>
<b>Concerns about the loss of housing/personal property</b>	<ul style="list-style-type: none"><li>Stakeholders who discussed this theme were concerned that the public transport route would pose a risk of loss of or damage to housing (particularly around Cambridge Road and Glebe Road) and allotment land due to the route passing through/close to these areas</li></ul>

	<ul style="list-style-type: none"> <li>○ Most of these stakeholders indicated this was particular to three of the possible routes ('Eastern area of interest', 'Central area of interest', and 'A10 area of interest')</li> <li>○ A few of these stakeholders made requests during the consultation period for further meetings to discuss this which GCP responded to</li> </ul>
<b>Active travel</b>	<ul style="list-style-type: none"> <li>● Stakeholders who discussed this theme felt that the active travel routes needed to be accessible to all villages along the route from Waterbeach New Town to Cambridge</li> <li>● A few of the stakeholders who discussed this theme felt that funding needed to be allocated to ongoing maintenance and safety features (lighting, CCTV, etc) of these routes</li> </ul>
<b>Eastern area of interest</b>	<ul style="list-style-type: none"> <li>● Some of the stakeholders who discussed this theme were concerned this area would negatively impact on homes and allotments in Waterbeach</li> <li>● Some of the stakeholders who discussed this theme indicated they were in favour of this route as it was more direct and could support access to the Sports Lakes <ul style="list-style-type: none"> <li>○ A few of these stakeholders indicated they were aware of concerns of local residents and environmental impacts so preferred the A10 area of interest</li> </ul> </li> </ul>
<b>Other projects</b>	<ul style="list-style-type: none"> <li>● Stakeholders who discussed this theme indicated they felt this project needed to take into consideration and be integrated with other planned projects in the area including: dueling/development of the A10, new police hub, CSLT, Science Park extensions, Anglian Water projects, Waterbeach Greenway, Sports Lake development, and the CAM <ul style="list-style-type: none"> <li>○ Some of these stakeholders felt that active travel improvements from the Greenway project, Chisholm Trail upgrade, and route to Milton from Waterbeach New Town needed to be implemented first and assurances given they would not be negatively impacted by this project</li> <li>○ A few of these stakeholders discussed the development of the A10 requirements are given priority</li> </ul> </li> </ul>
<b>Concerns of loss of existing bus services</b>	<ul style="list-style-type: none"> <li>● Stakeholders who discussed this theme were concerned that existing bus services in Waterbeach and Milton may be lost or reduced due to the new public transport route. These stakeholders were also concerned the new route would not serve these villages in an accessible way</li> </ul>

<b>Existing public transport services and routes</b>	<ul style="list-style-type: none"> <li>• Stakeholders who discussed this theme felt that existing public transport services and routes (bus and rail) should be improved and expanded on instead of developing a new route           <ul style="list-style-type: none"> <li>○ Some of these stakeholders discussed the potential improvements to the A10 and the improvements from the Greenways project negating the need for this project</li> </ul> </li> </ul>
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## Email and social media responses

45 responses were received regarding the consultation through email and social media platforms, such as Facebook and Twitter. Following a thematic analysis of these responses the following themes have been noted.

### Summary of major themes

<b>Concerns about the loss of housing/personal property</b>	<ul style="list-style-type: none"><li>• Respondents who discussed this theme were concerned that the public transport route would pose a risk of loss of or damage to housing (particularly around Cambridge Road and Glebe Road) and allotment land due to the route passing through/close to these areas<ul style="list-style-type: none"><li>○ Most of these respondents indicated this was particular to three of the possible routes ('Eastern area of interest', 'Central area of interest', and 'A10 area of interest')</li><li>○ Most of these respondents also felt it would have a negative environmental impact</li><li>○ Some of these respondents felt that the new public transport route should make use of existing infrastructure<ul style="list-style-type: none"><li>▪ Some of these respondents discussed the plans to dual/move the A10 and how this could be a suitable alternative</li><li>▪ Some of these respondents felt that a route following the rail line would be more suitable</li></ul></li><li>○ A few of these respondents felt the consultation period needed to be extended due to Covid-19 to allow more response time</li></ul></li></ul>
<b>Duelling of the A10</b>	<ul style="list-style-type: none"><li>• Respondents who discussed this theme felt that adding a new public transport route was unnecessary when the A10 could be expanded to be a dual carriageway. These respondents felt this would reduce congestion in the area and allow public transport to travel unheeded. They felt that these plans should be integrated with the plans to duel the A10 from Cambridge to Ely, as they could negate the need for some improvements and link well together</li></ul>
<b>Environmental impact</b>	<ul style="list-style-type: none"><li>• Respondents who discussed this theme were concerned the new public transport route would negatively impact on the environment, as the route would require building on undeveloped land and Green Belt</li></ul>
<b>Concerns of loss of existing bus services</b>	<ul style="list-style-type: none"><li>• Respondents who discussed this theme were concerned that existing bus services in Waterbeach and surrounding villages may be lost or reduced due to the new public</li></ul>

	transport route. These respondents were also concerned the new route would not serve these villages in an accessible way
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## Petitions

A petition was received from the Cambridge Independent newspaper, that called on GCP not to demolish homes in Glebe Road/Cambridge Road in Waterbeach when establishing a new public transport route from Waterbeach to Cambridge. 1,661 signatures were received to this petition.

## Better Public Transport - Cambridge Eastern Access Project

Report to: Greater Cambridge Partnership Joint Assembly

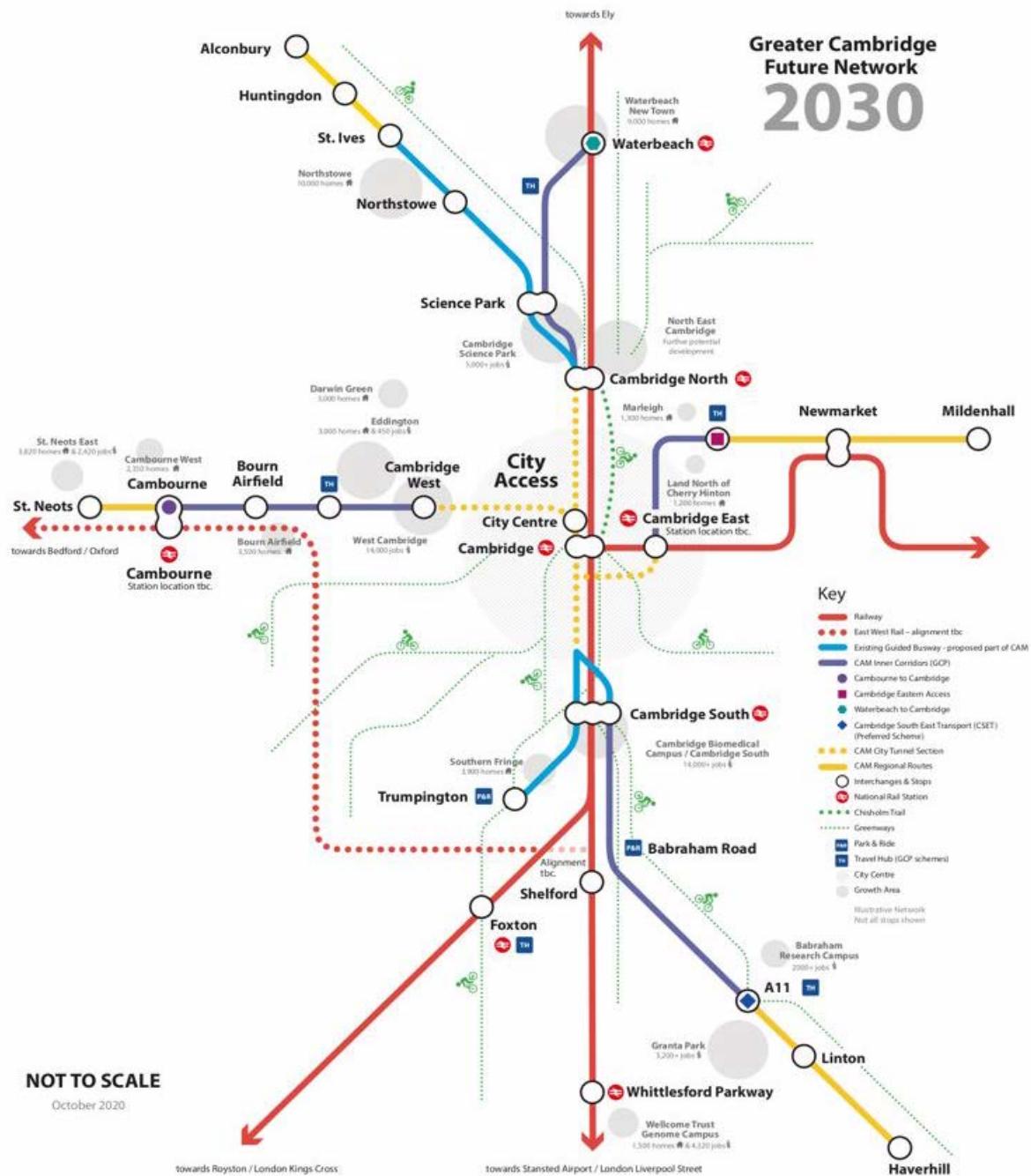
Date 10<sup>th</sup> June 2021

Lead Officer: Peter Blake, Transport Director, GCP

### 1. Background

- 1.1 The Cambridge Eastern Access (CEA) project is looking at access to and from the city from the east to enable people to get around more easily by public transport, cycle or on foot. It is one of four corridor schemes that form a key part of the Greater Cambridge Partnership's (GCP's) sustainable transport programme. As the delivery body for the Greater Cambridge City Deal, the GCP is delivering a comprehensive programme of sustainable transport initiatives, working with local authority partners to create a comprehensive transport network that can meet the needs of the area now and into the future. In May 2020, a Government 'Gateway Review' hailed the 'significant success and progress' the Partnership has made since 2015 on ambitious plans ranging from city cycleways to better public transport routes, to transform travel for thousands of people.
- 1.2 The GCP programme has been developed using an extensive evidence base and is designed to support sustainable economic growth and the accelerated delivery of the Local Plan, as well as enabling a broader transformation in the way Greater Cambridge moves and travels; supporting the transition to zero carbon and creating a more inclusive economy. The GCP's vision for a future travel network is particularly important in achieving a green recovery from Covid-19, with sustainable transport options vital to enable communities to access work, study and other opportunities the city-region has to offer.
- 1.3 To create a more sustainable network for the future, reduce congestion, improve air quality and reduce carbon emissions, significantly more people need to travel by public transport, cycling and walking with significantly fewer people travelling by car. Figure 1.0 sets out the future sustainable transport network for Greater Cambridge and how this will be substantially enhanced over the next decade, forming a cohesive network throughout Greater Cambridge and further afield.

**Figure 1.0**



- 1.4 The Cambridge Eastern Access study area, for the purposes of pre-engagement, was defined as shown in the map below. It is bounded in the north by Newmarket Road, and to the east by Airport Way, although extending along Newmarket Road to the Quy Interchange. To the west the study area extends as far as the Railway Station, whilst to the south it extends past Mill Road.



- 1.5 In October 2020 the Executive Board considered the Options Appraisal Report and the findings of a pre-engagement exercise and approved public consultation on a series of options in order to inform the preparation of a Strategic Outline Business Case. The Public Consultation Report and Strategic Outline Business Case (SOBC) have now been prepared and are appended.

**Figure 2: Current Stage of the Project**



- 1.6 The Joint Assembly is invited to consider the proposals to be presented to the Executive Board and in particular to:
- (a) Review the Public Consultation Report and SOBC, noting strong support (79%) for the need for intervention, and a strong supporting strategic case for intervention.
  - (b) Note the recommendation that Phase A on-line improvements to Newmarket Road should be advanced to OBC stage as these are complementary to the City Access project, East Barnwell Regeneration, Chisholm Trail, Greenways and eTROs.
  - (c) Note the recommendation that a longer term Phase B plan to develop a high quality public transport route connecting Coldhams Lane and a relocated Park and Ride site on Newmarket Road be developed further if the draft Greater Cambridge Local Plan indicates that the Marshalls site will be allocated for development and land made available. In advance of the Combined Authority Local Transport Plan proposals, the presumption will be that the scheme will access the city via Coldhams Lane rather than the Tins, and potentially incorporate improvement to the Coldhams Lane roundabout.
  - (d) Note the potential for reallocation of roadspace on both Newmarket Road and Coldhams Lane.
  - (e) Note the potential to improve the Cambridge to Newmarket Line in the longer term, through twin-tracking and the addition of additional stations, and to agree that GCP should support the East West Rail Consortium and Network Rail in maximising the potential benefits of this asset.

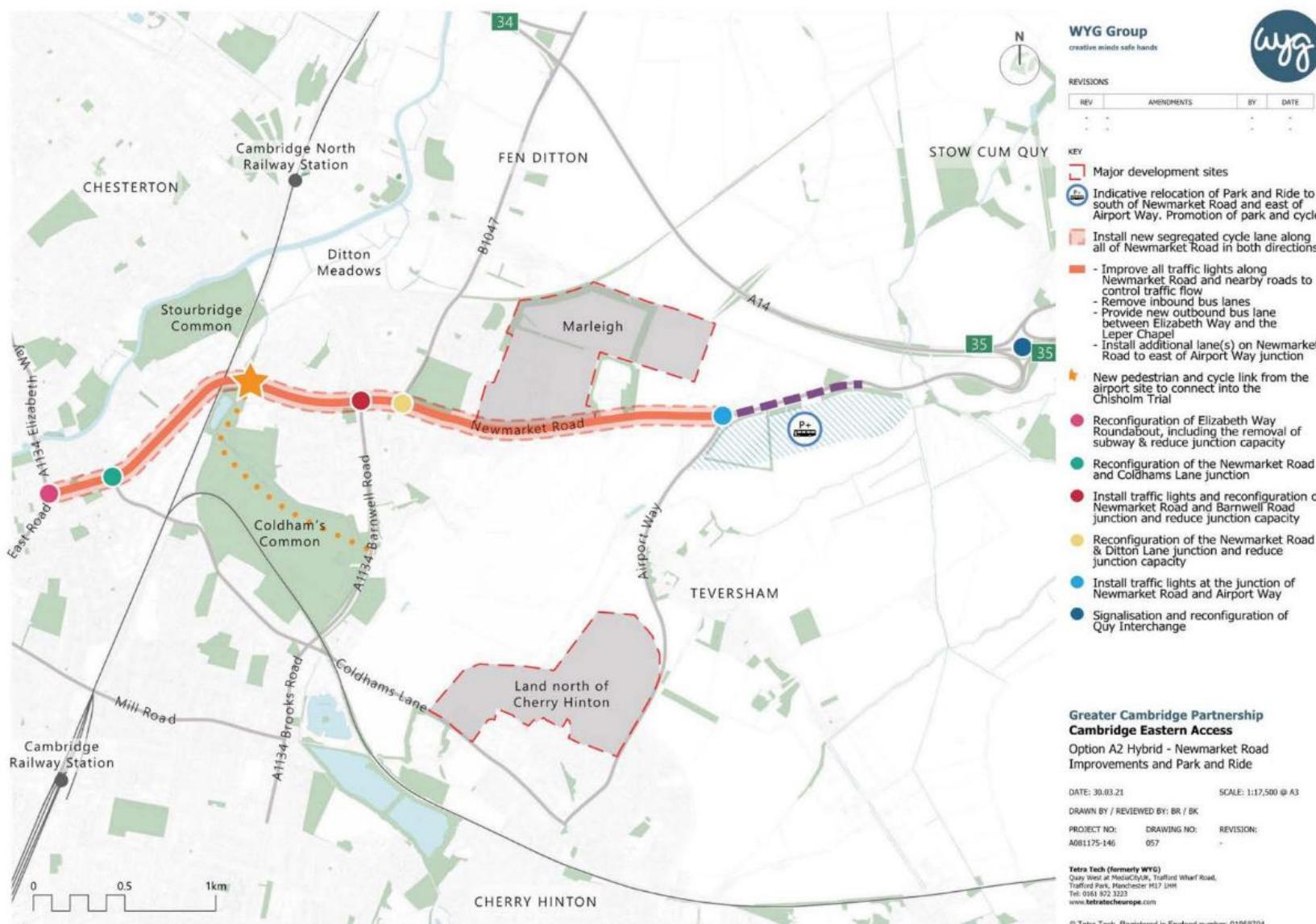
## 2. Issues for Discussion

- 2.1 The SOBC for Cambridge Eastern Access has been prepared and is appended to this report. The following paragraphs summarise the main points emerging in the 5 Cases which follow the approach defined in the HM Treasury Green Book and Department for Transport (DfT) Transport Analysis Guidance.

### *Strategic Case*

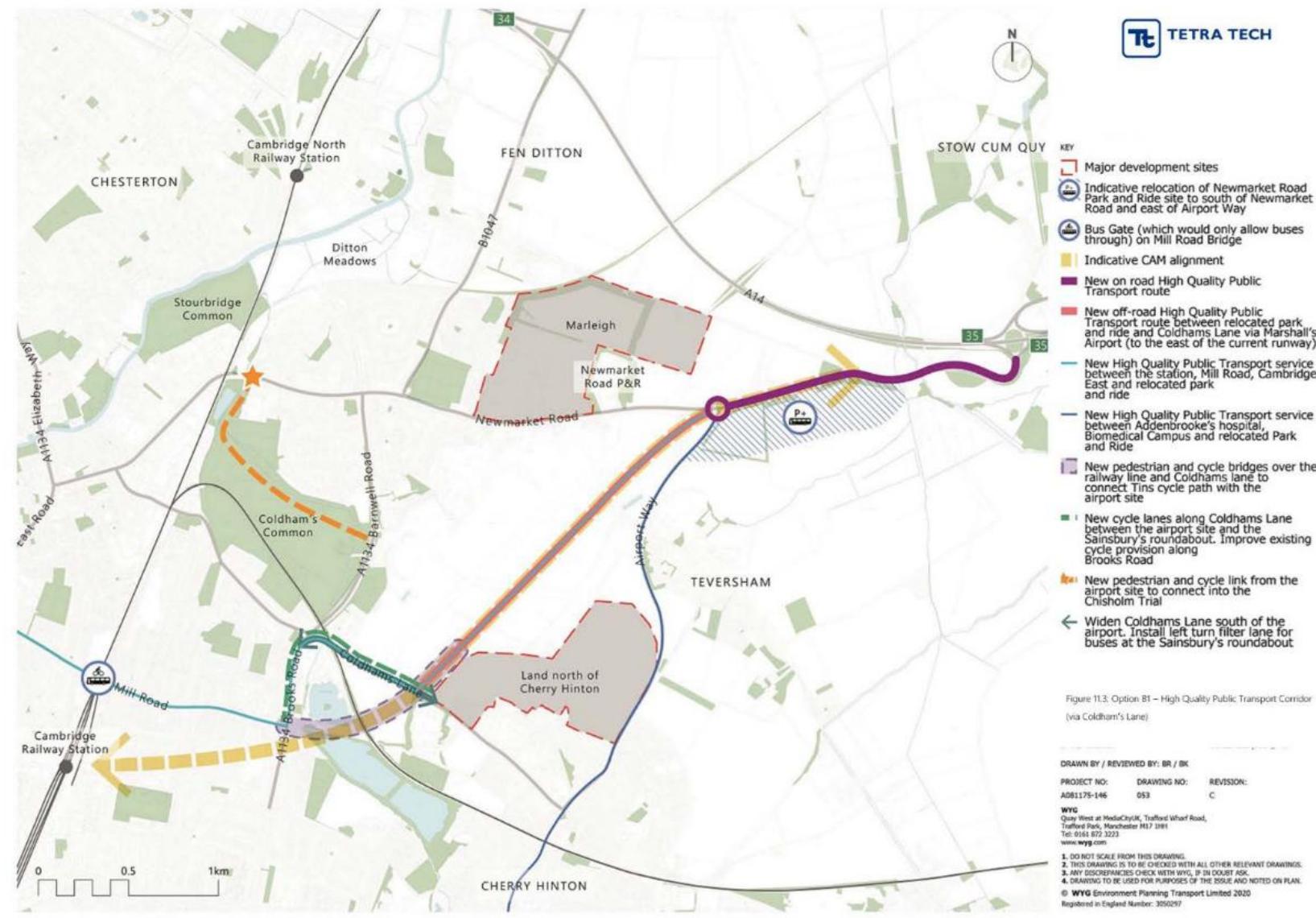
- 2.2 Overall the strategic case for improvement is strong. The proposals are well aligned with policy documents such as the Local Transport Plan. Phase A proposals, outlined in the map below, also align with the aspirations of the City Access proposals to respond to Covid-19 by encouraging walking and cycling. These proposals are also well aligned with the desire to regenerate East Barnwell, where the poor urban realm and lack of safe facilities for pedestrians and cyclists are identified barriers.

## Phase A Improvements (including relocated Park and Ride)



- 2.3 Phase B proposals for a High-Quality Public Transport scheme, outlined in the map below, align with the Local Transport Plan. They would also potentially unlock the safeguarded land on the Marshalls site if this site is adopted in the Greater Cambridge Local Plan.

## Phase B showing potential alignment for High Quality Public Transport scheme



- 2.4 Proposals for improvement to the Cambridge to Newmarket railway line in the longer term, would potentially form a part of the upgrade of this line to become the Eastern section of East West Rail.

#### *Economic Case*

- 2.5 The Phase A proposals provide benefits to public transport users but disbenefits to car drivers. There are, however, benefits to non-motorised users.
- 2.6 The Phase B proposals do not provide significant journey time savings when considered in isolation because of congestion encountered as vehicles approach the city centre. The scheme is, however, required to unlock the Marshalls site and the wider economic impacts such as land value uplift are, therefore, considerable and in line with other GCP major schemes.
- 2.7 Economic appraisal was hampered by an inability to collect meaningful yet critical new data as a result of the Covid-19 pandemic, and the limitations modelling work which could be undertaken. Whilst the appraisal was not conclusive, the SOBC indicates that potentially the scheme could achieve High Value for Money.

#### *Financial Case*

- 2.8 No design work has been undertaken to date, however initial estimates of the costs of Phase A and Phase B proposals, summarised in the Financial Implication section of this report, are in excess of the identified budget of £50M, but there is significant potential for developer contribution to offset the deficit. As such it should be possible to deliver the scheme without exceeding the proposed GCP contribution.

#### *Commercial and Management Cases*

- 2.9 The basis for the Commercial and Management Cases has been set out, but at SOBC stage there are no particular issues of note. These cases will be substantially developed by the time that an Outline Business Case is produced, as is recommended.

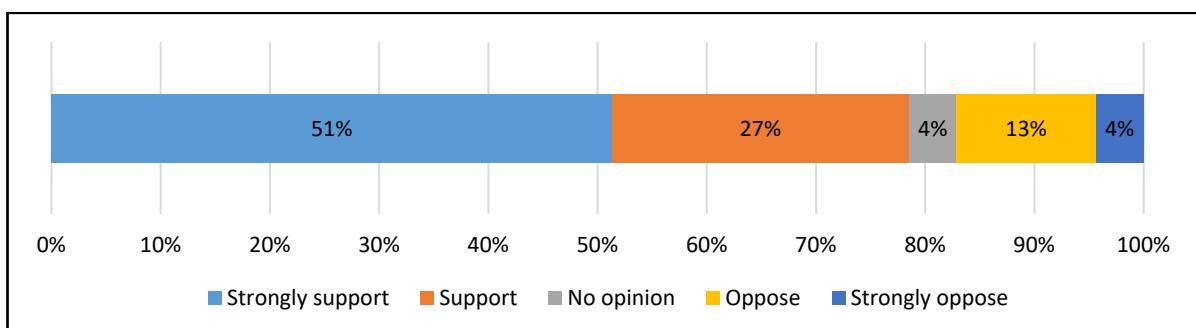
### **3. Consultation and Engagement**

- 3.1 Pre-engagement on the study took place from July 6<sup>th</sup> to August 3<sup>rd</sup> 2020 and has been previously reported to the Joint Assembly.
- 3.2 Full public consultation ran for eight weeks from 26<sup>th</sup> October to midday on 18<sup>th</sup> December 2020. The consultation sought views at an early stage from stakeholders and the public on potential options to improve transport to the east of the city. The five options were as follows:
- Option A1: Newmarket Road improvements.
  - Option A2: Newmarket Road improvements plus Park & Ride relocation.
  - Option B1: High Quality Public Transport Route via Coldham's Lane.
  - Option B2: High Quality Public Transport Route via The Tins.
  - Option B3: Long term rail opportunity.

- 3.3 Due to the Covid-19 pandemic the consultation took a ‘digital by default’ strategy with all activity online.
- 3.4 In addition over 22,000 hard copy consultation brochures were distributed to homes and businesses in the area. To enable people without internet access to respond to the consultation we posted out a hard copy of the online survey on request.
- 3.5 To provide an opportunity for people to raise issues and ask questions we arranged and publicised online public events:
- A Zoom webinar, primarily about the CEA consultation but which also covered other GCP projects relevant to the area. This took the format of a presentation followed by a Q&A with the project team.
  - A Zoom Q&A where members of the public could book a 10-minute slot to ask their specific questions of the project team.
  - A Twitter Q&A where people could tweet their questions to the project team.
- 3.6 As well as our own meetings we attended virtual meetings set up by other groups as requested during the consultation period. These are detailed below:
- A to B1102 Transport Group.
  - Abbey People.
  - Coldham's Lane Residents' Association.
  - East Area Committee.
  - Great and Little Wilbraham and Six Mile Bottom Parish Council.
  - Romsey residents, set up by Romsey councillors.
  - Teversham Parish Council.
  - Transport Strategy Team.

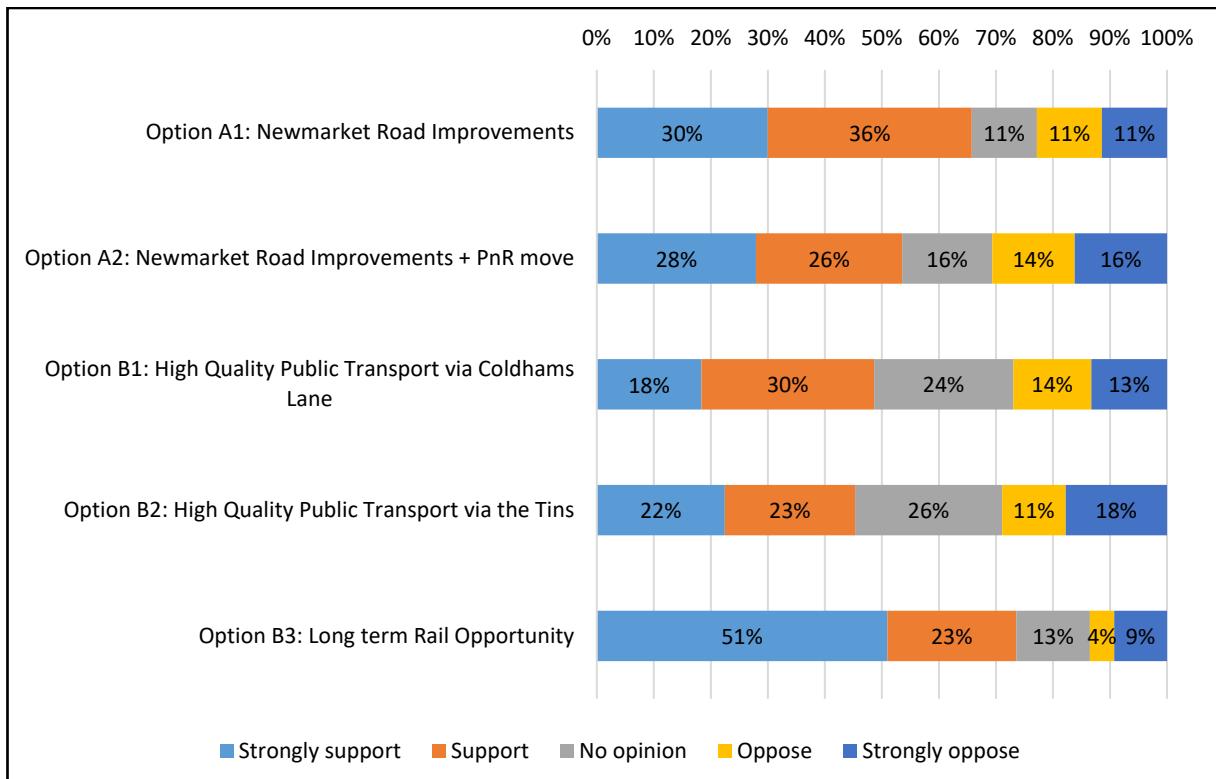
3.7 The key findings of this piece of work are:

- The majority of respondents (79%) supported the proposal to improve public transport and associated active travel routes into Cambridge from the East of the city.



- All Options considered were supported by a majority of respondents expressing an opinion on that option. Three of the five proposed routing options were supported by the majority of respondents ('Option B3: Long term Rail Opportunity', 'Option A1: Newmarket Road Improvements', 'Option A2: Newmarket Road Improvements + PnR move'). Just under half of respondents (48% and 45% respectively) supported the two other routing

options ‘Option B1: High Quality Public Transport via Coldham’s Lane’ and ‘Option B2: High Quality Public Transport via the Tins’.



- The majority of respondents indicated that access to ‘Cambridge City Centre shops and businesses’; ‘Cambridge Main Railway Station’.
- ‘Addenbrooke’s/Cambridge Biomedical Campus’; ‘Beehive Centre and other shops on Newmarket Road’ be given ‘somewhat high’ or ‘very high’ priority on the route.
- Two fifths of respondents indicated that ‘access to Cambridge Science Park’ was a ‘somewhat high priority’ or ‘very high priority’.
- The majority of people thought that ‘Option B3: Long term Rail Opportunity’ would have a ‘Somewhat positive environmental impact’ or ‘Positive environmental impact’. Over two fifths of respondents felt the other options would have a ‘Somewhat positive environmental impact’ or ‘Positive environmental impact’.

### 3.8 A great many detailed comments were received, from which the most common areas of discussion that need to be reflected in the next stages of work, were:

- Discussions about the need for improvements to cycling and walking infrastructure across the proposals and further east.
- Discussions about the importance of the improvements to the rail network.
- Concerns about the proposals’ impact on nearby areas, particularly Coldham’s Lane and Mill Road.
- Debate about the need for and location of a new Park & Ride site.
- Discussions about the need for general improvements to public transport, including reduced fares, increased regularity, and connections to rural locations.

- 3.9 A summary report of the consultation findings and responses is appended to this paper.

## 4. Options and Emerging Recommendations

- 4.1 There are four broad recommendations to the Executive Board.

*Recommendation 1. It is recommended that improvements to Newmarket Road comprising a combination of Options A1 and A2, but excluding the relocation of the Park and Ride, should be further developed and subjected to further consultation in order to prepare an Outline Business Case.*

- This should be developed to complement work ongoing on City Access, on eTROs, and on the regeneration of East Barnwell. As well as improving public transport, walking and cycling, improvements to the urban realm on Newmarket Road, notably at the Elizabeth Way and Barnwell Road roundabouts are needed. The Park and Ride was included in Phase A consultation but on reflection it is considered better to seek to make rapid progress on the Newmarket Road improvements which can be delivered within the highway boundary whereas the Park and Ride involves seeking planning consent for a Green Belt site, and that process should not delay delivery of the remainder of Option A.
- Consideration had also been given to possible restrictions of A14 Junction 34, but consultation with local communities identified the possibility of this leading to severance, for example between Horningsea and Milton, whilst the junction may also have a role to play as plans for the proposed Waste Water Treatment Plant develop.
- The Executive Board will be asked to approve further development of a refined Option A option and consultation on that option in order that an OBC can be prepared.

*Recommendation 2: It is recommended that the development of a new Park and Ride site located to the east of Airport Way and south of Newmarket Road should be pursued. Given the Green Belt location this will be separated from the remainder of Option A but can be advanced before the remainder of Option B.*

- Further consideration will need to be given as to whether the Park and Ride can be developed in isolation from the HQPT scheme. Whilst it can be developed independently of development of the Marshalls site, proximity to the site means that, if it is allocated for development, care will be required to reflect the emerging Masterplan.
- There has been debate as to whether the Park and Ride should be the other side of the Quy Interchange from the City but such options have not been pursued because not only would many car drivers would still have to negotiate Quy Interchange but all buses would be forced to pass through it.
- Some elements of the emerging package of works relate to the Quy Interchange and the approach to the Interchange along Newmarket Road. It is anticipated that some of these works might be addressed by Anglian Water in order to improve access to its proposed Waste Water Treatment Plant.

- The Executive Board will be asked to approve the development of proposals for the relocated Park and Ride and associated infrastructure, and consultation on that option in order that an OBC can be prepared.

*Recommendation 3: It is recommended that the development of the Option B proposals should continue alongside the consideration of the Marshalls site in the development of the GCLP.*

- Whilst the long-term development of the CAM is unclear it is recommended that the use of Coldhams Lane be considered as the route into the City Centre. This will require consideration of improvements at the Barnwell Lane-Coldhams Lane roundabout, already assessed by CPC, of the constraints posed by the railway overbridge, and of the eTRO proposals for a modal filter on Coldhams Lane. Whilst these represent real challenges, they represent opportunities for significant improvement whereas the alternative route via the Tins and Brookfields would be challenging to deliver, create environmental disbenefits and likely to be far less acceptable locally.
- The Executive Board will be asked to approve further development of a high quality public transport scheme and associated park and ride subject to the inclusion of the Marshalls site within the preferred options for the draft Greater Cambridge Local Plan which are due to be consulted on later in 2021. The Executive Board will be asked to note that the scheme will be developed alongside, and as an integral element of, the emerging Masterplan for the site.

*Recommendation 4: that GCP continue to engage with Network Rail, East West Rail Consortium, East West Rail Company and other stakeholders with regards to potential improvements to the Cambridge to Newmarket Line.*

- Delivery of longer term upgrades are likely to form a part of the wider East West Rail programme, and there is limited scope to deliver new stations until there is clarity with regards to the intentions of East West Rail and potential twin-tracking. The publication, by the Consortium, of an SOBC for the Line later this year is a first step in that process. As such GCP will seek to support and promote the benefits of upgrades and ensure that connectivity is in place to maximise the benefits of emerging proposals.
- The Executive Board will be asked to note the potential to improve the Cambridge to Newmarket Line through twin-tracking and the addition of additional stations, and to agree that GCP should support the rail sector in maximising the potential benefits of this asset.

## 5. Alignment with City Deal Objectives

- 5.1 The proposed investment is consistent with the deal agreed between Government and Greater Cambridge which allows Greater Cambridge to maintain and grow its status as a prosperous economic area. Specifically, this initiative removes a barrier to new homes and jobs and enables the provision of better greener transport and improved air quality.

- 5.2 Phase A proposed measures address existing barriers to growth represented by congestion on the Newmarket Road. Phase B improvements relate directly to growth by unlocking the Marshalls site for development and provision of housing and jobs.
- 5.3 In addition, the proposals set out in this report will support the realisation of a series of benefits, including:
- Securing the continued economic success of the area through improved access and connectivity;
  - Significant improvements to air quality and enhancements to active travel, supporting a healthier population;
  - Reducing carbon emissions in line with the partners' zero carbon commitments;
  - Helping to address social inequalities where poor provision of transport is a contributing factor; and
  - Wellbeing and productivity benefits from improving people's journeys to and from employment.

## 6. Citizen's Assembly

- 6.1 Citizens' Assembly members developed and prioritised their vision for transport in Greater Cambridge. The range of solutions being considered for CEA directly contributes to delivery of 5 of the highest 7 scoring priorities, namely:
- Provide affordable public transport (32).
  - Provide fast and reliable public transport (32).
  - Be environmental and zero carbon (28).
  - Be people centred – prioritising pedestrians and cyclist (26).
  - Enable interconnection (e.g. north/south/east/west/urban/rural) (25).
- 6.2 In addition, CEA has the potential to complement delivery of the other highest scoring priorities:
- Restrict the city centre to only clean and electric vehicles (27).
  - Be managed as one coordinated system (e.g. Transport for Cambridge) (25).

- 6.3 The Citizens' Assembly voted on a series of measures to reduce congestion, improve air quality and public transport. Of the measures considered, Assembly members voted most strongly in favour of road closures, followed by a series of road charging options (clean air zone, pollution charge and flexible charge). These will be considered further as packages develop.

## 7. Financial Implications

- 7.1 The allocation for Cambridge Eastern Access within the GCP Financial Investment Strategy is £50M. The total initial cost estimates prepared for the SOBC exceed this sum for Phases A and B. They are summarised below:

<b>£M</b>	<b>Capital Cost</b>	<b>Revenue Cost</b>
Phase A – online	23	6

Phase A – Park and Ride	36	0
Phase B – Busway	49	3
Total	108	9

7.2 Clearly the total cost is in excess of budget, but the proposals, which will require significantly more detailed work at Outline Business Case stage, include a number of elements which may be delivered through alternative funding sources. Principal amongst these are two major developments, neither of which is confirmed as yet:

- Any proposed Marshalls site redevelopment;
- The relocation of the Anglian Water Waste Water Treatment Plant if that redevelopment proceeds.

7.3 In addition there is some overlap with elements of the Greenways programme which might reduce the above figures further. Clearly there is a need to consider overall scheme finances carefully as the scheme progresses to OBC.

Have the resource implications been cleared by Finance? Yes

Name of Financial Officer: Sarah Heywood

## 8. Next Steps and Milestones

8.1 The following activities are proposed.

- Phase A: Newmarket Road. The proposed next steps would be to develop the plans and work towards refined scheme options for consultation in late 2021 in order to inform preparation of an OBC which would be brought back to the Executive Board in mid 2022.
- Phase A: Newmarket Road Park and Ride. The proposed next steps would be to further develop the proposal for the new Park and Ride and associated highway improvements. As this site is in the Green Belt and outside the highway boundary, it will need planning consent. Whilst that process should not be allowed to delay delivery of Phase A, the Park and Ride might be advanced before Phase B. The Executive Board will be appraised of progress.
- Phase B: High Quality Public Transport Scheme. The next steps for this are dependent on the development of the draft Local Plan and a decision whether or not to recommend the allocation of the Marshalls site. The first provisional indication on this decision is expected later in 2021 with the publication of a Preferred Option for consultation. If the Marshalls site is recommended for allocation, then it is recommended that work will proceed on the HQPT scheme.
- Phase B: Longer term rail Improvements. An initial SOBC for the Cambridge to Newmarket railway line upgrade is expected to be published by the East West Rail Consortium later in 2021. It is recommended that GCP continue to

work with the Consortium, Network Rail and other partners to promote improvement to the corridor.

## Background Papers

<b>Source Documents</b>	<b>Location</b>
Cambridge Eastern Access Strategic Outline Business Case - Strategic Case	<a href="https://greatercambs.filecamp.com/s/NHR9b9wPJG5Mm3qe/d">https://greatercambs.filecamp.com/s/NHR9b9wPJG5Mm3qe/d</a>
Cambridge Eastern Access Strategic Outline Business Case - Economic Case	<a href="https://greatercambs.filecamp.com/s/NZktkN2JFQXYzMay/d">https://greatercambs.filecamp.com/s/NZktkN2JFQXYzMay/d</a>
Cambridge Eastern Access Strategic Outline Business Case - Commercial Case	<a href="https://greatercambs.filecamp.com/s/b05tneDoecqXrPYc/d">https://greatercambs.filecamp.com/s/b05tneDoecqXrPYc/d</a>
Cambridge Eastern Access Strategic Outline Business Case - Financial Case	<a href="https://greatercambs.filecamp.com/s/rcFkH47teBntm9Hi/d">https://greatercambs.filecamp.com/s/rcFkH47teBntm9Hi/d</a>
Cambridge Eastern Access Strategic Outline Business Case - Management Case	<a href="https://greatercambs.filecamp.com/s/825g2eMETBxBLx5i/d">https://greatercambs.filecamp.com/s/825g2eMETBxBLx5i/d</a>
Cambridge Eastern Access Options Appraisal Report	<a href="https://www.greatercambridge.org.uk/asset-library/Transport/Transport-Projects/Cambridge-Eastern-Access/Cambridge-Eastern-Access-OAR-Part-1.pdf">https://www.greatercambridge.org.uk/asset-library/Transport/Transport-Projects/Cambridge-Eastern-Access/Cambridge-Eastern-Access-OAR-Part-1.pdf</a>
Cambridge Eastern Access: Summary Report of Consultation Findings	<a href="https://greatercambs.filecamp.com/s/N3eZklqDW5SVMWUM/d">https://greatercambs.filecamp.com/s/N3eZklqDW5SVMWUM/d</a>
Cambridge Eastern Access: consultation responses	<a href="https://greatercambs.filecamp.com/s/wt7YT795oI405tdc/d">https://greatercambs.filecamp.com/s/wt7YT795oI405tdc/d</a> <a href="https://greatercambs.filecamp.com/s/8j5L8GIIJAURHvD1/d">https://greatercambs.filecamp.com/s/8j5L8GIIJAURHvD1/d</a> <a href="https://greatercambs.filecamp.com/s/0BiGDrZqYG9GXDbb/d">https://greatercambs.filecamp.com/s/0BiGDrZqYG9GXDbb/d</a> <a href="https://greatercambs.filecamp.com/s/SQWboAllW8cx5vY1/d">https://greatercambs.filecamp.com/s/SQWboAllW8cx5vY1/d</a>

Agenda Item No: 10

## Quarterly Progress Report

Report to: Greater Cambridge Partnership Joint Assembly

Date: 10<sup>th</sup> June 2021

Lead Officer: Niamh Matthews – Assistant Director Strategy and Programme, GCP

### 1. Background

- 1.1 The Quarterly Progress Report updates the Joint Assembly on progress across the Greater Cambridge Partnership (GCP) programme.
- 1.2 The Joint Assembly is invited to consider the progress to be presented to the Executive Board and in particular:
  - (a) Note the revised Assurance Framework
  - (b) Note the request to extend the centre for Business Research work until November 2022 at a cost of £60k.
  - (c) Note or comment on the proposed allocation of £150,000 from the city access budget for a secure cycle parking match funding pilot.

### 2. 2020/21 Programme Finance Review

- 2.1 The table below shows spend throughout the 2020/21 financial year, against the agreed budget:

Funding Type	**2020/21 Budget (£000)	2020/21 Expenditure (£000)	2020/21 Actual Variance (£000)	Status*		
				Previous	Current	Change
Infrastructure Programme	41,297	28,231	-13,066	A	A	↔
Operations Budget						

\* Please note: RAG explanations are at the end of this report.

\*\* 2020/21 Budget includes unspent budget allocations from the 2019/20 financial year, in addition to the allocations agreed at the February 2020 Executive Board.

**Key:** R = Red, A = Amber, G = Green – see Appendix 6 for RAG explanations.

### 3. 2021/22 Programme Finance Overview

- 3.1 The table below gives an overview of the 2021/22 budget, as agreed at the March 2021 Executive Board meeting. The detailed budgets have now been adjusted to reflect the carry-forward of any variances from 2020/21 and this can be seen at Appendix 9. This does not change any of the agreed total budgets.
- 3.2 Due to the early stage in the financial year, accurate variances and forecasting information is not available in time for the Joint Assembly paper publication deadline. Data will be presented to the Executive Board in July. Spend to date (below) represents only the month of April this year.

Funding Type	**2021/22 Budget (£000)	Expenditure to Date (£000)	Forecast Outturn (£000)	Forecast Variance (£000)	Status*		
					Previous	Current	Change
Infrastructure Programme							
Operations Budget	41,886	185	TBC	TBC			↔

\* Please note: RAG explanations are at the end of this report.

\*\* 2021/22 Budget includes unspent budget allocations from the 2020/21 financial year, in addition to the allocations agreed at the March 2021 Executive Board.

### 4. Impact of Covid-19 on the GCP Programme

- 4.1 As discussed by the Joint Assembly and Executive Board since the onset of the pandemic, it is difficult to predict the full impact that Covid-19 will have on the delivery of the GCP programme, as significant uncertainties remain e.g. around the impact that any further social distancing measures may have on scheme delivery.
- 4.2 However, the table below identifies new emerging impacts (e.g. delays, and anticipated changes) on the programme and provides references to further discussion throughout this paper, where applicable.

.Workstream	Project	Impacts	Paragraph Reference
Housing	N/A	N/A	N/A
Skills	Skills Contract	Restrictions prohibit contractors from carrying out events in person. Form The Future have managed to revise their programme of activities in light of this.	N/A
Smart	T-CABS	Previous restrictions have caused delays but work is now continuing.	14.2

Transport	Waterbeach to Cambridge	Consultations completed in line with Government restrictions.	N/A
	Eastern Access		
	Experimental Traffic Regulation Orders		
	Histon Road	Work continues. Potential delays if measures tightened; additional cost implications.	11.7
Economy and Environment	N/A	N/A	N/A

## 5. GCP Programme – Strategic Overview

- 5.1 The GCP programme has reached significant strategic milestones in the previous financial year (2020/21). In particular, in May 2020 the Government confirmed that the GCP passed its first Gateway Review, securing the next tranche (£200m) of investment into the programme; then, in December 2020, the Executive Board agreed a revised Future Investment Strategy (FIS), updating the GCP programme in light of new evidence in order to maximise the benefits realised by the residents and businesses in Greater Cambridge through the delivery of the City Deal. The budget strategy agreed by the Executive Board in March 2021 has been designed to deliver the Future Investment Strategy. This includes the budget for this financial year (2021/22).
- 5.2 The 2020 Gateway Review recognised that Greater Cambridge is on the cusp of realising its most transformative infrastructure programme ever, unlocking the economic growth potential of Greater Cambridge over the coming decades. The GCP programme is also referenced in the Local Industrial Strategy (LIS), Local Transport Plan (LTP) and Local Economic Recovery Strategy (LERS) for Cambridgeshire and Peterborough.
- 5.3 Delivery of the Greater Cambridge City Deal supports sustainable economic growth and the accelerated delivery of the Local Plan, as well as enabling a broader transformation in the way Greater Cambridge moves and travels, supporting the transition to zero carbon and creating a more inclusive economy. The GCP's vision for a future travel network is particularly important to support a green recovery from Covid-19, with sustainable transport options vital to enable communities to access work, study and other opportunities the city-region has to offer.
- 5.4 Investments in 2021/22 are essential to progress and deliver the infrastructure required to transform connectivity, with the GCP investing:
- £18.75m to progress the GCP's four major corridor schemes, linking growing communities to the north, south east, east and west of Greater Cambridge. This year, a number of quick wins to improve road safety and sustainable travel options will be finalised on the CSET scheme;
  - £7.7m on cycling and active travel schemes, including finalising the design of the Greenways routes and delivering Phase 1 of the Chisholm Trail;
  - £12.1m on further schemes to improve public transport and sustainable travel options, including completing the Histon Road scheme and

investing £5m in specific public transport and other measures to encourage sustainable travel through the City Access project.

- 5.5 Aside from investments in transport improvements, GCP investments in Skills, Smart, Housing and Economy & Environment projects (as detailed throughout this paper), totalling more than £2m in 2021/22, will continue to alleviate barriers to economic growth and shared prosperity in Greater Cambridge. Particularly, the new Skills contract delivered by Form the Future, with Cambridge Regional College, will build on the delivery of new, high quality apprenticeships during the GCP's first five years of investment, providing local businesses with the skills they need to grow. The GCP continues to progress work to enhance energy grid capacity to sustain local growth and the Smart Cambridge programme is investing over £1m in projects to maximise the benefits of technological and digital innovation across the GCP programme.

## 6. Workstream Updates

- 6.1 This section includes key updates on progress, delivery and achievements across the GCP programme in the last quarter. Full reports for each workstream are attached to this report (Appendix 1-Appendix 5).

### Transport

- 6.2 Good progress continues to be made on a number of schemes. Histon Road is nearing completion, whilst a Transport and Works Act Order is expected to be submitted later this year for phase 2 of the Cambridge South East Project.
- 6.3 Following the March Executive Board paper on City Access, officers have supported the Combined Authority to submit an Expression of Interest for the government's Zero Emissions Bus Regional Area fund and will continue to work with CPCA officers on the Authority's Bus Improvement Plan, due for submission in late October. Preparations are underway for a consultation on active travel investment this summer, alongside the roll out of 'quick wins' including new e-cargo bikes, the launch of the 'playing out' scheme and further secure cycle parking. Progress has also been made with strategic studies considering the road network hierarchy, the development of an integrated parking strategy, options to encourage take-up of cleaner vehicles and limit access to the most polluting, and improving accessibility for all. The Joint Assembly and Executive Board will be asked to consider next steps for the project at their September meetings.
- 6.4 Two schemes within the GCP programme are currently RAG rated as red for project progress. The first is Cambourne to Cambridge due to the project being substantively paused following two interventions by the former Mayor of Cambridgeshire and Peterborough in 2018 and 2020. The project is now pending the outcome of the independent review. The second project is Residents Parking. A 4-year funding commitment to the County Council to facilitate the introduction of residents parking schemes ended in March this year although not all the allocation was used due in part to a County moratorium on new schemes over the last year. The work agreed by the Executive Board to develop an integrated parking strategy with the county and city councils includes consideration of further residents parking schemes. A report to the Assembly and Board is planned for later this year. The

cross-city cycling programme has been completed with the exception of one floating bus stop, this will be completed this year.

- 6.5 One scheme within the GCP programme is RAG rated as red for expenditure. This is the Chisholm Trail; the project is currently over-budget. A report on overall project overspend was submitted to GCP Executive Board on 10th December 2020 where an additional budget of £6.582m was agreed for Phase 1 of the Chisholm Trail.
- 6.6 The full workstream report for Transport, including tables outlining delivery and spend information, is available in Appendix 1.

## Skills

- 6.7 The Skills contract entered in to with Form the Future in 2019 came to a successful conclusion at the end of March 2021. All the KPI targets were exceeded. Given the continued impact of Covid-19 on the labour market, this is a significant achievement.
- 6.8 The Skills contract had a significant impact on local people with many local businesses and employees giving up their time to provide mentoring and support for people to obtain new skills such as CV writing and interview technique.
- 6.9 Members approved the award of the new four-year skills and training contract in March this year. Following a competitive exercise, Form the Future were the successful bidder. The new contract became operational in April and progress against targets will be reported at the next cycle of Joint Assembly and Executive Board meetings.
- 6.10 The full workstream report for Skills is available in Appendix 2.

## Smart

- 6.11 The C-CAV3 Autonomous Vehicle project has been slightly delayed due to the successive national lockdowns, however work has now been re-started and autonomous running will be possible from mid-May. A media launch of the trials took place on the 27<sup>th</sup> May with press releases and a short film of the trials being made available to the national and local press
- 6.12 A number of projects have been completed including the Intelligent City Platform, Data Visualisation, the first phase of the New Communities project as well as phase one of both the Smart Signals and the Strategic Sensing Network projects.
- 6.13 The full workstream report for Smart is available in Appendix 3.

## Housing

- 6.14 The full workstream report for Housing is available in Appendix 4.

## Economy & Environment

- 6.15 **Sectoral Employment Analysis:** The latest update from the Greater Cambridge Sectoral Employment analysis was released in February and gives some headline figures on the impact of Covid-19 on our sectors. Further analysis is due for publication at the end of June and will be reported during the next Joint Assembly and Executive Board cycle.
- 6.16 **Energy Grid project:** Formal grid applications have been submitted to UKPN for the highest priority electricity substations identified in the feasibility study undertaken on GCP's behalf. UKPN's response will provide us with details needed for the Outline Business Case including timeline and cost information, and is expected in early August.
- 6.17 The full workstream report for Economy & Environment is available in Appendix 5.

## 7. Recommendations

### Revised Assurance Framework

- 7.1 The GCP's Assurance Framework has been updated jointly by GCP officers and MHCLG officials to ensure it reflects up to date governance arrangements and recently changed national project assessment guidance. The Framework has been through a formal sign off process within MHCLG and can be found on the GCP Website<sup>1</sup>. As the Framework states, it will be annually reviewed to ensure it continues to reflect local arrangements for decision making and is in line with national project assessment guidance.

### Further Centre for Business Research funding

- 7.2 The Executive Board previously approved a project to support the Centre for Business Research (CBR), at the University of Cambridge, to undertake a localised analysis of the sectoral impact of Covid-19 on the Greater Cambridge economy. This was initiated in partnership with Cambridge Ahead.
- 7.3 The approach used by the CBR involves the team producing analysis on a quarterly basis, using employment and turnover data to give a detailed insight into the strength of Greater Cambridge's unique local sectors. As part of its reporting, the CBR presents findings (virtually) to the GCP Executive Board and other key stakeholders.
- 7.4 The approach proposed above enables the GCP to effectively understand, represent and address the challenges posed to specific sectors within the local economy on an ongoing basis, at a depth that far exceeds national-level projections. Crucially, it delivers insight that would otherwise not exist into the impacts of Covid-19 on key sectors that are of both local and national importance, such as Technology and Life Sciences. This data will therefore strengthen recovery strategy activities with local and national stakeholders.

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<sup>1</sup> <https://www.greatercambridge.org.uk/about-city-deal/governance>

- 7.5 The current approval covers one further data draw in June/July this year. Given the unique insight the previous reports have delivered officers recommend extending the GCP's support of the work until November 2022 at a cost of £60k. Cambridge Ahead have agreed in principle to continue to collaborate on this work and also to continue to share a portion of the costs (details tbc). This extension would deliver two full years' worth of unique economic analysis and help continue to shape the GCP's programme as the economic situation inevitably continues to change in light of Covid-19.

### Secure Cycle Parking – match funding for workplaces pilot

- 7.6 Last year, the Executive Board agreed that the City Access project should support the creation of additional secure cycle parking. Proposals are being developed for publicly accessible facilities in the city centre. Alongside this, it is proposed that the GCP runs a match funding pilot supporting workplaces to install secure cycle parking facilities. As a lack of secure cycle parking can be a barrier to people cycling, and in particular to the uptake of e-bikes, new secure cycle facilities would encourage employees commuting to a workplace to cycle and help support a green recovery.
- 7.7 The proposed match funding pilot would offer grants to workplaces of 25-50% of the cost of secure cycling facilities, with a cap of £10,000 per scheme. The amount awarded would be determined by the type of facilities being installed, the activities undertaken by the workplace to encourage cycling and discourage car use, and financial circumstances. In exceptional financial circumstances, an award of up to 75% may be made. The type of facilities that could be installed would include, but not be limited to: individual bike lockers, bike hangers, lockable cycle store, cycle cage/hub with swipe card entry, secure gate/fence, lighting and CCTV. For the pilot, the GCP would run at least one funding round where workplaces would be invited to submit applications for grants. Following scoring, officers would work with shortlisted workplaces, referencing Secured by Design advice to refine proposals before a final application for funding was made.
- 7.8 The proposed budget for the pilot is £150,000, enabling us to support a range of businesses to install facilities and test appetite for a potential wider scheme subsequently. The funding would be allocated from the 2021-22 City Access budget. Subject to Executive Board approval, officers would aim to invite bids for the match funding pilot over the summer, with successful applicants installing facilities from autumn onwards.

## 8. Citizens' Assembly

- 8.1 The contributions of individual projects to the GCP's response to the Citizens' Assembly are contained in reports relating specifically to those items.

## 9. Financial Implications

- 9.1 This report includes an overview of the year-end financial expenditure against budgets as well as approval of new expenditure.

9.2 At a strategic level the GCP has agreed to over-programme. Planned over-programming in this way is in place to provide future flexibility in programme delivery. Based on the budget agreed by the Executive Board in March 2021 the proposed over-commitment is £123m. This assumes that the GCP will be successful in passing the second Gateway Review and will receive the third tranche of funding (£200m).

**Have the resource implications been cleared by Finance? YES**

Name of Financial Officer: Sarah Heywood

## List of Appendices

Appendix 1	Quarterly Transport Workstream Report
Appendix 2	Quarterly Skills Workstream Report
Appendix 3	Quarterly Smart Workstream Report
Appendix 4	Quarterly Housing Workstream Report
Appendix 5	Quarterly Economy & Environment Workstream Report
Appendix 6	RAG Explanations
Appendix 7	GCP Completed Transport Projects
Appendix 8	Executive Board Forward Plan
Appendix 9	Adjusted GCP Budget

## Background Papers

Source Documents	Location
None	-

# APPENDIX 1: QUARTERLY TRANSPORT WORKSTREAM REPORT

“Creating better and greener transport networks, connecting people to homes, jobs, study and opportunity”

## 10. Transport Delivery Overview

- 10.1 The table below gives an overview of progress for ongoing projects. For an overview of completed projects, including their relation to ongoing projects, please refer to Appendix 7.

Project	Current Delivery Stage	Target Completion Date	Forecast Completion Date	Status		
				Previous	Current	Change
Cambridge Southeast Transport Study (formerly A1307)	Construction / Design	2024	2024	G	G	↔↔
Cambourne to Cambridge / A428 Corridor	Paused	2024	2024	R	R	↔↔
Waterbeach to Cambridge	Early Design	2027	2027	G	G	↔↔
Eastern Access	Early Design	2027	2027	G	G	↔↔
Milton Road	Design (Reprofiled)	2023	2023	G	G	↔↔
City Centre Access Project	Design	2020	2021	A	A	↔↔
Chisholm Trail Cycle Links	Phase 1	Construction	2020	2021	A	A
	Phase 2	Construction	2022	2022	G	G
Cross-City Cycle Improvements	Fulbourn / Cherry Hinton Eastern Access	Construction / Complete	2019	2021	A	A
Histon Road Bus Priority		Construction	2022	2021	G	G
West of Cambridge Package		Design	2021	2022	A	A
Residents Parking Implementation		Implementation / Paused	2021	2021	R	R
Waterbeach Greenway		Project Initiation	2024	2024	G	G
Fulbourn Greenway		Project Initiation	2024	2024	G	G
Comberton Greenway		Project Initiation	2025	2025	G	G
Melbourn Greenway		Project Initiation	2025	2025	G	G
St Ives Greenway		Project Initiation	2023	2023	G	G
Barton Greenway		Project Initiation	2025	2025	G	G
Continued Overleaf						

Bottisham Greenway	Project Initiation	2025	2025	G	G	
Horningsea Greenway	Project Initiation	2025	2025	G	G	
Sawston Greenway	Project Initiation	2025	2025	G	G	
Swaffhams Greenway	Project Initiation	2025	2025	G	G	
Madingley Road (Cycling)	Design	2022	2022	G	G	

**Key:** R = Red, A = Amber, G = Green – see Appendix 6 for RAG explanations.

- 10.2 Whilst the forecast completion dates captured above include the likely impacts of Covid-19 to the extent which they are currently known, it should be noted that considerable uncertainty remains e.g. over the length and extent of social distancing measures and the impact of those on construction works.
- 10.3 As in section 6 above, two schemes within the GCP programme are currently RAG rated as red. The first is Cambourne to Cambridge due to the project being substantively paused pending the outcome of the independent review. The second project is Residents parking. A 4-year funding commitment to the County Council to facilitate the introduction of residents parking schemes ended in March this year although not all the allocation was used due in part to a County moratorium on new schemes over the last year. The work agreed by the Executive Board to develop an integrated parking strategy with the county and city councils includes consideration of further residents parking schemes. A report to the Assembly and Board is planned for later this year.

## 11. 2020/21 Transport Finance Review

11.1 The table below contains a summary of the expenditure to March 2021 (year-end) against the budget for the year.

Project	Total Budget (£'000)	2020-21 Budget (£'000)	2020-21 Expenditure (£'000)	2020-21 Variance (£'000)	2020-21 Budget Status		
					Previous	Final	Change
Cambridge Southeast Transport (formerly A1307)	147,935	12,945	6,012	-6,933	G	G	↔↔
Cambourne to Cambridge / A428 corridor	157,000	4,500	1,037	-3,463	G	G	↔↔
Waterbeach to Cambridge	52,600	236	272	+36	G	G	↔↔
Eastern Access	50,500	532	193	-339	G	G	↔↔
West of Cambridge Package	42,000	1,817	5,568	+3,751	A	A	↔↔
Milton Road Bus, Cycle and Pedestrian Priority	23,040	116	378	+262	A	A	↔↔
Histon Road Bus, Cycle and Pedestrian Priority	10,000	7,209	5,172	-2,037	G	G	↔↔
City Centre Access Project	9,888	2,290	1,898	-392	G	G	↔↔
Travel Hubs	700	100	73	-27	G	G	↔↔
Residents Parking Implementation	1,191	350	125	-225	G	G	↔↔
Chisholm Trail	20,851	3,710	4,687	+977	R	R	↔↔
Greenways Quick Wins	3,079	0	68	+68	G	G	↔↔
Greenways Programme	76,000	3,208	130	-3,078	G	G	↔↔
Cross-City Cycle Improvements	11,266	306	214	-92	G	G	↔↔
Madingley Road (Cycling)	170	170	290	+120	A	A	↔↔
Cambridge South Station	1,750	749	0	-749	G	G	↔↔
Programme Management and Scheme Development	3,350	343	354	+11	G	G	↔↔
<b>Total</b>	<b>611,320</b>	<b>38,581</b>	<b>26,471</b>	<b>-12,110</b>	G	G	↔↔

**Key:** R = Red, A = Amber, G = Green – see Appendix 6 for RAG explanations.

11.2 The explanation for any variances is set out in the following paragraphs.

### 11.3 Cambridge South East Transport Study (A1307)

Year-end expenditure for Cambridge South East is £6.01m, with an underspend of £6.93m due to issues related to the Phase 1 scheme as outlined below.

Phase 1 – 2020/21 Phase 1 spend was under budget, partly due to land acquisition issues. These issues continue to be positively resolved and a delivery programme for the remaining Phase 1 schemes has been developed.

Phase 2 – Phase 2 had an overspend of just over £1m against its initial budget of £2.427m at the beginning of the year 2020/21. This was due to the Ground Investigation and Archaeology surveys exceeding initial budgets following the rapid pace of progress made on the scheme. A scheme cost estimate has been carried out and is now going through an assurance process. The project is on track against its current programme with a slight delay to the Transport and Works Act Order (TWAO) submission now scheduled for Autumn/Winter 2021.

#### **11.4 Cambourne to Cambridge (A428)**

The project has been paused for much of 2020/21 and based on this, there was an underspend of £3.46m at year-end.

An independent review of the scheme, some data collection and comms work recently recommenced, but due to the pause, spend was limited in the 2020/21 financial year.

#### **11.5 West of Cambridge Package**

Cambridge South West Travel Hub (CSWTH) had a year-end overspend of £3.75m. Originally the land exchange cost for the scheme was anticipated to be delivered at the end of 2019/20 but the exchange of funds to LGSS Law was transferred in June 2020, hence the overspend.

Foxton Travel Hub works are currently on programme and met the budget.

#### **11.6 Milton Road Bus, Cycle and Pedestrian Priority**

Construction of Milton Road has been reprogrammed. Therefore, the scheme is still in Detailed Design stage. All of 2020/21's spend went against finalising the detailed design, surveys, and contractor procurement.

The overspend of £262k at the end of the 2020/21 financial year reflects the fact that some pre-construction activities were brought forward, including coring and ground penetrating radar (GPR) surveys. Some additional design costs associated with resolving issues around levels and underground services have also been realised.

#### **11.7 Histon Road Bus, Cycle and Pedestrian Priority**

Histon Road is under construction and is due to be completed in the Summer of 2021. Despite the two-month site closure in April/May 2020, due to Covid-19, the project is still on schedule to meet this timeline following a rescheduling of the programme. However, the budget profile has changed with some costs to be moved in to 2021/22, amounting to a reduction of last year's spend profile by approximately £2m. In addition to this, the Executive Board have agreed to increase the overall budget to £10.6m to cover increased costs, linked partially to Covid-19 and the removal of additional contaminated materials from the site.

## **11.8 City Centre Access Project**

The 2020/21 City Centre Access budget was revised to take account of the experimental traffic management measures that have been delivered by GCP in response to the Covid-19 pandemic. Spending on other work streams was delayed, awaiting further decisions by the Executive Board which is reflected in the £392k underspend.

## **11.9 Residents' Parking Implementation**

The implementation of new Resident Parking Schemes was suspended by the County Council's previous Administration (Highway and Infrastructure Committee) in March 2020 – this 'pause' was to allow consideration to be given to how the delivery of future schemes could form part of a wider programme measure to support sustainable travel choices.

The focus during 2020/21 was on delivering the Benson North scheme (approved prior to the 'pause') and reviewing six previously installed schemes. These projects have been paused for much of the year and based on this and the absence of any new scheme, there has been an underspend of £225k.

As the six scheme reviews will now recommence, £70k of last year's underspend will need to be carried forward into 2021/2022 to cover these review commitments.

The Highways and Transport Committee agreed in March 2021 that the future direction of Resident Parking Schemes should form part of the Integrated Parking Strategy.

## **11.10 Chisholm Trail**

The construction contract covers both Chisholm Trail Phase One and Abbey-Chesterton Bridge. The majority of the costs had initially been charged to Chisholm Trail. Following an apportionment exercise, an approach to charging costs incurred to the bridge (in line with budget) has been agreed by Cambridgeshire County Council and GCP and has now been actioned. All future costs will be charged to the Chisholm Trail (Phase 1).

A report on overall project overspend was submitted to GCP Executive Board on 10th December 2020 where an additional budget of £6.582m was agreed for Phase 1 of the Chisholm Trail, bringing the overall budget for both Phases 1 and 2 to £20.851m.

Underpass construction commenced on 26th March and after a 7-day period of 24-hour working, was successfully completed on 2nd April, as planned.

## **11.11 Greenways Programme**

All 11 projects were allocated outline budgets during 2020/21.

Due to the delay of the Professional Services Framework procurement process, there was a £3.08m underspend for the 2020/21 financial year.

## **11.12 Cross-City Cycle Improvements**

The 20/21 budget for this project was £306k for completion of works in Fen Ditton and on Fulbourn Road. The Fen Ditton works were completed in November 2020. An assessment of the Robin Hood junction improvement scheme has been undertaken and it has been agreed that both of the floating bus stops will now be constructed.

A utility diversion refund of £128k from Virgin Media has now been received along with an additional £81k of S106 funding, and a £41k refund from Cambridge Water. The S106 funding is to be allocated to the Fen Ditton scheme.

The remaining budget has been carried over into 2021/22.

An agreed sum is to be allocated to the Robin Hood Junction Improvement scheme and the remainder will enable all Cross-city Schemes to be completed and closed down.

The expenditure for this project is anticipated to be on target.

## **11.13 Madingley Road (Cycling)**

The end-of-year variance shows a £120k overspend as additional funding has yet to be agreed beyond the £170k budget (originally agreed up to option approval stage). The target cost for the pre-design stage (May 2021), up to 65% completion of the full design, is £450k.

## **11.14 Cambridge South Station**

The Department for Transport (DfT) have now requested the remainder of the GCP's contribution to the project initiation works. Associated expenditure will now be released imminently (within the current financial year).

## **11.15 Programme Management and Scheme Development**

Year-end figures show a minor overspend. This additional expenditure was required to cover the costs of legal support services for the Professional Services Framework.

## APPENDIX 2: QUARTERLY SKILLS WORKSTREAM REPORT

"Inspiring and developing our future workforce, so that businesses can grow"

Indicator	Target (to March 2021)	Progress (01/03/21)	Status		
			Previous	Current	Change
Number of people starting an apprenticeship as a result of an Apprenticeship Service intervention.	420	436	G - Met	↔↔	
Number of new employers agreeing to support an apprenticeship scheme.	320	425	G - Met	↔↔	
Number of schools supporting new, enhanced apprenticeship activity.	18	27	G - Met	↔↔	
Number of students connected with employers.	7,500	13,358	G - Met	↔↔	

Progress data from the start of the contract in March 2019, up to 1<sup>st</sup> March 2021

**Key:** R = Red, A = Amber, G = Green – see Appendix 6 for RAG explanations.

## 12. Review of the GCP Apprenticeship Service (2019-2021)

- 12.1 The GCP Apprenticeship Service, delivered over two years, is now complete.
- 12.2 Monitoring data for the four service KPIs is outlined in the table above. Data is reported as of beginning of March 2021. Service data shows that:
  - Form the Future has exceeded their targets against all the KPIs; and
  - Despite the continuing challenges that they have faced due to coronavirus lockdowns and the resulting instability within the labour market, the service has managed to remain on target and exceed its target further within the last three months of the contract.
- 12.3 Form the Future have been able to successfully support 436 new apprenticeship starts. These apprenticeships vary significantly from a level 2 qualification which is similar to GCSE level to a level 7 qualification which is equivalent to a Masters degree. There is also a significant variation between the subject of the apprenticeships.
- 12.4 There was a wide and varied selection of employers that were involved with candidate engagement activities over the two-year period, totalling over 110, with the majority of these being from the industries significant to the Cambridge ecosystem such as STEM, Business, Legal, Construction and Property firms.
- 12.5 Form the Future facilitated a significant number of individuals who volunteered their own time to talk to students at over 85 events in schools, reaching over 13,000 students. There were further events planned but Covid unfortunately impacted those. Form the Future were able to react and create new virtual events that were well received.

## **13. Update on Current Skills Delivery (2021-2025)**

- 13.1** As reported in section 6, the GCP's new skills and training contract began delivery on 1<sup>st</sup> April. Given the early stage in contract delivery, progress against targets will be reported during the next Joint Assembly and Executive Board cycle.

## APPENDIX 3: QUARTERLY SMART WORKSTREAM REPORT

“Harnessing and developing smart technology, to support transport, housing and skills”

### 14. Smart Programme Overview

Project	Target Completion Date	Forecast Completion Date	Status		
			Previous	Current	Change
T-CABS (CCAV3 Autonomous Vehicle Project)	Dec 2020	Jun 2021	A	G	↑
Digital Wayfinding – Procurement and Installation	Jun 2021	Jun 2021	G	G	↔
ICP Development – Building on the Benefits		Phase Complete	G	G	↔
Data Visualisation – Phase 2		Phase Complete	A	A	↔
New Communities Phase One ( <i>Extended</i> )		Phase Complete	G	G	↔
Smart Signals – Phase One		Phase Complete	G	G	↔
Strategic Sensing Network – Phase One		Phase Complete	G	G	↔
Smart Signals – Phase Two	Mar 2022	Mar 2022	G	G	↔
Smart Signals – Phase Three	Jun 2022	Jun 2022	N/A	N/A	
Strategic Sensing Network – Phase Two	Mar 2022	Mar 2022	G	G	↔

Progress reported up to 30<sup>th</sup> April 2021

**Key:** R = Red, A = Amber, G = Green – see Appendix 6 for RAG explanations.

14.1 A revised forward plan of work is being developed to reflect requirements in the context of the increasing pace of delivery across GCP workstreams.

#### 14.2 C-CAV3 Autonomous Vehicle Project

The team were able to return to site on 13<sup>th</sup> April and work on the trials has re-started. The mapping of the route using the first vehicle is expected to complete shortly, meaning that autonomous running (with the safety operator onboard) will be possible from mid-May for the first vehicle. The second vehicle arrived onsite 5<sup>th</sup> May and work to map the route began w/c 10<sup>th</sup> May. The third vehicle is on schedule to be delivered by early June.

A media launch of the trials took place on the 27<sup>th</sup> May with press releases and a short film of the trials being made available to the national and local press.

To ensure that the trials remain covid-secure while social distancing measures remain in place, only limited numbers of invited passengers will be allowed on-board. The trials will close at the end of June 2021.

The final updates to the business case for the use of Autonomous Vehicles to connect Eddington and West Cambridge in the future are in progress and the document will be delivered to the project team by the end of May (update required ahead of JA publication).

The Smart team continue to work closely with stakeholders including the University of Cambridge and DfT to ensure the remaining time in the project is used to most effectively

#### **14.3 Digital Wayfinding – Procurement and Installation**

As lockdown restrictions are eased and footfall in the city centre increases, the importance of wayfinding and the provision of hyper-local information and data has been identified as crucial to managing the return successfully.

An update to the hardware of the totem at Cambridge Station will be carried out in late May (subject to supply of parts) to resolve a number of ongoing technical faults with the current device. The Smart team will then produce a final report drawing the current phase of work to a close. This will allow the team to use the knowledge and experience gathered throughout this phase to support the initiatives being driven by other organisations in the region such as: the City Council and Cambridge BID in the city centre; Weston Homes at the Station Gateway; and the Cambridge Biomedical Campus.

The closure report, to be issued in June 2021 will summarise the learning achieved from the project and will be shared with interested parties as we work collaboratively to deliver their wayfinding solutions.

#### **14.4 ICP Development – Building on the Benefits**

The Intelligent City Platform (ICP) is now in operation and continues to support innovative solutions such as the SmartPanels and MotionMap journey planner. The platform also provides a unique testbed for data collected from our various projects across the area to be reviewed, analysed and where appropriate, made open to interested members of the public. As the ICP is now fully operational, project delivery is complete and no further updates will be provided in this report.

The methods by which we provision and store data across the GCP area and beyond are currently being reviewed with partner organisations, and knowledge gained throughout the establishment of the ICP is being drawn on to advise this work. For further information on the Sensing Network and Data Platform (see Section 14.8).

The Smart team will work with colleagues at the University to review the contribution that the Intelligent City Platform and the extensive expertise obtained throughout the project can offer

#### **14.5 Data Visualisation – Phase 2**

Data from our Vivacity sensors (monitoring traffic flow across the city) and other key data streams have now been ingested into the latest version of the Geospock platform. The Business Intelligence team has access to the platform and following their training last quarter, have integrated data feeds into Power BI, the tool used by Cambridgeshire County Council which supports the production of dashboards and visualisations. The team have started producing dashboards using the available data.

The goal of this work is to support getting the maximum value from the rich data sources collected by the local authority. By combining them in easily understandable visualisations, more detailed analyses of scenarios can be communicated to officers, members and where appropriate, the wider public.

#### **14.6 New Communities – Phase 1 (Extended)**

Smart Infrastructure, Future Mobility and future Connectivity topic papers prepared by the programme have informed the emerging NE Cambridge Area Action Plan and work is on-going to embed 'Smart' principles and opportunities for data and digital in place-making within the new local plan. This is the end of the first phase of work and activities for the next phase are being developed.

Engagements with other cities and organisations such as Oxford and the Centre for Digital Built Britain also continue to ensure that Cambridge benefits from the knowledge of similar activities being undertaken for new communities across the Arc.

#### **14.7 Smart Signals – Phase 2: Data Collection and Analysis**

This project is being run in collaboration with the City Access project and Cambridgeshire County Council's signals team.

Phase One of the Smart Signals trial has been completed on time with the installation of the sensors at three of the junctions on Hills Road.

Phase Two has started and will see data gathered, analysed and modelled in simulation for up to three months prior to any control being passed to the systems. The Vivacity controller units will be installed by the end of May at the three Hills Road area junctions. This equipment controls the traffic signal timings, determining how long each approach runs for.

The process of using machine learning to establish the optimum settings for the signals will be introduced gradually starting in August. The new system will initially control the signals for short periods, allowing the decisions made by the Vivacity control unit to be analysed and reviewed.

The Robin Hood junction refurbishment is due to be completed by the end of June 2021 and smart signals equipment will be installed at that time. The data collection period will then begin with basic control being assumed by the system three months later in October 21.

Amongst other objectives, the trial will look to understand the extent to which the solution is able to prioritise and reduce delays for various sustainable modes of transport at individual or multiple junctions; whether traffic flow through junctions can be improved; and issues relating to applicability in the Greater Cambridge context. Evaluation of the project will be conducted in phase three starting in Apr 22, and processes to support that activity are now being developed.

## **14.8 Strategic Sensing Network – Phase 2: Procurement**

As mentioned last quarter, Smart are leading on the procurement of a strategic sensing network that would provide classified vehicle counts, cycle counts and pedestrian counts to support the wider GCP programme. To ensure maximum value from the network, officers are engaged with Cambridgeshire County Council and the Cambridgeshire and Peterborough Combined Authority (CPCA) to ensure the network meets their data requirements and to develop a co-funding model.

The data requirements for each organisation have been mapped and a blueprint of a potential sensor network produced. The next step is to agree the footprint of sensors that will be procured, the financial model and who will own and operate them in advance of a procurement estimated to start in September 21.

## APPENDIX 4: QUARTERLY HOUSING WORKSTREAM REPORT

“Accelerating housing delivery and homes for all”

Indicator	Target	Timing	Progress/ Forecast	Status		
				Previous	Current	Change
Housing Development Agency (HDA) – new homes completed	250	2016 - 2018	301	Scheme Complete		
Delivering 1,000 additional affordable homes**	1,000	2011-2031	742 (approx.)	A	A	↔

\*\* *Based on housing commitments as included in the Greater Cambridge Housing Trajectory (April 2021) and new sites permitted or with a resolution to grant planning permission at 31 March 2021 on rural exception sites and on sites not allocated for development in the Local Plans and outside of a defined settlement boundary.*

**Key:** R = Red, A = Amber, G = Green – see Appendix 6 for RAG explanations.

### 15. Housing Development Agency (HDA) Completions

- 15.1 The indicator for “Housing Development Agency (HDA) – new homes completed” is marked as complete. This reflects that the new homes directly funded by the Greater Cambridge Partnership have all been completed. 301 homes were completed across 14 schemes throughout Greater Cambridge. For all subsequent meeting cycles this work will be reported under the completed projects section below (Appendix 7).

### 16. Delivering 1,000 Additional Affordable Homes

- 16.1 The methodology, agreed by the Executive Board for monitoring the 1,000 additional homes, means that only once housing delivery exceeds the level needed to meet the Cambridge and South Cambridgeshire Local Plan requirements (33,500 homes between 2011 and 2031) can any affordable homes on eligible sites be counted towards the 1,000 additional new homes.
- 16.2 The Greater Cambridge housing trajectory published in April 2021 shows that it is anticipated that there will be a surplus, in terms of delivery over and above that required to meet the housing requirements in the Local Plans, in 2022-2023. Until 2022-2023, affordable homes that are being completed on eligible sites are contributing towards delivering the Greater Cambridge housing requirement of 33,500 dwellings.
- 16.3 Eligible homes are “*all affordable homes constructed on rural exception sites and on sites not allocated for development in the Local Plans and outside of a defined settlement boundary*”.

- 16.4 The table above shows that on the basis of known rural exception schemes and other sites of 10 or more dwellings with planning permission or planning applications with a resolution to grant planning permission by South Cambridgeshire District Council's Planning Committee, approximately 742 eligible affordable homes are anticipated to be delivered between 2022 and 2031 towards the target of 1,000 by 2031. In practice this means that we already expect to be able to deliver 74% of the target on the basis of currently known sites.
- 16.5 It should be noted that the figure of 742 affordable homes is lower than the figure of 854 reported in the previous quarterly report. This is due to the publication of an updated Housing Trajectory. Issues around Covid-19 mean that housebuilding rates have been slower than anticipated over the last year. As a result, the point at which housing delivery is projected to exceed the level needed to meet the Cambridge and South Cambridgeshire Local Plan requirements has slipped back from 2021-22 to 2022-23. Therefore, all delivery in 2021-22 previously recorded against the City Deal target has now been discounted.
- 16.6 Anticipated delivery from the known sites has been calculated based on the affordable dwellings being delivered proportionally throughout the build out of each site, with the anticipated build out for each site being taken from the Greater Cambridge Housing Trajectory (April 2021) or from the Councils' typical assumptions for build out of sites (if not a site included in the housing trajectory). When actual delivery on these known sites is recorded, more or less affordable dwellings could be delivered depending on the actual build out timetable of the affordable dwellings within the overall build out for the site and also depending on the actual delivery of the known sites compared to when a surplus against the housing requirements in the Local Plans is achieved.
- 16.7 Although anticipated delivery is below the target of 1,000 affordable dwellings by 2031, the latest housing trajectory shows that 37,226 dwellings are anticipated in Greater Cambridge between 2011 and 2031, which is 3,726 dwellings more than the housing requirement of 33,500 dwellings. There are still a further nine years until 2031 during which affordable homes on other eligible sites will continue to come forward as part of the additional supply, providing additional affordable homes that will count towards this target. Historically there is good evidence of rural exception sites being delivered and therefore we can be confident that the target will be achieved.

## APPENDIX 5: QUARTERLY ECONOMY & ENVIRONMENT WORKSTREAM REPORT

17. Greater Cambridge Implementation of the Local Economic Recovery Strategy (LERS) and Local Industrial Strategy (LIS)
  - 17.1 As outlined in December 2020 and March 2021, the GCP has engaged extensively with the CPCA and other local partners to support the development and delivery of the LERS. In outline, GCP actions include:
    - Supporting the LERS ambition to “accelerate upskilling and retraining”, in particular through the procurement of the new package of Skills interventions;
    - Supporting the LERS ambition to “accelerate a greener and more sustainable economy”, through the delivery of the GCP programme for sustainable travel and the realisation of mode shift and environmental objectives;
    - Strengthening the GCP’s contribution to the above objective by updating the Future Investment Strategy in December 2020, prioritising additional future investment in zero emission buses, active travel measures and public transport services and supporting local partners’ commitments to environmental aims; and
    - In partnership with Cambridge Ahead, funding in-depth, tailored research through the Centre for Business Research, to understand in more detail the impact of Covid-19 on local sectors in Greater Cambridge.
  - 17.2 In March 2021, it was noted that officers will continue to engage with colleagues across Cambridgeshire and Peterborough to support the development and delivery of the LERS in Greater Cambridge. That collaboration is ongoing.
  - 17.3 As previously reported, in January 2020, the GCP and the local authorities in Greater Cambridge (with engagement with the CPCA) collaborated to produce an Action Plan, designed to align ongoing local action with the five ‘foundations of productivity’ outlined in the LIS. The Action Plan identified 82 local actions, grouped under a series of objectives which blend local and regional priorities for growth.
  - 17.4 In late 2020, officers undertook an exercise to identify progress against the actions outlined in the Action Plan. Of the 82 actions identified the majority are well on track with two points worth noting:
    - A number of actions have been disrupted by the pandemic, including those relating to business and community engagement, the visitor economy and longer-term skills and business support needs; and
    - As identified in March, the local approach to some actions (particularly in relation to inward investment) may need to adapt dependent on the scale and scope of the CPCA’s Business Growth service (now Growth Works). Officers will continue to work with CPCA officers as the Service moves through its initial delivery phase.

## 18. Greater Cambridge Sectoral Employment Analysis

- 18.1 As previously outlined, this research programme is being undertaken by the Centre for Business Research (CBR) and is funded by the Greater Cambridge Partnership and Cambridge Ahead. The research will analyse the growth of employment in different sectors across Greater Cambridge, enabling local partners to have robust, timely data on local sectors and businesses. It will take the form of a series of updates, analysing data drawn from company accounts over time, designed specifically to understand the challenges facing specific local sectors over the coming months, in light of Covid-19.
- 18.2 The latest update (also reported in March. Next update due July 2021 and will be reported during the next cycle of Joint Assembly and Executive Board meetings) which was finalised in February analysed data from accounting year ends between 31<sup>st</sup> March 2020 and 31<sup>st</sup> August 2020. The full report can be found at <https://www.greatercambridge.org.uk/asset-library/Future-Investments-Strategy/Research-and-Evidence/CBR-GC-Employment-Update-February-2021.pdf>
- 18.3 This version reports that corporate employment growth has slowed down from 4.7% in 2018-19 to 2.3% in 2019-20 although it is noted that the latter is still a significant rate of growth considering the unprecedented challenges brought about by Covid.
- 18.4 Employment growth in Knowledge Intensive (KI) sectors (+5.4%) has been notably faster than in non-KI sectors (+0.9%). The fastest growing sectors during 2019-20 have been 'Life science and healthcare' (+12.0%), 'Transport and travel' (+5.9%) and 'Information technology and telecoms' (+5.2%). The largest fall in employment has occurred in the 'Other services' (-2.0%) category which includes hotels, pubs and restaurants.
- 18.5 As at recommendation B and section 7 the current Executive Board approval covers one further data draw in June/July this year. Given the unique insight the previous reports have delivered officers recommend extending the GCP's support of the work until November 2022 at a cost of £60k. Cambridge Ahead have agreed in principle to continue to collaborate on this work and also to continue to share a portion of the costs (details tbc). The extension would deliver two full years' worth of unique economic analysis and help continue to shape the GCP's programme as the economic situation inevitably continues to change in light of Covid-19.

## 19 Electricity Grid Reinforcement

- 19.1 As reported in recent Joint Assembly and Executive Board papers, the GCP is developing proposals to forward fund electricity grid reinforcement ahead of need to remove a barrier to jobs and housing growth, with the intention of recouping the investment from developers. As part of this process, formal applications were submitted to UK Power Networks (UKPN) in early May. UKPN's response will provide important information necessary to progress the project including costs and is expected by early August 2021.
- 19.2 GCP has the option to consider delivery of some elements of the new infrastructure using an Independent Distribution Network Operator rather than UKPN, and initial market testing is being evaluated to assess market capability and interest. Work

also continues to explore alternative sources of funding and on lobbying relevant bodies to change current market operation to enable a more satisfactory approach to investing in electricity infrastructure ahead of need.

## APPENDIX 6: RAG EXPLANATIONS

### Finance Tables

- **Green:** Projected to come in on or under budget
- **Amber:** Projected to come in over budget, but with measures proposed/in place to bring it in under budget
- **Red:** Projected to come in over budget, without clear measures currently proposed/in place

### Indicator Tables

- **Green:** Forecasting or realising achieving/exceeding target
- **Amber:** Forecasting or realising a slight underachievement of target
- **Red:** Forecasting or realising a significant underachievement of target

### Project Delivery Tables

- **Green:** Delivery projected on or before target date
- **Amber:** Delivery projected after target date, but with measures in place to meet the target date (this may include redefining the target date to respond to emerging issues/information)
- **Red:** Delivery projected after target date, without clear measures proposed/in place to meet the target date

## APPENDIX 7: COMPLETED GCP TRANSPORT PROJECTS

<b>Project</b>		<b>Completed</b>	<b>Output</b>	<b>Related Ongoing Projects</b>	<b>Outcomes, Monitoring &amp; Evaluation</b>
Ely to Cambridge Transport Study		2018	Report, discussed and endorsed by GCP Executive Board in February 2018.	Waterbeach to Cambridge	
A10 Cycle Route (Shepreth to Melbourn)		2017	New cycle path, providing a complete Cambridge to Melbourn cycle route.	Melbourn Greenway	
Cross-City Cycle Improvements	Hills Road / Addenbrookes Corridor	2017	Range of improvements to cycle environment including new cycle lanes.	Cross-City Cycling	
	Arbury Road Corridor	2019	Range of improvements to cycle environment including new cycleway.	Cross-City Cycling	Impact evaluated by SQW in 2019 as part of GCP Gateway Review.
	Links to Cambridge North Station & Science Park	2019	Range of improvements to cycle environment including new cycle lanes.	Cross-City Cycling	Impact evaluated by SQW in 2019 as part of GCP Gateway Review.
	Links to East Cambridge and NCN11/ Fen Ditton	2020	Range of improvements to cycle environment including new cycle lanes.	Cross-City Cycling	

Greenways Quick Wins	2020	Range of cycle improvements across Greater Cambridge e.g. resurfacing work, e.g. path widening etc.		
Greenways Development	2020	Development work for 12 individual Greenway cycle routes across South Cambridgeshire.	All Greenways routes	
Cambridge South Station Baseline Study (Cambridgeshire Rail Corridor Study)	2019	Report forecasting growth across local rail network and identifying required improvements to support growth.	Cambridge South Station	
Travel Audit – South Station and Biomedical Campus	2019	Two reports: Part 1 focused on evidencing transport supply and demand; Part 2 considering interventions to address challenges.	Cambourne to Cambridge; CSETS; Chisholm Trail; City Access; Greenways (Linton, Sawston, Melbourn)	

## APPENDIX 8: EXECUTIVE BOARD FORWARD PLAN OF KEY DECISIONS

Notice is hereby given of:

- Decisions that will be taken by the GCP Executive Board, including key decisions as identified in the table below.
- Confidential or exempt executive decisions that will be taken in a meeting from which the public will be excluded (for whole or part).

A 'key decision' is one that is likely to:

- a) Result in the incurring of expenditure which is, or the making of savings which are, significant having regard to the budget for the service or function to which the decision relates; and/or
- b) Be significant in terms of its effects on communities living or working in the Greater Cambridge area.

<b>Executive Board: 1<sup>st</sup> July 2021</b>	<b>Reports for each item to be published 21<sup>st</sup> June 2021</b>	<b>Report Author</b>	<b>Key Decision</b>	<b>Alignment with Combined Authority</b>
GCP Quarterly Progress Report	To monitor progress across the GCP work streams, including financial monitoring information.	Niamh Matthews	No	N/A
Cambourne to Cambridge Better Public Transport Project	To receive an update on the Cambourne to Cambridge scheme, including the findings of the Independent Audit Review, and agree next steps.	Rachel Stopard	Yes	CA Local Transport Plan

Cambridge South East Transport Scheme	To endorse the Environmental Impact Assessment and proposed planning and consents process for the scheme and agree to submit the relevant applications.	Peter Blake	Yes	CA LTP Passenger Transport / Interchange Strategy
Better Public Transport: Waterbeach to North East Cambridge Project	To note consultation feedback, consider and approve a Strategic Outline Business Case and agree to commence the Outline Business Case process.	Peter Blake	Yes	CA LTP Passenger Transport / Interchange Strategy
Better Public Transport: Eastern Access Project	To note consultation feedback, consider and approve a Strategic Outline Business Case and agree to commence the Outline Business Case process.	Peter Blake	Yes	CA LTP Passenger Transport / Interchange Strategy
<b>Executive Board: 30<sup>th</sup> September 2021</b>	<b>Reports for each item to be published 20<sup>th</sup> September 2021</b>	Report Author	Key Decision	Alignment with Combined Authority
Greenways Programme	To receive an update on the Greenways Programme	Peter Blake	Yes	CA LTP Passenger Transport / Interchange Strategy
Cambridge South West Travel Hub	To consider the full business case and request permission to progress	Peter Blake	Yes	CA LTP Passenger Transport / Interchange Strategy
Foxton Travel Hub	To endorse the design and budget prior to submitting for planning approval.	Peter Blake	Yes	CA LTP Passenger Transport / Interchange Strategy

Whittlesford Station Transport Infrastructure Strategy	To receive an update on further stakeholder engagement, early outcomes from the A505 multi-modal study and discussions on future bus services, and consider initial design work and costings for improved bus access infrastructure.	Peter Blake	Yes	CA LTP Passenger Transport / Interchange Strategy
Experimental Traffic Regulation Orders – Emergency Active Travel Schemes	To consider the responses to the public consultations along with the objections and representations received during the trial period for the Tranche 1 measures before deciding on a recommendation on the future of each of the experimental measures.  The Tranche 1 measures include schemes at Silver Street; Luard Road; Storey's Way; Newtown Area (phase 1); Nightingale Avenue and Carlyle Road.	Peter Blake	Yes	CA LTP Passenger Transport / Interchange Strategy
Revised Road Network Hierarchy	To consider a draft revised network hierarchy for Cambridge and make a recommendation on next steps to the County Council.	Peter Blake	No	CA LTP
City Centre Freight Pilot	To receive an update on development of a freight pilot for the city centre and agree next steps.	Peter Blake	No	CA LTP
Reducing Vehicle Emissions	To consider options for encouraging and increasing use of cleaner buses, coaches, HGVs and taxis.	Isobel Wade	No	CA LTP
GCP Quarterly Progress Report	To monitor progress across the GCP work streams, including financial monitoring information.	Niamh Matthews	No	N/A

<b>Executive Board: 9<sup>th</sup> December 2021</b>	<b>Reports for each item to be published 29<sup>th</sup> November 2021</b>	<b>Report Author</b>	<b>Key Decision</b>	<b>Alignment with Combined Authority</b>
GCP Quarterly Progress Report	To monitor progress across the GCP work streams, including financial monitoring information.	Niamh Matthews	No	N/A
Greater Cambridge Citizens' Assembly: Two-Year On Report	To consider a report on the GCP's response, two years on from receiving the Citizens' Assembly report.	Isobel Wade	No	CA LTP Passenger Transport / Interchange Strategy
Electricity Grid Reinforcement: Update and Next Steps	To approve next steps and the Outline Business Case.	Rachel Stopard	No	N/A
Integrated Parking Strategy	To consider a draft Integrated Parking Strategy	Peter Blake	No	CA LTP
Inclusive Access Study	An initial paper on improving accessibility for all looking at issues and options	Isobel Wade	No	CA LTP

<b>Executive Board meeting</b>	<b>Reports for each item published</b>	<b>Joint Assembly meeting</b>	<b>Reports for each item published</b>
1 <sup>st</sup> July 2021	21 <sup>st</sup> June 2021	10 <sup>th</sup> June 2021	28 <sup>th</sup> May 2021
30 <sup>th</sup> September 2021	20 <sup>th</sup> September 2021	9 <sup>th</sup> September 2021	27 <sup>th</sup> August 2021
9 <sup>th</sup> December 2021	29 <sup>th</sup> November 2021	18 <sup>th</sup> November 2021	8 <sup>th</sup> November 2021

APPENDIX 9 - ADJUSTED GCP BUDGET

EXPENDITURE	Agreed Budget	Actual Spend 2015/16	Actual Spend 2016/17	Actual Spend 2017/18	Actual Spend 2018/19	Actual spend 2019/20	Actual Spend 2019/20	Budget 2020/21	Budget 2021/22	Budget 2022/23	Budget 2023/24	Budget 2024/25	Budget 2025/26	Budget 2026/27	Future Years Budget
	£000	£000	£000	£000	£000	£000	£000	£000	£000	£000	£000	£000	£000	£000	£000
<b>Infrastructure Programme Investment Budget</b>															
Cambridge South East (A1307) - Phase 1	16,950	18	20	41	206	756	2,568	11,550	1,792						0
Cambridge South East (A1307) - Phase 2	132,285	139	155	312	1,582	4,163	3,444	2,988	14,800	54,600	46,000	4,101		0	
Cambourne to Cambridge (A428)	157,000	268	1,485	1,871	1,588	1,820	1,037	2,663	4,000	10,000	26,000	66,100	36,000	4,168	
Science Park to Waterbeach (formerly A10 North study)	52,600	67	72	391	3	125	272	464	1,000	2,000	2,000	12,000	25,000	9,206	
Eastern Access	50,500					115	193	1,500	3,000	7,500	10,000	10,000	12,500	5,692	
West of Cambridge Package	42,000	240	416	717	2,337	6,680	5,568	2,750	11,000	11,639	653			0	
Milton Road bus and cycling priority	23,040	188	238	339	287	576	378	12	9,000	12,022				0	
Histon Road bus and cycling priority	10,600	199	181	46	509	1,388	5,172	3,065	20	20				0	
City Centre Access Project	20,320	255	566	1,438	1,672	2,563	1,898	3,500	8,138					290	
Whittlesford Station Transport Infrastructure Strategy (formerly Travel Hubs)	700			84	57	28	73	250	208					0	
FIS Allocation - Public Transport Improvements and Sustainable Travel	75,000							2,500	5,000					67,500	
FIS - Housing Investment	20,000													20,000	
<b>Cycling</b>															
Chisholm Trail cycle links - Phase 1 and Abbey-Chesterton Bridge (previously combined with Phase 2)	17,914	235	679	849	1,493	4,952	4,687	3,333	600						1,086
Chisholm Trail cycle links - Phase 2	5,000					0	0	750	2,000	2,000	250			0	
Madingley Road	993						290	580	170					-47	
Greenways Programme	76,000						130	3,000	34,500	22,500	15,050			820	
<b>Other Transport</b>															
Cambridge South Station	1,750			0		366	0	635							749
Programme management and scheme development	5,450	355	781	802	559	510	354	350	350	350	350	350	350	-11	
<b>Closed Infrastructure Budgets</b>															
COMPLETE - Residents Parking implementation (to progress through City Centre Access Project)	659			114	175	220	125								25
COMPLETE - Greenways Quick wins	3,079			0	2,079	1,000	68								-68
COMPLETE - Developing 12 cycling greenways	568			256	250	62									0
COMPLETE - Cross-city cycle improvements	11,266	257	864	2,966	4,979	1,894	214	92							0
COMPLETE - A10 Cycle route - Frog End Melbourn	553		511	42											
COMPLETE - Travel Audit - South Station and biomedical campus	200			88	112										
<b>Operational budgets</b>															
Central Programme Co-ordination	7540	111	391	728	517	512	532	750	765	780	796	812	828	18	
Engagement & Communications	1071			251	89	88	88	88	90	90	92	93	95	97	0
Skills	4,423	47	188	205	84	343	459	600	600	600	600	600			697
Evidence, economic assessment and modelling	1266			31	246	239	124	150	150	150	150	150			26
Affordable Housing	200		10	0	44	65	0	58							23
Cambridgeshire County Council costs	334			31	31	31	33	33	34	34	35	36	36		0
Planning Capacity & Support (formerly Towards 2050)	960			52	148	60	61	100	100	100	100	100	100		39
Smart Cambridge	5070		271	391	596	589	374	1,010	745	545	500				49
Energy	25,140					15	77	200							24,848
GCP Formal Meeting Support costs	93					11	12	12	12	12	12	12	12		-2
<b>Closed operational budgets</b>															
South Cambridgeshire District Council costs	80			40	40	0									0
COMPLETE - Cambridge Promotions Agency	150	60	90	0											
COMPLETE - Housing Delivery Agency	400		200	200											
COMPLETE - Cambridge Promotions	40			40											
<b>Total Expenditure</b>	<b>771,194</b>	<b>2,439</b>	<b>7,118</b>	<b>12,325</b>	<b>19,683</b>	<b>29,171</b>	<b>28,231</b>	<b>42,983</b>	<b>98,073</b>	<b>124,944</b>	<b>102,589</b>	<b>93,606</b>	<b>74,924</b>	<b>135,108</b>	

FUNDING															
City Deal grant	500,000	20,000	20,000	20,000	20,000	20,000	40,000	40,000	40,000	40,000	40,000	40,000	40,000	120,000	
S106 contributions	74,500					6,719	3,547	2,000	2,000	2,000	2,000	2,000	2,000	52,234	
Energy income	25,000														25,000
NHB - Cambridge City	12,823	1,986	3,166	2,385	2,238	1,651	901	346	150						0
NHB - South Cambs	8,558	1,683	2,633	1,570	1,204	742	507	219							0
NHB - CCC	5,153	917	1,485	1,023	860	599	269								0
Housing income	20,000														20,000
Interest accrued on grant funding	1,802	0	80	149	291	253	69								960
<b>Total income</b>	<b>647,836</b>	<b>24,586</b>	<b>27,364</b>	<b>25,127</b>	<b>24,593</b>	<b>29,964</b>	<b>45,2</b>								

Agenda Item No: 11

## Cambourne to Cambridge - Independent Audit

Report to: Greater Cambridge Partnership Joint Assembly

Date 10<sup>th</sup> June 2021

Lead Officer: Peter Blake, Transport Director, GCP

### 1. Background

- 1.1 The Outline Business Case for the Cambourne to Cambridge Project was presented to the Executive Board in December 2020.
- 1.2 The Executive Board agreed in December to:
  - (a) Note the outcome of Phase 2 public consultation;
  - (b) Note the conclusions of the Outline Business Case presenting a preferred high quality public transport, walking and cycling route;
  - (c) Note the conclusions of the Outline Business Case in relation to a travel hub location;
  - (d) Agree to undertake an Independent Audit Review of the Cambourne to Cambridge scheme to validate the key assumptions and constraints and to determine whether they remain appropriate;
  - (e) Report the findings of this Independent Audit Review to the June Board; and
  - (f) Request that officers initiate the process of an Environmental Impact Assessment (EIA), however recognising the potential impact of the Independent Audit Review and the need to conclude the Independent Audit Review in advance of any public consultation on the EIA.
- 1.3 Scheme development has been on hold, except for some timebound data collection, since June 2020 and the Outline Business Case and supporting documentation remain unchanged. This report specifically and solely addresses the Independent Audit.

**Figure 1: Current Stage of the Project**



- 1.4 The Joint Assembly is invited to consider the proposals to be presented to the Executive Board and in particular the recommendation of the Independent Audit. The Audit refers to the Outline Business Case which was originally presented to the Joint Assembly in June 2020.

## 2. Issues for Discussion

- 2.1 The Independent Audit was commissioned through a two-stage process. An independent party, Phil Swann, was appointed by the Greater Cambridge Partnership (GCP) to oversee the audit. Mr Swann is a director of Shared Intelligence and was previously a director of the Tavistock Institute and Director of Strategy and Communications at the Local Government Association.
- 2.2 Mr Swann has independently commissioned Amey Consulting Transport Director Dr John Sutton to carry out the audit of the work on the route to date. Dr Sutton has more than 35 years' experience of transport planning, appraisal, transport operations on bus and rail, and research in the UK, USA and Asia, including assessment of route options for major roads.
- 2.3 Mr Swann has acted as the point of contact and intermediary between all stakeholders – including the GCP, and the independent expert.
- 2.4 The Independent Audit attached at Appendix 1 has been prepared by Mr Swann with the assistance of Dr Sutton and Amey Consulting.

## 3. Consultation and Engagement

- 3.1 At the outset of the audit Mr Swann consulted directly with the Mayor of Cambridgeshire and Peterborough and the Chair of the Local Liaison Forum.

- 3.2 On 25<sup>th</sup> March 2021, a statement of the assumptions and constraints underpinning the Outline Business Case and the selection of the preferred route for the Cambourne to Cambridge scheme, prepared by Dr Sutton, was published.
- 3.3 Interested parties were then invited to submit written representations directly to Mr Swann on the assumptions and constraints and these informed the audit review process. Over 50 submissions from individuals and organisations were received and are reflected in the audit report.
- 3.4 The Cambourne to Cambridge Outline Business Case has previously been the subject of extensive engagement, including Local Liaison Forums during 2020, the details of which are included in Appendix 2.

## 4. Options and Emerging Recommendations

- 4.1 On the basis of the Independent Review, the Joint Assembly is asked to consider next steps in process, in particular comment on:
  - (a) The Preferred Route in the Outline Business Case (OBC) proceeding to the next stage in the process;
  - (b) Proceeding with the development of EIA and associated consultation and provide a further report to the Board in due course; and
  - (c) In line with the Independent Audit recommendation that some significant changes in the wider context, including the impact of Covid-19, the increasing importance of climate change, the Government's new bus policy, East-West Rail and the CAM scheme; be taken into account in the next stages of developing the C2C scheme. By way of example, given possible changes to the CAM scheme, one area that could be reviewed is the segregated alignment around Hardwick to reduce impact upon local vegetation.

## 5. Alignment with City Deal Objectives

- 5.1 The proposed investment is consistent with the City Deal agreed between Government and Greater Cambridge which allows Greater Cambridge to maintain and grow its status as a prosperous economic area. Specifically, this initiative removes a barrier to new homes and jobs and enables the provision of better, greener transport and improved air quality.
- 5.2 The scheme, if approved, would unlock the development of the Bourn Airfield site, and support growth at Cambourne West and West Cambridge, contributing significantly both to housing and employment targets.
- 5.3 In addition the proposals set out in this report will support the realisation of a series of benefits, including:
  - Securing the continued economic success of the area through improved access and connectivity.
  - Significant improvements to air quality and enhancements to active travel, supporting a healthier population.

- Reducing carbon emissions in line with the partners' zero carbon commitments.
- Helping to address social inequalities where poor provision of transport is a contributing factor; and
- Wellbeing and productivity benefits from improving people's journeys to and from employment.

## 6. Citizen's Assembly

6.1 Citizens' Assembly members developed and prioritised their vision for transport in Greater Cambridge. The range of solutions being considered for C2C directly contributes to delivery of 5 of the highest 7 scoring priorities, namely:

- Provide affordable public transport (32).
- Provide fast and reliable public transport (32).
- Be environmental and zero carbon (28).
- Be people centred – prioritising pedestrians and cyclist (26).
- Enable interconnection (e.g. north/south/east/west/urban/rural) (25).

6.2 In addition, the scheme has the potential to complement delivery of the other highest scoring priorities:

- Restrict the city centre to only clean and electric vehicles (27).
- Be managed as one coordinated system (e.g. Transport for Cambridge) (25).

6.3 The Citizens' Assembly voted on a series of measures to reduce congestion, improve air quality and public transport. Of the measures considered, Assembly members voted most strongly in favour of road closures, followed by a series of road charging options (clean air zone, pollution charge and flexible charge). These will be considered further as packages develop.

## 7. Financial Implications

7.1 There are no significant financial implications of this report over and above previous reports. The further delays to the project will have increased project development costs, and incurred direct audit costs, and inflation will lead to a potential increase in out-turn cost. The next stage of work will include development of the design for the preferred route and a full review of scheme costs which will then be reported to the Executive Board should further approvals be required.

Have the resource implications been cleared by Finance? Yes  
 Name of Financial Officer: Sarah Heywood

## 8. Next Steps and Milestones

8.1 Subject to the approval of a Preferred Route in the OBC for the scheme by the Executive Board, the next steps will be the production of an Environmental Impact Assessment and Environmental Statement, which will be subject to public consultation in late 2021 / early 2022, in order to enable the submission of an application for a Transport and Works Act Order later in 2022.

- 8.2 As indicated above, an Addendum to the Outline Business Case will be produced alongside the EIA. This would reflect any amendments to the scheme emerging from EIA consultation and also the ongoing development of projects such as East West Rail, City Access, and the CPCA's Metro proposals.
- 8.3 That would, in turn, be likely to lead to a public inquiry in 2023. As such, works would realistically be expected to commence in 2024 and project opening should be achievable in 2026.

## List of Appendices

Appendix 1	Independent Audit including covering report by Phil Swann
Appendix 2	Local Liaison Forum consideration of OBC

## Background Papers

Source Documents	Location
OBC - Strategic case, Economic case, Commercial case, Financial Case and Management Case and Appendices including Appendix C Option Appraisal Report 3 and Appendix F Bus Strategy Report	<a href="https://greatercambs.filecamp.com/s/N3Ok8LEwxGZeW18O/fo">https://greatercambs.filecamp.com/s/N3Ok8LEwxGZeW18O/fo</a>
Non-Technical Summary Report	<a href="https://greatercambs.filecamp.com/s/SX3FTm0utbzFTi1V/fo">https://greatercambs.filecamp.com/s/SX3FTm0utbzFTi1V/fo</a>
C2C Phase 2 Consultation Summary Report	<a href="https://greatercambs.filecamp.com/s/93TQ8ABGnWE2xG4r/fo">https://greatercambs.filecamp.com/s/93TQ8ABGnWE2xG4r/fo</a>
Option Appraisal Report 1	<a href="https://citydeal-live.storage.googleapis.com/upload/www.greatercambridge.org.uk/transport/transport-projects/Option%20Appraisal%20Report%20Part%201.pdf">https://citydeal-live.storage.googleapis.com/upload/www.greatercambridge.org.uk/transport/transport-projects/Option%20Appraisal%20Report%20Part%201.pdf</a>
Option Appraisal Report 2	<a href="https://citydeal-live.storage.googleapis.com/upload/www.greatercambridge.org.uk/transport/transport-projects/Option%20Appraisal%20Report%20Part%202.pdf">https://citydeal-live.storage.googleapis.com/upload/www.greatercambridge.org.uk/transport/transport-projects/Option%20Appraisal%20Report%20Part%202.pdf</a>
National Infrastructure Commission's (NIC) report	<a href="https://www.nic.org.uk/publications/national-infrastructure-assessment-2018/">https://www.nic.org.uk/publications/national-infrastructure-assessment-2018/</a>
Local Plan for Cambridge City	<a href="https://www.cambridge.gov.uk/local-plan-2018">https://www.cambridge.gov.uk/local-plan-2018</a>
Local Plan for South Cambridgeshire	<a href="https://www.scambs.gov.uk/planning/local-plan-and-neighbourhood-planning/the-adopted-development-plan/south-cambridgeshire-local-plan-2018/">https://www.scambs.gov.uk/planning/local-plan-and-neighbourhood-planning/the-adopted-development-plan/south-cambridgeshire-local-plan-2018/</a>

Transport Strategy for Cambridge and South Cambridgeshire (TSCSC)	<a href="https://www.cambridgeshire.gov.uk/residents/travel-roads-and-parking/transport-plans-and-policies/cambridge-city-and-south-cambs-transport-strategy">https://www.cambridgeshire.gov.uk/residents/travel-roads-and-parking/transport-plans-and-policies/cambridge-city-and-south-cambs-transport-strategy</a>
Draft Cambridgeshire and Peterborough Local Transport Plan (CPLTP)	<a href="https://cambridgeshirepeterborough-ca.gov.uk/assets/Transport/Draft-LTP.pdf">https://cambridgeshirepeterborough-ca.gov.uk/assets/Transport/Draft-LTP.pdf</a>
East of England Forecasting Model 2017	<a href="https://cambridgeshireinsight.org.uk/eefm/">https://cambridgeshireinsight.org.uk/eefm/</a>
Madingley Road Quick Wins Options Outline Technical Note	<a href="https://citydeal-live.storage.googleapis.com/upload/www.greatercambridge.org.uk/transport/transport-projects/C2C%20LLF%20Technical%20Note%20-%20Madingley%20Road%20Quick%20Wins%2014-05-2019.pdf">https://citydeal-live.storage.googleapis.com/upload/www.greatercambridge.org.uk/transport/transport-projects/C2C%20LLF%20Technical%20Note%20-%20Madingley%20Road%20Quick%20Wins%2014-05-2019.pdf</a>
Northern route technical note	<a href="https://citydeal-live.storage.googleapis.com/upload/www.greatercambridge.org.uk/transport/transport-projects/C2C%20LLF%20Technical%20Note%20Northern%20Route%202022-05-2019.pdf">https://citydeal-live.storage.googleapis.com/upload/www.greatercambridge.org.uk/transport/transport-projects/C2C%20LLF%20Technical%20Note%20Northern%20Route%202022-05-2019.pdf</a>
Bourn Airfield Supplementary Planning Document	<a href="https://www.scambs.gov.uk/bournairfieldSPD">https://www.scambs.gov.uk/bournairfieldSPD</a>
Cambourne to Cambridge Segregated Bus Route: Consideration of Green Belt Issues Report	<a href="https://citydeal-live.storage.googleapis.com/upload/www.greatercambridge.org.uk/transport/transport-projects/Appendix%20L1c.pdf">https://citydeal-live.storage.googleapis.com/upload/www.greatercambridge.org.uk/transport/transport-projects/Appendix%20L1c.pdf</a>
Cambourne to Cambridge Interim Planning Assessment	<a href="https://citydeal-live.storage.googleapis.com/upload/www.greatercambridge.org.uk/transport/transport-projects/Cambourne%20to%20Cambridge%20interim%20planning%20appraisal%2010%20Sep%202019.pdf">https://citydeal-live.storage.googleapis.com/upload/www.greatercambridge.org.uk/transport/transport-projects/Cambourne%20to%20Cambridge%20interim%20planning%20appraisal%2010%20Sep%202019.pdf</a>
Environmental surveys and assessments including initial air quality assessments	<a href="https://www.greatercambridge.org.uk/transport/transport-projects/cambourne-to-cambourne-to-cambidge-background/">https://www.greatercambridge.org.uk/transport/transport-projects/cambourne-to-cambourne-to-cambidge-background/</a>



# Independent Audit of the Cambourne to Cambridge Better Public Transport Project

## Introduction

In December 2020 the Greater Cambridge Partnership (GCP) commissioned Phil Swann, a director of Shared Intelligence, to oversee an independent audit of the Cambourne to Cambridge Better Public Transport Project. A copy of the report of the audit is **attached**. This report sets out the process by which the audit was conducted and summarises its core conclusions.

## The audit process

The Terms of Reference for the audit were drafted by Phil Swann following discussions with the GCP Board, the Local Liaison Forum and the Cambridgeshire and Peterborough Combined Authority. They were published on 11 February 2021 and were circulated to a list of local stakeholders agreed with the GCP together with an invitation to local stakeholders to identify representations they wanted to be taken into account by the audit.

Phil Swann commissioned John Sutton, Technical Director, Transport Planning, Amey Consulting, to carry out the audit. This followed a competitive process in which four organisations were invited to submit proposals. A condition of the appointment was that neither Amey Consulting or John Sutton had previously worked for the GCP or on the C2C project. The GCP played no part in the commissioning process which complied with Cambridgeshire County Council procurement requirements.

The first stage of the audit was the production of a statement on the constraints and assumptions underpinning the analysis that led to the selection of the preferred route and the elimination of alternative options. The statement was published on 25 March and was circulated to local stakeholders with a further invitation to them to submit representations to the audit.

The audit has taken into account all the submissions from local stakeholders. They are listed in the appendix to the report and are available on the GCP website.

The only contact with the GCP during the audit has been to obtain information and material relevant to the audit, to keep board members and the chief executive informed of progress and to arrange publication of the documents referred to above. Board members have been briefed on the conclusions of the audit and the chair and vice chair of the LLF are also being briefed.

## The conclusions of the audit

The conclusion of the audit is that there is no reason why the Executive Board of the GCP should not proceed to the next stage in the development of the C2C scheme.

The audit has concluded that the scheme is in alignment with national, regional and local policies on the economy and transport. Stakeholder engagement has been carried out in a robust manner and

the business case development followed the HMT Treasury Green Book and the Department for Transport's TAG methodology. The appraisal has been carried out in a robust manner and the economic analysis and financial case remain valid

The environmental impact of the scheme is mixed and the validity of some of the assumptions will need to be investigated further as part of an Environmental Impact Assessment which would form part of the next stages.

A number of alternative route options have been put forward and have been examined in this audit. It is important to stress, however, that the business case must balance local concerns with the wider strategic goals. The GCP has followed the national guidance on appraisals such as this.

Overall, the audit has confirmed that the key constraints and assumptions on which the C2C business case is based remains valid. There have, however, been some significant changes in the wider context, including the impact of Covid-19, the increasing importance of climate change, the government's new bus policy, East-West Rail and the CAM scheme. These factors will have to be taken into account in the next stages of developing the C2C scheme.

It has been argued that progress with the C2C scheme should be delayed, to consider the CAM and East-West Rail projects. This audit has concluded that the case for delay is not strong and has been significantly weakened as a result of the increasing uncertainty about CAM in the light of statements by the incoming Mayor.

**Phil Swann, Director Shared Intelligence**

# Independent Audit of Key Assumptions and Constraints

**Cambourne to Cambridge  
Better Public Transport Project**

CO03022496 / Final Revision 0

25/05/2021

**ameyconsulting**



## Document Control Sheet

<b>Project Name:</b>	Cambourne to Cambridge Better Public Transport Project
<b>Project Number:</b>	CO03022496
<b>Report Title:</b>	Independent Audit of Key Assumptions and Constraints
<b>Report Number:</b>	Final

Issue Status/Amendment	Prepared	Reviewed	Approved
Revised draft Audit reviewing the assumptions and constraints underpinning the C2C business case and their continuing validity	Name: Sutton, John2 Signature:  Date: 25/05/2021	Name: Swann, Phillip Shared Intelligence Signature:  Date: 25/05/2021	Name: Michael Bell Signature:  Date: 25/05/2021
	Name:  Signature:  Date:	Name:  Signature:  Date:	Name:  Signature:  Date:
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## Executive Summary

This Independent Audit has been prepared in response to a dispute over the alignment for the Cambourne to Cambridge (C2C) busway scheme. The preferred route option was chosen following the evaluation of a range of route options during the Outline Business Case process. The GCP considers the scheme to have a strong strategic case and is required to deliver the Better Public Transport strategy in the growth corridor along the A428/A1303. The process has included extensive consultations with stakeholders and affected parties. The preferred option has taken these views into account and proposed mitigation measures where negative impacts are identified.

Despite this, there are many objections to the scheme and its impact on the communities affected, which range from questions over the need for a segregated busway to objections to specific elements of the project including its route alignment. Alternative options have been put forward, some of which have been assessed in the Business Case. The former Mayor of the Cambridgeshire and Peterborough Combined Authority, James Palmer, proposed a ‘northern route’ alignment to fit-in with the planned CAM network of which the C2C scheme was part, and formed the central section between the western fringe of the City and Cambourne. The CAM network emerged since the Better Public Transport policy was adopted by the GCP. Following the publication of the Combined Authority Local Transport Plan in 2019 the two authorities agreed to work together to integrate the C2C and CAM projects. In May the newly elected Mayor Nik Johnson indicated that he does not intend to proceed with CAM. The establishment of the Combined Authority is the most significant change since the C2C scheme was initiated but it is not the only factor that changes the context of the scheme. Other factors include the development of the East West Railway with a station planned at Cambourne, amendments in 2019 to the Climate Change Act 2008, the impact of the COVID-19 pandemic on travel behaviour and the government’s Bus Services Act 2017 and the Bus Back Better National Bus Strategy for England 2021.

There are clearly challenges in how to respond to travel demands in a post-COVID world. Some trends point in the direction of less travel or changes in travel behaviour that is more local and accessible by active modes. At the same time there is evidence that traffic is returning to pre-pandemic levels but perhaps spread out more across the day. If so, traffic congestion will remain a key constraint on growth that still requires alternative solutions. In this context the strategic case for schemes like C2C remain valid but the assumptions regarding passenger demand may need revisiting as will potentially the need for on-going support to bus services. These effects apply to CAM as much as the C2C busway, and possibly more so to EWR. The pandemic has heightened the risks for these schemes. The government at least sees buses as being an important part of the post-COVID landscape and in this respect the C2C poses less of a risk than either CAM or EWR.

**The conclusion of this audit is that there is no reason why the Executive Board of the GCP should not proceed to the next stage in the development of the C2C scheme.**

**The audit has concluded that the scheme is in alignment with national, regional and local policies on the economy and transport. Stakeholder engagement has been carried out in a robust manner and the business case development followed the HMT Treasury Green Book and the Department for Transport’s TAG methodology. The appraisal has been carried out in a robust manner and the economic analysis and financial case remain valid**

**The environmental impact of the scheme is mixed and the validity of some of the assumptions will need to be investigated further as part of an Environmental Impact Assessment which would form part of the next stages.**

**A number of alternative route options have been put forward and have been examined in this audit. It is important to stress, however, that the business case must balance local concerns with the wider strategic goals. The GCP has followed the national guidance on appraisals such as this.**

**Overall, the audit has confirmed that the key constraints and assumptions on which the C2C business case is based remains valid. There have, however, been some significant changes in the wider context, including the impact of Covid-19, the increasing importance of climate change, the government's new bus policy, East-West Rail and the CAM scheme. These factors will have to be taken into account in the next stages of developing the C2C scheme.**

**It has been argued that progress with the C2C scheme should be delayed, to consider the CAM and East-West Rail projects. This audit has concluded that the case for delay is not strong and has been significantly weakened as a result of the increasing uncertainty about CAM in the light of statements by the incoming Mayor.**

The key findings of the audit are as follows:

1. The C2C scheme is in alignment with national, regional, and local policies on the economy and transport strategy as evident in the various studies at the time of its inception and adopted in Local Plans and the Local Transport Plan, 2014 – 2018. The evidence validates that Greater Cambridge has been growing rapidly and will continue to do so in the future. Consequently, Cambridge's transport infrastructure is under pressure, with high levels of congestion in the city centre and on key corridors into and out of the city. The C2C project has been recognised in the Local Plans and local transport strategy as a key project to help address these infrastructure constraints on growth by linking Cambridge to growth areas to the west.
2. These assumptions and constraints are confirmed in the Combined Authorities Local Transport Plan which recognises the need for a high-quality public transport scheme in the Cambourne to Cambridge corridor. The objectives of the scheme therefore remain valid.
3. The strategic context of the scheme, however, has changed especially with the proposed CAM network (which may not now proceed) as well as the next stage of the EWR consultation on the preferred route options and station location. The transport strategy of which CAM is a central part looks set to be revised as the incoming Mayor, Nik Johnson, has indicated that he wants to prioritise bus services including consideration of a franchising model. There is an opportunity to reset the assumptions for the Better Public Transport project to match the new Mayor's priorities and take advantage of the government's Bus Back Better national bus strategy initiative which includes support for innovative bus projects like the C2C as well as other bus priority measures. The C2C may no longer be constrained by the CAM project.
4. The C2C focus is primarily on the A428/A1303 corridor and while acknowledging the constraints on bus accessibility through the city centre it offers no solution apart from the City Access program of soft measures to restrict on-street parking and reallocate road space to active travel. The assumption is that these measures will be enough to enhance bus speeds and provide more reliable journey times across the city. However, no detailed modelling of the likely impact has been conducted so it remains uncertain whether bus accessibility will improve.

5. The C2C scheme objectives include increasing bus mode share along the corridor, and local transport policy aims to reduce traffic in Cambridge City Centre and on orbitals like the A1303. It is not clear from the analyses how much these will be achieved, and it is therefore difficult to comment on the validity of these assumptions and constraints.
6. East West Railway: the C2C business case assumes it would connect into the EWR station, so the assumptions regarding the routing through Cambourne are still valid. The issues around potential impacts on demand should be subjected to further analysis. This could be done through more detailed modelling of passenger demands or through sensitivity analysis of projected demands for the C2C under different scenarios. It would benefit the planning and operations of the C2C busway to have a better understanding of the potential demands at the time of the EWR likely opening. The assumptions therefore need updating. In the intervening period, the transport and housing constraints that underpin the scheme remain valid.
7. The uncertainty over the future of the CAM project weakens the case for any pause in the C2C scheme development and consequently does not alter the assumptions and constraints for the scheme which remain valid in the corridor. The C2C HQPT remains the only means of increasing capacity on the A1303/A428 corridor and addressing the public transport travel needs of the growing population. The EWR does not provide an alternative to travel along the corridor to West Cambridge and the City Centre. The two schemes serve different travel markets and should be planned as complementary services. The housing developments in Cambourne West and Bourn Airfield require the C2C project to be opened by 2025, otherwise the planned growth will be put at risk.
8. The C2C scheme objectives are a valid response to the constraints identified along the corridor with some ambitious assumptions to deliver a HQPT that can compete with car travel. There are a couple of caveats. Firstly, while accepting that these objectives relate to the scheme once open, the phasing of the housing and employment development along the corridor is a constraint that is not analysed in the Business Case. This omission should be addressed in further modelling of incremental growth scenarios. Secondly, there is no objective to integrate with other public transport services including EWR or to integrated ticketing/fares that would incentivise bus use. Thirdly, the only environment objective is to improve air quality – a valid objective – but omits any other goals related to climate change or impact on the environment. There seems to a ‘strategy’ gap between the policy related objectives and the scheme specific objectives.
9. So while the three components of the scheme – HQPT route, new Park & Ride facilities, and active travel facilities - are complementary features and consistent with the scheme objectives, it is not clear how the scheme fits into the broader transport strategy to address the growth constraints. This vacuum was filled by the previous Mayor’s CAM network project that was central to the Local Transport Plan strategy for the area. At the time of writing there is uncertainty over the future of CAM and what may be required to replace it. If it is to be the Better Public Transport program and schemes like the C2C, then the objectives need updating and widening to fill the gaps in transport strategy.
10. The business case development has broadly followed the guidelines and procedures laid out in the HM Treasury Green Book and DfT’s TAG methodology. These documents provide the guiding principles within which projects should be appraised but allow some leeway for scheme proposers to employ different methods and techniques where appropriate. It is accepted that in scheme appraisal there will be a need for judgement alongside quantitative assessment so long as there is a robust evidence base to support the decisions made.

11. It appears that the appraisal has been conducted in a robust manner. The process has included consultation with stakeholders at each phase and in addition a Local Liaison Forum has been established to represent stakeholder interests. These have been given ample opportunity to present their evidence and opinions on the C2C route options and in response the GCP has amended some features of the scheme.
12. Generally, the appraisal covers the required elements for the business case and appraises the options against the assumptions and constraints specified in the scheme objectives. The only question is whether the objectives remain valid in light of developments with CAM (the future of which is uncertain) and EWR, as well as changes in transport policy and strategy evident in the CPCAs Local Transport Plan? The appraisal took place while these projects were at an early planning stage and could not reasonably incorporate them into the appraisal given that they were not committed schemes. The recent statements by the new Mayor which question the CAM project validates this approach but the EWR has since taken a step forward and should be brought into the appraisal framework.
13. The appraisal of wider economic impacts is a problematic area in welfare economics, especially surrounding the assumptions over dependency versus displacement in estimating Gross Value Added (GVA) associated with jobs and land value uplift from housing. The dependency assumptions are key to the economic justification for the scheme and its overall value-for-money. The methods employed in the analysis appear to follow the appraisal guidelines, and in that respect remain valid.
14. The environmental impact of the scheme is mixed. The Business Case emphasises the benefits in terms of improving air quality, biodiversity and its compatibility with national policies on climate change and greenhouse gas emissions, and assumes these will outweigh any negative impacts of the scheme on the green belt, landscape character and heritage assets. The validity of these assumptions will need further investigation as part of the Environmental Impact Assessment that has yet to be conducted for the scheme.
15. Alternative route options have been put forward by opponents of the preferred route, who object to the scheme's impact on the local environment and suggest that better alignments are feasible and more in keeping with the scheme objectives as well as being compatible with other developments such as the CAM and EWR projects.
  - a. An in-highway proposal for a HQPT along the A1301 are essentially short-term measures that are consistent with the C2C scheme objectives. However, this does not invalidate the assumptions and constraints for the preferred option as a long-term solution to meet the growth in travel demand along the corridor. The short-term measures are boosted by recent government announcements in the national bus strategy that the GCP and CPCAs may wish to take advantage of and use as a catalyst for attracting ridership to public transport for when the preferred route opens.
  - b. The alternative 'northern route' options and have been reviewed at various stages in the scheme options development process. The CAM route alignment proposed by the previous Mayor appears unsuitable for the busway, not least because of the higher cost compared with the preferred route and would run into considerable opposition from affected parties such as the American Cemetery and residents in Madingley. The Girton Interchange option is ambitious and expensive and would take longer to deliver especially as it is reliant on Highways England committing to upgrade the junction. It looks like a high risk compared to the preferred option. The hybrid A428 Co-alignment scheme is a compromise between the other two that incorporates some of their features but avoids the riskier elements. In this sense it is

more viable and closer aligned to the scheme objectives than the others. Nevertheless, it is likely to perform less well on cost and other performance metrics while potentially scoring higher on environmental and social impact.

The alternative route options are created to overcome the local impacts constraints identified in the Business Case. The Business Case needs to address a wide range of constraints as well as local concerns and balance these through a rational appraisal process. Objectors may feel that this process is biased in favour of strategic goals, yet it is incumbent on the GCP to adhere to an appraisal process that complies with the methods laid down in the guidelines. The C2C scheme assumptions and constraints are not invalidated by the alternative options. It is not the role of this audit to adjudicate between different options. Opponents of the preferred option will have the opportunity to present their alternative route options to the Public Inquiry and cross-examine the GCP and its consultants on the options development and preferred scheme appraisal.

### **Recommendations**

It is recommended that the assumptions and constraints in the following areas needs updating in the Business Case to incorporate the latest developments in transport policies and strategies that influence the C2C scheme:

- CAM network. The uncertainty over the CAM project affects the context for the C2C scheme in particular and the Better Public Transport project in general. The initial public statements by the new Mayor suggest a significant change in local transport strategy that will need to be reflected in the Business Case. The implications should become clearer as the incoming Mayor develops his transport strategy, but it presents an opportunity to reset the C2C scheme.
- City Centre access remains a constraint on achieving the ambitions of the C2C scheme and needs further examination, perhaps as part of a more ambitious bus strategy for Cambridge.
- National bus strategy. The assumptions in the OBC need updating and in some cases adding to, to incorporate changes in government policy. There is little said in the OBC, for instance, on ticketing and fares which probably reflected the bus de-regulation policy in place at the time of the Better Public Transport policy but should be included as a central plank of the delivery strategy.
- Similarly, the move to implement Enhanced Partnership or franchising models for bus operations is a significant shift in government policy, which has implications (mainly positive?) for schemes like C2C.
- The environmental impact of the scheme is mixed. The Business Case emphasises the benefits in terms of improving air quality, biodiversity and its compatibility with national policies on climate change and greenhouse gas emissions, and assumes these will outweigh any negative impacts of the scheme on the green belt, landscape character and heritage assets. The validity of these assumptions will need further investigation as part of the Environmental Impact Assessment that has yet to be conducted for the scheme.
- The GCP should continue to consult with stakeholders as the preferred option progresses and implement any recommendations that may arise from the Environmental Impact Assessment.
- EWR: the issues around potential impacts on demand should be subjected to further analysis. This could be done through more detailed modelling of passenger demands or through sensitivity analysis of projected demands for the C2C under different scenarios.

- Short-term bus priority measures along the A1301 could be a catalyst for mode shift in preparation for the when the C2C busway is operational, i.e., considered as complementary measures.
- Scheme cost and benefits. A question remains over the assumptions regarding the wider economic impacts of the scheme and extent to which the scheme supports housing and jobs growth. More testing of travel demands under different scenarios would be helpful, in understanding the long-term impacts of the scheme on general traffic in the corridor as well as on bus ridership.

## 1 Introduction

The Greater Cambridge Partnership (GCP) has instigated an independent audit of the key assumptions and constraints underpinning the selection of the preferred route for the Cambourne to Cambridge Better Public Transport Project (C2C). The audit has been commissioned by the GCP in response to challenges over the preferred route alignment by the Mayor of the Cambridgeshire and Peterborough Combined Authority (CPCA) and other parties. The scope of the audit is to review the assumptions and constraints that underpinned the analysis that led to the selection of the preferred route and the elimination of alternative options. The objective is to test the robustness of those assumptions and constraints and determine whether they remain appropriate in the context of the current strategic frameworks, developments relating to Cambridgeshire Autonomous Metro (CAM) network and the East West Rail plans.

The audit has been conducted in two stages. The first stage comprised the preparation of a statement on the assumptions and constraints. The purpose was to establish a baseline understanding of the key assumptions and constraints underpinning the outline business case and selection of the preferred route. Information was gathered from documents published by the GCP along with a range of technical documents and reports prepared by its partners and other organisations such as the CPCA. Local amenity groups and individuals also submitted evidence as part of this first stage. The statement was published on the GCP web site together with an invitation to representative groups to submit further written representations on the assumptions and constraints and their application throughout the process, by 23<sup>rd</sup> April 2021. This statement is contained in Appendix A.

The continuing validity and appropriateness of the assumptions and constraints is analysed in the second part of the audit which comprises this report. The scope of the audit is to:

1. Review whether the correct procedures have been followed in developing the Business Case; and
2. Review the evidence base presented in the Outline Business Case in the light of changes in policy and other developments such as the CAM and EWR.

The audit does not evaluate the effectiveness or otherwise of any specific option.

### 1.1 Structure of the Audit

Following this Introduction, **Section 2** describes the background to the project as part of the City Deal agreed with central government in 2014 and the local policy context around the growth agenda. Assumptions and constraints regarding how to deliver transport improvements to enable projected increases in jobs and houses are reviewed. **Section 3** reviews specific constraints associated with the prevailing transport conditions in the Cambridge to Cambourne corridor together with environmental constraints. **Section 4** reviews the assumptions and constraints underpinning the development of the Business Case for the C2C scheme leading to the selection of the preferred option. **Section 5** considers the changing context for the C2C scheme with respect to proposals for the CAM network, the planned East West Railway with a station at Cambourne, amendments in 2019 to the Climate Change Act of 2008, the impact of the COVID-19 pandemic on travel behaviour, and the new powers provided by the Bus Services Act 2017 and the Bus Back Better: National Bus Strategy 2021, and whether the original assumptions and constraints underpinning the project still apply. **Section 6** summarises the submissions and representations made to the audit by organisations and individuals. A list of the representations made is recorded in

Appendix B. Finally, **Section 7** provides a summary of the audit findings and recommendations for the C2C business case.

Throughout the report summary remarks on the assumptions and constraints reviewed are highlighted. This positions the audit comment in the specific context of the issue under review and is intended to help the reader as they work through the document.

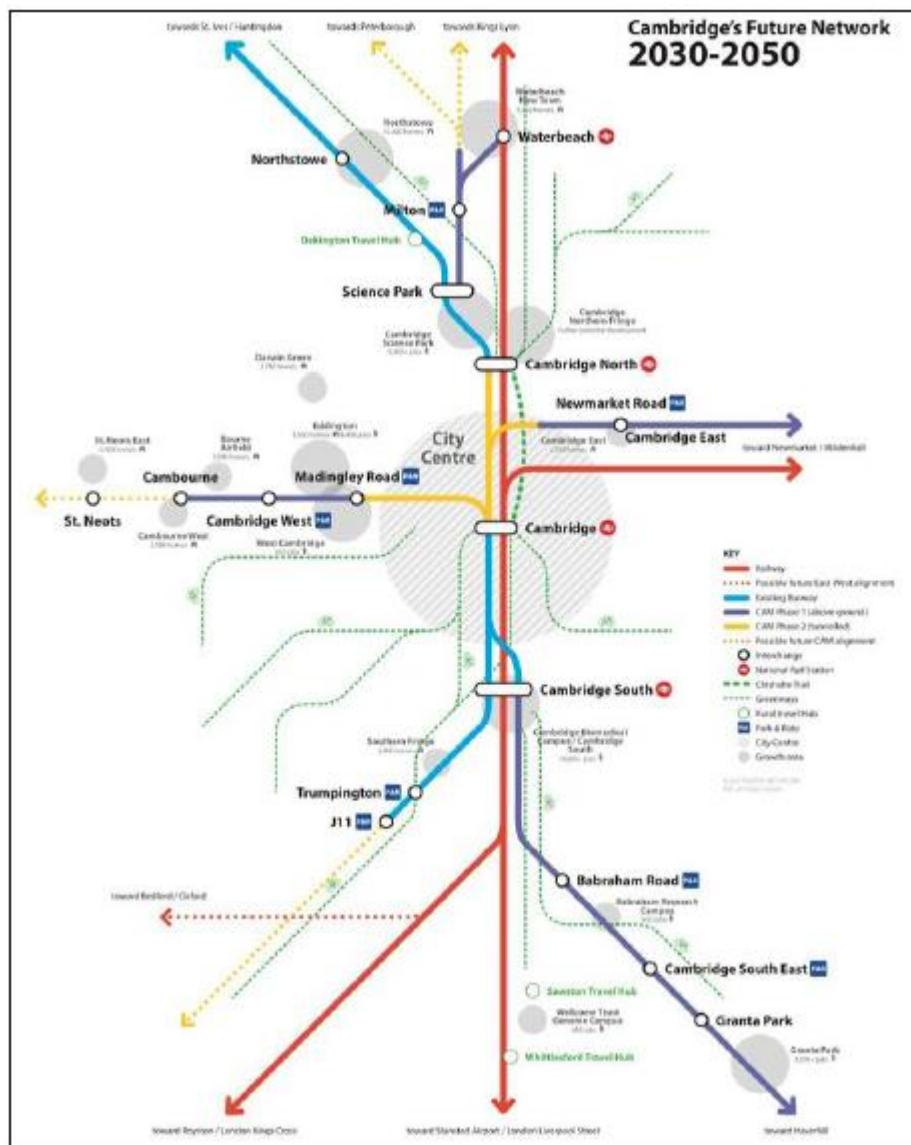
A separate Annex accompanies the Audit report containing all the submissions made in the two rounds of consultations.

## 2 Background to the Better Public Transport Project

The C2C is a priority scheme of the GCP and the first of four corridor projects providing better public transport and active travel routes for walking and cycling, offering better connectivity and alternatives to car use for growing communities to the north, south east, east and west of the city. The four busway schemes are depicted in Figure 1 as part of the vision for the Greater Cambridge future travel network:

- Cambridge to Cambourne (C2C)
  - Cambridge to Granta Park
  - City Centre to Cambridge East
  - Cambridge to Waterbeach

*Figure 1. Cambridge's Future Network*



Source: C2C Project Update June 2019

The project was conceived as part of the City Deal agreed with central government in 2014, bringing powers and investment, worth up to £1 billion over 15 years, to vital improvements in infrastructure, supporting and accelerating the creation of 44,000 new jobs and 33,500 new homes.<sup>i</sup> The GCP was formed to be the delivery body for the City Deal and comprises an Executive Board made up of members from Cambridge City Council, South Cambridgeshire District Council, Cambridgeshire County Council, and the University of Cambridge, and a wider Assembly. In 2016 a Local Liaison Forum was established to regularly review progress and provide input to the C2C scheme development.

## 2.1 Policy Context

The assumptions and constraints that underpinned the City Deal and better public transport corridors are described in policy documents and transport strategy at this time, including:

- Transport Strategy for Cambridge and South Cambridgeshire<sup>ii</sup> – 2014;
- Greater Cambridgeshire and Peterborough Strategic Economic Plan (SEP)<sup>iii</sup> produced by the Greater Cambridge Greater Peterborough Local Enterprise Partnership in 2016, which helped secure the Growth Deal that led to the formation of the Cambridge and Peterborough Combined Authority in March 2017;
- Cambridgeshire Long Term Transport Strategy – 2015;
- The emerging Local Plans for Cambridge<sup>iv</sup> and South Cambridgeshire<sup>v</sup> that confirm the housing allocations and sites for future development including employment – adopted in 2018;
- The National Infrastructure Commission identification of the Oxford – Milton Keynes – Cambridge arc as a priority area for growth including the requirement for a new Oxford – Cambridge Expressway (since replaced at the eastern end by the dualling of the A428 from the A1 at Black Cat roundabout to Caxton Gibbet roundabout) and a new east west railway.

The transport priorities at a local level are fully reflected by national transport objectives. These national objectives are set out in UK Government's statutory Transport Investment Strategy (TIS) which was published in July 2017<sup>vi</sup>.

The TIS sets out four key objectives:

- To create a **more reliable, less congested, and better-connected transport network** that works for the users who rely on it.
- To build a **stronger, more balanced economy** by enhancing productivity and responding to local growth priorities.
- To enhance the **UK's global competitiveness** by making Britain a more attractive place to trade and invest.
- To support the **creation of new housing**.

Together these reports define the key policies and growth objectives for the Greater Cambridge area. Through the City Deal, the GCP aims to enable a new wave of innovation-led growth by investing in infrastructure, housing and skills, thereby addressing housing shortages and transport congestion bottlenecks that will facilitate its continued growth and a continuation of the "*Cambridge Phenomenon*".

The Greater Cambridge City Deal Assurance Framework establishes the key strategic objectives against which investment projects will be prioritised:

- To nurture the conditions necessary to enable the potential of Greater Cambridge to create and retain the international high-tech businesses of the future;
- To better target investment to the needs of the Greater Cambridge economy by ensuring those decisions are informed by the needs of businesses and other key stakeholders such as the universities;
- To markedly improve connectivity and networks between clusters and labour markets so that the right conditions are in place to drive further growth; and
- To attract and retain more skilled people by investing in transport and housing whilst maintaining a good quality of life, in turn allowing a long-term increase in jobs emerging from the internationally competitive clusters and more University of Cambridge (UoC) spin-offs.

The business case for the C2C project will be assessed by the GCP Executive Board to ascertain the extent to which any transport investment meets the strategic objectives of the City Deal, including:

1. How the scheme supports business investment and confidence
2. How the scheme represents targeted investment where business needs it
3. How the scheme links effectively into the key growth sites
4. How the scheme supports transport infrastructure and quality of life

Two constraints in particular feature large in the analysis of factors that underpin the policy objectives: firstly, an inadequate supply of homes including affordable housing to support the expected population growth and jobs target; secondly, insufficient capacity on the existing transport networks, principally affecting the roads and rail services. These two constraints are interrelated and to relieve pressure on the housing market, for example, requires improving transport connections to unlock new sites for development. Likewise, providing more homes and jobs creates more demand for movement and stretches the capacity of the existing transport systems.

In a compact city such as Cambridge, with its historic core and constrained road network, adding capacity by road building was always a non-starter. The focus therefore switched to meeting these additional demands by more sustainable and more efficient transport solutions using a range of public transport, cycling and walking modes. This is the background to the genesis of the better public transport program, of which the C2C scheme is the first phase, as well as the CAM network which was developed later and is discussed further below. The key assumption is that the C2C scheme will contribute to meeting the overarching policy goals along the A428/A1303 corridor and deliver the outcomes specified in the transport strategy to deliver:

- New orbital public transport routes around Cambridge that taken together provide a wider variety of direct HQPT connections than would be traditionally possible under a traditional radial City Centre “hub and spoke” model;
- New High-Quality Public Transport (HQPT) links into Cambridge on key routes, connecting existing and new housing developments with major employment centres;
- A comprehensive network of pedestrian and cycle routes within Cambridge; and
- The main radial routes will have high quality bus priority measures.

The C2C project is a named scheme within the City Deal and contributes to the City Deal aims and objectives by removing some of the barriers to economic growth within Greater Cambridge and improving connectivity between current and future housing and key employment sites, thus helping

to ensure there is sufficient access to a diverse labour market to contribute to continued economic growth. The project also provides additional transport capacity to allow for a growth in the number of trips from new developments along the A428/A1303 into Cambridge.

**Audit Comment: A1**

**Overall the C2C scheme is in alignment with national, regional and local policies on the economy and transport strategy as evident in the various studies listed earlier and adopted in Local Plans and the Local Transport Plan at the time of its inception, 2014 – 2018. The evidence validates that Greater Cambridge has been growing rapidly and will continue to do so in the future. Consequently, Cambridge's transport infrastructure is under pressure, with high levels of congestion in the city centre and on key corridors into and out of the city. The C2C project has been recognised in the Local Plans and local transport strategy as a key project to help address these infrastructure constraints on growth by linking Cambridge to growth areas to the west. There is a substantial level of economic growth planned with approximately 8,400 dwellings and 13,300 jobs planned on those sites directly along the C2C corridor by 2031. The assumption that a HQPT like the C2C project is necessary is justified if it can demonstrate that it will support economic growth by providing faster and reliable journey times that will improve connectivity and accessibility and thereby link housing and employment growth areas more closely.**

### 3 Corridor Issues and Constraints

#### 3.1 Housing and Employment Growth

One of the challenges associated with the high levels of growth is focused on housing. Housing in and around the city has become less affordable as demand outstrips supply. House prices in Cambridge are also amongst the highest in the UK. Both Cambridge and South Cambridgeshire have experienced significant growth post-recession and the house price gap continues to widen when compared to surrounding districts and national averages. This is driving the demand for housing outside Cambridge in locations such as Cambourne and St Neots, and consequentially traffic growth on the A428/A1303 route

Coupled with the city's high employment growth, Cambridge's high house prices drive the demand for housing beyond the city's boundaries and the green belt and this in turn impacts on transport infrastructure and other community facilities. Local Plans envisage that there will be 32% more in-commuters in 2031 than in 2011 under current employment growth forecasts. However, if employment growth continues at recent high rates, this could be as much as 82%. This highlights a risk to Cambridge's future growth whereby if house prices and rents increase in some areas, and heavier commuting leads to extra delays this would undermine the GCP, local authority and CPCA policies towards employment and housing.

The sites allocated for future housing and employment in the Cambridge to Cambourne corridor are shown in Figure 2. Overall based on current plans, both those within the current Local Plan or well established through planning applications or known to be emerging, there is around 11,700 of additional housing planned and development is estimated to support 13,400 additional jobs along the Cambourne to Cambridge corridor. The key sites are:

- West Cambridge – 10,000 jobs
- North West Cambridge – 3,000 dwellings, 4,000 jobs
- Bourn Airfield – 3,500 dwellings
- Cambourne West – 2,350 dwellings

In addition, there are several smaller in-fill and village fringe housing developments planned at Hardwick and Highfield Caldecote.

#### Audit Comment: A2

**The Local Plans for Cambridge City and South Cambridgeshire adopted in 2018 confirm the housing targets and these are currently under review as part of the Greater Cambridge Shared Planning (GCSP) agreement between the two authorities. The projected housing growth is considered a base line by the CPCA which highlights the need for more housing if current growth trends continue. The GCSP call for sites for development has identified potential sites along the corridor that provide residential and mixed-use developments. The EWR has mentioned in its consultation the possibility of unlocking land for housing development north of Cambourne if the station is in this vicinity. The A428/A1303 corridor is strategically important in contributing to the area's growth requirements and these developments in turn will generate many more travel movements. The housing constraints therefore remain valid for the C2C scheme.**

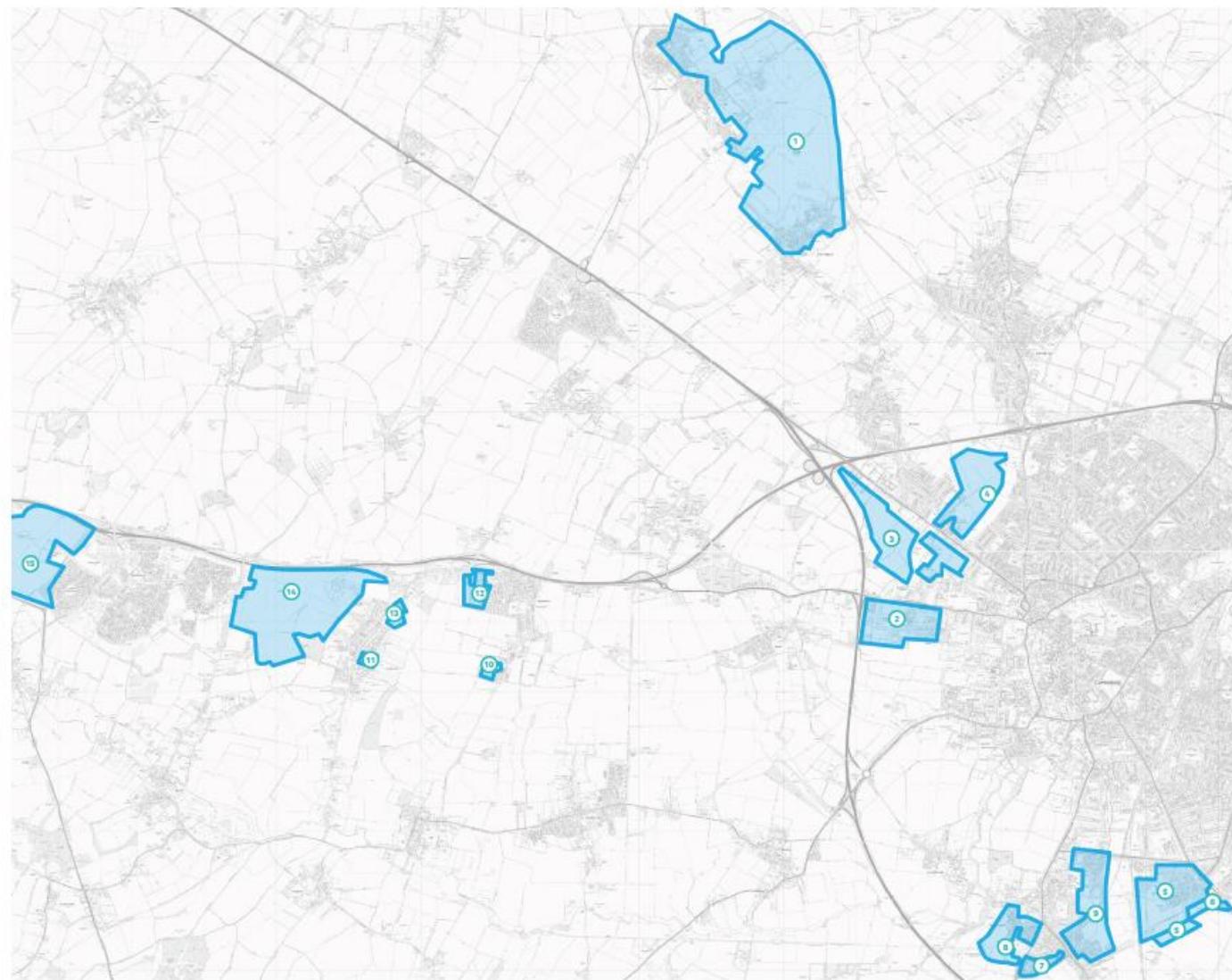
Figure 2 Future Development Sites

Figure 1: Future development sites

Site numbers	Site name	Dwellings/jobs
1	Northstowe	10,000 dwellings
2	West Cambridge	10,000 jobs
3	North West Cambridge	3,000 dwellings 4,000 jobs
4	Darwin Green	2,780 dwellings
5	Cambridge Biomedical Campus	14,000+ jobs (CBC) and Extension to CBC (Local Plan Proposal) <sup>1</sup>
6	Bell School	347 dwellings
7	Glebe Farm	316 dwellings
8	Trumpington Meadows	1,200 dwellings
9	Clay Farm	2,300 dwellings
10	Hardwick - West of Grace Crescent	98 dwellings
11	Highfield Caldecote	71 dwellings Highfields Road
12	Hardwick - St Neots Road	155 dwellings
13	Highfields Caldecote	140 dwellings - Land East of Highfields Road
14	Bourn Airfield (Local Plan Proposal)	3,500 dwellings
15	Cambourne West - (Resolution to grant planning Permission	2,350 dwellings

Source: Mott MacDonald (© Crown Copyright. All Rights Reserved. OS License Number 100023205.2018)

1. The SCDC and CaCC Local Plans were adopted on 27 September 2018 and 18 October .



### 3.2 Transport Constraints

Following the adoption of growth policies by the GCP and its partners, strategies to meet these requirements have been developed that focus on key interventions to unlock growth and add capacity. The key underlying drivers for the need for change along the A428/A1303 route and for investment in the C2C project are:

- The A428 is a nationally important route and forms part of the nationally strategically important Oxford-Cambridge Arc which was highlighted in the 2017 Budget as a priority for growth.
- Current delay on the A1303, eastbound, in the AM Peak is up to and over 75% slower than average night-time speeds. This is mirrored in the westbound PM Peak with between 50%-75% slower speeds than night-time average speeds.
- Car ownership in Cambridge is high, with 85% of households having access to a car compared to the national average of 74%.
- The demand generated by the growth in housing and employment will generate ever greater levels of demand for travel in and around Cambridge, with approximately 29% increase in trips during the AM peak, 31% increase during the PM peak and 38% increase during the interpeak period by 2036, and will thereby exacerbate current congestion issues.
- The greater levels in travel demand show that trips made by car for commuting purposes in Cambridgeshire are predicted to grow by up to 14% and 36% respectively during the AM and PM peak periods by 2036 worsening current congestion issues.
- The rail network does not serve the movements along the A428/A1303 route.
- The existing A428/A1303 is inadequate for walking and cycling as a mode of transport into Cambridge.
- Congestion on the route means that current public transport services are unable to offer an attractive alternative to private car.

With the number of developments and housing sites set to continue growing along the A428/A1303 and within and around Cambridge city centre, the number of trips generated along the route is likely to continue growing. In the absence of any high-quality public transport service, it is likely that a large proportion of these new trips will be made by car.

#### Audit Comment: A3

**The transport constraints are based on evidence collected in traffic surveys and modelling of the transport network under different growth scenarios. Accordingly, these demonstrate the need for the intervention and a sustainable transport solution provided by the Better Public Transport Project. These constraints remain valid for the C2C scheme.**

### 3.3 City Centre Access and Connectivity to Key Employment Sites

While the C2C will help to improve journey times and provide viable alternatives to the congested A1303, it does not provide a wholly segregated link within the City Centre. Such cross-city links are important to:

- Providing accessibility to major employment sites located on Cambridge's urban fringe; and
- Efficient movement for vehicular modes (including public transport) through the historic streetscape within the City Centre.

Cambridge is a polycentric city, with only 19% of employment located within the City Centre. Future employment growth is expected to be disproportionately concentrated on the city's "fringes", either at large employment hubs such as the Cambridge BioMedical Campus and Cambridge Science Park, or in new communities at North West Cambridge, Cambourne and Waterbeach. The city's existing public transport network is poorly configured for such future trips and commuting patterns, which are likely to be more "orbital" than "radial" in nature.

Journeys to these fringe sites usually require entering the city centre, where congestion is at its worst, changing route, and exiting from the city centre again. Consequently, many commuters are forced to rely on their car: currently 60% of trips to the Cambridge BioMedical Campus and 63% of trips to Cambridge Science Park are made by private car, compared to just 12% and 33% for the City Centre and Cambridge station area respectively

Public transport accessibility must therefore significantly improve at such sites for sustainable growth to be achieved. Without improved accessibility, traffic congestion will continue to worsen, and growth put at risk as such 'fringe' sites become increasingly difficult to access from the rest of Greater Cambridge.

One of the key causes of congestion in Cambridge is the limited capacity of its highway network, both for general traffic, bus services, and pedestrians and cyclists. This is particularly the case in the City Centre, where an historic street network, pre-dating the car, cannot accommodate modern traffic flows or provide sufficient space to fully segregate public transport services. Even if traffic volumes were to be significantly reduced, such as through adoption of an ambitious demand management or the City Access programme, many of these physical constraints would still remain.

Some of these constraints are outlined in Figure 3. Magdalene Street, which bisects the Grade I listed buildings of Magdalene College, is only wide enough for one vehicle at a time but provides the only access point into the city centre from the north-west. This route is shared by local bus services and traffic accessing the city centre, is frequently congested, and unable to support additional bus services. Hence the routeing of C2C bus services via Silver Street into the City Centre, which enables interchange with the Universal bus service at Grange Road. East-West connectivity to the city centre is limited with only two vehicular access points to the west of the city, Magdalene Bridge and the Silver Street bridge, which forms a barrier for movement for public transport services accessing the City Centre.

These limitations form a major part of the justification for the CAM network that was planned to effectively tackle these constraints, improving the transport network to support the region's growth through the provision of tunnelling to provide reliable, segregated public transport links across Cambridge.

**Audit Comment: A4**

**The C2C OBC focus is primarily on the A428/A1303 corridor and while acknowledging the constraints on bus accessibility through the city centre it offers no solution apart from the City Access program of soft measures to restrict on-street parking and reallocate road space to active travel. The assumption is that these measures will be enough to enhance bus speeds and provide more reliable journey times across the city. However, no detailed modelling of the likely impact has been conducted so it remains uncertain whether bus accessibility will improve.**

**The OBC recognises the need to access the fringe employment site at the Science Park and Cambridge BioMedical Campus and proposes a pattern of orbital bus services to serve these sites**

**from the Park and Ride sites at Madingley Road and Scotland Farm via the M11 and A428 as well as connections in the City Centre.**

**These constraints remain valid for the C2C scheme and only weak remedies are proffered at this stage.**

Figure 3. Connectivity Challenges in Cambridge City Centre



Source: CAM OBC, Steer 2019

### 3.3 Environmental Policies and Constraints

Alongside the policies on economic growth and investment in transport infrastructure, there are a range of environmental policies in the Cambridge City and South Cambridgeshire Local Plans that constrain developments in the area and in some cases conflict with the growth agenda, including:

- Air Quality - the centre of Cambridge has had an Air Quality Management Area (AQMA) since 2004 due to poor air quality (mainly due to high nitrogen dioxide from traffic) that does not meet National Air Quality Objectives. To implement improvement in air quality a series of Air Quality Management Plans have been implemented and integrated into the local transport plans. The introduction of a HQPT system that encourages lower private vehicle use, which is a key contributing factor to poor air quality in the city centre, has the potential to contribute to improvements in air quality in the city, and maintain good air quality outside of the city along the A428/A1303.
- Noise - any scheme that seeks to reduce noise levels can bring benefit to human health, although changes in traffic levels would need to be significant before conspicuous improvements in ambient noise levels are noticed.
- Historic Environment – heritage assets are abundant in Cambridge city centre, Cambridge American Cemetery and Memorial, as well as conservation areas around Adams Road and Coton village
- Landscape - The design of the scheme will need to take account of the landscape character along the route, with planting and infrastructure designed to minimise any negative impacts on the landscape.
- Green Belt - The C2C project would pass through substantial areas of land that is within the Cambridge Green Belt. The National Planning Policy Framework (NPPF) allows development such as transport infrastructure in the Green Belt so long as the requirement is demonstrated.
- Biodiversity – Cambridge City Council and South Cambridgeshire District Council have adopted policies to preserve and protect biodiversity from inappropriate development and to enhance biodiversity where possible. The GCP has committed to delivering a 10% net biodiversity gain following the scheme implementation.
- Climate Change – the Climate Change Act 2008, amended in 2019, commits the government to achieving net zero greenhouse gas emissions by 2050, with the government committing to end the sale of new petrol and diesel cars by 2030 and to ensure all cars and vans will be zero emissions at the tailpipe by 2035. Public transport schemes such as the C2C project has the potential to lead to a reduction in greenhouse gas emissions by introducing a carbon efficient public transport fleet, removing traffic off the road, and reducing congestion. There is also the opportunity to deploy solar panels at the Scotland Farm transport hub/Park and Ride site.
- Water and flood risk - The NPPF requirement is that no new development (taking proper account of climate change impacts on rainfall) should increase flood risk to surrounding areas. The C2C project is judged to have a very limited impact on integrated water resources, with no likely special measures to be required to ensure the relevant policies in the Local Plans for Cambridge and South Cambridgeshire councils will be fully complied with. This will be assessed further as the scheme design progresses.

The potential environmental constraints along the preferred route are shown in Figure 4. It is worth noting that the OBC also identifies opportunities to enhance the environment along the preferred route, not just to mitigate impacts, but to increase biodiversity.

**Audit Comment: A5**

**The environmental impact of the scheme is mixed. The Business Case emphasises the benefits in terms of improving air quality, biodiversity and its compatibility with national policies on climate**

**change and greenhouse gas emissions, and assumes these will outweigh any negative impacts of the scheme on the green belt, landscape character and heritage assets.**

**The validity of these assumptions will need further investigation as part of the Environmental Impact Assessment that has yet to be conducted for the scheme.**

Figure 4. Potential Environmental Constraints

Constraints map



1. Existing cycle path in close proximity to residential areas
2. Some protected species in Bourn Airfield area
3. Lighting and noise impacts on residences
4. Potential buried archaeology
5. Potential increased traffic through Dry Drayton

6. Tree preservation Orders in this area
7. Noise and visual impacts on residences
8. Bat roost potential
9. Buried archaeology (geophysical)
10. Public right of way

11. American Cemetery, grade 1 registered park and garden
12. St Peters Church, grade 1 listed building
13. Coton Orchard
14. City wildlife site
15. High badger activity

## 4 C2C Business Case

This section describes the business case development process for the C2C scheme. Since the project inception a large volume of documentation has been produced which is available on the GCP website<sup>vii</sup>, culminating in the preparation of the Outline Business Case: Strategic Case<sup>viii</sup> in January 2021, which is the principal report reviewed in this Audit.

The background and policy context for the scheme was described in Section 2, and Section 3 reviewed the constraints – housing, transport, and environment – that underpin the rationale for the scheme and the concept design. The focus of this section is on the appraisal process and the assumptions made in reaching the preferred option and the extent to which these remain valid.

The Audit asks two critical questions:

1. Does the Business Case comply with the appraisal process prescribed by the DfT and cover all elements required for the options evaluation?
2. Is the evidence base, evaluation methods and techniques employed robust enough to support the C2C scheme assumptions and their continued validity in the light of developments since the project was conceived?

### 4.1. Business Case Development

Broadly, the development of the business case follows the 5-case model prescribed in the HM Treasury Green Book – Strategic, Economic, Financial, Commercial and Management cases- and the procedures set out in the Department of Transport (DfT) Transport Appraisal Guidelines (TAG). Together these processes provide a robust framework for evaluating the business case for a scheme including the strategic fit to local policies, the need for the intervention, options sifting and evaluation, the benefits and costs of the scheme, its value for money, local impacts (positive and negative), funding sources, and delivery arrangements. The focus of the OBC is on the strategic case for the scheme, in line with appraisal guidelines, and the options sifting and appraisal is conducted at this level. Once the preferred option is chosen, this is then subject to more detailed appraisal of the economic, financial, commercial and management aspects of the scheme.

The process requires the compilation of a robust evidence base on local conditions, issues, and constraints, supported by technical analyses and wide-ranging consultation with stakeholders and communities affected by the scheme. This process allows for gateway reviews at critical junctures to ensure that the business case is on track and conforms to the strategic policies and benchmarks for the scheme, in this case the policy objectives outlined in Section 2.1 earlier. The decision on whether the C2C Business Case complies with these rests with the GCP Executive Board and is ultimately subject to examination in a Public Inquiry which is the penultimate step in obtaining approval for the scheme from the Secretary of State for Transport.

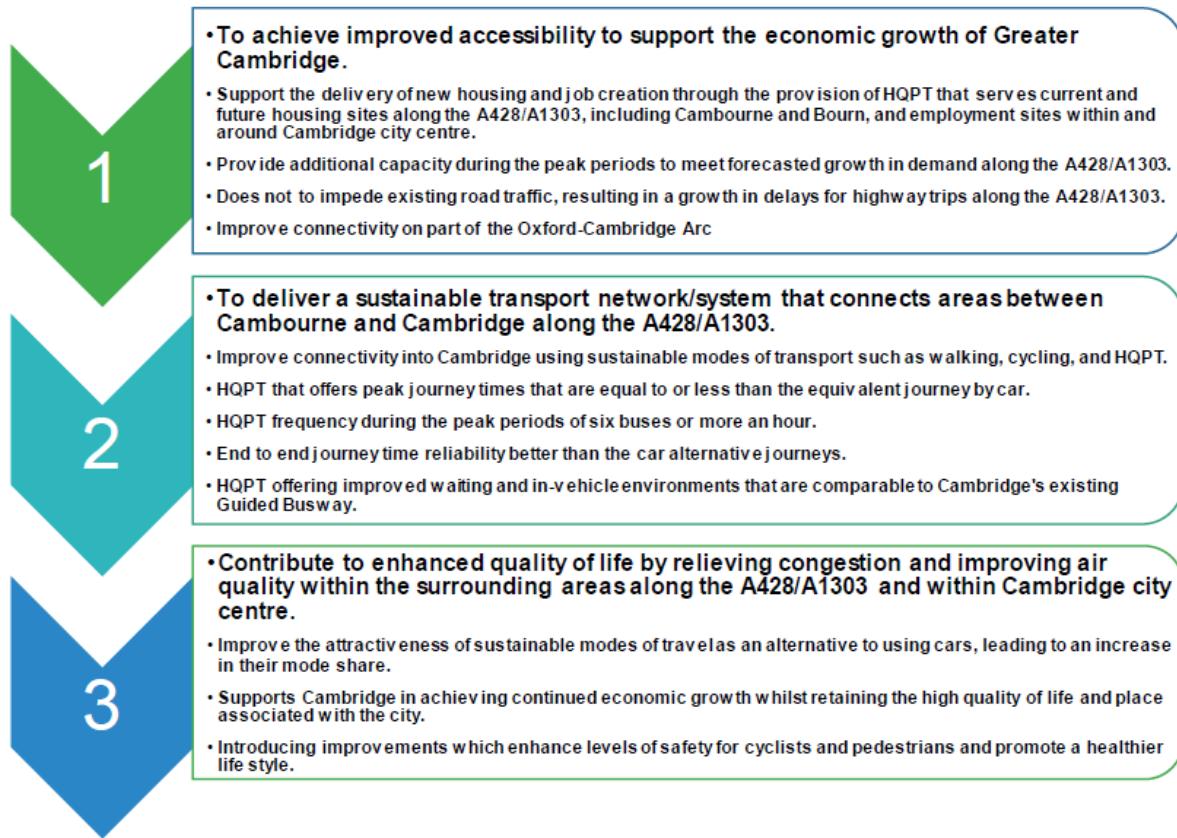
#### 4.1.1 Scheme Objectives

The specific objectives of the C2C scheme are listed in Figure 5. These aim to address the policies and constraints underpinning the scheme and comprise the critical success factors against which the scheme should be judged.

The subsequent project design comprises three elements:

- A HQPT route, between Cambourne and Cambridge, that bypasses general traffic congestion;
- A new Park & Ride site enabling traffic on the A428/A1303 access to the HQPT route, and;
- New continuous high-quality cycling and walking facilities along the route.

Figure 5. C2C Scheme Objectives



In addition, The C2C project aspires to utilise innovative future technologies where doing so would provide the solutions to its aims and objectives. This includes exploring the options of using alternative guidance technologies for the guided HQPT route and electric vehicles. As alternative technology becomes more viable, the business case would be updated to reflect the adoption of such technology.

#### Audit Comment: A6

The C2C scheme objectives are a valid response to the constraints identified along the corridor with some ambitions/assumptions to deliver a HQPT that can compete with car travel. There are a couple of caveats. Firstly, with respect to the specification of six buses or more in the peak hours this seems incongruous in outlining the overarching objectives. The scheduling of bus services will be determined by the level of demand that is generated as the housing and employment growth takes place, so represents more of an ambition rather than an objective. While accepting that these objectives relate to the scheme once open, the phasing of the housing and employment development along the corridor is a constraint that is not analysed in the Business Case. This omission should be addressed in further modelling of incremental growth scenarios.

Secondly, there is no objective to integrate with other public transport services including EWR or to integrated ticketing/fares that would incentivise bus use. Thirdly, the only environment objective is to improve air quality – a valid objective – but omits any other goals related to climate

**change or impact on the environment. There seems to a ‘strategy’ gap between the policy related objectives described in Section 2 and the scheme specific objectives listed in Figure 5.**

**So while the three components of the scheme – HQPT route, new Park & Ride facilities, and active travel facilities - are complementary features and consistent with the scheme objectives, it is not clear how the scheme fits into the broader transport strategy to address the constraints described earlier. This vacuum was filled by the previous Mayor’s CAM network project that was central to the Local Transport Plan strategy for the area. Early statements by the incoming Mayor suggest that the future of CAM is in doubt. A decision not to proceed with CAM would raise the question of what replaces it. If it is to be the Better Public Transport program and schemes like the C2C, then the objectives need updating and widening to fill the gaps in transport strategy.**

#### 4.1.2 Options Development and Appraisal

Options development and appraisal proceeded through three stages that are summarised in Figure 6. At each stage a range of options were developed that were then evaluated against the scheme objectives and local transport policies and plans. In total 34 options were considered which were sifted through a multi-criteria assessment framework (MCAF) to derive 6 options (3 phase 1 & 3 phase 2) including the P&R site options. These were then combined into 5 options for both phases. The optioneering process reviewed a wide range of options suggested by stakeholders and following consultation. The assessment criteria followed DfT appraisal guidelines and covered a broad range of issues from policy goodness-of-fit to local environmental impacts.

The MCAF criteria is a qualitative exercise that measures the performance of each option against a wide range of factors grouped into six themes:

1. Policy fit – related to 6 local policy documents and plans
2. Contribution to economic growth – 6 economic factors assessed
3. Contribution to improved transport network – 8 transport related criteria
4. Contribution to quality of life – 7 environmental factors plus safety and accessibility
5. Scheme deliverability – 7 factors assessed
6. Stakeholder support – public acceptability score

This option sifting exercise is an important part of the options development process and is intended to ensure that all possible options are included in the evaluation. The outcome is a shortlist of best performing options for each phase of the project. The option scoring is justified on the available evidence but by its nature is subjective. It also takes account of feedback from the stakeholder consultation, as evidenced by the selection of Scotland Farm for the Park and Ride site rather than the Waterworks site at Madingley Mulch; and the decision to route the busway along Rifle Range in place of Adams Road which went through several iterations.

This is not unusual, and options development should be flexible enough to respond to concerns raised in the process. Objections to various elements of the scheme have been raised by stakeholders and some of these have been investigated. The latest submittals to this audit include suggestions for alternative alignments that are reviewed in Section 6.

Following the options appraisal and feedback from stakeholders, the GCP Executive Board has approved the preferred options for phase1 of the project and at its Executive Board Meeting of 18 March, noted the conclusions of the OBC presenting a preferred high quality public transport, walking and cycling route. The results indicated that the best performing option was the segregated off-road option with Park & Ride at Scotland Farm (Figure 7). The Executive Board also agreed to undertake an Environmental Impact Assessment pending the findings of the independent review.

**Audit Comment: A7**

The business case development has broadly followed the guidelines and procedures laid out in the HM Treasury Green Book and DfT's TAG methodology. These documents provide the guiding principles within which projects should be appraised but allow some leeway for scheme proposers to employ different methods and techniques where appropriate. It is accepted that in scheme appraisal there will be a need for judgement alongside quantitative assessment so long as there is a robust evidence base to support the decisions made.

In this case, it appears that the appraisal has been conducted in a robust manner by independent consultants with experience in business case development and familiar with the appraisal process. The process has included consultation with stakeholders at each phase and in addition a Local Liaison Forum has been established to represent stakeholder interests. These have been given ample opportunity to present their evidence and opinions on the C2C route options and in response the GCP has amended some features of the scheme.

The GCP should continue to consult with stakeholders as the preferred option progresses and implement any recommendations that may arise from the Environmental Impact Assessment that has yet to be conducted.

Generally, the appraisal covers the required elements for the business case and appraises the options against the assumptions and constraints specified in the scheme objectives. The only question is whether as indicated earlier the objectives remain valid in light of developments with CAM (the future of which is now uncertain) and EWR, as well as changes in transport policy and strategy evident in the CPCA's Local Transport Plan? The appraisal took place while these projects were at an early planning stage and could not reasonably incorporate them into the appraisal given that they were not committed schemes. The early comments by the new Mayor on the CAM project validates this approach but the EWR has since taken a step forward and should be brought into the appraisal framework. Likewise, pronouncements on government policies on climate change, Bus Back Better and the effects of the COVID-19 pandemic. These have both positive and negative implications for the C2C scheme as discussed in Section 5.

*Figure 6. Options Development Process*

## Option development and appraisal since October 2016 has been undertaken in three stages:

**Stage 1** – Stage 1 assessed the options that were presented as part of the 2017 public consultation, taking into account responses from the consultation and stakeholder engagement to arrive at the highest scored on-road route and the highest scored off-road routes.

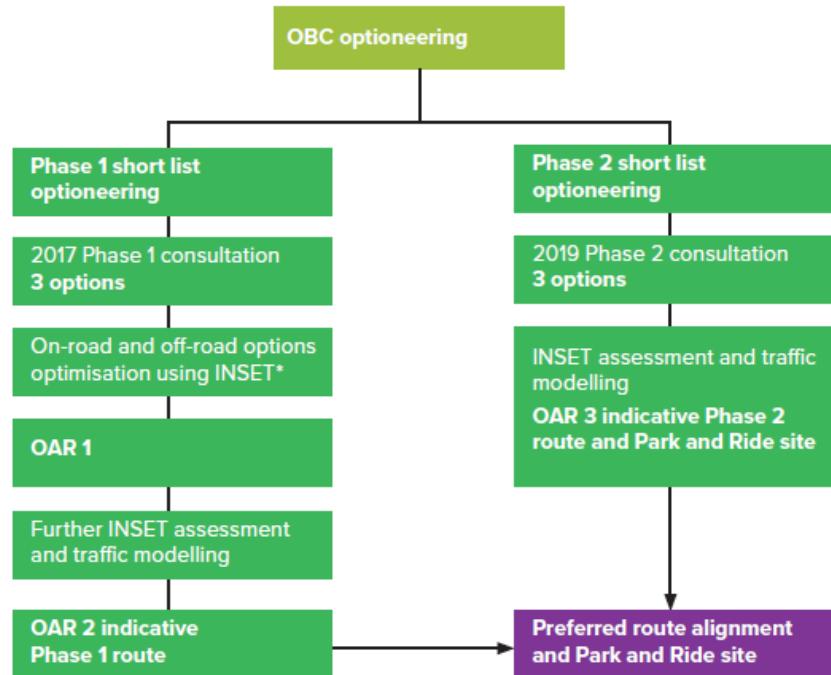
Summarised in Options Assessment Report Part 1 (OAR1)

**Stage 2** – The shortlisted on-road and off-road options were appraised against each other to arrive at a recommended Phase 1 option. An illustrative comparator, which included both off-road Phase 1 and 2 options was also assessed and showed that there was benefit to implementing the full scheme from Cambourne.

Summarised in Options Assessment Report Part 2 (OAR2)

**Stage 3** – The Phase 2 options and Park and Ride Locations were appraised against each other to arrive at a single route alignment (Phase 1 and 2) and a preferred Park and Ride location recommended.

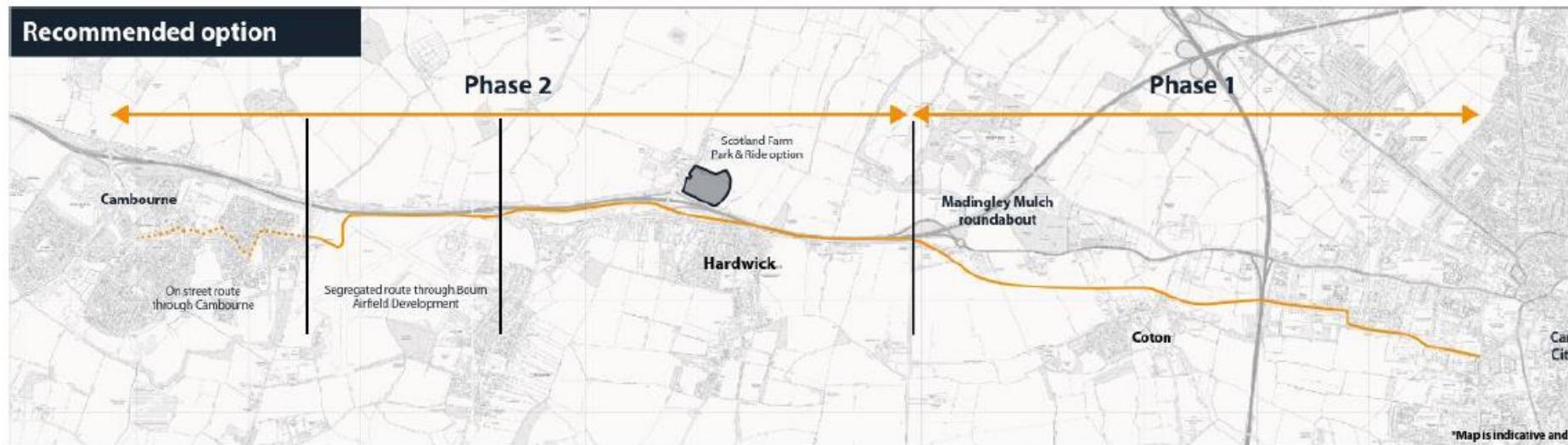
Summarised in Options Assessment Report Part 3 (OAR3)



\* INSET is a multi-criteria tool used to assess and score scheme options against a range of criteria to identify the best performing option.

Source: Cambourne to Cambridge Better Public Transport Project: Non-technical summary. December 2019.

Figure 7. C2C Project Phases and Preferred Option



Source: Mott MacDonald (© Crown Copyright. All Rights Reserved. OS License Number 100023205.2018)

## 4.2 Preferred Option Appraisal

Having selected a preferred option, the business case appraises this in more detail on economic, financial, commercial and management criteria. The assumptions and constraints at this level are more scheme specific as listed in the table below. Where applicable, assumed alignments are cross-referenced with constraints on that particular section of the route.

C2C Preferred Option			
	Assumptions		Constraints
A1	The preferred route alignment starts in Cambourne, running on the existing street network before turning off Sterling Way onto a new section of segregated public transport route which crosses Broadway and into the proposed Bourn Airfield development.	C1	The section of the scheme which runs through Bourn Airfield must comply with the SPD for the site and complement the development Masterplan
A2	It then travels along the northern edge of the proposed Bourn Airfield development along a segregated corridor, crossing St Neots Road west of the roundabout on St Neots Road / Highfields Road.		
A3	From this point it continues east on a segregated route between the A428 and St Neots Road until it re-joins general traffic at the Scotland Road Junction.		
A4	From here public transport vehicles will access the Park & Ride site at Scotland Farm, located to the east of Scotland Road, just north of the A428.	C2	<p>Providing appropriate traffic calming and management proposals to mitigate rat-running to Park &amp; Ride sites.</p> <p>Any new Park &amp; Ride service will need to be to a standard similar to that currently operating for Cambridge's Park &amp; Ride services as set out in the current Access Agreement, which states that the Bus Operator will operate the Park &amp; Ride Bus Services in accordance with the established minimum requirements.</p>
A5	On leaving the Park & Ride, vehicles re-join a segregated route between the A428 and St Neots Road via the existing roundabouts where it travels from Hardwick to the junction with Long Road.	C3	<p>Fitting within available space in areas where the alignment passes relatively close to properties. For example, along some parts of the St Neots Road. Where necessary noise barriers will need to be explored as an option to ensure that traffic noise experienced by residents reduces.</p>
A6	Here, the route crosses to the southern side of St Neots Road and continues through existing agricultural fields to the south of the A1303, Madingley Road.	C4	<p>Land parcels owned by Cambridge Past, Present and Future, which are protected by National Trust Covenants.</p> <p>Engagement with both organisations is needed to minimise the impacts.</p>

A7	Passing north of Coton, the route crosses Cambridge Road at a new signalised junction, which will be implemented as part of the scheme, before continuing to cross the M11 on a new bridge.	C6	<p>Coton Conservation Area including Grade 1 listed Church. The scheme must be reviewed in terms of the setting of these protected assets.</p> <p>Minimising the impact on the Coton Orchard and a City Wildlife Site, to the west and east of the M11 respectively which the alignment for the preferred option bisects (note - neither site has national designation, but the impact on either should be minimised).</p> <p>Crossing the M11 motorway which creates a severance impact for vehicles, pedestrians and cyclists travelling between Cambridge and areas to the West of the city.</p>
A8	Entering the West Cambridge site the segregated route continues alongside Charles Babbage Road before turning south and exiting the West Cambridge site into the West Fields via the unnamed road leading to Forster Court where it immediately turns and heads east, following the line of, and to the south of, an existing cycleway / footway.	C7	The section of the scheme which runs through West Cambridge must complement the development Masterplan. Consideration must be given to vibration and EMI impacts on sensitive receptors such as the Department of Materials Science and Metallurgy
A9	Vehicles continue to the junction with Grange Road where they continue their onward journeys on the existing road network.	C8	Communities along the corridor are served by the Citi 4 Bus Service, amongst others. This is a stopping service which could provide a feeder for the busway. Whilst the decision as to future Bus Services lies with bus operators, the provision of the Busway should not prevent the provision of existing services.
A10	Existing cycle routes are utilised through the West Cambridge site and the existing cycleway / footway is maintained between West Cambridge and the Adams Road / Wilberforce Road junction.	C9	The scheme must provide a segregated route for non-motorised users, as a minimum to include cyclists and walkers, but where appropriate equestrians, and to ensure that all pedestrian facilities are accessible for all.
A11	A new footway-cycleway will be implemented as part of the scheme, that will follow the segregated sections of the route through Bourn Airfield up to the Scotland Road junction.		
A12	At this point the cycleway / footway moves to the southern side of St Neots Road up to the junction with Long Road where it re-joins the segregated route to West Cambridge.		
		C10	Bus emissions are improving over time and Euro VI emission standard is now required for new buses as a minimum.
		C11	All buses are now required to be accessible for all including wheelchair users

		C13	The scheme must achieve a 20% net biodiversity gain.
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Assumptions and constraints in the OBC that refer to the CAM network and Adams Road Conservation Area have been removed as these are no longer impacted by the route alignment which is proceeding via Rifle Range.

In further designing the preferred option for the C2C project, scheme designs will need to consider how best to overcome, incorporate or mitigate impacts relating to the assumptions and constraints.

#### 4.2.1 Strategic Economic Case

The economic impact assessment of the C2C project focuses on quantitatively assessing the level of benefits by examining the transport user benefits, the level of development and growth at those sites identified along the Cambourne to Cambridge corridor. The approach is described in the Option Appraisal Report (Part 3)<sup>ix</sup> and focuses on examining the potential jobs and GVA supported at the developments as well as the Land Value Uplift (LVU) impacts.

The two new settlements (Cambourne West and Bourn Airfield), in housing terms, are judged to be fully dependent upon the C2C project given the clear policy position within the local plan and Section 106 commitments and ongoing negotiations. While Bourn (3,500) and Cambourne West (2,350) are fully dependent upon the C2C (with financial contributions and direct works secured) the trigger points allow for delivery of dwellings before the link is completed. For Cambourne, there is a pre-occupation requirement to directly deliver the Broadway Bus Link component of the C2C. For Bourn Airfield, development cannot proceed beyond 500 dwellings until the C2C is delivered.

The planning context is set out in the adopted South Cambridgeshire Local Plan. Specifically, the development requires:

*"Significant Improvements in Public Transport, including:*

- i. *Provision of a segregated bus link from Cambourne to Bourn Airfield new village across the Broadway, and on through the development to the junction of the St Neots Road with Highfields Road;*
- ii. *Any measures necessary to ensure that a bus journey between Caldecote / Highfields and the junction of the A428 and the A1303 is direct and unaffected by any congestion suffered by general traffic;*
- iii. *Provision of high quality bus priority measures or busway on or parallel to the A1303 between its junction with the A428 and Queens Road, Cambridge;"*

The employment dependency at new settlements is judged to be lower given it is largely in place to serve the developments and ensure they do not become dormitory towns whilst the employment site at Bourn Airfield is already established. Clearly, the C2C project will support all commercial development plans, especially those at West Cambridge, but the primary focus is to support housing development and support employment across Greater Cambridge's growth areas.

Overall, the C2C project is anticipated to support, at a gross level:

- In the region of 975 jobs; and,
- £102.8m of GVA per annum for Greater Cambridge.

This is a very significant economic impact and over a 30-year time period from 2019 the present value of benefits amounts to £1,075.9m (2019 value and 2019 prices), including £676.1m GVA plus £458m from land value uplift.

Benefits were assessed at 3 levels following Transport Appraisal Guidelines: level 1 measures the transport user benefits to bus riders and decongestion benefits for car users; level 2 estimates the wider economic benefits assumed to accrue from the scheme from agglomeration; and level 3 estimates the wider economic benefits from land use changes at national and local level, including Gross Value Added through jobs created and the land value uplift from the scheme. These level 3 additionality benefits are what justify the scheme producing a BCR of 1.47 (increased to 3.48 with Greater Cambridge additionality benefits) compared with just 0.43 for the level 1 benefits and 0.48 for the adjusted level 2 benefits.

#### *Transport User Benefits*

Level 1 transport user and non-user benefits are negligible as reflected in the poor benefit-cost ratio for the shortlisted options in phase 1 and phase 2. The preferred route option covering both phases scored highest at 0.43 but still showing poor value-for-money (VfM) on this measure.

The traffic modelling for the preferred option estimates a 167% increase in bus ridership when the scheme opens and 233% by 2036 when all the housing and employment in the corridor is assumed to be built. This amount of mode shifting, mainly from private car, is predicated on the C2C delivering significant journey time savings to users from Cambourne, Bourn village and the Scotland Farm P&R. For instance, C2C passengers from Cambourne to Cambridge city centre are predicted to have 23 minutes lower journey time in the morning peak hour compared to a do minimum on-road scenario. Alternative on-road options do not offer anywhere near this journey time saving or reliability.

Despite the forecast increase in bus ridership, there will still be a lot of traffic generated by the developments in the corridor so traffic congestion will remain a problem, hence the poorer performance of an on-road solution even with bus priority measures. The predicted mode shift only increases the bus mode share east of the Scotland Farm P&R site from 4% to 6% of travel demand. Off peak C2C journey times are slightly longer due to the diversion from the busway to the Scotland Farm P&R site.

Overall, the scheme is assumed to benefit a range of social areas: reduced accidents due to lower private vehicle use; providing access to services, which are affordable is also assumed; and creating a more secure and easy to use bus service will attract a broader cohort of users.

#### **Audit Comment: A8**

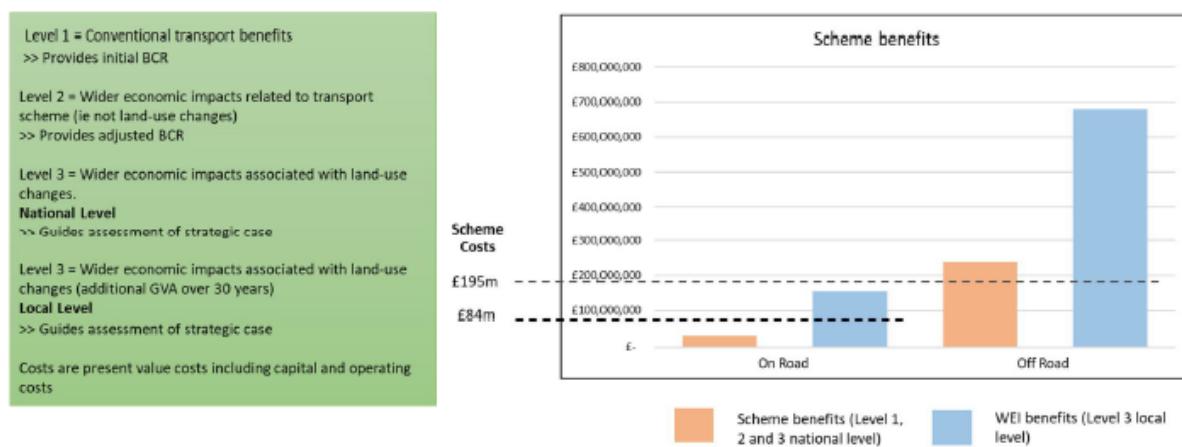
**The projected demands for the C2C scheme indicate that mode shifting from private cars to buses will be moderate and growth along the corridor is likely to bring more traffic. The OBC does not present any forecasts of traffic growth after the scheme opens or when the housing is fully built out, although it is understood with and without development scenarios have been modelled using the D Series Cambridge Sub Regional Model 2 for 2026 and 2036. It would be helpful to compare the model outputs on general traffic as well as ridership on the C2C to understand better the impacts of the developments as well as the C2C scheme. The C2C scheme objectives include increasing bus mode share along the corridor, and local transport policy aims to reduce traffic in Cambridge City Centre and on orbitals like the A1303. It is not clear from the analyses how much these will be achieved, and it is therefore difficult to comment on the validity of these assumptions and constraints.**

### *Wider Economic Impacts*

The assessment compared an off-road (do something) to on-road (do minimum) option. Figure 8 illustrates how an off-road option compares to an on-road option in delivering wider economic impacts (WEI) at both a national and local level. The economic appraisal estimates that there are substantial benefits to an off-road segregated route.

The assumptions and calculations around the WEI are set out in the Strategic Economic Narrative and Economic Impacts Report, January 2020<sup>x</sup>. The estimate of jobs and housing (and land value uplift) dependent on the scheme is based on the findings of a 2016 study of the strategic economic appraisal of the C2C scheme, updated by a qualitative assessment of the key transport benefits and how these differ between the segregated and on-highway options and using the modelling outputs which were available for the 2016 study in conjunction with the latest land value update analysis.

Figure 8. C2C on-road vs off-road economic appraisal comparison



The 2016 study examined the key transport benefits for the three options put forward at the time (on highway, hybrid and offline) in terms of how they addressed congestion and capacity issues (assessed against connectivity, reliability, sustainable transport and quality). At a fine level of spatial detail this analysis looked at journey times and costs between locations by mode of travel, journey purpose and time period. To produce aggregate results the analysis demand weighted the Generalised Cost (GC) from all individual segments to show the relative reductions in GC for the three Do Something (DS) options compared to the Do Minimum (DM).

The on-highway option that is assumed is the “optimised” solution for Option 1 in Phase 1 and Option 2 for Phase 2. Significantly, there is no new assessment of the transport benefits for this on-highway solution as the latest transport modelling, given the stage of the project, assumes that all options are offline east of the M11 (Phase 1). While the appraisal uses the same methodology for appraising the off-line and on-line options the latter may be skewed by the assumptions made for the section east of the M11 motorway.

This analysis provided a set of transport multipliers that set out the differences across the options and the scale of differences across these multipliers, which were used in the economic appraisal. As outlined above, the appraisal did not update the analysis of the transport benefits for the on-highway option. However, applying the previous multipliers to the on-highway and segregated options results in the following land value update estimates that were used in the economic appraisal:

Land Value Uplift – results, PVB (2010 values and 2010 prices, 60-year time period)

Impact, £m

Preferred Segregated Option	£287.8
On-Highway Solution	£62.1

Appendix C: Options Comparison, of the Strategic Economic Narrative and Economic Impacts Report concludes:

*"It should be noted that this is a very high level assessment, based on the anticipated differences in transport impacts between the two options, and not a detailed appraisal of the options (like the 2016 study) and their likely impacts on the dependent development. To produce a complete update would require a comprehensive refresh of the proposals for a wholly on-highway option in order to bring it up to a comparable level of design detail and then reproduce the associated modelling outputs."*  
P.92.

Two questions arise from the options analysis:

1. Has the comparison between the on-road and off-road options been a fair one given the on-road option was incomplete? and
2. If another, more complete, on-road option was used for the analysis would it have made any difference given the magnitude of the estimated variance between them?

The strategic economic appraisal suggests that the differences in WEI between the preferred off-road and on-road options is so wide that no on-road option would deliver the benefits of an off-road segregated busway.

This assumption is challenged in some of the submissions made to the audit and reviewed further in Section 6.

**Audit Comment: A9**

**The technical appraisal of wider economic impacts is a problematic area in welfare economics, especially surrounding the assumptions over dependency versus displacement in estimating GVA associated with jobs and land value uplift from housing. The dependency assumptions are key to the economic justification for the scheme and its overall value-for-money.**

**A series of sensitivity test were performed to assess the robustness of the scheme against varying levels of growth. This supports the economic case for the scheme in that where costs may increase the VfM of the scheme remain unchanged, and that if a greater level of growth does materialise then the VfM of the scheme will increase. Overall, the preferred option is judged to have medium VfM but is sensitive to changes in land value uplift and GVA generated by additional jobs. If these are less than expected, then the VfM would be poor.**

**The question remains over the extent to which the scheme supports housing and jobs growth and economic growth. It is not for the audit to answer this question, but the evidence will be examined in the Public Inquiry for the scheme.**

**The methods employed in the analysis appear to follow the appraisal guidelines, and in that respect remain valid.**

#### 4.2.2 Financial Case

The current estimated capital cost of the off-road option is £160.5m, of which £37.7m is anticipated from Section 106 contributions from other third parties such as the developers of the Bourn Airfield site and West Cambridge. Developer contributions so far include:

- Cambourne West: £8.7 million secured plus direct delivery of Broadway link (£400k) and internal route within the site.
- Bourn Airfield: £20 million (approved Heads of Terms – subject to S106) plus direct delivery of internal route within site.
- West Cambridge: Not yet determined though £9 million is the working assumption if approved.

It is currently anticipated that between 20% and 25% of the scheme costs can be attributed to development and contributions secured accordingly. Any lower contributions would increase the financial risk of the scheme to the GCP.

The estimated high-level scheme costs at this stage of the project's development are based on a range of assumptions and exclusions, which are detailed within OBC Appendix Q. These will be revisited and updated in the Full Business Case stage.

There are several options for the Busway maintenance which will be reviewed further at Full Business Case. This will depend to an extent on the arrangement used for the operation of the bus service, which is yet to be determined, and will be influenced by new Mayor's preference for the bus operating model as discussed below.

#### Audit Comment: A10

**The assumptions and constraints underpinning the Financial Case remain valid. However, the financial case does not include Optimism Bias (currently 44%), which is used within the economic appraisal, but does include a risk allowance of 25%. Applying the optimism bias would increase the potential scheme cost to £195m.**

#### 4.2.3 Commercial Case

##### *Procurement Strategy*

As part of the current stage of scheme development and the OBC, a design and build procurement has been selected as the preferred procurement strategy. However, this is subject to further review as part of the next stage of work in developing the scheme and informing the Full Business Case. The design and build model will provide GCP with more opportunity to drive value for money and more opportunity to transfer delay risk and interface risks to the contractor. However, adopting a design and build approach puts the responsibility for design, including integration, with the contractor and it would be the responsibility of GCP to define its requirements.

##### *Preferred Routing Strategy*

The OBC assumes that the operation of the current bus services along the C2C corridor is largely on a commercial basis. With regard to the new HQPT services which are expected to operate along the C2C infrastructure, the assumption is that the GCP will not be directly involved in their procurement and control as that is not within GCP's powers.

These assumptions need updating following the Bus Services Act 2017 and the Bus Back Better: national bus strategy statement from the government in March 2021. These constrain the potential public transport operating models to:

- Enhanced partnership; or

- Franchising

The CPCA is the local transport authority for public transport. While the GCP is the lead authority for the C2C scheme it will need to work with the CPCPA on implementing these arrangements which cover routes, schedules, fares, and ticketing as part of an integrated better public transport strategy for Greater Cambridge. The budget implications of delivering clean, high-quality transport such as high frequency services operated by high quality electric vehicles will need agreeing with the CPCPA and the new Mayor.

The assumed C2C bus network is based around three direct express services as follows:

- Cambourne to Cambridge City Centre at 10-minute interval service (6 buses per hour)
- Cambourne to BioMedical Campus at 30-minute interval service (2 buses per hour)
- A428 Park and Ride site to BioMedical Campus at 30-minute interval service (2 buses per hour during peak periods)

In addition, passengers from Cambourne to Cambridge corridor services would also be able to interchange with the Universal service at West Cambridge which would serve Cambridge North Station and the Cambridge Science Park.<sup>1</sup>

- BioMedical Campus to Eddington at 15-minute interval service (4 buses per hour)
- BioMedical Campus to Cambridge North Station & Cambridge Science Park 30-minute interval service (2 buses per hour)

There are some constraints on the proposed routing strategy:

- routes and schedule are based on anticipated demand and are proposed routes only and have not been agreed with the existing route operators or with the GCPA under an enhanced partnership regime (the default bus operating model pending a review of future franchising option).
- Any new Park & Ride service will need to be to a standard similar to that currently operating for Cambridge's Park & Ride services in accordance with the established minimum requirements.
- Communities along the corridor are served by the Citi 4 Bus Service, amongst others. This is a stopping service which could provide a feeder for the busway. Whilst the decision as to future Bus Services lies with bus operators, the provision of the Busway should not prevent the provision of existing services.
- All buses are now required to be accessible for all including wheelchair users.
- It had been envisaged that the scheme must be capable of eventual upgrade to form part of the CAM network.

The former CPCPA Mayor's Strategic Bus Review concluded that further work was required including procurement and completion of a business case to assess different delivery model options.

Following completion of this latter piece of work, the CPCPA Mayor was expected to decide on the future preferred option for delivering bus services in early 2021. This has been superseded by the election of a new Mayor and by the Bus Back Better announcement from the government.

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<sup>1</sup> From the end of August 2020, the CPCPA commissioned two bus services between Cambourne and Cambridge to serve Cambridge Regional College and the Cambridge Science Park (service 905 running every 30 minutes Monday to Friday) and the BioMedical Campus via Cambridge Station (X3 hourly service 7 days per week).

**Audit Comment: A11**

The assumptions and constraints need updating to reflect shifts in government policy announced in the Bus Back Better: national bus strategy for England and the Bus Services Act 2017, as well as the bus strategy to be adopted by the new Mayor. There are opportunities presented by these through the enhanced partnership or franchising arrangements. Generally, these are all positive changes that support ambitious schemes like the C2C.

Assumptions and constraints related to the CAM may need to be amended or removed in the light of decisions taken following the election of a new Mayor.

#### 4.2.4 Management Case

The management case identifies the key risks and mitigations for the project. The management case does not differentiate in terms of the options under consideration.

##### *Risk Assessment*

The success and financial viability of the C2C project will be dependent on several factors. Scheme design and delivery will therefore need to consider the following dependencies outlined in the OBC:

- Delivery of housing and employment sites allocated within the South Cambridgeshire Local Plan.
- Emerging CPCA Policy specified in the Local Transport Plan and the new Mayor's transport agenda. Also need to consider Cambridgeshire Transport Delivery Plan (TDP) for transport capital schemes on the local network to be delivered on a three year time frame and the Transport Investment Plan (TIP) that includes the C2C scheme, developed alongside the TDP to identify schemes to support growth.
- It had been envisaged that there would be a need to monitor how development of CAM progresses as the C2C project aimed to deliver the first phase of infrastructure for the larger CAM network.
- City Access Strategy which aims to improve congestion on routes into the City Centre which will be key to reducing the journey times for buses and therefore making the Park & Ride attractive and successful.
- Oxford-Cambridge Arc. Both the dualling of the A428 between the A1 and Caxton roundabout and EW Railway will impact on the C2C route and whilst the scheme is not dependent directly upon these proposals, they may have a significant influence.
- Emerging Technologies. The final specification of C2C will be driven by technology advances and the range of solutions available at the procurement stage.

**Audit Comment: A12**

These assumptions and constraints remain valid apart, potentially, from those pertaining to the CAM network. The interdependencies should be updated to reflect recent developments in national and local transport priorities.

##### *Consultation*

Public and stakeholder consultation is essential to ensure that the various aspirations of the general public and key stakeholders are taken into account throughout development and delivery of the project and to manage the communication and flow of information relating to the project. A communication plan sets out how this process is managed, identifying key stakeholders and how engagement is managed including the facilitation of a project specific Local Liaison Forum.

**Audit Comment: A13**

These assumptions and constraints remain valid and should be continued through the remainder of the project. Submissions to the audit have queried the consultation process and whether the GCP has adequately considered concerns raised by various parties. This is commented upon further in Section 6. It is important for stakeholders and the wider community to have confidence in the consultation process and be given the opportunity to comment on plans and be involved in the scheme development.

## 5 Policy and Transport Strategy Developments, 2018-present

In March 2017, a Mayor was elected to lead the newly formed Cambridgeshire and Peterborough Combined Authority (CPCA). The CPCA was given responsibility and powers for economic development, skills training, preparing the Local Transport Plan, supporting bus services, and developing a transport strategy for Greater Cambridge and beyond around a Cambridge Autonomous Metro (CAM) scheme. This is the most significant change to affect transport planning in the GCP area – with implications for the Better Public Transport project – but not the only one. Other changes include the developing plans for the East West Railway (EWR), the impacts of the pandemic on travel behaviour, the government’s Bus Services Act 2017 and the Bus Back Better: national bus strategy for England 2021, and the 2019 Amendment to the Climate Change Act 2008. This section discusses the potential impacts on the assumptions and constraints for the C2C scheme.

### 5.1 Cambridge Autonomous Metro

The CAM project shared many of the goals of the Better Public Transport program but is more ambitious in its size and scope, including building a tunnel under the centre of Cambridge as part of a regional metro-style network of high quality public transport vehicles that will connect communities across Cambridgeshire, ultimately replacing the GCP busways. In the C2C corridor, for example, the long-term aim is to extend the CAM to St Neots via the EWR station at Cambourne (assuming this goes ahead) and serving the planned transport hub at Scotland Farm Park & Ride site.

The CAM is part of the CPCA growth agenda for the area which is examined in the Cambridgeshire and Peterborough Independent Economic Review (CPIER)<sup>xi</sup>. Published in 2018, the review provides a robust and independent assessment of the Cambridgeshire and Peterborough economy and the potential for long-term growth, which is predicted to exceed the current projections. Nevertheless, the CPIER confirmed the growth targets established in the City Deal, albeit as the base case, and the need for a package of transport and other infrastructure projects to alleviate the growing pains of Greater Cambridge including HQPT scheme from Cambridge to Cambourne.

The CPIER sets out four scenarios for the future of the area to inform recommendations about how development will be carried out and what infrastructure is likely to be needed to position the area well into the future. This includes examining the options for densification, fringe growth, dispersal, and transport corridors. The CPIER recommended that the CPCA should adopt a ‘blended spatial strategy’ comprising densification, fringe growth, and transport corridors, which provides flexibility to ensure development meets the needs of residents, business, and the environment.

The Mayor published an Interim Transport Strategy Statement in May 2018 that clarified its transport priorities. The Strategy provides direction for existing projects, and ensures they align with the strategic framework within the new LTP. This interim strategy set out the guiding principles of the new LTP, that include:

- Economic growth and opportunity by connecting dynamic workforce with a growing number of jobs.
- Equity to ensure that all areas of the Combined Authority can prosper.
- Environmental responsiveness by encouraging active and sustainable travel choices.

The interim strategy included the CAM network across the wider city region as a strategic transport project.

### 5.1.1 Integrating C2C and CAM as part of the CPCPA Transport Plan and Strategy

Following the Interim Strategy Statement, the CPCPA commissioned Arup to undertake a high-level review of the alignment between the C2C and CAM route options which concluded that:

- The process undertaken to date to determine the C2C route is robust and the optimal solution for the corridor is confirmed;
- The route is reclassified as a CAM route to serve the wider network, and not an independent guided busway corridor;
- The vehicle operating along the A428 corridor will comply with the principles of the CAM being a rubber-tyred, electrically powered vehicle;
- The route will continue to be designed to align and integrate with the overarching CAM network, comprising one of the phases of the CAM network; and
- Options for mitigating the impact of the scheme at West Fields and Coton will be incorporated into scheme design for the SOBC.

On 31st October 2018 the CPCPA Board agreed that the C2C scheme should be progressed by the GCP as an essential first phase of developing proposals for the CAM. They accepted findings of the independent review of alignment between the C2C scheme and the CPCPA plans for a CAM.

CAM formed a key element of the previous Mayor's transport vision for Greater Cambridge. As set out in the CAM Strategic Outline Business Case (SOBC)<sup>xii</sup> February 2019, the vision for CAM was an expansive metro network which seamlessly connects central Cambridge, its current and future rail stations, major employment sites on the city's fringe and key 'satellite' growth areas in Cambridge and across the wider sub-region. The SOBC for CAM illustrated how up to 100,000 jobs and 60,000 new homes could result from the scheme by 2051.

Proposals for CAM were heavily reliant on the success of other schemes in and around Cambridge, some of which are already in place and others planned, which form the 'building blocks' of the CAM network. It was envisaged that the C2C project, although an independent scheme, would form the 'first phase' of CPCPA's planned scheme, should CAM be consented. The SOBC does not specify the route or the location of the portal and assumes that these will be in alignment with the GCP Cambourne to Cambridge bus corridor with a station in West Cambridge.

The CPIER provides the evidence base for the CPCPA's policies and informed the first draft of the Cambridgeshire and Peterborough Local Transport Plan (CPLTP) in June 2019. Following consultation, a final version was adopted in January 2020. The CPLTP replaced the Interim Local Transport Plan which was produced in June 2017 and is based upon the Cambridgeshire Local Transport Plan (LTP3) and the Peterborough Local Transport Plan (LTP4).

The goals of the CPLTP are to provide an accessible transport system that delivers economic growth and opportunities and protects and enhances the environment to tackle climate change together. There are ten objectives which have been formed to underpin the delivery of the goals relating back to the economy, environment, and society.

The route along the A428 from Cambridge city centre towards Cambourne, St Neots and Bedford has been highlighted as a strategic project to help travel by foot, bicycle, and public transport become more attractive than private car journeys, alleviating congestion and supporting the region's growth. In particular, the CPLTP supports the delivery of a segregated public transport corridor from Cambourne to West Cambridge and other key employment sites and destinations. It is emphasised that this would provide the first phase of CAM.

### 5.1.2 CAM Sub-Strategy and Route Options in the A428/A1303 Corridor

In April 2020 the CPCA published a draft Sub-Strategy to the Local Transport Plan specifically dealing with CAM issues. The C2C proposals have been assessed against the policies in the Sub-Strategy in a report by Jacobs in June 2020 which concluded that C2C currently does not fully meet 12 of the CAM Sub-Objectives, and in turn does not support the four main objectives: namely, to promote economic growth and opportunity, support the acceleration of housing delivery, promote equity, and promote sustainable growth and development.

In order for C2C to meet the objectives, it would need to commit to:

- electric / zero emission vehicles
- connect to the East West Rail Station, preferably via a segregated route around Cambourne
- be future proofed for CAM central tunnels vehicles
- provide a Metro-style service and
- minimise potential environmental impacts, particularly around Coton and Westfields.

In response, the GCP maintains that the scheme is compliant, and that the issues raised in the Jacobs report would be addressed as the scheme progressed including a review of the western end once there is clarity with regards to proposals for EWR and a station in the Cambourne area.

The former Mayor proposed a ‘northern route’ alignment to address concerns over the impact of the busway on the villages of Coton and Hardwick as well as the green belt, and on 6th January 2021, the CPCA’s Transport & Infrastructure Committee voted to approve a recommendation to present an alternative route corridor north of the A428 to the GCP, before the GCP made its decision on a preferred C2C route. It was envisaged that pending the outcome of this independent audit, the former Mayor would decide whether to bring this recommendation to the GCP Executive Board. In response to the Mayor’s proposal and the concerns raised by various parties the GCP Executive Board agreed at its meeting on 10<sup>th</sup> December 2020 to undertake an Independent Audit Review of the Cambourne to Cambridge scheme to validate the key assumptions and constraints and to determine whether they remain appropriate.

A high-level review of C2C alternative northern route alignments was undertaken by Jacobs in October 2020. Two route options were evaluated within an indicative northern route corridor as shown in Figure 9. The two potential alignments were reviewed in a joint assessment workshop involving officers from the CPCA and GCP; one route is fully on the surface and one involving an extension of the CAM central tunnel section were compared to the C2C route. The workshop concluded that the northern routes would alleviate concerns expressed by stakeholders in Coton and Hardwick and would introduce a number of new stakeholders who would be likely to have similar concerns. The northern route alignment would impact on sensitive areas around the American Cemetery, 800 Wood, Madingley Village, and White Pits Plantation. The northern route options generally perform less well than the C2C preferred option. A very high-level cost estimate indicates that the northern surface route is 35% more expensive than the current C2C route and the sub-surface route considerably more expensive than that. If the CPCA remains committed to CAM It is suggested that further combined work is undertaken to review the costs of all options in more detail and to understand the potential effects on the identified stakeholders. This may form part of the programme business case that the CPCA has commissioned for the CAM network starting in April

2021. It is also worth noting that a separate company, One Cam Ltd, was established as the delivery vehicle for the project.<sup>2</sup>

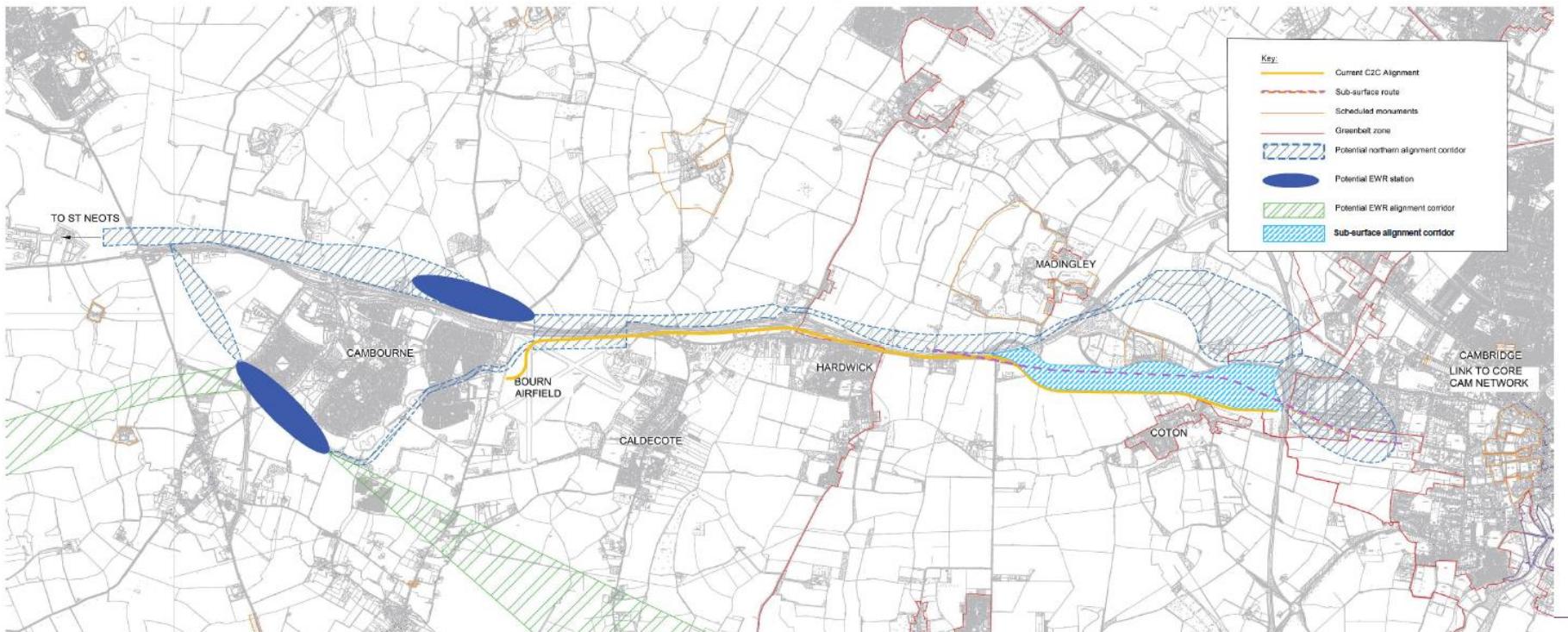
The CPCPA Transport and Infrastructure (T&I) Committee on 4 November considered the alternative northern route corridor. A recommendation was proposed at the meeting that sought the T&I Committee's approval to request GCP to replace its recommended preferred route with the new CPCPA alignment. This was not approved at this meeting, but the motion was subsequently passed at the T&I Committee on 6<sup>th</sup> January 2021.

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<sup>2</sup> The future of the programme business case and One Cam Ltd would appear to be in jeopardy now that the CAM project is being put on hold by the new Mayor.

Figure 9. CAM Alternative Route Options

## Indicative northern route corridor options

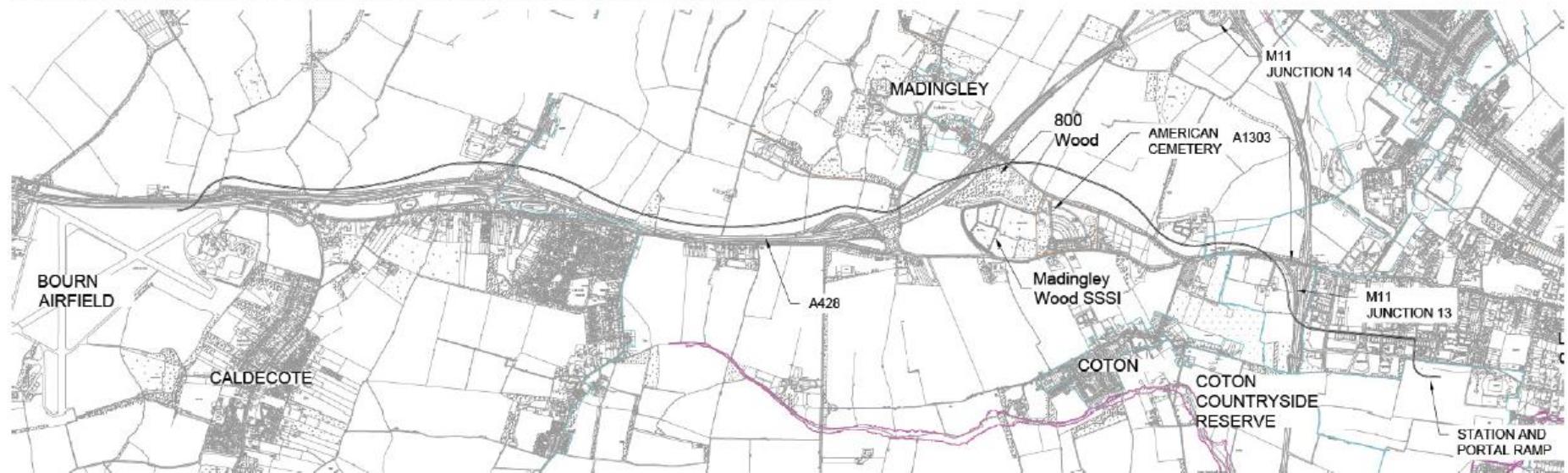


Source: Cambridgeshire and Peterborough Combined Authority

## 2.2 Northern Option 1

From the proposed CAM western portal at the south-eastern corner of the University of Cambridge campus, the surface route cuts north into the campus and bears east onto Charles Babbage Way. At the eastern end of Charles Babbage Way, the road is extended over the M11 crossing on a bridge on a curved alignment to Rectory Farm. It will continue on an embankment / retaining wall north alongside the northbound off slip from junction 13 of the M11 to a bridge over the A1303 Cambridge Road.

From here, the alignment follows the A1303 / Cambridge Road, passing the American Cemetery in a landscaped cutting at a distance of approximately 200m, before turning east through the top corner of 800 Wood and crossing the A428 on a bridge. It then follows the north side of the A428, connecting to the Scotland Farm before crossing on a bridge south into the Bourn Airfield development immediately west of the turn off to Childerley Lodge.

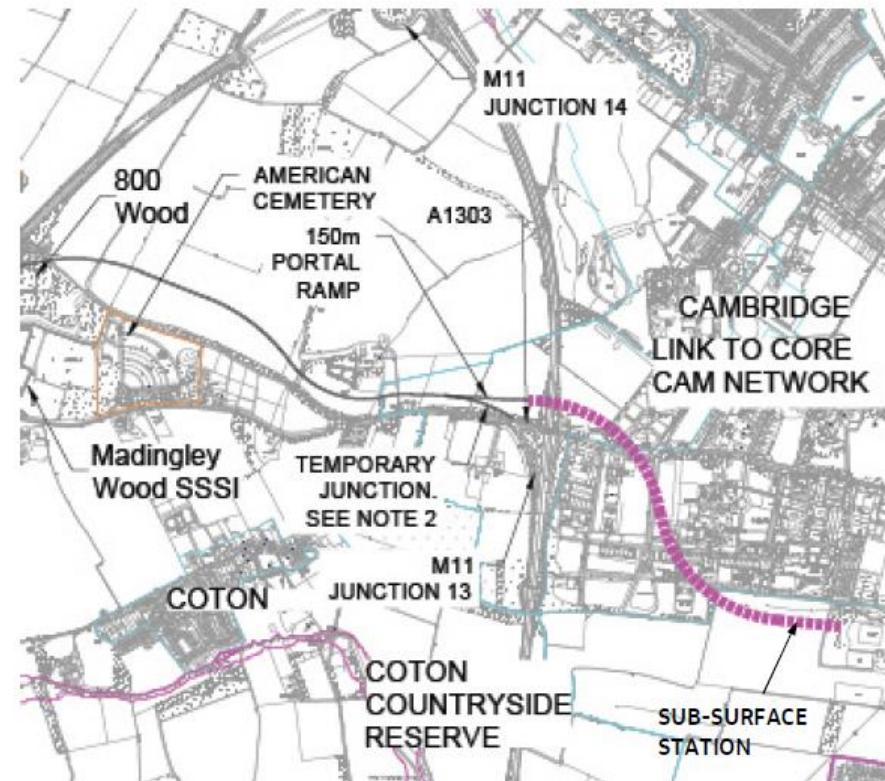


Source: Jacobs 2020 - Alignment of Option E- northern route with surface section through University of Cambridge campus

### 2.3 Northern Option 2

Option 2 is a sub-option to Option 1 and from the A1303 to Bourn Airfield it shares the same alignment. It consists of an extension of the CAM tunnel north west from the current western portal location – which will become a sub-surface station. The tunnel would now break ground to the west of the M11 just north of the A1303, an extension of 1.5km. From this new portal location, the alignment follows the A1303 / Cambridge Road, passing the American Cemetery in a landscaped cutting at a distance of approximately 200m, before turning east through the top corner of 800 Wood and crossing the A428 on a bridge. It then follows the north side of the A428, connecting to the Scotland Farm before crossing on a bridge south into the Bourn Airfield development immediately west of the turn off to Childerley Lodge.

There will be a programme discrepancy between the completion of the C2C works and the expected later completion of the CAM Central Tunnel Section. Therefore, a temporary connection is made at the end of the route to the A1303 to allow for the C2C route to access the wider road network until the tunnels are completed. This will also subsequently allow non-tunnel compliant vehicles to leave the segregated route when the full network is in operation.



Source: Jacobs 2020 - Alignment of Option 2 – northern route with extension to the CAM Central Tunnel Section

Since then Jacobs has carried out further investigations into potential tunnel portal locations in west Cambridge (Figure 10)<sup>xiii</sup>.

Figure 10. Overview of Potential CAM Portal Locations in West Cambridge



Their investigations conclude that due to its direct connection with the CAM C2C scheme and ability to directly serve the UoC West Campus site, whilst minimising impacts on existing roads, residents, the UoC campus and businesses, the preferred location for the western portal is W1.

W7 remains as a second-choice option because there is potential for the portal works to be integrated into the existing redevelopment plans of the vicinity and avoid the loss of greenfield land entailed by W1 and W3. For this option to be progressed requires coordination with the West Cambridge masterplan.

W6 is also included as an alternative choice. The main benefit of this site is the ability to connect to the GCP western branch and the ease of construction in an otherwise undeveloped area.

W1 is the assumed location for the CAM portal in the C2C OBC and the CAM SOBC also indicates the portal in this area (W1 or W7 location).

**Audit Comment: A14**

**It was agreed that the GCP routes would form the first phase of the Combined Authority's CAM project and the GCP has continued to work closely with CPCPA to ensure alignment of the developing proposals. There was a disagreement, however, over some aspects of the C2C scheme design and the route alignment. Exploratory studies by the CPCPA into alternative northern route options did not demonstrate the feasibility of these and a high-level assessment comparing the northern route with the preferred route showed the latter performing better on several criteria.**

**Following the recent election, a new Mayor, Nik Johnson, has been elected to lead the Combined Authority. While no specific statement on the C2C scheme has been issued the new Mayor has said that the CAM network is not a priority project in his first term. In early statements to the media he said his priority was to improve bus services including the franchising of bus operations as allowed under the Bus Services Act 2017 and the government's Bus Back Better: national bus strategy for England 2021. The CPC has previously explored bus policies and a strategy for the area and opted for enhanced partnership arrangements with bus operators. Either of these operating models would benefit passengers and bus services; and give the CPC more influence in an enhanced partnership, or control under a franchising regime, to determine levels of bus services, fares, and ticketing arrangements. This is consistent with the GCP Better Public Transport program and potentially removes a constraint that would apply under current bus regulations regarding operator support for the program.**

## 5.2 East West Railway

The East West Railway (EWR) company was set up in 2017 by the government to oversee improvements to the railway between Oxford, Bedford and Milton Keynes, and develop a new section between Bedford and Cambridge, thus allowing services to operate between Cambridge and Oxford with connections beyond at each end. This will reduce the current journey time by train via London from around 2.5 hours to 95 minutes via the directly connected service, and Bedford will be reachable from Cambridge in about 35 minutes.

The project has proceeded in three stages:

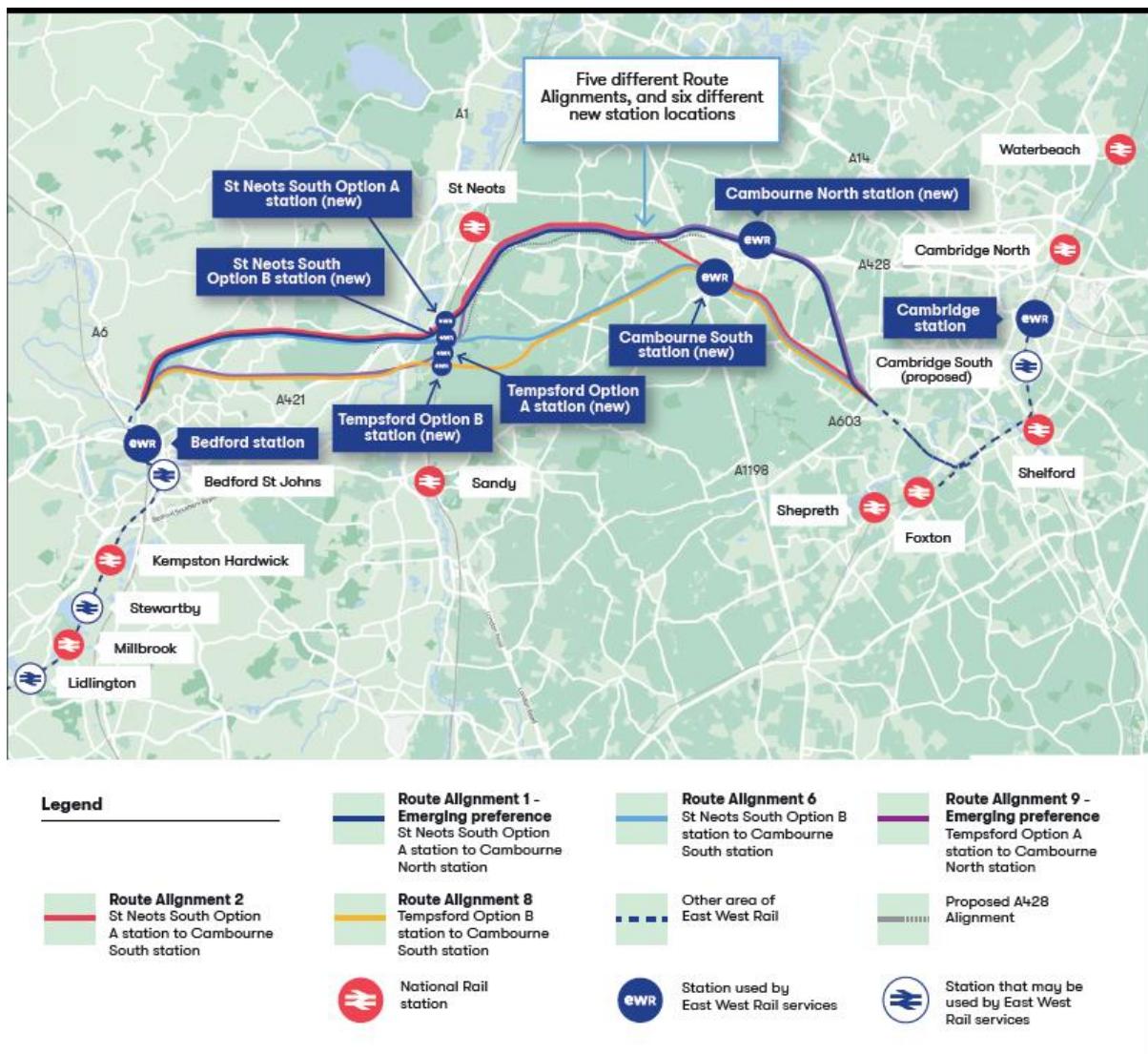
1. Oxford to Bicester was completed in 2016 with onward services to London opened in 2017
2. Bicester to Milton Keynes and Bedford is in the planning stage with construction due to begin later this year pending a final investment decision by the government.
3. Bedford to Cambridge via Cambourne is still in the planning stage. Following earlier consultation on 5 route options in 2019, EWR have now selected the Preferred Route Option, and are currently consulting on choosing the best alignment for this section (Figure 11).

Once the preferred route alignment is agreed, development consents will be sought to purchase land, etc, as well as undertake the detailed design for the scheme and environmental impact assessment, with construction scheduled to start in 2025 if the process proceeds smoothly. The aim is to have the line open later this decade.

The dark blue and purple alignments (Alignment 1 and Alignment 9 in Figure 11) have been identified as emerging preferences for a number of reasons that are explained in the Making Meaningful Connections: Consultation Document, March 2021<sup>xiv</sup>. In summary, the preferred alignments provide:

- Joined up infrastructure – they benefit from a shared ‘travel corridor’ with the proposed A428 Black Cat to Caxton Gibbet Improvement Scheme.
- New housing and communities – there are more potential for new homes and communities in the area (particularly for Cambourne North compared to Cambourne South).
- Economic growth – alongside the development of new housing, a new station could bring economic growth to the community, creating more jobs and prosperity.
- Value for money – they are expected to be less costly to deliver than other alignments connecting to the same station pairings.

Figure 11. EWR Shortlisted Route Alignments for the Bedford to Cambridge Section



Source: Making Meaningful Connections: Consultation Document, EWR March 2021

The two preferred alignments include a station to the north of Cambourne, rather than one to the south that was assumed in earlier consultations and led to the selection of the route corridor via Cambourne. Even so, the Consultation document emphasises that all options remain open as to the specific route alignment as well as the station location at Cambourne.

The C2C scheme, and CAM network, are being designed to connect with the EWR station at Cambourne. For both schemes, a station to the north makes access easier from Bourn Airfield village and probably less costly for the CAM. The C2C would connect to a station in the south via existing roads through Cambourne while the CAM would access the station by a segregated route around the east of Cambourne.

The development of an EWR station at Cambourne poses two questions regarding assumptions for the C2C scheme (and the CAM):

1. How much of the potential demand for public transport will be abstracted for people travelling to work and other purposes to South Cambridge (Cambridge BioMedical Campus,

- Addenbrookes Hospital), Cambridge Station and North Cambridge ( Cambridge Science Park), where the EWR would offer a faster and more reliable journey time? and
2. Will the EWR station provide car parking and if so, how will this impact the Park and Ride site at Scotland Farm (potentially intercepting drivers coming from St. Neots and other locations along the A428 corridor)?

At this stage it is difficult to answer these questions because the final plans for the EWR and station location are still under review and a final preferred option will not be chosen until later this year at the earliest and more likely sometime next year, followed by a further round of consultations and a Public Inquiry.

**Audit Comment: A15**

**The C2C business case assumes it would connect into the EWR station, so the assumptions regarding the routeing through Cambourne are still valid. The issues around potential impacts on demand should be subjected to further analysis. This could be done through more detailed modelling of passenger demands or through sensitivity analysis of projected demands for the C2C under different scenarios. It would benefit the planning and operations of the C2C busway to have a better understanding of the potential demands at the time of the EWR likely opening. In the intervening period, the transport and housing constraints that underpin the scheme remain valid.**

### 5.3 Climate Change

The 2008 Climate Change Act, amended in 2019, accelerates action on reducing carbon emissions and greenhouse gases. It mandates that no new cars and vans will be sold with internal combustion engines from 2030 and phases out all these by 2035. The Act promotes new clean energy solutions for buses using electric, hybrid and hydrogen propulsion and the C2C scheme is compatible with these constraints. However, assumptions regarding C2C buses adopting these cleaner technologies should be more forceful in the OBC as well as embracing other advances in vehicle technology, such as optical guidance.

### 5.4 Bus Back Better: national bus strategy for England

The recently announced Bus Back Better: national bus strategy for England builds on the Bus Services Act 2017 and enhances the powers of Local Transport Authorities (in this area the CPCA) to implement enhanced partnerships or franchising of bus services with additional funding from the government. This new transport strategy is in part a response to the coronavirus pandemic and the need to re-build bus services post-COVID but also a recognition that buses play an important role in local transport and support the government's 'levelling up' agenda. As the Bus Back Better strategy states:

*"There can simply be no return to the situation, seen in too many parts of England, where services were planned on a purely commercial basis with little or no engagement with, or support from, Local Transport Authorities".*

This represents a significant change in the governments transport policy that includes a range of measures that are consistent with the C2C scheme objectives, namely:

- Integrated ticketing and more easily accessible information on services and fares.
- From 1 July 2021, COVID-19 Bus Services Support Grant (CBSSG) and any successor funding to it - potentially £3bn - including possible reform to the Bus Service Operators Grant, will be available to LTAs outside of London, who have committed to entering into Enhanced

Partnerships or started the statutory process of franchising services, and to operators who co-operate with the process.

- Bus Service Improvement Plans, such as traffic management on Key Route Network to prioritise bus services.
- The development of Superbus network with bus rapid transit (BRT) features such as the Cambridgeshire Guided Busway and deploying metro style bus systems like the Belfast Glider.

**Audit Comment: A16**

**The changes in bus strategy by central government are positive in their potential impacts on the Better Public Transport program and the C2C scheme. The assumptions in the OBC need updating and in some cases adding to, to incorporate these changes. There is little said in the OBC, for instance, on ticketing and fares which probably reflected the bus de-regulation policy in place at the time of the Better Public Transport policy but should be included as a central plank of the delivery strategy.**

**The national bus strategy and the funding that comes with it allows LTA's to be more ambitious in developing bus services for their area. The C2C scheme assumptions remain valid in this context but should be updated to take account of the opportunities, including closer working between the CPC and GCP, on bus strategy in the Greater Cambridge area.**

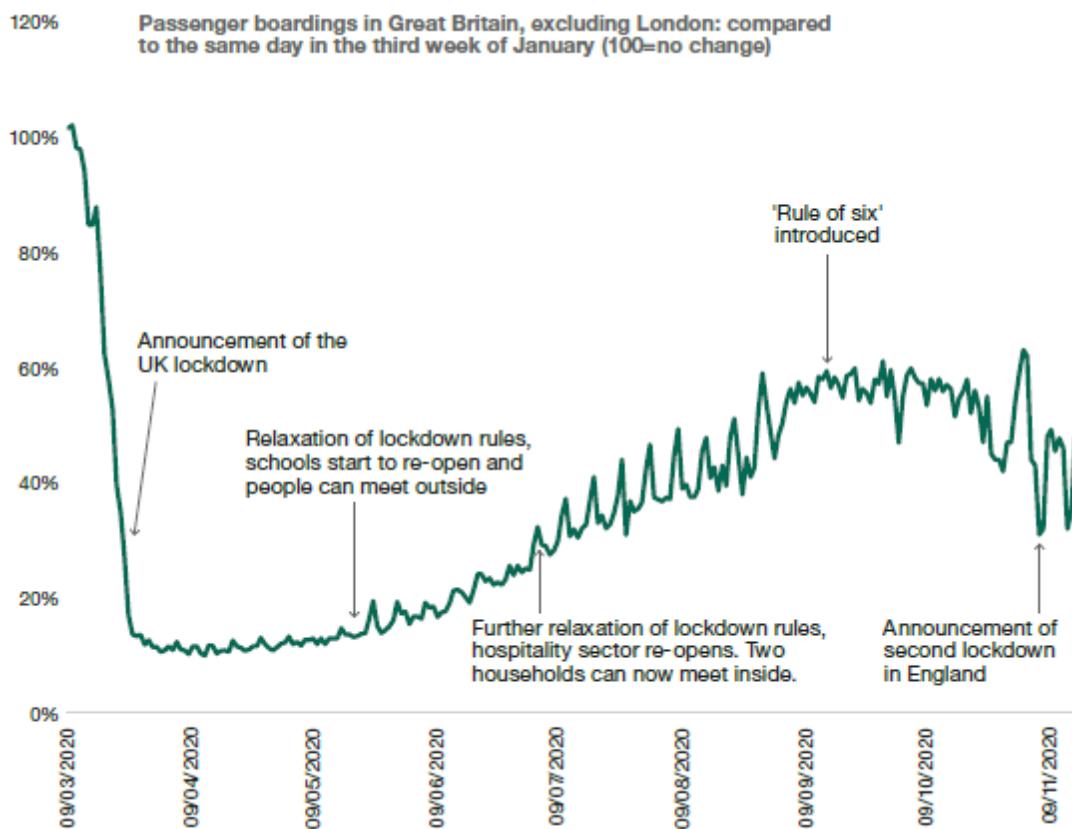
**Similarly, the strategy promotes bus priority schemes to overcome network constraints as a means of improving the performance and attraction of bus services: for example, in Cambridge city centre and along the A1303. This latter option was rejected in favour of a segregated busway paralleling the A1303/A482, but perhaps the two are not incompatible and short-term bus priority measures could be a catalyst for mode shift in preparation for the when the C2C busway is operational?**

## 5.5 COVID-19 Pandemic

The long-term impact of the coronavirus on travel behaviour is difficult to gauge. It's one of those 'known unknowns' that is bound to have some impact but there is uncertainty as to what this will be. There are already some trends that have been accelerated by the lockdown enforced by the pandemic such as the move towards flexible working arrangements with more people working from home rather than commuting into offices, more use of on-line shopping for goods and services, and less travel to work and other activities. The extent to which these may recover and the impact on public transport is considered in this section.

The COVID-19 pandemic has had a huge impact on bus use in 2020. During the first lockdown passenger boardings fell to approximately 10% of those on the same day in the third week of January 2020. As restrictions were eased passenger boardings increased as depicted in Figure 12, from data collected by the Department for Transport (DfT).

Figure 12. Passenger Boardings in Great Britain outside London during the pandemic



Source: Transport use during the coronavirus (COVID-19) pandemic, *Transport use by mode: Great Britain, since 1 March 2020*. Available online at: <https://www.gov.uk/government/statistics/transport-use-during-the-coronavirus-COVID-19-pandemic>

The situation on the railways is even worse which has forced the train operators to reduce service frequencies while maintaining social distancing in train carriages.

The latest statistics for the week commencing 10 May 2021 records bus loading outside of London at 61% and national rail passengers at 36% of pre-pandemic totals on 1<sup>st</sup> March 2020.<sup>3</sup> Car use has recovered quicker to 88% and light vans and HGV's exceed pre-pandemic levels by 108% and 109% respectively. In total, vehicle traffic is now around 93% of pre-pandemic levels. The assumption is that as lockdown eases passengers will return to buses and trains but perhaps not in the numbers as before given the trends mentioned above.

Possibly the most reliable estimates of the impact of the pandemic is provided in a report, 'At a crossroads – Travel adaptations during Covid-19 restrictions and where next?' prepared by the Centre for Research into Energy Demand Solutions (CREDS) at the University of Leeds, March 2021.

The report sets out new insights into how people's travel patterns have adapted over time and why. It draws on national data sources and a major panel survey of over 6000 people conducted in July and December 2021. It calls for a major realignment of investment and policy to ensure that we do not return to the overcrowded, congested, polluting and unhealthy transport system that people had come to accept as inevitable.

<sup>3</sup> Bus use in London is around 60% and underground passengers are at 35%.

Some of the key findings on the pandemic impacts are:

- 20% more people are walking regularly. Walking is the only way of getting around that more people are doing more regularly than they did before the pandemic. 56 percent of respondents are walking three times a week or more, up from 36 percent pre-pandemic. This massive shift has been hidden in plain sight because walking so often gets ignored in what gets counted.
- Cycling levels have also increased relative to last year. This is despite cycle commuters being very likely to work from home. The warm conditions of the first lockdown saw levels increase two to threefold. Even in winter levels held up remarkably well.
- People were asked to avoid using public transport if they could and to travel only where necessary. Rail use has on average been 25 percent of the previous year. Bus use outside and in London has on average been 35 and 46 percent of the previous year respectively.
- Whilst bus use recovered to around 60 percent of 2019 levels in the early Autumn, rail did not get above 43 percent at best. Some people have already come back to public transport but the picture looking ahead is very difficult. 60% of bus users are reliant on buses for some journeys.
- Public transport will require substantial transition funding for some time to come. Without it, there are risks of a negative cycle of route closures and further decline in use.
- Public transport will also need to adapt and continue the developments in real time crowding data to reassure travellers and provide more flexible ticketing if fewer people are commuting five days a week.
- Because of the potential for some journeys to be replaced by online ways of doing things, it is not inevitable that car traffic will return to pre-pandemic levels. This also applies to levels of car ownership.
- How much working from home is possible depends on the structure of the local and regional economy: London, Bristol, and Edinburgh all showed levels of home working all well above the survey average with Lancashire, Ayrshire, and Aberdeen well below. (Cambridge is assumed to belong to the higher home working group).
- The report estimates that if people who used to commute by car and who are now working from home were to continue to do so for two days a week, almost 14 percent of morning car trips would be cut. This could result in traffic reductions similar to those seen in school half terms. The prize of continuing some working from home is quite significant in congestion and carbon emission terms.

Looking ahead the report concludes that the actions taken by the UK and Scottish Governments to date have been critical in supporting public transport and boosting active travel. The authors recommend continuing these interventions to support Climate Change goals and emissions reduction by implementing measures to alter travel behaviour and reduce travel demand. Such measures include:

- Capitalising on the opportunity for greater home working.
- Re-directing investment into active travel modes, especially walking and cycling.
- Improving the resilience of communities against the next pandemic and the long-term effects of climate change through more localised travel and accessibility policies.

The report concludes that building back better needs to be building back differently.

**Audit Comment: A17**

There are clearly challenges in how to respond to travel demands in a post-COVID world. Some trends point in the direction of less travel or changes in travel behaviour that is more local and accessible by active modes. At the same time there is evidence that traffic is returning to pre-pandemic levels but perhaps spread out more across the day. If so, traffic congestion will remain a key constraint on growth that still requires alternative solutions. In this context the strategic case for schemes like C2C remain valid but the assumptions regarding passenger demand may need revisiting as will potentially the need for on-going support to bus services. These effects apply to CAM as much as the C2C busway, and possibly more so to EWR. The pandemic has heightened the risks for these schemes. The government at least sees buses as being an important part of the post-COVID landscape and in this respect the C2C poses less of a risk than either CAM or EWR.

## 6 Summary of Representations

As part of the Audit, submissions were invited from stakeholders and other interested parties in two rounds of representations. The first round occurred at the outset of the audit to inform the preparation of the Statement on Assumptions and Constraints, and a second round was conducted following this statement. Both rounds of representations have been used in preparing this report, and this section presents a precis of the principal themes raised by the representations.

Submissions were received from a wide range of organisations, including the Mayor of the CPCA, and individuals who are listed in Appendix B. The volume of submissions received is too large to include in an Appendix, so a separate Annex has been created which is available on the GCP web site.

The range of the submissions and the level of detail provided in them is emblematic of the interest and engagement that the scheme has provoked. The preferred route option is controversial among those communities and stakeholders directly affected and some of these have invested considerable time and effort in putting forward counterfactuals to the OBC analysis and proposing alternative route options to the preferred route.

### 6.1 Representation themes

A small number of representations were supportive of the preferred option including Whippet Coaches, some local businesses, American Cemetery, Cambourne College, Cambridge University Hospitals, and the developers of Bourn Airfield as well as a few individuals who reside in the corridor.

However, most of the submissions object to various elements of the scheme. Broadly, the objections fall into the following categories with some overlaps and duplication:

1. Outright opposition to the C2C project and the need for any HQPT, objecting to its cost and value-for-money.
2. Opposition to a segregated off-line alignment and the options appraisal process that led to its selection, considering this to be flawed, and propose on-line improvements to the A1303/A428 instead.
3. Objections to the alignment of specific sections within the preferred route such as the busway in Hardwick between St Neots Road and the A428.
4. Recognition of the need for HQPT in the corridor but opposition to the preferred option and suggesting that the scheme should be paused pending decisions on the CAM network (now uncertain) and the EWR.
5. Proposals for an alternative, less harmful route, for the busway that avoids environmentally sensitive areas.

The objections mainly relate to the segregated sections of the route that emerged from the phase 1 optioneering, from West Cambridge to Maddingly Mulch, and the phase 2 section for an off-line busway between St Neots Road and the A428 at Hardwick. The alignment from Scotland Farm Park & Ride location to Cambourne via Bourn Airfield produced only a few general comments and appears to be more acceptable.

Strong objections to the scheme were received from the Mayor of the CPCA, District Councillors and Parish Councillors in the affected areas, and stakeholders directly affected including Coton Parish

Council, Hardwick Parish Council, Barton Parish Council, Coton Busway Action Group, Hardwick Climate Action Group, Cambridge Past Present and Future, Cambridge Connect, National Trust, North Newnham Residents Association, and Local Liaison Forum for the C2C project.

The remit of this audit is not to evaluate the merits or otherwise of specific route alignments but to review whether the assumptions and constraints underpinning the scheme remain valid, which provides the context for the discussion that follows.

## 6.2 Need for the scheme

Objections to the scheme in its entirety, whether on-road or off-road, are raised by several individuals. Some of these are linked to the CAM and EWR projects discussed below. It is difficult to comment on the validity of these objections as they question the rationale for the scheme in the context of the growth constraints related to housing, employment, and the limitations of the transport network. The assumption seems to be that any growth can be accommodated on the existing transport infrastructure which contradicts local policies and transport strategies. There may also be some misunderstanding regarding the impact of increased travel demands in the corridor, that is, considering the as-is situation as being representative of the to-be conditions following the growth in housing and employment. Several of these submissions mention the Girton interchange (M11/A428/A14) as being a major constraint in the wider network, that if re-modelled as an all-ways junction would divert some traffic away from the A1303 and thereby solve all the transport problems in the corridor. The 'Girton option' as an alternative alignment is discussed below in Section 6.6.

As such, they do not invalidate the assumptions and constraints underpinning the scheme unless one accepts that the limitations of the transport infrastructure should not constrain the growth targeted in the corridor, which is not the position of the GCP or the CPC and is therefore outside the remit of this audit.

## 6.3 On-line HQPT

Several stakeholder organisations object to the need for a segregated busway to meet the public transport needs along the corridor. They maintain that bus priority measures along the A1301/A428 could meet the Better Public Transport project objectives and provide improved journey times and reliability at a much lower cost. They consider the options that were developed for the options evaluation are sub-optimal and do not adequately consider the panoply of bus priority measures that could be deployed.

In response to these criticisms the GCP undertook a 'quick wins' review of alternate interventions along the A1301 from the Madingley Mulch Roundabout to Grange Road<sup>xv</sup>. The measures evaluated include:

- Madingley Mulch roundabout – potential signalisation and outbound bus lane leading up to the roundabout
- Signal timing improvements at junctions, e.g., Madingley Road Park & Ride site

Other potential enhancements such as an extended bus lane inbound and the re-configuration of the junction with the M11 through additional right turning lanes for traffic entering the motorway southbound together with signal improvements, were not considered quick wins due to the impact of the remedial measures and the time it would take to implement them.

The review concluded that:

*“Due to the limited amount of space available along the corridor, there is not considered to be a significant range of available “quick win” schemes that could be implemented along this section of road without the need for the purchase of private land, negotiation of 3<sup>rd</sup> party land, or impacting on vegetation and other significant features such as the American Cemetery or the SSSI.”*

Further modelling of the ‘quick win’ measures was recommended but has not been taken further by the GCP. The conclusions regarding the potential for quick wins has been challenged by stakeholders including the Local Liaison Forum.

One of these, Cambridge Past Present and Future, has submitted a report prepared by Cambridge Connect titled: ‘Cambourne to Cambridge: In-Highway Proposals for High Quality Public Transport Scheme’, which describes a series of measures that they claim would reduce bus journey times delays in-bound from an average of 42 minutes to less than 10 minutes in the morning peak. The proposed package includes 1,135m of bus lanes and other technical interventions, which are illustrated in the visual diagrams in Figure 13, extracted from their report. Note, the audit is not able to judge the feasibility of the proposal and it is mentioned expressly because of the level of detail and analysis that is contained within it.

The report analyses in detail bus operations along Madingley Road and challenges several of the assumptions made in the OBC. Their proposal is a subset of Options ‘Low Cost a/b’ in the Options Appraisal Report 2, with some additions. The report recommends:

*“this package of ‘quick win’ interventions to the Greater Cambridge Partnership and Combined Authority as an effective and low-cost interim solution while the details of longer-term infrastructure schemes, such as East West Rail, the CAM network and the Girton Interchange, are worked out.”*

It is worth noting that the quick win measures proposed are short-term solutions, acknowledged as such, until the CAM network is completed. If CAM does not proceed, the efficacy of an on-road HQPT to serve the new developments at Cambourne and Bourn Airfield would not be aligned with the assumptions and constraints, at least not in the longer term. Even so, the range of measures that would improve conditions along Madingley Road for bus users as well as general traffic are worth re-considering given the recent changes in the government’s transport strategy and policy towards buses accompanied with additional funding. It is possible that the GCP shied away from considering any substantial improvements along the A1301 because of the cost implications and fearing that it would divert resources away from the preferred option. The two options are not mutually exclusive and could be considered compatible.

**Audit Comment: A18**

**The in-highway proposal for a HQPT along the A1301 are short-term measures that are consistent with the C2C scheme objectives. However, this does not invalidate the assumptions and constraints for the preferred option as a long-term solution to meet the growth in travel demand along the corridor.**

Figure 13. In-Highway Proposal for HQPT along the A1301 Developed by Cambridge Connect for Cambridge Past Present and Future

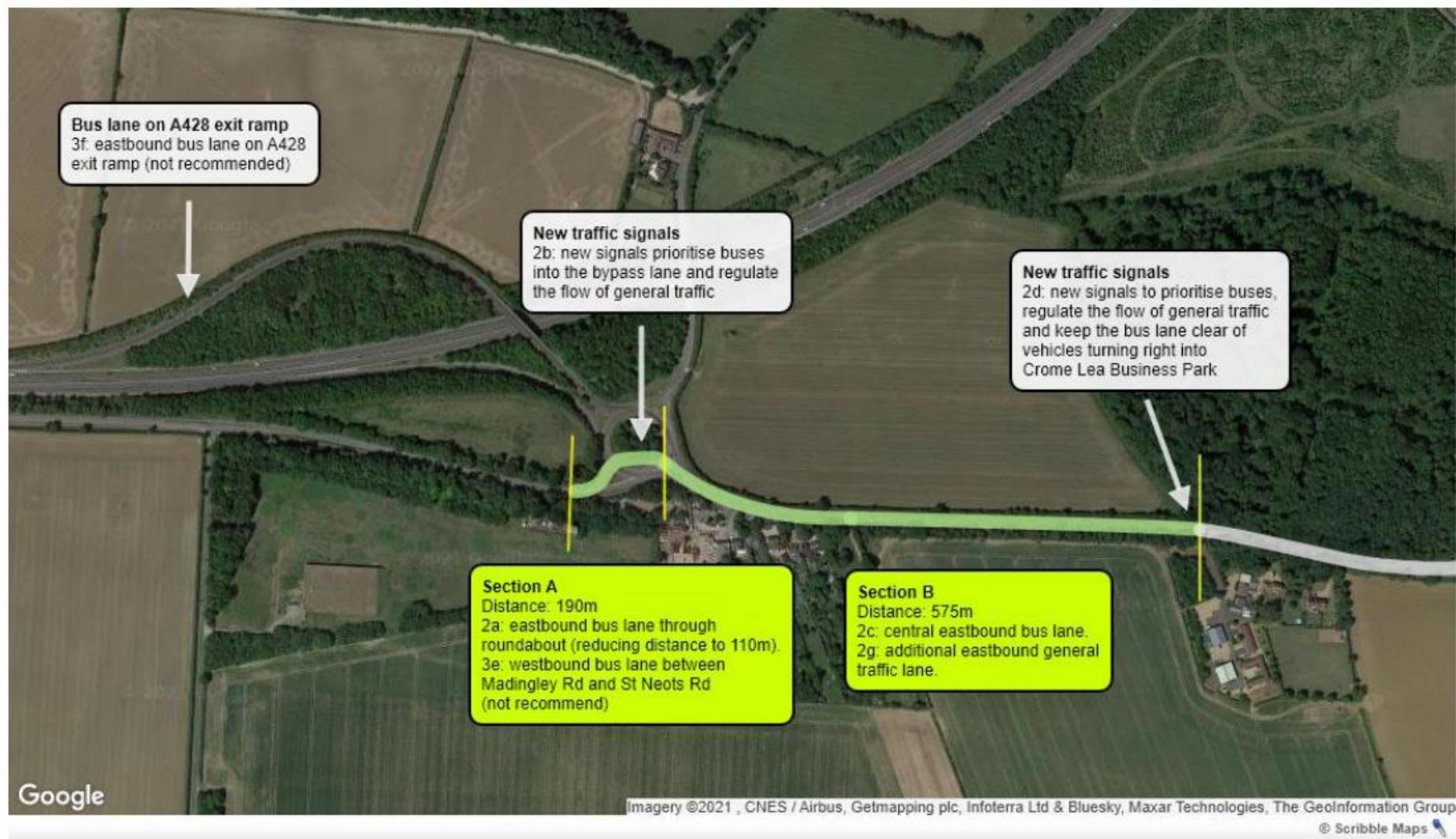


Figure 7a: Annotated satellite map of proposed interventions on Madingley Rd (continued east on next pages)

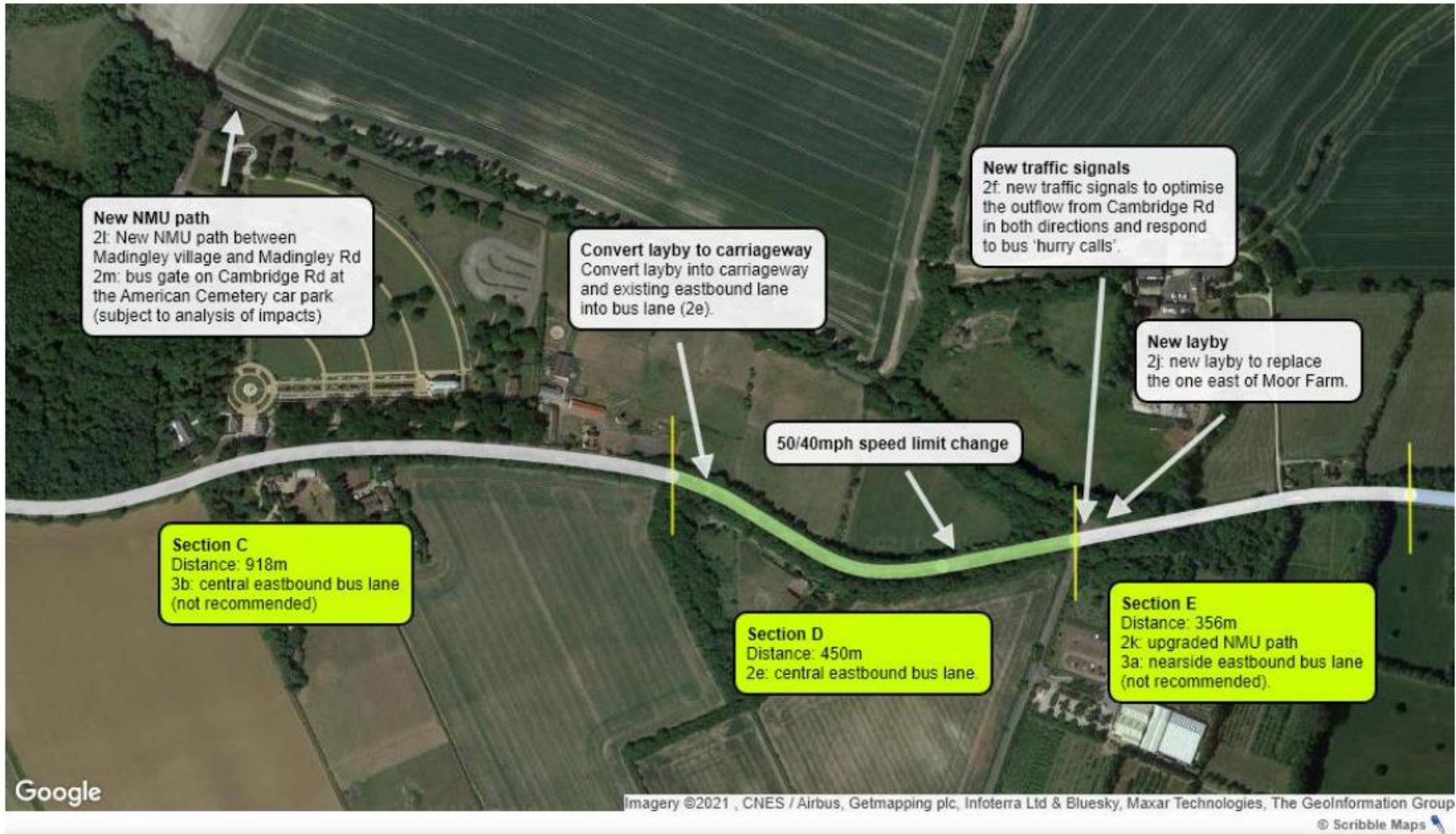


Figure 5b: Annotated satellite map of proposed interventions on Madingley Rd (continued east on next page and west on previous page)

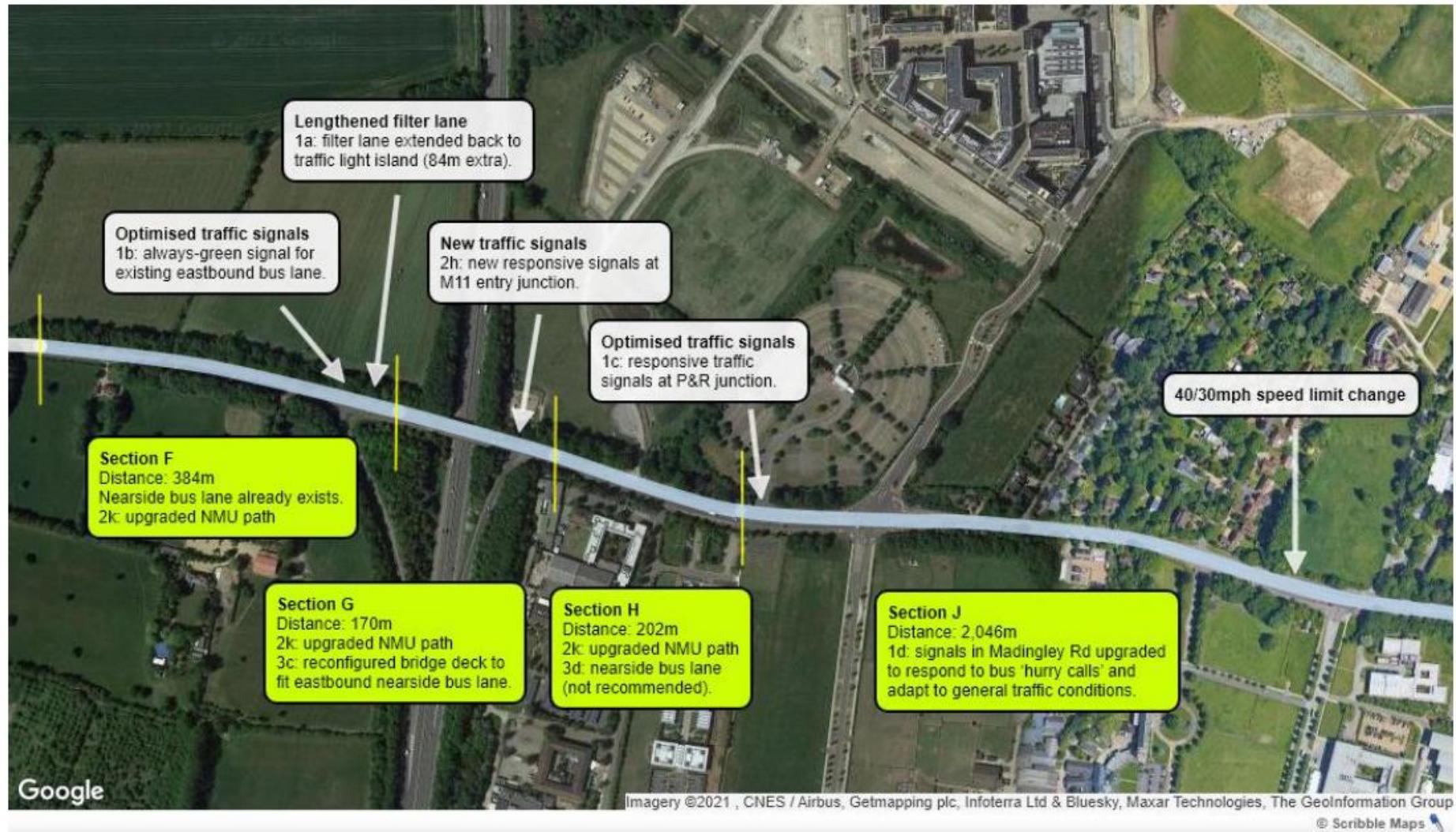


Figure 5c: Annotated satellite map of proposed interventions on Madingley Rd (continued west on previous pages)

## 6.4 Route Alignment Objections

Prominent among the submissions from stakeholders in Coton, Hardwick and Newnham are objections to sections of the preferred route, specifically:

- The route from Grange Road through West Cambridge and Westfields affecting the conservation area around Adams Road.
- The route affecting the setting of the Coton Conservation Area including the Grade 1 listed Church and minimising the impact on Coton Orchard and a City Wildlife Site, to the west and east of the M11 respectively.
- The visual impact of the segregated busway between St. Neots Road and the A428 at Hardwick and the loss of trees/vegetation cover this entails.

These issues are identified as constraints in the OBC, as described in Section 4.2 earlier, and it is assumed that mitigation measures will be applied to minimise the impact on local communities. Some amendments to the route alignment have already been proposed in response to the concerns raised. For example, the route from Grange Road will now use Rifle Range rather than Adams Road to access West Cambridge; and the alignment past Coton has been moved 50m north to reduce the visual and noise impacts.

Nevertheless, the objectors regard these as tokenistic gestures to appease their protestations against the scheme. Fundamentally they object to the way that the options were developed and oppose any segregated busway alignment that follows a path south of the A1301, regarding this as unnecessary to meet the objectives of the scheme, suggesting that an on-line HQPT is more appropriate, as described earlier, or if a segregated route is required that it should follow a less destructive path to the north of the A1301, which is discussed in Section 6.6 below.

The objectors are not persuaded by the assessment framework that was used in the options development, considering this to be flawed including the consultation process; nor by the proposed mitigation measures and habitat enhancements which in their view do not compensate for the loss of amenity that would result from the busway crossing valued landscapes and impacting on the setting of the village of Coton. The submissions present a detailed critique of the C2C scheme, echoing many of the points raised earlier, and in addition focus on the specific impacts on Coton and residents living on St Neots Road, Hardwick.

There is a difference of interpretation as to what the guiding assumptions and constraints for the scheme should be. For example, the OBC reflects the GCP and partners policies and transport strategy to add capacity to the transport network to overcome constraints in transport infrastructure, housing, and jobs growth. The objectives for the scheme are therefore couched in this context. Stakeholders in the affected areas, however, have a different set of priorities and see the impact of the scheme on their locale as being the major constraint that should be avoided. In simple terms, local impacts and environmental considerations should override wider infrastructure and growth concerns.

The appraisal process prescribes that the options development and evaluation should balance the economic, social, and environmental benefits and costs of the scheme in the broadest sense. The business case process is designed to explore all options from a number of dimensions: strategic, economic, financial, commercial and management. The audit is not in a position to comment on the specifics of the process or the options evaluation, but the evidence from the OBC and supporting documents indicates that the options shortlisted in Phase 1 (Grange Road to Madingley Mulch roundabout) and Phase 2 (Madingley Mulch roundabout to Cambourne including Scotland Farm

transport hub) followed a robust procedure including consultations with stakeholders, and the option for a segregated busway and the specific alignment, such as parallel to St. Neots Road, was the preferred option that performed best on the evaluation criteria. Clearly, the objectors do not agree with this interpretation and challenge the assumptions and constraints that underpin the scheme and the preferred route option.

**Audit Comment: A19**

**The strategic assumptions and constraints that underpin the scheme and the options development remain valid. However, local constraints that emerged following the preferred route alignment need further evaluation which will be undertaken in the Environmental Impact Assessment. The preferred route may still be amended following the outcome of the EIA including any recommended mitigation measures to offset the scheme's impact.**

## 6.5 Delay the C2C Scheme

One of the suggestions made in the representations is to pause the development of the C2C scheme until the outcomes of the designs for the CAM network and the EWR including the station location at Cambourne are confirmed. The purpose is to take stock of these transport schemes and consider their interrelations as part of the areas future transport strategy. This makes sense and the CAM and EWR are recognised in the OBC as an influence on the C2C scheme and Better Public Transport project.

As described in Section 5.1, it has been agreed that the C2C busway will provide the alignment for the CAM network, at least in the central section between West Cambridge and Cambourne. The previous CPC Mayor objected to the preferred route alignment and proposed a 'northern route' that would take the busway (and CAM) around the north of the American Cemetery to the A428. The sub-options evaluated were more costly and performed less well than the preferred option, so the northern route remains problematic. This intervention from the Mayor introduced uncertainty into the C2C scheme and as the CAM network had yet to proceed beyond the SOBC stage, it suggested that the C2C scheme should be paused until the CAM OBC is completed and the preferred route alignment for the CAM (and the C2C busway) is determined.

Early statements on CAM by the new mayor have put the future of the scheme in doubt which significantly weakens any case for delaying the C2C scheme on this count.

The EWR poses a similar dilemma, as reviewed in Section 5.2. In this case the scheme has progressed to the next round of consultation on the preferred alignment including the station location at Cambourne. A decision on this is unlikely before the end of this year and more likely 2022, following which there will be more stages to finalise the design, purchase land and properties, hold a Public Inquiry and seek consent from the Secretary of State for Transport to build the line. Construction is not scheduled to start before 2025 and if it proceeds as planned the railway would open later this decade.

In the meantime, the delay in delivering the C2C scheme - re-scheduled to open in 2025 - would impede the delivery of housing and jobs in the corridor and undermine the growth targets across the GCP area. The transport strategy and policies adopted in Local Plans and the Local Transport Plan would need to be reset to reflect the change in circumstances.

The suggestion that the C2C scheme is not required because of the EWR is a common thread in many of the submissions but is not supported by any evidence. It is reasonable to assume that the

EWR once open would abstract some passenger travelling to South Cambridge, Cambridge Station and possibly North Cambridge, and it is recommended that the C2C Business Case is updated to include this scenario in its modelling of future travel demands. This will provide a better understanding of the impact of the EWR and its potential effect on the C2C.

**Audit Comment: A20**

**The new Mayor's early statements indicating that he is minded not to proceed with the CAM project weakens the case for any pause in the C2C scheme development and consequently does not alter the assumptions and constraints for the scheme which remain valid in the corridor. The C2C HQPT remains the only means of increasing capacity on the A1303/A428 corridor and addressing the public transport travel needs of the growing population. The EWR does not provide an alternative to travel along the corridor to West Cambridge and the City Centre. The two schemes serve different travel markets and should be planned as complementary services. The housing developments in Cambourne West and Bourn Airfield require the C2C project to be opened by 2025, otherwise the planned growth will be put at risk.**

## 6.6 Alternative Route Options

This section reviews three alternative route options that have been proposed as better alignments for the C2C scheme than the current preferred route. All three route options proceed north of the A1301 and thereby avoid the contested alignments around Coton and Hardwick:

1. The 'northern route' for the CAM network proposed by the CPCa that would serve as the busway until the CAM is built. This option is reviewed in Section 5.1, so will only be considered here alongside the other route options.
2. Route via Girton interchange as part of the re-modelling to an all-ways junction with access to a Park and Ride hub in place of the proposed Scotland Farm site.
3. Co-aligned route via the A428 and looping south of the Girton interchange through the Eddington development to West Cambridge.

### 6.6.1 CAM Northern Route

As this is considered earlier the only additional comment to make here is that the proposed northern route options for the CAM do not go near the Girton Interchange and neither is a route via Girton considered in the CAM SOBC. The relevance of this is that the options proposed by stakeholders that proceed via Girton would not be compatible with CAM or the C2C preferred route, and as such would not comply with the transport strategy for Greater Cambridge in the Local Transport Plan.

As the in-coming Mayor has cast doubt on the future of the CAM project this may be a moot point, but it is worth noting that neither the GCP nor CPCa consider an alignment via Girton to be a viable option.

### 6.6.2 Girton Interchange

As mentioned earlier many of the submissions propose an alignment via Girton Interchange, and the GCP commissioned a high-level study into this option in response to requests from stakeholders.<sup>xvi</sup> Cambridge Past, Present and Future (CPPF), and Smarter Cambridge Transport (SCT) have both suggested options for layouts at Girton Interchange, as an alternative to the scheme currently being developed between Cambourne and Grange Road. One option suggested by both organisations is to locate a new all-ways junction at Girton Interchange to improve connections in the area, as well as

to locate a park and ride within the interchange. Two possible configurations are shown in figure 14 below.

Figure 14. Smarter Cambridge Transport Options for Park and Ride at Girton Interchange with All-Ways junction



Both options are complex arrangements that would require substantial re-modelling of the Girton interchange.

The Local Liaison Forum Technical Group has suggested an option that utilises the Girton upgrade and P&R site alongside a new route, potentially along the eastern edge of the M11 that could access the West Cambridge Site via the existing Madingley road P&R as illustrated in Figure 15.

*Figure 15. LLF suggested route via M11*



Source: Image produced by Mott MacDonald

Initial consideration of this route estimated an additional length of approximately 2.2km of public transport road would be required, along with a means of crossing the A428 and M11 J13 slip roads (assuming a P&R site located along with Girton Interchange). A high-level cost estimate for the new junction at Girton, excluding the cost for the Park and Ride site, showed that the cost could be between £50M to £75M depending on which option is used. The additional route to the West Cambridge Site is likely to add in the region of £15m - £20m to the scheme, excluding land costs. This would bring the total high-level cost to between £70M to £95m.

This option was not taken forward any further in the optioneering process because:

- The cost is considerably higher than other options;
- It performs less well than other options in terms of journey times;
- the proposals for Girton provide no public transport improvements to the A428/A1303 corridor so do not offer any ability to accommodate CAM; and
- Development of a new all-ways junction or any other development at Girton Interchange would most likely need to be delivered by Highways England and therefore beyond the control of local stakeholders. While HE has agreed to investigate an all-ways junction improvement at Girton Interchange there is no commitment to enter it into their Road Investment Strategy 3 program for funding in 2025-2030. Even if it was accepted into RIS3 it is unlikely that it would be built until later this decade, at the earliest. In addition, the CPCA Local Transport Plan does not list Girton Interchange as a priority scheme as part of their highway investment strategy.

Despite these reservations and it being ruled out as a viable option for further consideration in the options development for Phase 1, it has continued to be promoted by LLF as well as other stakeholders as described in the next route option.

### 6.6.3 Co-aligned route via the A428

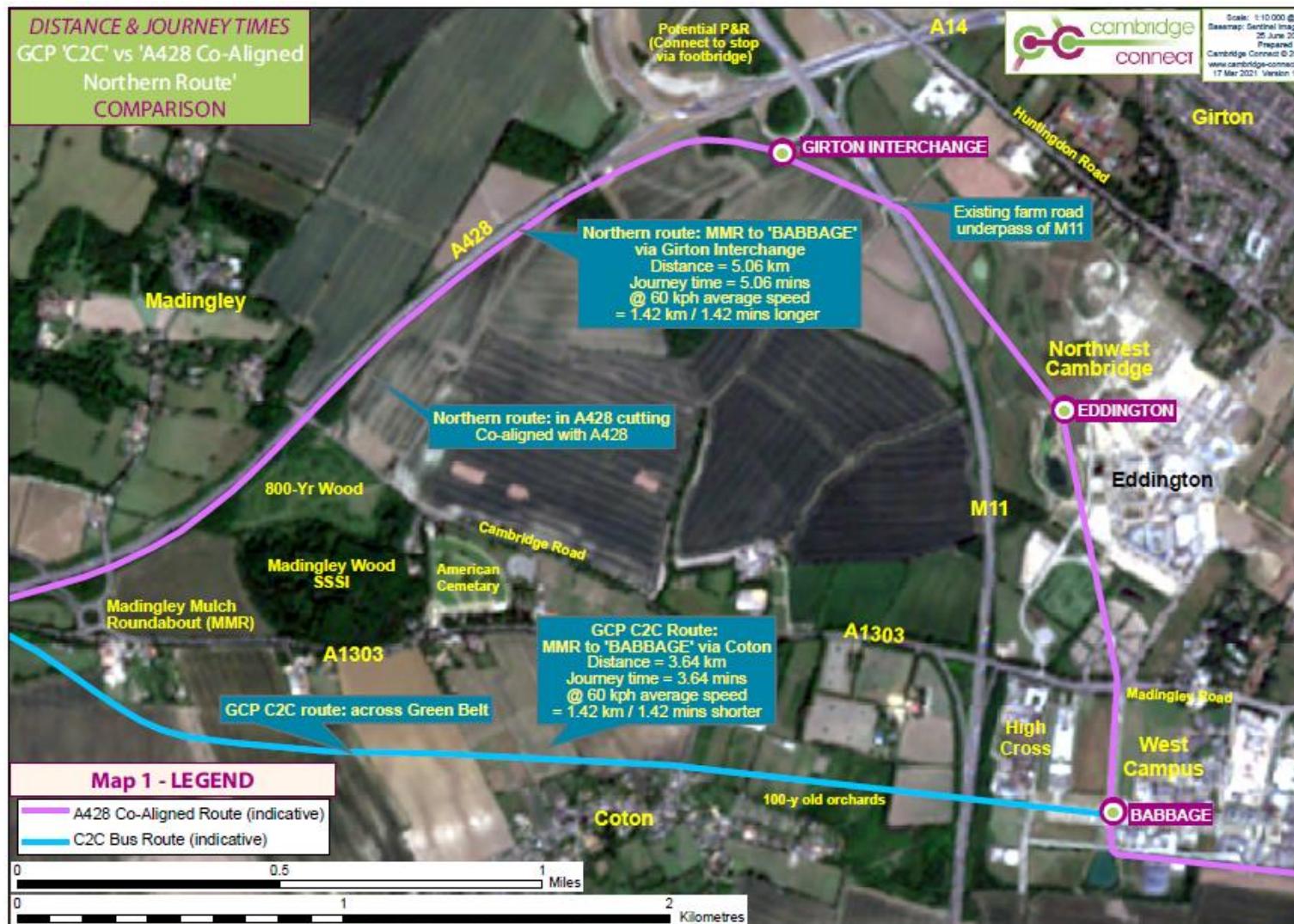
A variation on the Girton Interchange scheme has been proposed by Coton Parish Council who as part of their submission include an independent report prepared by transport consultants, i-Transport, on the Audit Statement of Assumptions and Constraints, and other potential limitations in elements of the C2C scheme development and audit process. Their report explores a modified northern route option that avoids the setting of the American Cemetery and crosses the M11 to the south of the Girton Interchange. As depicted in Figure 16, this option is not reliant on an interconnection with the Girton Interchange but provides for this in the future.

This route would be a segregated public transport route alongside the A428 extending east from the A1303 junction (Madingley Mulch roundabout) as far as the Girton Interchange with the M11, then routing south across the M11 and back towards the A1303 corridor. It would connect directly with the Madingley Road P&R. It is a slightly longer route than the preferred option but has the advantage of full segregation thus providing good journey time reliability. It would run in the A428 cutting near Madingley and hence not be visible from the American Cemetery, and the SSSI. It is a route advocated by Cambridge Connect, and is shown indicatively in pink on the image below in Figure 16, with the preferred C2C alignment in blue. The report claims that this route option has support from numerous stakeholders.

According to the report, the scheme is a viable option although no evidence is presented to support this assertion. At a strategic level when considered against the principal objectives of the C2C project it would deliver benefits in comparison to the current preferred option by connecting to the emerging Eddington community (and potential onward connection to Bar Hill and Northstowe) enabling further economic growth and providing an improved Sustainable Transport Network. It also claims to perform equally well in respect of relieving congestion, particularly on the A1303, with future potential to tie in to the Girton Interchange improvements providing the opportunity to re-assign traffic via the A428 thus relieving the A1303.

The major advantage of this scheme is that it would avoid the communities at Coton and Hardwick and appears to have less environmental impact. It could be configured with either the preferred route through West Cambridge or on-road options east of the M11 and generally takes a ‘path of least resistance’ in terms of community opposition and environmental impact. However, while it may be compatible with the quality of life objectives for the C2C scheme it is less consistent with other objectives. The report recognises that there would be engineering challenges for the route with cost implications, which are not estimated. It therefore falls short on the criteria that stymied the earlier Girton Interchange option.

Figure 16. A428 Co-aligned Route Option



**Audit Comment: A21**

The alternative route options comprise variations on the ‘northern route’ and have been reviewed at various stages in the scheme options development process. The CAM route alignment proposed by the previous Mayor appears unsuitable for the busway, not least because of the higher cost compared with the preferred route and would run into considerable opposition from affected parties. The Girton Interchange option is ambitious and expensive and would take longer to deliver especially as it is reliant on Highways England committing to upgrade the junction. It looks like a high risk compared to the preferred option. The hybrid A428 Co-alignment scheme is a compromise between the other two that incorporates some of their features but avoids the riskier elements. In this sense it is more viable and closer aligned to the scheme objectives than the others. Nevertheless, it is likely to perform less well on cost and other performance metrics while potentially scoring higher on environmental and social impact.

The alternative route options are created to overcome the local impacts constraints discussed in Section 5 (as identified in the Business Case). The Business Case needs to address a wide range of constraints as well as local concerns and balance these through a rational appraisal process. Objectors may feel that this process is biased in favour of strategic goals, yet it is incumbent on the GCP to adhere to an appraisal process that complies with the methods laid down in the guidelines. The C2C scheme assumptions and constraints are not invalidated by the alternative options, some of which can reasonably claim that they are just as valid. It is not the role of this audit to adjudicate between conflicting options. The objectors will have the opportunity to present their alternative route options to the Public Inquiry and cross-examine the GCP and its consultants on the options development and preferred scheme appraisal. There is no guarantee, for instance, that the Co-alignment scheme would perform any better if subject to a detailed appraisal than the preferred option evaluated in the business case.

## 7 Conclusion and Recommendations

The findings of the audit are summarised in this section. Just to re-cap the scope of the audit is to review the assumptions and constraints that underpinned the analysis that led to the selection of the preferred route and the elimination of alternative options. The objective is to test the robustness of those assumptions and constraints and determine whether they remain appropriate in the context of the current strategic frameworks, developments in relation to the Cambridgeshire Autonomous Metro (CAM) network and the East West Rail plans.

The assumptions and constraints are categorised into three levels pertaining to:

1. Strategic policies and objectives underpinning the Better Public Transport program and the C2C Scheme and whether these remain valid in the context of developments that have occurred during the schemes advancement.
2. The Business Case options development process and the assumptions and constraints underpinning the appraisal of the route options.
3. The assumption and constraints underpinning the preferred route alignment.

### 7.1 Key Findings: Strategic Policies and Objectives

#### 7.1.2 Better Public Transport Project

As originally conceived, the Better Public Transport program is in alignment with national, regional, and local policies on the economy and transport strategy as evident in local policies such as Local Plans and the Local Transport Plans at the time of its inception. The evidence validates that Greater Cambridge has been growing rapidly and will continue to do so in the future. Consequently, Cambridge's transport infrastructure is under pressure, with high levels of congestion in the city centre and on key corridors into and out of the city. The C2C project has been recognised in the Local Plans and local transport strategy as a key project to help address these infrastructure constraints on growth by linking Cambridge to growth areas to the west.

#### 7.1.3 Housing and Employment Growth

There is a substantial level of economic growth planned with approximately 8,400 dwellings and 13,300 jobs planned on those sites directly along the C2C corridor by 2031. The assumption that a HQPT like the C2C project is necessary is justified if it can demonstrate that it will support economic growth by providing faster and reliable journey times that will improve connectivity and accessibility and thereby link housing and employment growth areas more closely.

The Local Plans for Cambridge City and South Cambridgeshire adopted in 2018 confirm the housing targets and these are currently under review as part of the Greater Cambridge Shared Planning (GCSP) agreement between the two authorities. The projected housing growth is considered a base line by the CPCA and the CPIER highlights the need for more housing if current growth trends continue. The A428/A1303 corridor is strategically important in contributing to the area's growth requirements and these developments in turn will generate many more travel movements. The housing constraints therefore remain valid for the C2C scheme.

#### 7.1.4 Transport Constraints

The transport constraints are based on evidence collected in traffic surveys and modelling of the transport network under different growth scenarios. Accordingly, these demonstrate the need for the intervention and a sustainable transport solution provided by the Better Public Transport Project. These constraints remain valid for the C2C scheme.

#### *City Centre Access*

The C2C scheme focus is primarily on the A428/A1303 corridor and while acknowledging the constraints on bus accessibility through the city centre it offers no solution apart from the City Access program of soft measures to restrict on-street parking and reallocate road space to active travel. The assumption is that these measures will be enough to enhance bus speeds and provide more reliable journey times across the city. However, no detailed modelling of the likely impact has been conducted so it remains uncertain whether bus accessibility will improve.

The OBC recognises the need to access the fringe employment site at the Science Park and Cambridge BioMedical Campus and proposes a pattern of orbital bus services to serve these sites from the Park and Ride sites at Madingley Road and Scotland Farm via the M11 and A428 as well as connections in the City Centre.

These constraints remain valid for the C2C scheme and only weak remedies are offered by current policies.

#### 7.1.5 Transport Policy and Strategy Changes Since the Schemes Inception

Several changes in policies at the national and local level have occurred since the project was started, most notably the creation of the CPCa and the development of the Local Transport Plan and the strategy around the deployment of the CAM network. The developments have impacted on the C2C scheme as summarised below.

#### *Cambridge Autonomous Metro*

Following preparation of the former Mayor's transport strategy, it was agreed that the GCP routes would form the first phase of the Combined Authority's CAM project and the GCP has worked closely with CPCa to ensure alignment of the developing proposals. There was a disagreement, however, over some aspects of the C2C scheme design and the route alignment of the C2C preferred option, which the then Mayor proposed should follow a 'northern route'. Exploratory studies by the CPCa into alternative northern route options did not demonstrate the feasibility of these and a high-level assessment comparing the northern route with the preferred route showed the latter performing better on several criteria. Given the initial statements by the new Mayor the requirement for the C2C to integrate with the CAM network may no longer be applicable. Alternative route alignments including the location of the tunnel portals in West Cambridge may no longer have any continuing influence on the C2C scheme. The preferred alignment has, however, continued to draw criticism from some stakeholders who have put forward their own alternative route options which are considered below.

#### *CPCA Mayoral Election 6th May 2021*

Following the recent election, a new Mayor, Nik Johnson, has been elected to lead the Combined Authority. While no specific statement on the C2C scheme has been issued the new Mayor has said that the CAM network is not a priority project in his first term. His focus is on improving bus services including the franchising of bus operations as allowed under the Bus Services Act 2017 and the government's Bus Back Better: national bus strategy for England 2021. The CPCa has previously explored bus policies and a strategy for the area and opted for enhanced partnership arrangements with bus operators. Either of these operating models would benefit passengers and bus services and give the CPCa more influence in an enhanced partnership or control under a franchising regime, to determine levels of bus services, fares, and ticketing arrangements. This is consistent with the GCP Better Public Transport program and potentially removes a constraint that would apply under current bus regulations regarding operator support for the program.

*East West Rail*

The C2C business case assumes it would connect into the EWR station, so the assumptions regarding the routing through Cambourne are still valid. The issues around potential impacts on demand should be subjected to further analysis. This could be done through more detailed modelling of passenger demands or through sensitivity analysis of projected demands for the C2C under different scenarios. It would benefit the planning and operations of the C2C busway to have a better understanding of the potential demands at the time of the EWR likely opening. In the intervening period, the transport and housing constraints that underpin the scheme remain valid.

The uncertainty surrounding the CAM project weakens the case for any pause in the C2C scheme development and consequently does not alter the assumptions and constraints for the scheme which remain valid in the corridor. The C2C HQPT remains the only means of increasing capacity on the A1303/A428 corridor and addressing the public transport travel needs of the growing population. The EWR does not provide an alternative to travel along the corridor to West Cambridge and the City Centre. The two schemes serve different travel markets and should be planned as complementary services. The housing developments in Cambourne West and Bourn Airfield require the C2C project to be opened by 2025, otherwise the planned growth will be put at risk.

*National Bus Strategy*

The changes in bus strategy by central government are positive in their potential impacts on the Better Public Transport program and the C2C scheme. The assumptions in the OBC need updating and in some cases adding to, to incorporate these changes. There is little said in the OBC, for instance, on ticketing and fares which probably reflected the bus de-regulation policy in place at the time of the Better Public Transport policy but should be included as a central plank of the delivery strategy.

The national bus strategy and the funding that comes with it allows LTA's to be more ambitious in developing bus services for their area. The C2C scheme assumptions remain valid in this context but should be updated to take account of the opportunities, including closer working between the CPC and GCP, on bus strategy in the Greater Cambridge area.

Similarly, the strategy promotes bus priority schemes to overcome network constraints as a means of improving the performance and attraction of bus services; for example, in Cambridge city centre and along the A1303. This latter option was rejected in favour of a segregated busway paralleling the A1303/A482, but perhaps the two are not incompatible and short-term bus priority measures could be a catalyst for mode shift in preparation for the when the C2C busway is operational?

*COVID-19 travel impacts*

There are clearly challenges in how to respond to travel demands in a post-COVID world. Some trends point in the direction of less travel or changes in travel behaviour that is more local and accessible by active modes. At the same time there is evidence that traffic is returning to pre-pandemic levels but perhaps spread out more across the day. If so, traffic congestion will remain a key constraint on growth that still requires alternative solutions. In this context the strategic case for schemes like C2C remain valid but the assumptions regarding passenger demand may need revisiting as will potentially the need for on-going support to bus services. These effects apply to CAM as much as the C2C busway, and possibly more so to EWR. The pandemic has heightened the risks for these schemes. The government at least sees buses as being an important part of the post-COVID landscape and in this respect the C2C poses less of a risk than either CAM or EWR.

## 7.2 Key Findings: Business Case Options Development and Appraisal

### 7.2.1 C2C Scheme Objectives

The C2C scheme objectives are a valid response to the constraints identified along the corridor, with some ambitious assumptions to deliver a HQPT that can compete with car travel. There are a couple of caveats. Firstly, while accepting that these objectives relate to the scheme once open, the phasing of the housing and employment development along the corridor is a constraint that is not analysed in the Business Case. This omission should be addressed in further modelling of incremental growth scenarios. For example, with respect to the specification of six buses or more in the peak hours this seems incongruous in outlining the overarching objectives. The scheduling of bus services will be determined by the level of demand that is generated as the housing and employment growth takes place, so represents more of an ambition rather than an objective.

Secondly, there is no objective to integrate with other public transport services including EWR or to integrated ticketing/fares that would incentivise bus use. Thirdly, the only environment objective is to improve air quality – a valid objective – but omits any other goals related to climate change or impact on the environment. There seems to a ‘strategy’ gap between the policy related objectives and the scheme specific objectives.

So while the three components of the scheme – HQPT route, new Park & Ride facilities, and active travel facilities - are complementary features and consistent with the scheme objectives, it is not clear how the scheme fits into the broader transport strategy to address the constraints described earlier. This vacuum was filled by the previous Mayor’s CAM network project that was central to the Local Transport Plan strategy for the area. At the time of writing there is uncertainty over the future of CAM and what may be required to replace it. If it is to be the Better Public Transport program and schemes like the C2C, then the objectives need updating and widening to fill the gaps in transport strategy.

### 7.2.2 Options Development

The business case development has broadly followed the guidelines and procedures laid out in the HM Treasury Green Book and DfT’s TAG methodology. These documents provide the guiding principles within which projects should be appraised but allow some leeway for scheme proposers to employ different methods and techniques where appropriate. It is accepted that in scheme appraisal there will be a need for judgement alongside quantitative assessment so long as there is a robust evidence base to support the decisions made.

It appears that the appraisal has been conducted in a robust manner. The process has included consultation with stakeholders at each phase and in addition a Local Liaison Forum has been established to represent stakeholder interests. These have been given ample opportunity to present their evidence and opinions on the C2C route options and in response the GCP has amended some features of the scheme.

Generally, the appraisal covers the required elements for the business case and appraises the options against the assumptions and constraints specified in the scheme objectives. The only question is whether the objectives remain valid in light of developments with CAM (now uncertain) and EWR, as well as changes in transport policy and strategy evident in the CPCAs Local Transport Plan? The appraisal took place while these projects were at an early planning stage and could not reasonably incorporate them into the appraisal given that they were not committed schemes. The recent announcement by the new Mayor to discontinue the CAM project validates this approach but the EWR has since taken a step forward and should be brought into the appraisal framework.

Likewise, pronouncements on government policies on climate change, Bus Back Better and the effects of the COVID-19 pandemic. These have both positive and negative implications for the C2C scheme.

*Preferred Option Impacts*

The projected demands for the C2C scheme indicate that mode shifting from private cars to buses will be moderate and growth along the corridor is likely to bring more traffic. The OBC does not present any forecasts of traffic growth after the scheme opens or when the housing is fully built out, although it is understood with and without development scenarios have been modelled using the D Series Cambridge Sub Regional Model 2 for 2026 and 2036. It would be helpful to compare the model outputs on general traffic as well as ridership on the C2C to understand better the impacts of the developments as well as the C2C scheme. The C2C scheme objectives include increasing bus mode share along the corridor, and local transport policy aims to reduce traffic in Cambridge City Centre and on orbitals like the A1303. It is not clear from the analyses how much these will be achieved, and it is therefore difficult to comment on the validity of these assumptions and constraints.

The environmental impact of the scheme is mixed. The Business Case emphasises the benefits in terms of improving air quality, biodiversity and its compatibility with national policies on climate change and greenhouse gas emissions, and assumes these will outweigh any negative impacts of the scheme on the green belt, landscape character and heritage assets.

The validity of these assumptions will need further investigation as part of the Environmental Impact Assessment that has yet to be conducted for the scheme.

*Economic Case*

The technical appraisal of wider economic impacts is a problematic area in welfare economics, especially surrounding the assumptions over dependency versus displacement in estimating GVA associated with jobs and land value uplift from housing. The dependency assumptions are key to the economic justification for the scheme and its overall value-for-money.

A series of sensitivity tests were performed to assess the robustness of the scheme against varying levels of growth. This supports the economic case for the scheme in that where costs may increase the VfM of the scheme remain unchanged, and that if a greater level of growth does materialise then the VfM of the scheme will increase. Overall, the preferred option is judged to have medium VfM but is sensitive to changes in land value uplift and GVA generated by additional jobs. If these are less than expected, then the VfM would be poor.

The methods employed in the analysis appear to follow the appraisal guidelines, and in that respect remain valid.

*Financial Case*

The assumptions and constraints underpinning the Financial Case remain valid. However, the financial case does not include Optimism Bias (currently 44%), which is used within the economic appraisal, but does include a risk allowance of 25%. Applying the optimism bias would increase the potential scheme cost to £195m.

*Commercial Case*

The assumptions and constraints need updating to reflect shifts in government policy announced in the Bus Back Better: national bus strategy for England and the Bus Services Act 2017, as well as the bus strategy to be adopted by the new Mayor. There are opportunities presented by these through

the enhanced partnership or franchising arrangements. Generally, these are all positive changes that support ambitious schemes like the C2C.

Assumptions and constraints related to the CAM network also need amending or removing in the light of the approach proposed by the incoming Mayor.

#### *Management Case*

The assumptions and constraints relating to risk assessment remain valid apart from those pertaining to the CAM network. The interdependencies should be updated to reflect recent developments in national and local transport priorities.

These assumptions and constraints on public consultation remain valid and should be continued through the remainder of the project. Submissions to the audit have queried the consultation process and whether the GCP has adequately considered concerns raised by various parties. It is important for stakeholders and the wider community to have confidence in the consultation process and be given the opportunity to comment on plans and be involved in the scheme development.

### **7.3 Key Findings: Preferred Route Option**

The strategic assumptions and constraints that underpin the scheme and the options development remain valid. However, local constraints that emerged following the preferred route alignment need further evaluation which will be undertaken in the Environmental Impact Assessment. The preferred option may still be amended following the outcome of the EIA including any recommended mitigation measures to offset the scheme's impact.

Alternative route options have been put forward by opponents of the preferred route, who object to the scheme's impact on the local environment and suggest that better alignments are feasible and more in keeping with the scheme objectives as well as being compatible with other developments such as the CAM (now in doubt) and EWR projects. These are reviewed in the body of the audit and briefly commented on below.

#### *On-line scheme of bus priority measures along the A1301 Madingley Road*

The in-highway proposal for a HQPT along the A1301 are essentially short-term measures that are consistent with the C2C scheme objectives. However, this does not invalidate the assumptions and constraints for the preferred option as a long-term solution to meet the growth in travel demand along the corridor. The proposers of this option acknowledge that a longer-term solution is required and propose that this can be provided by the CAM network – although this approach may no longer be available. As this now looks uncertain the case for the on-road scheme is weakened but not entirely without merit. The short-term measures are boosted by recent government announcements in the national bus strategy that the GCP and CPCPA may wish to take advantage of and use a catalyst for attracting ridership to public transport for when the preferred option opens.

#### *Northern route options*

The alternative 'northern route' options have been reviewed at various stages in the scheme options development process. The CAM route alignment proposed by the previous Mayor appears unsuitable for the busway, not least because of the higher cost compared with the preferred route and would run into considerable opposition from affected parties such as the American Cemetery and residents in Madingley.

The Girton Interchange option is ambitious and expensive and would take longer to deliver especially as it is reliant on Highways England committing to upgrade the junction. It looks like a high risk compared to the preferred option. The hybrid A428 Co-alignment scheme is a compromise

between the other two that incorporates some of their features but avoids the riskier elements. In this sense it is more viable and closer aligned to the scheme objectives than the others. Nevertheless, it is likely to perform less well on cost and other performance metrics while potentially scoring higher on environmental and social impact.

The alternative route options are created to overcome the local impacts constraints identified in the Business Case. The Business Case needs to address a wide range of constraints as well as local concerns and balance these through a rational appraisal process. Objectors may feel that this process is biased in favour of strategic goals, yet it is incumbent on the GCP to adhere to an appraisal process that complies with the methods laid down in the guidelines. The C2C scheme assumptions and constraints are not invalidated by the alternative options. It is not the role of this audit to adjudicate between different options. Opponents of the preferred option will have the opportunity to present their alternative route options to the Public Inquiry and cross-examine the GCP and its consultants on the options development and preferred scheme appraisal. There is no guarantee, for instance, that any of the alternative route options would perform any better if subject to a detailed appraisal than the preferred option evaluated in the business case.

**Audit Conclusion:**

**The conclusion of this audit is that there is no reason why the Executive Board of the GCP should not proceed to the next stage in the development of the C2C scheme.**

**The audit has concluded that the scheme is in alignment with national, regional and local policies on the economy and transport. Stakeholder engagement has been carried out in a robust manner and the business case development followed the HMT Treasury Green Book and the Department for Transport's TAG methodology. The appraisal has also been carried out in a robust manner and the economic analysis and financial case remain valid.**

**The environmental impact of the scheme is mixed and the validity of some of the assumptions will need to be investigated further as part of an Environmental Impact Assessment which would form part of the next stages.**

**A number of alternative route options have been put forward and have been examined in this audit. It is important to stress, however, that the business case must balance local concerns with the wider strategic goals. The GCP has complied with national guidance on how to balance local and national considerations in relation to schemes such as this.**

**Overall, the audit has confirmed that the key constraints and assumptions on which the C2C business case is based remain valid. There have, however, been some significant changes in the wider context, including the impact of Covid-19, the increasing importance of climate change, the government's new bus policy, East-West Rail and the CAM scheme. These factors will have to be taken into account in the next stages of developing the C2C scheme.**

**It has been argued that progress with the C2C scheme should be delayed pending confirmation of the CAM and East-West Rail alignments. This audit has concluded that the case for delay is not strong and has been significantly weakened as a result of the increasing uncertainty about CAM in the light of statements by the incoming Mayor.**

## 7.4 Recommendations

It is recommended that the assumptions and constraints in the following areas needs updating in the Business Case to incorporate the latest developments in transport policies and strategies that influence the C2C scheme:

- CAM network. The uncertainty now surrounding the CAM project affects the context for the C2C scheme in particular and the Better Public Transport project in general. This is a significant change in local transport strategy that needs reflecting in the Business Case. The implications should become clearer as the oncoming Mayor develops his transport strategy, but it presents an opportunity to reset the C2C scheme.
- City Centre access remains a constraint on achieving the ambitions of the C2C scheme and needs further examination, perhaps as part of a more ambitious bus strategy for Cambridge.
- National bus strategy. The assumptions in the OBC need updating and in some cases adding to, to incorporate changes in government policy. There is little said in the OBC, for instance, on ticketing and fares which probably reflected the bus de-regulation policy in place at the time of the Better Public Transport policy but should be included as a central plank of the delivery strategy.
- Similarly, the move to implement Enhanced Partnership or franchising models for bus operations is a significant shift in government policy, which has implications (mainly positive?) for schemes like C2C.
- The environmental impact of the scheme is mixed. The Business Case emphasises the benefits in terms of improving air quality, biodiversity and its compatibility with national policies on climate change and greenhouse gas emissions, and assumes these will outweigh any negative impacts of the scheme on the green belt, landscape character and heritage assets. The validity of these assumptions will need further investigation as part of the Environmental Impact Assessment that has yet to be conducted for the scheme.
- The GCP should continue to consult with stakeholders as the preferred option progresses and implement any recommendations that may arise from the Environmental Impact Assessment.
- EWR: the issues around potential impacts on demand should be subjected to further analysis. This could be done through more detailed modelling of passenger demands or through sensitivity analysis of projected demands for the C2C under different scenarios.
- Short-term bus priority measures along the A1301 could be a catalyst for mode shift in preparation for the when the C2C busway is operational, i.e., considered as complementary measures.
- Scheme cost and benefits. A question remains over the assumptions regarding the wider economic impacts of the scheme and extent to which the scheme supports housing and jobs growth. More testing of travel demands under different scenarios would be helpful, in understanding the long-term impacts of the scheme on general traffic in the corridor as well as on bus ridership.



## Appendices

## Appendix A. Statement of Assumptions and Constraints

*Preamble: The register of assumptions and constraints has been amended following the first round of consultations to correct errors and clarify some points where the information was ambiguous.*

*Otherwise the original Statement remains largely intact. More expansive comments on and challenges to the Statement are addressed in the Audit Report.*

The Greater Cambridge Partnership (GCP) has instigated an independent audit of the key assumptions and constraints underpinning the selection of the preferred route for the Cambourne to Cambridge Better Public Transport Project. The focus of the audit is on the assumptions and constraints that underpinned the analysis that led to the selection of the preferred route and the elimination of alternative options. The objective is to test the robustness of those assumptions and constraints and determine whether they remain appropriate in the context of the current strategic frameworks, the emerging Cambridgeshire Autonomous Metro (CAM) network and the East West Rail plans.

This first stage of the audit comprises the preparation of a statement on the assumptions and constraints. This statement will be published on the GCP web site and will form part of an invitation to representative groups to submit further written representations on the assumptions and constraints and their application throughout the process.

The assumptions and constraints are documented in the tables below. These are derived from the Outline Business Case for the scheme together with supporting materials prepared for the business case and other reports produced by the GCP and its partners. The information sources are referenced against each entry in the table.

Examination of these sources has revealed 51 individual assumptions and constraints which are grouped into 12 categories:

- A. Policy Context
- B. Scheme Objectives
- C. Project Deliverables
- D. Strategic Fit
- E. Connections to CAM and EWR
- F. C2C Options Selection
- G. Economic Case
- H. Financial Case
- I. Commercial Case
- J. Management Case
- K. Full Business Case
- L. Covid-19 Impacts

These categories expand upon the 5-case business model framework used in the outline business case including consideration of the wider context for the scheme.

Broadly, the constraints fall into two types: on the positive side, the strategic growth targets and ambitions of the GCP and the Cambridgeshire and Peterborough Combined Authority (CPCA) dictates the development of new public transport capacity to meet future travel demands; on the negative side, deploying this new infrastructure, like the C2C scheme, impacts on local communities and the environment with queries about the premise for the preferred option. The assumptions

outline a scheme that can address both areas of concern and demonstrate through evidence the justification for the preferred option. At this stage, the objective is to produce a comprehensive list of assumptions and constraints without prejudice for stakeholders to review and comment on.

For comparison the assumptions are matched with the constraints (or vice versa). This ‘mapping’ is not always clear cut and there are overlaps and some matters that are more distinct. Nevertheless, this format helps to link the assumptions with the constraints to better understand the need for the intervention, the process of selecting the preferred option, evaluating its impacts, how it will be delivered, and interdependencies with the future CAM and EWR networks. No weighting is given to the categories or individual items. At this stage it is considered appropriate to present the assumptions and constraints in a neutral manner.

The continuing validity and appropriateness of the assumptions and constraints will be analysed in the second part of the audit.

**Table A: Policy Context**

	Assumptions	Constraints	Reference
	<b>A. Policy Context</b>		
A.1	Greater Cambridge Partnership: Created in 2014 to implement City Deal agreed with government to deliver growth aspirations in support of regional and national economic policies.	The C2C corridor has been identified by the GCP's Executive Board as a priority project for development in the first five years of the GCP's transport programme.	<i>Greater Cambridge City Deal. GCP 2014</i>
A.2	Local Plan policies for the strategic developments of sites along the C2C corridor require High Quality Public Transport (HQPT) to link new homes to employment and services in and around Cambridge.	Local Plans prepared by Cambridge City & South Cambridgeshire Councils: Confirm targets for housing and employment growth and allocate sites in West Cambourne, Bourn Airfield and other sites along the A428 corridor for development as well as at West Cambridge and North West Cambridge.  In light of this policy requirement, the County Council has been working with developers re: pre/post application development proposals, mindful of the need to secure appropriate local contributions to the C2C (financial and direct works), in line with the C2C funding strategy and the planning need for this strategic intervention.	<i>Greater Cambridge Local Plan. Transport Evidence Report. Cambridgeshire County Council Transport Strategy and Funding Team, November 2020.</i>
A.3	Policy within the TSCSC requires a range of infrastructure interventions on the St Neots and C2C corridor as a key part of the integrated land use and transport strategy responding to levels of planned growth.	The Transport Strategy for Cambridge and South Cambridgeshire (TSCSC) was prepared in parallel with the development of the Local Plans and was agreed 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.	<i>Transport Strategy for Cambridge and South Cambridgeshire, March 2014</i>

	Assumptions	Constraints	Reference
A.4	Cambridgeshire County Council are working with Greater Cambridge Shared Planning (GCSP) comprising Cambridge City and South Cambridgeshire, to provide a transport evidence base to support the preparation and examination of the Greater Cambridge Local Plan (GCLP) that runs to 2041. The Greater Cambridge Local Plan is at an early stage of preparation and has yet to be adopted.	<p>Three growth level options being tested through the local plan are:</p> <ul style="list-style-type: none"> <li>• Minimum – Standard Method homes-led</li> <li>• Medium – central scenario employment-led</li> <li>• Maximum – higher employment-led</li> </ul> <p>The GCP City Deal constrained to deliver 44,000 jobs and 33,500 homes by 2031 and is consistent with the Minimum growth projection. Higher growth forecasts imply additional infrastructure and development sites beyond 2031.</p>	<i>Greater Cambridge Local Plan. Transport Evidence Report. Cambridgeshire County Council Transport Strategy and Funding Team, November 2020.</i>
A.5	The Cambridgeshire and Peterborough Combined Authority is responsible for transport infrastructure improvement and the Local Transport Plan. Drawing on the CPIER the goals of the CPLTP published in 2020 are to deliver a transport system that delivers economic growth and opportunities, provides an accessible transport system and protects and enhances the environment to tackle climate change together.	The CPCa established the Cambridgeshire and Peterborough Independent Economic Review (CPIER). The review provides a robust and independent assessment of the Cambridgeshire and Peterborough economy and the potential for growth. The CPIER confirmed the growth targets established in the City Deal and the need for a package of transport and other infrastructure projects to alleviate the growing pains of Greater Cambridge including HQPT scheme from Cambridge to Cambourne.	<i>CPIER - Cambridgeshire and Peterborough Independent Economic Review, CPCa, September 2018</i>

	Assumptions	Constraints	Reference
A.6	In April 2020 the CPCa published a draft Sub-Strategy to the Local Transport Plan specifically dealing with CAM. The route along the A1303/A428 from Cambridge City centre towards Cambourne, St Neots and Bedford has been highlighted as a strategic project to help make travel by foot, bicycle and public transport more attractive than private car journeys, alleviating congestion and supporting the region's growth issues.	The C2C proposals have been assessed against the policies in the Sub-Strategy and it is concluded that the scheme is compliant, although further review of the eastern end of the scheme (City Access) has been undertaken and a review of the western end will be required once there is clarity with regards to proposals for EWR and a station in the Cambourne area.	<i>Cambourne to Cambridge Better Public Transport Project, Report to GCP Executive Board, 10 December 2020</i>
A.7	National Infrastructure Commission: The NIC has identified the Cambridge – Milton Keynes – Oxford arc as a national priority stating that its world-class research, innovation and technology can help the UK prosper in a changing global economy.	NIC has proposed the development of EWR. Integrating mass rapid transit with this scheme will enable effective first/last mile connectivity, in a way that enhances the value of these strategic infrastructure projects.	<i>NIC Report, November 2020.</i> <a href="https://nic.org.uk/studies-reports/national-infrastructure-assessment/">https://nic.org.uk/studies-reports/national-infrastructure-assessment/</a>
A.8	Highways England. Dualling of A428 Black Cat to Caxton Gibbet included in RIS2 programme, 2020-2025. HE has no other major road schemes planned for the GCP area having recently completed the upgrade to the A14 around the Girton interchange with the M11. HE has agreed to consider an 'all-ways' junction for M11 J13 in RIS 3, 2025-30.	DCO submitted in February 2021 for this Nationally Significant Infrastructure Project connecting the A1 to the A14. Preparatory works are underway. Scheduled for completion by 2023-24?  CPCA LTP makes reference to a study of options at Girton Interchange but this is not listed as a priority scheme.	<i>Highways England. Route Investment Strategy. Road projects in the Eastern Region.</i> <a href="https://highwaysengland.co.uk/our-work/east/#roadprojectform">https://highwaysengland.co.uk/our-work/east/#roadprojectform</a>
A.9	East West Railway Company formed to create a new railway connection between Oxford and Cambridge. Consultation on 5 routes is underway on the preferred route alignment which includes stations at Cambourne (north and south options) and in the Sandy/St. Neots area.	The Bedford to Cambridge section is the third stage of the project and construction is not expected to start before 2025 with the train service beginning later this decade at the earliest.	<i>Connecting Communities: The Preferred Route Option between Bedford and Cambridge Executive Summary. EWR, 2019</i>

**Table B: Scheme Objectives**

	Assumptions	Constraints	Reference
	<b>B. Scheme Objectives:</b>		
B.1	<ul style="list-style-type: none"> <li>● Achieve improved accessibility to support the economic growth of Greater Cambridge</li> <li>● Deliver a sustainable transport network/system that connects areas between Cambourne and Cambridge along the A428/A1303</li> <li>● Contribute to enhanced quality of life by relieving congestion and improving air quality within the surrounding areas along the A428/A1303 and within Cambridge city centre</li> </ul>	<ul style="list-style-type: none"> <li>● Existing car mode share and car ownership within the A428/A1303 corridor is high, and future growth is expected to generate additional demand for car use in this area.</li> <li>● Traffic data shows that AM peak hour traffic speeds are 75% slower than night time average speeds on the route between the Madingley Mulch Roundabout and M11 Junction.</li> <li>● Planned growth, between 2011 and 2031, along the A428/A1303 corridor eastbound car trips are forecast to increase by 14% in the AM Peak hour, 82% in the Inter-peak period and, 37% in the PM Peak period. Without intervention this could lead to a further deterioration in traffic speeds and reliability of journey times.</li> <li>● Travel to work data for key origins along the C2C corridor also illustrate the high level of car use along the route, with the car mode share for residents of Cambourne being particularly high (65%).</li> <li>● Residents of Cambourne and surrounding villages currently have limited options to use public transport due to the low level of service and current unreliability.</li> <li>● In the absence of substantial bus priority in the corridor, congestion and delays mean journeys of around 10 miles can take over an hour during peak times. Buses therefore offer no competitive</li> </ul>	<i>C2C Outline Business Case, Strategic Case GCP January 2020.</i>

		advantage over private cars in terms of journey times and reliability.	
B.2	Supporting development through the busway corridor: The scheme is assumed to promote growth in the area and increase investment. It is designed to be the first in a series of steps to push forward growth.	Longer-term plans for the CAM network and EWR need to be taken into account.	<i>'C2C Outline Business Case, Strategic Case GCP January 2020.</i>
B.3	Support for the labour market: Through the wider effects of the scheme it is assumed that there will be an increase in accessibility to jobs, education and training. This has the potential to give easier access into both Cambourne and Cambridge and thereby expand the labour market.	Constraints in this are linked to ticketing and frequency of service. If this is an expensive service, then some may still be priced out. There is no information on ticketing and service schedules have yet to be confirmed.	<i>'C2C Outline Business Case, Strategic Case GCP January 2020.</i>
B.4	The scheme will create a congestion free, high quality public transport corridor: The OBC assumes that the scheme will be able to create this corridor as a segregated busway.	<p>There are still several pinch points and interactions with general traffic that could create congestion and delay along the route.</p> <ul style="list-style-type: none"> <li>• Scotland Farm P&amp;R access</li> <li>• The section of the scheme which runs through Bourn Airfield must comply with the SPD for the site and complement the development Masterplan.</li> <li>• Access through Cambourne on public roads</li> <li>• The section of the scheme which runs through West Cambridge must complement the development Masterplan. Consideration must be given to vibration and EMI impacts on sensitive receptors such as the Department of Materials Science and Metallurgy.</li> <li>• City centre access to/from Grange Road</li> </ul>	<i>'C2C Outline Business Case, Strategic Case GCP January 2020.</i>

B.5	<p>In the City Centre, GCP's City Access project is proposing measures to reduce reliance on car travel and free up the city centre's congested road space, to run better public transport services.</p> <ul style="list-style-type: none"> <li>• The objectives of the City Access scheme complement the C2C project by seeking to improve conditions for sustainable transport within the City Centre, thereby benefitting users of the C2C scheme either through improved journey times for public transport or better connectivity to pedestrians and cyclists.</li> <li>• City Access will also complement C2C by providing an alternative to car journeys for trips from new developments served by the scheme.</li> </ul>	<p>Bus services across the city centre incur substantial delays due to traffic congestion and the layout of city streets. Significant reallocation of road space to active travel and buses alongside on-street parking management measures will be required to improve bus journey times.</p>	<p><i>Report to GCP Executive Board, 18 March 2021</i></p>
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B.6	<p>On 31st October 2018 the CPCB Board agreed that the C2C scheme should be progressed by the GCP as an essential first phase of developing proposals for the CAM. They accepted the independent review of alignment between the C2C scheme and the CPCB plans for a CAM, undertaken by consultants Arup and commissioned by the CPCB in 2018.</p>	<p>Arup has undertaken a high-level review of route options and concluded that:</p> <ul style="list-style-type: none"> <li>• The process undertaken to date to determine the route is robust and the optimal solution for the corridor is confirmed;</li> <li>• The route is reclassified as a CAM route to serve the wider network, and not an independent guided busway corridor;</li> <li>• The vehicle operating along the A428 corridor will comply with the principles of the CAM;</li> <li>• The route will continue to be designed to align and integrate with the overarching CAM network, comprising one of the phases of the CAM network; and</li> <li>• Options for mitigating the impact of the scheme at West Fields and Coton will be incorporated into scheme design for the SOBC.</li> </ul>	<i>Cambridgeshire and Peterborough Combined Authority CAM Expert Advice A428 Report. Arup, October 2018</i>
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**Table C: Project Deliverables**

	Assumptions	Constraints	Reference
	<b>C. Project Deliverables:</b>		
C.1	<p>The project is made up of three key elements:</p> <ul style="list-style-type: none"> <li>• a public transport link between Cambourne and Cambridge,</li> <li>• a new Park and Ride facility off the A428/A1303 to supplement the existing Madingley Road Park and Ride, and</li> <li>• new cycling and walking facilities.</li> </ul>	<p>The C2C scheme will need to deliver on the following elements:</p> <ul style="list-style-type: none"> <li>• A HQPT system using rapid transit technology on dedicated routes.</li> <li>• High frequency, reliable services delivering maximum connectivity.</li> <li>• Continued modal shift away from car usage to public transport.</li> <li>• Capacity provided for growth, supporting transit-oriented development.</li> <li>• State of the art environmental technology, with easily accessible, environmentally friendly, low emission vehicles such as electric/hybrids or similar.</li> <li>• A fully integrated solution, including ticketing and linkages with the wider public transport network to maximise travel opportunities.</li> </ul> <p>Achieving these may be constrained by factors outside of the GCP's control.</p>	'C2C Outline Business Case, Strategic Case GCP January 2020.'
C.2	Scotland Farm site chosen as preferred location for Park & Ride site with a capacity for up to 2000 cars. It will also provide a travel hub with potential for cycle storage as well as waiting rooms/information point and retail outlet.	<p>Scotland Farm is attractive location for commuters from areas to the west of Cambridge along the A428 corridor but less so for car users from the south exiting at jnc 13 of the M11. The success as a travel hub will depend on the number of car users and cyclists attracted to the site.</p> <ul style="list-style-type: none"> <li>• Any new Park &amp; Ride service will need to be to a standard similar to that currently operating for Cambridge's Park &amp; Ride services as set out in the current Access Agreement, which states that the</li> </ul>	'C2C Outline Business Case, Strategic Case GCP January 2020.'

		<p>Bus Operator will operate the Park &amp; Ride Bus Services in accordance with the established minimum requirements.</p> <ul style="list-style-type: none"> <li>Provide appropriate traffic calming and management proposals to mitigate rat-running to Park &amp; Ride sites.</li> <li>The alternative P&amp;R site at Madingly Road may be redeveloped for other use when the lease expires later this decade.</li> </ul>	
C.3	<p>Increase active travel through improved infrastructure for cycling and walking:</p> <ul style="list-style-type: none"> <li>Comberton Greenway will complement the C2C project as it develops improved pedestrian and cyclist routes with a segregated path continuing beyond the proposed bus route.</li> <li>Madingley Road cycling improvements enabled by reallocation of road space that complements C2C scheme</li> </ul>	<p>The scheme must provide a segregated route for non-motorised users, as a minimum to include cyclists and walkers, but where appropriate equestrians, and to ensure that all pedestrian facilities are accessible for all.</p> <p>The existing cycling network between Cambourne and Cambridge has sections of segregated links of uneven quality but is discontinuous and does not in total provide a high-quality segregated route which would cater for the potential increased modal share of cyclists along the corridor.</p> <p>Madingley Road potential bus lane/priority measures reallocated to cycling infrastructure.</p>	<p><i>'C2C Outline Business Case, Strategic Case GCP January 2020.</i></p>

**Table D: Strategic Fit**

	Assumptions	Constraints	Reference
	<b>D. Strategic Fit:</b>		
D.1	A substantial level of housing and employment development is planned, or is already under development, along the C2C corridor include Cambourne West, Bourn Airfield, West Cambridge and North West Cambridge (Eddington).	Based on current plans, both those within the current Local Plan or well established through planning applications or known to be emerging, there are around 11,700 additional houses planned (e.g., Bourn Airfield: 3,500, Cambourne West: 2,350, Eddington: 3,000) and around 13,400 additional jobs (11,000 at West Cambridge) along the C2C corridor. Around 50% of all housing planned (c. 6,000 houses) would be directly linked to Cambridge City centre and other key employment locations via the C2C project.	'C2C Outline Business Case, Strategic Case GCP January 2020.'
D.2	The C2C project has been recognised in the Local Plans and local transport strategy as a key project to help address these infrastructure constraints on growth by linking Cambridge to growth areas to the west. The provision of a HQPT service supporting journeys to key employment sites presents a viable alternative to car use/purchase for residents in new developments.	Two significant new planned developments (Cambourne West and Bourn Airfield) are, in housing terms, judged to be dependent upon the C2C project given the clear policy position within the adopted Local Plan and as supported by Section 106 commitments and ongoing negotiations. While Bourn (3,500) and Cambourne West (2,350) are fully dependent upon the C2C (with financial contributions and direct works secured) the trigger points allow for delivery of dwellings before the link is completed. For Cambourne, there is a pre-occupation requirement to directly deliver the Broadway Bus Link component of the C2C. For Bourn Airfield, development cannot proceed beyond 500 dwellings until the C2C is delivered.	'C2C Outline Business Case, Strategic Case GCP January 2020.'

D.3	Supporting increased development density of the corridor: The assumption is that the added capacity of the scheme will support the densification in the areas easily accessible to the busway.	The growth depends on the scheme providing enough capacity to meet anticipated demands.	<i>'C2C Outline Business Case, Strategic Case GCP January 2020.'</i>
D.4	The scheme offers further capacity and therefore underpins growth. Whilst there is a wealth of supporting evidence for this assertion, it is hard to establish how much effect on relieving the capacity this scheme will have and how much growth that this scheme in isolation will enable. The scheme is assumed to be the launch point for further connections and shift away from private vehicles. For planning purposes, robust Transport Assessment assumptions have been made in terms of the mode shift the C2C will enable. This will be influenced by travel planning and wider transport policies, so will be monitored on an ongoing basis to inform assumptions about how much additional future development could be unlocked.	Existing network cannot increase travel capacity much further. A major constraint is whether this scheme can successfully create the conditions for modal shift? Are other measures required to achieve the 30% modal shift targeted in the GCP transport strategy?	<i>'C2C Outline Business Case, Strategic Case GCP January 2020.'</i>

Table E: Connections to CAM and EWR

	Assumptions	Constraints	Reference
	<b>E. Connections to CAM and EWR</b>		
E.1	The CAM project proposes an expansive metro network that seamlessly connects Cambridge City Centre, key rail stations (Cambridge, Cambridge North and the future Cambridge South), major City fringe employment sites and key 'satellite' growth areas, both within Cambridge and the wider region.	The GCP routes will form the first phase of the Combined Authority's CAM project. The CPCA has proposed a northern route alignment for evaluation alongside the preferred southern route. This could delay a decision on the C2C preferred option.	<i>Cambridgeshire Autonomous Metro Strategic Outline Business Case, CPCA, February 2019</i>
E.2	CAM SOBC assumes the portal connecting the city centre underground section to the C2C route will be in West Cambridge at the southern edge of the proposed development area. The CAM station will be at ground level in this vicinity.	Alternative route options for the CAM are still being explored. So far, these rule out any alignment going via the Girton Interchange. A northern route corridor option(s) has been proposed. These would follow an alignment to the north of the A1303 and American Cemetery and connecting to the north side of the A428 and proceeding to Scotland Farm P&R and then crossing over to Bourn Airfield development. An alternative option to extend the CAM tunnel to the west of the M11 on the northern side of A1303 has also been explored. A preliminary evaluation of these route options indicates that they would be higher cost alignments for the busway/CAM and would have environmental impacts on the American Cemetery, 800 Wood, Madingley village and White Pits Plantation, and incur longer journey times compared to the preferred busway option.	<i>CAM Indicative Northern Route Corridor Options Map, CPCA, October 2020.</i>

E.3	<p>CAM: As a segregated route, the preferred option for the C2C is aligned with the CAM project, at least on the section between West Cambridge and Bourn Airfield. CAM connections through/around Cambourne will depend on the EWR station location. Connections to rest of the CAM network will be via a tunnel through the City Centre.</p> <p>Any elements of incompatibility between C2C and the wider CAM will be addressed by the CAM overlay project.</p>	<p>C2C travel hubs at Scotland Farm P&amp;R site and in Cambourne may require the CAM to follow a different alignment to the C2C busway in these sections in order to access these facilities depending on the vehicle technology chosen.</p>	<p><i>'C2C Outline Business Case, Strategic Case GCP January 2020.'</i></p>
E.4	<p>EWR: The C2C full business case will also need to include a sensitivity test to assess the impact of EWR Rail once there is clarity with regards to the proposals. It is unlikely that EWR will have an impact of the core business case for C2C given that it is unlikely that any EWR proposals will have achieved consent during the C2C assessment period.</p>	<p>EWR focuses substantially on longer term growth beyond the Local Plan period and not the immediate and worsening issues of congestion and lack of connectivity for expanding communities west of Cambridge. Once a preferred alignment has been agreed for EWR and confirmation of the location of a Cambourne station there will need to be a programme to ensure integration between EWR, C2C and the wider CAM network.</p>	<p><i>'C2C Outline Business Case, Strategic Case GCP January 2020.'</i></p>

**Table F: C2C Options Selection**

	Assumptions	Constraints	Reference
	<b>F. C2C Options Selection</b>		
F.1	<p>Options Sifting: The scheme options were developed in two phases. In total 34 options were considered which were sifted through a multi-criteria assessment framework to derive 6 options (3 phase 1 &amp; 3 phase 2) including the P&amp;R site options. These were then combined into 5 options for both phases including a scheme comparator which was eventually selected as the preferred option. The optioneering process reviewed a wide range of options suggested by stakeholders and following consultation. The assessment criteria followed DfT appraisal guidelines and covered a broad range of issues from policy goodness-of-fit to local environmental impacts.</p>	<p>The key constraint is that the C2C follow a rigorous and robust, evidence-based evaluation methodology. The MCAF criteria is a qualitative exercise that measures the performance of each option against a wide range of factors grouped into 6 themes. The option scoring is justified on the available evidence but by its nature is subjective. The results indicated that the best performing option was the segregated off-road option with Park &amp; Ride at Scotland Farm but only by a small margin.</p> <p>The preferred option would create a new busway crossing designated green belt in West Fields, Coton Orchards and National Trust covenanted lands.</p> <p>Options regarding connections of C2C to the CAM and EWR were not evaluated as these are not confirmed, nor are they committed schemes.</p>	<i>C2C Outline Business Case, Options Appraisal Reports 1, 2 &amp; 3, GCP January 2020.</i>
F.2	<p>Alternative alignments to avoid Coton and Hardwick were evaluated as part of the options development process. These were not found to be suitable and performed worse than the preferred option and no better than the other options assessed.</p>	<p>Alternative northern route options via Girton interchange are not deliverable within the time horizons for the project and not compatible with CAM route corridor options.</p> <p>Other northern route options to the north of the American Cemetery are constrained by environmentally sensitive areas and heritage assets. The Cambridge American Cemetery and the American Battle Monuments Commission is regarded as a unique national memorial which honours the American military personnel killed in the second world war. They would oppose any on-road or off-road scheme which impacted the setting of the cemetery including</p>	<i>C2C Outline Business Case, Options Appraisal Reports 1, 2 &amp; 3, GCP January 2020.</i> <i>Madingley Road 'Quick-Win' Options Outline. Technical Note. Mott Macdonald. May 2019.</i>

	<p>removing the verges along the A1303 and the uninterrupted views to the north.</p> <p>On-road options for bus lanes/bus tidal flows are also constrained by impact on SSSI and American Cemetery along the A1303 as well as impacts on properties along the route.</p>	
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**Table G: Economic Case**

	Assumptions	Constraints	Reference
	<b>G. Economic Case</b>		
G.1	Options Appraisal: The preferred route from Cambourne to Grange Road has been analysed for its economic benefits and costs. Benefits were assessed at 3 levels following Transport Appraisal Guidelines: level 1 measures the transport user benefits to bus riders and decongestion benefits for car users; level 2 estimates the wider economic benefits assumed to accrue from the scheme from agglomeration; and level 3 estimates the wider economic benefits from land use changes at national and local level, including Gross Value Added through jobs created and the land value uplift from the scheme. These level 3 additionality benefits are what justify the scheme producing a BCR of 1.47 (increased to 3.48 with Greater Cambridge additionality benefits) compared with just 0.43 for the level 1 benefits and 0.48 for the adjusted level 2 benefits.	The scheme has been presented as creating 975 new jobs and increasing housing by around 6,000 which are dependent on the scheme. There is an increase in GVA of £102.8m per annum attributed to the scheme. Over a 30-year period this delivers a significant benefit of £676.1m plus £458m from land value uplift, giving a total benefit of £1.13bn. What constrains this assumption is that if the scheme does not support the housing and jobs growth as expected then there is a danger of reduced economic growth.	<i>C2C Outline Business Case, Economic Case GCP January 2020.</i>
G.2	Segregated busway: Comparison of wider economic impact assessment of the off-road (preferred option) and the on-road option estimates that the on-road option has a slightly positive BCR when local WEI are included whereas the off-road option has a much higher BCR.	The traffic growth generated by the developments along the corridor would increase congestion and impact on the journey times and reliability of an on-road scheme along the A1303 even with bus priority measures such as bus lanes or a tidal bus way.	<i>C2C Outline Business Case, Economic Case GCP January 2020.</i> <i>'C2C Outline Business Case, Options Appraisal Reports 1, 2 &amp; 3, GCP January 2020.</i>

G.3	<p>Journey Times, Reliability and Ridership: The traffic modelling for the preferred option estimates a 167% increase in bus ridership when the scheme opens and 233% by 2036 when all the housing and employment in the corridor is assumed to be built. This amount of mode shifting, mainly from private car, is predicated on the C2C delivering significant journey time savings to users from Cambourne, Bourn village and the Scotland Farm P&amp;R. For instance, C2C passengers from Cambourne to Cambridge city centre are predicted to have 23 minutes lower journey time in the morning peak hour compared to a do minimum scenario. Alternative on-road options do not offer anywhere near this journey time saving or reliability.</p>	<p>Despite the forecast increase in bus ridership, there will still be a lot of traffic generated by the developments in the corridor so traffic congestion will remain a problem. The predicted mode shift only increases the bus mode share east of the Scotland Farm P&amp;R site from 4% to 6% of travel demand. Off peak C2C journey times are slightly longer due to the diversion from the busway to the Scotland Farm P&amp;R site.</p>	<p><i>'C2C Outline Business Case, Economic Case GCP January 2020.</i></p>
G.4	<p>Sensitivity Tests: A series of sensitivity test were performed to assess the robustness of the scheme against varying levels of growth. This supports the economic case for the scheme in that where costs may increase the VfM of the scheme remain unchanged, and that if a greater level of growth does materialise then the VfM of the scheme will increase.</p>	<p>The scheme is judged to have medium VfM but is sensitive to changes in land value uplift and GVA generated by additional jobs. If these are less than expected, then the VfM would be poor.</p>	<p><i>'C2C Outline Business Case, Economic Case GCP January 2020.</i></p>

G.5	<p>Environmental Impact: Overall it is assumed that environmental factors are very limited in terms of the schemes impact on the proposed route. Noise, Air quality and emissions are all very limited. It is assumed they will have minor benefits or be neutral. Similarly, for the landscape impact it is neutral for the proposed route. There is a slightly higher impact on biodiversity, however there are mitigation opportunities for the scheme to reduce impact. The impact on features of visual, historic and cultural significance is also minor.</p>	<p>The environmental impact of the scheme has yet to be fully assessed in an EIA. The scheme must achieve a 20% net biodiversity gain. The segregated busway alignment has been designed to minimise the impacts on the environment. Nevertheless, it will require mitigation measures to lessen its impact on the landscape especially where it crosses the green belt and National Trust covenanted land. There is also the limitation that if the targets for modal shift are not reached then there will be reduced benefit to the environmental factors such as emissions and air quality.</p>	<p><i>C2C Outline Business Case, Economic Case GCP January 2020.</i></p>
G.6	<p>Green Belt: Whilst it is always preferable to avoid any impacts on the Green Belt, in the case of C2C, impact is inevitable. The National Planning Policy Framework establishes that “certain other forms of development are also not inappropriate in the Green Belt provided they preserve its openness and do not conflict with the purposes of including land within it. These include local transport infrastructure which can demonstrate a requirement for a Green Belt location.”</p>	<p>The C2C scheme has been developed to provide linkage from new settlements located outside the Green Belt to the City of Cambridge. Given the need to connect development outside the Green Belt to the city, some degree of impact on the Green Belt is inevitable.</p>	<p><i>A428 Cambourne to Cambridge Segregated Bus Route Consideration of Green Belt Issues, LDA Design, August 2017 C2C: Report to GCP Executive Board, 10 December 2020 Interim Addendum Report to Planning Appraisal 2017: Cambourne to Cambridge public transport route (C2C) – Phase 1, Strutt and Parker, September 2019</i></p>
G.7	<p>Mitigation measures will be firmed up following the Environmental Impact Statement and in consultation with local landowners and the communities affected.</p>	<p>There are specific concerns about the impact on the Green Belt, West Fields, the Orchards near Coton as well as the alignment close to Coton conservation area, and the busway section between St. Neots Road and the A428 at Hardwick.</p>	<p><i>C2C: Report to GCP Executive Board, 10 December 2020</i></p>

		<ul style="list-style-type: none"> <li>• Coton Conservation Area including Grade 1 listed Church.</li> <li>• Land parcels owned by Cambridge Past, Present and Future, which are protected by National Trust Covenants.</li> <li>• Fitting within available space in areas where the alignment passes relatively close to properties. For example, along some parts of the St Neots Road. Where necessary noise barriers will need to be explored as an option to ensure that traffic noise experienced by residents reduces.</li> <li>• Minimising the impact on the Coton Orchard and a City Wildlife Site, to the west and east of the M11 respectively which are bisected by the alignment for the preferred option</li> </ul>	
G.8	<p>Social Impact: Overall the scheme is assumed to benefit a range of social areas. Reduced accidents due to lower private vehicle use. Providing access to services, which are affordable is also assumed. Creating a more secure and easy to use bus service will attract a broader cohort of users.</p>	<p>Cost and accessibility is an issue for people on low incomes. High fares will reduce demand. The transport scheme needs to be financially sustainable and too many services with low patronage will drive costs up threatening service levels which in turn could reduce demand.</p>	<p><i>'C2C Outline Business Case, Economic Case GCP January 2020.</i></p>

**Table H: Financial Case**

	Assumptions	Constraints	Reference
	<b>H. Financial Case</b>		
H.1	<p>The current estimated capital cost of the off-road option is £160.5m, of which £37.7m is anticipated from Section 106 contributions from other third parties such as the developers of the Bourn Airfield site and West Cambridge. Developer contributions so far include:</p> <ul style="list-style-type: none"> <li>• Cambourne West: £8.7 million secured plus direct delivery of Broadway link (£400k) and internal route within site.</li> <li>• Bourn Airfield: £20 million (approved Heads of Terms – subject to S106) plus direct delivery of internal route within site.</li> <li>• West Cambridge: Not yet determined though £9 million is working assumption if approved</li> </ul>	<p>The estimated developer contributions are dependent upon ongoing assessments and negotiations and so are indicative at this stage. However, it is currently anticipated that between 20% and 25% of the scheme costs can be attributed to development and contributions secured accordingly. Any lower contributions would increase the financial risk of the scheme to the GCP.</p>	<i>C2C Outline Business Case, Financial Case GCP January 2020.</i>
H.2	<p>The estimated high-level scheme costs at this stage of the project's development are based on a range of assumptions and exclusions, which are detailed within OBC Appendix Q. These will be revisited and updated in the Full Business Case stage.</p>	<p>The financial case does not include Optimism Bias (currently 44%), which is used within the economic appraisal, but does include a risk allowance of 25%.</p>	<i>C2C Outline Business Case, Financial Case GCP January 2020.</i>

**Table I: Commercial Case**

	Assumptions	Constraints	Reference
	<b>I. Commercial Case</b>		
I.1	In the SOBC it was concluded that the commercial factors related to the delivery did not significantly differentiate between the options.	As part of the current stage of scheme development and the OBC, a design and build procurement has been selected as the preferred procurement strategy. However, this is subject to further review as part of the next stage of work in developing the scheme and informing the Full Business Case	<i>C2C Outline Business Case, Commercial Case GCP January 2020.</i>
I.2	The design and build model will provide GCP with more opportunity to drive value for money and more opportunity to transfer delay risk and interface risks to the contractor.	Adopting a design and build approach puts the responsibility for design, including integration, with the contractor and it would be the responsibility of GCP to define its requirements.	<i>C2C Outline Business Case, Commercial Case GCP January 2020.</i>
I.3	The operation of the current bus services along the C2C corridor is largely on a commercial basis. With regard to the new HQPT services which are expected to operate along the C2C infrastructure, it is not the intention of GCP to be directly involved in their procurement and control as that is not within GCP's powers.	<p>The potential public transport operating models currently available for the C2C project have been identified and the following issues and key questions considered:</p> <ul style="list-style-type: none"> <li>● Available operating models for providing services;</li> <li>● Appetite in the market to engage with those models;</li> <li>● Impact and influence on fares and patronage;</li> <li>● Risks; and,</li> <li>● Commercial implications of objectives for clean high-quality transport such as high frequency services operated by high quality electric vehicles.</li> </ul>	<i>C2C Outline Business Case, Commercial Case GCP January 2020.</i>

	<p>The proposed Bus Network Strategy is based around three direct express services as follows:</p> <ul style="list-style-type: none"> <li>● Cambourne to Cambridge City Centre at 10-minute interval service (6 buses per hour)</li> <li>● Cambourne to BioMedical Campus at 30-minute interval service (2 buses per hour)</li> <li>● A428 Park and Ride site to BioMedical Campus at 30-minute interval service (2 buses per hour during peak periods)</li> </ul> <p>In addition, passengers from Cambourne to Cambridge corridor services would also be able to interchange with the Universal service at West Cambridge which would serve Cambridge North Station and the Cambridge Science Park.</p> <ul style="list-style-type: none"> <li>● BioMedical Campus to Eddington at 15-minute interval service (4 buses per hour)</li> <li>● BioMedical Campus to Cambridge North Station &amp; Cambridge Science Park 30-minute interval service (2 buses per hour)</li> </ul>	<p>The routes and schedule are based on anticipated demand and are proposed routes only and have not been agreed with the existing route operators.</p> <ul style="list-style-type: none"> <li>● Any new Park &amp; Ride service will need to be to a standard similar to that currently operating for Cambridge's Park &amp; Ride services in accordance with the established minimum requirements.</li> <li>● Communities along the corridor are served by the Citi 4 Bus Service, amongst others. This is a stopping service which could provide a feeder for the busway. Whilst the decision as to future Bus Services lies with bus operators, the provision of the Busway should not prevent the provision of existing services.</li> <li>● All buses are now required to be accessible for all including wheelchair users.</li> <li>● The scheme must be capable of eventual upgrade to form part of the CAM network.</li> </ul>	
I.4	<p>The Local Transport Authority (LTA) that has the relevant powers is the Cambridgeshire &amp; Peterborough Combined Authority (CPCA).</p>	<p>The CPCA Mayor's recently commissioned Strategic Bus Review concluded that further work was required including procurement and completion of a business case to assess different delivery model options. Following completion of this latter piece of work, the CPCA Mayor is expected to make a decision on the future preferred option for delivering bus services in early 2021.</p>	<i>Strategic Bus Review Report, CPCA 2020</i>
I.5	<p>There are several options for the Busway maintenance which will be reviewed further at FBC.</p>	<p>The busway maintenance option decided upon will depend to an extent on the arrangement used for the Operation of the bus service, which is yet to be determined, as noted above.</p>	<i>C2C Outline Business Case, Commercial Case GCP January 2020.</i>

**Table J: Management Case**

	Assumptions	Constraints	Reference
	<b>J. Management Case</b>		
J.1	The management case also identifies the key risks and mitigations for the project. The management case does not differentiate in terms of the options under consideration.	<p>The success and financial viability of the C2C project will be dependent on several factors. Scheme design and delivery will therefore need to consider the following dependencies outlined in the OBC:</p> <ul style="list-style-type: none"> <li>• Delivery of housing and employment sites allocated within the South Cambridgeshire Local Plan</li> <li>• Emerging CPCA Policy specified in the Local Transport Plan. Also need to consider Cambridgeshire Transport Delivery Plan (TDP) for transport capital schemes on the local network to be delivered on a three year time frame and the Transport Investment Plan (TIP) that includes the C2C scheme, developed alongside the TDP to identify schemes to support growth</li> <li>• Monitor how development of CAM progresses as the C2C project aims to deliver the first phase of infrastructure for the larger CAM network</li> <li>• City Access Strategy which aims to improve congestion on routes into the City Centre which will be key to reducing the journey times for buses and therefore making the Park &amp; Ride attractive and successful</li> <li>• Oxford-Cambridge Arc. Both the dualling of the A428 between the A1 and Caxton roundabout and EW Railway will impact on the C2C route and whilst the scheme is not dependent directly upon these proposals, they may have a significant influence</li> </ul>	<i>C2C Outline Business Case, Management Case GCP January 2020.</i>

		<ul style="list-style-type: none"> <li>• Emerging Technologies. The final specification of C2C will be driven by technology advances and the range of solutions available at the procurement stage.</li> </ul>	
J.2	The Management Case reviews the process of public consultation and engagement. A communication plan sets out how this process is managed, identifying key stakeholders and how engagement is managed including the facilitation of a project specific Local Liaison Forum.	<p>Public and stakeholder consultation is essential to ensure that the various aspirations of the general public and key stakeholders are taken into account throughout development and delivery of the project and to manage the communication and flow of information relating to the project.</p>	<i>C2C Outline Business Case, Management Case GCP January 2020.</i>

**Table K: Full Business Case**

	Assumptions	Constraints	Reference
	<b>K. Full Business Case</b>		
K.1	The Full Business Case will develop the detailed design for the preferred scheme and update the appraisal for the economic case. Consultation and engagement with stakeholders and partners will continue through this stage. The risk register will identify outstanding issues that need remedial actions or mitigation measures.	Additional information for the financial, commercial and management cases will be provided together with recommendations on the necessary actions to proceed with the scheme.	<i>The Green Book: appraisal and evaluation in Central Government. HM Treasury 2020.</i>
K.2	Prepare an application for statutory consent anticipated in 2021 with a determination period estimated of around 18 months – completed in 2023.	Authority to construct the scheme is likely to come from a Transport and Works Act Order which would be determined by the Secretary of State for Transport. This process is likely to include a Public Inquiry directed by an independent Inspector	<i>C2C: Report to GCP Executive Board, 10 December 2020</i>
K.3	Prepare Environmental Impact Assessment and Environmental Statement	Work to be undertaken will include Environmental Impact Assessment as well as Transport Assessment, Road Safety Audit etc. This will draw on further work to be done on scheme design including mitigation measures and further stakeholder engagement.	<i>Report to GCP Executive Board, 10 December 2020</i>
K.4	Seek authority to construct project in 2023 depending on statutory powers process	Following the completion of the statutory permissions stage, the GCP Board will be presented with the Final Business Case for approval. This will trigger the construction of the project.	<i>Report to GCP Executive Board, 10 December 2020</i>
K.5	Opening of the scheme to operational services in 2025	Bus services schedule and routes will be determined in discussion with operators. Phasing in of services in response to planned growth and ridership demand	<i>Report to GCP Executive Board, 10 December 2020</i>

**Table L: Covid-19 Impacts**

	Assumptions	Constraints	Reference
	<b>L. Covid-19 Impacts</b>		
L.1	The implications of the global pandemic remain unknown. While there has been a short-term impact on the use of public transport, the longer-term impact is uncertain. The C2C scheme is consistent with the government's agenda for innovative public transport solutions and mode switching from private car use in support of climate change goals and net-zero carbon by 2050. So, the prospects for the scheme are considered good in the long-term. The assumption is that the impact of covid will not negatively affect the benefits of the scheme and the scheme remains viable.	This matter will remain under review. Scheme appraisal will be revisited at Full Business Case stage with sensitivity tests of varying levels of demand and wider economic impacts.	<i>Transport use during the covid pandemic. Transport use by mode: Great Britain, since 1st March 2020. Department for Transport.</i> <a href="https://www.gov.uk/government/statistics/transport-use-during-the-coronavirus-covid-19-pandemic">https://www.gov.uk/government/statistics/transport-use-during-the-coronavirus-covid-19-pandemic</a>

## Appendix B. List of Representations

*1<sup>st</sup> Round – February 2021*

Organisation	Title
National Trust	Consultation response 27/03/2019
Coton Parish Council	Submission to C2C Auditor 20/02/2021
Madingley Parish Council	A proposal for a busway through the Parish of Madingley does not make sense in a post pandemic world, and violate an international agreement between the UK and USA November 2020
Local Liason Forum (LLF)	Formal response to the public consultation of the Cambourne to Cambridge busway scheme 10/12/2017
Local Liaison Forum (LLF)	Submission by the Chair of the A428 Local Liasion Forum, for the Cambourne to Cambridge phase 2 public consultation 08/03/2019
Local Liaison Forum (LLF)	Letter to county councillors 10/06/2020
Cambridge Parish Councils	Letter of community consensus from cambridge parish councils, district councillors and community groups 01/05/2019
Greater Cambridgeshire Partnership	Mott Macdonald Technical Note, Northern Route via Girton 14/05/2019
Greater Cambridgeshire Partnership	Strutt & Parker Interim Addendum Report to Planning Appraisal, September 2019
Greater Cambridgeshire Partnership	Mott Macdonald Technical Note, Madingley Road 'Quick-Win' Options outline 14/05/2019
Greater Cambridgeshire Partnership	Arup Report on CAM 15/11/2018
Greater Cambridgeshire Partnership	Steer Davies Gleave report, Greater Cambridge Mass Transit Options Assessment Report, January 2018
Jacobs	Review of C2C against CAM objectives 26/06/2020
LDA Design	A238 Cambourne to Cambridge Segregated Bus Route, August 2017
Coton Parish Council	Richard Buxton Letter 19/09/2017
Coton Parish Council	Mark Abbott Letter 05/04/2018
Coton Parish Council	Richard Buxton Letter 25/10/2017
Coton Parish Council	Stop the C2C Busway Madness: The alternative is staring you in the face 13/01/2020
Arup	CAM Expert Advice 17/10/2018
Iain Spence	Personal Letter 10/03/2021

Coton Busway Action Group (CBAG)	Initial Submission to Independent Audit of Cambourne to Cambridge Busway (C2C), February 2021
Stephen Rose	Personal Email 12/03/2021
Shaun Hughes	Personal Email 15/03/2021
Rev David Instone-Brewer	Personal Email 09/03/2021
Hardwick Parish Council	History of the C2C off road busway, the impact on Hardwick and the Feedback on the Consultation Process 09/03/2021
Local Liaison Forum (LLF)	Letter to Peter Blake 11/06/2019
Local Liaison Forum (LLF)	Letter to Peter and Jo 18/04/2019
District Councillor for Girton	CAM Metro and Cambourne Guided Busway technical issues
Natural England	Cambourne to Cambridge Better Bus Journeys Phase One consultation letter 22/01/2018
Cambridge Past, Present & Future	Cambourne to Cambridge: In-Highway Proposals for High Quality Public Transport scheme 25/02/2021

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*2<sup>nd</sup> Round April 2021*

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Organisation	Title
Coton Busway Action Group (CBAG)	Statement of assumptions and constraints 25/04/2021
Coton Busway Action Group (CBAG)	Email April 2021
Coton Parish Council	Written representation on the Statement of Assumptions and Constraints 25/04/2021
Coton Parish Council	Email April 2021
Cambridge Past, Present and Future	Response to independent audit assumptions and constraints report 23/04/2021
Cambridge Past, Present and Future	Cover email 23/04/2021
National Trust	Independent Audit of the Cambourne to Cambridge Better Public Transport Project response 21/04/2021
Mayer Brown	Bourn Airfield, C2C Independent Review 15/04/2021
American Battle Monuments Commission	American Battle Monuments Commission (ABMC) Interests 25/04/2021
Sylvie and John Mann	Letter about the busway April 2021
Barton Parish Council	Barton Parish Council Response 24/04/2021

Cambridgeshire County Council	Cambridgeshire County Council comments on the C2C Audit: Statements of Assumptions and Constraints April 2021
James Littlewood	Cambourne Cambridge Independent Audit Response 23/04/2021
Cambridge Connect	Cambourne - Cambridge Bus Road (C2C) Independent Audit 25/04/2021
Cambridge autonomous metro (CAM)	C2C Independent Audit April 2021
Marian Green	Letter 08/04/2021
Hardwick Parish Council	Hardwick Parish Council Response to the C2C independent Audit Register of Assumptions and Constraints: 25/04/2021
John Goodacre	Independent response 21/04/2021
Natural England	Cambourne to Cambridge - Independent Audit Consultation from Share Intelligence Ltd 26/04/2021
James Palmer	Letter from the Mayor 24/03/2021
Local Liaison Forum	Cambourne to Cambridge Better Public Transport Project: Independent Audit, Statement of Assumptions and Constraints April 2021
Local Liaison Forum	Cover email 25/04/2021
NNRA	Independent Audit Review of Cambourne to Cambridge Public Transport Route response, 23/04/2021
Hardwick Climate Action Group	C2Caudit email 20/04/2021
Cllr Josh Matthews	C2Caudit email 24/04/2021
Robert Mann	Letter of concern 28/03/2021

## REFERENCES

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- <sup>i</sup> Greater Cambridge City Deal, Greater Cambridge Partnership 2014
- <sup>ii</sup> Transport Strategy for Cambridge and South Cambridgeshire, Cambridgeshire County Council 2014
- <sup>iii</sup> Strategic Economic Plan, Greater Cambridge Greater Peterborough Enterprise Partnership, 2014
- <sup>iv</sup> Cambridge Local Plan, Cambridge City Council 2018
- <sup>v</sup> South Cambridgeshire Local Plan Adopted, South Cambridgeshire District Council, 2018
- <sup>vi</sup> [https://assets.publishing.service.gov.uk/government/uploads/system/uploads/attachment\\_data/file/624990/transport-investment-strategy-web.pdf](https://assets.publishing.service.gov.uk/government/uploads/system/uploads/attachment_data/file/624990/transport-investment-strategy-web.pdf)
- <sup>vii</sup> Greater Cambridge Partnership. <https://www.greatercambridge.org.uk/>
- <sup>viii</sup> Cambourne to Cambridge Better Public Transport Project. Outline Business Case, January 2021.
- <sup>ix</sup> Options Assessment Report (Part 3). Outline Business Case: Appendix C, November 2019.
- <sup>x</sup> Strategic Economic Narrative and Economic Impacts Report: Outline Business Case – Appendix J, January 2020
- <sup>xi</sup> Cambridgeshire and Peterborough Independent Economic Review, Cambridgeshire and Peterborough Independent Economic Commission, 2018
- <sup>xii</sup> Cambridgeshire Autonomous Metro Strategic Outline Business Case, Cambridgeshire and Peterborough Combined Authority, 2019
- <sup>xiii</sup> Cambridgeshire Autonomous Metro. Optioneering and Route Corridors Report – Section for Western Portal. Jacobs, March 2021.
- <sup>xiv</sup> East West Railway Co., Making Meaningful Connections: Consultation Document, March 2021.
- <sup>xv</sup> Madingley Road ‘Quick Win’ Options Outline, Technical Note, Mott Macdonald, May 2019.
- <sup>xvi</sup> Cambourne to Cambridge Better Public Transport: Northern Route, Technical Note, Mott Macdonald, May 2018

## APPENDIX 2

### Local Liaison Forum representations to the Greater Cambridge Partnership

- The Cambourne to Cambridge Outline Business Case was presented to the LLF in a meeting on 27<sup>th</sup> January 2020. Subsequently, the C2C Executive Board item was deferred in light of objections from the Mayor, James Palmer.
- In a further LLF meeting on 2<sup>nd</sup> June, revisions to the preferred route alignment, returning to an original alignment approaching the city via the rifle range, were presented. Again, the Board item was deferred to consider an alternative proposal from the Mayor, James Palmer.
- On 8th December, a further LLF meeting was held to update on the project status and the recommendation to the Board to undertake an Independent Audit Review.

### LLF representation to GCP Executive Board Thursday 10th December 2020

Excerpt taken from full minutes published online -

[https://cambridgeshire.cmis.uk.com/CCC\\_live/Document.ashx?czJKcaeAi5tUFL1DTL2UE4zNRBcoShgo=1DkDNvrv8UdxLdf49FCwLpHBGpYvwsI%2fYr9kM6YKsWU%2fJCPVf5Y96Q%3d%3d&rUzwRPf%2bz3zd4E7lkn8Lyw%3d%3d=pwRE6AGJFLDNIh225F5QMaQWCtPHwdhUfcZ%2fLUQzgA2uL5jNRG4jdQ%3d%3d&mCTibCubSFxFsDGW9IXnlg%3d%3d=hFflUdN3100%3d&kCx1AnS9%2fpWZQ40DXFvdEw%3d%3d=hFflUdN3100%3d&uJovDxwdjMPoYv%2bAjvYtyA%3d%3d=ctNJff55vVA%3d&FgPIIEJYlotS%2bYGobi5oIA%3d%3d=NHdURQburHA%3d&d9Qji0ag1Pd993jsyOjqFvmyB7X0CSQK=ctNJff55vVA%3d&WGewmoAfeNR9xqBux0r1Q8Za60lavYmz=ctNJff55vVA%3d&WGewmoAfeNQ16B2MHuCpMRKZMwaG1PaO=ctNJff55vVA%3d](https://cambridgeshire.cmis.uk.com/CCC_live/Document.ashx?czJKcaeAi5tUFL1DTL2UE4zNRBcoShgo=1DkDNvrv8UdxLdf49FCwLpHBGpYvwsI%2fYr9kM6YKsWU%2fJCPVf5Y96Q%3d%3d&rUzwRPf%2bz3zd4E7lkn8Lyw%3d%3d=pwRE6AGJFLDNIh225F5QMaQWCtPHwdhUfcZ%2fLUQzgA2uL5jNRG4jdQ%3d%3d&mCTibCubSFxFsDGW9IXnlg%3d%3d=hFflUdN3100%3d&kCx1AnS9%2fpWZQ40DXFvdEw%3d%3d=hFflUdN3100%3d&uJovDxwdjMPoYv%2bAjvYtyA%3d%3d=ctNJff55vVA%3d&FgPIIEJYlotS%2bYGobi5oIA%3d%3d=NHdURQburHA%3d&d9Qji0ag1Pd993jsyOjqFvmyB7X0CSQK=ctNJff55vVA%3d&WGewmoAfeNR9xqBux0r1Q8Za60lavYmz=ctNJff55vVA%3d&WGewmoAfeNQ16B2MHuCpMRKZMwaG1PaO=ctNJff55vVA%3d)

8. Cambourne to Cambridge – Better Public Transport Project Helen Bradbury, Chairperson of the Cambourne to Cambridge Local Liaison Forum (LLF), attended the meeting to present feedback from the LLF virtual meeting held on 8 th December 2020. She reported the main areas of concern that had been discussed at the meeting, which included the alignment of the scheme to other major infrastructure projects, the consideration of alternative routes, the timing of the Environmental Impact Assessment, plans for the Hardwick section of the route, and the proposed independent audit. The Executive Board was informed that the LLF had agreed three resolutions, as set out in Appendix B.

### Appendix B – 10th December 2020 Greater Cambridge Partnership Executive Board Agenda Item 8 – ‘Cambourne to Cambridge – Better Public Transport Project’ Resolutions Agreed by the Cambourne to Cambridge Local Liaison Forum

1. The LLF opposes a premature decision on the current Cambourne to Cambridge busway scheme. It is unfit for purpose, anachronistic and environmentally damaging, and is now out of step with emerging proposals for East West Rail and CAM. The LLF recommends a pause until:
  - i) The Mayor’s CAM consultation has concluded and his proposed route suitable for autonomous vehicles, MRT and adaptable into a Metro is published;
  - ii) The location of a new east west rail station in Cambourne is confirmed and the business case for the busway reworked in light of its impact. This is a multi billion pound scheme that needs to be thoroughly understood first.

In the meantime, we support the Combined Authority's interim, high-quality bus priority measures and/or improved services on existing infrastructure that can support the Local Plan and provide immediate transport benefits to key employment locations while the bigger picture falls into place.

2. The LLF asks for input into shaping the EIA scoping exercise. The EIA should not start until after the independent audit concludes. The EIA should include a cultural heritage review of the entire landscape around the American Cemetery.

3. The LLF would welcome the decision of the GCP Board to appoint an independent auditor. This is the opportunity for the Board to build the trust of the local community in C2C process. For trust to be built in this way, the audit must demonstratively be independent, transparent and not controlled by GCP officers. For this to be achieved, in our view, the independent auditor should be appointed unanimously by the voting and non-voting members of the GCP Board and agreed by the MPs for South Cambridgeshire and Cambridge. The audit should be managed by a steering committee which is made up of people appointed by GCP and includes the LLF. The auditor should report to the steering committee which will have oversight over the audit process and undertake regular reviews of the progress and commenting on reports and other outputs by the auditor, and the audit should not be restricted to a narrow assessment of whether due process was followed, but will look at wider issues of how decisions were made.

### **GCP Joint Assembly November 19<sup>th</sup> 2020 to GCP Executive Board Thursday 10th December 2020**

As the project was on hold, no paper was submitted to the Joint Assembly and, as such, no LLF took place. The Joint Assembly, in reviewing the Quarterly Progress Report, noted that the project was on pause, pending direction from the Executive Board, and the Joint Assembly concluded the following:

*"Agreed to ask the GCP Executive Board to determine the next steps for the Cambourne to Cambridge project without further delay, emphasising the need for clarity on public policy such a large and important scheme. While recognising a difference of views among members, the Assembly acknowledged that an established consensus amongst the majority had been expressed at previous meetings."*

Whilst no further decision had been made, an on-line LLF was subsequently convened to notify stakeholders that the project would be discussed by the Executive Board, and the LLF made representation to the Executive Board rather than to the Joint Assembly.

### **LLF representation to the GCP Joint Assembly 4th June 2020**

Excerpt taken from full minutes published online -

[https://cambridgeshire.cmis.uk.com/CCC\\_live/Document.ashx?czJKcaeAi5tUFL1DTL2UE4zNRBcoShgo=7xNDO7MGQnqgpuU4jJh9h2F1r3mZQdTZGRcK25aYsJ1ARUvvVX9PJQ%3d%3d&rUzwRPf%2bZ3zd4E7Ikn8Lyw%3d%3d=pwRE6AGJFLDNIh225F5QMaQWCtPHwdhUfCZ%2fLUQzgA2uL5jNRG4jdQ%3d%3d&mCTibCubSFfXsDGW9IXnlg%3d%3d=hFflUdN3100%3d&kCx1AnS9%2fpWZQ40DXFvdEw%3d%3d=](https://cambridgeshire.cmis.uk.com/CCC_live/Document.ashx?czJKcaeAi5tUFL1DTL2UE4zNRBcoShgo=7xNDO7MGQnqgpuU4jJh9h2F1r3mZQdTZGRcK25aYsJ1ARUvvVX9PJQ%3d%3d&rUzwRPf%2bZ3zd4E7Ikn8Lyw%3d%3d=pwRE6AGJFLDNIh225F5QMaQWCtPHwdhUfCZ%2fLUQzgA2uL5jNRG4jdQ%3d%3d&mCTibCubSFfXsDGW9IXnlg%3d%3d=hFflUdN3100%3d&kCx1AnS9%2fpWZQ40DXFvdEw%3d%3d=)

[hFflUdN3100%3d&uJovDxwdjMPoYv%2bAJvYtyA%3d%3d=ctNJFf55vVA%3d&FgPIIEJYlotS%2bYGoBi5oIA%3d%3d=NHdURQburHA%3d&d9Qjj0ag1Pd993jsyOJqFvmyB7X0CSQK=ctNJFf55vVA%3d&WGewmoAfeNR9xqBux0r1Q8Za60lavYmz=ctNJFf55vVA%3d&WGewmoAfeNQ16B2MHuCpMRKZMwaG1PaO=ctNJFf55vVA%3d](https://cambridgeshire.cmis.uk.com/CCC_live/Document.ashx?czJKcaeAi5tUFL1DTL2UE4zNRBcoShgo=SWF%2fHSqDUMDalgom88Kv8X7YdhORiQ3aVgWdF8zmTUfTB7YdGQvEtq%3d%3d&rUzwRPf%2bZ3zd4E7lkn8Lyw%3d%3d=pwRE6AGJFLDNlh225F5QMaQWCtPHwdhUfCZ%2fLUQzqA2uL5jNRG4jdQ%3d%3d&mCTIbCubSFfXsDGW9IXnlq%3d%3d=hFflUdN3100%3d&kCx1AnS9%2fpWZQ40DXFvdEw%3d%3d=hFflUdN3100%3d&uJovDxwdjMPoYv%2bAJvYtyA%3d%3d=ctNJFf55vVA%3d&FgPIIEJYlotS%2bYGoBi5oIA%3d%3d=NHdURQburHA%3d&d9Qjj0ag1Pd993jsyOJqFvmyB7X0CSQK=ctNJFf55vVA%3d&WGewmoAfeNR9xqBux0r1Q8Za60lavYmz=ctNJFf55vVA%3d&WGewmoAfeNQ16B2MHuCpMRKZMwaG1PaO=ctNJFf55vVA%3d)

Helen Bradbury, Chairperson of the Cambourne to Cambridge LLF, attended the meeting to present feedback from the LLF virtual meeting held on 2nd June 2020. She summarised three main areas of concern expressed at the meeting, including the impact on the communities and environment along the route, the design and value for money of the scheme, and the timing of the project.

The Joint Assembly was informed that the following resolutions had been agreed at the meeting:

- The LLF opposes a premature decision on the current Cambourne to Cambridge busway scheme. It is unfit for purpose, anachronistic and environmentally damaging, and is now out of step with emerging proposals for East West Rail and CAM.
- The LLF recommends a pause until:
  - The Mayor's CAM consultation has concluded and his proposed route suitable for autonomous vehicles, MRT and adaptable into a Metro is published; and
  - The location of a new east west rail station in Cambourne is confirmed and the business case for a busway reworked in light of its impact. This is a multibillion pound scheme that needs to be thoroughly understood first.
- In the meantime, the LLF supports the development of interim, high-quality bus priority measures and/or improved services on existing infrastructure that can support the Local Plan and provide immediate transport benefits to key employment locations whilst the bigger picture falls into place.

### **LLF representation to the GCP Joint Assembly 30 January 2020**

Excerpt taken from full minutes published online –

[https://cambridgeshire.cmis.uk.com/CCC\\_live/Document.ashx?czJKcaeAi5tUFL1DTL2UE4zNRBcoShgo=SWF%2fHSqDUMDalgom88Kv8X7YdhORiQ3aVgWdF8zmTUfTB7YdGQvEtq%3d%3d&rUzwRPf%2bZ3zd4E7lkn8Lyw%3d%3d=pwRE6AGJFLDNlh225F5QMaQWCtPHwdhUfCZ%2fLUQzqA2uL5jNRG4jdQ%3d%3d&mCTIbCubSFfXsDGW9IXnlq%3d%3d=hFflUdN3100%3d&kCx1AnS9%2fpWZQ40DXFvdEw%3d%3d=hFflUdN3100%3d&uJovDxwdjMPoYv%2bAJvYtyA%3d%3d=ctNJFf55vVA%3d&FgPIIEJYlotS%2bYGoBi5oIA%3d%3d=NHdURQburHA%3d&d9Qjj0ag1Pd993jsyOJqFvmyB7X0CSQK=ctNJFf55vVA%3d&WGewmoAfeNR9xqBux0r1Q8Za60lavYmz=ctNJFf55vVA%3d&WGewmoAfeNQ16B2MHuCpMRKZMwaG1PaO=ctNJFf55vVA%3d](https://cambridgeshire.cmis.uk.com/CCC_live/Document.ashx?czJKcaeAi5tUFL1DTL2UE4zNRBcoShgo=SWF%2fHSqDUMDalgom88Kv8X7YdhORiQ3aVgWdF8zmTUfTB7YdGQvEtq%3d%3d&rUzwRPf%2bZ3zd4E7lkn8Lyw%3d%3d=pwRE6AGJFLDNlh225F5QMaQWCtPHwdhUfCZ%2fLUQzqA2uL5jNRG4jdQ%3d%3d&mCTIbCubSFfXsDGW9IXnlq%3d%3d=hFflUdN3100%3d&kCx1AnS9%2fpWZQ40DXFvdEw%3d%3d=hFflUdN3100%3d&uJovDxwdjMPoYv%2bAJvYtyA%3d%3d=ctNJFf55vVA%3d&FgPIIEJYlotS%2bYGoBi5oIA%3d%3d=NHdURQburHA%3d&d9Qjj0ag1Pd993jsyOJqFvmyB7X0CSQK=ctNJFf55vVA%3d&WGewmoAfeNR9xqBux0r1Q8Za60lavYmz=ctNJFf55vVA%3d&WGewmoAfeNQ16B2MHuCpMRKZMwaG1PaO=ctNJFf55vVA%3d)

Helen Bradbury, Chairperson of the Cambourne to Cambridge Local Liaison Forum (LLF), attended the meeting to present feedback from the LLF meeting on 27th January 2020. She also took the opportunity to remind the Joint Assembly of resolutions passed at the earlier meeting in June 2019. It was noted that at the most recent meeting the following recommendation had been unanimously agreed:

The LLF asks GCP to pause the C2C scheme whilst the impact of the new rail service is assessed and the business case for the bus road is revised.

## **LLF meeting minutes (Draft) 8 December 2020**

Pending online publication

### **Notes from the Cambourne to Cambridge LLF Meeting Tuesday 8 December 2020**

**The below is not intended to be a verbatim account. The meeting in full can be viewed here: [GCP Cambourne to Cambridge LLF 08 12 2020 \(complete\) - YouTube](#)**

**Date:** Tuesday 8 December 2020

**Time:** 18.00-20.00

**Venue:** Online, via Zoom Webinar

#### **Present - GCP Officers**

Jo Baker – Project Manager

Peter Blake – Transport Director

Tom Bennett – Head of Communications

Debbie Goodland - Community Engagement Manager

Laura Gates – Strategic Communications Manager

Alasdair McWilliams – Digital Media Officer

Jane Grant – Communications and Engagement Officer

#### **Observing**

Councillor Roger Hickford – GCP Executive Board

Councillor Lewis Herbert – GCP Executive Board

Claire Ruskin – GCP Executive Board

Councillor Dave Baigent

#### **Present - LLF Members – designated as ‘Panellists’ for Zoom Webinar purposes**

Helen Bradbury

Chair

Ruth Betson

District Councillor, Cambourne

Dr Shrobona Bhattacharya

District Councillor, Cambourne

Steve Jones

Spokesperson, Coalition of 22 Parish Councils

Grenville Chamberlain

District Councillor, Hardwick

Lina Nieto

County Councillor, Hardwick

Tom Bygott

District Councillor, Girton & Dry Drayton

Dr Gabriel Fox

Parish Councillor, Coton

James Littlewood

Cambridge Past Present & Future

Dr Markus Gehring

City Councillor, Newnham

Josh Matthews

City Councillor, Newnham

Chris Pratten

Save West Fields

There were 62 who were participating in the meeting as 'Attendees'.

**Apologies:**

None noted

*Meeting commenced at 6.08pm*

**1. Introduction and Welcome by Chair**

The Chair opened the meeting by welcoming everyone and introducing herself. She commenced the meeting by reading the statement transcribed below:

Welcome everybody to the Cambourne to Cambridge LLF. As in June, it is a webinar meeting and so we will do our best to cope with the technology.

The first thing is that the position of Vice Chair has become vacant, and I would like to greatly thank Phil Allen for his support when in the role, but he has resigned as a councillor. Emerging as front runner for the position is Grenville Chamberlain so unless anybody has any objections now, I suggest we go ahead and appoint him. No objections.

As instructed by members after the last meeting, I wrote to the senior management of GCP expressing our concern at the unreasonably short time scale given to us to organise the meeting: five working days, the very minimum commensurate with our terms of reference. It is extremely difficult as I'm sure as everyone will appreciate, particularly for those representing larger bodies, to operate to this time scale. I did receive reassurances at the time but then was given a choice of four and a half or five and a half working days to organize and hold this meeting, so I'm sure members will want me to raise the issue again.

The proposals in the latest papers are virtually unchanged from June. Therefore, I think without fear of contradiction this time, we can say that our June concerns have not been addressed, so members may wish to consider reissuing our resolution from the June meeting.

Reading the minutes of June again, I am struck by the deeply entrenched stalemate. GCP clearly wants to get C2C done, but residents and their representatives are still not convinced it makes economic sense nor that it is based in logic nor that viable alternatives have been meaningfully explored. Underlying it all is the concern that in an attempt to respond to the time scale of Bourn Airfield in west Cambourne, GCP are not developing an effective transport scheme that complements the £multi-billion East West rail investment at Cambourne, nor one that is optimal for a future autonomous metro. These very considerable constraints continue to be trivialised in the latest reports as do the very considerable impacts on village homes and the environment along the route.

Since that time the Mayor's (James Palmer's) attempts to develop alternative alignments appear to have been stopped before they really got going, and according to the latest papers, he no longer has a mandate to develop alternative alignments

for his own scheme, which is just bewildering. What was really particularly disappointing for the LLF though was that an alignment via the Girton Interchange was not part of that review. This, as the LLF has consistently stated, has potential to deliver significant improvements to the modal shift, passenger numbers and connectivity over the preferred option and would use an existing transport corridor thus avoiding the most contentious impacts of the preferred option. The LLF would be very happy to work with the Mayor, GCP and others to develop this alternative.

Entrenched stalemate it seems to be though, so I do think the LLF should welcome the independent audit proposed in the latest papers but with some caution. History tells us that previous independent reviews requested by the LLF have not proved to be independent. Members will remember specifically the controversial ARUP report of November 2018 which essentially took five pages to conclude that GCP's preferred corridor was optimal for CAM, the introduction of which had represented a significant moving of the goal posts. No new alignments were considered, and GCP senior management were shown to have heavily influenced the final drafts. Then there were the Mott McDonald technical notes on Quick Wins and a northern alignment via the Girton Interchange of May 2019. Regarding the latter, the Girton option: despite legitimately being able to claim extensive interaction with the LLF technical group, the final report was written without a busway drawn in and no analysis of its potential benefits, wider economic or otherwise. The technical group believed it was set up to fail so as Chair of this body, I suggest GCP must demonstrate unequivocally this time that this audit will be independent, meaningful and credible for its conclusions to be trusted, and I suggest to members that the second half of this meeting is largely devoted to discussing that.

There were a lot of questions submitted and we cannot hope to deal with them all in the time allocated. For efficiency I have asked Steve Jones, Convener of the body representing 21 parish councils west of Cambridge, but also an experienced facilitator for the UN to handle that part of the meeting for us and the interaction with the public throughout the meeting. The questions will be grouped and paraphrased by him, and there will be an opportunity for panellists to ask for clarifications on the answers given.

## **2. Minutes of last meeting**

As stated above, the Chair noted that the minutes from the last meeting were accurate. They can be accessed from the GCP Cambourne to Cambridge LLF web page.

**3. GCP Presentation – Cambourne to Cambridge Better Public Transport Project**  
GCP Transport Director Peter Blake presented the strategic case for the project and summarised the process to date. Slides available to view here:  
<https://www.greatercambridge.org.uk/asset-library/Transport/Transport-Projects/C2C/C2C-LLF-08-12-2020-Presentation.pdf>

## **4. Questions**

Steve Jones paraphrased / summarised the questions, which had been submitted in advance, grouping some of them by theme. A transcript of reply and discussion follows each

section, which concludes with the formal GCP response. Questions, including those not answered in this meeting, and formal GCP response, are available on the GCP Cambourne to Cambridge LLF web page [C2C LLF questions and answers 08-12-20  
\(greatercambridge.org.uk\)](http://C2C%20LLF%20questions%20and%20answers%2008-12-20%20(greatercambridge.org.uk))

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### **Question**

The residents of the 102 homes located on St Neots Road no doubt selected their homes carefully with their long-term futures at the forefront of their minds. For the past 5 years, since the GCP announced their chosen route, those homes have been blighted and the residents have been living in fear of being placed in a situation similar to London's North Circular Road with 8 lanes of live traffic running directly past their properties. This is akin to purgatory and is not seen anywhere else in the County, rarely in the Country, let alone in a village in South Cambridgeshire.

The LLF has been asking for many months for detailed plans and elevations of your proposals but none have been forthcoming and despite your assurance that many trees would remain post construction and that adequate land was available we now find that neither is the case; that virtually all the mature trees will be cut down and you are negotiating with Highways England to purchase some of their land as the available land is inadequate for your purposes.

It is, in my view, completely unacceptable to leave the 100+ families in such purgatory and I now look to you to provide those detailed maps and elevations together with assurances that the proposed audit will be required to operate in a manner which is balanced and considers the impact upon residents central to its objectives.

Will you take the opportunity this evening to assure residents that their best interests will be at the heart of the audit and EIA in due course should it proceed?

### **Reply 14.22**

#### **Peter Blake:**

The C2C scheme has been paused for some time and the project team stood down. There has been no further work on this or discussion with Highways England. We can provide detailed plans and elevations when we are in a position to do so, but this would not be until after an audit.

#### **Grenville Chamberlain:**

I reserve the right to come back later in the meeting if I do not receive a satisfactory answer to the final paragraph.

### **Formal reply as posted on website**

The C2C scheme has been paused for some time, the project team stood down and during this time no work has taken place. This was a recommendation from the LLF earlier this year. There have been no discussions with Highways England. More detailed plans and elevations can be prepared if the Board agrees to the recommendations. As soon as we are in a position to share detailed designs we will do so. Subject to Board agreement, the Partnership will proceed to undertake an independent audit. The process will be fully transparent and as more detail is available this would be shared. The audit will review the assumptions and constraints that underpin the outline business case for C2C scheme and the elimination of alternative options, including consideration of the evidence submitted to

date. As Cllr Chamberlain is aware, previous to this delay, GCP officers regularly attended Hardwick Parish Council meetings and held a number of events in Hardwick to hear and respond to resident's concerns. Planned attendance at a summer Hardwick PC meeting was postponed when the scheme was paused.

### **Questions (3 grouped)**

1. The lack of depth in analysis of the potential effect of East West Rail on the already weak business case for the GCP's preferred option is astounding. Once there is a train travelling from the direction of St Neots through Cambourne directly to the biomedical campus and on to the city centre, what incentive will there be to take a bus to Grange Road?

What evidence is there for the statement on page 67 6.22 that 'it is unlikely that EWR will have an impact on the core business case for C2C?

.....  
.....

2. We are currently in the midst of a pandemic. Traffic levels are much reduced and no-one can predict what the traffic levels will look like in 3-5 years. The majority of companies have stated that their employees will not return to the office full time and that working from home will continue.

My questions are therefore:

- a: Given the above, on what basis have the Officers made the statement that "schemes such as Cambourne to Cambridge will be stronger as a result of Covid-19"?
  - b: How can the GCP continue with a route based on historic and inaccurate data?
  - c: Why has the whole scheme not been put on hold until we have a clearer view of what the future traffic levels will look like?
- .....  
.....

3. It is disappointing and misleading to see the shocking degree of poetic licence in the current GCP C2C papers. There is a lack of rigour that borders on incompetence.

Travel to work data is based on 2011 ONS figures. This data was collected before much of the current growth had occurred on the biomedical campus and the science Park. Where is the evidence that residents to the west of Cambridge will wish to travel to Grange Road by bus? There has been a trend towards homeworking particularly in high-tech industries, city stores are closing and going into administration. On page 159 of the papers in the employer's travel to work since Covid-19 survey it states 'The majority of respondents indicated that employees would be travelling for work 'less than pre-Covid-19 in 3 to 5 years' time'.

On page 57, 1.13 it is stated that there has been' a short term (but there is no evidence for this being only short term) 'move away from public transport but that the case for schemes such as C2C will be stronger as a result of COVID-19'.

From where have you obtained your evidence for this extraordinary statement?

**Reply 17.30****Peter Blake:**

Concerning the East West rail, we are obliged to follow DfT process and assess only committed schemes. The East West rail is not yet committed and not yet sufficiently advanced for us to assess it. However, the plan for the scheme is to help deliver significant levels of growth and more than one million new homes. If and when the scheme comes along, there will be significant extra numbers of people wanting to go to, for example, the Biomedical Campus, the west and western / northern part of the city, and we will need a variety of options to do that in the 2030s.

Concerning COVID-19, there has been a marked impact on public transport, with people feeling less safe using it. However, we will need to support local growth, and problems of air quality, carbon and congestion will not go away. There is a case for creating attractive and reliable public transport, and this will need to be even stronger to coax people out of their cars. We are expecting revised business case guidance from the DfT early in the new year and also from the Treasury Green Book, which supports schemes with strategically strong business cases such as C2C and similar schemes.

**Steve Jones:**

Coming back to the point 'the case will be stronger as a result of COVID' – what do you think has happened in the last twelve months that will make more people want to travel on the busway?

**Peter Blake:**

Significant growth is predicted. We will need to make sure we deliver attractive public transport and encourage people to walk to cycle. We expect the DfT guidance and Treasury Green Book to reflect that.

**Steve Jones:**

I still don't see that you've answered the question.

**Jo Baker:**

The impact of COVID is two-fold. Firstly fewer people are travelling to work. Secondly, people are wary of using public transport. COVID has made the process of trying to coax people out of their cars even more of a challenge. The need to address congestion and air quality has become even more pressing. When we say 'case', we mean for a more strategic intervention, rather than just for this scheme.

**Steve Jones:**

So people will want to ride on buses more, and policy makers want to encourage this because of COVID.

**Jo Baker:**

No. It will be even harder to coax people out of their cars. Further intervention is needed.

**Gabriel Fox:**

People don't want to use public transport at the moment. More people are working from home. The first point will resolve itself over the next couple of years, but there could be a future percentage change in people working from home. This means that roads will flow more easily and therefore a segregated route will not be needed. We therefore need better on-road public transport.

**Jo Baker:**

No-one knows exactly what will happen, but we are seeing traffic build up. People will revert to their workplace – not people in knowledge-based work perhaps but health care and retail for example.

There is a lot of suppressed demand for car use which will increase with 6,000 new homes.

**James Littlewood:**

Concerning demand management, the solution is a much better bus service. With fewer cars, buses can run on time, and we don't therefore need a busway.

**Markus Gehring:**

Do you really think your analysis of East West Rail is adequate and that buses will be able to compete commercially with a train track, especially as the buses only go to Grange Road. How can you say there is no impact on the business case when the busway will be there for the next 30 years?

**Peter Blake:**

We are obliged to follow DfT guidelines. East West Rail is not yet a committed scheme but we will continue to consider it. Yes, more infrastructure and services will be needed with a million more homes.

**Formal replies as posted on website:**

To first question:

The C2C route supports growth in the Local Plan and is specifically required to unlock development at the New Village at Bourn Airfield of approximately 3,500 homes. This position was acknowledged in the Local Plan Inquiry. The EWR project, which is not yet a committed project, will support delivery of 1m additional homes in the OxCam Arc over a much longer timeframe. The C2C project is one of four public transport routes that together create vital links between new developments in the Local Plan and key employment hubs across the city including the City Centre, Biomedical Campus and Science Park, and, in the future, can form an integral part of the CPC's CAM network. 6 GCP's plans are continually reviewed to ensure compliance with local strategies and have been designed to be adaptable to developing CAM proposals. Going forward, officers are committed to continuing close working with the CPC and also with East West Rail to ensure alignment with the emerging Bedford to Cambridge route and Cambourne station location. Integration is a key part of the C2C project. At this point in time, EWR have still

not determined a station location and, indeed, there is no formal commitment to delivery of this section of EWR. As EWR proceeds, we will continue to work with them to ensure that the schemes are mutually supportive. EWR have stated a commitment to "integrate with proposed improvements to the local transport network in south Cambridgeshire such as the busway extension".

To second question:

In a context where confidence in public transport has been eroded and people are returning to cars more quickly than any other mode, the need to provide quality, reliable public transport options to avoid future pressure on the network is stronger. In Greater Cambridge, people are returning to cars more quickly than any other mode and morning and afternoon travel peaks have returned. For C2C, the case for providing public transport, cycling and walking connections for new and growing communities in the Local Plan to the west of the city remains. A public transport route between Cambourne to Cambridge is specifically required to unlock development at the New Village at Bourn Airfield of approximately 3,500 homes. We will continue to monitor the situation and emerging data. The C2C OBC will be reviewed in advance of application to reflect relevant longer term impacts of COVID once more is known.

To third question:

In a context where confidence in public transport has been eroded and people are returning to cars more quickly than any other mode, the need to provide quality, reliable public transport options to encourage people out of private vehicles and avoid future pressure on the network is stronger. In Greater Cambridge, people are returning to cars more quickly than any other mode and morning and afternoon travel peaks have returned. For C2C, the case for providing public transport, cycling and walking connections for new and growing communities in the Local Plan to the west of the city remains. We will continue to monitor the impacts of COVID, draw on emerging data and review the project's business case in advance of application once more is known. However, there remains an urgent need to progress planning to provide better, reliable public transport and cycling and walking connections for new and growing communities. The project is one of four public transport routes that together create vital links between new developments in the Local Plan and key employment hubs including West Cambridge, City Centre, Biomedical Campus and Science Park. Services will not stop or terminate at Grange Road, as has been made clear previously.

### **Question**

In its various concepts and plans, has the GCP considered an integrated solution for all transport solutions arriving to the north of Cambourne on the A428, ie train, metro and bus? If yes, can you please give details; if not, can you please consider it and give us a timeframe in which you will do so?

We believe that creating a travel hub in this location will deliver the fast, reliable and affordable transport that the 12,000 residents of Cambourne, the first town of South Cambridgeshire, need and should be entitled to.

### **Reply 32.17**

**Peter Blake:**

We have looked at integration both north and south of Cambourne, depending on which option for a station East West Rail goes for. We expect to hear in the new year.

**Ruth Betson:**

You say that you have considered it, but when will we get more detail and be able to assess what you are doing?

**Peter Blake:**

We are waiting for East West Rail re their consultation early next year and the location of the station later in the year. Our scheme is deliberately flexible, and we are working with colleagues at CAPC.

**Ruth Betson:**

So as soon as there is an East West announcement, you can tell us the detail.

**Peter Blake:**

Yes, depending on the location of the station.

**Formal reply as posted on website:**

The GCP has considered integrated solutions to the north and south of Cambourne. Integration is a key part of the C2C project and proposals have been designed to be adaptable to emerging CAM and EWR proposals as they are confirmed, as was demonstrated with the alternative routes at Cambourne in the 2019 phase 2 consultation. Any interchange with rail services is dependent on EWR's selected station location and GCP officers are liaising closely with both EWR and CPCPA officers regarding the future CAM. GCP is supportive of the principle of a Travel Hub, and to working with EWR, CPCPA, CTC and other stakeholders once there is clarity as to the location of the EWR station. As Cllr Betson is aware, previous to the delay, GCP officers regularly attended Cambourne Town Council meetings and held a number of events in Cambourne. A planned meeting to discuss a potential travel hub with Cambourne Town Council has been postponed for some time due to the need to understand where the EWR station might be.

**Question**

We welcome the decision of the GCP Board to appoint an internal auditor. This is an opportunity for the Board to build the trust of the local community in the C2C process. For trust to be built in this way, the audit must be demonstrably independent. For this to be achieved, in our view:

- The audit should be managed by a steering committee (SC), which is made up of people appointed by GCP and the LLF. The auditor should report to the SC, which will have oversight of the audit process including drafting and agreeing the Terms of Reference, selection of the auditor, regular reviews of progress and commenting on reports and other outputs by the auditor.
- The audit should not be restricted to a narrow assessment of whether due process was followed but will look at wider issues of how decisions were made.

Do officers agree with this proposal?

**Reply 35.23**

**Peter Blake:**

We have never appointed an internal auditor before. It is worth noting that ARUP was appointed by the CAPD. The GCP Board will lead with commissioning an auditor, who will then develop the brief and appoint a traffic expert.

**Steve Jones:**

The independent auditor will be paid by you and report to you. How can we assume they are independent?

**Peter Blake:**

One person will outline the case to all stakeholders, then appoint a technical expert in accordance with DfT guidelines.

**Steve Jones:**

How will you select this person? By advertising? Will it be someone you know?

**Peter Blake:**

We are still working on this. We will take the recommendation to the Board, and they will decide whether to proceed or not.

**Steve Jones:**

We will be discussing this in the next part of the meeting.

**Grenville Chamberlain:**

Trust is a major point. I would like an answer to the question: 'Would you like to take the opportunity this evening to reassure residents that their best interests will be at the heart of both the independent audit and the EIA, should it proceed in due course?'

**Peter Blake:**

The independent audit and EIA will be in the best interests of all residents, businesses and communities within our area. All information will be transparent and publicly available. We will be trying to do our best with the various competing demands that we have.

**Formal reply as posted on website:**

Subject to Board agreement, as the scheme promoter, it is right that the GCP Board would lead the audit commissioning process. Written submissions would be welcomed from members of the LLF and any other stakeholder wishing to contribute. The process will be fully transparent and as more detail is available this would be shared. The audit will review the assumptions and constraints that underpin the outline business case for C2C scheme and the elimination of alternative options, including consideration of the evidence submitted to date.

**Question**

Can GCP officers assure the LLF that an Environmental Impact Assessment (EIA) of the 'preferred option' will not be progressed until the Independent Audit is completed? To do so would send a strong signal to the public that the proposed Audit is simply being set up to validate GCP's work to date.

Also, in the event of 'preferred route' being shown to be non-optimal, having progressed with the EIA on a non-optimal route would be an unacceptable waste of public money.

**Reply 40.36****Peter Blake:**

The process is that only after the independent audit will that EIA public consultation be undertaken. In addition, the project team needs to be up and running again, which will take some time, and they will carry out some initial design work on the EIA, but the EIA cannot happen before the audit.

**Formal reply as posted on website**

Public consultation is an integral, substantial part of the EIA and will not take place until after the audit reports. After a lengthy delay, we are recommending that an officer team be reinstated and initiate work on design and the process of an Environmental Impact Assessment. Many questions asked by the public can only be answered with the evidence gathered as part of the EIA.

**Question**

We note in the GCP Board papers that the mayor's efforts to develop a northern route for the C2C scheme seem to have been blocked. An alignment via a Park & Ride at the Girton Interchange would seem to have a number of benefits, including:

- Passengers coming from the north and midlands (A14/M11)
- Passengers from Eddington and Girton
- Shorter shuttle route to P&R for operators (for inner CAM)
- Maintains new infrastructure within existing infrastructure corridor

Do officers agree?

**Reply 42.56****Peter Blake:**

We looked at routes to the north, but in terms of supplying development along the A428 corridor, they are slower, more expensive and require improvements to the Girton Interchange. We did petition Highways England, but this will not be happening for the foreseeable future.

**James Littlewood:**

Can you answer the question? Do you agree that having an interchange in that location would provide benefit?

**Peter Blake:**

Of course a P&R at Girton would benefit people coming from the north and Midlands, but Girton is not the location which delivers what we need here.

**Helen Bradbury:**

In your technical review you didn't look at any benefits. You just concluded that it would take longer, and we'd have to wait for improvements to the Girton Interchange, which is not necessarily the case. We had disagreements with you about the scope of the report. Benefits ought to have been assessed and a busway drawn in.

**Peter Blake:**

James is correct in saying this would support people from the north and Midlands. A Park & Ride will help them but not would not support the A428 corridor.

**Steve Jones:**

The independent auditor can look at this.

**Helen Bradbury:**

In 2018, when C2C was subsumed into CAM, you should have looked at west Cambridge and at the highest potential for integration and modal shift.

**Formal reply as posted on website**

A route and Park & Ride at Girton Interchange may well have benefits for those coming in from the north and midlands. GCP has previously petitioned Highways England in correspondence and meetings to put the case for work to upgrade to Girton Interchange and enable movement between west and south. However a route/Park and Ride at Girton:

- does not best support developments primarily south of the A428 - longer and more expensive
- would not be accessible from the A428 west without major changes at Girton Interchange which are not currently planned

As part of a full and transparent appraisal process, compliant with DfT guidance, the GCP has readily and regularly considered, documented and published deliberation of alternative routes, including northern alignments and proposals from stakeholders. All are published online.

Alternative northern routes were recently discussed at the Combined Authority's Transport & Infrastructure Committee on 4 November when it was confirmed that northern routes were more expensive and performed less favourably than the current GCP proposal. The CPCPA T&I Committee did not support the northern alignment and an alternative proposal has not at this point been put forward by the CPCPA to the Executive Board.

## **Question**

Why has a northern route been proposed by the Mayor when he must know that a route through the parish of Madingley was discounted in 2016, following 'high level assessment and public consultation' and, again, in 2019 when Mott Macdonald carried out a further assessment for GCT to make quite sure?

Natural England and Cambridge University objected because the route was too close to Madingley Wood, an SSSI, and Historic England objected because of the impact on the American Cemetery, the most significant permanent American WW2 memorial in the UK. The Cemetery was created on land given by the University in 1943 and in 1954 Foreign Secretary Anthony Eden promised that 'the area ... will be restricted to agricultural use'. This is why the A428 had to be put in a cutting.

**Note: this question was alluded to, as shown below, but not read out or discussed. It is included for clarity.**

## **Reply 47.50**

### **Steve Jones:**

Yes, we have a question about Madingley which also agrees that this is not a desirable scheme.

### **Helen Bradbury:**

Actually, the question is referring to the route north of the cemetery.

## **Formal reply as posted on website**

The GCP proposed route advances a route to the south of the A428, as the most sensitive sites in the C2C corridor lie to the north. A full and transparent Department for Transport (DfT) compliant appraisal process, conducted over five years has narrowed down options in order to present a preferred scheme running primarily offroad to the south of the A428. As confirmed by officers to the November 2020 T&I Committee, the northern alternative is more expensive and performs less favourably than the GCP recommended Preferred Route. The CPCA has not presented an alternative alignment that performs better than the GCP proposals in meeting the objectives of the scheme to serve growing communities and offer a viable alternative to car use to address congestion which is forecast to build on the A1303.

## **Questions (2 groups)**

1.

A1. How can you justify a business case for a road that does not reach its destination - the City Centre? It is the same as proposing to build a bridge that goes half way across a river.

A2. Do you realise what a terrible eyesore your proposed Bin Brook flyover will be, not to mention the huge harm it will cause to Clare Hall?

.....  
.....  
2.

The last report that discusses possible bus routes that might use the C2C infrastructure suggests only a single route will, in fact, use the section of C2C over the West Fields. Other routes suggested use Madingley Road or come via the M11. (C2C- Jan 2020 - App 1 - Bus Strategy Report)

The agenda pack from 30th Jan only provides details of inbounded timings, even for the evening peak.(page 127 - Table 4: C2C preferred option benefits vs Do Minimum (DM)) .

- B1. Would officers agree that the report should show timings for outbound travel from Drummer Street, as well as inbound (particularly for the evening peak)?
- B2. Could officers provide an update to table 4 to show figures for outbound travel? Could officers also provide details of the DM route and references for the source data?

#### **Reply 49.35**

##### **Peter Blake:**

The major problem is in the morning, although problems were increasing in the evening pre-COVID. Construction ends at Grange Road as that is as close to the city centre that we can get without bulldozing properties. The services will cover the segregated section as much as possible then continue to Drummond Street, the Biomedical Campus and beyond. Once CAM is operational, the route will go into the tunnel under the city.

##### **Chris Pratten:**

You are only presenting to the Board data about incoming buses. Are you justifying a one-direction route? There have been lots of discussions about how a one-way route would work. Is this a two-way route or not? If two-way, you need to look at how buses will get out at the end of the day and produce timings.

##### **Jo Baker:**

In the modelling for the business case, we have looked at both directions. We have provided a reasonably succinct report to the Board which picks out from a large amount of data what we think is the main issue, the morning peak hour as that is the biggest problem (although the evening peak hour is deteriorating). However, the business case looks at all movements in and out of the city.

##### **Chris Pratten:**

I don't accept that. I think that the report to the Board is deliberately misleading. There is no clear information about how buses get out of Cambridge or timings.

#### **Formal reply as posted on website**

To first question:

The scheme forms part of a network across the city and will reach key employment hubs, including the West Cambridge site, City Centre, Biomedical Campus and Science Park.

GCP Officers have already and will continue to be in discussions with Clare Hall to address any concerns.

To second question:

The AM Inbound data is provided because it is the morning peak hour which currently causes the greatest problems. The Do-Minimum assumes buses continue to Drummer Street as they do now.

### **Question**

Cambourne and its residents urgently need a fast, reliable, and affordable public transport service going to their workplaces. It has been long time that we had been in static situation because we value the concerns raised by the communities affected along the route and their villages. Cambourne Town Council supports the proposed off-road solution and Town council had never favoured any specific route.

County Councillor Mark Howell and I met the directors of the local bus authorities a few times and I always prefer a revised, regular bus system covering more key destinations and routes which are also cheaper. Bus services were criticised being slow because of their long routes and covering as many as destinations by one single bus. That can be easily solved having fast efficient office going routes through existing roads i.e. by using the roads which we already have.

Regarding the proposed busway for Cambourne, it may save a few minutes, but it won't solve the problems unless the bus-way covers the Science Park, Addenbrooke's, railway-stations like St Neots or Cambridge, Biomedical Campus etc. People will rely on the cars if they must change the buses twice or thrice for reaching work.

Initially, I thought, busway alongside A428 without disturbing the villages in South Cambridgeshire might help, but, then I realised that people will still use their cars unless they have the good connections for the destinations they need to travel.

Unless we offer the people the right service with better connections, especially at the office hours, this will not reduce the cars on the roads. I still believe that we are under utilising the existing resources to get an immediate faster solution without affecting the local communities along the route.

When can we focus on better bus routes, using the existing roads and giving the current generation a fast, reliable, and affordable public transport service sooner?

### **Reply 57.28**

#### **Peter Blake:**

There has been a City Access paper looking at how we can enhance bus services. CAPC has worked with Stagecoach to add services. Something more pronounced is needed, however, which is why projects such as C2C and other projects exist. We need to provide for the growth on the A428 corridor, otherwise people will get in their cars. The journeys down Madingley Hill and the rat runs through villages will get worse.

#### **Formal reply as posted on website**

A public transport route between Cambourne to Cambridge supports growth outlined in the Local Plan to the south of the A428 and is specifically required to unlock development at the New Village at Bourn Airfield of approximately 3,500 homes.

### **Additional question**

What difference will be made do you think by the interventions that Highway England are due to make to Junction 13 in 2025?

#### **Reply 58.58**

##### **Peter Blake:**

We have asked Highway England for further details, though my understanding is that it will be from, not in, 2025. As soon as we have more information and an understanding, we can start to understand the implications not just on this scheme but on other schemes in the area.

This section of the meeting closed. The LLF continued its discussions and drew up resolutions.

#### **RESOLUTION – The Chair previously noted there were 25 voting members of the LLF present**

**The LLF formulated their resolution and voted:**

**24 – yes**

**1 – abstained**

1. The LLF opposes a premature decision on the current Cambourne to Cambridge busway scheme. It is unfit for purpose, anachronistic and environmentally damaging, and is now out of step with emerging proposals for East West Rail and CAM. The LLF recommends a pause until:

- i) The Mayor's CAM consultation has concluded and his proposed route suitable for autonomous vehicles, MRT and adaptable into a Metro is published;
- ii) The location of a new east west rail station in Cambourne is confirmed and the business case for the busway reworked in light of its impact. This is a multi billion pound scheme that needs to be thoroughly understood first.

In the meantime, we support the Combined Authority's interim, high-quality bus priority measures and/or improved services on existing infrastructure that can support the Local Plan and provide immediate transport benefits to key employment locations while the bigger picture falls into place.

2. The LLF asks for input into shaping the EIA scoping exercise. The EIA should not start until after the independent audit concludes. The EIA should include a cultural heritage review of the entire landscape around the American Cemetery.

3. The LLF would welcome the decision of the GCP Board to appoint an independent auditor. This is the opportunity for the Board to build the trust of the local community in C2C process. For trust to be built in this way, the audit must demonstratively be

independent, transparent and not controlled by GCP officers. For this to be achieved, in our view, the independent auditor should be appointed unanimously by the voting and non-voting members of the GCP Board and agreed by the MPs for South Cambridgeshire and Cambridge. The audit should be managed by a steering committee which is made up of people appointed by GCP and includes the LLF. The auditor should report to the steering committee which will have oversight over the audit process and undertake regular reviews of the progress and commenting on reports and other outputs by the auditor, and the audit should not be restricted to a narrow assessment of whether due process was followed, but will look at wider issues of how decisions were made.

## **5. Next steps and closure of meeting**

The meeting closed at 8.05pm

### **LLF meeting minutes 2nd June 2020**

The full minutes can be found at: <https://www.greatercambridge.org.uk/assets-library/Transport/Transport-Projects/C2C/C2C-LLF-notes-June-2020-FINAL.pdf>

### **Notes from the Cambourne to Cambridge Supplementary LLF Meeting Tuesday 2 June 2020**

**The below is not intended to be a verbatim account and sometimes the running order differs from the printed agenda. This is a draft document and has been produced to assist the LLF Chair with her preparations for the Joint Assembly meeting. The meeting in full can be viewed here:**

<https://www.youtube.com/watch?v=nQ9UPe03HBQ>

**Date:** Tuesday 2 June 2020

**Time:** 18.30 – 20.30

**Venue:** Online, via Zoom Webinar

#### **Present - GCP Officers**

Jo Baker – Project Manager

Peter Blake (PB) – Transport Director

Laura Gates (LG) – Communications Lead

Alasdair McWilliams – Digital Media Officer

Beth Warmington (BW) – Communications and Engagement Officer

#### **Present – Mott MacDonald**

James Montgomery (JM) – Consultant

## **Observing**

Councillor Roger Hickford – GCP Executive Board

Claire Ruskin – GCP Executive Board

Heather Williams – GCP Joint Assembly member

## **Present - LLF Members – designated as ‘Panellists’ for Zoom Webinar purposes**

Helen Bradbury	Chair
Phil Allen	District Councillor, Harston & Comberton
Ruth Betson	District Councillor, Cambourne
Dr Shrobona Bhattacharya	District Councillor, Cambourne
Steve Jones	Spokesperson, Coalition of 22 Parish Councils
Des O'Brien	Parish Councillor, Bourn
Grenville Chamberlain	District Councillor, Hardwick
Lina Nieto	County Councillor, Hardwick
Tom Bygott	District Councillor, Girton & Dry Drayton
Dr Gabriel Fox	Parish Councillor, Coton
James Littlewood	Cambridge Past Present & Future
Rod Cantrill	City Councillor, Newnham
Dr Markus Gehring	City Councillor, Newnham
Chris Pratten	Save West Fields

The Chair noted there were 25 members of the LLF present in total, the panellist members above and some who were participating in the meeting as ‘Attendees’

## **Apologies:**

None noted

*Meeting commenced at ~6.45pm*

### **1. Introduction and Welcome by Chair**

The Chair opened the meeting welcoming everyone and introducing herself. She commenced the meeting by reading a statement transcribed below:

Welcome to the Cambourne to Cambridge Local Liaison Forum.

Due to the ongoing Covid-19 pandemic, the regulations surrounding public health measures, and the health risks associated with public gatherings, the forum is being conducted as a digital meeting. This reflects government advice, and is supported by the changes to legislation made by the government to allow virtual committee meetings.

This evening's forum is being hosted on the Zoom Webinar platform and streamed live on Youtube. A recording of the meeting will also be made available on the GCP Youtube Channel at a later date.

Normal rules of behaviour apply, and everyone is reminded that any inappropriate conduct or disruptive behaviour may result in your being excluded from the meeting.

We do have technical assistance on hand to support the conduct of the meeting, but do please remember that everyone is joining the meeting from their own homes; unavoidable technical issues may arise relating to broadband connections or home IT setups, and unexpected interruptions may occur.

If I could ask panellists to please remember to mute their microphones if they are not speaking, and to wait until invited to unmute their microphones.

For members of the LLF and the public who are attending via Zoom, but who are not panellists, there may be an opportunity to ask questions later; at that time, you will be invited to raise your hand via the button in the Participant and Chat pane. To open this pane, please click on Participants and Chat buttons on the bottom menu bar in your Zoom screen. Please do not raise your hand until questions have been invited, and only raise your hand if you want to ask a question.

Members of the public watching the livestream on Youtube will be able to see and hear the proceedings, but will not be able to ask questions or raise their hands.

I'm sure everyone will appreciate that this is a new way of conducting the LLF, and there may be some teething trouble, but with a little patience and forbearance, I'm sure this will be a productive meeting.

The Chair went through the agenda for the evenings' meeting and also introduced all the panellists both from GCP and from the LLF.

The Chair then set the context of the meeting, setting out that the LLF had met last in January and she had presented a summary of what was agreed to the Joint Assembly in February but that the scheme was paused before going to the Executive Board. Last week the LLF were informed that the scheme was going to the Joint Assembly and Executive Board. She noted that she felt there was no warning, a short timescale and took place during lockdown. She noted that the scheme was identical to the one presented before other than the alignment into West Cambridge

All other concerns raised in January by the LLF remain outstanding including EWR's announcement of a preferred route through Cambourne and that the OBC had not been revised in light of this.

The Chair stated that she felt alternatives put forward by the LLF had not been assessed – including an interim inbound bus lane along Madingley Hill and an improvement to the Girton Interchange

Revised papers also do nothing to alleviate potential impact on residents to the west of Cambridge including in Hardwick and Cambourne

## **2. Minutes of last meeting**

The Chair noted that the minutes from the last meeting were ok and that there was no fourth presentation.

### **3. GCP Presentation - supplementary OBC route update**

GCP Transport Director Peter Blake, Project Manager Jo Baker presented the changes made to the Outline Business Case since the last LLF meeting recommended route and Outline Business Case. Slides available to view here:

<https://www.greatercambridge.org.uk/assetlibrary/Transport/Transport-Projects/C2C/C2C-LLF-02-Jun-2020.pdf>

### **4. Advance Questions**

The Chair went through those questions that had been submitted in advance. Full list of questions and GCP officer response is set out below:

<b>Question</b>	
<p>If the busway is being built despite all the opposition, then can we please have a more sensible solution for St Neots Road. Can you please consider to run the bus on St Neots Road and not build an off-road solution for this stretch of the way. Although the tree line between St Neots Road and A428 has not been considered by the environmental surveys as relevant for wildlife preservation, it is however vital to the residents of Hardwick and in particularly St Neots road for air quality and quality of life.</p> <p>There is no traffic issue on St Neots Road. However, the close proximity of the A428 is an issue already due to noise level for example and removing the tree line will have an adverse effect.</p> <p>I have attached a picture from google maps showing the section where A428 and St Neots Road run closest to each other. I have also attached the cross section of how the busway is currently proposed.</p>	<p>The alternatives have been considered and the recommended preferred solution is for a segregated route which is compliant with the Mayor's LTP Sub-Strategy for CAM.</p> <p>Whilst the concern regarding the visual impact of removal of the trees is understood, trees have a marginal impact on noise: hence the high levels of traffic noise already experienced.</p> <p>As previously discussed, GCP would be pleased to provide additional noise barriers to screen the A428 noise and seek to reduce overall traffic noise.</p> <p><b>Air quality</b></p>

<p>Can I please ask for the solution to be reviewed again and to come up with a proposal which enhances life in Hardwick and along St Neots.</p>	<p>The scheme is intended to contribute to congestion relief and therefore improve air quality.</p> <p>The scheme is intended to run only euro standard/electric vehicles.</p> <p>An initial air quality assessment has been undertaken for Hardwick and notes that the scheme would be expected to have a minimal effect on air quality in the area.</p> <p>The assessment can be viewed online.</p> <p><b>Public opposition</b></p> <p>Public consultation and engagement has been a key element of work to date, reflecting differing views amongst the community.</p> <p>With regard to concerns for residents of Hardwick, in particular St Neots Road, the project team has regularly attended Parish Council meetings and hosted drop-in events in Hardwick in order to hear from and respond local residents and businesses and we will continue to do so.</p>
<p>My question concerns the Cambridge end of the proposed C2C bus route. Both Adams Road and the Rifle Range routes pose real problems, but once the CAM (Metro) is operative busways down both routes will be redundant. CAM looks set to operate from 2029. As an interim measure, why not run the C2C busway to West Cambridge? From there a number of smaller buses could take people directly to a range of different destinations in the city they actually want to go to (rather than to West Road)?</p>	<p>Terminating the busway in West Cambridge would mean that for some years the scheme would be incomplete requiring access onto the busy Madingley Road.</p> <p>Whilst the CPC希望 to complete CAM over the next decade there is currently no certainty with regards to delivery, whereas C2C is intended to enable shorter term developments such as Bourn Airfield and West Cambridge and deliver local congestion benefits.</p> <p>Once CAM is completed, either option will provide additional non-motorised connectivity to the rapidly growing West Cambridge campus</p>
<p>I represent the Cranmer Road RA and sit on the LLF. I have registered for the Zoom meeting and would like to ask the following question please:</p>	<p>All information from GCP Officers is contained in the submitted Board papers as noted in the question. Such information is all in the public arena.</p>

Would the GCP Officers please confirm whether or not the Board will be basing its decision on the information in the June 2020 Board papers and appendices to make its decision on the route alignment? Will the Board be using additional information that has not been made public to come to its final decision?	
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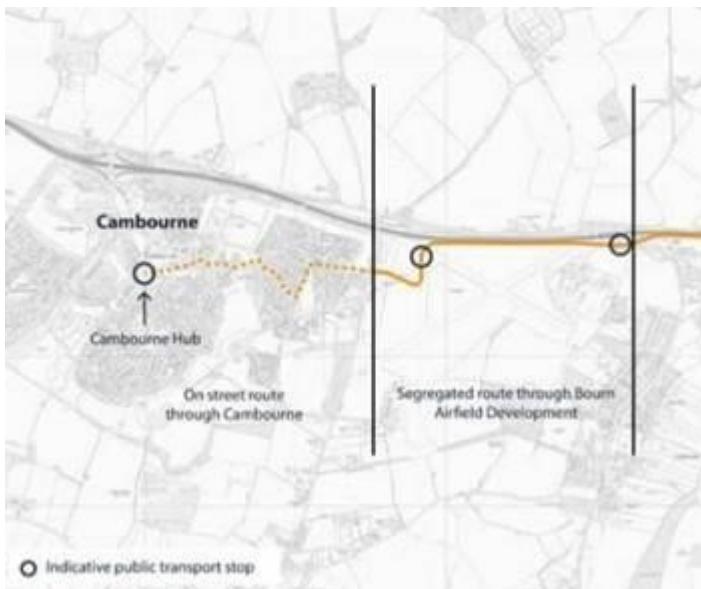
<p>1, what alternatives to a busway have been considered?</p> <p>2, instead of an expensive (in terms of money and environment) busway construction project, could that money be used instead for schemes which encourage people onto public transport using existing infrastructure? For instance, a park-and-ride on Barton Road, improved bus services from Coton and Hardwick villages (from Coton, for instance, the first bus of the day is after 10am, which is no good for most working people).</p> <p>3, how can additional buses on Grange Road be seen as a sensible idea? The road has traffic-calming measures, it is heavily used by cyclists, and the rifle range route emerges opposite a junior school.</p> <p>4, given the current coronavirus lockdown, isn't it evident that people do not necessarily need to commute into Cambridge? Could the money be used for schemes with more of a change agenda, such as tele-commuting hubs (and support for amenities) in villages outside Cambridge?</p> <p>5, when I completed a survey about the City Deal, there were questions about new cycling paths from Comberton, Hardwick, etc, which seemed to use existing bridleways. This seemed like a great idea: what happened about this idea, was it not popular? p.s. I do not think these cycle routes need to be paved at great financial and environmental expense -- instead, I would prefer to see the existing bridleways made into gravel paths, because they are relatively low-cost, low maintenance, and not so prone to ice as smooth paved surfaces.</p>	<ul style="list-style-type: none"> <li>1. A wide range of options based around bus-type vehicles and cycle routes have been considered including alternative alignments and on-road running. The need for a high quality public transport route was accepted at the Local Plan Inquiry,</li> <li>2. GCP and other partners will continue to look at a wide range of options to improve public transport. These are not alternatives to C2C but may be complementary.</li> <li>3. Grange Road is not unusual in Cambridge where many roads are constrained and well used by cyclists.</li> <li>4. The impact of COVID-19 on long term travel demand remains the subject of speculation. At this time it is unclear what the new normal might look like. GCP has been tasked through the City Deal with providing infrastructure to enable growth. A Full Business Case for C2C will be prepared before commitment to invest and this will review future demand if greater clarity is available.</li> </ul> <p>That said, however, many activities in Cambridge are based around healthcare and education land-uses which are unlikely to change in the longer term whilst substantial growth is predicted for the Oxford-Cambridge arc.</p> <p>GCP's projects promote active travel and its four sustainable corridor schemes,</p>
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	<p>including C2C, are complemented by end-to-end walking, cycling and horse riding to create a continuous link to the city from growing villages and towns to the north, south, east and west and create additional capacity for growing numbers of cyclists.</p> <p>5. Proposals such as the Comberton Greenway are being developed by GCP in parallel to C2C.</p>
<p>1. The Rifle Range route and a bridge over the Bin Brook will certainly increase the flood risk for our community. What are you going to do about that?</p> <p>What sense does this project make if there is going to be a rail link between Cambourne and Cambridge?</p>	<p>1. The Design of the Rifle Range option will be undertaken in discussion with, and subject to the approval of, the Environment Agency to ensure that, as a minimum, flood risk is not increased.</p> <p>2. East West Rail has published a Preferred Corridor which suggests a potential rail link from Cambourne to Cambridge. At this time there is no Preferred Route and no firm commitment to scheme delivery. If EWR is delivered it will not serve Bourn Airfield or West Cambridge and will not necessarily provide Park and Ride facilities.</p> <p>The C2C scheme would eventually work with the new EWR line to give thousands of passengers fast and reliable onward journeys from Cambourne station to key employment sites around the city. GCP officers continue to liaise closely with EWR over the next stages of the development of their project.</p>

<p>1. What detailed analysis has there been on the impact of Covid-19 on the likely future demand for public transport and changes to levels of road traffic under the new normal, including levels of switching to working from home and flexible hours impacting on peak-time travel?</p> <p>2. What detailed analysis (not just high-level assumptions) has been undertaken since these papers on C2C were last presented in February on the subsequent announcement of the East West</p>	<p>1. The impact of COVID-19 on long term travel demand remains the subject of speculation. At this time it is unclear what the new normal might look like. GCP has been tasked through the City Deal with providing infrastructure to enable</p>
<p>Rail route going via Cambourne and its impact on the business case for C2C?</p>	<p>growth. A Full Business Case for C2C will be prepared before commitment to invest and this will review future demand if greater clarity is available.</p> <p>2. No detailed analysis of East West Rail has been undertaken because at this time there is simply confirmation of a Preferred Route Alignment. There remains no detail as to the route, the location of any potential station at Cambourne, or the likely services which might influence the C2C business case.</p> <p>GCP continues to work closely with EWR as they develop their route and station proposals to ensure maximum integration.</p> <p>It is of note that one of the reasons given by EWR for choosing the Cambourne route was that it would complement the C2C scheme by combining local and inter-urban connectivity.</p>

<p>Currently the long term effect of COVID is completely unknown. Given that the whole country is talking of the ‘new normal’ with increased working from home, companies splitting their workforce over the working week and the death of the high street, can you tell me on what evidence have you based your assumption that the impact on public transport will be short term? Especially as you have commissioned Hatch Regeneris to explore the impact and their findings will not be available until later this month.</p>	<p>See response to Cllr Allen</p>
<p>I am registered to attend tomorrow’s LLF on behalf of Cambourne Town Council.</p> <p>Please see questions below that we would like to ask.</p> <p><b>1. No Stop in Upper Cambourne:</b> The recommended route alignment (see below) shows just one ‘indicative public transport stop’ in Great</p>	<ol style="list-style-type: none"> <li>1. The request for an additional stop in Cambourne is noted and will be discussed further with the Town Council.</li> <li>2. The development of a Travel Hub for Cambourne remains a firm</li> </ol>

Cambourne. Does this mean that no stop is proposed in Upper Cambourne? This would be unacceptable to Cambourne Town Council as it would require in excess of a 1km walk for residents living close to the route to access a stop.



3. commitment. The location and design, however, has not been advanced pending clarity regarding the likely location and requirements for the Cambourne East West Rail station and potential extension of CAM to St Neots. The views of Cambourne Town Council will be essential in these matters.

GCP is engaging regularly with EWR but likewise awaits clarity from EWR regarding station locations.

2. **Travel Hub:** Can the GCP please provide an update on proposals for a travel hub in Cambourne? It was Cambourne Town Council's understanding that this would be provided as part of the C2C scheme and we are concerned that it appears to have been relegated to something that could potentially be provided at a future date (see paragraph 10.8 of GCP Joint Assembly Report, 4<sup>th</sup> June 2020).
3. **East West Rail:** Can the GCP please provide an update on discussions with East West Rail regarding potential locations for a station in Cambourne? Cambourne Town Council support both C2C and East West Rail, but are opposed to the potential location of a station to the southwest of Cambourne. We consider any new station must be located to the north of Cambourne so that it is easily accessed from the A428 and the proposed C2C alignment.

I wish to put the following questions to the LLF regarding the proposed busway route, specifically the section

1. This work is addressed in the published OBC and will be further

<p>running between the proposed park and ride at Scotland Farm and the Madingley Road roundabout.</p> <p><b>1. Why is a dedicated busway needed for this part of the route? There is minimal traffic along St Neot's Road even at rush hour. Why can buses not use the existing road?</b></p> <p>Please can modelling be presented that demonstrates the case for a dedicated busway along this stretch, weighed against:</p> <ul style="list-style-type: none"> <li>• the cost to the taxpayer</li> <li>• habitat loss and threat to endangered species</li> <li>• reduction in noise screening of the A428</li> <li>• increased noise and air pollution to the north of Hardwick village</li> </ul> <p><b>2. Please can more detail be provided on what is being done to enable cycling along the route from Cambourne to Cambridge?</b> It is hard to see how the proposals as they stand can be implemented without a reduction in space for cyclists along this stretch.</p> <p><b>3. The trees and land south of the A428 (and north of St Neot's road) provides valuable habitat to a number of important species, some of which are on the <a href="#">red list</a> for concern at a national level, such as starling, skylarks, bullfinches, sparrows and yellowhammers. In particular, starlings roost on this land during the winter and were witnessed murmuring in their thousands over Hardwick this winter. If the proposals were to go ahead, <b>is any mitigation for this loss of habitat planned, particularly given other recent habitat destruction in the area along the footpath from Hardwick to Dry Drayton?</b></b></p>	<p>developed in the Environmental Impact Assessment.</p> <p>2. The proposals will include creation of a dedicated route for nonmotorised road users which will be significantly better than current provision.</p> <p>3. Yes. GCP is committed to delivering at least 10% biodiversity net gain through the creation of new habitats, and aspires to deliver 20% biodiversity net gain. The new habitats created will consider the nature of the habitats lost, and the species identified in the area from the surveys completed for the EIA. The objective will be to develop high value habitats that encourage a diversity of species in the area.</p> <p>A number of surveys for ecology have been carried out to date (available online ) and additional surveys for ecology are required for the preferred route if this is approved to progress. The output from these will inform the detailed Environmental Impact Assessment (EIA) of an approved preferred scheme, and any measures arising from the surveys will be discussed with the appropriate statutory body.</p> <p>During the EIA there will also be further engagement with stakeholders and the public where the emerging design and proposals for mitigation are presented for comment.</p>
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<p>Question I have to propose is whether any consideration was given to put the busway route on the opposite side of the A428 which would of put it inline with the proposed P&amp;R site at Scotland Farm and then followed the A428 joining the (longer than average) slip road for Maddingley Mulch Roundabout? That route would of had the smallest impact on residents along the route and could be</p>	<p>Yes, options to the north and south of the A428 and on-road have been extensively reviewed. Details are available on the website.</p> <p>A northern alignment leading back onto the A1303 at Madingley Mulch is not desirable for bus operations.</p>
<p>connected simply by adding additional foot bridge along St Neots road for the residents of Hardwick.</p> <p>Thanks in advance for any consideration for this question to be put to the forum.</p>	
<p>Presently Cambourne High Street is a single lane carriageway and the only viable way to widen it is through the development of the last remaining land parcels to the north and south of the High Street, which will also deliver new homes and shops for Cambourne. The site is owned by my client, Newcrest, who has a history of successfully delivering retail units in Cambourne. Notwithstanding this, we have been struggling to engage positively with officers and members of the District Council on our proposals for the High Street and my client is now having to assess whether the project will come forward. What assumption is the GCP making about the development of the High Street coming forward and delivering a widened carriageway that will be essential to enable the proposed travel times between Cambourne and Cambridge to be met?</p>	<p>At this point in time GCP is making no assumptions with regards to High Street.</p> <p>As indicated above there is a need for further engagement with the Town Council, EWR and CPCA on Travel Hub locations and planning.</p>
<p>How can access be guaranteed at all times for the Rugby Club to gain access to our training ground along the Rifle Range track?</p> <p>Whilst daily use is required and could possibly be accommodated, we have concerns over the access needed by large, wide, slow moving vehicles carrying marquees and delivering temporary toilet blocks in the two weeks in November around Steel Bodgers, our biggest single fundraising activity in the year.</p>	<p>The issue of the Steel Bodgers match is noted and was one of the reasons GCP explored further the Adams Road option.</p> <p>It is recognised that during the build and breakdown of the event a special operational regime will need to be agreed.</p> <p>Should a preferred route be agreed, we will continue to update and meet with the Rugby Club and other landowners as the proposals develop.</p>

<p>October 2019 Hardwick started a poll <b>Save Our Trees on St. Neots Road</b> and the result <b>For Saving</b> were</p> <ul style="list-style-type: none"> <li>• 547 electronic signatures</li> <li>• 319 paper-based signatures, making a total of 866 signatures</li> <li>• A village meeting was arranged, excess of 80 people present indicated their united support for 'Save our Trees'</li> </ul> <p>I challenge you the GCP to agree that from this is evidence Hardwick does not support the destruction of our St Neots</p>	<p>GCP has, and will continue to, engage with Hardwick Parish Council and other representative groups on the corridor.</p> <p>Public consultation and engagement has been a key element of work to date, reflecting differing views amongst the community.</p> <p>With regard to concerns for residents of Hardwick, in particular St Neots Road, the project team has regularly attended Parish Council meetings and hosted drop-in events in Hardwick in order to hear from</p>
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<p>Road greenery to accommodate a Busway which will be primarily to service new villages and towns to the West.</p> <p><b>Is the GCP listening to Hardwick Residents, or are we being totally ignored.</b></p>	<p>and respond local residents and businesses and we will continue to do so.</p> <p>We have conducted an initial air quality assessment and committed to improve the existing noise barrier as a result of meetings.</p> <p>During the EIA there will also be further engagement with stakeholders and the public where the emerging design and proposals for mitigation are presented for comment</p>
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<p>We would like to object to the proposals for St Neots Road Hardwick.</p> <p>If the trees are removed from the area between St Neots Road and the A428, the noise and pollution for Hardwick village and St Neots Road, Hardwick residents would be unreasonable from 9 lanes of traffic.</p> <p>1. Citi 4 bus: Will it still run from Cambourne to Cambridge on St Neots Road?</p> <p>2. Has a reconfigured Girton Interchange been considered?</p> <p>3. Could the guided busway be on the A428 from Bourn airfield to the Scotland farm park and ride? Then along the A428 to the Girton Interchange and into Cambridge?</p> <p>4. The front door of the properties along St Neots Road to the hedge/ditch is less than 20 metres. We feel this is too close for the amount of traffic, noise and pollution from 9 lanes of traffic and the distance recommended from housing in other areas.</p> <p>5. 3m multi use path is not feasible. The drives from the properties on St Neots Road are sloping. The properties are lower than the road. Anyone trying to drive from the property would have great difficulty seeing if there were any cyclists or pedestrians on the pathway as the vehicles front would stick out on the pathway. Cyclists come along the path at the moment very quickly. It is an accident waiting to happen.</p>	<ol style="list-style-type: none"> <li>1. Bus services will continue to be operated by bus operators. If there is demand for the Citi 4 then it will be maintained. C2C will not prevent that.</li> <li>2. A reconfigured Girton Interchange has been extensively discussed but does not feature in the recent Highways England Road Investment Strategy. As such it is unlikely to be delivered in the foreseeable future.</li> <li>3. There is no access from Bourn Airfield to the A428, and at Girton Interchange there is no exit towards Cambridge or plans for HE to update the existing road layout. These options have previously been reviewed, the details are on the website.</li> <li>4. There is no proposal for 9 lanes of traffic.</li> </ol> <p>The proposed scheme will add two lanes carrying a small number of buses, and an improved version of the existing route for walking, cycling, and other non-motorised users. Vegetation would be lost along the narrowest point where there are around 160 semi-mature or mature trees, as well as some newer saplings - around 15 are mature trees.</p> <p>Every effort will be made to replant in areas where trees and vegetation must be</p>
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	<p>removed, but for most of this section there will be some combination of planting, noise barriers, and variation in levels - this would not be a single block of eight lanes of tarmac.</p> <p>5. The volume and route of general traffic will be unchanged by the scheme. GCP is committed to trying to mitigate some of the existing problems.</p> <p>6. The proposed alignment will increase the width of the NMU route so it will be easier for cyclists to avoid cars as they emerge. All layouts will be reviewed at the Road Safety Audit stage.</p>
<p>1. Please detail what the officers have done to review this scheme in the light of the lessons learned during the Covid-19 lockdown in terms of increased working from home, more walking and cycling, reduced air pollution and a strong public feeling of a 'new normal'?</p> <p>2. Given the obvious environmental benefits of not laying more tarmac across valued fields and dumping hundreds more buses into the narrow streets of Cambridge centre, how have the officers evaluated the benefits of East West Rail to commuting from Cambourne and access to Cambridge South, Centre and North stations? Please supply detail.</p> <p>3. What in-depth evaluation has actually been completed on the proposals from many councillors and others, to route the busway alongside the A428 from Cambourne to the Girton Interchange and then link from there via Eddington to the West Cambridge site before accessing the City centre, in order to be compliant with the Mayor's CAM scheme. Please supply detail.</p> <p>4. How do the officers propose to ensure that detailed public scrutiny is possible in the Joint Assembly and Executive Board meetings so councillors can vote having carried out their roles responsibly in full awareness of public views.</p>	<p>1. COVID-19 – answered above</p> <p>2. EWR – answered above</p> <p>3. Northern alignment. Various options documented in technical note. Most recent suggestion via Eddington is not compliant with CAM as it is heavily based on existing roads especially through Eddington. This is available on the website. Officers have also attended a large number of meetings with the LLF Technical Group to discuss these issues.</p> <p>4. Public representations and questions are welcomed at public meetings.</p> <p>The government recently passed legislation allowing for local authority committee meetings to be conducted in a virtual environment.</p> <p>Protocol includes details for making the meetings publicly accessible via digital channels, and the submission of questions in writing.</p> <p>As the responsible authority under the terms of the Greater Cambridge City Deal, GCP meetings are being conducted under the County Council Protocol.</p>

<p>The nature of major conurbation development in Cambridgeshire is changing, with all new planned major conurbations (such as Northstowe, Waterbeach Barracks, Alconbury Weald, Wintringham St Neots) now including substantial urban centres of their own, including retail, office, start up space and local social enterprise provision. The focus is now very much moving away from producing unsustainable commuter settlements that generate inward journeys to Cambridge, to providing strong local economies and developing successful businesses centres and offering attractive enterprise accommodation on-site to avoid the reliance on commuting to the established Cambridge business market which is oversubscribed and expensive.</p> <p>Further, the C-19 pandemic has initiated a paradigm shift in working patterns with office staff working from home at scale. As a result it is well known that many large businesses on the Science Park are already changing their business model and are downsizing their office presence. The focus is moving rapidly to future proofing businesses and changing how society works, with a focus solidly on working from home and developing more local, sustainable locations which are less reliant on the Cambridge market and can be seen as centres or hubs in their own right with open space, community facilities and business centres.</p> <p>Given the shift that the housing and business development sectors are making in place making and becoming less reliant on commuting to central Cambridge, this shift of emphasis will reduce the need for an engineering solution such as the Bus Way, so shouldn't the business case acknowledge this change and respond accordingly?</p> <p>Noise pollution. The noise of the A428 is already substantial – particularly in summer when windows are open the road noise is substantial and keeps residents in Hardwick awake at night. The removal of the trees will substantially increase the noise pollution and will make the noise levels intolerably. Has the acceptability of increased noise levels been considered and do the needs of local residents who will be affected by the increase in road noise matter in this regard? Has any research been carried out by the Combined Authority to determine whether the road noise levels will be within acceptable, legal standards?</p>	<p>As noted in previous responses, GCP will monitor the development of the “new normal” but at the same time recognizes the level of development on this corridor and the importance of access to opportunity in the City of Cambridge. As above – a Full Business Case will be needed before funding is committed and at that stage there may be more clarity as to how much society may have changed.</p> <p>Trees have limited impact on traffic noise. That is why the A428 already has a significant negative impact on St Neots Road. GCP is committed to the provision of noise barriers which could provide effective protection.</p> <p>The proposal is for a single bus stop on the busway given the need to provide express services. GCP is aware that the Cambridge Guided Busway has proved very successful and that bus capacity may be a concern. It may be that some local services might still be operated on St Neots Rd by services similar to the Citi-4. That will be determined by operators if the demand is there.</p>
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Bus capacity – bus demand in Hardwick at peak times is high, with 4 out of the 5 stops having queues of people waiting for buses from 7.30 to 9.30. It is questionable whether replacing Hardwick's 4 stops with 1 stop will provide sufficient capacity to meet local demand. There is a high chance that buses leaving the new park and ride in peak times could already be full, so how will any capacity be reserved for local residents at peak times?

<p>Why is it that with so many people from many different locations are so against the scheme that the few of you on the GCP feel you have the right answer in wanting to continue with the off-road solution?</p>	<p>We are very aware of the concern being expressed by a number of residents concerned about, the Cambourne to Cambridge scheme.</p>
<p>Why are you not listening to them, who after all will be the users, and follow their recommendations?</p>	<p>However, we are also aware of the urgent need for more effective public transport and active travel links between Cambourne and Cambridge, and many of the new homes planned in the area require such high quality connections if they are to be sustainable communities where people want to live. This was acknowledged in the Local Plan Inquiry.</p>
	<p>Public consultation and engagement has been a key element of the work to date, reflecting differing views amongst the community, and decision makers will consider that alongside the technical evidence.</p>
	<p>There have been significant efforts to review route options, including those proposed by stakeholders, through three public consultations over the past five years.</p>
	<p>The assessment process confirms that a route travelling off-road best meets not only the scheme's objectives but also the CPCAs requirements for CAM and its contributing schemes to be fully segregated.</p>
	<p>The project team has regularly attended community meetings and hosted events in order to hear from and respond to the concerns of those more directly affected and will continue to do so.</p>

	<p>Further assessment and a full Road Safety and Environmental Impact Assessment, with further public consultation, would be conducted as part of continuing work.</p> <p>The decision to grant permission to construct the scheme ultimately lies with the planning authority – DfT.</p> <p>We have factored the views of stakeholders into planning wherever possible and will continue to do some examples–</p> <ul style="list-style-type: none"> <li>• Reflecting strong stakeholder opposition and concern regarding the environmental impacts of a site on Madingley Hill, a site at Scotland Farm to the north of the A428 has been adopted for final proposals.</li> <li>• We continue working to define a specific alignment running at least 40-50metres from the closest property in Coton and considering mitigation measures including bunding to minimise visual intrusion.</li> <li>• On St Neots Road in Hardwick, officers have committed to rebuild the current noise barrier with the A428 which is a prime source of existing noise and in a state of disrepair.</li> </ul>
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#### Additional questions and comments

Roger Tomlinson – concerned about GCP's evaluation of the impact of East West Rail in regards commuting to Cambourne and the way in which this may reduce potential demand for the busway route.

Jo Baker – as mentioned previously, we do not yet know where the Cambourne station is going to be, although it is not likely to be in central Cambourne. Indications are that it is likely to be to the south of Cambourne in which case many residents would not be able to use EWR to access their destinations. If people wish to get to West Cambridge this will not be served by EWR. This is not a closed issue; once the exact location of the station in Cambourne is decided by EWR then GCP can do detailed analysis which cannot happen until there is clarity on final plans for EWR.

Markus Gehring – concerned about the environmental impact of the Rifle Range option. Consultants had expressed concerns about the impact on the green belt, and on places such as Clare Hall which are not addressed by the Board papers

Rod Cantrill – the scheme as put forward by GCP does not deliver a superior journey experience for people, it delivers an inferior one. An on-road solution would accommodate an efficient and cheaper alternative to this expensive scheme. If the scheme is approved, public enquiry would need to look at the failure to demonstrate the logic of delivering a bus route to Grange Road

Chris Pratten – the West Fields are significant as this is where the green belt gets closest to Cambridge. Previously Colleges have attempted to develop the land resulting in a High Court ruling.

Peter Blake – the High Court judgement referred to was around inappropriate development in the green belt which does not apply to transport schemes as long as they go through the necessary tests and that is the process GCP is going through currently

Peter Blake cont. - Comments on some presentations that state this scheme is inferior – that is not the case. The assertion around wider benefits being arbitrarily attached are not true as the benefits that this transport scheme will deliver are attached and set out in the Local Plan. All assessments are online and we have worked extensively with the LLF Tech Group. There have been 12 meetings between GCP and the Tech Group and we have worked extensively on all their alternatives including Madingley Hill and Girton Interchange. All technical papers on this are on the website.

Interrupted by Chair

Chair – cannot agree that the Northern option was worked up with any credibility

Peter Blake – we will have to agree to disagree

Rod Cantrill – there were extensive meetings and the LLF Tech Group disagreed materially with GCP officers. The data produced was on a macro basis and we had to push hard for alternatives to be drawn up.

Grenville Chamberlain – the scheme goes too close to residential properties and is a total waste of taxpayer money for such a tiny amount of time saved on journeys.

Steve Jones – GCP should have assessed their preferred scheme versus the best possible alternative, not their preferred scheme versus do nothing.

Jo Baker – this is not true, a whole series of differing option appraisals have been assessed

Markus Gehring – the Combined Authority Mayor claims this scheme is not compliant with his plans for the CAM

Peter Blake – we are obliged to demonstrate how our schemes are compliant with the Local Transport Plan and this scheme is compliant with the CAM

Lina Nieto – why did GCP use the draft sub strategy to evaluate compliancy?

Peter Blake – we agreed to pause the scheme and now believe that we are in a position to take it forward. There will always be series of developments in emerging Local Plans and other policies.

Grenville Chamberlain – have a question from the climate change organiser in Hardwick. States that it is commendable that reducing air pollution is one of the major aims of the scheme but questions how this can be accomplished by the removal of so many trees along St Neots Road in Hardwick. How do you plan on replacing the stored carbon value of this wildlife corridor?

Jo Baker – we are not proposing to remove all trees but at the narrowest point we will have to take out a significant number but nowhere near as many as the LLF's preferred scheme would have removed of very mature trees along Madingley Road. There is a very clear commitment from GCP of net biodiversity gain. We would be looking at the carbon impacts

Helen Bradbury – surprised to notice that the dual carriageway is raised significantly along that road and so it is worth looking at what the visual impact for houses along St Neot's Road

JB – those additional visualisations are very much part of the Environmental Impact Assessment

Des O'Brien – the landscape has been changed by EWR. The situation and current timescale is being driven by the imperative to build in Bourn and west Cambourne. The busway will be superseded by EWR and the opportunity will be missed to integrate with EWR and build a complementary bus route. GCP officers are being asked to build something that will be a mistake in 10 to 15 years.

Ruth Betson – Cambourne Town Council doesn't want any more delay as our current transport provision is poor. Should not be at expense of neighbouring parishes and Cambourne will benefit from joined up strategy of CAM, EWR and bus routes. Pleased that GCP will revisit route when EWR publish their final station. Remain concerned about compatibility of C2C with CAM. Please can GCP continue dialogue with CPCPA before spending too much money.

Shrobona Bhattachayra – why are we not looking at revising the current bus system which covers most of the key destinations which would be cheaper. Stagecoach are already running buses and they have capacity as long as they revise their routes and prices.

Lina Nieto – thanked GCP for their presentations. Why is all the focus on investment in Cambourne and no planned investment in other areas the scheme covers?

Jo Baker – Cambourne is already heavily developed and the scheme needs to access this urban area.

## **5. LLF Presentations**

- 5.1 Presentation from Gabriel Fox
- 5.2 Statement by James Littlewood
- 5.3 Presentation by Chris Pratten, Save the Westfields
- 5.4 Presentation by Councillor Markus Gehring

## 5.5 Presentation by Councillor Tom Bygott

**RESOLUTION – The Chair previously noted there were 25 voting members of the LLF present**

**The LLF formulated their resolution and voted:**

**24 – yes 1 – abstained**

- The LLF opposes a premature decision on the current Cambourne to Cambridge busway scheme. It is unfit for purpose, anachronistic and environmentally damaging, and is now out of step with emerging proposals for East West Rail and CAM. □ The LLF recommends a pause until:
  - The Mayor's CAM consultation has concluded and his proposed route suitable for autonomous vehicles, MRT and adaptable into a Metro is published; and
  - The location of a new east west rail station in Cambourne is confirmed and the business case for a busway reworked in light of its impact. This is a multibillion pound scheme that needs to be thoroughly understood first.
  - In the meantime, the LLS supports the development of interim, high-quality bus priority measures and/or improved services on existing infrastructure that can support the Local Plan and provide immediate transport benefits to key employment locations whilst the bigger picture falls into place.

## **6. Next steps and closure of meeting**

The meeting closed at 9.08pm

## **LLF meeting minutes 27 January 2020**

Full minutes published online - <https://www.greatercambridge.org.uk/assets-library/Transport/Transport-Projects/C2C/C2C-LLF-Notes-27-01-2020-DRAFT.pdf>

## **Notes from the Cambourne to Cambridge LLF Meeting Monday 27 January 2020**

**Date:** Monday 27 January 2020

**Time:** 18.30 – 20.30

**Venue:** Cambourne Village College, Sheepfold Lane, Cambourne, CB23 6FR

### **Present - GCP Officers**

Tom Bennett (TB) – Head of Communications

Peter Blake (PB) – Transport Director

Laura Gates (LG) – Communications Lead

Austin Nwadike (AN) – Project Manager

Benjamin Thorndyke (BT) – Events Coordinator

Beth Warmington (BW) – Communications and Engagement Officer

### **Present – Mott MacDonald**

Jo Baker (JB) - Consultant  
James Montgomery (JM) – Consultant

### **Present – South Cambridgeshire District Council**

Aidan Van de Weyer

### **Present - LLF Members**

Philip Allen (PA) (Vice Chair) - , South Cambridgeshire District Council, Harston and Comberton  
Helen Bradbury (HB) (Chair) – Coton Parish Council  
Rod Cantrill (RC) – Cambridge City Council, Newnham  
Grenville Chamberlain (GC) – Hardwick Parish Council  
Charles D’Oyly (CD) - North Newnham Residents’ Association  
Heather DuQuesnay (HD) – North Newnham Resident’s Association  
Allan Everitt, Hardwick  
Markus Gehring (MG) – Cambridge City Council, Newnham  
Tumi Hawkins (TH) – South Cambridgeshire District Council, Caldecote  
Pauline Joslin (PJ) - Hardwick Parish Council  
Ellen Khmelnitski (EK) – Gough Way Residents’ Association  
James Littlewood (JL) - Cambridge Past, Present and Future  
Tony Mason (TM) – South Cambridgeshire District Council, Harston and Comberton  
Lina Nieto (LN) – Cambridgeshire County Council  
Des O’Brien (DO) – Bourn Parish Council  
Cheney Payne (ChP)– Cambridge City Council, Castle  
Chris Pratten (CP) - Save West Fields

### **Present (from organisations)**

Matthew Brown – American Cemetery and Memorial  
Julie Coulson – Cambridge Connect  
Malcolm Coulson – Cambridge Connect  
Jess Cunningham – University of Cambridge  
A Fowler - Cambridge Connect  
L Golding – British Horse Society  
Colin Harny – Cambridge Connect  
Penny Heath – North Newnham Residents’ Association  
Daniel Kleeman – Cranmer Road Residents’ Association  
Josh Newman – Grantchester Parish Council  
Carolyn Postgate – Coton Busway Action Group  
Terry Spencer – Coton Busway Action Group  
Roger Tomlinson – Coton Busway Action Group  
Allan Treacy – Coton Busway Action Group  
Marilyn Treacy - Coton Busway Action Group  
Lynda Warth – British Horse Society  
Heather Williams – South Cambridgeshire District Council, The Mordens

Richard Wood – Cambridge Area Bus Users

**Apologies:**

Gabriel Fox - LLF

*Meeting commenced 6.30pm*

**6. Introduction and Welcome by Chair**

The Chair opened the meeting welcoming everyone and introducing herself. She commenced the meeting by expressing disappointment about the timings set out on the agenda by GCP. She added that they may request another meeting before the Executive Board meeting on 19 February but that this could be discussed later.

**7. Minutes of last meeting**

The Chair noted that the minutes from the last meeting were excellent and a good record of the meeting.

The following points were sent to GCP following the last meeting

1. Following a statement from Grenville Chamberlain (DC Hardwick), read out in absentia, the LLF expressed deep concern at the impact of the off-road route on residents living along St Neots' Road, who would be faced with nine lanes of traffic in front of their houses. The LLF asked the GCP to reconsider these plans in the light of this impact.
2. The LLF also asks the GCP to clarify the noise, pollution and safety implications of the options along St Neots' Road.
3. The LLF would like the GCP to check the accuracy of the measurements along St Neots' Road that appeared in the consultation literature as there was concern expressed that there would be insufficient space for the plantings and mitigation once the traffic lanes had been created.
4. The LLF asks the GCP to ensure that drawings and indicative diagrams are henceforth drawn to scale and accurate so that residents can be confident about the implications of what is being proposed.

GCP provided responses to each point. These can be viewed in full here:

<https://www.greatercambridge.org.uk/asset-library/imported-assets/GCP%20Response%20LLF%20Outcomes%206%20June%202019.pdf>

The Chair noted that, despite the LLF's requests for further work to be done to explore other route options, the published papers indicate that that has not taken place.

**8. GCP Presentation of Joint Assembly papers publication and proposed scheme**

GCP Transport Director Peter Blake, Mott MacDonald Technical Director Jo Baker and Laura Gates, GCP Communications Lead for C2C presented the recommended route and Outline Business Case

#### Questions and Answers

Q. Request for clarification. Not met anyone who objects to connectivity and not met anyone who wants to go to Grange Road. We've been pushed to have wrong scheme and wrong route to wrong destination.

A (JB): This is a point that has been raised consistently and is not at all the case. Buses will not terminate at Grange Road. The infrastructure finishes at Grange Road and from there buses would pick up the existing network.

Q: What happens to buses at Grange Road?

A (JB): Existing services like the U already use Grange Road.

(PB): Working closely with Mayor and Combined Authority re portal locations and getting around and across city.

Q (Richard Wood – bus users committee): No connection from Cambourne to any rail station (inc. Cambridge).

A (PB): Stagecoach have plans for additional bus services. In addition, the Joint Assembly will consider the City Access report which will outline other opportunities to enhance bus services.

Q (Jean Bell): Will there be a bus stop at Scotland Farm Park & Ride site which will take passengers into Bridge Street area?

A (JB & PB): Yes

Q: Please clarify there will be 10 buses each way per hour? That means 20 buses per hour cutting across Coton?

A (JB): Correct

Q (DO): What will be the capacity of each bus?

A: Similar to the Universal service of 60-70 people depending on final specifications

Q: (DO): Between 7-9am what will be the capacity?

A (JB): Based on the above, will mean about 600-700 people getting into Cambridge. **NB**

**NB - As set out in the GCP report to the Joint Assembly the estimated total number of passengers is c. 1500 per hour.**

Q (Dan Strauss): Does that 20 per hour include the X5 bus?

A (JB): Includes X5 at present but this would be decided by operators and also important to note any buses using the route would have to comply with required environmental standards

Q (HB): Can you state there won't be emergency vehicles, tourist coaches or minibuses on the off-road route?

A (JB): It would not have taxis or tourist coaches but if mini buses complied with the required environmental standards that is a possibility. Could be used for blue light services and hope we'd all agree they should have a right although cannot envisage that this would happen often. Would need to clearly state what vehicles could use it. It is not a highway

Q Alan Treacey (Coton): The BCR is not great and in order to get a decent BCR uplift needs to be added. Is there going to be a mammoth development on the route to get a good BCR?

A (JB): There is significant development outlined in the Local Plan in South Cambridgeshire

Q (Elizabeth Frost): Are we to understand that we will lose our trees and there is nothing we can do.

A (JB): On the St Neot's Road there will be some loss of trees if the scheme is approved.

Comment (GC): Do not believe GCP are listening to residents and people. I believe we are being totally ignored and consultation is a sham. Decision taken in 2015. Options that could be used have been discounted. This scheme will rip out 1.7 miles of trees. A lot of people want to head to other places than Cambridge. Hope Secretary of State knows this would cost £200M with East West Rail around the corner. The Business Case is appalling.

Q (Linda Warth – BHS): Please reassure us that whatever route, rights of way network will not just be for cyclists?

A (PB): Subject to decision, the next stage of the process will be the Environmental Impact Assessment and detailed scheme design during which this will be raised and all forms of local transport will be discussed.

Q (Wendy Blythe): Are GCP working closely with the Local Plan in mind and with the Planning Department?

A (PB): This scheme is part of the delivery of the Local Plan, and GCP have continued dialogue with stakeholders particularly through the working groups who help inform the scheme design. This joined up working will continue.

## **9. LLF Presentations**

- 9.1 James Littlewood, CPPF
- 9.2 Charles D'Oyly, Chair, NNRA
- 9.3 Chris Pratten, Save the Westfields

## **10. Discussion - LLF Resolutions and voting**

Q (RC): Mayor has come out objecting proposal, which surely means scheme cannot go ahead?

Comment (TH): The Mayor paused work on this scheme in 2018 until alignment could be demonstrated

A (PB): Mayor did ask us to pause work and commissioned ARUP to undertake a report on compliancy with CAM. This report concluded that C2C was compliant and there was alignment. Not sure on position of Mayor but have been working closely with his officers and team who have signed off our report re wider CAM scheme.

The Chair asked for any further comments from LLF members before they started discussing resolutions and voting on them.

Comment (PA): The Board in 2018 noted the recommendations of GCP in regards off-road but GCP have since continued as if the Board had made a decision. There has not been proper assessment of on-road option.

A (JB): The papers published for the Joint Assembly are extensive and detailed. They include option appraisal reports which go into detail. OAR 3 is the pertinent option appraisal with regards to the off-road and on-road options.

**RESOLUTIONS – The Chair noted that there were 16 members of the LLF Committee in attendance**

RESOLUTION 1 – 16F; 0A The timing allowed for this meeting was unacceptable. Just 65 minutes for 16 county, city, district councillors plus representatives from residents' associations to discuss such a controversial and expensive scheme is not even in the ballpark. This committee has constantly challenged GCP on their proposals, and we believe discussion is being shut down.

RESOLUTION 2 – 16F; 0A This resolution amalgamated the resolutions of Councillor Markus Gehring and James Littlewood which both concerned the impact of East West Rail. Preamble: If the route of East-West Rail goes via Cambourne, then this would have significant impacts on the business case for the busway in terms of future passengers, it would also open up the possibility of an interim solution: In the short-term, an in-bound bus lane could be provided along the A1303. This could be achieved much more quickly, at significantly less cost, with much less impact on the environment, green belt and local communities. This could be in place whilst the new railway was being progressed. The railway would eventually provide the mass-transport solution for the Cambourne area, with the bus lane continuing to provide access to the West Cambridge campus. Cycle provision could be achieved via a branch of the Comberton Greenway, a route which would be much better for cyclists because it would be flatter and away from traffic. Therefore, is it not premature for the GCP to be making a decision without first knowing the outcome of East-West Rail.

Resolution 2: The strategic situation has changed decisively. The alignment of the East-West rail link will be announced within weeks, and now seems likely to be via Cambourne. This significantly impacts the business case for the C2C busway, and it is unwise and premature to suggest the latter will simply be 'complementary'. In light of this, the LLF proposes a pause in the C2C busway plans whilst (i) the impact of the new rail service is assessed; (ii) the business case for the busway is revised; (iii) alternative options – including an interim in-bound busway on the A1303 – are devised, and (iv) because Adam's Road is not considered suitable for a busway.

## **11. Next steps and closure of meeting**

The meeting closed at 8.20pm

Agenda Item No: 12

## Cambridge South East Transport Scheme

Report to: Greater Cambridge Partnership Joint Assembly

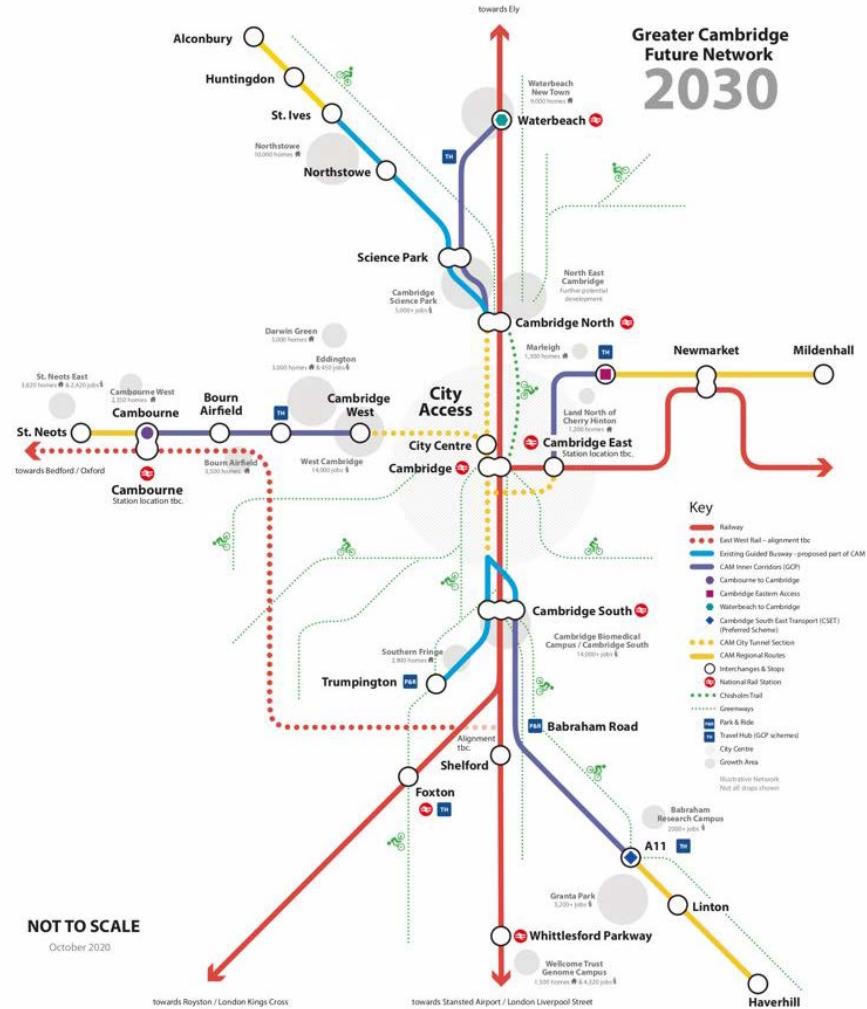
Date 10<sup>th</sup> June 2021

Lead Officer: Peter Blake – Director of Transport, Greater Cambridge Partnership

### 1. Background

- 1.1 The Cambridge South East Transport scheme is one of four corridor schemes that form a key part of the GCP's sustainable transport programme. As the delivery body for the Greater Cambridge City Deal, the GCP is delivering a comprehensive programme of sustainable transport initiatives, working with local authority partners to create a world-class transport network that can meet the needs of the area now and into the future. In May 2020, a Government 'Gateway review' hailed the 'significant success and progress' the Partnership has made since 2015 on ambitious plans ranging from city cycleways to better public transport routes to transform travel for thousands of people.
- 1.2 The programme has been developed using an extensive evidence base and is designed to support sustainable economic growth and the accelerated delivery of the Local Plan, as well as enabling a broader transformation in the way Greater Cambridge moves and travels, supporting the transition to zero carbon and creating a more inclusive economy. The GCP's vision for a future travel network is particularly important in achieving a green recovery from Covid-19, with sustainable transport options vital to enable communities to access work, study and other opportunities the city-region has to offer.
- 1.3 To create a more sustainable network for the future, reduce congestion, improve air quality and reduce carbon emissions, significantly more people need to travel by public transport, cycling and walking with significantly fewer people travelling by car. The GCP's programme looks to achieve this by giving people better choices to travel sustainably.
- 1.4 Figure 1 below sets out the future sustainable transport network for Greater Cambridge and how this will be substantially enhanced over the next decade, forming a cohesive network throughout Greater Cambridge and further afield.

**Figure 1**



- 1.5 The A1307 Haverhill to Cambridge corridor is one of the key radial routes into Cambridge and Haverhill is a key origin area for travel to work in Cambridge. The A1307 suffers considerably from congestion during peak times, particularly at the Cambridge end, at the junction with the A11 and around Linton, the largest other settlement on the corridor.
- 1.6 The route has seen significant increases in traffic over the last decade and large existing and proposed development sites along this corridor mean that pressure on already congested roads and the limited public transport service is set to rise.
- 1.7 The A1307 corridor has been identified by the Greater Cambridge Partnership's (GCP's) Executive Board as a priority project for development in the first five years of the GCP's transport programme.
- 1.8 The Cambridgeshire and Peterborough Combined Authority (CPCA) have produced the Local Transport Plan for the area, which was adopted in February 2020. The goals of the CPLTP are to deliver a transport system that delivers economic growth and opportunities, provides an accessible transport system and protects and enhances the environment to tackle climate change together. There are ten objectives which have been formed to underpin the delivery of the goals relating back to the economy, environment and society.

- 1.9 The route along the A1307 Cambridge to Haverhill has been highlighted as a strategic project to help make travel by foot, bicycle and public transport more attractive than private car journeys, alleviating congestion and supporting the region's growth. The CSETS is therefore in compliance with the Local Transport Plan.
- 1.10 The Cambridge South East Transport (CSET) project consists of two phases: Phase 1 which comprises 16 discrete small to medium works packages currently under construction and development, and Phase 2, which is the main focus of this paper, is a major public transport, cycling & walking scheme.
- 1.11 The Phase 2 project is made up of three key elements: a dedicated public transport link between the A11 and the Cambridge Biomedical Campus, a new Travel Hub facility near the A11/A1307 junction, and new cycling, walking and equestrian facilities.
- 1.12 The project was presented to the Executive Board in June 2020, the key conclusions of the Outline Business Case (OBC) in relation to the preferred high quality public transport, walking and cycling route as well as the travel hub location were endorsed and it was agreed that officers undertake an Environmental Impact Assessment for the route and prepare a Transport and Works Act Order application.
- 1.13 This report to the Joint Assembly provides a summary of work carried out on development of the project since June 2020.

**Figure 2: Current Stage of the Project**



- 1.14 The response to the Environmental Assessment consultation, the design improvements and the Environmental Impact Assessment (EIA) in order to seek approval to submit the Transport and Works Act Order application and powers for construction of the works

- 1.15 The Joint Assembly is invited to consider the proposals to be presented to the Executive Board and in particular:
- (a) The response to the EIA consultation (Appendix 1)
  - (b) The non-technical summary of the Environmental Statement (Appendix 2)
  - (c) Submission of a Transport & Works Act Order application to secure the necessary planning and consents for the scheme

- 1.16 Final decisions on the scheme will be the subject of a future Joint Assembly / Executive Board paper.

## 2. Issues for Consideration

- 2.1 The feedback from the EIA consultation has been used to inform the development of the design for the preferred option, with the project team considering all comments received during the consultation. The full feedback on the EIA can be found in the EIA Consultation Report in Appendix 1.
- 2.2 Wherever possible, feedback received has been incorporated into the scheme's design. The following key refinements have been made to the scheme's design following recommendations and preferences raised in the consultation. A number of design refinements have been made following the EIA consultation, including:
- Segregation of cycling/pedestrian path along Francis Crick Avenue;
  - Greater integration of CSETS, Cambridge South Station and the Guided Busway along Francis Crick Avenue for cyclists and pedestrians;
  - Pedestrian and cycle access to Nine Wells Local Nature Reserve subject to landowner agreement;
  - Landscape planting in the Nine Wells area;
  - Woodland planting between stops and local properties subject to landowner agreement and greater landscaping around the stops;
  - Picnic areas near the River Granta crossings subject to landowner agreement;
  - Active travel path connecting Granta Park with the Travel Hub;
  - Reduce the height of the River Granta (Stapleford) crossing; and
  - Additional cycle storage at the stops along the route.

### *Route Alignment Consideration*

- 2.3 At OBC stage the preferred route alignment for CSET Phase 2 was the Brown route, see Figure 3. However, as part of the EIA consultation, an alternative route between Babraham and Sawston was considered and presented for feedback.
- 2.4 The feedback received from the EIA consultation on the alternative route alignment suggested that this alternative would not be acceptable to members of the public, and that the benefits of this alternative route were not significant enough over those of the Brown route, to justify it being taken forward. As such at the conclusion of the EIA consultation process, the Brown route is still the preferred route alignment being progressed.
- 2.5 Further details are outlined in Appendix 1

**Figure 3 –Preferred Route**



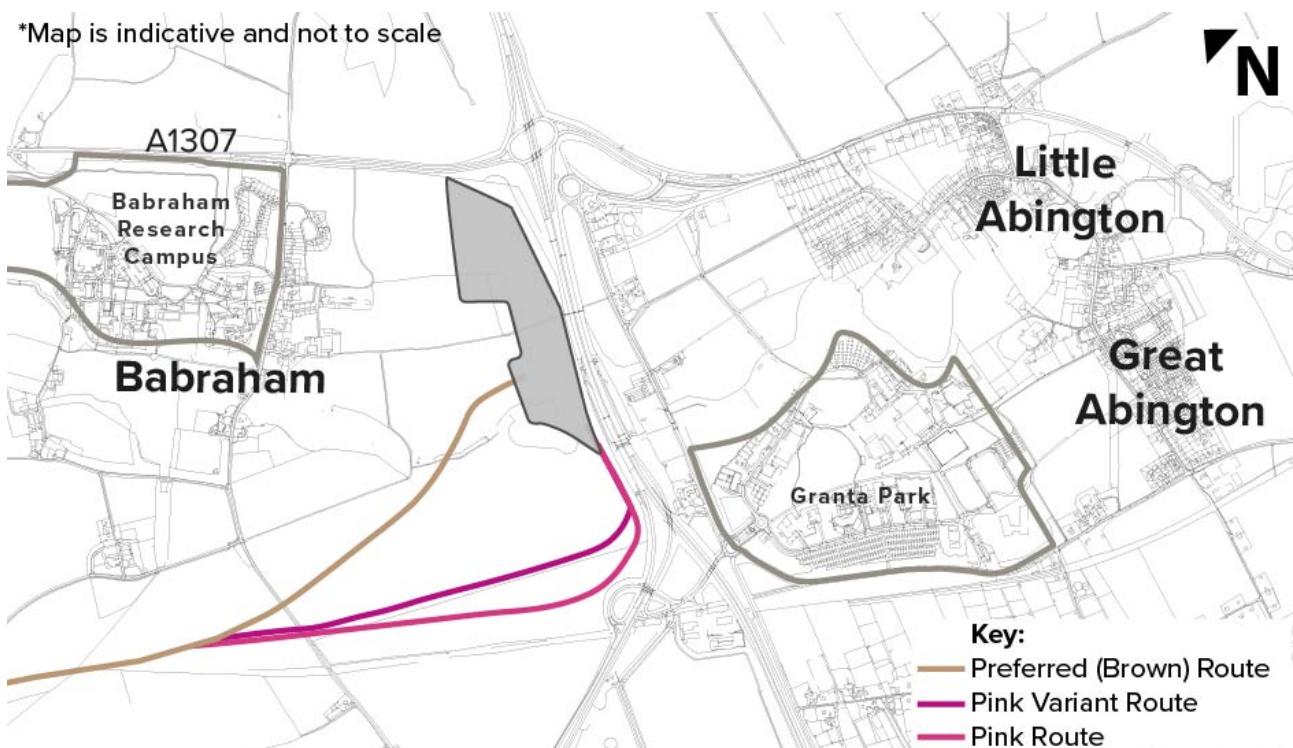
### Railway Alternative Route

- 2.6 During the OBC process consideration had been given to an alternative route following the disused Haverhill railway and then running alongside the existing railway to Great Shelford Station in a design development and feasibility assessment technical report commissioned and published in May 2020 [here](#)
- 2.7 The report concludes that alternative routes following the railway alignment would have lower benefits and higher costs relative to the shortlisted route alignments. In addition, a number of significant barriers would need to be overcome to enable construction of the route. This evidence supports the conclusions of previous work leading to the rejection of this alternative route.
- 2.8 Since the publication of the report, the Parish Councils of Great Shelford and Stapleford commissioned an independent review of the report and the conclusions presented to the GCP in March 2021.
- 2.9 The GCP has commissioned a review of the i-Transport report, attached in Appendix 4 and an independent assessment of the position, Appendix 5. The review concludes that the information in the i-Transport report does not alter the previous conclusions around the preferred route, in particular:
- The costs of the railway alignment alternative are significantly above the GCP's preferred route;
  - The i-Transport report confirms the requirement for demolition, with impacts on residential and commercial properties and greater impacts on railway infrastructure and operations;
  - Unresolved design constraints along the route including pumping station, station buildings and bridge structures, and;
  - The i-Transport report does not resolve the conflicts with the rail line, e.g. additional level crossings.

### *Pink Route Variant*

- 2.10 Four responses to the EIA consultation have proposed and requested consideration of a variation to the Pink Route. This variation to the Pink Route is termed the Pink Route Variant (PRV) and the alignment inferred from the residents' comments and the consultation responses is indicated below. Figure 4 below outlines the three route alignments.

**Figure 4**



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- 2.11 The Pink Route Variant alignment and the Brown Route alignment have been compared on the basis of environmental impacts, costs and value for money, to determine if there is any merit in the Pink Route Variant being considered for adoption as the preferred route instead of the current Brown Route alignment.
- 2.12 The results from the comparison shows that overall, the Brown Route Variant still performs better than the Pink Route Variant, although in very marginal terms. The comparison is outlined in Appendix 6.
- 2.13 On the basis of the assessment report, the Brown Route approved by the Executive board in June 2020 continues to be the preferred route alignment for the CSET scheme.
- 2.14 The final route proposals will be considered further as part of the Transport & Works Act process, most likely through a public inquiry, at which point proponents of alternative alignments will have the opportunity to further present their case.

## *Integration with Cambridge South Station and East West Rail*

- 2.15 CSET Phase 2 and the proposed Cambridge South Station (CSS) are considered complementary to each other, but not interdependent, meaning each scheme could still be delivered with or without the other. Regular meetings have taken place between CSET Phase 2 and Network Rail Cambridge South Station project teams to manage the interface between the two schemes as plans have developed, including work to deconflict construction programmes and activities. GCP expects to enter into an asset protection agreement with Network Rail.
- 2.16 CSET Phase 2 and East West Rail (EWR) are not interdependent. Although no design information is available for the proposed four track sections of railway shown in Figure 5, the alignment design for CSET Phase 2 anticipated a proposal for four tracking of the railway in this area. This is not expected to encroach onto the proposed alignment for CSET Phase 2. Regular meetings are also in place to manage interface between the two schemes and this collaboration is set to continue as progress is made.
- 2.17 The project team continues to work closely with the Cambridge South Station and EWR teams to maximise integration of the projects to the benefit of passengers and local communities.

**Figure 5: EWR Great Shelford to Cambridge route alignment proposal**



### **3. Consultation and Engagement**

#### *Environmental Impact Assessment (EIA) Consultation Feedback*

- 3.1 GCP undertook a public consultation regarding the Environmental Impact Assessment for the Cambridge South East Transport (CSET) Phase 2 scheme between Monday 19 October until Monday 14 December 2020. Due to the Covid-19 pandemic social distancing restrictions, the consultation was hosted online in line with government guidelines.
- 3.2 The consultation's purpose was to:
  - Present information on the current proposed scheme design.
  - Highlight scheme refinements and explain why the changes were made.
  - Identify potential environmental impacts.
  - Detail proposed mitigation measures of adverse impacts.
  - Provide an opportunity for all consultees to give their views on the proposals.
- 3.3 During the consultation, 399 formal responses were received. This included 304 survey responses with 299 online respondents and five hard copy surveys. 94 email responses and one letter were also received and considered by the project team.
- 3.4 Throughout the consultation period, 39 comments regarding the scheme on social media were documented by the project team. 304 statutory consultees, non-statutory consultees and local residents responded to the EIA consultation survey (online and postal responses). The survey representations came from 290 residents, 10 groups/organisations and four elected officials.
- 3.5 The feedback from this has been used to inform the development of the design for the preferred option, with the project team considering all comments received during the consultation. The full feedback on the EIA can be found in the EIA Consultation Report in Appendix 1.

### **4. Options and Emerging Recommendations**

- 4.1 The Executive Board will be asked to note the outcome of the EIA consultation, the non-technical summary of the Environmental Statement and its contents and agree the submission of a Transport and Works Order (TWAO) with the GCP working closely with Cambridgeshire County Council as the highways authority.

#### *Planning Conditions*

- 4.2 Prior to the submission of the TWAO Order draft planning conditions will be prepared and agreed with the Greater Cambridge Shared Planning Service and the planners at Cambridgeshire County Council, based on the mitigation measures set out within the Environmental Statement. The Draft Planning Conditions will need to satisfy the six tests set out in National Planning Policy Guidance and be necessary, relevant to planning, and to the development to be permitted, enforceable, precise and reasonable in all other respects.

The conditions are likely to include the following:

1. Construction Environmental Management Plan.
2. Details of tree protection measures.
3. Submission of Contaminated land/remediation statement.
4. Submission of phase 2 ecology surveys.
5. Details of proposed structures, travel hub design and means of enclosures.
6. Proposed landscaping and Landscape Environmental Management.
7. Submission of Energy Efficiency measures and EV Charging bays in the Travel Hub.
8. Submission of noise monitoring, noise limits and hours of operation information.

### *Transport Assessment*

- 4.3 A [Transport Assessment](#) has been prepared to support the Transport and Works Act Order application for the scheme and demonstrates that it is projected to help enable sustainable growth in Cambridge by opening up capacity on the local highway network and, facilitating safe and reliable public and active travel to and from the Cambridge Biomedical Campus by providing a new off-line public transport and Active Travel Path with minimal interaction with other motorised transport.
- 4.4 An assessment of existing transport conditions in the area indicates that vehicles travelling into Cambridge along both the A1301 and A1307 experience congestion in the AM peak and vice versa in the PM peak. Whilst the 1,458-space Babraham Road Park & Ride, the nearest park and ride site to CSET's proposed A11 Travel Hub, has historically reached capacity regularly; and demand on the corridor is expected to increase as the Cambridge Southern Fringe, CBC and Cambridge City Centre continue to grow and develop.
- 4.5 The proposed A11 Travel Hub will provide a total of 1,250 car parking spaces, including 62 Blue-Badge spaces and 62 electric vehicle charging bays, alongside a public transport interchange, 288 cycle parking spaces and 10 coach parking bays. In addition, the Travel Hub site will also include 25 pickup/drop-off bays, 9 service and maintenance bays and an equestrian parking area to allow equestrians safe access onto the proposed Active Travel Path.
- 4.6 From the Travel Hub, users will be able to complete onwards journeys via sustainable modes by accessing a number of new public transport services or by walking or cycling. The scheme includes a dedicated High Quality Public Transport route which will route northwest for approximately 9km between the Travel Hub and Cambridge Biomedical Campus, with localised stops at Sawston, Stapleford and Greater Shelford. By providing an off-line, dedicated High Quality Public Transport route that bypasses a number of key bottlenecks into Cambridge, public transport services would be unaffected by congestion, enabling more reliable journey times and allowing public transport to compete more effectively with the private car.
- 4.7 The CSET scheme and its associated improvements are expected to maximise the potential for journeys to be undertaken by sustainable modes of transport and provide new public transport links which are predicted to reduce public transport journey times. The scheme will also provide a new shared use path for pedestrians,

cyclists and equestrians which would connect into wider routes towards Cambridge, and in doing so, further promote the use of active travel modes.

- 4.8 In addition to the A11 Travel Hub, the dedicated High Quality Public Transport route and Active Travel Path; the wider CSET proposals include several off-site improvements such as integration with the proposed Sawston Greenway and improvements to nearby Public Rights of Way. These improvements aim to maximise the potential for onward journeys to be undertaken by sustainable modes of transport and reduce the impact of traffic in and around Cambridge.
- 4.9 To assess the vehicular impact of the CSET scheme, a robust highway impact assessment has been undertaken using a combination of SATURN strategic modelling using the Cambridge Sub Regional Model and ARCADY junction modelling at both the A11/A1307 junction and the proposed A11 Travel Hub access roundabout.
- 4.10 The scenarios tested using modelling are Do Minimum, without the proposed development, and Do Something, with the proposed development. Both these scenarios were tested for a 2026 future year and a 2036 future year.
- 4.11 The transport modelling assessment demonstrates that the proposals would not have a negative impact on the levels of traffic surrounding the proposed Travel Hub and would improve or retain the same level of service at the A11/A1307 junction in both the AM and PM peak compared to a scenario where the CSET scheme does not come forward.

#### *Environmental Impact Assessment*

- 4.12 An [EIA Scoping Report](#) was issued to the Secretary of State for Transport in October 2020 and a [Scoping Opinion from DfT](#) received in November 2020. The Environmental Statement is being prepared in line with the comments received in the scoping opinion.
- 4.13 Extensive surveys have been undertaken to inform the EIA baseline, including air quality monitoring, agricultural soil surveys, ground investigations, ecology surveys, archaeological trial trenching, summer and winter landscape assessment surveys, baseline lighting surveys, noise monitoring of buses on the existing guided busway and traffic surveys.
- 4.14 A Statement of Sustainable Design and Construction provides a summary of how the scheme will contribute to sustainable development, outlining design and construction phase measures that have been or will be adopted, and how it complies with existing guidance. The active travel routes within the public transport corridor and the provision of welfare and cycle storage facilities support health and wellbeing. Provision of car charging points, partially using renewable solar energy, and the provision of electric public transport vehicles to operate on the route will allow for improvements to local air quality and contribute to regional and national carbon emissions policies.

- 4.15 The effects on climate from the carbon emissions<sup>1</sup> associated with the scheme have been assessed, including construction and operational activities. A carbon reduction workshop was undertaken in October 2020 with the design team to determine ideas for carbon reduction which were to be implemented and further researched as necessary. Carbon emissions have been reduced through operation due to the proposed use of solar panels and increased sequestration due to the mitigation planting. Furthermore, through detailed design continued carbon reduction will be sought focusing on the carbon hotspots identified through the assessment.
- 4.16 A Natural Capital Assessment of the CSET scheme has been produced that quantifies natural features as assets that benefit people. The scheme is predicted to cause an overall gain in the provision of Ecosystem Services through the creation of new habitats and increasing access for people but will cause a loss in crop production. There is a net economic benefit that is assessed to be equivalent to about £390,000 over the life of the project.
- 4.17 GCP have committed to deliver a minimum of 10% biodiversity net gain (BNG) on any one project with an overall objective to deliver 20% BNG across the GCP transport schemes. The area BNG for the final CSET scheme is currently being finalised, but the expectation is that at least 10% BNG will be delivered onsite, and this may exceed the 20% BNG commitments. CSET will deliver substantial linear BNG, and continues to explore the concept of a linear park.
- 4.18 The likely significant effects and main mitigation proposals are summarised in chapters 9 and 10 of the EIA report which is attached as Appendix 2. The EIA continues to be updated. These are Community and Human Health, Land Use and Land Take, and the Construction Traffic Assessment. There are likely to be temporary significant effects, during construction, on Great Crested Newts, and visual impacts in some locations.
- 4.19 Few permanent significant effects have been identified. However, on opening there are expected to be significant effects on buried archaeology, landscape and visual impacts for some residents with properties near the route, staff at the Cambridge Biomedical Campus and the users of some Public Rights of Way, roads and permissive paths. When the planting around the scheme has matured, the visual impact will have reduced, but there will still be three areas where significant effects are predicted. These are:
- Users of Restricted Byway Babraham 12/10 and residents of North Farm looking south-west.
  - Residents on Sawston Road, Lynton Way and Stanley Webb Close and users of the existing cycleway on Sawston Road looking east towards the A11.
  - Users of Footpath Babraham 12/4 looking south and south-east.

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<sup>1</sup> Greenhouse Gases (GHGs) refer to the seven gases covered by the Kyoto Protocol: carbon dioxide (CO<sub>2</sub>), methane (CH<sub>4</sub>), nitrous oxide (N<sub>2</sub>O), hydrofluorocarbons (HFCs), perfluorocarbons (PFCs), sulphur hexafluoride (SF<sub>6</sub>) and nitrogen trifluoride (NF<sub>3</sub>). These are measured in units of carbon dioxide equivalent (CO<sub>2</sub>e) which expresses the impact of each gas in terms of the amount of CO<sub>2</sub> that would create the same impact. GHGs are commonly referred to as carbon.

## **5. Alignment with City Deal Objectives**

5.1 The CSET project forms an important part that will enable the Greater Cambridge Partnership to deliver against the objectives that were set out in the City Deal. The scheme will seek to connect people to places of employment and allow communities to grow sustainably in the coming years, by creating better and greener transport networks, reducing congestion and making better use of limited road space by prioritising sustainable transport.

## **6. Citizen's Assembly**

6.1 Citizens' Assembly members developed and prioritised their vision for transport in Greater Cambridge. The CSET project supports a number of those priorities, namely:

- Be environmental and zero carbon (28).
- Be people centred – prioritising pedestrians and cyclists (26).
- Enable interconnection (25).
- Have interconnected cycle infrastructure.
- Provide transport equally accessible to all.

6.2 The Citizens' Assembly voted on a series of measures to reduce congestion, improve air quality and public transport which aligns with the aims of the CSET scheme.

## **7. Financial Implications**

7.1 Costings for the scheme was updated in April 2021 to reflect the current scheme designs (Design Freeze 3). The current budget for the scheme is £132m. Costings will continue to be reviewed up until the Full Business Case is presented to the Executive Board for final sign off.

Have the resource implications been cleared by Finance? Yes  
Name of Financial Officer: Sarah Heywood

## **8. Legal Implications**

8.1 The scheme will be delivered through an application utilising the Transport & Work Act Order process. In accordance with the delegated responsibility, GCP promotes the TWAO but legally, Cambridgeshire County Council needs to be named as the applicant and beneficiary of the TWAO. The GCP will continue to work closely with the County Council as the highways authority to deliver the scheme.

Have the legal implications been cleared by Legal? Yes  
Name of Legal Officer: Fiona McMillian

## **9. Next Steps and Milestones**

9.1 The next steps in the development of the project include the key elements set out in the table below.

## Indicative Programme

Task	Commentary	Timescale
<b>Submit application for statutory consent</b>	The power to construct the scheme will come from a Transport and Works Act Order which would be determined by the Secretary of State for Transport. This process is likely to include a Public Inquiry directed by an independent Inspector.	Submit application Autumn / Winter 2021 with a determination period estimated of around 18 months – completed in 2022
<b>Seek authority to construct project</b>	Following the completion of the statutory permissions stage, the Board will be presented with the Final Business Case for approval. This will trigger the construction of the project.	2022 depending on statutory powers process
<b>Opening of the scheme to operational services</b>	Planned opening	Planned for 2025

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## Background Papers

Source Documents	Location
CSET Webpage	<a href="#">Cambridge South East Transport Background - Greater Cambridge Partnership</a>



# **Cambridge South East Transport Phase 2**

CSET EIA Consultation Summary

May 2021



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# **Cambridge South East Transport Phase 2**

**CSET EIA Consultation Summary**

**May 2021**

# Issue and Revision Record

Revision	Date	Originator	Checker	Approver	Description
A	25/01/21	L Bowyer	H Burgess	M Payne	First draft for client review
B	01/04/21	L Bowyer	H Le Brecht / H Burgess	M Payne	Updated draft for client review
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D	20/05/21	L. Bowyer	H Burgess	M Payne	Final

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**Information class: Standard**

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# 1 Executive Summary

- 1.1.1 Cambridge South East Transport (CSET) Phase 2 proposes a new public transport route between Cambridge Biomedical Campus and a new Travel Hub site near the A11. A consultation on the scheme's Environmental Impact Assessment (EIA) was conducted by Greater Cambridge Partnership (GCP) between Monday 19 October and Monday 14 December 2020.
- 1.1.2 The key findings of the EIA consultation survey were:
- The highest proportion of respondents (33.6%) strongly opposed the proposed route realignment between Babraham and Sawston. 11.8% strongly supported and 15.5% supported the proposed realignment.
  - Approximately 30% of respondents provided comments on the interchange between Cambridge South Station, guided busway and Francis Crick Avenue. Most of the comments provided focused on the topics identified below:
    - Improvements to existing cycle infrastructure;
    - Opportunities for landscaping or tree planting;
    - Pedestrian, cycle and vehicular access to Cambridge South Station;
    - Width of the active travel path, public transport corridor and northbound and southbound traffic lane;
    - Tie-in to the existing guided busway; and
    - Pedestrian and cycle priority at minor junctions and introduction of diagonal crossing.
  - The highest proportion of respondents (38.2%) expressed a preference for planting a mix of trees and hedges along Francis Crick Avenue.
  - 54.3% of respondents agreed with the proposed segregation of the cycling/pedestrian path along the western side of Francis Crick Avenue compared with 4.9% of respondents that opposed the proposal.
  - The highest proportion of respondents (26.0%) stated they access Nine Wells local nature reserve via the DNA path coming from Great Shelford.
  - If only one route was in place to enter Nine Wells local nature reserve, the highest proportion of respondents (39.8%) would like to retain access via the track alongside Hobson's Conduit.
  - A majority of respondents (59.5%) stated they cycle along the DNA path when using it.
  - The highest proportion of respondents answered 'No opinion' (36.5%) or supported (29.9%) the landscaping proposals in the Nine Wells area.
  - A majority of respondents (60.9%) indicated they would like woodland planting between stops and residential properties.
  - The highest proportion of respondents (40.1%) preferred grass and scattered trees alongside the River Granta.
  - The highest proportion of respondents (42.4%) stated they would like picnic areas provided along the route for users of the active travel path near the River Granta crossing.
  - The highest proportion of respondents (33.6%) preferred the active travel path to continue alongside the public transport route instead of joining the existing path along Sawston Road.
  - The highest proportion of respondents (37.2%) strongly supported tree avenues along the route.

- Respondents were asked to indicate their support for each active travel path proposal from the Travel Hub to Granta Park and to Babraham Research Campus:
  - The highest proportion of respondents answered either 'No opinion' (28.6%) or strongly supported (27.6%) an active travel route between the Travel Hub and Granta Park (Active Travel Route A).
  - The highest proportion of respondents answered either 'No opinion' (26.3%) or strongly supported (23.4%) an active travel route along the existing footpath from the Travel Hub to the High Street with a diversion to avoid a farmyard (Active Travel Route B).
  - The highest proportion of respondents answered either 'No opinion' (29.0%) or strongly opposed (20.4%) an active travel route from the Travel Hub along the active travel path to the High Street and along the High Street to Babraham Research Campus (Active Travel Route C).
  - The highest proportion of respondents answered either 'No opinion' (31.6%) or strongly supported (20.1%) an active travel route from the Travel Hub alongside the A1307 to Babraham Research Campus (Active Travel Route D).

1.1.3 GCP's Executive Board will review the findings of the EIA consultation which will inform the Board's decision on whether to progress the scheme.

1.1.4 If GCP's Executive Board approves the scheme following review, it will be finalised by the project team prior to the submission of a Transport and Works Act Order (TWAO) application for the scheme to the Secretary of State for Transport. The Secretary of State is responsible for making the final decision on whether to make or reject the TWAO.

1.1.5 Alongside the EIA consultation, a consultation to consider the scheme's Environmental Scoping Report was also conducted by the Secretary of State for the Department of Transport following a request submitted by GCP on 15 October 2020. This ran separately to the EIA consultation and will provide evidence as part of the Environmental Statement (ES) to fulfil statutory TWAO requirements ahead of the proposed submission of the scheme.

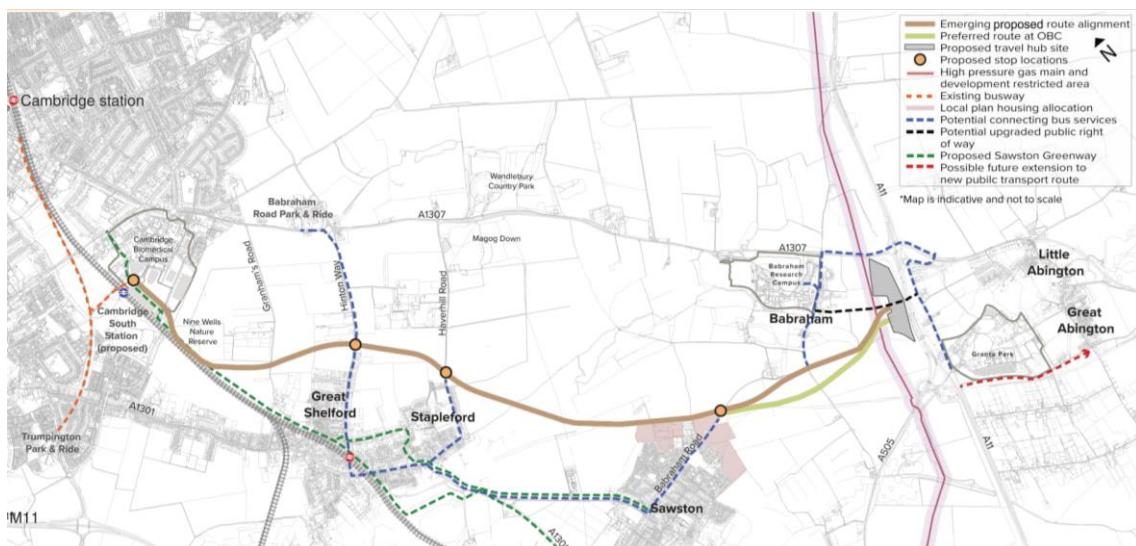
1.1.6 This report documents the results of the 2020 EIA Consultation on the CSET scheme's EIA to inform the Greater Cambridge Partnership's (GCP) Executive Board.

## 2 Introduction

### 2.1 Overview

- 2.1.1 GCP conducted the consultation between Monday 19 October and Monday 14 December 2020.
- 2.1.2 Following previous consultation, GCP's Executive Board identified the Brown route (the route) as the preferred option for the scheme. This route was the most supported option and was assessed as meeting the scheme's objectives most suitably.
- 2.1.3 GCP's Executive Board will consider whether to approve or reject the route based on a number of findings, including the consultation results, as part of its review of the scheme.
- 2.1.4 A detailed overview of all route options consulted on throughout the scheme's evolution is outlined in Section 18 of the [Outline Business Case \(OBC\) Strategic Case](#).
- 2.1.5 The consultation presented environmental analysis of the route to provide further information for statutory consultees, non-statutory consultees and local residents before the plans are finalised and submitted.
- 2.1.6 The EIA consultation will feed into an Environmental Statement, which will be submitted as part of the full TWAO application to evidence the EIA findings.
- 2.1.7 As part of the consultation an emerging proposed route option was presented in addition to the preferred option approved by the GCP board, these were:
- An emerging route alignment to the south of Babraham to reduce the impact on farm operations and the impact on landscape character in the area.
  - The preferred route at Outline Business Case (OBC).
- The two options had very similar scores when assessed against the scheme objectives, so the consultation responses were key in deciding which was taken forward in the design and the EIA process.
- 2.1.8 Map 2.1 shows the route options that were presented in the consultation.

**Map 2.1: Route options presented in the consultation**



## **2.2 Environmental Scoping Report Consultation**

- 2.2.1 An Environmental Scoping Report was prepared on 13 October 2020 in support of the request made under rule 8(1) of the Application Rules requesting the Secretary of State for the Department for Transport to issue a scoping decision as to the information to be provided in the ES for the CSET Scheme. The ES Report identified key environmental information for the scheme that will be considered and reported in the ES.
- 2.2.2 On 27 November 2020, the Secretary of State for the Department for Transport issued a letter to GCP outlining the requirements for the ES, following a separate consultation with Natural England, the Environment Agency, Historic England, Cambridgeshire County Council, Greater Cambridge Shared Planning (GCSP), Network Rail and Highways England.

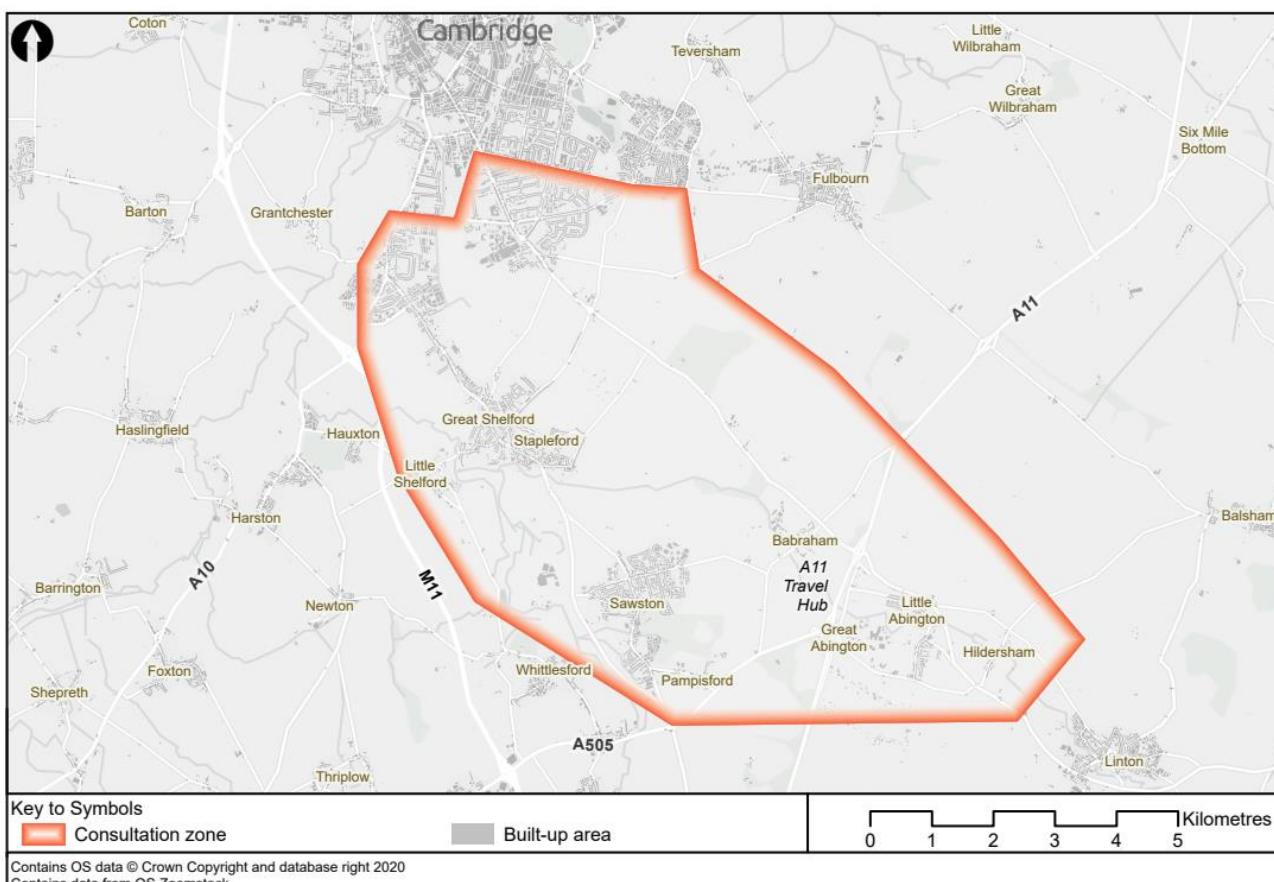
## 3 EIA Consultation 2020

- 3.1.1 GCP undertook a public consultation regarding the Environmental Impact Assessment for the Cambridge South East Transport (CSET) Phase 2 scheme between Monday 19 October until Monday 14 December 2020.
- 3.1.2 The consultation's purpose was to:
- Present information on the current proposed scheme design
  - Highlight scheme refinements and explain why the changes were made
  - Identify potential environmental impacts
  - Detail proposed mitigation measures of adverse impacts
  - Provide an opportunity for all consultees to give their views on the proposals.
- 3.1.3 Due to the Covid-19 pandemic social distancing restrictions, the consultation was hosted online via a virtual exhibition. [The consultation followed the UK Government guidelines for pre-planning application consultations during Covid-19 social distancing restrictions.](#)
- 3.1.4 The following consultation programme was undertaken:
- Press releases and media coverage
  - Paid-for media adverts
  - Consultation flyer (distributed to 19,000 local addresses)
  - Virtual exhibition
  - Online survey
  - Website
  - Social media promotion including Facebook, Twitter and LinkedIn
  - Online webinars

### 3.2 Publicity

- 3.2.1 The consultation was publicised through paid-for advertisements that were placed in:
- Cambridge Independent
  - Cambridge News
  - A bus stop at Cambridge Railway Station
  - Babraham Road Park & Ride bus stop
  - On Park & Ride buses
- 3.2.2 Press releases were issued on Monday 19 October and Friday 4 December to local media outlets.
- 3.2.3 A consultation flyer was distributed to approximately 19,000 addresses along or near to the proposed route for the scheme. The flyer was also distributed to landowners directly impacted along the proposed route and made available on GCP's website.
- 3.2.4 Map 3.1 displays the distribution area for the flyer mailshot.

**Map 3.1: EIA consultation flyer mailshot area**



### 3.3 Virtual Exhibition

3.3.1 The public and all other stakeholders (consultees) could submit feedback during the 'live' period of the virtual exhibition from Monday 19 October until Monday 14 December 2020 at [cset.consultationonline.co.uk](http://cset.consultationonline.co.uk)

3.3.2 The virtual exhibition contained exhibition boards with the following information provided:

- Welcome to the CSET EIA Consultation video
- Scheme 'fly-over' video
- Interactive map
- Exhibition Board 1: 'Welcome'
- Exhibition Board 2: 'What is the CSET Phase 2 Scheme?'
- Exhibition Board 3: 'About this consultation'
- Exhibition Board 4: 'Individual Scheme Elements'
- Exhibition Board 5: 'Environmental Information by area'
- Exhibition Board 6: 'Find out more'
- Feedback options and online survey
- Contact information.

3.3.3 During the consultation period, between Monday 19 October and Monday 14 December 2020, 1,412 unique users visited the virtual exhibition site.

### 3.4 Online webinars

- 3.4.1 Two online webinars were advertised publicly and held via Zoom so the project team could present the scheme's proposals to consultees that signed up to attend. Following the presentations, the project team were available for questions to be asked.
- 3.4.2 Across both webinars, questions raised by attendees covered the following themes:
- Public transport vehicle capacity and service frequency
  - Environmental Impact Assessment and consultation process
  - Route alignment options
  - Location of stops along the route
  - Ecological impacts and biodiversity net gain
  - Scheme cost and funding
  - The role of CCC and GCP in the scheme
  - Safety of crossings along the route for cyclists, pedestrians and horse-riders
  - Active travel path options
  - Noise impact
  - Transport Assessment
  - Stakeholder engagement and working groups.

## 4 Feedback Overview and Survey Demographics

- 4.1.1 During the consultation, 399 formal responses were received. This included 304 survey responses with 299 online respondents and five postal surveys.
- 4.1.2 94 email responses and one letter were also received and considered by the project team.
- 4.1.3 Throughout the consultation period, 39 comments regarding the scheme on social media were documented by the project team.
- 4.1.4 The survey representations came from 290 residents, 10 groups/organisations and four elected officials.

### 4.2 Respondent location

- 4.2.1 248 respondents entered recognisable postcodes, while 56 (18.4%) did not. Based on the postcode data provided most respondents resided in Cambridge (17.8%), Stapleford (16.8%) and Great Shelford (15.5%).
- 4.2.2 These postcodes were used to group respondents by parish (or ward in the case of Cambridge) and then into one of two categories, where significant:

'Near to Travel Hub' (covering 14.5% of respondents). This category covered:

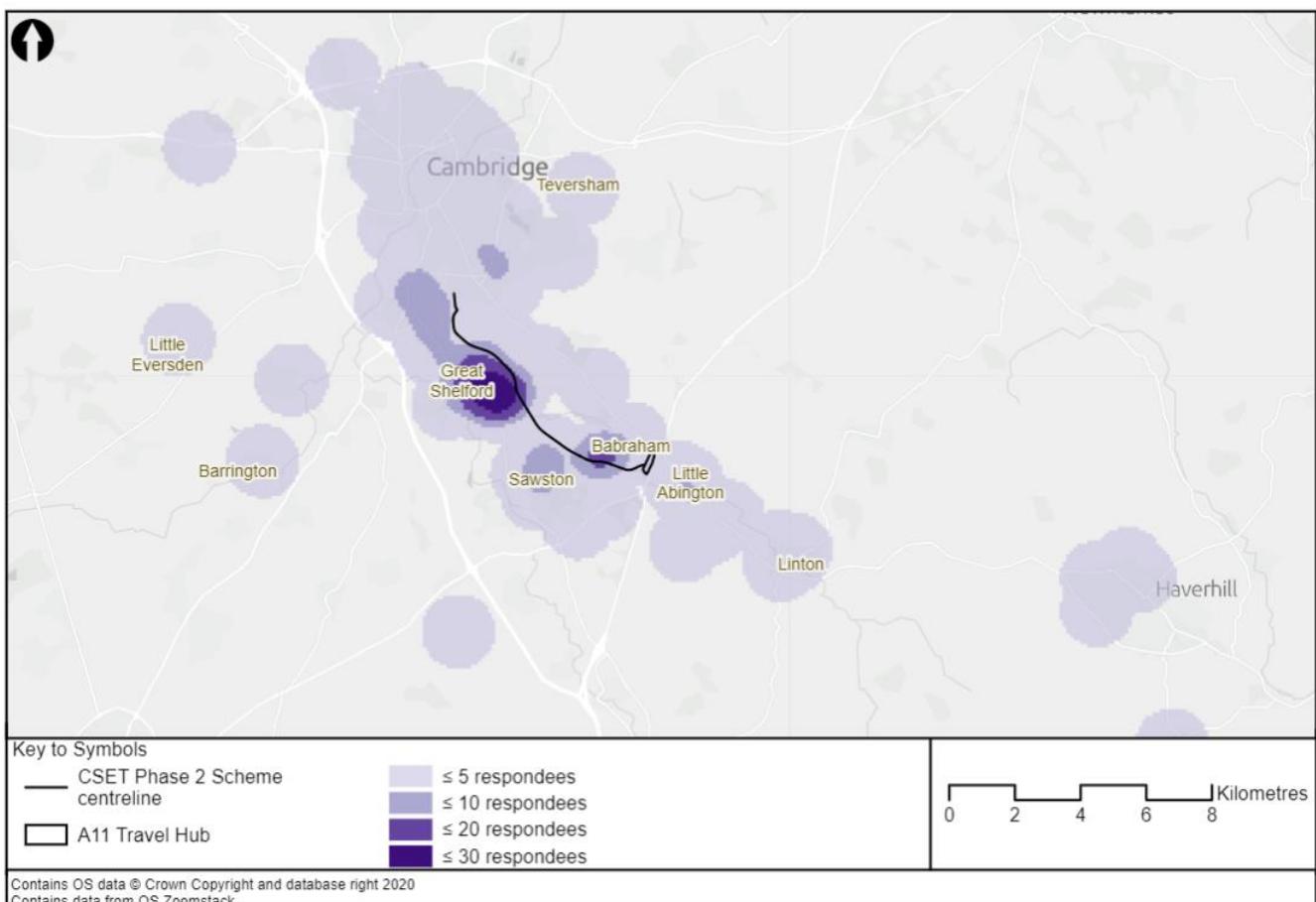
- Babraham
- Great Abington
- Hildersham
- Linton
- Little Abington
- Pampisford

'Near to proposed route' (covering 38.2% of respondents). This category covered:

- Stapleford
- Great Shelford
- Sawston

- 4.2.3 Map 4.1 presents a heatmap of survey respondent locations. This demonstrates the frequency with which responses were received from locations along the route.

**Map 4.1: Postcode location of survey respondents**

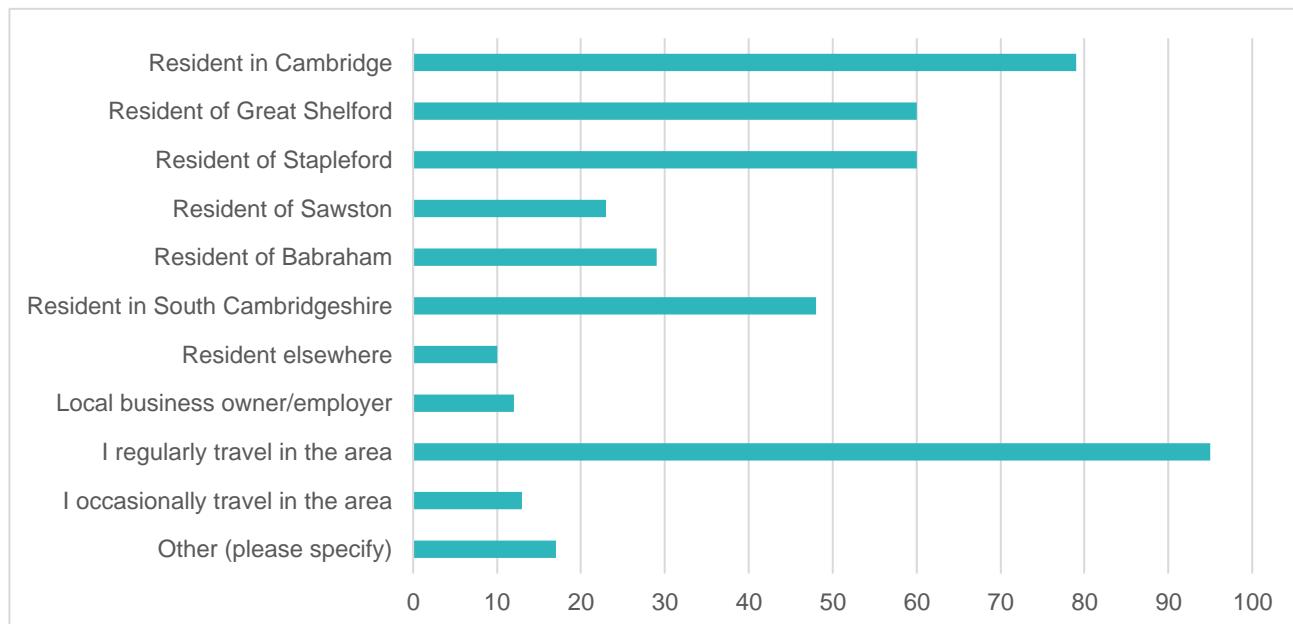


#### 4.3 Respondent interest in the project

4.3.1 302 respondents answered the question on their interest in the project. More than one answer could be given by respondents.

- 79 respondents (26.0%) answered 'Resident in Cambridge'.
- 60 respondents (19.7%) answered 'Resident of Great Shelford'.
- 60 respondents (19.7%) answered 'Resident of Stapleford'.
- 23 respondents (7.6%) answered 'Resident of Sawston'.
- 29 respondents (9.5%) answered 'Resident of Babraham'.
- 48 respondents (15.8%) answered 'Resident in South Cambridgeshire'.
- 10 respondents (3.2%) answered 'Resident elsewhere'.
- 12 respondents (4.0%) answered 'Local business owner/employer'.
- 95 respondents (31.3%) answered 'I regularly travel in the area'.
- 13 respondents (4.2%) answered 'I occasionally travel in the area'.
- 17 respondents (5.6%) answered 'Other'.

**Chart 4.1: Question 19 – Interest in project**



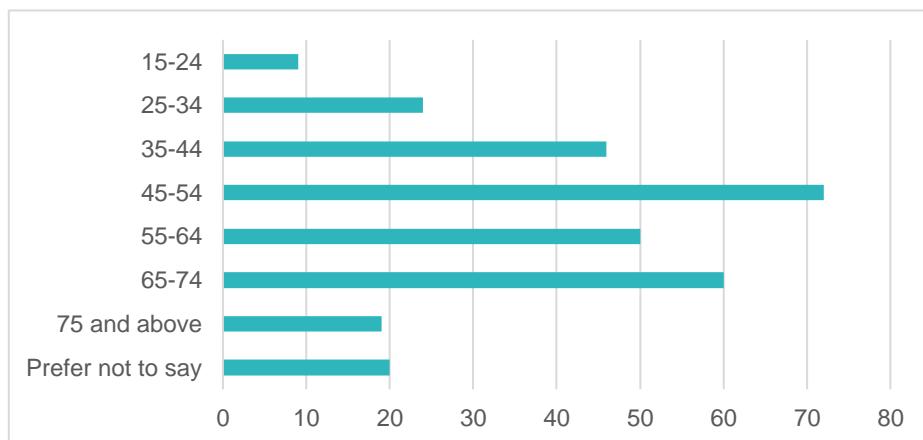
#### **4.4 Respondent age range**

4.4.1 300 respondents answered the question on their age range.

4.4.2 The most frequent answer was '45-54' with 72 respondents (23.7%) indicating that, with '65-74' the second most common answer (60 respondents; 19.7%). The lowest representation was from the '15-24' age range with only nine respondents (3.0%).

- Nine respondents (3.0%) answered '15-24'.
- 24 respondents (7.9%) answered '25-34'.
- 46 respondents (15.1%) answered '35-44'.
- 72 respondents (23.7%) answered '45-54'.
- 50 respondents (16.5%) answered '55-64'.
- 60 respondents (19.7%) answered '65-74'.
- 19 respondents (6.3%) answered '75 and above'.
- 20 respondents (6.6%) answered 'Prefer not to say'.

**Chart 4.2: Question 20 – Age range**

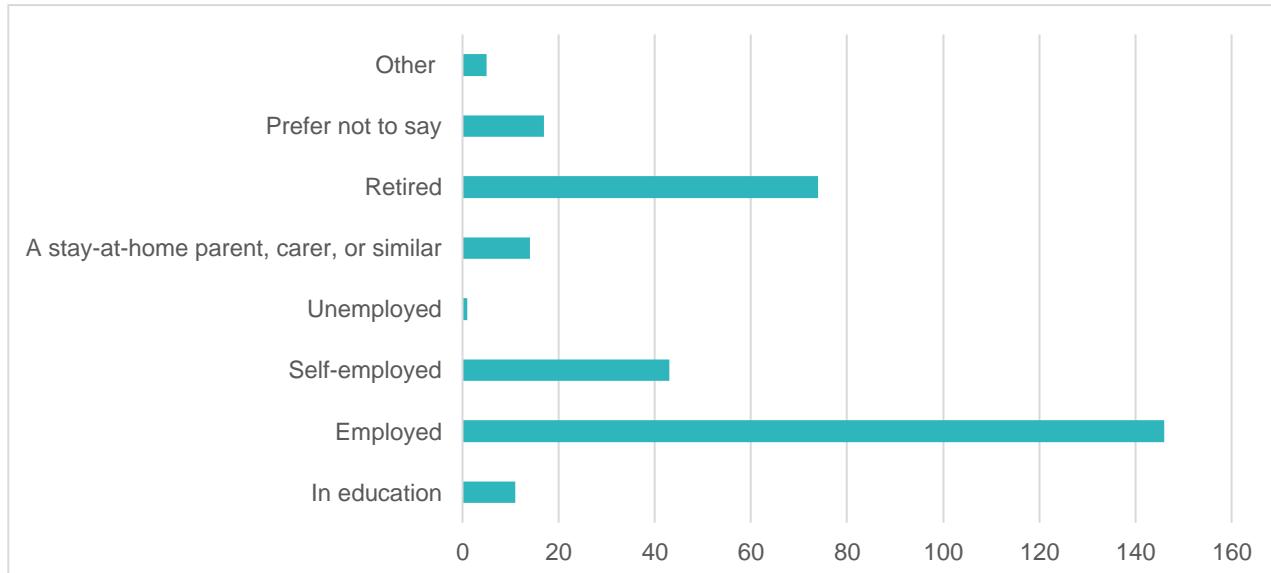


## 4.5 Respondent employment status

4.5.1 300 respondents answered the question on their employment status.

- 11 respondents (3.6%) answered 'In education'.
- 146 respondents (48.0%) answered 'Employed'.
- 43 respondents (14.1%) answered 'Self-employed'.
- One respondent (0.3%) answered 'Unemployed'.
- 14 respondents (4.6%) answered 'A stay-at-home parent, carer or similar'.
- 74 respondents (24.3%) answered 'Retired'.
- 17 respondents (5.6%) answered 'Prefer not to say'.
- Five respondents (1.6%) answered 'Other'.

**Chart 4.3: Question 21 – Employment status**

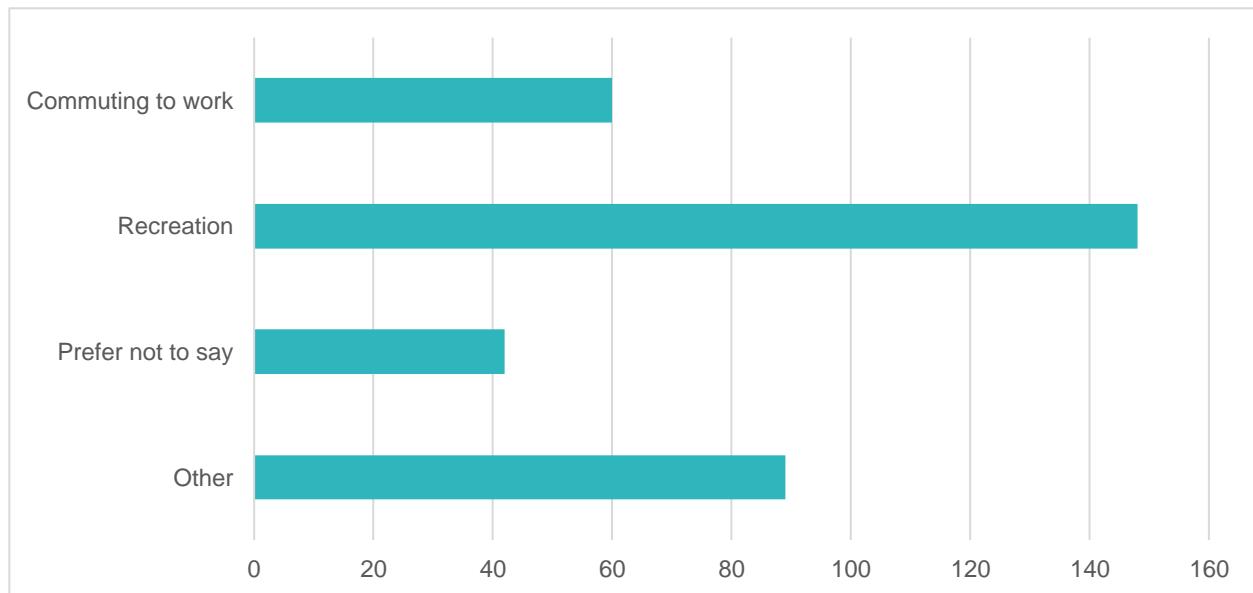


## 4.6 Scheme use

4.6.1 280 respondents answered Question 22 which asked respondents how they would use the scheme.

- 60 respondents (19.7%) answered 'Commuting to work'.
- 148 respondents (48.7%) answered 'Recreation'.
- 42 respondents (13.8%) answered 'Prefer not to say'.
- 89 respondents (29.3%) answered 'Other'.

**Chart 4.4: Question 22 – Scheme use**

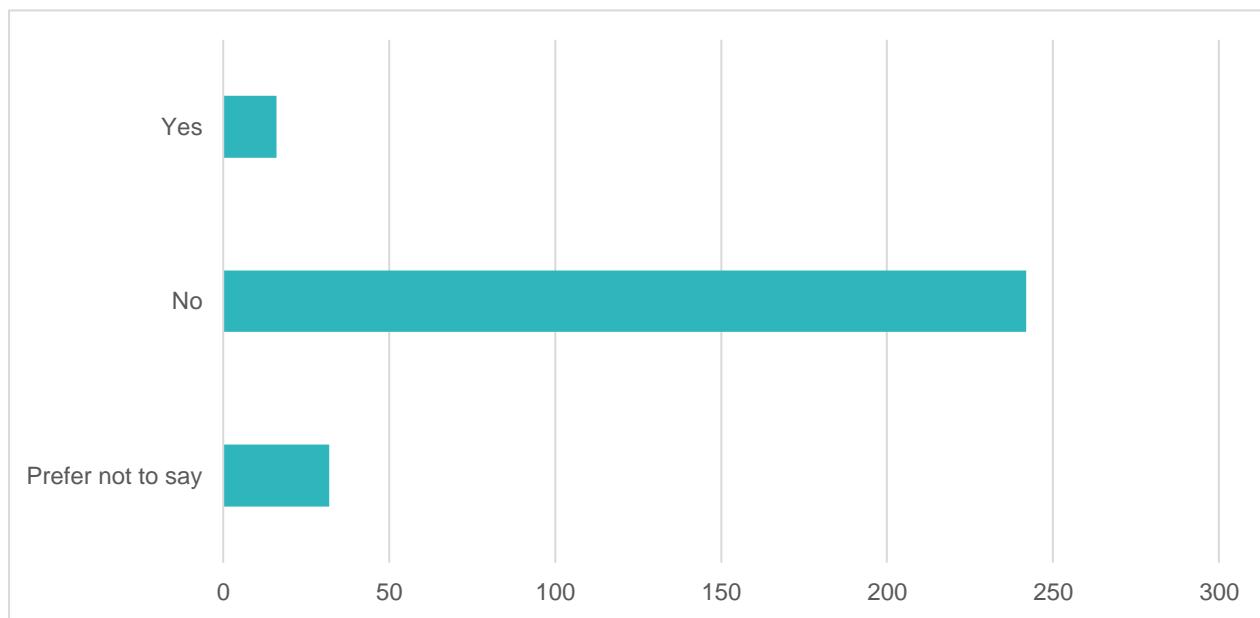


## 4.7 Respondent accessibility status

4.7.1 290 respondents answered the question on whether they had a disability that influences travel decisions.

- 16 respondents (5.3%) answered 'Yes'.
- 242 respondents (79.6%) answered 'No'.
- 32 respondents (10.5%) answered 'Prefer not to say'.

**Chart 4.5: Question 23 – Accessibility status**



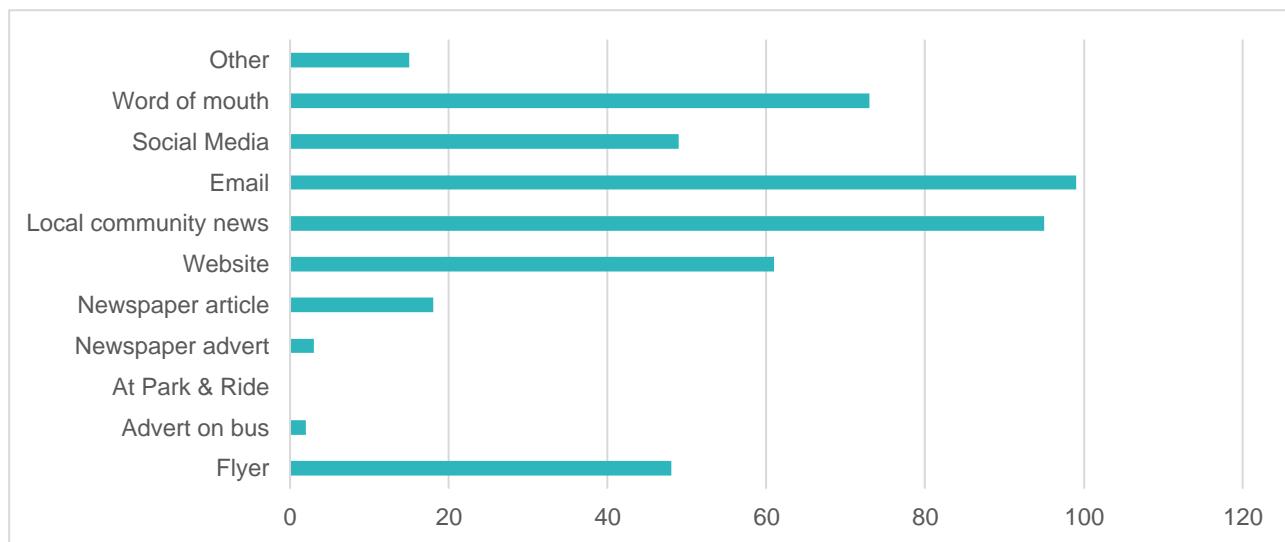
4.7.2 57 responses were provided to Question 18 in the survey which stated “We have a duty to ensure that our work promotes equality and does not discriminate or disproportionately affect or impact people or groups with protected characteristics under the Equality Act 2010. Please comment if you feel any of the proposals would either positively or negatively affect or impact on any such person/s or group/s.”

## 4.8 Consultation publicity

4.8.1 294 respondents answered Question 24 which asked respondents how they found out about the consultation. More than one answer could be given by respondents.

- 48 respondents (15.8%) answered ‘Flyer’.
- Two respondents (0.7%) answered ‘Advert on bus’.
- No respondents (0.0%) answered ‘At Park & Ride’.
- Three respondents (1.0%) answered ‘Newspaper advert’.
- 18 respondents (5.9%) answered ‘Newspaper article’.
- 61 respondents (20.1%) answered ‘Website’.
- 95 respondents (31.3%) answered ‘Local community news’.
- 99 respondents (32.6%) answered ‘Email’.
- 49 respondents (16.1%) answered ‘Social Media’.
- 73 respondents (24.0%) answered ‘Word of mouth’.
- 15 respondents (4.9%) answered ‘Other’.

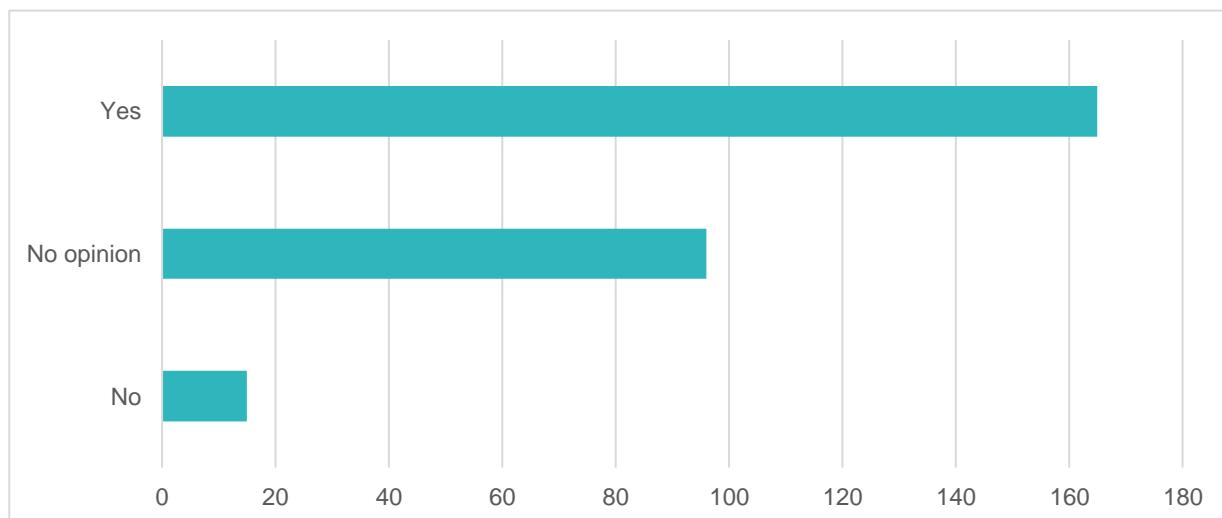
**Chart 4.6: Question 24 – Consultation publicity**



## 5 Feedback Analysis

- 5.1.1 The results from survey questions in the consultation specific to the scheme are listed below.
- 5.1.2 \*Please note, Question 1 asked respondents if they were 'responding as an individual' or if they were 'responding on behalf of a group or business, or as an elected representative'. These responses have been outlined within the respondent profile.
- 5.2 Question 2: Having read the information provided on proposals for Francis Crick Avenue do you agree with the proposed segregation of the cycling / pedestrian path along the western side of Francis Crick Avenue?**
- 5.2.1 276 respondents answered the question on how far they agree with the proposed segregation of the cycling/pedestrian path along the western side of Francis Crick Avenue.
- 165 respondents (54.3%) answered 'Yes'.
  - 15 respondents (4.9%) answered 'No'.
  - 96 respondents (31.6%) answered 'No opinion'.

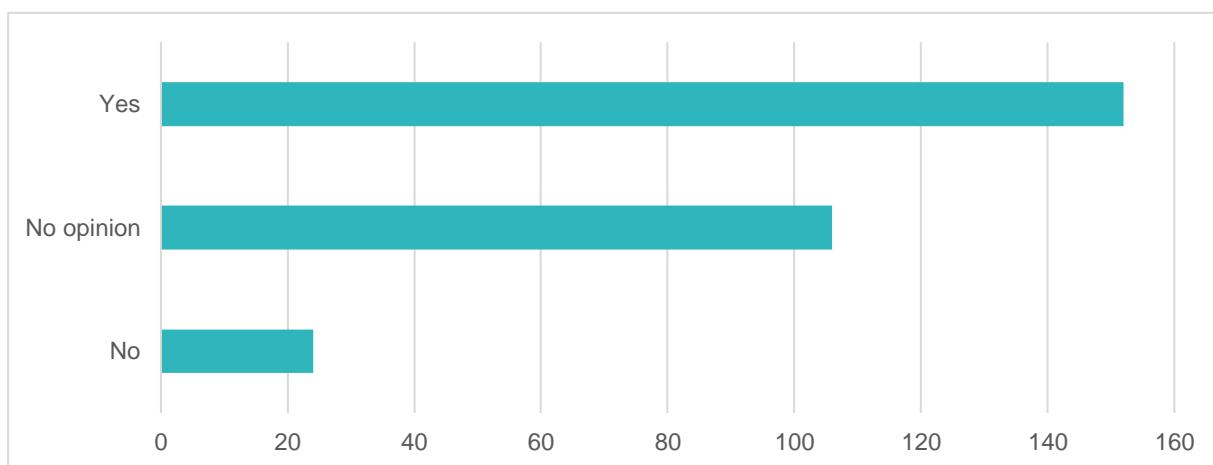
**Chart 5.1: Question 2 – Proposed segregation of the cycling / pedestrian path along the western side of Francis Crick Avenue**



- 5.3 Question 3: Do you consider it is necessary to have a pedestrian footway along the eastern side of Francis Crick Avenue between Dame Mary Archer Way and the existing guided busway in addition to the footway along the western side?**
- 5.3.1 282 respondents answered the question on whether they consider it necessary to have a pedestrian footway along the eastern side of Francis Crick Avenue between Dame Mary Archer Way and the existing guided busway in addition to the footway along the western side.
- 5.3.2 Respondents could select one answer from of 'Yes', 'No' or 'No opinion'.
- 152 respondents (50.0%) answered 'Yes'.

- 24 respondents (7.9%) answered 'No'.
- 106 respondents (34.9%) answered 'No opinion'.

**Chart 5.2: Question 3 – Pedestrian footway along the eastern side of Francis Crick Avenue**



**5.4 Question 4: The proposed layout of the interchange between Cambridge South Station / guided busway / Francis Crick Avenue interchange is shown below. If you have any comments to make, please write them in the box below and use the numbering to identify the issue you are commenting on where appropriate.**

5.4.1 90 respondents (30.1%) answered Question 4 which displayed a diagram of the proposed layout of the interchange between Cambridge South Station, the guided busway and Francis Crick Avenue with numbers indicating proposed design features.

5.4.2 The numbers on the diagram correlated with the following features:

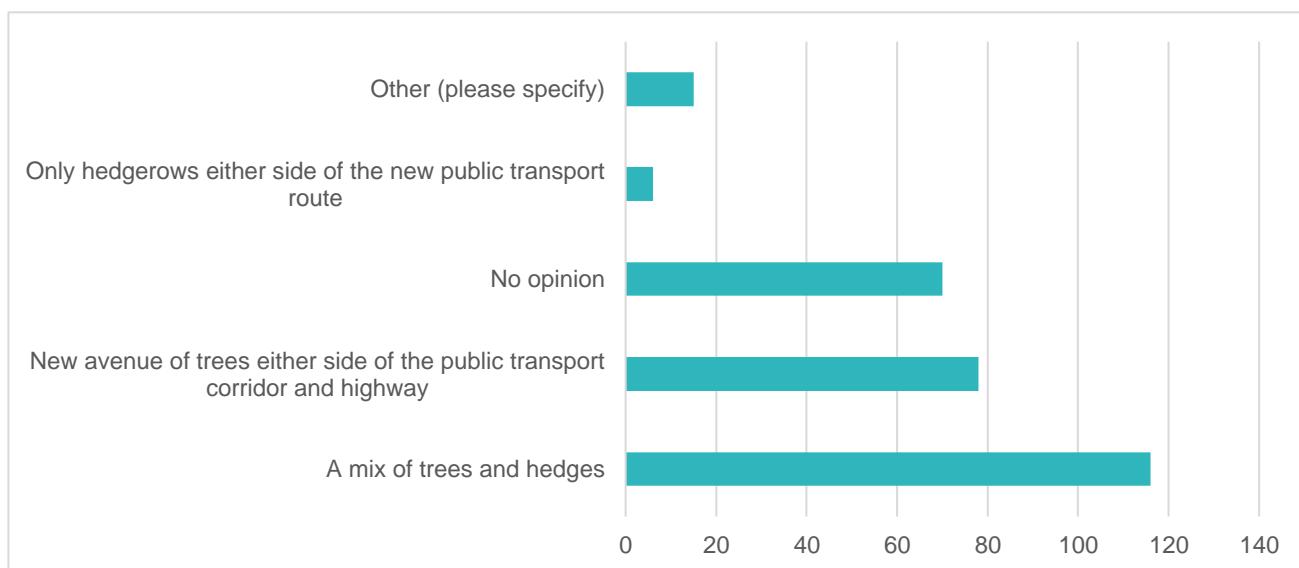
1. Improvements to existing cycle infrastructure
2. Opportunity for landscaping or tree planting
3. Introduction of diagonal crossing to reduce crossing times and improve pedestrian permeability
4. Tie-in to existing guided busway
5. Pedestrian and cycle access to Network Rail scheme proposals for Cambridge South Station
6. Vehicular access to Network Rail scheme proposals for Cambridge South Station
7. Public realm improvements to enhance connectivity and accessibility
8. 2.0m wide footway
9. Pedestrian and cycle priority at minor junctions and vehicular access points
10. 3.5m wide environmental median strip
11. 3.5m bi-directional cycle
12. 4.5m northbound traffic lane
13. 4.5m southbound traffic lane
14. 6.5m wide fully segregated Public Transport corridor.

**5.5 Question 5: Our proposals include a new avenue of trees either side of the public transport corridor and the highway. What is your preference for the planting along Francis Crick Avenue?**

5.5.1 285 respondents answered the question regarding what their preference would be for planting along Francis Crick Avenue.

- 116 respondents (38.2%) answered 'A mix of trees and hedges'.
- 78 respondents (25.7%) answered 'New avenue of trees either side of the public transport corridor and highway'.
- Six respondents (2.0%) answered 'Only hedgerows either side of the new public transport route'.
- 15 respondents (4.9%) answered 'Other (please specify)'.
- 70 respondents (23.0%) answered 'No opinion'.

**Chart 5.3: Question 5 – Preference for planting along Francis Crick Avenue**

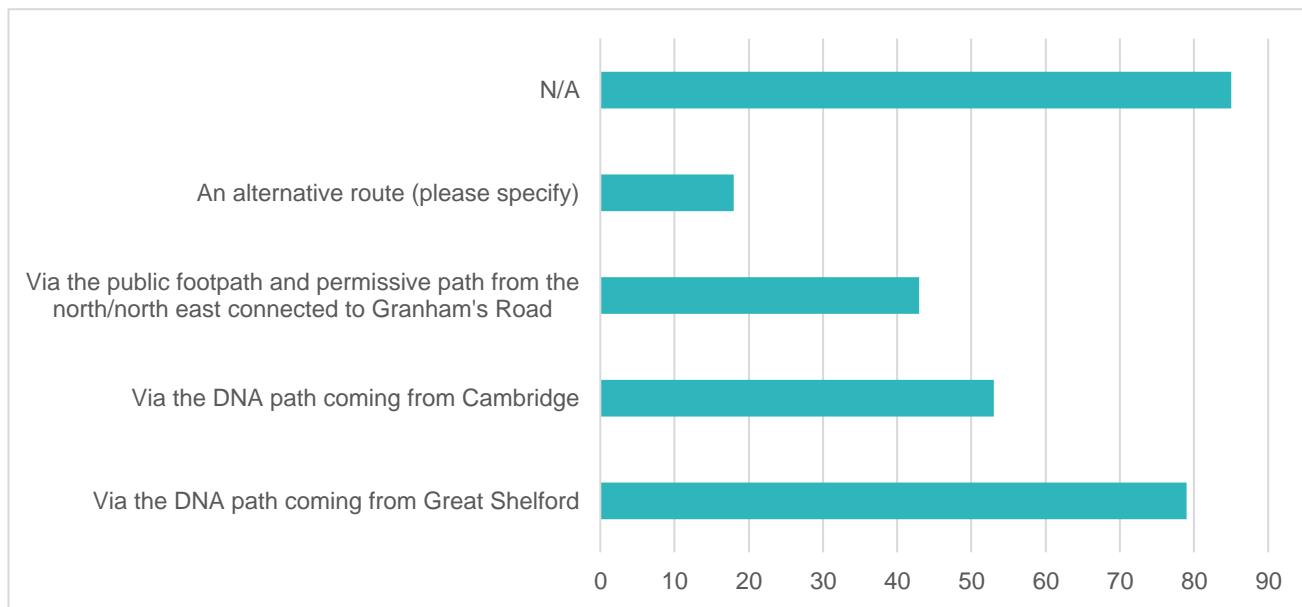


**5.6 Question 6: If you have visited the Nine Wells local nature reserve how do you normally gain access?**

5.6.1 278 respondents answered Question 6 which asked respondents how they gain access to Nine Wells local nature reserve if they have visited before.

- 85 respondents (28.0%) answered 'Not applicable'.
- 79 respondents (26.0%) answered 'Via the DNA path coming from Great Shelford'.
- 53 respondents (17.4%) answered 'Via the DNA path coming from Cambridge'.
- 43 respondents (14.1%) answered 'Via the public footpath and permissive path from the north/north east connected to Granham's Road'.
- 18 respondents (5.9%) answered 'An alternative route'.

**Chart 5.4: Question 6 – Nine Wells local nature reserve access**

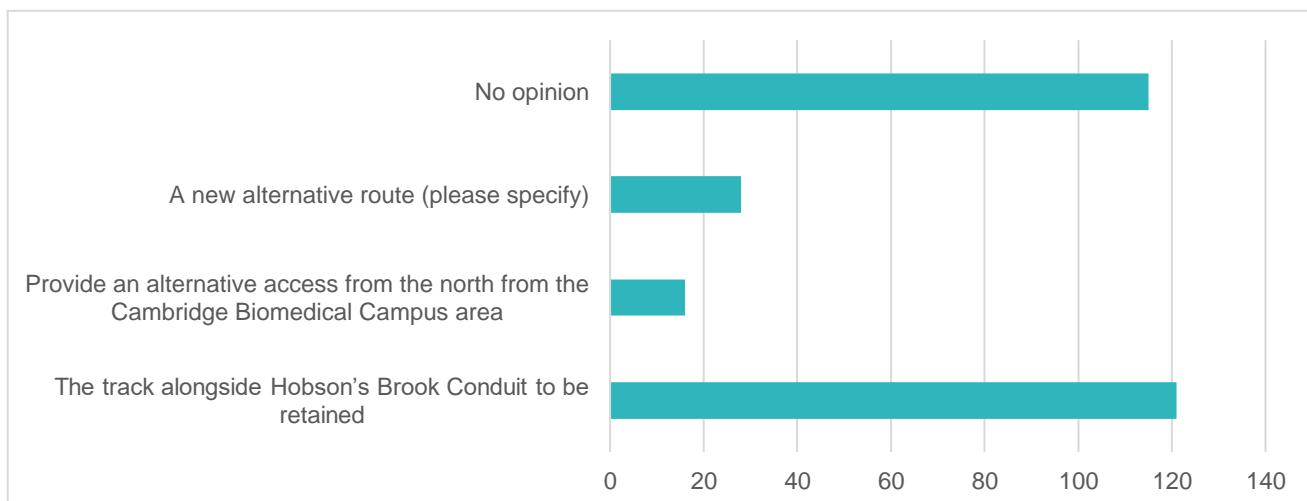


## 5.7 **Question 7: When gaining access to Nine Wells local nature reserve, if there was only one access route in the future, which would you prefer?**

5.7.1 279 respondents answered Question 7 which asked respondents to outline their preference if only one access route was in place to enter Nine Wells local nature reserve.

- 121 respondents (39.8%) answered 'The track alongside Hobson's Brook Conduit to be retained'.
- 16 respondents (5.3%) answered 'Provide an alternative access from the north from the Cambridge Biomedical Campus area'.
- 28 respondents (9.2%) answered "A new alternative route".
- 115 respondents (37.8%) stated 'No opinion'.

**Chart 5.5: Question 7 – Nine Wells local nature reserve preferred access route**

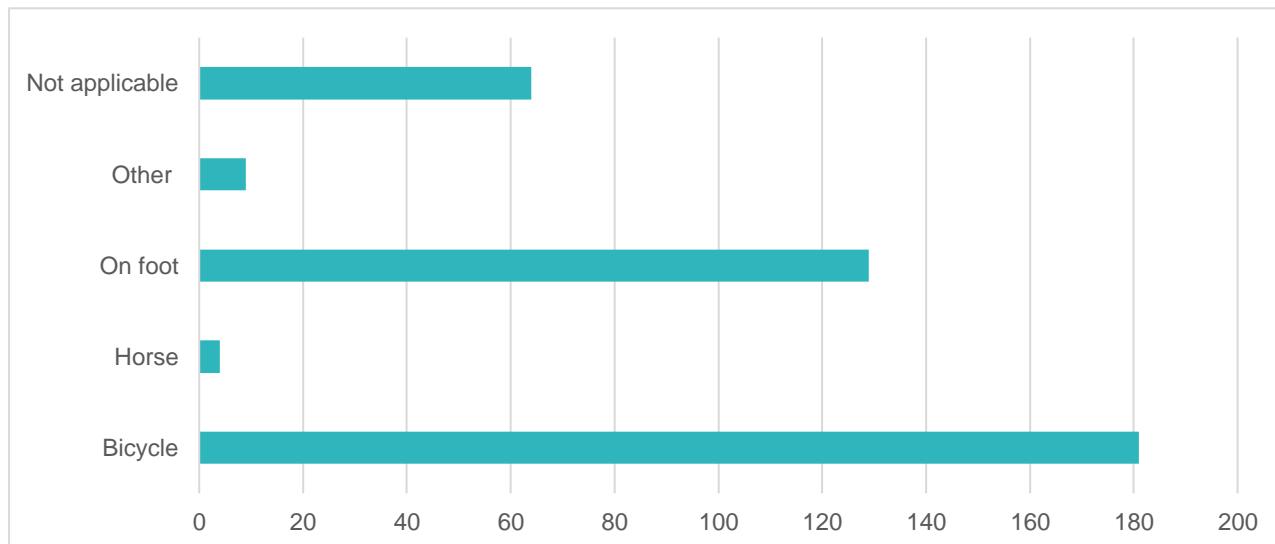


## 5.8 Question 8: If you use the DNA path, do you travel using any of the following (Tick all that apply):

5.8.1 285 respondents answered Question 8 which prompted respondents to outline how they travel on the DNA path. More than one answer could be given by respondents.

- 181 respondents (59.5%) answered 'Bicycle'.
- 129 respondents (42.4%) answered 'On foot'.
- Four respondents (1.3%) answered 'Horse'.
- Nine respondents (3.0%) stated 'Other'.
- 64 respondents (21.1%) answered 'Not applicable'.

**Chart 5.6: Question 8 – DNA path travel**

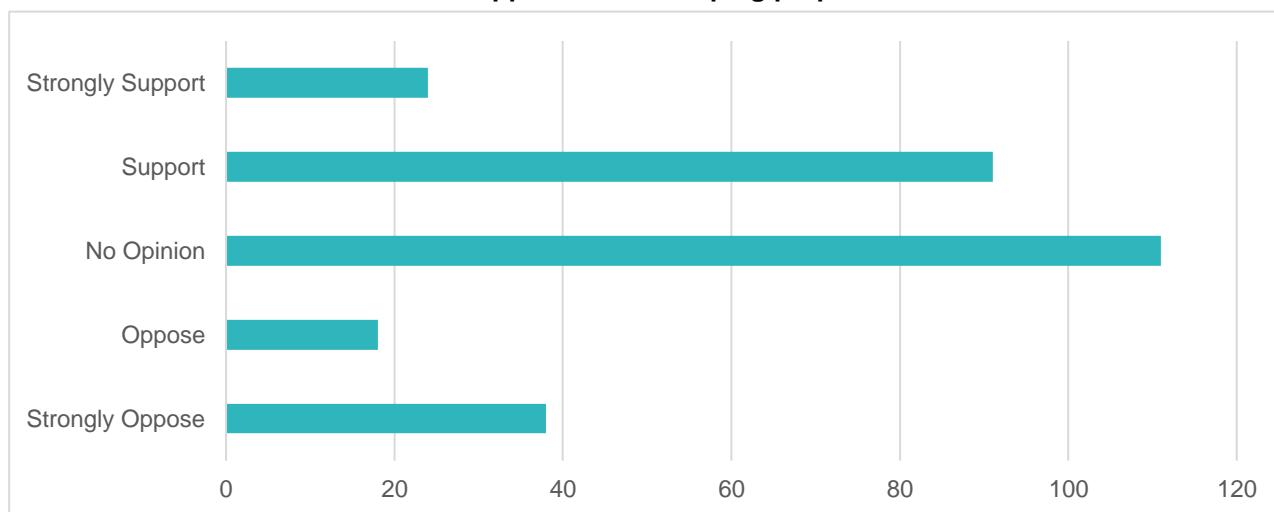


## 5.9 Question 9: Having seen the proposals for the landscaping shown in the fly-through of the scheme and the description for proposals for the Nine Wells area, how far do you support the landscape planting proposals?

5.9.1 282 respondents answered Question 9 which asked respondents how far they support the landscape planting proposals in the Nine Wells area.

- 24 respondents (7.9%) strongly supported.
- 91 respondents (29.9%) supported.
- 111 respondents (36.5%) answered 'No opinion'.
- 18 respondents (5.9%) opposed.
- 24 respondents (12.5%) strongly opposed.

**Chart 5.7: Question 9 – Support for landscaping proposals in the Nine Wells area**

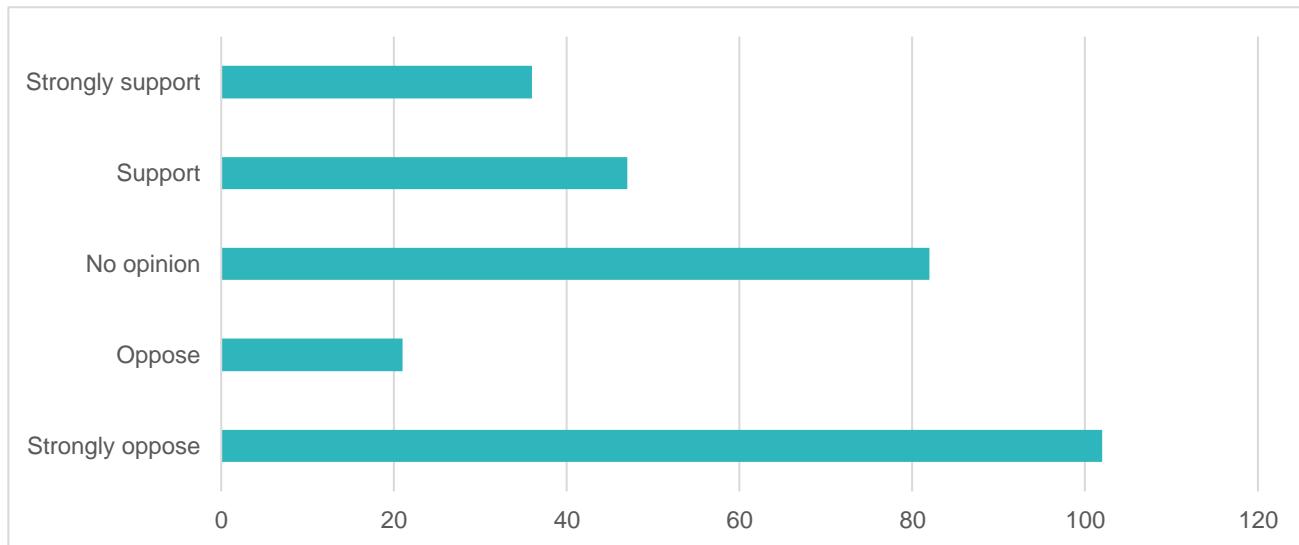


**5.10      Question 10: How far do you support the proposed realignment of the route between Babraham and Sawston?**

5.10.1    288 respondents answered Question 10 which asked respondents how far they support the realignment of the route between Babraham and Sawston.

- 36 respondents (11.8%) strongly supported.
- 47 respondents (15.5%) supported.
- 82 respondents (27.0%) answered 'No opinion'.
- 21 respondents (6.9%) opposed.
- 102 respondents (33.6%) strongly opposed.

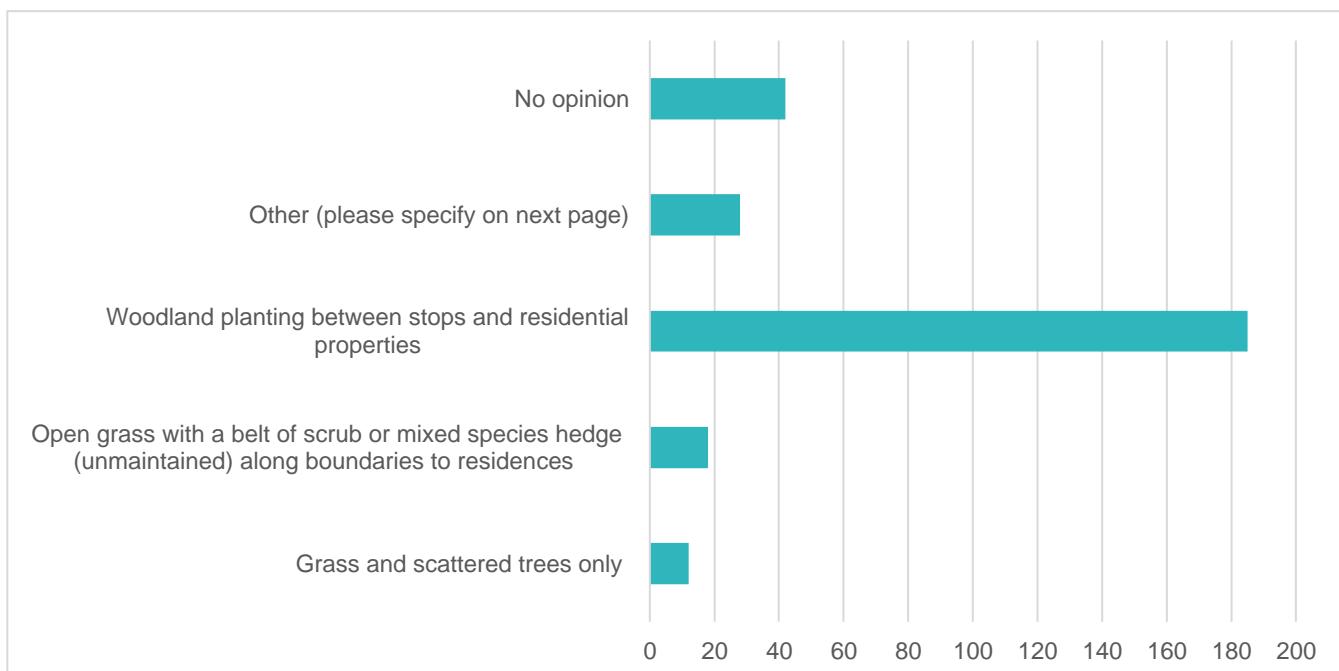
**Chart 5.8: Question 10 – Support for the route realignment between Babraham and Sawston**



### **5.11      Question 11: What planting would you like to see between stops and nearby residential properties?**

- 5.11.1    285 respondents answered Question 11 which asked what planting would be preferred between stops and nearby properties generally.
- 185 respondents (60.9%) answered 'Woodland planting between stops and residential properties'.
  - 12 respondents (4.0%) answered 'Grass and scattered trees only'.
  - 18 respondents (5.9%) answered 'Open grass with a belt of scrub or mixed species hedge (unmaintained) along boundaries'.
  - 28 respondents (9.2%) answered 'Other'.
  - 42 respondents (13.8%) answered 'No opinion'.

**Chart 5.9: Question 11 – Planting between stops and nearby residential properties**

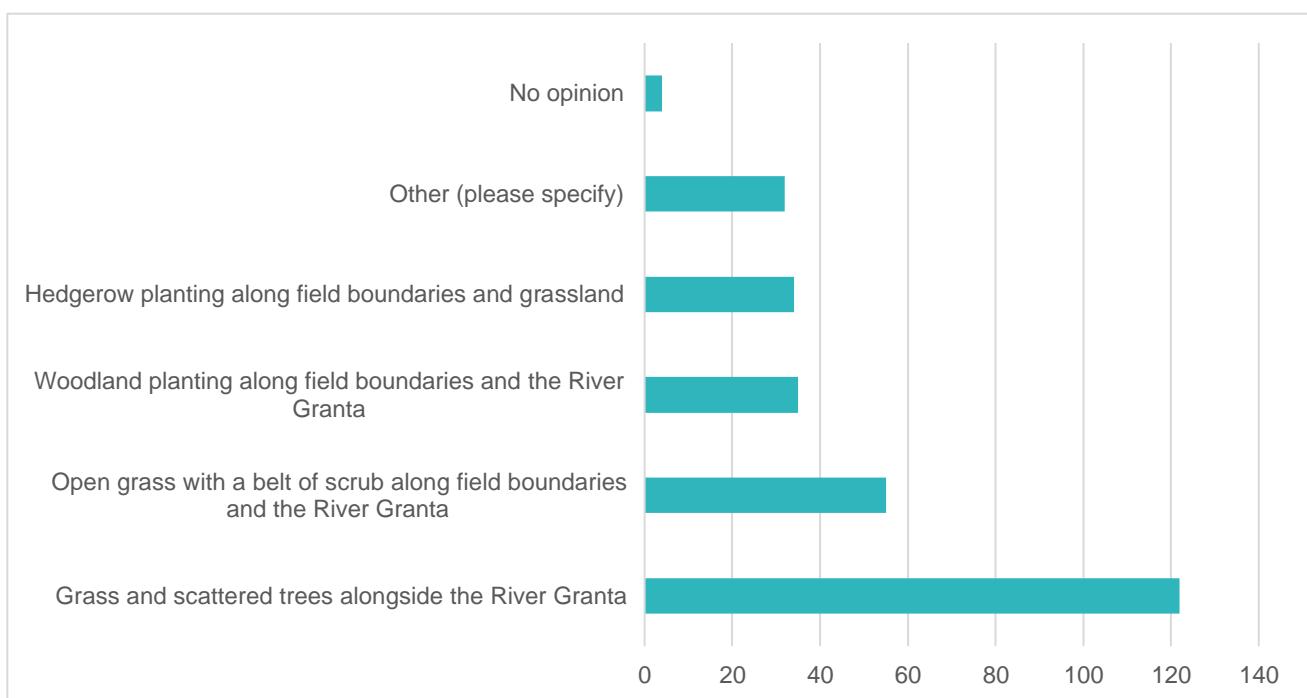


**5.12 Question 12: Having read the information note on bridge crossings, do you have any preferences on potential landscape planting that you would like to see around the bridge crossing over the River Granta near Stapleford?**

5.12.1 281 respondents answered Question 12 which asked what potential landscape planting would be preferred around the bridge crossing over the River Granta near Stapleford.

- 122 respondents (40.1%) answered "Grass and scattered trees alongside the River Granta".
- 55 respondents (18.1%) answered 'Open grass with a belt of scrub along field boundaries and the River Granta'.
- 35 respondents (11.5%) answered 'Woodland planting along field boundaries and the River Granta'.
- 34 respondents (11.2%) answered 'Hedgerow planting along field boundaries and grassland'.
- 32 respondents (10.5%) answered 'Other'.
- Four respondents (1.3%) answered 'No opinion'.

**Chart 5.10: Question 12 – River Granta, Stapleford Bridge landscape planting**

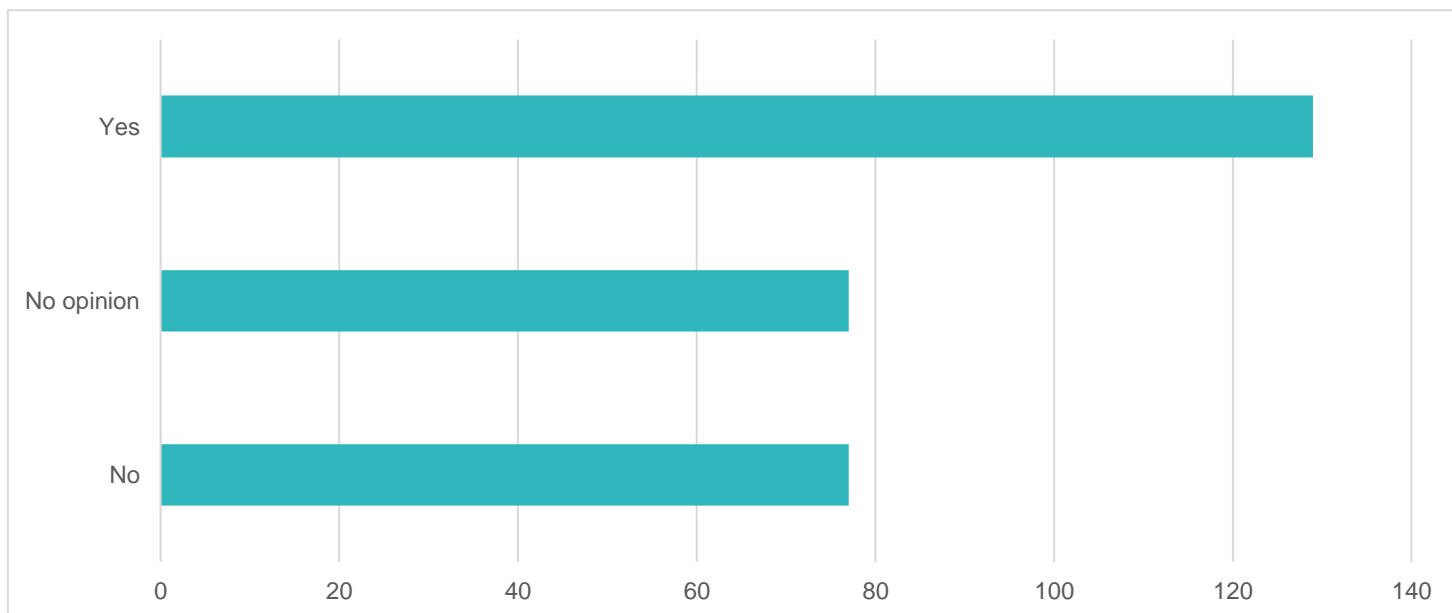


**5.13      Question 13: Would you like to see picnic areas set up along the route for users of the Active Travel path to access, near the River Granta crossings?**

5.13.1    283 respondents answered Question 13 which asked if respondents would like to see picnic areas set up along the route for active travel path users near the River Granta crossings.

- 129 respondents (42.4%) answered 'Yes'.
- 77 respondents (25.3%) answered 'No'.
- 77 respondents (25.3%) answered 'No opinion'.

**Chart 5.11: Question 13 – Picnic areas near River Granta crossings**

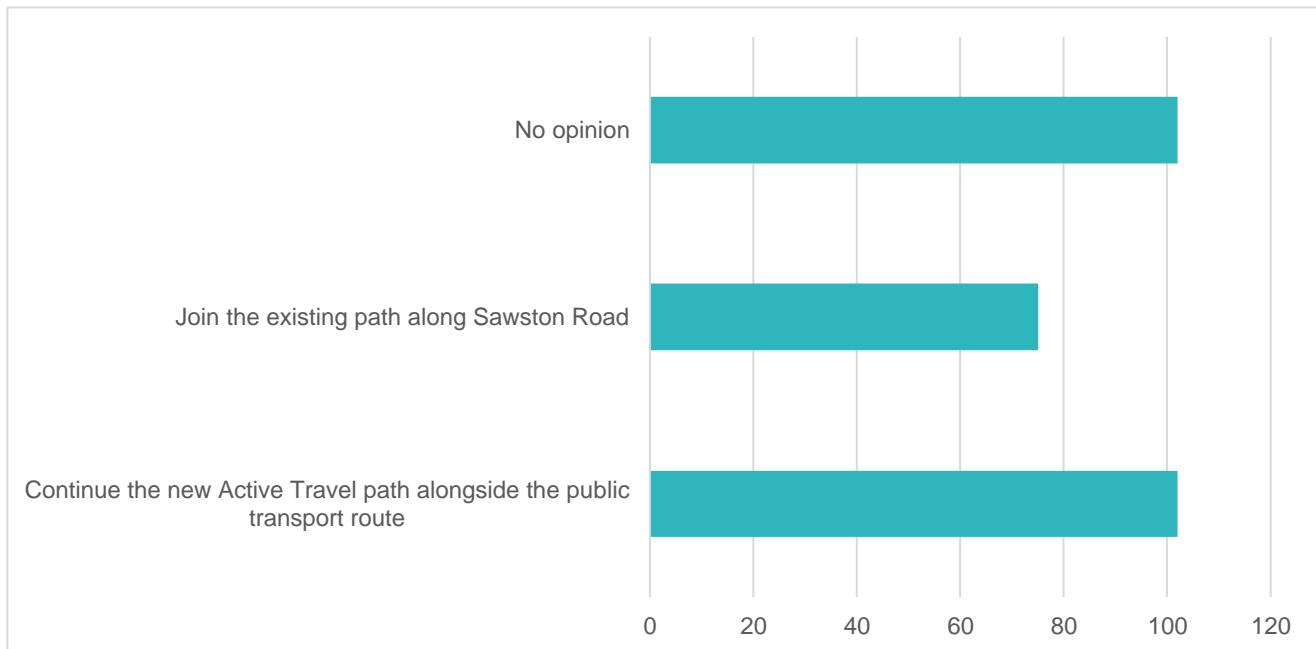


**5.14      Question 14: Between Sawston Road and the High Street south of Babraham the Active Travel Path could either join the existing path as shown on information boards or it could continue as a segregated active travel path along the public transport route. If we could only provide one of the options, which would you prefer?**

5.14.1      279 respondents answered Question 14 which asked if they would prefer the active travel path between Sawston Road and the High Street south of Babraham to join the existing path or to continue as a segregated active travel path along the public transport route.

- 102 respondents (33.6%) answered 'Continue the new active travel path alongside the public transport route'.
- 75 respondents (24.7%) answered 'Join the existing path along Sawston Road'.
- 102 respondents (33.6%) answered 'No opinion'.

**Chart 5.12: Question 14 – Active travel route south of Babraham**

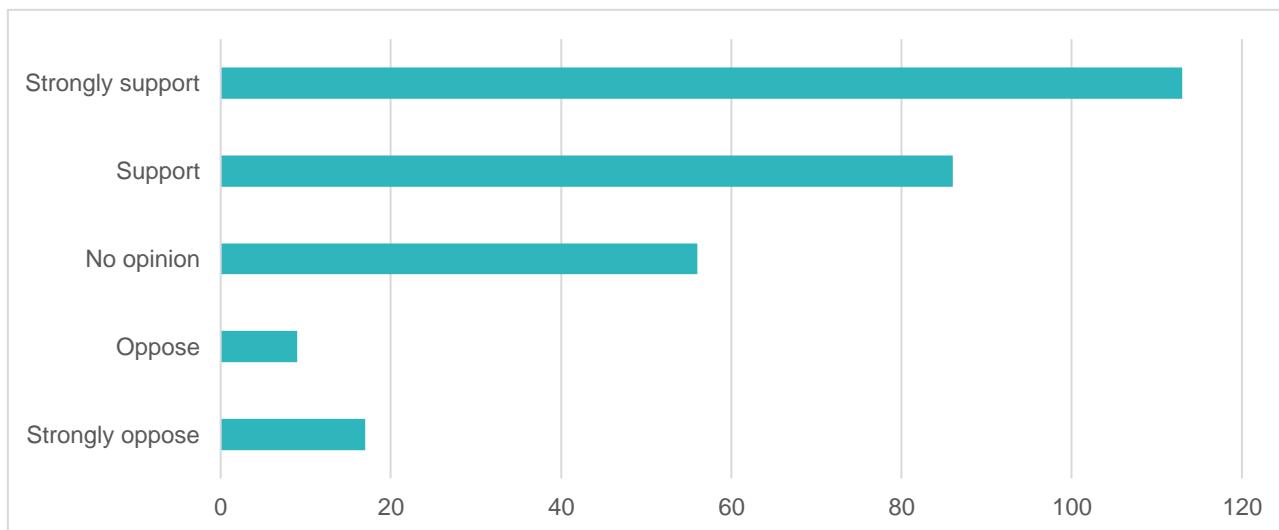


**5.15      Question 15: As part of the linear park concept and to leave a lasting legacy of the scheme, we could include an avenue of trees along sections of the route. How far do you support these proposals?**

5.15.1      281 respondents answered Question 15 which asked how far they support the proposals for an avenue of trees along sections of the route. This forms part of the scheme's wider linear park concept.

- 113 respondents (37.2%) strongly supported.
- 86 respondents (28.3%) supported.
- 56 respondents (18.4%) answered 'No opinion'.
- Nine respondents (3.0%) opposed.
- 17 respondents (5.6%) strongly opposed.

**Chart 5.13: Question 15 – Support for tree avenues along route**



**5.16 Question 16: How far do you support each active travel path proposal from the Travel Hub to Granta Park and to Babraham Research Campus as shown in the figure below?**

5.16.1 The survey showed a map of proposed active travel path routes from the Travel Hub to Granta Park and to Babraham Research Campus. Respondents were asked to indicate how far they support each option for 'Active Travel Route A', 'Active Travel Route B', 'Active Travel Route C' and 'Active Travel Route D'.

- 'Active Travel Route A' is proposed to connect the Travel Hub to Granta Park.
- 'Active Travel Route B' would extend along the existing footpath from the Travel Hub to the High Street with a diversion to avoid the farmyard.
- 'Active Travel Route C' would run from the Travel Hub along the Active Travel route to the High Street and along the High Street to Babraham Research Campus.
- 'Active Travel Route D' would go from the Travel Hub alongside the A1307 to Babraham Research Campus.

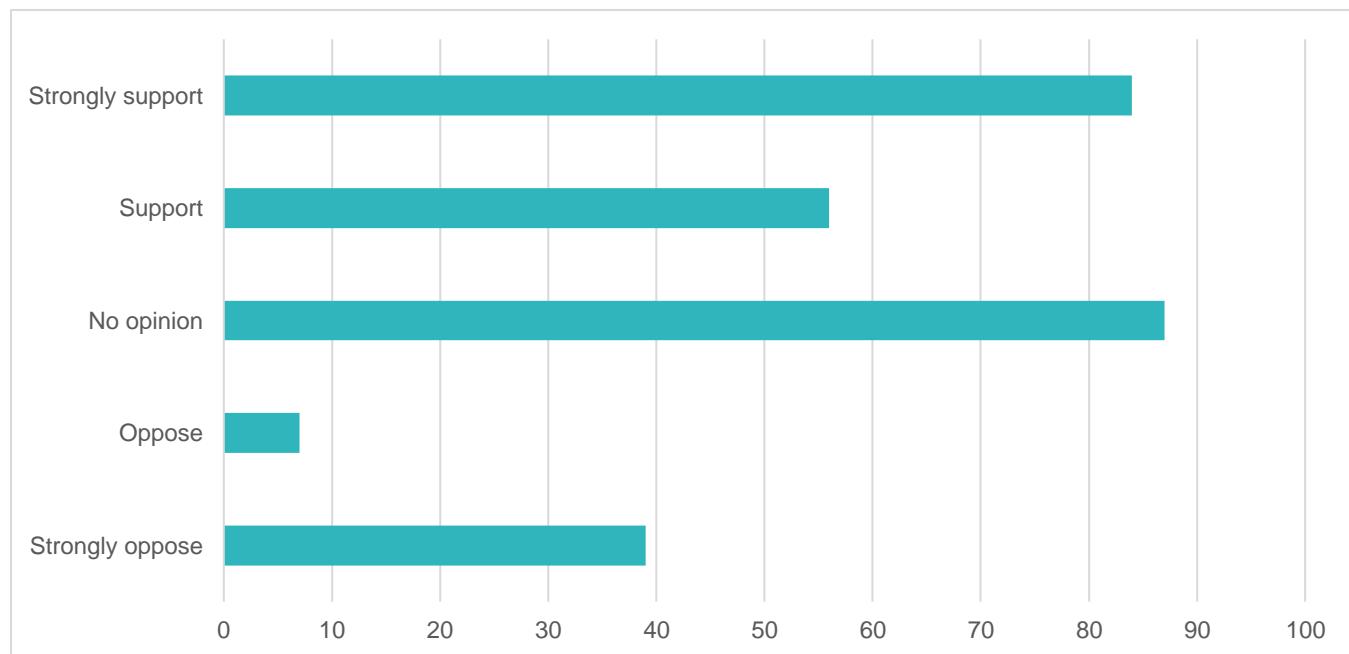
5.16.2 With each option proposed, respondents could select one answer from 'Strongly support', 'Support', 'No opinion', 'Oppose' or 'Strongly oppose'.

**Active Travel Route A**

5.16.3 273 respondents provided an answer to 'Active Travel Route A'.

- 84 respondents (27.6%) strongly supported.
- 56 respondents (18.4%) supported.
- 87 respondents (28.6%) answered 'No opinion'.
- Seven respondents (2.3%) opposed.
- 39 respondents (12.8%) strongly opposed.

**Chart 5.14: Question 16 – Active Travel Route A**

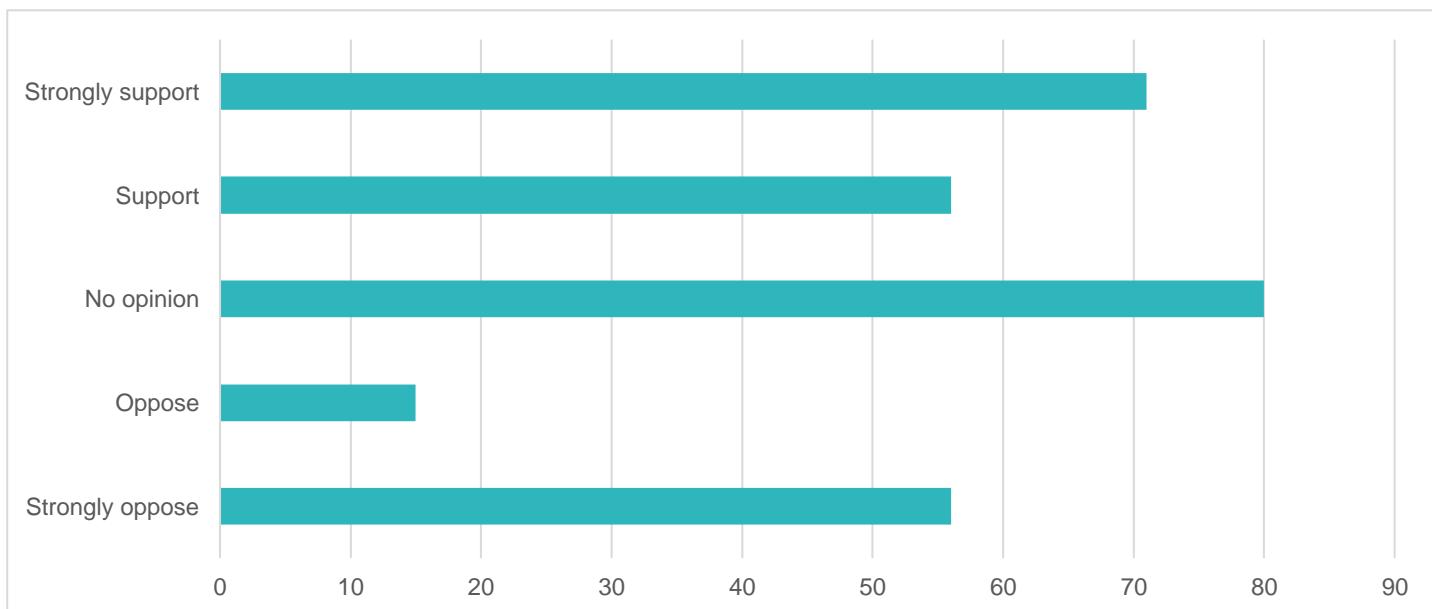


**Active Travel Route B**

5.16.4 276 respondents provided an answer to 'Active Travel Route B'.

- 71 respondents (23.4%) strongly supported.
- 56 respondents (18.4%) supported.
- 80 respondents (26.3%) answered 'No opinion'.
- 15 respondents (4.9%) opposed.
- 56 respondents (18.4%) strongly opposed.

**Chart 5.15: Question 16 – Active Travel Route B**

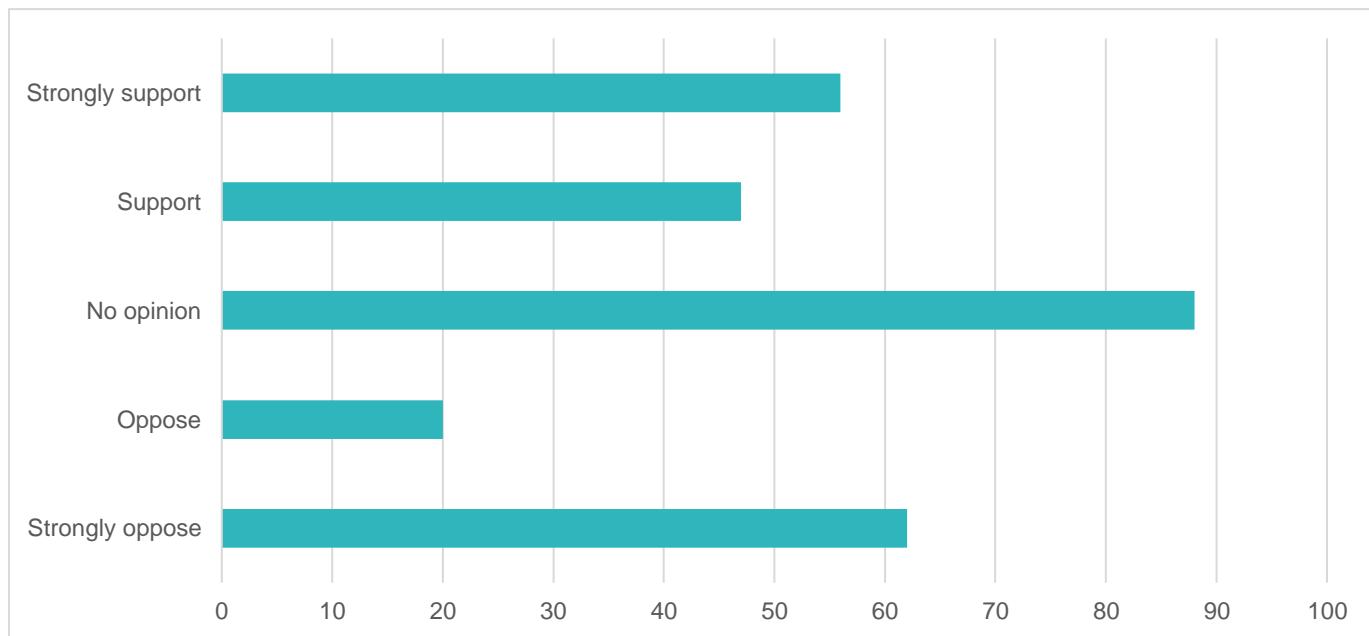


### Active Travel Route C

5.16.5 273 respondents provided an answer to 'Active Travel Route C'.

- 56 respondents (18.4%) strongly supported.
- 47 respondents (15.5%) supported.
- 88 respondents (29.0%) answered 'No opinion'.
- 20 respondents (6.6%) opposed.
- 62 respondents (20.4%) strongly opposed.

**Chart 5.16: Question 16 – Active Travel Route C**

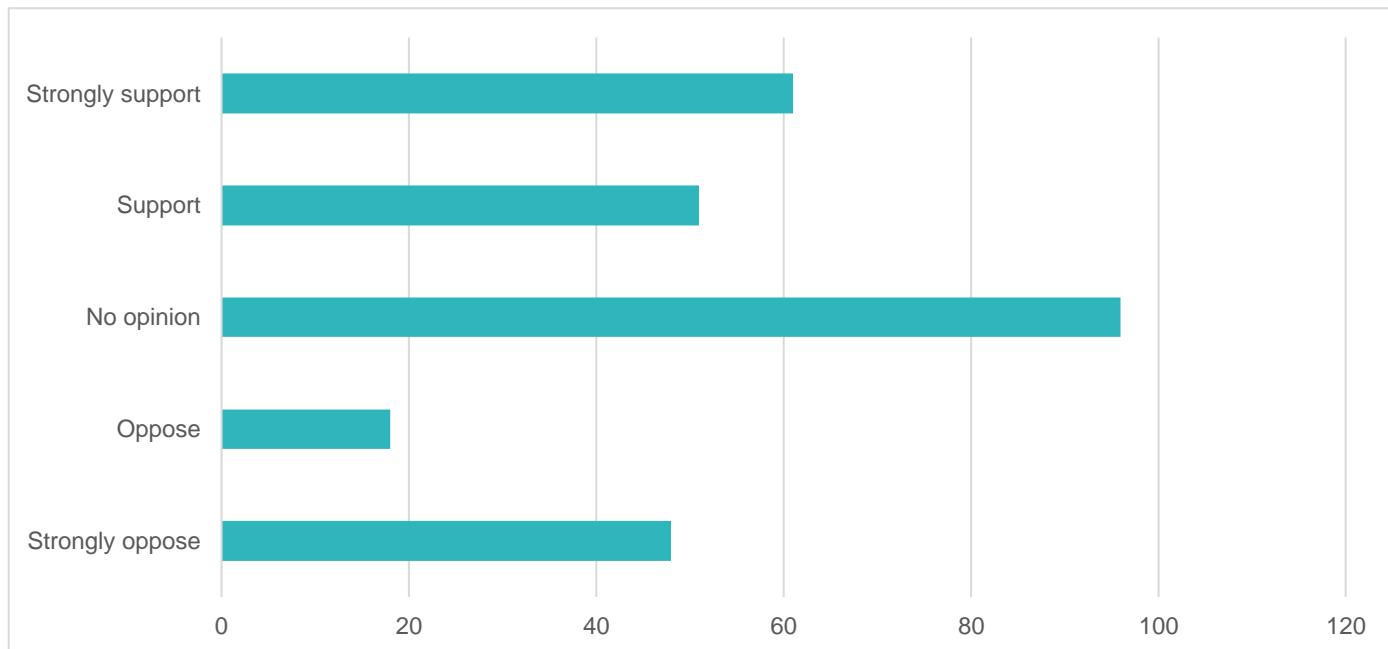


### Active Travel Route D

5.16.6 274 respondents provided an answer to 'Active Travel Route D'.

- 61 respondents (20.1%) strongly supported.
- 51 respondents (16.8%) supported.
- 96 respondents (31.6%) answered 'No opinion'.
- 18 respondents (5.9%) opposed.
- 48 respondents (15.8%) strongly opposed.

**Chart 5.17: Question 16 – Active Travel Route D**



**5.17 Question 17: We welcome your views. If you have any other comments on the proposals, including any suggestions for inclusion on the design, please add them in the space below.**

5.17.1 Question 17 prompted respondents to the survey to provide any additional comments in a space provided.

**5.18 Feedback themes**

5.18.1 Key themes that recurred across all feedback (including online survey, postal survey and other written responses) were:

- Route alignment
- Landscaping
- Loss of green space
- Connectivity
- Parking
- Cycle parking
- Active travel.

5.18.2 Table 5.1 provides an overview of feedback themes from survey responses overleaf.

**Table 5.1: Summary of consultation survey feedback themes**

Theme	Comment summary
Route alignment	<ul style="list-style-type: none"><li>● 128 respondents (42.1%) to the survey commented about the CSET route alignment overall. This was the most frequent comment raised by those who took part in the consultation. The scheme is progressing with the Brown route alignment rather than the emerging proposed route alignment presented in the consultation.</li><li>● 29 respondents (9.5%) stated their preference for a reinstated Haverhill to Cambridge railway line rather than the proposed new public transport route. GCP has considered all options to deliver enhanced public transport connectivity between Cambridge and the area to its south-east, with the Brown route selected as the most suitable option.</li><li>● 21 people (6.9%) who provided feedback stated the route was too far from villages along the route. They responded saying the route would need to be closer to people in order to provide a convenient service that improves their existing public transport offer. GCP's design has evolved to ensure the public transport route provides convenient access for users. The selected route meets the objectives of the CSET scheme by providing access to the public transport route to/from Cambridge, Great Shelford, Stapleford, Sawston and Babraham.</li><li>● 12 respondents (4.0%) commented on the section of the CSET scheme to the south of the Gog Magog Hills. Most comments concerned environmental and nature loss in the local area. GCP has conducted an environmental impact assessment (EIA) and would work with local stakeholders to ensure any environmental loss is offset through 20% biodiversity net gain (BNG) ambitions.</li><li>● Seven respondents (2.3%) commented on the route alignment options near to Babraham. Two respondents stated the Brown route was preferable to the emerging public transport route that was presented in the consultation. The scheme is progressing with the Brown route rather than the emerging proposed route alignment.</li><li>● Two respondents (0.7%) stated a preference for the route to follow a similar route to the old railway line between Sawston and Stapleford / Great Shelford. It was commented that this would bring landscaping benefits due to having a reduced impact on the local environment.</li><li>● GCP is progressing with the Brown route to deliver a public transport route that will seek to limit its negative environmental impacts.</li></ul>

Theme	Comment summary
Landscaping	<ul style="list-style-type: none"><li>29 respondents (9.5%) specifically stated additional planting should be undertaken to enhance the landscaping and reduce the negative impact of the scheme on its environment. GCP's 20% biodiversity net gain (BNG) ambitions and wider proposals aim to deliver a suitable environmental legacy for the scheme.</li><li>16 respondents (5.3%) to the consultation commented about the need to ensure screening along the route. This would mitigate the visual effect of the public transport route on the local landscape. GCP has considered the visual impact of the public transport route and has developed landscaping proposals including tree planting.</li></ul>
Loss of green space	<ul style="list-style-type: none"><li>A loss of green space was mentioned by 10 respondents (3.3%) who indicated they disagree with development on green belt land. GCP has worked with stakeholders to develop a design that limits impact on green belt land. The public transport route was selected following consultation and a detailed sifting process by the GCP Executive Board.</li></ul>
Connectivity	<ul style="list-style-type: none"><li>A high number of respondents commented that the proposed scheme is likely to enhance connectivity between Cambridge and the south-east Cambridge area.</li><li>143 respondents (47.0%) indicated they plan to use the scheme for recreational benefits. This would bring environmental benefits along with providing greater convenience for local people from Great Shelford, Stapleford, Sawston and Babraham. The need for active travel and transport interchange solutions are increased in a context of growing cycle use, as people seek alternatives to using public transport during Covid-19 restrictions and recognise the benefits of a healthier lifestyle.</li><li>59 respondents (19.4%) in total indicated they would use the scheme for commuting to work. GCP aims to provide more convenient commuting options for local people through the scheme. This would seek to reduce car use and pollution, bringing wider environmental benefits.</li></ul>
Parking	<ul style="list-style-type: none"><li>A substantial number of respondents highlighted the need to improve parking facilities for cyclists and car users in a demand-responsive way. The scheme includes an appropriate level of parking facilities based on predicted use. If planning consent is obtained, GCP would review requirements.</li><li>11 respondents (3.6%) in total commented on the parking provision along the route and at different bus stops. Some respondents stated there should be stringent restrictions limiting the use of the Travel Hub car park or that the number of stops should be reduced. GCP would monitor use of the Travel Hub car park and the bus stops on an ongoing basis.</li></ul>

Theme	Comment summary
Cycle parking	<ul style="list-style-type: none"><li>Seven respondents (2.3%) to the consultation identified cycle parking as a key benefit of the plans. They understood the wider active travel plans and stated more cycle parking at bus stops along the route would improve the scheme further.</li></ul>
Active travel	<ul style="list-style-type: none"><li>22 respondents (7.3%) to the consultation noted the active travel part of the scheme.</li><li>Eight respondents (2.6%) asked for the active travel path to be widened generally, with one stating the delivery of an active travel route should be the priority of the scheme. GCP has ensured the active travel route is a key part of the scheme, providing improved opportunities for recreational use by cyclists, pedestrians and horse-riders.</li><li>All 22 respondents commented about the design of the active travel route. This includes six respondents who stated the active travel route should be separate from the public transport route or roads. GCP has ensured there is separation between the public transport route and the active travel route for the safety of pedestrians, cyclists and horse-riders.</li></ul>

**Table 5.2: Summary of email and letter feedback themes**

Theme	Comment summary
Active travel benefits	<ul style="list-style-type: none"><li>Some respondents highlighted the benefits an active travel path would bring to the local area. They identified how this would encourage local people to use the route for recreational means. GCP has ensured the active travel route is a key part of the scheme, providing improved opportunities for recreational use by cyclists, pedestrians and horse-riders.</li></ul>
Construction impact	<ul style="list-style-type: none"><li>Some email respondents voiced concern about noise pollution and vibrations from construction and construction vehicles in the development phase. GCP has ensured this is taken into account as part of its mitigation plans.</li><li>One respondent requested the distance of the scheme to be increased from residential properties in Sawston by an additional 100 metres. GCP is progressing with the Brown route to deliver a public transport route that will seek to limit noise pollution for local residents.</li></ul>
Route alignment	<ul style="list-style-type: none"><li>Respondents expressed a preference for the Brown route, between Sawston and the south of Babraham, rather than the emerging proposed route alignment. GCP has considered all options to deliver enhanced public transport connectivity between Cambridge and the area to its south-east, with the Brown route selected as the most suitable option.</li><li>The location of stops was raised, with many feeling that they lie too far away from the centre of villages the scheme aims to connect by the route. The selected route meets the objectives of the CSET scheme, by providing access to the public transport route to/from Cambridge, Great Shelford, Stapleford, Sawston and Babraham.</li><li>Four respondents to the consultation advocated for a variation of the proposed route that was closer to the A11 and further away from Babraham. GCP evaluated this route (known as the Pink route variant) but the option was not pursued after analysis evidenced that the Brown route still performs better more effectively when considered against a wide set of criteria including environmental impacts, costs and Value for Money.</li></ul>
Loss of green space	<ul style="list-style-type: none"><li>A number of email respondents objected to the scheme due to development on green belt land. Several respondents specifically identified issues with development on green belt land between Sawston and Stapleford.</li><li>Further concern was noted at various points on the route including Babraham. GCP has worked with stakeholders to develop a design with appropriate landscaping and sensitive routing of the scheme to limit the impact on green belt land. Development on green belt land in line with Local Plans has been important to delivering economic success in the Cambridge area (e.g. the development of Cambridge Biomedical Campus). More detail regarding Cambridge green belt development is available to view in Section 7 of the Outline Business Case (OBC) Strategic Case (see Appendix A).</li></ul>

Theme	Comment summary
Biodiversity	<ul style="list-style-type: none"><li>Wider conservation concerns were expressed by several consultees who provided feedback. This included comments about a negative impact on wildlife and habitats along the route including at Nine Wells local nature reserve. GCP's 20% biodiversity net gain (BNG) ambitions and wider proposals aim to deliver a suitable environmental legacy for the scheme.</li></ul>
Parking concern	<ul style="list-style-type: none"><li>Some respondents raised the issue of free parking being available on highways near to the Travel Hub car park. Respondents stated this could increase congestion on local roads. The scheme includes an appropriate level of parking facilities based on predicted use. If planning consent is obtained, GCP would review requirements.</li><li>The development of the Travel Hub car park raised flooding concerns for a few respondents who were concerned about the potential increase of run-off in the local area. GCP has considered flood risk and mitigation measures as part of the scheme.</li></ul>
Funding	<ul style="list-style-type: none"><li>Numerous respondents stated they would prefer to see the investment in the scheme into other local facilities and services. A new public transport route is proposed by GCP to provide an improved local transport service for residents.</li></ul>
Design	<ul style="list-style-type: none"><li>Some respondents were concerned by the length of the proposed bridge over Hobson's Brook Conduit. This has been considered by GCP in its design to develop a safe bridge in this location.</li><li>The existing design of the active travel path drew safety concerns from some respondents with the layout of links to the Travel Hub, highways and bus stops. Respondents were concerned this could result in accidents for cyclists, horse riders and walkers. GCP has ensured there is separation between the public transport route and the active travel route for the safety of pedestrians, cyclists and horse-riders.</li></ul>
Landscaping	<ul style="list-style-type: none"><li>Respondents stated additional green screening should be considered along the route to minimise the impact of the development on the local landscape.</li><li>Additionally, concern was registered regarding the proposed public transport route possibly impacting the view from Magog Down. GCP has considered the visual impact of the public transport route.</li></ul>

## 6 Stakeholder Feedback

### 6.1 Stakeholder feedback

- 6.1.1 GCP has identified and consulted with a number of statutory consultees and non-statutory consultees as part of the CSET consultation.
- 6.1.2 All consultation and engagement activities included:
  - Statutory consultees as named in column (2) of the tables in Schedules 5 and 6 to the Applications Rules.
  - Non-statutory consultees who are in close proximity to the scheme or who were judged to have a potential interest in the application, for example local decision makers, business groups, interest groups and organisations.
- 6.1.3 Engagement with a number of stakeholders and stakeholder groups is ongoing and will feed into the final scheme design.
- 6.1.4 Table 6.1 provides an overview of stakeholders who provided their feedback to the consultation and themes raised.

**Table 6.1: Stakeholder responses to 2020 EIA consultation**

<b>Stakeholder</b>	<b>Response themes</b>
Cambridgeshire County Council	<ul style="list-style-type: none"><li>● Historic environment</li><li>● Flooding</li><li>● Highways</li><li>● Active Travel path</li><li>● High Street, Babraham to the A11 Travel Hub section:</li><li>● Routes connecting to the Travel Hub from the west</li><li>● Construction</li></ul>
Environment Agency	<ul style="list-style-type: none"><li>● Cambridge Biomedical Campus (CBC)</li><li>● CBC to Hinton Way</li><li>● Hinton Way to Haverhill Road</li><li>● Haverhill Road to Sawston Road</li><li>● Sawston to High Street (South of Babraham)</li><li>● High Street (South of Babraham) to A11 Travel Hub</li><li>● A11 Travel Hub</li></ul>
Utility companies - Anglian Water Services Ltd, National Grid PLC, Cadent Gas Ltd, Cambridge Water PLC, Openreach Ltd and UK Power Networks Ltd	<ul style="list-style-type: none"><li>● Discussions are ongoing with Anglian Water Services Ltd, National Grid PLC, Cadent Gas Ltd, Cambridge Water PLC, Openreach Ltd and UK Power Networks Ltd</li></ul>
Cambridgeshire Fire and Rescue Service	<ul style="list-style-type: none"><li>● Route identification</li><li>● Mobile phone reception</li><li>● CCTV</li><li>● Route closure</li><li>● Route limits</li></ul>

	<ul style="list-style-type: none"><li>● Weather conditions</li><li>● Access</li></ul>
Cambridgeshire Constabulary	<ul style="list-style-type: none"><li>● Scheme benefits for Cambridge</li><li>● Crime around South busways</li><li>● Controlling access to the route</li><li>● Lighting and CCTV</li><li>● Francis Crick Avenue</li><li>● Hostile Vehicle Mitigation</li></ul>
Stapleford Parish Council	<ul style="list-style-type: none"><li>● Consultation process</li><li>● Alternative alignment</li><li>● Sustainability and multi modal transport</li><li>● Environmental impact</li><li>● Pollution</li><li>● Covid-19</li></ul>
Little Abington Parish Council	<ul style="list-style-type: none"><li>● The proposed route between Sawston and Shelford</li><li>● Lack of connectivity between South Cambridgeshire villages</li><li>● Design of the Park and Ride – A11 Travel Hub</li><li>● Linton Greenway</li><li>● Impact on the Stagecoach 13 bus service</li></ul>
Great Abington Parish Council	<ul style="list-style-type: none"><li>● Cycle paths</li><li>● Screening</li><li>● Cycle parking</li><li>● Integrated buses</li></ul>
Pampisford Parish Council	<ul style="list-style-type: none"><li>● Alternative options</li><li>● Location of bus stops</li><li>● DNA path</li><li>● Enhancing cycle and bus travel</li><li>● Tree planting</li></ul>

The British Horse Society	<ul style="list-style-type: none"><li>● Active travel path</li><li>● Equestrian routes</li><li>● Access at Nine Wells and Granham's Road/Hinton Way</li><li>● Great Shelford bus stop location</li><li>● Hinton Way to Haverhill Road active travel path provision</li><li>● Stapleford bus stop location</li><li>● Stapleford to Sawston bridleway and bridge specifications</li><li>● Sawston bus stop location and active travel path arrangements</li><li>● High Street, Babraham active travel path</li><li>● A11 Travel Hub</li></ul>
Cambridge Ramblers' Association	<ul style="list-style-type: none"><li>● The active travel path between Little Abington and Babraham</li><li>● Width of the proposed active travel route</li><li>● Landscaping along the public transport route</li><li>● Path between the Gog Magog Trust and Babraham bridleway</li></ul>
Highways England	<ul style="list-style-type: none"><li>● Highways England stated it had been involved in the scheme during the consideration of options for the public transport route</li><li>● Travel Hub impact on the Strategic Road Network</li></ul>
Historic England	<ul style="list-style-type: none"><li>● The need for a thorough assessment of the scheme's impact on its environment</li><li>● Local features of historic, architectural, archaeological or artistic interest</li><li>● Assessment method</li></ul>
Natural England	<ul style="list-style-type: none"><li>● Bat surveys</li><li>● Mitigation measures</li><li>● Biodiversity</li><li>● Active travel path</li><li>● Best and most versatile (BMV) agricultural land</li></ul>
Hobson's Conduit Trust	<ul style="list-style-type: none"><li>● HCT stated it was delighted with the commitment by the GCP to enhance the environment. HCT stated it expected to remain consulted about surface water arrangements for Francis Crick Avenue and the proposed drainage basin near to Nine Wells</li><li>● HCT outlined its main concern about the width of the bridge crossing over Hobson's Brook</li></ul>

- 
- Concern was also referenced regarding access and the arrangement of routes adjoining Nine Wells and crossing the brook
  - The distance of the public transport route from Nine Wells local nature reserve
  - Construction impact mitigation
  - Landscape mitigation during construction around the brook and Nine Wells local nature reserve: HCT noted the need to locate a drainage basin to deal with run-off created by the public transport route. HCT asked for consultation on this
  - Bridge at Hobson's Brook: HCT presented three proposals to retain a separate bridge for the active travel path, to reduce the public transport route to single line working or to adopt a design that would raise the base of the deck relative to the brook
  - The location of public access into Nine Wells local nature reserve
  - The impact of light pollution on wildlife
- 

Cambridge Biomedical Campus

- Francis Crick Avenue
  - Cambridge South Station Scheme
  - Francis Crick Avenue/Addenbrooke's Road, Dame Mary Archer Way
  - Trees and hedging
  - Nine Wells area
  - Sawston to Babraham area
  - Stops, crossings, bridge crossings and the active travel path
- 

Greater Cambridge Shared Planning Service

- Air quality
  - Operational phase impacts
  - Noise and health
  - Operational noise
  - Geology
  - Lighting
  - Environmental Assessment
  - Landscape
  - Ecology
-

# 7 Conclusions and Next Steps

## 7.1 Scheme refinements and recommendations

7.1.1 GCP has considered the feedback received from all consultees during the 2020 consultation for the CSET Phase 2 scheme.

7.1.2 Where possible, feedback received has been incorporated into the scheme's design. The following key refinements have been made to the scheme's design following recommendations and preferences raised in the consultation:

- The preferred scheme alignment between Sawston and Babraham at Outline Business Case (OBC) was taken forward following the feedback of survey respondents. The highest proportion of questionnaire respondents (33.9% strongly opposed and 6.9% opposed) objected to the potential alignment along Sawston Road, so this option was dropped.
- With the OBC scheme alignment progressed, the design now includes the active travel path between Babraham and Sawston continuing alongside the public transport route.
- The segregation of the cycling / pedestrian path along the western side of Francis Crick Avenue.
- A pedestrian footway along the eastern side of Francis Crick Avenue between Dame Mary Archer Way and the existing guided busway.
- A mix of trees and hedges along Francis Crick Avenue.
- Grass and scattered trees alongside the River Granta.
- Hedgerows interspersed with suitable tree species along sections of the route to deliver an effective legacy for the scheme.
- An active travel path is proposed to connect the travel hub to Granta Park.
- An active travel path is proposed along the existing footpath from the travel hub to the High Street in Babraham.
- The proposed River Granta bridges in Stapleford and Babraham have been reduced in its overall height. Additional access track crossings would be provided for large machinery to use instead of allowing vehicles to pass under the proposed River Granta crossing.
- Additional cycle storage has been incorporated into the design development of the stops on the public transport route.
- The stop layout has been reconfigured to provide greater opportunity for landscaping to soften the look and feel of the stops. The landscape design has been completed considering the need to minimise the visual impact of the stops.

## 7.2 Next steps

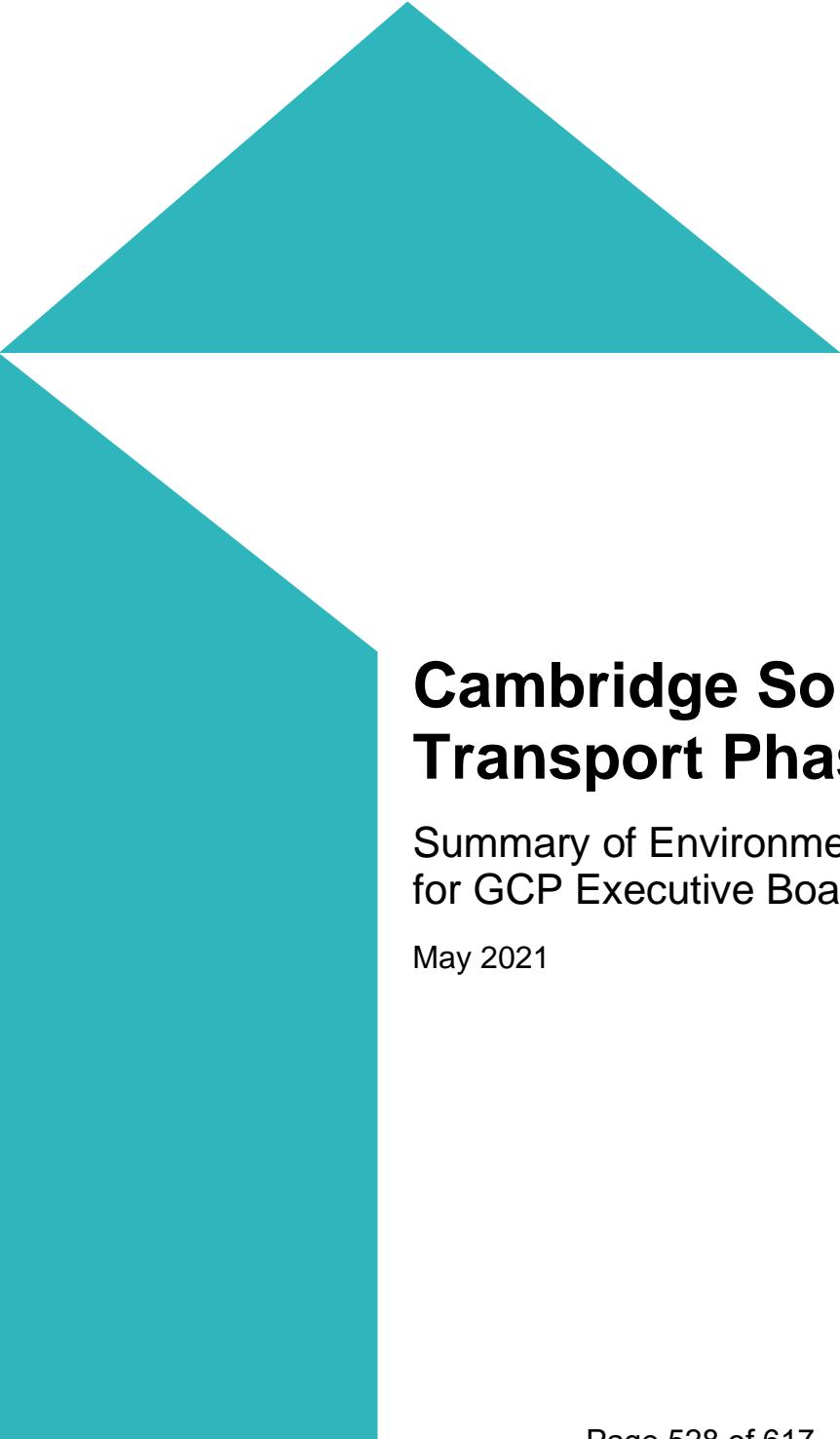
7.2.1 Points raised by consultees during the consultation will continue to inform possible design refinements to the scheme. Engagement with consultees will continue to take place to amend the design if necessary before, during and after proposed construction.

7.2.2 GCP's Executive Board will consider the results of the consultation and make a final decision on the scheme's proposed design and route in July 2021.

7.2.3 Once scheme proposals are finalised and the TWAO application has been prepared, it will be submitted to the Secretary of State for Transport who will have responsibility for the decision on whether to grant consent for the scheme.

- 7.2.4      Additionally, GCP will continue to engage with the wider public through the TWAO process and, if the Order is made, during the subsequent implementation of the scheme.





# **Cambridge South East Transport Phase 2**

Summary of Environmental Assessment Works  
for GCP Executive Board

May 2021

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# **Cambridge South East Transport Phase 2**

**Summary of Environmental Assessment Works  
for GCP Executive Board**

**May 2021**

# Issue and Revision Record

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# Executive summary

This report summarises the works completed since the June 2020 Executive Board decision to progress with the design development and environmental impact assessment (EIA) of the recommended preferred option (the Brown Route) for the Cambridge South East Transport Phase 2 (CSET) scheme.

An EIA Scoping Report was issued to the Secretary of State for Transport in October 2020 and a scoping opinion received in November 2020. The Environmental Statement is being prepared in line with the comments received in the scoping opinion.

The EIA consultation ran for eight weeks between 19 October and 14 December 2020. Due to the Covid-19 pandemic social distancing restrictions, the consultation was hosted online via a virtual exhibition. A number of statutory and non-statutory consultees were consulted as part of the EIA consultation.

The consultation presented the preferred route and an alternative alignment between Babraham and Sawston. Additionally, individual scheme elements and environmental information by area were also presented and consulted on. The comments received during the consultation have influenced design development. Most notably, the option for a revised alignment along Sawston Road was dropped, and the preferred alignment at OBC (the Brown Route) has been taken forward.

Numerous surveys have been undertaken to inform the EIA baseline, including air quality monitoring, agricultural soil surveys, ground investigations, ecology surveys, archaeological trial trenching, summer and winter landscape assessment surveys, baseline lighting surveys, noise monitoring of buses on the existing guided busway and traffic surveys.

Environmental considerations have influenced the scheme design. These include:

- Bridge heights and approach embankments designed to minimise visual impact, materials used, embedded carbon and construction vehicle movements.
- A revised travel hub design incorporating improved landscaping, pedestrian circulation and surface water drainage has been produced, that provides an improved user experience, plus reduced visual impact, biodiversity loss and impact on the green belt.
- The revised drainage design for the travel hub allows for the recreation of a water meadow setting which is valued by Babraham residents. It also contributes to biodiversity net gain.
- Bus stop layouts have been improved, increasing safety, reducing the urbanisation effect and visual impact of the stops.
- Route alignment was altered west and south of Nine Wells Local Nature Reserve. This accommodated requirements for Cambridge South Station and the potential East West Rail scheme and protected ecology features important to protected species.
- A landscaping bund has been included to reduce the visual impact on residents of Coppice Avenue, Great Shelford.
- The Active Travel Path will have a mix of surfacing – soft surfacing for equestrians and hard surfacing for pedestrians/cyclists and emergency vehicle access. This mix will improve safety and user experience.
- The drainage strategy and design has changed from infiltration to surface water discharge, with attenuation and pollution control measures. The design reduces contamination risks to the chalk aquifer and avoids any increase in flood risk.
- The lighting design minimises light spill and visual impact, also minimising impacts on bats.

A Statement of Sustainable Design and Construction provides a summary of how the scheme will contribute to sustainable development, outlining design and construction phase measures that have been or will be adopted, and how it complies with existing guidance. The active travel routes within the guided transport corridor and the provision of welfare and cycle storage facilities supports health and wellbeing. Provision of car charging points, partially using renewable solar energy, and the provision of electric public transport vehicles to operate on the route will allow for improvements to local air quality and contribute to regional and national carbon emissions policies.

The effects on climate from the carbon emissions<sup>1</sup> associated with the scheme have been assessed, including construction and operational activities. A carbon reduction workshop was undertaken in October 2020 with the design team to determine ideas for carbon reduction which were to be implemented and further researched where possible. Carbon emissions have been reduced through operation due to the proposed use of solar panels and increased sequestration due to the mitigation planting. Furthermore, through detailed design continued carbon reduction will be sought focusing on the carbon hotspots identified through the assessment.

A Natural Capital Assessment of the CSET scheme has been produced that quantifies natural features as assets that benefit people. The scheme is predicted to cause an overall gain in the provision of Ecosystem Services through the creation of new habitats and increasing access for people but will cause a loss in crop production. There is a net economic benefit that is assessed to be equivalent to about £390,000 over the life of the project.

GCP have committed to deliver a minimum of 10% biodiversity net gain (BNG) on any one project with an overall objective to deliver 20% BNG across the GCP transport schemes. The area BNG for the final CSET scheme is currently being finalised, but the expectation is that at least 10% BNG will be delivered onsite, and this may exceed the 20% BNG commitments. CSET will deliver substantial linear BNG. The long term (30 year) management of the BNG areas will be delivered through the County Council, with options on how precisely this is taken forward being explored by GCP.

The likely significant effects and main mitigation proposals are summarised in chapters 9 and 10 of this report. The EIA is not yet complete, so a few topic areas have not yet completed their assessments. These are Community and Human Health, Land Use and Land Take, and the Construction Traffic Assessment. There are likely to be temporary significant effects, during construction, on Great Crested Newts, and visual impacts in some locations.

Few permanent significant effects have been identified. However, on opening there are expected to be significant effects on buried archaeology, landscape and visual impacts for some residents with properties near the route, staff at the Cambridge Biomedical Campus and the users of some Public Rights of Way, roads and permissive paths. By year 15 of operation, when the planting around the scheme has matured, the visual impact will have reduced, but there will still be three areas where significant effects are predicted. These are:

- Users of Restricted Byway Babraham 12/10 and residents of North Farm looking south-west
- Residents on Sawston Road, Lynton Way and Stanley Webb Close and users of the existing cycleway on Sawston Road looking east towards the A11
- Users of Footpath Babraham 12/4 looking south and south-east.

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<sup>1</sup> Greenhouse Gases (GHGs) refer to the seven gases covered by the Kyoto Protocol: carbon dioxide (CO<sub>2</sub>), methane (CH<sub>4</sub>), nitrous oxide (N<sub>2</sub>O), hydrofluorocarbons (HFCs), perfluorocarbons (PFCs), sulphur hexafluoride (SF<sub>6</sub>) and nitrogen trifluoride (NF<sub>3</sub>). These are measured in units of carbon dioxide equivalent (CO<sub>2</sub>e) which expresses the impact of each gas in terms of the amount of CO<sub>2</sub> that would create the same impact. GHGs are commonly referred to as carbon.

# 1 Introduction

This report is an update on the environmental impact assessment (EIA) in progress that is due for completion to support the Transport and Works Act Order (TWAO) submission for the Cambridge South East Transport Phase 2 (CSET) scheme scheduled to be made after the July 2021 meeting of the GCP Executive Board, subject to Board approval.

The report summarises the works completed since the June 2020 Executive Board decision to progress with the design development and EIA of the recommended preferred option (the Brown Route) for the CSET scheme. The following elements are covered in this report.

- EIA Scoping
- EIA Consultation
- Field works completed to inform EIA
- Influencing the scheme design
- Sustainability and Carbon assessment
- Natural capital assessment
- Biodiversity Net Gain planning
- Likely significant effects
- Summary of main mitigation proposals

## 2 EIA Scoping

An Environmental Scoping Report (403394-MMD-ENV-00-RP-EN-0436) was submitted to the Secretary of State for Transport in October 2020. This report recommended that air quality, biodiversity, climate change, community and human health, historic environment, landscape and visual, noise and vibration, land use and land take, policies and plans, water resources and flood risk, traffic and transport and resources and waste should be scoped in and provided baseline information for each topic and the proposed assessment methodologies.

A scoping opinion was received in November 2020 following consultation with the following organisations:

- Natural England
- The Environment Agency
- Historic England
- Cambridgeshire County Council
- Network Rail
- Highways England
- Greater Cambridge Shared Planning (“GCSP”, on behalf of Cambridge City Council and South Cambridgeshire District Council)
- The response from GCSP also included the responses of their consultation with:
  - Cambridge International Airport
  - the Defence Infrastructure Organisation
  - Stapleford Parish Council
  - Cambridge Past, Present and Future (“CPPF”). Additionally, CPPF forwarded their response to the Secretary of State.

The Environmental Statement is being produced in line with the comments received in the Scoping Opinion. In addition to the topics listed above a contaminated land assessment including potential pollution from historic landfill sites will be undertaken and the impacts on ground water and surface water will be assessed.

## 3 EIA Consultation

### 3.1 EIA Public Consultation Outcome

The EIA consultation ran for eight weeks between 19 October and 14 December 2020. Due to the Covid-19 pandemic social distancing restrictions, the consultation was hosted online via a virtual exhibition.

The consultation presented the preferred route and an alternative alignment along Sawston Road. Additionally, individual scheme elements and environmental information by area were also presented and consulted on.

During the consultation, 304 questionnaire responses were received, in addition to 94 written responses. As part of the consultation, the project team met with the interested community groups and individuals to explain the proposal and to allow them to express their views and suggestions.

A number of statutory and non-statutory consultees were consulted as part of the EIA consultation, including:

- Statutory consultees as named in column (2) of the tables in Schedules 5 and 6 to the TWAO (Applications and Objections Procedure) (England and Wales) Rules 2006; and
- Non-statutory consultees who are in close proximity to the scheme or who were judged to have a potential interest in the application, for example local decision makers, business groups, interest groups and organisations.

The list of stakeholders consulted includes:

- Babraham Research Campus;
- British Horse Society;
- Cambridge Biomedical Campus;
- Cambridge City Council;
- Cambridgeshire County Council (Including in their role as relevant Planning Authority, Highway Authority, Lead Local Flood Authority, Public Rights of Way and Ecology Officer);
- Cambridge Past Present and Future;
- Camcycle;
- East West Railway Company;
- Emergency Services (East of England Ambulance Service, Cambridgeshire Constabulary – Police / Counter Terrorism Security Advisor and Cambridgeshire Fire and Rescue Service);
- Environment Agency;
- Network Rail;
- Railway Partnership;
- Sustrans;
- The Magog Trust; and
- The Ramblers Association and the Local Access Forum.

A summary of the main comments raised during the consultation and their incorporation into the CSET scheme design is presented in Table 3.1 below.

**Table 3.1: Design refinements due to EIA consultation**

Topic	Design response
Consultation survey questions	<p>Segregation of the cycling / pedestrian path along the western side of Francis Crick Avenue (FCA)</p> <p>With 54.3% of questionnaire respondents in favour, the design of the scheme proposes the segregation of the cycling / pedestrian path along the western side of FCA.</p>
Pedestrian footway along the eastern side of FCA	The scheme design provides a pedestrian footway along the eastern side of FCA between Dame Mary Archer Way and the existing guided busway. 50.0% of questionnaire respondents indicated this was necessary.
The proposed layout of the interchange between Cambridge South Station/ guided busway / FCA interchange	The design has taken into account feedback on the potential interaction of pedestrians and cyclists between Cambridge South Station / guided busway / Francis Crick Avenue interchange and the design has been developed to maximise the efficient movement of pedestrians and cyclists.
Avenue of trees either side of the public transport corridor and the highway along FCA	The scheme design accounts for a mix of trees and hedges along FCA. The highest proportion of questionnaire respondents supported this option (38.2%).
Access to Nine Wells Local Nature Reserve (LNR)	Pedestrian and cycle access to Nine Wells LNR could be provided subject to agreement from landowners. 39.8% of respondents to this question indicated a preference for retaining the existing track alongside Hobson's Brook.
Landscape planting proposals for the area around Nine Wells LNR	The design of the scheme incorporates landscape planting in the Nine Wells area that takes into account the landowners' requirements and the commitment from GCP to provide protection to Nine Wells LNR where this is practical.
Realignment of the route between Babraham and Sawston	The highest proportion of questionnaire respondents (33.9% strongly opposed and 6.9% opposed) objected to the emerging proposed route alignment along Sawston Road. Taking this into account, this option was dropped and the preferred scheme alignment at OBC (the Brown Route) is being taken forward in the EIA.
Planting between stops and nearby residential properties	A majority of questionnaire respondents (60.9%) indicated a preference for 'Woodland planting between stops and residential properties'. In consultation with landowners and, taking into account the safest layout for the stops, the landscape design includes measures to reduce the visual impact and provide noise attenuation where this is appropriate. This includes tree and shrub planting.
Landscape planting around the bridge crossing over the River Granta near Stapleford?	The design of the scheme features grass and scattered trees alongside the River Granta. This was supported by the highest proportion of respondents to the question (40.1%).
Picnic areas along the route, near the River Granta crossings	Picnic areas near the River Granta crossings were supported by the highest proportion of respondents to the question (42.4%). The potential for picnic areas is still being explored but is subject to agreement from landowners for the required areas to be acquired.
The location of the Active Travel Path between Sawston Road and the High Street	With the decision to align the route in this area along the preferred scheme alignment at OBC, this option has not been included in the design. The design now includes for the active travel path continuing alongside the public transport route. This refinement aligns with the preference of the highest proportion of respondents to the question (33.6%).
Realignment of the route between Sawston and Babraham	The highest proportion of questionnaire respondents (33.9% strongly opposed and 6.9% opposed) objected to the emerging proposed route alignment along Sawston Road. Taking this into account, this option was dropped and the preferred scheme alignment at OBC (the Brown Route) is being taken forward in the EIA.

Topic	Design response
Avenues of trees along the sections of the route	The design of the scheme proposes hedgerows interspersed with suitable tree species along sections of the route to deliver an effective legacy for the scheme. This was supported or strongly supported by 65.5% of questionnaire respondents.
Active Travel Routes connecting the Travel Hub to Granta Park and to Babraham Research Campus	The scheme proposes an Active Travel Route to connect the Travel Hub to Granta Park. This was supported or strongly supported by 46% of questionnaire respondents.  The scheme also proposes an Active Travel Route along the existing footpath from the Travel Hub to the High Street in Babraham but routed to avoid a private farmyard where machinery is used. This is to reduce the risk to active travel route users.
Consultation survey comments	The height of the River Granta (Stapleford) crossing considered to be too high  The project team reviewed the bridge design and scale. The proposed River Granta (Stapleford) crossing has subsequently been reduced in its overall height. Additional access track crossings would be provided for large machinery to use instead of allowing vehicles to pass under the proposed River Granta crossing.
Possible noise pollution created by public transport vehicle operations along the route	The precise locations where noise barriers would be required have been confirmed during noise modelling. However, the most likely locations for such features have been included in the designs near to residential areas and are also included in the landscaping plans.
A suggestion to develop additional cycle storage at stops along the public transport route	Additional cycle storage has been incorporated into the design development of stops.
The provision of a new public footpath west of Sawston Road. The existing (longer) route is constrained and further compromised by the introduction of new housing developments	The Active Travel Path will provide enhanced access for walking, cycling and horse-riding to the north and south of Sawston Road. Therefore, no change was felt necessary in response to this specific comment.
The effect of urbanisation at stops on the public transport route	The stop layout has been reconfigured to provide greater opportunity for landscaping to soften the look and feel of the stops. The landscape design has been completed considering the need to minimise the visual impact of the stops.
A request was made for Pegasus crossings to be developed throughout the CSET scheme to improve the access for equestrian riders	Pegasus crossings are now included in the design.

### 3.2 Working Group Meetings and Updates

Regular meetings of the Landscape Heritage and Ecology Working Group, and the Active Travel User Group have taken place. The CSET scheme has been discussed at appropriate points.

## 4 Fieldwork to Inform EIA

Numerous surveys have been undertaken to inform the EIA baseline and the impact assessment. From this mitigation measures have been identified and are included in detail in the Environment Statement being finalised. The surveys conducted to inform the EIA and the design development are summarised in Table 4.1 below.

**Table 4.1: Summary of surveys**

Discipline	Surveys
Air Quality	<ul style="list-style-type: none"> <li>• Air quality monitoring has been undertaken for six months, between September 2020 and March 2021</li> </ul>
Agricultural Soil Surveys	<ul style="list-style-type: none"> <li>• As part of the Ground Investigation, samples have been collected and an agricultural soil condition report produced</li> </ul>
Biodiversity	<ul style="list-style-type: none"> <li>• Bat ground tree level assessment (2019)</li> <li>• Bat static (2020)</li> <li>• Bat emergence / re-entry (2020)</li> <li>• Bat transect (2019/2020)</li> <li>• Winter static surveys (2020 / 2021)</li> <li>• Bat hibernation surveys for trees (2020 / 2021)</li> <li>• Badger walkover (2019)</li> <li>• Badger bait marking (2020)</li> <li>• Breeding bird (2020)</li> <li>• Winter bird (2019/2020)</li> <li>• Barn owl (2020)</li> <li>• Kingfisher (2020)</li> <li>• Otter (2019)</li> <li>• Water vole (2020)</li> <li>• White clawed crayfish (2020)</li> <li>• GCN eDNA (2020)</li> <li>• Terrestrial invertebrates (2020)</li> <li>• NVC woodland and grassland (2020)</li> <li>• Hedgerow surveys (2019 and 2020)</li> <li>• Additional phase 1 surveys (2019 / 2020)</li> <li>• Hedgehog (2020)</li> <li>• Reptile (2020)</li> </ul>
Historic Environment	<ul style="list-style-type: none"> <li>• Aerial photographic survey (November 2019)</li> <li>• Geophysical survey (February – March 2020)</li> <li>• Walkover survey (November 2020)</li> <li>• Archaeological evaluation by trial trenching (November 2020 – March 2021)</li> </ul>
Landscape and Visual	<ul style="list-style-type: none"> <li>• Summer baseline assessment survey (2020)</li> <li>• Winter baseline assessment survey (2021)</li> <li>• Baseline lighting surveys during daytime and night-time hours from January to March 2021 as part of the Lighting Impact Assessment</li> </ul>
Noise	<ul style="list-style-type: none"> <li>• Noise monitoring of buses on the existing guided busway</li> <li>• Noise monitoring of traffic was not undertaken because changes in traffic levels due to COVID-19 restrictions would have led to unrepresentative results. This approach has been agreed with the local Environment Health Officer</li> </ul>
Traffic Surveys	<ul style="list-style-type: none"> <li>• Traffic data received from Cambridgeshire County Council (CCC)</li> <li>• Project specific data gathered from locations not surveyed by CCC</li> <li>• Collision data received from CCC</li> </ul>

## 5 Environmental Considerations Influencing the Scheme Design

As scheme design has progressed, environmental impacts have been considered and this has led to a number of changes being incorporated as embedded mitigation into the design. These are briefly described in the table below.

**Table 5.1: Impact of Design Changes**

Feature	Design Change	Impact
Bridge heights and embankments	Bridge heights and approach embankments have been lowered at the crossing of Hobson's Brook, River Granta (Stapleford) and River Granta (Babraham) to the minimum possible	<ul style="list-style-type: none"> <li>Reduced visual impact</li> <li>Reduced materials use</li> <li>Reduced embedded carbon</li> <li>Reduced construction vehicle movements</li> </ul>
A11 Travel Hub layout	Traffic modelling updates post OBC indicated first phase of car parking demand was no more than 1,250 spaces. Long term demand for 2500 car parking spaces depends on a number of other actions not currently reliable to be allowed for. Travel Hub footprint designed for first phase of 1,250 spaces with ability to increase spaces in future as required.	<ul style="list-style-type: none"> <li>The revised travel hub design incorporates improved landscaping, pedestrian circulation and surface water drainage</li> <li>Reduced visual impact</li> <li>Improved user experience via better circulation</li> <li>Reduced biodiversity loss</li> <li>Reduces potential impacts on openness of the green belt</li> </ul>
Bus stop design	Improve layout of bus stops to provide greater opportunity for landscaping	<ul style="list-style-type: none"> <li>Reduces urbanisation effect of bus stops</li> <li>Reduces visual impact of stops</li> </ul>
Recreate historic water meadows at Babraham	Drainage design for the Travel Hub allows for swales from attenuation pond to River Granta	<ul style="list-style-type: none"> <li>Creates new habitat, contributing to biodiversity net gain</li> <li>Recreates a similar water meadow setting that used to be present and which is valued by Babraham residents</li> </ul>
Revised alignment west and south of Nine Wells LNR	Route alignment altered to move the scheme away from the existing rail line and away from a hedge south of Nine Wells LNR	<ul style="list-style-type: none"> <li>Accommodates drainage requirements for Cambridge South Station works</li> <li>Allows space for potential East West Rail Scheme</li> <li>Enables access between fields at pinch point</li> <li>Avoids loss of hedgerow used by nesting birds.</li> <li>Protects ecology features important to protected species</li> <li>Reduced number of landowners affected by alignment</li> <li>Improved buildability</li> <li>Retains alignment suited to public transport vehicles achieving design speeds</li> </ul>
Earthworks north of Coppice Avenue	Extend embankment to the south of public transport route to enable planting of narrow woodland belt	<ul style="list-style-type: none"> <li>Reduced visual impact for residents of Coppice Avenue, Great Shelford</li> </ul>
Active Travel Path design	Soft surfacing (grass) for equestrians, hard surfacing for	<ul style="list-style-type: none"> <li>Improved safety for users of Active Travel Path</li> </ul>

Feature	Design Change	Impact
	pedestrians/cyclists and emergency vehicle access	
Flood risk and groundwater contamination	Changed the potential drainage design using infiltration to ground to one that discharges to surface water with measures in place to protect surface water quality	<ul style="list-style-type: none"><li>● Sustainable Drainage System (SuDS) drainage design to reduce risk of flooding receiving surface water bodies</li><li>● Avoids risk high groundwater levels affect drainage functionality and reduces risk of flooding as a result</li><li>● Reduces risk of contamination from scheme entering chalk aquifer</li></ul>
Lighting design	Lighting design to minimise light spill and minimise visual impact Turn lighting down at night	<ul style="list-style-type: none"><li>● Minimises impact on Bats and other nocturnal animals</li><li>● Reduced visual impact</li><li>● Reduced energy usage and operational carbon</li></ul>

# 6 Sustainability and Carbon Assessment

## 6.1 Sustainability

The Statement of Sustainable Design and Construction forms part of a suite of documents to be submitted to the Secretary of State for Transport in support of the TWAO for the CSET scheme. This provides a summary of how the scheme will contribute to sustainable development, outlining design and construction phase measures that have been or will be adopted, and how it complies with existing guidance. It is structured around the sustainability themes within the Greater Cambridge Sustainable Design and Construction Supplementary Planning Document (SPD) (as adopted January 2020) and demonstrates how the scheme supports the appropriate policies. The report follows the Sustainability Checklist and offers responses to the questions posed around the sustainability of the scheme.

The scheme directly and indirectly supports the key national, regional and local policy documents relevant to the development. The scheme will contribute to sustainable development, which is at the heart of the National Planning Policy Framework (NPPF) and other policies at every scale. The inclusion of cycling and walking routes within the guided transport corridor and the provision of welfare and cycle storage facilities supports the themes of health and wellbeing presented in a number of the policies. Provision of electric car charging points, potentially power using renewable solar energy, and the provision of electric hybrid buses to operate on the route will allow for improvements to local air quality and contribute to regional and national carbon emissions policies.

## 6.2 Carbon Assessment

As part of the Environmental Statement the effects on climate from the carbon emissions<sup>2</sup> associated with the scheme have been assessed. The assessment includes emissions associated with construction activities and operational activities. The scope of the assessment for these stages, with the greenhouse gas accounting lifecycle stages noted (in line with PAS2018: Carbon Management in Infrastructure), is detailed below:

- Construction baseline emissions using the Outline Business Case Cost Estimate including:
  - Embodied emissions from the materials used (A1-3)
  - Emissions from transport of materials to site (A4)
  - Emissions from plant use for construction activities (A5)
- Operation over 60 year assessment period
  - Road user emissions from the changes to traffic flow (B9)
  - Additional sequestration due to planting of woodland (B8)
  - Emissions from operational electricity requirement including electric vehicle charging points and the reduced requirement through the use of solar panels (B2)

The estimated carbon emissions for the above aspects as split by lifecycle stage are shown in Table 6.1.

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<sup>2</sup> Greenhouse Gases (GHGs) refer to the seven gases covered by the Kyoto Protocol: carbon dioxide (CO<sub>2</sub>), methane (CH<sub>4</sub>), nitrous oxide (N<sub>2</sub>O), hydrofluorocarbons (HFCs), perfluorocarbons (PFCs), sulphur hexafluoride (SF<sub>6</sub>) and nitrogen trifluoride (NF<sub>3</sub>). These are measured in units of carbon dioxide equivalent (CO<sub>2</sub>e) which expresses the impact of each gas in terms of the amount of CO<sub>2</sub> that would create the same impact. GHGs are commonly referred to as carbon.

**Table 6.1: Estimated carbon emissions split per lifecycle stage**

Lifecycle stage	Emissions (tCO <sub>2</sub> e)	Notes
A1-3 Products and materials	15,200	
A4 Transport of materials	15,100	
A5 Construction plant	2,900	
B2 Operational energy	29,100	This value considers the benefits of the use of solar panels to provide a portion of the electricity required.
B8 Other operational processes (planting)	-2,100	Negative emissions shows the benefit of sequestration.
B9 User utilisation	36,500	Road user emissions include the 60 year assessment period of any changes to traffic conditions in the Affected Road Network of the scheme, not just the journeys directly associated with the scheme i.e. to the traffic hub itself.

During the design stage reduction of carbon emissions has been sought. A carbon reduction workshop was undertaken in October 2020 with the design team to determine ideas for carbon reduction which were to be implemented and further researched where possible. Ideas which continue to be researched include the use of low carbon materials for the Active Travel Path, for which selection of materials will continue through detailed design. In addition, the use of solar panels has reduced emissions by an estimated 2,600tCO<sub>2</sub>e whilst the mitigation planting reduces emissions by an estimated 2,100tCO<sub>2</sub>e.

Following on through detailed design, carbon reduction will continue to be a key driver and performance indicator. This will be accomplished by following the high level approach outlined by Publicly Available Specification 2080<sup>3</sup> of; build nothing, build less, build clever and build efficiently. The carbon reduction effort will focus on the carbon hotspots identified within the carbon assessment.

Further to the assessment undertaken to date, a second construction assessment will be undertaken to determine the progress towards carbon reduction through the design. This will be completed based on the updated Outline Business Case Cost Estimate for the entire scheme.

The project itself aligns with relevant local policies particularly through the provision of the active travel route and the public transport route with the intention to encourage more sustainable travel. In addition, the work throughout design to provide solar panels, encourage sustainable construction and increased resource efficiency aligns with local policy. These aspects align with key priorities within both the Cambridge City Council Climate Change Strategy, the Cambridgeshire County Council Climate Change and Environment Strategy and Policy 28 and Policy 29 within the Cambridge Local Plan.

<sup>3</sup> BSI (2016) PAS 2080: *Carbon management in infrastructure* [online] available at: <https://shop.bsigroup.com/ProductDetail?pid=00000000030323493>

## 7 Natural Capital Assessment

The development of the Natural Capital Assessment for CSET Phase 2 boosts the scheme's environmental credentials, in line with Green Book guidance, which supports a formal valuation of natural capital and helps to inform whether the Government is meeting the targets stated in the 25 year environment plan<sup>4</sup>.

Natural Capital is defined according to the HM Treasury's Green Book: Appraisal and Evaluation in Central Government, as the stocks of the elements of nature that have value to society, such as forests, fisheries, rivers, biodiversity, land and minerals. Natural Capital includes both the living and non-living aspects of ecosystems. Stocks of Natural Capital provide flows of ecosystem services over time (Figure 7.1). These include use values that involve interaction with the resources, and which can have a market value (minerals, timber, freshwater) or non-market value (such as outdoor recreation, landscape amenity). They also include non-use values, such as the value people place on the existence of particular habitats or species.

A Natural Capital approach involves quantifying nature as an asset or set of assets that benefit people. The ability of Natural Capital assets to provide goods and services is determined by their quality, quantity and location. Natural Capital has become a standard analytical approach to thinking about nature, building on the ecosystem approach which was prominent at the time of the UK National Ecosystem Assessment (2011).

**Figure 7.1: The flow of benefits from Natural Capital**



Source: Natural Capital Coalition, 2016

By identifying and measuring nature as an asset, the flow of benefits or ecosystem services those assets provide can be quantified. Ecosystem services are defined as the benefits (and losses or detriments) that people obtain from ecosystems. These include provisioning services such as food and water; regulating services such as flood and disease control; and cultural services such as recreation, ethical and spiritual, educational and sense of place.

The overall impact of the scheme on the provision of ecosystem services is summarised in Table 7.1. Annual and total benefits have been summarised over the lifetime of the scheme. The scheme is predicted to cause an overall gain in the provision of ecosystem services within the scheme Zone of Influence through the creation of new habitats. However, the scheme will generate a loss in the production of cultivated crops.

<sup>4</sup> [Natural Capital Committee – The Green Book guidance \(November 2020\)](#)

**Table 7.1: Summary of Ecosystem Services Benefits**

Ecosystem Services	Profile Description	Baseline Value (£/year)	Averaged benefit (£/year)	Total benefit (£)
<b>Carbon Storage</b>	Cumulative carbon (eCO2t/year)	N/A	4,233	258,218
	Cumulative carbon (eCO2t/year)	N/A - values take into account baseline	35	2,110
<b>Natural Hazard Management</b>	Time to maturity of woodland habitat estimated at 20 years. The provision of benefits follows a 5% increase until year 20.	378	509	30,521
<b>Air Pollutant Removal</b>	Time to maturity of woodland habitat estimated at 20 years. The provision of benefits follows a 5% increase until year 20.	333	1,686	101,185
<b>Totals</b>		711	6,463	392,034

## 8 Biodiversity Net Gain Planning

The Government has published in the draft Environment Bill 2020, Schedule 14 “Biodiversity gain as condition of planning permission”<sup>5</sup>, the intent to introduce the application of planning conditions to set a requirement for delivery of biodiversity gain. Under Schedule 14 the percentage gain is set at 10%, being the net gain in value between pre and post development biodiversity. It is expected the draft Environment Bill will be formalised in 2021 but no final deadline is available for this yet.

The NPPF section 9 (sustainable transport) requires transport schemes to consider environmental gain from the earliest opportunity and states: *the environmental impacts of traffic and transport infrastructure can be identified, assessed and taken into account – including appropriate opportunities for avoiding and mitigating any adverse effects, and for net environmental gains.*

Section 11 of the NPPF states: *Planning policies and decisions should: a) encourage multiple benefits from both urban and rural land, including through mixed use schemes and taking opportunities to achieve net environmental gains – such as developments that would enable new habitat creation or improve public access to the countryside.*

The South Cambridge District Local Plan and the Cambridge City Local Plan both set out requirements for environmental gain.

The general interpretation of environmental gain is this is delivered through biodiversity net gain (BNG).

GCP have committed to deliver a minimum of 10% BNG on any one project with an overall objective to deliver 20% BNG across the GCP transport schemes.

BNG is calculated using a methodology and scoring matrix developed by Defra. This method allows a value to be ascribed to any piece of land according to the nature of the habitat present on that land. The footprint of a proposed project is assessed under the methodology to assess the current BNG value (the pre-development biodiversity value), and then the proposed development, including all mitigation and planting, is assessed to calculate the post development biodiversity value. The difference between the pre and post development biodiversity value allows the BNG to be calculated.

BNG is calculated for areal features and for linear features. Linear features are rivers, ditches and hedges and these are reported separately. BNG has to be established for at least 30 years, so once it is committed to, it cannot be used for any other purpose unless the habitat on the BNG land was improved to a higher biodiversity value.

The BNG can be delivered within the confines of the proposed developed (onsite) or on land away from the development (offsite). The method of BNG calculation makes allowance for offsite BNG but the scoring method means if the BNG is distant from the site then the value earned is lowered.

At the present time it is not considered possible to acquire land for BNG under compulsory purchase. This means that if a landowner is not willing to let land be acquired by a development then it cannot be relied on for BNG. This has had some impact on the potential BNG opportunities for CSET where landowners have expressed an unwillingness for some land to be

<sup>5</sup><https://publications.parliament.uk/pa/bills/cbill/58-01/0220/200220.pdf>

sold to the scheme, or even to allow the scheme to create habitat on land they own and then for the land to be returned to the landowner.

Cambridgeshire County Council are developing proposals to establish a landbank for developers to purchase biodiversity credits to deliver a development's BNG commitment. This provides an opportunity for GCP to acquire biodiversity credits if one of the GCP projects cannot deliver the BNG onsite. The CSET project has been discussing this option with the County and have agreement that, if required, land would be available near to the scheme (to the north east of Magog Down) for additional biodiversity credits to be acquired.

CSET will deliver very substantial linear BNG due to the inclusion of significant lengths of new hedgerows along the route, and the inclusion of a few water vole mitigation ditches along Hobson's Brook and the River Granta.

The area BNG for the final CSET scheme is currently being finalised, but the expectation is that at least 10% BNG will be delivered onsite, and this may exceed the 20% BNG commitments. The final BNG area value will be calculated when the landscape design is completed (due to be completed by the end of April).

Should there be any need to acquire more land from the County landbank to deliver 20% BNG then this will be agreed with the County.

The long term (30 year) management of the BNG areas will be delivered through the County Council, with options on how precisely this is taken forward being explored by GCP.

## 9 Impact Assessment and Findings by Topic

The EIA process enables the early identification of potential environmental impacts during the design development process and enables those impacts to be avoided or mitigated where possible through alternative design or construction methodologies.

Potential environmental impacts have been assessed for each environmental topic following the process outlined in Table 9.1. The assessment will be fully reported in the environmental statement.

**Table 9.1: Assessment Process**

Process step	Detail
Set the assessment scope	Outline of the scope of the assessment, both spatially and temporally
Identify the regulatory and policy context	Key legislation and planning guidance relevant to the assessment
Confirm the assessment methodology	Topic specific methodology used, including reference to relevant guidance, standards and good practice and appropriate survey areas
Define baseline conditions	Local conditions and characteristics relevant to the topic, including the outline of receptors of local, regional or national/international importance Consideration of information available and an outline of the assumptions and limitations made based on the design and information gathered to date
Predict impacts	Identification of potential effects on receptors from scheme activities, and an outline of the spatial and temporal scale of impact Assessment of the level of significance of environmental impacts
Identify mitigation to include in design	Measures that cannot be designed out but are to be included in the programme of works pre- during and post- construction. Identification of measures to be included for known gaps in knowledge or where issues may arise during later stages of the scheme
Assess the significance of the scheme effects	Summary of predicted effects and resulting significance after design and mitigation measures are accounted for
Assess any cumulative effects	Identification of in-combination effects where one receptor may be affected by more than one environmental topic Identification of inter-project effects where multiple effects on the same environmental topic arise from the scheme, together with those from other developments that are scoped into the cumulative effect assessment

The table below summarises the likely significant impacts identified during the environmental impact assessment to date. Landscape and visual impact effects are stated for year 1, before planting mitigation has established as this provides a worse-case scenario.

**Table 9.2: Likely Significant Effects of CSET Scheme**

Topic	Likely Significant Effects
Air Quality	None
Biodiversity	<ul style="list-style-type: none"> <li>• Potential impacts to Great Crested Newts (GCN) during construction</li> </ul>
Climate Change and Carbon	N/A
Community and Human Health	Not yet available
Historic Environment	<ul style="list-style-type: none"> <li>• There is the potential for a portion of the archaeological remains of the Babraham Water Meadows (MM363-367) to be physically impacted and permanently removed, causing a major impact and a moderate/large adverse effect to the asset</li> </ul>

Topic	Likely Significant Effects
	<ul style="list-style-type: none"> <li>● The following non-designated assets have the potential to be physically impacted and permanently removed by the scheme: <ul style="list-style-type: none"> <li>– Possible Iron Age Grave, CBC to Granham's Road section (MM386)</li> <li>– Iron Age trackway and enclosures, CBC to Granham's Road section (MM387)</li> <li>– Cropmark complex, land W of Addenbrooke's (MM372)</li> <li>– Roman ditches at Cambridge Biomedical Campus Trunk Road, Addenbrooke's, Cambridge (MM156)</li> <li>– Undated features, Addenbrooke's access road site 4 (MM121)</li> <li>– Neolithic flint axe find, Great Shelford (MM083)</li> <li>– Roman ditch, Hinton Way to Haverhill Road section (MM388)</li> <li>– Possible lynchet features, Hinton Way to Haverhill Road section (MM389)</li> <li>– Bronze Age ring ditch, Haverhill Road to Sawston Road section (MM390)</li> <li>– Iron Age/Roman settlement, Haverhill Road to Sawston Road (MM391)</li> <li>– Roman landscape drainage activity, Haverhill Road to Sawston Road (MM392)</li> <li>– Undated cropmarks, Sawston (MM340)</li> <li>– Sawston-Haverhill railway (MM355-MM358)</li> <li>– Cropmark enclosures, Babraham (MM380)</li> <li>– Early medieval Sunken Feature Building, High Street to A11 Travel Hub (MM393)</li> <li>– Ditched enclosure / rectilinear enclosure, Iron Age / Roman (MM394)</li> </ul> </li> </ul>
Landscape and Visual Impact	<ul style="list-style-type: none"> <li>● Impact to River Granta Valley Farmland Landscape Character Area (LCA) during construction and year 1 of operation</li> <li>● Impact to Gog Magog Chalk Hills LCA during construction</li> <li>● Visual impact to the following receptors only during construction: <ul style="list-style-type: none"> <li>– Visitors to Nine Wells Nature Reserve and users of Footpath Great Shelford 198/2 looking west</li> <li>– Users of National Cycle Network Route 11 looking east</li> <li>– Users of Footpath 179/1, 179/2, 12/9 and 196/12</li> <li>– Users of Sawston Road and the cycleway looking west</li> <li>– Users of Sawston Road and High Street</li> </ul> </li> <li>● Visual impact to the following receptors during construction and year 1 of operation: <ul style="list-style-type: none"> <li>– Staff working on the Cambridge Biomedical Campus and users of Footpath 39/47 looking south</li> <li>– Users of National Cycle Route 11/ DNA Cycle Path (PPA/0155) looking south</li> <li>– Residents at White Hill Farm, Nine Wells House and White Hill House and users of the permissive bridleway looking south-west</li> <li>– Residents on Hinton Way and Coppice Avenue looking north-east</li> </ul> </li> </ul>

Topic	Likely Significant Effects
	<ul style="list-style-type: none"> <li>– Residents on Mingle Lane, Duke's Meadow and Gog Magog Way and visitors to St Andrew's Church and Stapleford Cemetery looking north-west</li> <li>– Residents on Haverhill Road, Chalk Hill and at the eastern end of Gog Magog Way looking north-west</li> <li>– Residents of Middlefield Cottage, South Hill House, The House on the Hill and other residences off Haverhill Road looking south and south-west</li> <li>– Users of Bridleway Stapleford 212/2 and residents on Haverhill Road looking east</li> <li>– Users of Bridleway Stapleford 212/2 looking west</li> <li>– Users of Footpath Babraham 12/8 and 12/9 and residents in properties north of Sawston Road looking south</li> <li>● Visual impact to the following receptors during construction, year 1 of operation and year 15 of operation: <ul style="list-style-type: none"> <li>– Users of Restricted Byway Babraham 12/10 and residents of North Farm looking south-west</li> <li>– Residents on Sawston Road, Lynton Way and Stanley Webb Close and users of the existing cycleway on Sawston Road looking east</li> <li>– Users of Footpath Babraham 12/4 looking south and south-east</li> </ul> </li> </ul>
Land Use and Land Take	Not yet available
Noise and Vibration	N/A
Traffic and Transport	Operation - N/A
	Construction – not yet available
Water Resources and Flood Risk	N/A
Resources and Waste	N/A

# 10 Summary of Main Mitigation Proposals

The table below summarises the main environmental mitigation that will be proposed in the CSET Environmental Statement.

**Table 10.1: Main Mitigation proposed for CSET Scheme**

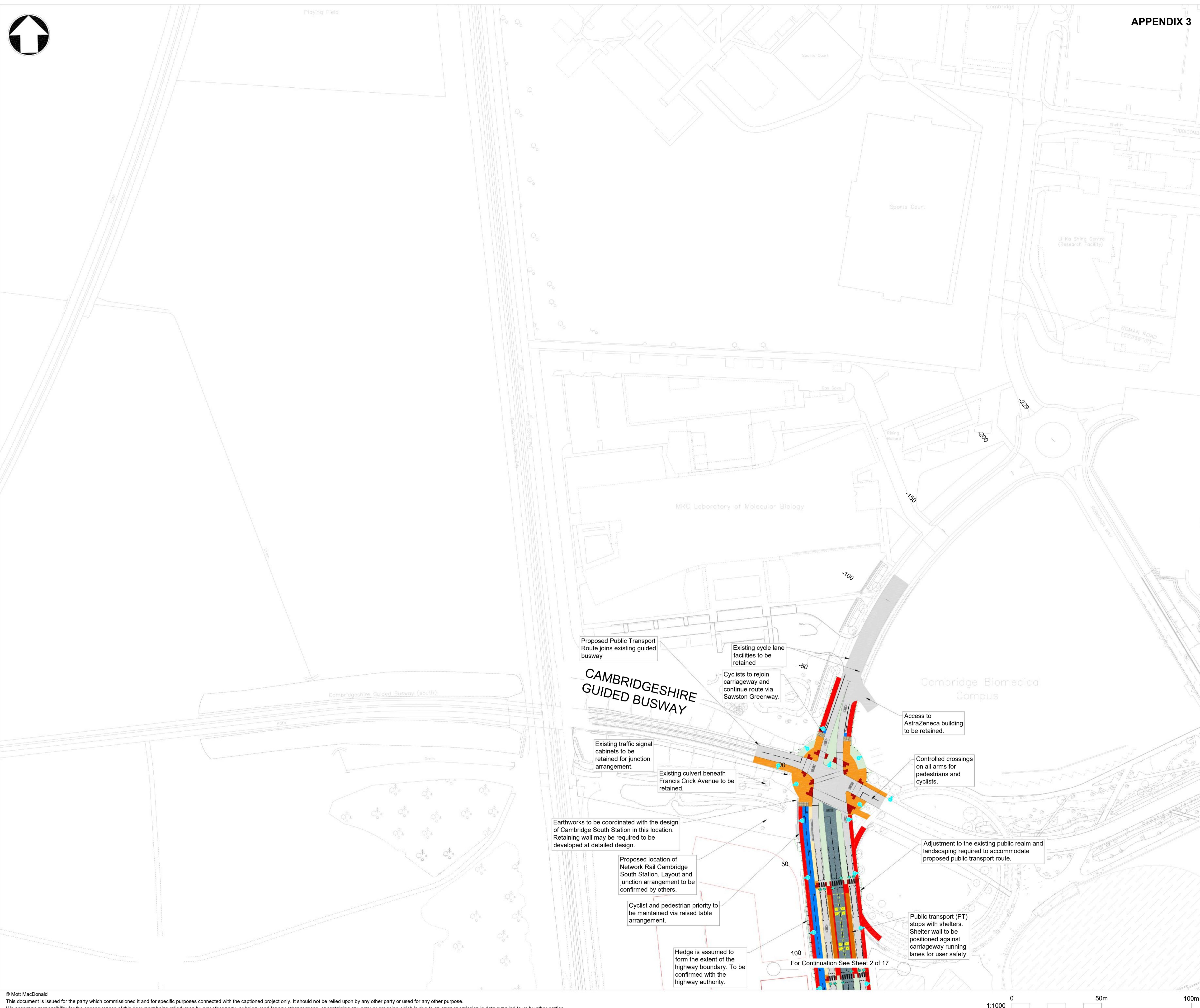
Topic	Main mitigation proposals
Air Quality	Standard Construction Good Practice. No operational mitigation required other than incorporated in scheme design such as extended range hybrid vehicles.
Biodiversity	<ul style="list-style-type: none"> <li>• Construction Environmental Management Plan (CEMP)</li> <li>• Landscape and Ecological Management Plan (LEMP)</li> <li>• Pre-construction surveys</li> <li>• River Granta County Wildlife Site (CWS) screened from the construction works to minimise impacts</li> <li>• All badger setts directly or indirectly impacted by the scheme will be closed under a licence from Natural England (July – November). Artificial sett to be provided to mitigate for loss of a main sett</li> <li>• Landscape design includes newly created areas of grassland and woodland, once established, will reduce habitat loss and fragmentation and will also enhance green corridors for the length of the route</li> <li>• Landscape design will include wetland habitat suitable for water voles in the form of linear ponds</li> <li>• Sensitive lighting strategy to reduce lighting impacts</li> <li>• Fencing, capture and translocation programme of GCN to be conducted under a European Protected Species licence from Natural England</li> <li>• Mitigation for lost GCN habitat near Francis Crick Avenue to be confirmed – consultation ongoing with landowners who could provide sites for mitigation</li> <li>• Hibernacula will be constructed within close proximity to GCN ponds, to provide additional habitat</li> </ul>
Climate Change and Carbon	<ul style="list-style-type: none"> <li>• Follow the high level approach as defined within the Publicly Available Specification (PAS) 2080 to reduce greenhouse gas emissions as far as practicable</li> <li>• Maintenance plan would consider a proportionate strategy to manage the risk of snow and ice build-up on the active travel path including regular gritting</li> </ul>
Community and Human Health	Not yet available
Historic Environment	<ul style="list-style-type: none"> <li>• Targeted archaeological investigation to record archaeological assets prior to their removal or partial removal as a result of the CSET scheme construction</li> <li>• The Granta River Crossing at Stapleford has been reduced in height to minimise its presence in the landscape</li> <li>• The scheme design has avoided the addition of any feature that would impact the openness of views along this avenue, therefore minimising the impact</li> </ul>
Landscape and Visual Impact	<ul style="list-style-type: none"> <li>• Tree-lined hedgerow, woodland belts, grassland to integrate the scheme into its landscape setting <ul style="list-style-type: none"> <li>– Tree planting along Francis Crick Avenue</li> <li>– Trees and hedgerow along the public transport route</li> </ul> </li> </ul>

Topic	Main mitigation proposals
	<ul style="list-style-type: none"> <li>– Woodland north and south of the route north of Coppice Avenue</li> <li>– Woodland at each end of the River Granta Crossing</li> <li>– Tree planting and hedgerow around and within Travel Hub. Woodland around northern and southern parking zones</li> <li>– Bunds to be included along route to provide additional screening where this would be effective</li> </ul>
Land Use and Land Take	Not yet available
Noise and Vibration	<ul style="list-style-type: none"> <li>• Low noise surface (Thin Surface Course System) for dedicated public transport route.</li> <li>• Acoustic barriers and bunds in key areas where the dedicated route alignment approaches nearest noise sensitive receptors (including receptors at Hinton Way, Haverhill Road, North Farm, residential development west of Sawston Road stop)</li> <li>• Construction noise and vibration mitigation includes application of Best Practicable Means (BPM)</li> <li>• Temporary acoustic barriers or solid site hoardings are also proposed to reduce noise impacts from operation of satellite construction compounds at the closest affected receptors</li> </ul>
Traffic and Transport	<ul style="list-style-type: none"> <li>• The public transport route is segregated so that any increase in bus flows does not have a material impact to flow on the southbound and northbound carriageways along Francis Crick Avenue. Public transport vehicles are segregated from all other highway users (walkers and cyclists)</li> <li>• The DNA path has been designed to avoid increases to journey length where possible</li> <li>• Construction not yet available</li> </ul>
Water Resources and Flood Risk	<ul style="list-style-type: none"> <li>• No vegetation clearance within the riverbed or banks</li> <li>• Temporary bridges will not impact the riverbeds or banks</li> <li>• No storage or stockpiling within flood zones during construction</li> <li>• Site compound to be located away from surface water courses and outside of flood zones 2 and 3</li> <li>• Site must sign up for EA flood warning service</li> <li>• SuDS drainage has been embedded within the design to ensure runoff has sediment settlement</li> <li>• Ground Investigation is ongoing which will identify whether there is contamination associated with the landfills. If present, risk will be mitigated (either treatment, removal or breaking pathway to contaminant source)</li> <li>• Flood compensation areas (mitigation embedded within the design)</li> </ul>
Resources and Waste	<ul style="list-style-type: none"> <li>• Outline Site Waste Management Plan (SWMP) to ensure that waste is managed in accordance with the waste hierarchy and other relevant legislative requirements</li> <li>• CEMP to be updated during detailed design to cover pollution control, materials storage, waste handling, emergency planning and incident control</li> <li>• Draft Spoil Management Strategy (SMS) which sets out how soils are to be managed in accordance with Defra's CoP to be developed during detailed design</li> </ul>





Playing Field



**Notes**

- Dimensions are in metres unless stated otherwise. Do not scale from the drawing.
- Drawings to be read in conjunction with Clarifications and Assumptions Technical Note Ref: 403394-MMD-HWA-00-TN-HW-0705.
- Drawing to be printed in colour.
- Preliminary route alignment shown is based on the highway design principles set out in the Design Manual for Roads and Bridges (DMRB). These drawings are subject to further detailed design.
- All works are subject to the approval of the local highway authority (Cambridgeshire County Council) and further stakeholder engagement.
- Based on the underlying geology, side slopes of 1 in 4 have been provided along the route.
- The design speed is 100kph for the route with a reduction to 30kph in restricted areas (however 50kph has been used as the minimum design speed in line with the DMRB).
- Environmental constraints have been considered in the design including the Nine Wells Nature Reserve, River Granta and the County Wildlife Site alongside the dismantled railway.
- OS mapping licence no. © Crown copyright and database rights 2020 OS 100023205 and topo survey reference 25373ea-01.dwg. Where insufficient survey data was available LiDAR data has been used.

Key to Symbols	
Proposed Verge	
Landscaping	
Active Travel Route	
Proposed Public Transport Route (PTR)	
Carriageway	
Proposed Footway	
Shared Use Footway	
Cycleway	
Hardstanding	
Proposed Controlled Crossing (red)	
Proposed Uncontrolled Crossing or Corduroy Paving (buff)	
Proposed Buildings	
Existing Buildings	
Kerbline	
Road Markings	
Embankment/Cutting	
Vehicular Crossover	
Proposed Lighting Columns/Beacon	

Location Plan			
P4	09/04/2021 AK	Design freeze 3	AH MR
P3	12/02/2021 AK	Design freeze 2	AH MR
P2	15/09/2020 AK	Design freeze 1	AH MR
P1	31/07/2020 PZ	First issue	AH MP
Rev	Date	Drawn	Description
			Chkd Appd

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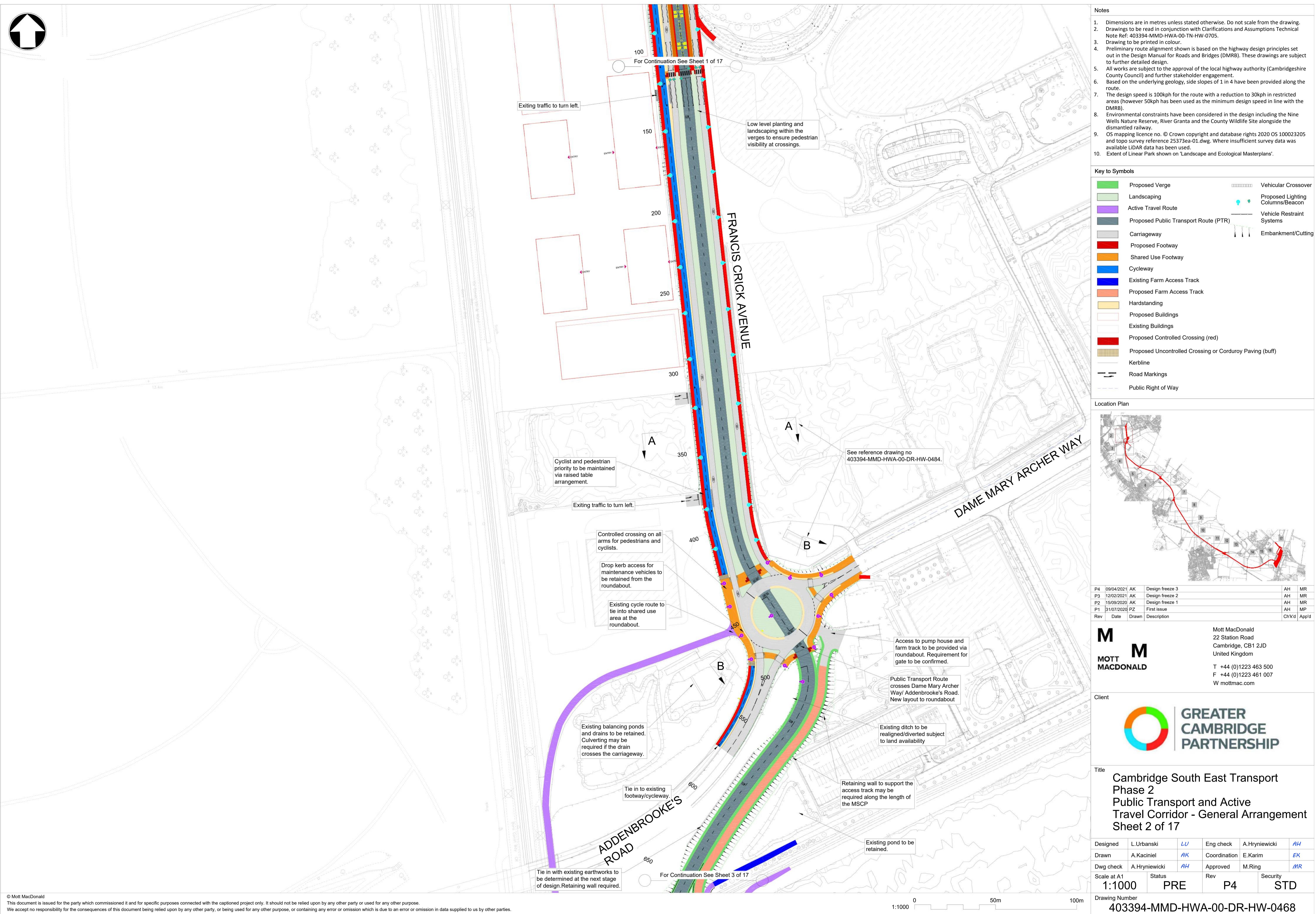
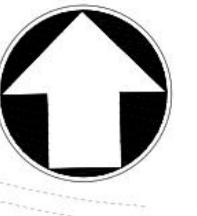
**Client**

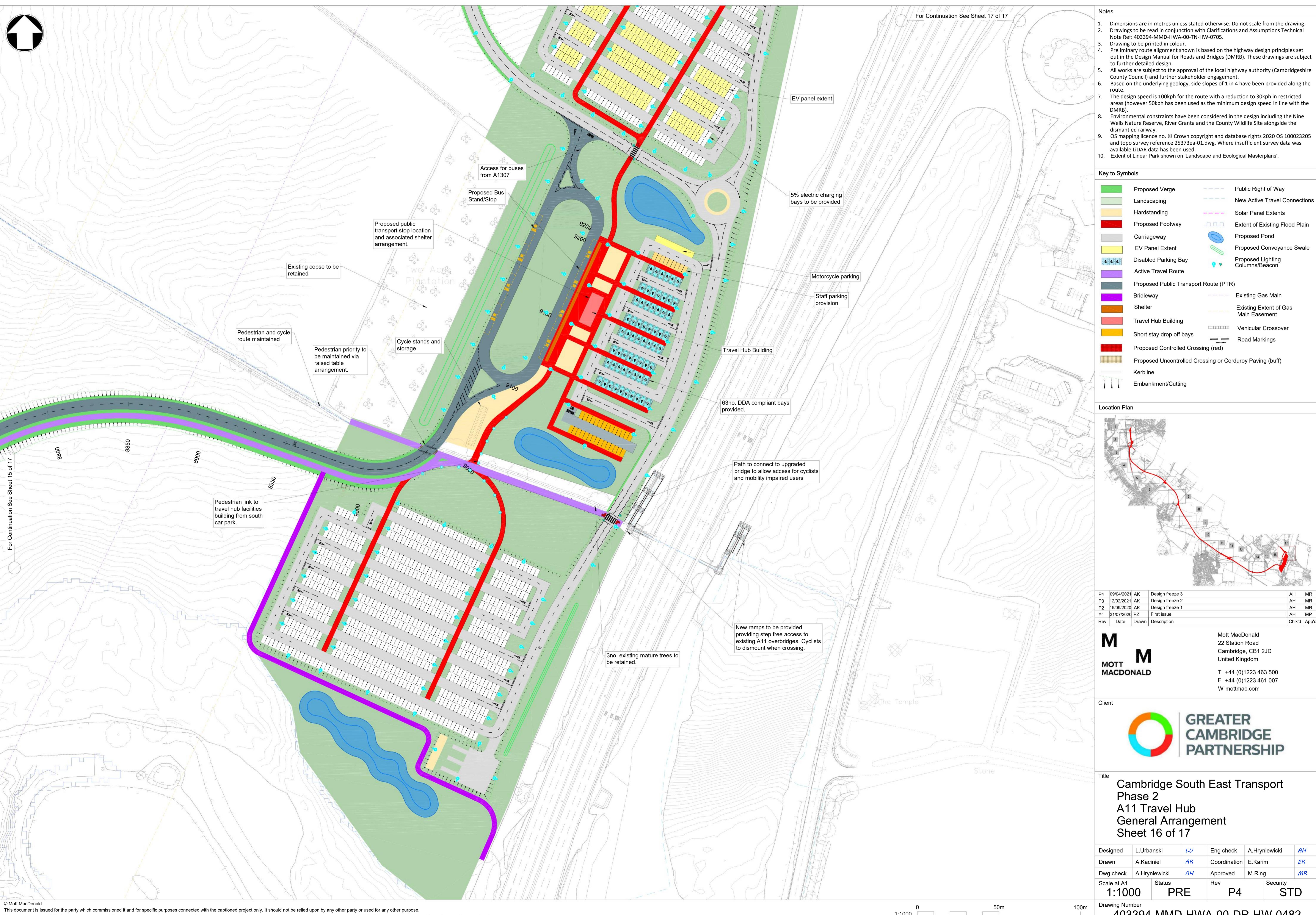
**Title**

Cambridge South East Transport Phase 2 Public Transport and Active Travel Corridor - General Arrangement Sheet 1 of 17

Designed	L.Urbanski	LU	Eng check	A.Hrynewicki	AH
Drawn	A.Kaciniel	AK	Coordination	E.Karim	EK
Dwg check	A.Hrynewicki	AH	Approved	M.Ring	MR
Scale at A1	Status	Rev	Security		
1:1000	PRE	P4	STD		

**Drawing Number** 403394-MMD-HWA-00-DR-HW-0467







Appropriate vehicle restraint systems to be considered at detailed design.

See reference drawing no 403394-MMD-HWA-00-DR-HW-0666

Proposed new roundabout on A1307

Indicative location of high-pressure gas main

Indicative boundary of development controlled area due to high pressure gas main

Coach parking:

Existing woodland and former landfill area to remain unaltered.

For Continuation See Sheet 16 of 17

EV panel extent

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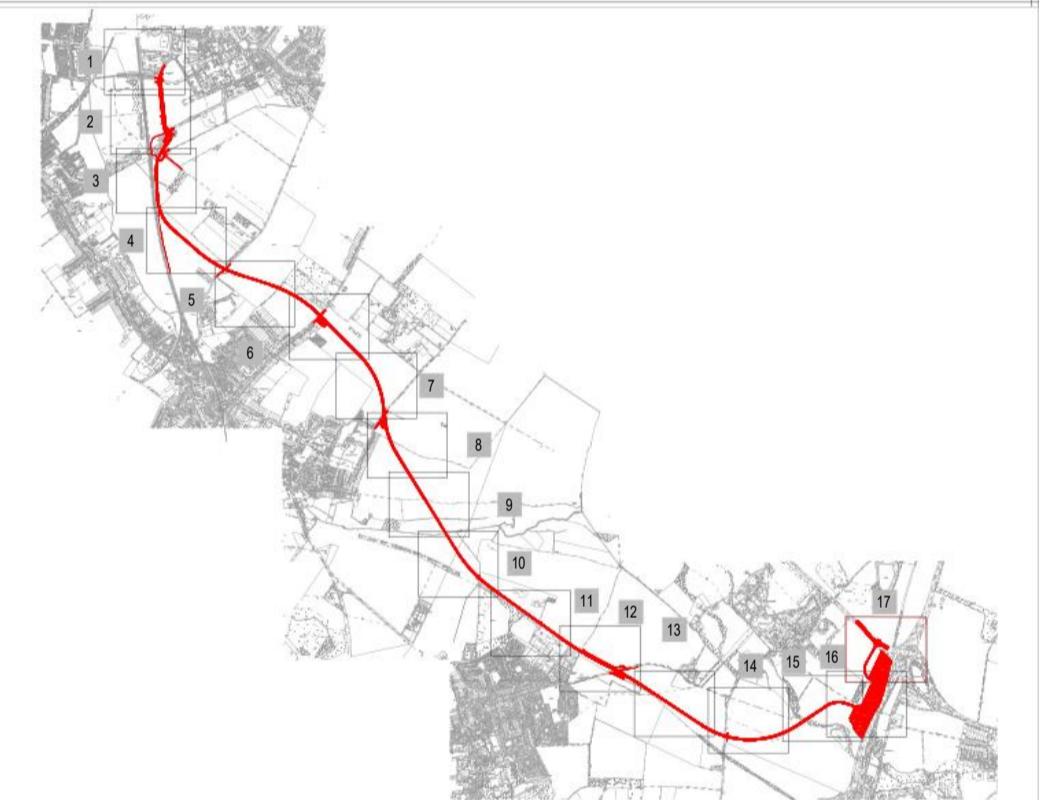
#### Notes

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- All works are subject to the approval of the local highway authority (Cambridgeshire County Council) and further stakeholder engagement.
- Based on the underlying geology, side slopes of 1 in 4 have been provided along the route.
- The design speed is 100kph for the route with a reduction to 30kph in restricted areas (however 50kph has been used as the minimum design speed in line with the DMRB).
- Environmental constraints have been considered in the design including the Nine Wells Nature Reserve, River Granta and the County Wildlife Site alongside the disused railway.
- OS mapping licence no. © Crown copyright and database rights 2020 OS 100023205 and topo survey reference 25373ea-01.dwg. Where insufficient survey data was available LiDAR data has been used.
- Extent of Linear Park shown on 'Landscape and Ecological Masterplans'.

#### Key to Symbols

	Proposed Verge		Public Right of Way
	Landscaping		Solar Panel Extents
	Hardstanding		Extent of Existing Flood Plain
	Proposed Footway		Proposed Lighting Columns/Beacon
	Carriageway		
	Disabled Parking Bay		
	Active Travel Route		
	Proposed Public Transport Route (PTR)		
	EV Panel Extent		
	Proposed Controlled Crossing (red)		
	Kerbline		
	Road Markings		
	Existing Gas Main		
	Existing Extent of Gas Main Easement		
	Embankment/Cutting		

#### Location Plan



P4	09/04/2021 AK	Design freeze 3	AH	MR
P3	12/02/2021 AK	Design freeze 2	AH	MR
P2	15/09/2020 AK	Design freeze 1	AH	MR
P1	31/07/2020 PZ	First issue	AH	MP
Rev	Date Drawn	Description	Chkd	App'd

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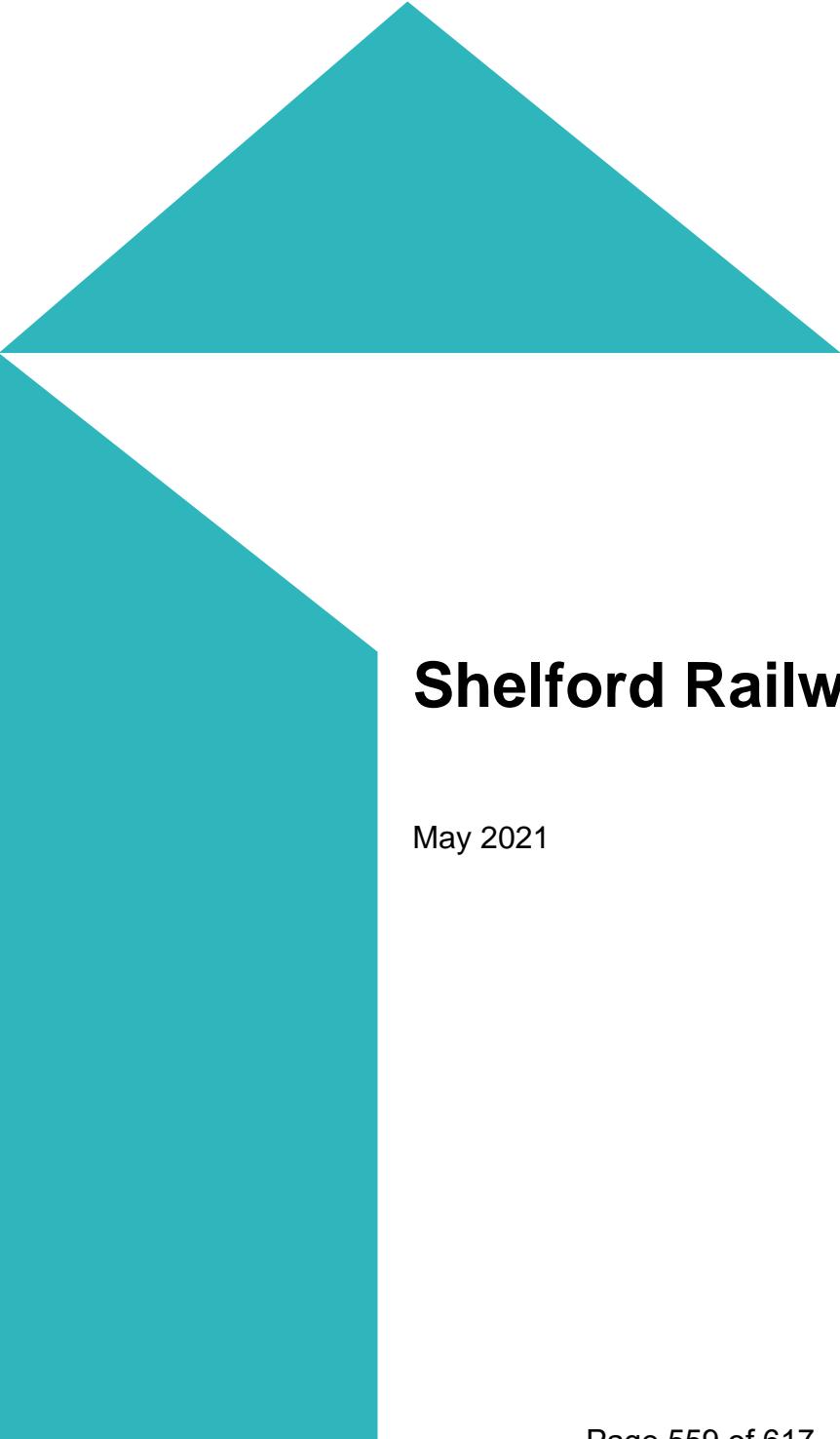
#### Client



**Title**  
Cambridge South East Transport  
Phase 2  
A11 Travel Hub  
General Arrangement  
Sheet 17 of 17

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# **Shelford Railway Alignment**

May 2021



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# Shelford Railway Alignment

May 2021

# Issue and Revision Record

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# 1 Introduction

The Cambridge South East Transport (CSET) scheme, formerly known as the ‘A1307, Three Campuses to Cambridge’ scheme, has considered various measures to improve sustainable transport provision, bus priority, active travel infrastructure and road safety along the A1307 corridor between Cambridge and Haverhill. Work has been undertaken to develop and assess an alternative route alignment, known as the Shelford Railway Alignment (SRA).

## 1.1 Background

The A1307 Haverhill to Cambridge corridor is one of the key radial routes into Cambridge which experiences heavy congestion during peak times, particularly at the Cambridge end, at the junction with the A11 and around Linton. As a result, the A1307 corridor has been identified by the Greater Cambridge Partnership Executive Board as a priority project for development.

The Cambridge South East Transport (CSET) scheme supports the transport vision of delivering a world class transport network with good connectivity with Cambridge, supporting the delivery of sustained growth, prosperity and quality of life for the people of Greater Cambridge. In future it is anticipated that the corridor will form part of the Cambridge Autonomous Metro (CAM) network, however, in the interim it is planned that the route will be used by high-quality electric public transport vehicles. A key aim is also to accommodate an active travel route alongside the entire route as part of a multi-modal approach for the corridor.

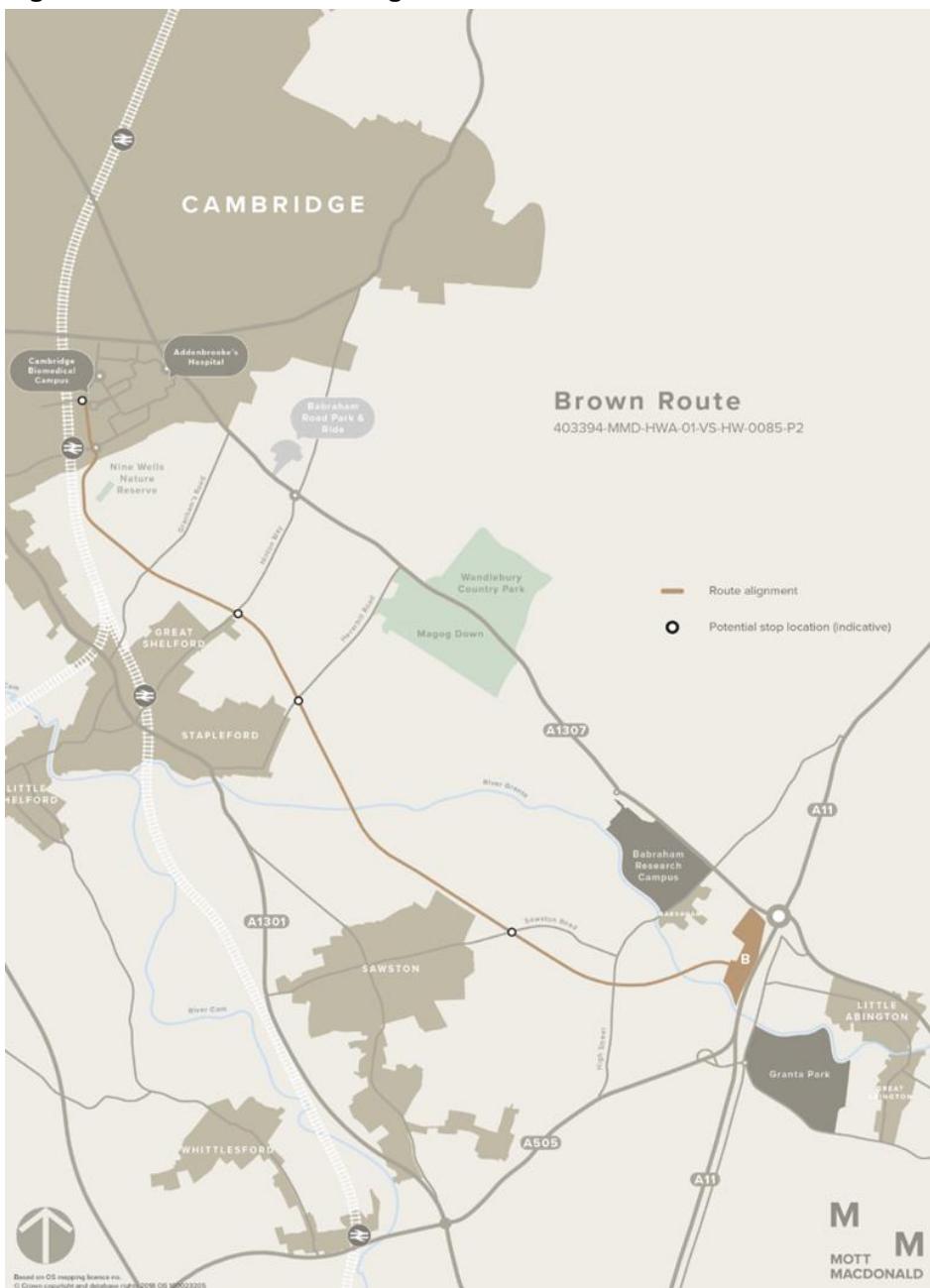
The proposed fully segregated public transport route would link Cambridge Biomedical Campus (CBC) with a Travel Hub close to the A11/A1307 junction. A number of different route alignment options have been considered for CSET Phase 2 including the following:

- Online Route Alignment which includes an on-highway bus lane along the existing A1307 highway;
- Offline Route Alignment which includes an off-highway route that partly follows the former railway line to Haverhill, with a deviation across Green Belt land below the Gog Magog Hills to skirt east of the villages of Stapleford and Great Shelford; and
- Shelford Railway Alignment (SRA), an off-highway route via the villages of Stapleford and Great Shelford running parallel to the existing mainline railway.

It is understood that the new public transport route, if secured, would in future form part of the proposed Cambridgeshire Autonomous Metro (CAM) scheme, providing a regional public transport network extending from Haverhill to St Neots and other destinations. There is a requirement for the route to be ‘fully or largely segregated’ in order for the route to be compliant with the Local Transport Plan Sub-strategy for CAM.

A preferred route alignment for the scheme (Figure 1.1) was approved by the GCP Executive Board in June 2020. This runs along Francis Crick Avenue before exiting on the southern side of the Cambridge Biomedical Campus (CBC) and running parallel with the railway. It then diverts to the east of Great Shelford and Stapleford before crossing the River Granta and running to the east of Sawston. Four passenger stops are proposed at the CBC, Hinton Way (Great Shelford), Haverhill Road (Stapleford) and Sawston Road (Sawston). The route crosses each of these roads and Granham’s Road, via new at-grade junctions to be signalised with priority given to public transport vehicles.

Before reaching High Street the route then cuts across fields towards the A11 which includes a second crossing of the River Granta. The route ends at a Travel Hub site located to the south west of the junction between the A1307 and A11.

**Figure 1.1: Preferred Route Alignment**

## 1.2 Purpose of Note

This report considers issues relating to the development and assessment of the SRA option that has been subject to several studies during the period 2019 to 2021. More specifically, it seeks to address the following issues:

- Review of the SRA options developed for assessment by Mott MacDonald and proposed by i-Transport including overall alignment, design constraints and assessment of the impacts on residential and commercial properties;

- Assessment of cost differences for the SRA design options developed by Mott MacDonald and i-Transport;
- Assessment of the benefits of the SRA options developed by Mott MacDonald and i-Transport and likely implications on the scheme Benefit Cost Ratio (BCR); and
- Assessment of CSET scheme consultation exercises relating to SRA themes and comments.

## 2 Review of Shelford Railway Alignment

The SRA diverges from the current preferred route alignment north of Sawston, extending along the old railway line, crossing under the A1301 south of Stapleford, and running to the south of the River Granta before crossing the river immediately to the south of Welch Crescent and reaching the former junction of the Haverhill branch line / main line railway. The alignment follows the existing railway corridor through Great Shelford, passing to the east of Shelford Station and crossing Granham's Road to the east of the existing level crossing.

Consideration has previously been given to a route via the former Cambridge-Haverhill railway line at Great Shelford and Stapleford, although this was not progressed to the longlisting of options on the basis it was not deemed to be viable. The alternative alignment was first considered as part of WSP's work on the Strategic Outline Business Case<sup>1</sup>, however, it was concluded that:

*"This is not viable for a road based public transport system given the lack of available space alongside the existing Cambridge-Liverpool St main line railway, particularly at Shelford Station that is located centrally within the village and surrounded by residential and commercial development that precludes taking a new route that by-passes the station and platforms that abut the railway".*

In Summer 2019 a review was undertaken by Mott MacDonald to assess the feasibility and cost implications of an alternative route for the CSET Phase 2 public transport route following the alignment of the former Haverhill – Cambridge railway approaching Shelford. This work was documented in a technical note [Document reference 403394-MMD-TRA-00-TN-TA-0142]. The review found that this option was considered during previous stages of the project and rejected due to constraints, including available space alongside the existing railway at Great Shelford. The review confirmed these constraints and supported the previous work undertaken.

The 2019 public consultation on route alignment options revealed that a number of respondents suggested that a public transport service should be routed via the centre of the villages to provide better accessibility for local residents and to avoid the need for development in the green belt. On the basis of this feedback, further work was commissioned by GCP in Spring 2020 to investigate and assess design and feasibility issues for an alternative Shelford Railway Alignment.

This work was undertaken by Mott MacDonald and published in the report 'CSET Phase 2 Shelford Railway Alignment: Design Development and Feasibility Assessment (May 2020) [Document reference 403394-MMD-TRA-00-RP-TA-0279-B]. The report examined various outline designs, conducted a demand assessment as well as costing and assessment of route constraints.

The overall assessment of the SRA option compared to the preferred route concluded that the route incorporating the former railway alignment is less desirable due to the following reasons:

- A number of residential and commercial properties would need to be acquired;
- The alignment does not provide full segregation, resulting in lower levels of reliability and compatibility with CAM requirements;
- Journey times from the Travel Hub would increase, resulting in lower levels of overall patronage along the route;

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<sup>1</sup> WSP (2018) REF: 70012014-TN-010 Strategy 1 Route Assessment Technical Note

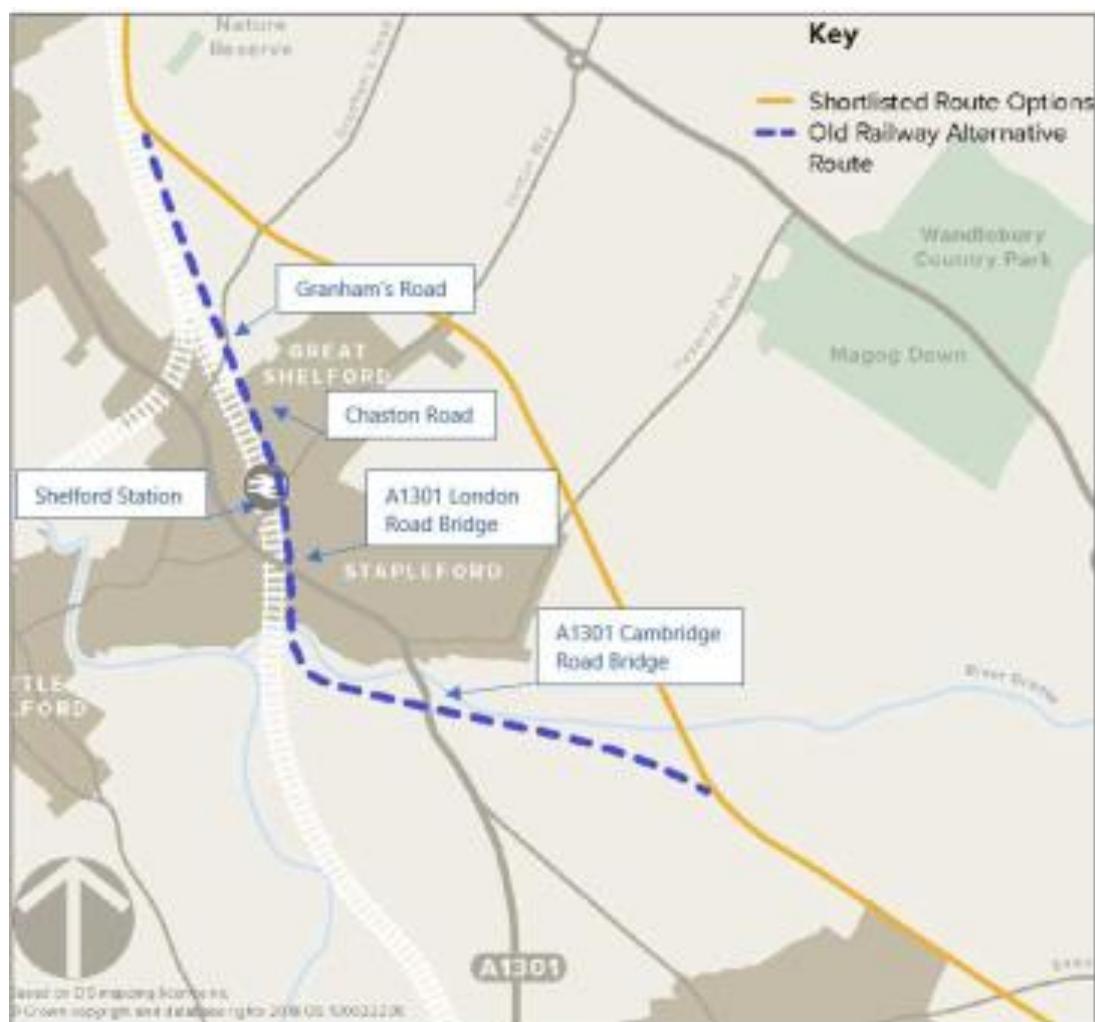
- There would be an increase in the level of noise impacts due to the close proximity of residential properties; and
- Scheme costs at outturn prices are expected to be approximately £29.1m greater than the preferred option.

Following this report, i-Transport LLP, on behalf of Great Shelford and Stapleford Parish Councils has undertaken work to review the strategy and process adopted for CSET as well as a technical assessment of the feasibility of the SRA with specific reference to the Mott MacDonald assessment of the SRA (May 2020) [Document reference: PH/VP/ITL16234-002C].

The proposed route alignment put forward by i-Transport is a ***Busway Alternative*** which takes the following alignment:

- Along the mainline rail corridor from Cambridge Biomedical Campus;
- Extending through the Great Shelford and Stapleford villages; and
- Routing south east of Stapleford Village along the former rail alignment.

**Figure 2.1: Route of the proposed Busway Alternative**



Source: Mott MacDonald

## 2.1 Differences between Shelford Railway Alignment Details

An assessment of the details of the alignments considered by both Mott MacDonald and i-Transport reveals the following key differences in SRA route alignment:

- The alignment proposed by i-Transport would require the demolition and relocation of the Anglian Water pumping station located immediately north of Granham's Road but reduces the impacts on the residential property to the southeast on Granham's Road.
- The alignment proposed by i-Transport through the Chaston Road residential area runs closer to the railway achieving segregation of the public transport route at the northern cul-de-sac end of Chaston Road but requiring removal of the mature planting providing screening between the railway and the closest houses on Chaston Road and Grain Close.
- In order to avoid property demolition at Mill Court Business Park, the alignment proposed by i-Transport provides no active travel route alongside the section of the public transport route running through Mill Court. As an alternative, it is proposed that National Cycle Network route 11 would continue to run on-carriageway through Great Shelford via Chaston Road (east) and Hinton Way; and
- The alignment proposed by i-Transport avoids the impacts on residential properties at Leeway Avenue and Hinton Way, but would require the demolition of the Shelford Station building and the loss of the restaurant business currently occupying part of this building.
- The alignment proposed by i-Transport reduces the impacts on residential properties at London Road.
- In constrained locations, i-Transport have proposed relaxing design standards to reduce the overall corridor width relative to the option developed by Mott MacDonald.

## 2.2 Key Areas of Constraint

The section of the SRA corridor on which there are the greatest constraints to implementation of a public transport route alignment is that from Chaston Road southwards, where the alignment cuts through the Mill Court Business Park to reach Hinton Way. There are three main issues on this section:

- Constraint of Shelford Station building obstructing the public transport route;
- Close proximity of residential and commercial properties; and
- Ability to accommodate parallel active travel route/facilities.

These issues are further explored below.

### 2.2.1 Railway Interface Issues

There are a number of key railway infrastructure constraints applicable to the i-Transport SRA alignment including the following:

- Overhead Line Equipment (OLE) cabling: there is a requirement for a clearance distance of 3.5m from live overhead contact equipment to be maintained along the entire route, measured from the return conductor to any position where people could stand;
- A requirement for compliance with Network Rail planning and approval processes relating to impacts on railway infrastructure and any redevelopment of the Shelford station building;
- Identification of the two level crossings adjacent to the SRA that will require attention in terms of railway interface and assessment of level crossing risk;

- Bridge structures: the location of two bridge structures, namely the A1301 Cambridge Road overbridge (Network Rail Structure no. 1543) and A1301 London Road overbridge, that pose problems in terms of accommodating the route alignment;
- Addressing the need to replace the Shelford station building.

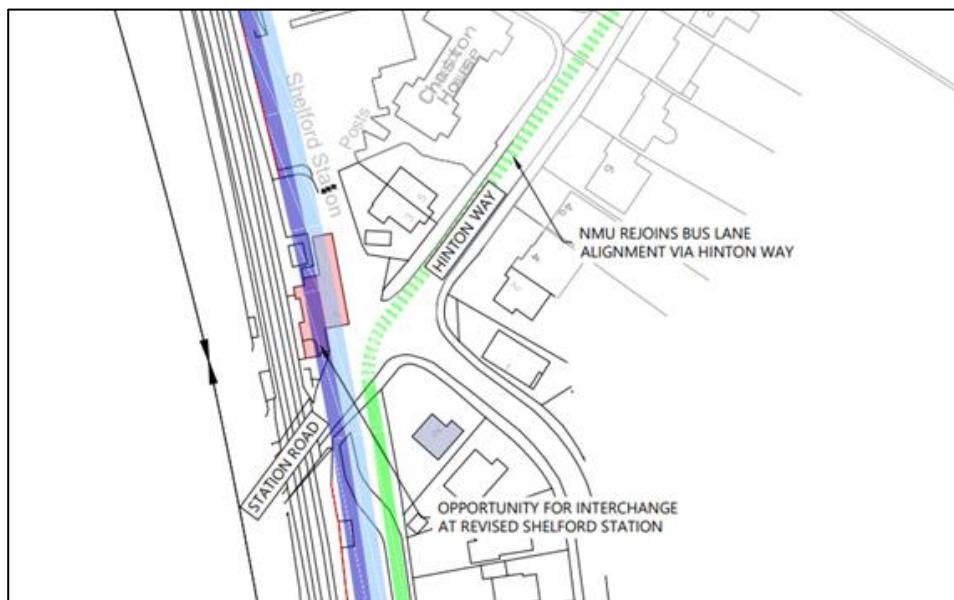
Options to lower the ground level beneath the bridges have been explored as potential mitigation measures, together with a deviation in active travel route alignment, taking an alignment that makes use of the existing cycleway route to the west of the A1301 heading south on A1301 Cambridge Road before re-joining the public transport corridor.

Shelford rail station on the West Anglia main line serves the villages of Great/Little Shelford, and Stapleford, with hourly/half-hourly services provided by Greater Anglia to Liverpool Street and Cambridge North. Whilst it is acknowledged that the majority of the building is utilised by commercial premises, namely a restaurant (Zara Indian Cuisine), the building also houses a station ticket office currently open from 06:00-10:30 Monday to Friday.<sup>2</sup>

Within the SRA alignment proposed by i-Transport there is a requirement for the acquisition, demolition and replacement of the Shelford station building, resulting in the loss of the existing restaurant business, as well as a need to re-house the station ticket office. In terms of delivery this will present a number of risks, especially relating to liaison required with different parties on the re-development of Shelford Station including Network Rail, as well as the Greater Anglia train operating company. The GCP as scheme promoter will also be exposed to claims for disruption to the operation of the station under the Station Change process.

Whilst options are available to consider the extent and type of station facility provided in the future as part of the overall corridor package (including establishment of a multi-modal interchange, integrating a new bus stop facility), there are significant risks associated with any rail infrastructure project in terms of planning, approvals and implementation. In addition to the planning and approval risks there a number of additional practical challenges posed by the i-Transport proposed SRA alignment.

**Figure 2.2: Proposed i-Transport Alignment at Shelford Station**



Source: i-Transport (Cambridge South East Transport Phase 2 Alternative SRA 19 March 2021)

<sup>2</sup> <https://www.nationalrail.co.uk/stations/SED/details.html>

These challenges include a requirement to accommodate platforms for both rail and CSET passengers at different levels within the constrained space between the operational railway and public transport route. The extract from i-Transport drawing number ITL16234-GA-002 in Figure 2.2 does not show any provision for the space required for public transport route platforms at a CSET stop co-located with Shelford station.

Typical timescales for the construction of a new rail station are approximately two years until completion, although significant time is required in advance of this to develop and approve a proposal in conjunction with Network Rail. It will be essential to ensure that any new station scheme is commercially viable, and that agreement is reached with Network Rail on the operational and technical viability of a new station facility. Early engagement with the rail industry will be critical for the development of the new station, with close working with the NR Strategic Planning team throughout the feasibility processes and planning stages.

Any rail station investment requires adherence to Network Rail's Governance for Railway Investment Projects (GRIP) processes to minimise and mitigate the risks associated with delivering enhancement projects on an operational railway. This assessment will cover the project process from inception to post-implementation realisation of benefits to ensure that upon completion new rail station facilities can be operated and maintained safely, reliably, efficiently and cost effectively.

GRIP, which has been in use for the last 10 years, is being evolved into PACE (Project Acceleration in a Controlled Environment) to ensure that rail infrastructure projects are delivered in such a way as to support rail industry obligations which apply on all enhancements made to the network and to stations, including third-party projects. Whilst the introduction of PACE will help to deliver rail infrastructure projects more quickly, at lower cost and higher quality, it will take time for this process to roll-out across the country during 2021 with many projects still going through the GRIP steps. Consequently, it is envisaged that there will be a significant time-lag in terms of agreement and implementation of any new station proposal that will need to be considered relative to alternative options not impacting on Shelford station.

It is likely that possessions of the railway would be required for at least the demolition of the Shelford station building and potentially also during construction of replacement facilities. Requirements for railway possessions have the potential to add significant delay and cost to projects as a result of the lead time required to secure possessions and the compensation payable to train operators for disruption to their services.

Work has been undertaken by Bruton Knowles (Bruton Knowles A1307 Phase 2 Great Shelford Option – Property Cost Estimate, May 2020) to provide an estimate of the level of compensation that is required for landowners and occupiers affected by the SRA alignment. The report confirms that a section of the route through Great Shelford requires land currently owned and occupied by Network Rail. However, it has been assumed that this land is non-operational and not required for Network Rail activities. If this is not the case, then the project may not be able to acquire the land from Network Rail as they are a statutory undertaker. Dialogue is required with Network Rail to discuss and confirm issues relating to the impact of the SRA alignment proposed by i-Transport on the station and rail operational matters in general.

## 2.2.2 Impact of SRA on Residential and Commercial Properties

The Bruton Knowles report contains a list of issues relating to each plot affected by the scheme that enables a comparison to be made between SRA alignment options. The key differences between the two SRA options that have been identified and assessed are as follows:

**Table 2.1: Comparative Property Impacts of SRA Assumptions**

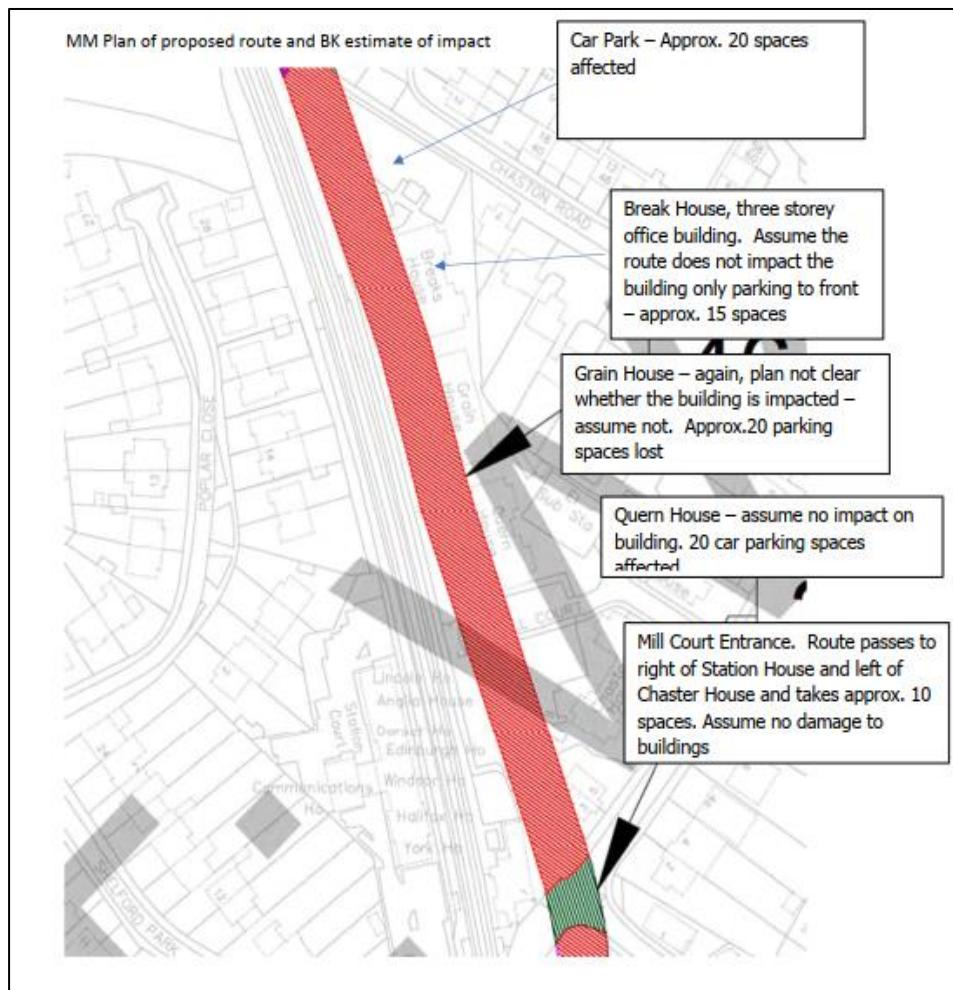
Impacted Property	Key Alignment Assumptions
Mott MacDonald SRA (May 2020)	i-Transport SRA (March 2021)
Anglian Water Sewage Pumping Station	<ul style="list-style-type: none"> <li>Alignment has been designed to avoid the sewage pumping station which is not affected</li> </ul>
Property at 26 Granham's Road	<ul style="list-style-type: none"> <li>Alignment requires most of the garden and house</li> </ul>
Property at 9 Chaston Road	<ul style="list-style-type: none"> <li>Terraced bungalow is lost to the route</li> </ul>
Properties at 72 Chaston Road and 1 Grain Close	<ul style="list-style-type: none"> <li>Alignment requires part of the gardens of the properties at 72 Chaston Road and 1 Grain Close</li> </ul>
Properties at Mill Court Business Park	<ul style="list-style-type: none"> <li>Alignment does not necessarily require demolition of Mill Court Business Park buildings but does require land currently used for car parking (Breaks House (15 spaces), Grain House (20 spaces) and Quern House (20 spaces), plus a further 30 spaces for the site as a whole</li> <li>Having considered the scale of cost associated with the acquisition and demolition of the Mill Court Business Park buildings, it was assumed for the purpose of preparing the Property Cost Estimate that a solution to avoid this might be developed</li> </ul>
Property at 1 Hinton Way - Zara Indian Restaurant / Shelford station building	<ul style="list-style-type: none"> <li>Alignment avoids the station building and assumes that this property is unaffected</li> </ul>
Properties at 3 and 5 Hinton Way	<ul style="list-style-type: none"> <li>Alignment requires most of the garden and house at 3 Hinton Way, and part of the garden at 5 Hinton Way</li> </ul>
Properties on Leeway Avenue	<ul style="list-style-type: none"> <li>Alignment requires takes most of the house and garden at 2 Leeway Avenue plus parts of gardens at 18 other properties in Leeway Avenue</li> </ul>
Properties on London Road	<ul style="list-style-type: none"> <li>Alignment impacts on houses and gardens at 12 and 13a London Road and garden at 14 London Road</li> </ul>
	<ul style="list-style-type: none"> <li>Alignment option requires acquisition and relocation of the pumping station</li> </ul>
	<ul style="list-style-type: none"> <li>Alignment option would only require a small part of the garden plot</li> </ul>
	<ul style="list-style-type: none"> <li>Terraced bungalow is lost to the route</li> </ul>
	<ul style="list-style-type: none"> <li>Alignment avoids these properties entirely</li> </ul>
	<ul style="list-style-type: none"> <li>Alignment does not require demolition of Mill Court Business Park, although there will be a net reduction in car parking spaces similar to the Mott MacDonald alignment</li> </ul>
	<ul style="list-style-type: none"> <li>Alignment requires acquisition, demolition and replacement of the Shelford station building, and loss of the existing restaurant business</li> </ul>
	<ul style="list-style-type: none"> <li>Alignment avoids these properties entirely</li> </ul>
	<ul style="list-style-type: none"> <li>Alignment avoids these properties entirely</li> </ul>
	<ul style="list-style-type: none"> <li>Alignment avoids 13a and 14 London Road and only takes part of the garden at 12 London Road</li> </ul>

### 2.2.2.1 Mill Court Business Park

In terms of the overall impacts on commercial premises and business operations at Mill Court Business Park, there are a number of key economic impacts resulting from the SRA alignment including the following:

- Reduction in the commercial attractiveness of the Business Park to potential tenants (including potential loss of rent), as a result of lower than standards levels of parking provision (it is noted that the parking ratio will be reduced to a level of 1 parking space per 485 sq. ft of office space compared to a current figure of 1 parking space per 258 sq. ft);
- A potential lack of vehicular access to the Business Park office premises, which has an adverse impact on the ability to provide operational / disabled parking provision close to the office buildings. This would mean an inability to ensure compliance with Equality Legislation as well as an adverse impact on operational performance of each business tenant; and
- An additional loss to each leaseholder at the Business Park with the potential for compensation claims if parking spaces are guaranteed in commercial leases.

**Figure 2.3: Impact of SRA on Parking Provision at Mill Court Business Park**



Source: Bruton Knowles A1307 Phase 2 Great Shelford Option – Property Cost Estimate, May 2020

An estimate has been made of the overall level of the total loss of estimated rental value (ERV) resulting from the SRA alignment impacting on Mill Court Business Park, totalling **£2.02m**

(equivalent to £23.8k per space). These costs are reflected in the project cost estimate for the SRA presented in the Mott MacDonald May 2020 report.

The outcome of this review of the assumptions made regarding property impacts at Mill Court Business Park for cost estimation proposes is significant as there is a lower level of impact than has been assumed in the i-Transport report. Both the Mott MacDonald and i-Transport SRA alignments are assumed to avoid demolition of the Mill Court office blocks and to have similar cost implications, in line with the May 2020 Property Cost Estimate prepared by Bruton Knowles.

### 2.3 Public Transport Route Segregation

The objectives of The Cambridgeshire & Peterborough Local Transport Plan<sup>3</sup> include, within the Economy theme: “**Resilience**: Build a transport network that is resilient and adaptive to human and environmental disruption, improving journey time reliability”.

In terms of the supporting policy framework, the key sub-objective of the Local Transport Plan Sub-strategy for CAM relevant to the Shelford Railway Alignment is CAM-E15 which is presented as ‘*Dedicated segregated routes as default assumption*’. An assessment of compliance of the CSET Phase 2 scheme with the draft sub-strategy was undertaken in April 2020 and reported to the GCP Executive Board in June 2020. This highlighted the support of CAM-E15 towards achieving the Resilience objective of the Local Transport Plan. In the adopted sub-strategy, this was amended and caveated to “*CAM-E15: CAM is anticipated to be segregated as a default assumption; subject to full demand and transport planning analysis to justify the need for segregation*”.

A key ambition of the CSET scheme is to deliver reliable journey times for those using High Quality Public Transport services operating on dedicated infrastructure. Full segregation is required to assure this. Any decrease in vehicle operating speed, increase in delay at junctions integrated with railway level crossings or conflict with other users, such as at Chaston Road, will have a detrimental effect on the attractiveness of the service to users.

The close proximity of the SRA public transport route to residential properties, combined with proposals for the relaxation of design standards would result in infrastructure that is less resilient relative to the preferred route. Public transport vehicles using the route would be in close proximity to a significant number of residential properties, decreasing operational speeds, reducing the capacity and efficiency of services, as well as creating conflicts with other vehicles requiring access to both residential and commercial properties along the alignment.

### 2.4 Active Travel Path Alignment

The objectives of The Cambridgeshire & Peterborough Local Transport Plan include, within the Society theme: “**Safety**: Embed a safe systems approach into all planning and transport operations to achieve Vision Zero – zero fatalities or serious injuries”.

This is reflected in sub-objective CAM-S1 of the Local Transport Plan Sub-strategy for CAM, which is presented as ‘*Provision of safe and secure CAM network – safe by design, safe in construction and safe in operation – to meet all standards and global best practice*’.

The policy framework for active travel provision within public transport schemes therefore requires a no-compromise approach to establishing safe routes and infrastructure. This will require an integrated approach to be adopted with respect to safety in design, construction and operation of the CSET sustainable transport corridor with a safe systems approach to design,

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<sup>3</sup> [Local Transport Plan - Cambridgeshire & Peterborough Combined Authority \(cambridgeshrepeterborough-ca.gov.uk\)](http://cambridgeshrepeterborough-ca.gov.uk) (2020)

construction and operation including the provision and operation of active travel facilities along the corridor.

In terms of the CSET support for the LTP Sub-strategy framework, there is reference to a provision of high quality Non-Motorised User (NMU) routes to be provided alongside public transport routes, with connectivity to existing walking cycling and equestrian infrastructure that will contribute towards the ‘provision of a sustainable transport network that is affordable and accessible for all’. The development of the sustainable transport corridor also seeks to provide ‘healthy streets’ and high-quality public realm that puts people first and promotes active lifestyles’, with this to be achieved through the implementation of a high quality NMU route to be established alongside the segregated public transport route, with connectivity to existing walking and cycling infrastructure and fully aligned with the Cambridge Greenways Network.

DfT’s Local Transport Note 1/20 (July 2020) sets out guidance on Cycle Infrastructure Design, for highway authorities, reflecting current best practice, standards and legal requirements, aimed at encouraging greater levels of safe cycling. Where pedestrian and cycle volumes are expected to be high the width required for a segregated facility is 5m, 3m for the cycle track and 2m for the footpath. For lower expected flows a minimum width of 2.5m for cyclists and 1.7m for pedestrians may be acceptable. The recommended width for a shared use facility is at least 3m.

It is acknowledged that some level of flexibility is required when considering the implementation of an active travel route as part of the SRA, with options considered for the A1301 Cambridge Road and A1301 London Road overbridges good examples of this. Other locations where active travel provision is considered problematic are at Chaston Road, adjacent to commercial properties at Mill Court Business Park and at Shelford station.

There is a potential option of accommodating a different active travel route alignment at Mill Court, involving a short deviation away from the public transport route alignment following an existing unsegregated on-road cycle route via Chaston Road and Hinton Way. However, there is still a constraint at Chaston Road where there is a proposal by i-Transport as shown in Figure 2.4 to accommodate active travel users within a new ‘shared use’ section of highway aimed at minimising the impact on adjacent residential properties. Key issues here relate to road safety (especially safety for active travel users), local amenity and access (for local residents who would be affected) and also operational impacts of reduced public transport vehicle speeds through this section impacting on journey times and service reliability.

No cross-section has been provided by i-Transport for the ‘shared use’ section of Chaston Road and no explanation offered of how provision for NMUs can be reconciled with maintaining vehicle access to the off-street residential parking at the rear of the houses on this part of Chaston Road. i-Transport only state that “*Subject to further design, Chaston Road could either be closed to general traffic, or remain open one way southbound*”.

Chaston Road represents one of key design challenges on the SRA. The i-Transport report does not offer a clear design concept that addresses safety issues relating to accommodating NMUs with motorised traffic.

**Figure 2.4: i-Transport Proposal for Non-Motorised User Provision on Chaston Road**



Source: i-Transport (Cambridge South East Transport Phase 2 Alternative SRA 19 March 2021)

### 3 Assessment of SRA Costs and Differences Between Options

Work has been undertaken to assess the costs of the i-Transport alternative railway alignment to enable a comparison to be made. In May 2020 assessment of the railway alignment option estimated that the cost would be approximately £29.1m more than the preferred option, with the increase due to higher land costs (£15.0 million), as well as higher construction costs (£8.1 million). The higher costs are attributable to land acquisition along this urban corridor which has a higher value, including residential properties. These land costs assumed that that a solution to avoid the demolition of any buildings at Mill Court Business Park might be developed. Construction costs are forecast to be higher due to the additional complications of constructing adjacent to the railway, the need for a vehicle containment barrier and alterations to two bridges which would not be necessary were the route to pass around the edge of the villages.

An assessment of the cost differences between the different SRA options has been undertaken for which the cost assessment of the i-Transport alignment has been based on the previous cost estimate prepared by Mott MacDonald with substitutions to reflect the variation in alignments. The estimates currently assume that utilities, land and property costs are the same for both options pending the availability of advice on the property cost implications of the i-Transport alignment.

**Table 3.1: Capital Costs – Infrastructure Adjusted for P80 Risk (Outturn Prices)**

Cost Item	SRA Route (MM Alignment)	SRA Route (i- Transport Alignment)
Construction costs	76.8	79.9
Design	10.7	11.1
Project management	14.5	14.9
Environmental mitigation	3.1	3.2
Statutory undertakings	12.5	12.5*
Land costs	26.5	26.5*
Inflation	15.0	15.3
<b>TOTAL</b>	<b>159.1</b>	<b>163.4</b>

Source: Mott MacDonald

\* Statutory undertakings and land costs assumed to be consistent with MM Alignment

In arriving at these cost estimates a number of key assumptions have been made:

- The base date for the cost calculations remains at 2020;
- The costs have been built up using an ‘add/omit’ approach, with appropriate adjustments to the original cost estimate for the railway alignment made on the summary sheet; and
- The same percentages have been included for preliminaries, contractor’s overhead and profit, Design, Project Management, Environmental Mitigation and risk allowances.

The key differences between SRA route options are as follows:

**Table 3.2: i-Transport Alignment - Assumptions for Key Design Variations**

<b>Key Design Variation</b>	<b>Assumptions</b>
<b>Active travel route follows the existing road around Chaston Road and Hinton Way</b>	<ul style="list-style-type: none"> <li>Follows the existing road alignment, works limited to resurfacing, white lining and new signage</li> </ul>
<b>Relocation of the Anglian Water pumping station</b>	<ul style="list-style-type: none"> <li>An allowance has been included for the relocation of the pumping station which is based on historical cost data</li> </ul>
<b>Reconstruction of the Shelford station building</b>	<ul style="list-style-type: none"> <li>Costs included for station building reconstruction only based on a m<sup>2</sup> rate/GIFA. This is based on historical cost data and includes for a mid-spec.</li> <li>No allowance has been included for platform or footbridge works</li> <li>No allowance has been made for costs associated with railway possessions</li> </ul>

## 4 Assessment of SRA Option Benefits and Implications for Scheme BCR

As part of the work undertaken in May 2020 to assess the SRA option an assessment was carried out to simulate how this alignment compared to the shortlisted Brown option (subsequently adopted as the preferred route) in terms of potential passenger demand.

The i-Transport proposals for the SRA are not substantially different from the alignment developed for assessment by Mott MacDonald in respect of factors influencing potential passenger demand. Both alignments are of similar length and the Shelford stop location proposed by i-Transport only differs from that adopted by Mott MacDonald in being sited on the north, rather than south, side of Hinton Way.

The i-Transport report makes no proposal for a stop on the SRA to serve Stapleford as an alternative to the stop at Haverhill Road, Stapleford proposed on the preferred route.

For these reasons, it is expected that benefits for the SRA option as proposed by i-Transport would not be materially different from those for the alignment developed for assessment by Mott MacDonald, with the possible exception of lower active travel benefits for the i-Transport SRA option if this has the effect of reducing the quality of the active travel infrastructure provided as part of the scheme.

Consideration of the implications of the SRA option as proposed by i-Transport for the scheme Benefit Cost Ratio (BCR) is dependent upon the availability of a property cost estimate for the i-Transport alignment.

The Benefit Cost Ratio (BCR) for the preferred route in the OBC has been superseded by further work to update and enhance the Economic Case for the scheme which was completed during April 2021. The updated Economic Case for the scheme will be published once approved by GCP.

## 5 Assessment of CSET Stakeholder Consultation

Consultation and communication with the general public and key stakeholders forms an essential element of the planning process for major transport schemes such as the CSET project.

Work on the development of the CSET project commenced in 2015 with initial public consultation on high-level options undertaken in 2016. Since the initial concept stage of the scheme, ongoing consultation with local community groups and stakeholders has continued to obtain feedback on transport users' needs and opinions on facets of the scheme in terms of social and environmental impacts. The following activities have taken place since 2015:

- Regular Local Liaison Forum (LLF) meetings, including representation from public transport operators, as well as workshops covering a range of topics such as corridor modelling, wider economic impacts and environmental assessment;
- Multiple and continuing representations at community meetings including local Parish Council meetings, drop-ins and area committees; and
- Meetings with local businesses and landowners.

Work on the scheme initially commenced in 2015 when key stakeholders, including politicians and employment site representatives, identified transport problems and ideas for potential improvements and links between three of the area's major employment sites including Granta Park, Babraham Research Campus and the CBC. Formal public consultation was held in summer 2016, which resulted in the refinement of scheme options which were presented and discussed by the Local Liaison Forum at a series of workshops.

In 2018 the scheme entered a second round of public consultation, where different route strategies were presented for comment and based on this a preferred strategy was approved in October 2018. Further work was completed on the preferred strategy over the course of 2018 and 2019, which was then subject to further consultation in autumn 2019 where feedback was sought on five route options and three travel hub site options.

Consultation feedback responses were used in combination with multicriteria analysis and value for money assessment to identify a recommended preferred option which included the 'Brown' route alignment and Travel Hub site B (located west of A11 and access via the A1307). The design of this preferred option has progressed alongside the Environmental Impact Assessment and in autumn 2020, preliminary design and initial environmental assessment findings were presented at a public EIA consultation where comments were invited from statutory consultees, non-statutory consultees and members of the public.

To provide assurance of robust evaluation of route options, a technical report was published in May 2020 in response to stakeholder requests to provide further evidence to support the rejection of an alternative route following the disused Haverhill railway and then running alongside the existing railway to Shelford Station.

This route was previously considered at high level before the public consultation in 2019, and rejected on the basis of lack of space beside the main line railway, the cost of alterations to overhead line electrification, the cost of and space required for a high containment barrier as exists at Cambridge Station between the busway and railway, and constraints on a route onward from Shelford Station.

Further analysis of stakeholder consultation feedback since the scheme inception in 2015 has been conducted in order to identify specific references to themes related to the SRA. Initial analysis was undertaken of any comments that referred to the former Cambridge-Haverhill railway alignment generally which includes the Shelford Railway Alignment. These comments were then filtered to exclude comments that supported rail alternatives from the totals.

Comments that supported rail reopening to Haverhill cannot be considered as supporting the SRA as an alternative route for the CSET scheme simply because a disused railway exists. Indeed, some comments in support of rail reopening to Haverhill opposed use of the old railway alignment by the CSET scheme in order to safeguard this alignment for potential future railway use.

Where comments have been identified as relating to extension of the CSET scheme to Haverhill this has also been stipulated. A summary of the findings of this analysis is presented below:

- A total of 23 comments regarding the SRA were received during the 2016 consultation which represents 1.5% of all comments made (a total of 1,489).
- A total of 59 comments regarding the SRA were received during the 2018 consultation which represents 3.3% of all comments made (a total of 1,785).
- The highest number of responses were received in 2018 largely due to the presentation of three strategies, with Strategy 1 proposing a route option that partially ran across part of the former Cambridge-Haverhill railway alignment.
- A total of 46 comments regarding the SRA were received during the 2019 consultation which represents 6.6% of all comments made (a total of 695).
- A total of 42 comments regarding the SRA were received during the 2020 consultation which represents 10.5% of all comments made (a total of 399 responses, including postal, survey and other written responses).

More in-depth analysis of the different themes identified by stakeholders on the scheme and SRA considerations has revealed a number of key responses as set out below:

**Table 5.1: Stakeholder Feedback**

<b>SRA-related Theme</b>	<b>Stakeholder Feedback</b>
<b>General opposition to the former Cambridge-Haverhill railway alignment, including the SRA</b>	<ul style="list-style-type: none"> <li>● A number of respondents regarded the former Cambridge-Haverhill railway alignment as not preferable, due to its partial designation as a County Wildlife Site. The SRA would produce significant environmental and ecological challenges around the proposed route</li> </ul>
<b>SRA would reduce the impact on the local environment and green space compared with other route options</b>	<ul style="list-style-type: none"> <li>● Some respondents indicated the SRA would have less impact on green space or green belt land than other options considered by GCP</li> </ul>
<b>Re-using existing railway infrastructure</b>	<ul style="list-style-type: none"> <li>● Many respondents stated that the SRA should be revamped as a public transport route as a bus, rail or light rail route largely due to it being previously used as one</li> </ul>
<b>Improved convenience and connectivity of the SRA compared to other options</b>	<ul style="list-style-type: none"> <li>● Respondents stated the SRA would be preferable due to its location being closer to the centre of Great Shelford and other villages along the route</li> </ul>
<b>Possible railway extension to Haverhill</b>	<ul style="list-style-type: none"> <li>● Some respondents stated they would prefer to see the SRA delivered to bring back the train service between Cambridge and Haverhill. This was regarded as preferable to a bus service between Cambridge and South East Cambridgeshire</li> </ul>

SRA-related Theme	Stakeholder Feedback
Perceived cost of the SRA being lower than other options	<ul style="list-style-type: none"> <li>Some respondents claimed the SRA or a route that utilises some of the existing SRA route would be more cost-effective than the other CSET options</li> </ul>
Reduced pollution	<ul style="list-style-type: none"> <li>Some respondents stated the SRA, or a new rail service, would deliver a greener scheme that produces less air pollution</li> </ul>
Reduced visual impact	<ul style="list-style-type: none"> <li>Some respondents regarded the SRA as reducing visual impact compared with other CSET options</li> </ul>

In terms of the number of CSET consultation responses relating to SRA issues since the project inception a summary for each of the consultation stages is set out below.

## 5.1 2016 CSET Consultation

An 'Initial Stage' public consultation was undertaken in the summer of 2016 that presented high-level options for the CSET Phase 2 project. The public consultation was part of the work that identified the constraints and scope of investment requirements that informed the Strategic Outline Business Case (SOBC).

**Table 5.2: Overall 2016 Consultation SRA Comments**

Category	Amount
SRA comments overall	23
SRA comments in survey feedback	19
SRA comments in written feedback	4

**Table 5.3: 2016 Consultation SRA Themes**

Theme	Amount
SRA would deliver most effective cycling / active travel route options	11
Would seek for the CSET public transport route to use part of the former Haverhill to Cambridge railway line	9
SRA would deliver reduced congestion compared with other options	6
General preference to reinstate SRA	4
Cost of SRA would be lower than other options	2
Concern about potential environmental impacts along the disused railway corridor	1

Note: Some comments covered multiple themes

## 5.2 2018 CSET Consultation

Following public consultation in 2016 and further development of options in 2017, three high-level strategies which would help deliver faster, more reliable and sustainable public transport options for journeys between Cambridge and the area to the south east were taken to public consultation.

This consultation also presented details of 17 shorter-term proposals for bus priority, junction improvements, walking and cycling measures and road safety improvements along the A1307 between Haverhill and Cambridge common to all strategies and to be delivered in Phase 1 of the scheme, with the longer-term public transport improvements presented as the three

strategies to be delivered in Phase 2. The consultation ran from 9 February 2018 to 9 April 2018.

**Table 5.4: Overall 2018 Consultation SRA Comments**

Category	Amount
SRA comments overall	59
SRA comments by public respondents	53
SRA comments by stakeholder respondents	6

**Table 5.5: 2018 Consultation SRA Themes**

Theme	Amount
Would seek for the CSET public transport route to use part of the former Cambridge to Haverhill railway line	23
Re-use existing infrastructure	14
SRA would reduce loss of green space	14
SRA generally better than other options	13
SRA would facilitate extension to Haverhill	5
SRA would deliver improved active travel route options	4
SRA would be more convenient for local people	2
General opposition to SRA	2
SRA would deliver reduced congestion compared with other options	1

Note: Some comments covered multiple themes

### 5.3 2019 CSET Consultation

Between 9 September 2019 and 4 November 2019, a public consultation was held for Phase 2 of the CSET project. The consultation presented travel hub options, proposed stops and shortlisted route alignments for CSET. The consultation followed on from the 2018 public consultation, where route strategy options were presented. The objectives of the consultation were as follows:

- Present scheme options to the widest range of people and representative groups affected by them;
- Provide them with an opportunity to give their views; and
- Give full consideration to the views received in the consultation to aid the GCP Executive Board in reaching a decision on the preferred route and proposed Travel Hub site.

**Table 5.6: Overall 2019 Consultation SRA Comments**

Category	Amount
SRA comments overall	46
SRA comments by public respondents	37
SRA comments by stakeholder respondents	9

**Table 5.7: 2019 Consultation SRA Themes**

<b>Theme</b>	<b>Amount</b>
Would seek for the CSET public transport route to use part of the former Cambridge to Haverhill railway line	41
SRA generally better than other options	21
SRA would reduce loss of green space	17
SRA would be more convenient for local people	10
Cost	7
SRA would facilitate extension to Haverhill	4
SRA would deliver reduced congestion compared with other options	3

Note: Some comments covered multiple themes

#### 5.4 2020 EIA CSET Consultation

Considering the results of public consultation, the evaluation of a series of criteria linked to the scheme's objectives and initial value for money assessment, it was concluded that the 'Brown' option was the best performing combination of route alignment and Travel Hub site, performing best both under the multi criteria assessment appraisal process and at public consultation, while ranking second for value for money. Following the decision of the GCP Executive Board to progress with the 'Brown' route as the preferred option, the Environmental Impact Assessment (EIA) consultation was undertaken in autumn 2020. The objectives of the consultation were as follows:

- Present information on the current proposed scheme design;
- Highlight the refinements to the design and provide justification for those changes;
- Identify potential environmental impacts, both positive and negative;
- Set out the proposed measures for mitigation of adverse impacts; and
- Provide an opportunity for all stakeholders to comment and give their views on the proposals.

**Table 5.8: Overall 2020 Consultation SRA Comments**

<b>Category</b>	<b>Amount</b>
SRA comments overall	42
SRA comments by public respondents	35
SRA comments by stakeholder respondents	7

**Table 5.9: 2020 Consultation SRA Themes**

<b>Theme</b>	<b>Amount</b>
Would seek for the CSET public transport route to use part of the former Cambridge to Haverhill railway line	42
SRA would reduce loss of green space	27
Location / convenience	19
SRA generally better than other options	11
Re-use existing infrastructure	11
Cost	8
SRA would reduce air pollution	5

Theme	Amount
SRA would deliver reduced visual impact	4
SRA would deliver improved active travel route options	2
SRA would facilitate extension to Haverhill	1

Note: Some comments covered multiple themes

## 6 Summary

Following a review of the different SRA options, it is clear that there are a number of key unresolved design and deliverability issues in relation to:

- (i) Design and operational constraints of the SRA on both public transport and active travel routes that will adversely impact the level and quality of service provided to users; and
- (ii) Risks relating to the deliverability of the scheme - this is an important consideration in any major transport scheme, including an assessment of risks and how these will be managed, covering different elements such as technical (adherence to design standards), financial (affordability) and approvals (legal) etc.

In the case of the SRA as proposed by i-Transport:

- It is acknowledged by i-Transport that there are a number of design constraints along the corridor, including the requirement to address the presence of a pumping station on Granham's Road, Shelford Railway Station, as well as the bridge structures (A1301 Cambridge Road and A1301 London Road).
- There are uncertainties relating to costs associated with works and approvals involving interfaces with Anglian Water, Network Rail and the Greater Anglia train operating company.
- A key ambition of the CSET scheme is to deliver reliable journey times for those using High Quality Public Transport services operating on dedicated infrastructure. Full segregation is required to assure this, otherwise operational benefits will not be realised fully.
- There are impacts on residential and commercial premises along the route, with some loss of buildings, gardens, car parking as well as the potential loss of a restaurant business. While the i-Transport proposals avoid the impacts of the alignment developed by Mott MacDonald for assessment purposes on a number of residential properties, they substitute new impacts on utilities and commercial properties and greater impacts on railway infrastructure and operations.
- The i-Transport report does not provide a satisfactory explanation of how a fully segregated public transport route through the Chaston Road residential area can be reconciled with providing appropriate facilities for active travel users on a route forming part of the National Cycle Network and with maintaining vehicle access to the off-street residential parking at the rear of the houses on this part of Chaston Road.
- Safety issues relating to accommodating active travel users with motorised traffic along specific sections of the route, especially along the northern section of Chaston Road, are not addressed.
- The i-Transport report makes no proposal for a stop on the SRA to serve Stapleford as an alternative to the stop at Haverhill Road, Stapleford proposed on the preferred route.

A comparative assessment of the estimated costs for the SRA as proposed by i-Transport relative to the SRA as developed by Mott MacDonald has found that, on a comparable basis with the costs presented in the Mott MacDonald report 'CSET Phase 2: Shelford Railway Alignment, Design Development and Feasibility Assessment' (May 2020), direct construction costs for the SRA as proposed by i-Transport would be at least £2.4m higher than for the SRA as developed by Mott MacDonald. When design, project management, environmental mitigation costs and risk contingency are added the additional costs for the i-Transport proposals rise to at least £4.3m.

The estimates currently assume that utilities, land and property costs are the same for both options pending the availability of advice on the property cost implications of the i-Transport alignment.

In summary, the SRA as proposed by i-Transport substitutes new impacts on utilities and commercial properties and greater impacts on railway infrastructure and operations for impacts on residential properties. As a result, many of the practical challenges which would be expected to seriously impact on the deliverability of this option remain, including the potential for significant disruption to the A1301 and the Cambridge-Liverpool Street railway, with an associated need for Network Rail approvals and substantial cost and programme implications. The greater impacts on railway infrastructure and operations of the i-Transport proposals increase the risk that the SRA in this form will be fundamentally unacceptable to Network Rail and that the project will not be able to acquire the land required to deliver the SRA in this form from Network Rail.

The i-Transport report asserts that the Mott MacDonald assessment of the SRA over-states concerns in respect of deliverability, but has made alternative proposals that cannot be demonstrated to be deliverable as they rely on the acquisition of operational land from statutory undertakers.

For these reasons, the conclusions of previous work indicating that the alternative alignment via the former Haverhill railway through Shelford would not be a viable alternative to the preferred route remain valid.

## **A. Comparative property impacts of Mott MacDonald alignment and i-Transport proposals**

Property demolition required	
Land take from property required	

Residential Property		Commercial/Railway/Utilities Property	
Mott MacDonald	i-Transport	Mott MacDonald	i-Transport
26 Granham's Road	26 Granham's Road	No impact	Anglian Water pumping station
9 Chaston Road	9 Chaston Road		
72 Chaston Road	No impact		
1 Grain Close	No impact		
		Mill Court car parking areas	Mill Court car parking areas
3 Hinton Way	No impact	No impact	1 Hinton Way – Zara Indian Restaurant / Shelford Station building
5 Hinton Way	No impact		
2 Leeway Avenue	No impact		
4,6,8,10,12,14,16,18, 20,22,24,26,28,30,34, 34a,36,38 Leeway Avenue	No impact		
13a London Road	No impact		
12 London Road	12 London Road		
14 London Road	No impact		

## Summary

	Number of Residential Properties Impacted		Number of Commercial/Railway/Utilities Properties Impacted	
	Demolition Required	Land Take Required	Demolition Required	Land Take Required
Mott MacDonald	6	22	-	1
i-Transport	1	2	2	1



## Technical Note

Project: CSETS Shelford Rail Alignment

Subject: Review of the Shelford Rail Alignment Reports

Author: HJ/LW

Date:	14/05/2021	Project No.:	5206429
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### Client signoff

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# 1. Introduction

Atkins have been commissioned by Greater Cambridge Partnership (GCP) to conduct an independent review of the WSP, Mott MacDonald and i-Transport documents regarding the Shelford Rail Alignment (SRA) developed as part of the Cambridge South East Transport Study (CSETS). This technical note provides GCP with an opinion on the recommendations made by the consultants in relation to the SRA and recommends likely next steps.

Atkins review is based upon the contents of the documents provided only and does not provide advice on the technical feasibility of any SRA route.

## 2. Review of Documents

As part of Atkins' independent review, the four documents listed below have been reviewed and analysed. It should be noted that only the Mott MacDonald (2020) report and the i-Transport (2021) report were analysed in detail and provide the main background for our overall review. The documents are as follows:

- Cambridge-Haverhill Corridor Study Draft Rail Viability Technical Note (2015) – WSP;
- CSET Phase 2 Shelford Railway Alignment: Design Development and Feasibility Assessment (2020) – Mott MacDonald;
- Cambridge South East Transport Phase 2: Alternative Shelford Railway Alignment (2021) – i-Transport; and
- Shelford Railways Alignment (2021) – Mott MacDonald.

### 2.1.1. Cambridge-Haverhill Corridor Study Draft Rail Viability Technical Note (WSP, 2015)

The WSP report was produced to assess the viability of reopening the former Cambridge to Haverhill railway line. This was an initial assessment, undertaken as part of the A1307 Haverhill to Cambridge Corridor Study commissioned by Cambridgeshire County Council (CCC), to assist in determining whether the reopening should move forward to a more detailed study. The assessment included the following:

- Identifying the strategic rationale for rail;
- A high-level desktop assessment to identify the current physical status of the former alignment and potential solutions;
- Identifying potential station locations, including identifying the scope for park-and-ride at each potential station;
- Identifying an assumed service/stopping pattern, along with the potential passenger capacity, journey times and potential operating arrangements;
- Capital cost estimation; and
- High level economic appraisal, which included appraisal of a bus rapid transit (BRT) alternative on the disused rail corridor.

The report concludes that the reopening of the disused rail line would not be viable as part of the current A1307 Haverhill to Cambridge Corridor Study, but that a Cambridge-Haverhill railway line could ultimately form part of a more strategic rail link in the future.

### 2.1.2. CSET Phase 2 Shelford Railway Alignment: Design Development and Feasibility Assessment (Mott MacDonald, 2020)

This report is one of the key documents forming the basis of this review. Mott MacDonald were commissioned by GCP to provide support for the CSET Phase 2 project. The 2020 report provides design development and feasibility assessment for an alternative alignment via the former Haverhill - Cambridge railway at Great

Shelford and Stapleford. Section 3 of this Technical Note summarises the key points taken from Mott MacDonald's report.

### 2.1.3. Cambridge South East Transport Phase 2: Alternative Shelford Railway Alignment (i-Transport, 2021)

i-Transport were commissioned by the Parish Councils of Great Shelford and Stapleford to provide a review of the strategy and process undertaken by Mott MacDonald within their 2020 report and to provide a technical feasibility report for an alternative SRA. Section 3 of this Technical Note summarises the key points taken from i-Transport's report.

### 2.1.4. Shelford Railways Alignment (Mott MacDonald, 2021)

This report was produced by Mott MacDonald in response to the findings of the 2021 i-Transport report. Mott MacDonald reviewed the following aspects:

- Review of SRA options, including overall alignment, design constraints and assessment of the impact on residential and commercial properties;
- Assessment of cost differences for SRA design options developed by i-Transport and Mott MacDonald;
- Assessment of the benefits of SRA options and likely implication on Benefit Cost Ratio (BCR); and
- Assessment of CSET scheme consultation exercises relating to SRA themes and comments.

The assessment suggests that the i-Transport proposed alternative would still be subject to engineering challenges and could incur increased costs due to the construction costs associated with the demolition of the Anglian Water pumping station and reconstruction of the Shelford station building. The scheme cost for the alternative rail alignment by i-Transport will be £163.4m, against the £159.1m estimated for the Mott MacDonald alignment. Considering all of the findings from i-Transport, the report concludes that the SRA, via the former Haverhill railway through Shelford, would not be a viable alternative to the preferred route.

## 3. Independent Review of SRA Findings

A summary of the key findings from Mott MacDonald and i-Transport has been outlined in this section. The independent review comments are provided under the following headings for ease of reference:

- Journey Time;
- Non-Motorised User Provision;
- Environmental Assessment;
- Visual Impact;
- Noise;
- Biodiversity;
- Green Belt;
- Engineering Feasibility – Highway;
- Engineering Feasibility – Junction with Granham's Road;
- Engineering Feasibility – Highway alignment around Chaston Road;
- Engineering Feasibility – Mill Court building frontages;
- Engineering Feasibility – Junction with Station Road;
- Engineering Feasibility – Structure;
- Engineering Feasibility – Rail interface;
- Public Consultation/Stakeholder Comments;
- Land Acquisition;
- Construction Impact;
- Scheme Cost; and
- Wider Economic Benefits.

	Mott MacDonald (2020) Findings	i-Transport Findings	Atkins Independent Review
<b>Transport User Benefits</b>			
Journey Time	<p>In order to assess the changes in Perceived Journey Time (PJT) to and from Cambridge between the Brown Route and the Rail Alignment Route an elasticity approach was adopted. This simulates the potential change in the demand following change in the PJT. The assessment identifies a substantial reduction of approximately 10 minutes for journeys from/to Great Shelford for the Rail Alignment Route, based on a reduction in access distance of 700m.</p> <p>The results indicate that an alternative alignment via the railway potentially generates the following responses:</p> <ul style="list-style-type: none"> <li>• Great Shelford demand increases due to improved accessibility and reduction in overall PJT;</li> <li>• Sawston and Stapleford show small or no changes in demand; and</li> <li>• Travel Hub demand reduces more significantly than the demand increases across the Local Corridor Catchment Area (LCCA), that includes Sawston, Stapleford and Great Shelford.</li> </ul> <p>The route alignment of the Rail Alignment Route Option through Great Shelford would be expected to lead to increased demand for the service from the village itself.</p> <p>However, the demand reduction at the Travel Hub site outweighs this extra demand.</p>	<p>i-Transport state that the journey time savings vary between 6 and 8 minutes (comparing CSETS Phase 2 and On-Route PT) when considering those passengers using the whole route i.e. from the Travel Hub Site to/from Cambridge.</p> <p>However, when considering those in the settlements along the route the journey time savings are considerably greater ranging from 15 minutes in the inter-peak to 25-29 minutes in the peak periods. This is due to the reduction in wait times and the increase frequency in services, when compared to the existing Citi7 Bus Service.</p> <p>Whilst this may account for some of the difference in journey time saving, this is countered by the increased walk times to the stops on the edge of the settlements, which range from 13 to 22 minutes compared with the assumed walk time at the Travel Hub Site of 0 minutes.</p>	<p>Both parties acknowledge that demand from the travel hubs decreases due to the increase in journey time for the alternative alignment via the railway.</p> <p>i-Transport highlight the useful methodology used by Mott MacDonald to understand the PJT but state that this is not a robust comparison as the demand is not properly modelled and rather benchmarked against the Brown Route.</p> <p>This is agreed in that forecast demand for the rail alignment has been calculated based on modelled forecast demand for the Brown Route, but the walk times and in-vehicle times were adjusted based on the distances of the location from the proposed stop.</p> <p>i-Transport also highlight that only a 2% reduction in passenger demand between the preferred Brown Route and the alternative Rail Alignment is noted in the Mott MacDonald findings, that this is not considered significant and that little weight should be attributed to the difference resulting in further assessment being recommended.</p> <p>Atkins agrees that a 2% reduction in passenger demand is not significant however this is the total demand difference only – the % difference ranges from -3% to +8% difference in demand at various stop locations.</p>

			<p>Overall, Atkins consider the methodology used by Mott MacDonald to weight the walking and in-vehicle times to be robust.</p>
Non-Motorised User (NMU) provision	<p>The NMU provision varies along the CSET route. As demonstrated in Appendix C of the 2020 Mott MacDonald report, alternative routes have been identified to utilise the existing road network, away from the main busway corridor, to address some of the land availability constraints.</p> <p>The scheme design presented in the 2020 Report Appendix D illustrates that the NMU corridor is largely running parallel with the busway alignment across Great Shelford, with the exception of the Cambridge Road overbridge where the NMU route has been diverted to overcome the horizontal cross section challenge imposed by the bridge arch.</p>	<p>Section 7.2.11 of the 2021 i-Transport report suggests that a 13.8m corridor, instead of a 14.3m corridor, is sufficient to provide the minimum corridor footprint.</p> <p>As illustrated in Figure 11.1 of the report, i-Transport identified a short diversion of the NMU corridor, via Hinton Way between Chaston Road and Shelford Station, to address the cross section constraints between the Mill Court frontages and the existing station platform.</p> <p>The design will need to be further developed to clearly map out the intended highway alignment to manage the conflicting demand between northbound bus movement, vehicular movement and the new NMU provision at the northern section of Chaston Road.</p>	<p>Both parties acknowledge that a flexible approach is required to implement the busway alignment to address localised pinch-point issues. Compromises will need to be made to provide appropriate NMU facilities along this CSET corridor.</p> <p>As presented by i-Transport, it is a reasonable approach to reduce the minimum corridor footprint based on the Cambridgeshire Guided Busway (CGB) standard. This would help the designer to navigate some, but not all, of the constrained locations. However, it is noted that the GCP requirements for the corridor may differ from the CGB standard.</p> <p>Based on the information provided by both parties, it is clear that an engineering solution could be explored and alternative routing options could be considered to provide a high quality NMU corridor that meets the scheme objectives.</p> <p><b>Atkins considers the concepts presented by both parties to be reasonable, however further feasibility design would be required and would need to be subject to Stage 1 Road Safety Audit review.</b></p>

#### Environment

Environmental Assessment	<p>A desk-based approach, supported by an environmental walkover of the route, has been undertaken. The qualitative assessment has been carried out using INSET scoring for scheme appraisal purposes. The Railway Alignment</p>	<p>Para 13.3.8, and Paras 13.3.18 to 13.3.22 of the 2021 i-Transport report question the accuracy and appropriateness of the INSET assessment. The report suggests that the visual impact, biodiversity and impact on</p>	<p>The high-level qualitative assessment prepared by Mott MacDonald was based on a desk-based study and was supported by an environmental walkover of the route.</p>
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	INSET Scoring Assessment has been provided in Appendix D of the 2020 Mott MacDonald report.	Green Belt should be less severe with the alternative alignment.	Detailed analysis for each area of concern raised by i-Transport is provided in four separate headings below.
Visual Impact	The report concludes that the impact on landscape character of the area would be limited as the route runs along existing transport infrastructure. An INSET score of -2 has been given.	Para 13.3.21 of the Report suggests the INSET analysis for the visual impact for the alternative alignment to be -1, not -2 as stated by Mott MacDonald.	Based on the analysis provided in the 2020 Mott MacDonald Report, the visual impact of the alternative alignment is likely to be marginal due to the route following the route of the existing and disused rail track. <b>Atkins consider that it is not unreasonable to score this aspect -1, as suggested by i-Transport.</b>
Noise	The report suggests that the alternative alignment could bring adverse noise impacts due to the number of receptors in close proximity. An INSET score of -2 has been given.	Para 13.3.18 of the 2021 i-Transport report suggests that the noise level along the alternative alignment could have limited impact as the route follows an existing railway line along the Great Shelford section. However, the i-Transport alignment design requires removal of the existing mature trees along Chaston Road, which function as acoustic barrier. An INSET score of -2 has been given.	Based on the analysis provided in the 2021 i-Transport report, a negative noise impact of -2 would be expected if the existing mature trees along the Chaston Road residential area are removed as suggested.
Biodiversity	Moderate adverse impact is expected due to habitat loss along the proposed route and the fragmentation of habitats used by badgers, bats, great crested newts and reptiles. An INSET score of -2 has been given.	The report makes no formal comment on the findings and suggests the INSET analysis for the biodiversity for the alternative alignment to be -1, not -2 as stated by Mott MacDonald.	Based on the analysis provided in the 2020 Mott MacDonald report, moderate adverse impact is expected due to the loss of habitat. <b>Atkins consider that -2 is an appropriate score to reflect the scheme impact on the biodiversity along this corridor.</b>
Green Belt	As documented in the Railway Alignment INSET Scoring Assessment, all options have an equal weight of -2.	Para 13.3.21 of the 2021 i-Transport report suggests that the alternative alignment will have a lesser impact on the Green Belt as that route follows a disused railway. A score	Based on the analysis provided in the 2021 i-Transport report, Atkins consider that it is not unreasonable to score this aspect <b>-1 as suggested by i-Transport.</b>

		of -1 is suggested, not -2 as stated by Mott MacDonald.	
<b>Deliverability</b>			
Engineering Feasibility - Highway	<p>Feasibility design drawings have been provided in Appendix B of the 2020 Mott MacDonald report to demonstrate the required bus corridor footprint. Four areas of concerns have been raised:</p> <ul style="list-style-type: none"> <li>• The junction with Granham's Road is in close proximity to existing pumping station;</li> <li>• The highway alignment around Chaston Road where the available cross-section is constrained by the rail track and residential frontages;</li> <li>• The limited cross-section available between the station platform and Mill Court building frontages; and</li> <li>• The junction with Station Road is in close proximity to the existing Shelford station building.</li> </ul>	<p>Section 11 of the 2021 i-Transport report outlines the proposed alternative arrangements to address the four areas of concerns with a different approach.</p> <p>It is noted that no concept design drawings have been provided to illustrate the design detail.</p>	<p>Both parties demonstrate different approaches to address the highway constraints to implementing the alternative rail alignment corridor.</p> <p><b>Atkins consider the concepts presented by both parties to be reasonable, however further feasibility design would be required and subject to Stage 1 Road Safety Audit review.</b></p> <p>Detailed analysis for each area of concern is provided in four separate headings below.</p>
Engineering Feasibility - Junction with Granham's Road	<p>Mott MacDonald's design incorporates a new set of traffic signals to regulate the N-S bus corridor movements, which is located approximately 60m from the existing level crossing.</p> <p>This layout design avoids the existing Anglian Water sewage pumping station; however impacts on the residential property south of Granham's Road.</p>	<p>i-Transport's concept provides a more direct and simplified crossing arrangement.</p> <p>This highway alignment avoids the residential property south of Granham's Road; however does impact on the existing Anglian Water sewage pumping station.</p>	<p>Both Mott MacDonald's and i-Transport's designs would require land acquisition in some form. From a scheme delivery perspective, it may be less sensitive to the general public to relocate the existing Anglian Water pumping station, rather than affecting the residential property.</p> <p><b>Atkins consider that it is important to liaise with Anglian Water to understand the timescales and cost associated with the proposed pumping station relocation.</b></p>

Engineering Feasibility - Highway alignment around Chaston Road	<p>Mott MacDonald's design incorporates a new set of traffic signals to manage the vehicular access to residential dwellings and an off-street parking facility.</p> <p>This layout design requires the acquisition of a third-party residential property to provide a fully segregated NMU corridor.</p>	<p>i-Transport's concept utilises the existing quiet street feature along Chaston Road to provide a shared-use surface and minimise land acquisition requirements for resident properties.</p> <p>This design will need to be further developed to clearly map out the intended highway alignment to manage the conflicting demand between northbound bus movements, vehicular movement and the new NMU provision across this section.</p>	<p>Mott MacDonald and i-Transport demonstrate different approaches to addressing the cross-section constraints between the operational rail track and residential frontages.</p> <p>Both design concepts will impact on the vehicular access arrangement to the off-street residential parking along the northern section of Chaston Road.</p> <p>Atkins recommend engagement with the affected property owner in order to facilitate the option development process.</p>
Engineering Feasibility - Mill Court building frontages	<p>The design concept presented by both parties would require loss of parking spaces between the station platform and Mill Court building frontages. Currently, no design drawings have been provided to demonstrate the engineering feasibility.</p>		<p>Atkins consider that the cross-section across this part of the corridor should be examined in more detail. <b>Taking the requirement for 3.5m clearance from the overhead line equipment (OLE) as a minimum, it is important to maintain the required busway corridor and allow pedestrian access to the buildings.</b> The NMU provision along this section should also be carefully considered.</p>
Engineering Feasibility - Junction with Station Road	<p>Mott MacDonald's design incorporates a new set of traffic signals to regulate the bus corridor movements, which is located approximately 40m from the existing level crossing.</p> <p>This layout design avoids the Shelford station building, however, impacts on a number of resident properties to the south of Station Road.</p>	<p>i-Transport's concept provides a more direct and simplified crossing arrangement.</p> <p>The highway alignment avoids the resident properties, however, there is a greater impact on the Shelford station building which is owned by Network Rail.</p>	<p>Both designs would require land acquisition of a different nature. From a scheme delivery perspective, it is less sensitive to the public to relocate the station building, rather than affecting the residential properties to the south of Station Road.</p> <p><b>As noted under the Rail Interface section, it is important to understand the feedback from Network Rail regarding the timescale and cost associated with the relocation of the Shelford station building.</b></p>

<b>Engineering Feasibility - Structure</b>	<p>Two structures would be affected, as set out in Section 2.3 of the 2020 Mott MacDonald report:</p> <ul style="list-style-type: none"> <li>• The former overbridge structure by Cambridge Road provides limited vertical and horizontal clearances for a fully segregated busway and active travel corridor; and</li> <li>• The A1301 London Road bridge poses a similar challenge with respect to the headroom clearance and possible alignment of the active travel provision.</li> </ul> <p>The report states that there is lack of data to ascertain the likely impact on the affected structures. The following information is required to evaluate the impact:</p> <ul style="list-style-type: none"> <li>• Topographic survey;</li> <li>• Ground Investigation; and</li> <li>• Structural Assessment.</li> </ul>	<p>As documented under Para. 7.2.13 to 7.2.17, the i-Transport report acknowledges the challenges with the following commentaries:</p> <ul style="list-style-type: none"> <li>• The former overbridge structure by Cambridge Road could accommodate a busway corridor, subject to a level review and engineering check; and</li> <li>• At the A1301 London Road bridge, a busway could be provided between the eastern abutment and central pier, subject to a level review and engineering check.</li> </ul> <p>However, similar to the original assessment undertaken in 2020 by Mott MacDonald, the suggested measures would require further site investigation to evaluate the impact on the constructability, cost and programme.</p>	<p>Atkins consider that the preliminary analysis by both parties appears to be proportionate at this feasibility stage. <b>Both reports conclude that the bridge structures are key design constraints to implementing the alternative corridor.</b></p> <p>It is important to understand the engineering parameters to ascertain the likely impact, in terms of cost and programme, on the affected structures. The following information is required to evaluate the impact:</p> <ul style="list-style-type: none"> <li>• Topographic survey;</li> <li>• Ground Investigation;</li> <li>• Structural survey; and</li> <li>• Historic structure investigation report.</li> </ul>
<b>Engineering Feasibility - Rail interface</b>	<p>As stated in the 2020 Mott MacDonald report, Network Rail have been consulted but no response was provided.</p> <p>A number of key rail interface constraints have been outlined in Section 2.2 of the report, which set out the rail interface design advice by Mott MacDonald's rail specialist, covering:</p> <ul style="list-style-type: none"> <li>• Track;</li> <li>• Vehicle Containment;</li> <li>• Overhead Lines;</li> <li>• Signals and Telecoms;</li> <li>• Level Crossing;</li> <li>• Network Rail Access; and</li> <li>• Approval and construction requirements.</li> </ul>	<p>As outlined in Section 10 of the Report, i-Transport acknowledges that Network Rail approval is required to resolve any rail interface challenges. It is suggested that an engineering solution could be explored and agreed with Network Rail through liaison to deliver this alternative alignment.</p> <p>As with Mott MacDonald's findings, no Network Rail engagement has been undertaken to date to understand the implication on the scheme deliverability.</p>	<p>Both parties set out the key considerations required if the alternative alignment is to be taken forward; however, no detailed assessment or engagement with Network Rail has been undertaken. Based on the information provided, Atkins consider that there is insufficient information to draw a conclusive recommendation.</p> <p><b>Either scheme may be 'feasible' from the engineering perspective; however, it is important to understand the feedback from Network Rail about the timescale and cost associated with this initiative to confirm the deliverability to the scheme.</b></p>

Public Consultation/ Stakeholder Comments	<p>A number of respondents to the public consultation stated:</p> <ul style="list-style-type: none"> <li>• the proposed route should be via the centre of the villages due to:             <ul style="list-style-type: none"> <li>- Providing better accessibility for residents; and</li> <li>- Avoid the need for development in the green belt to the east of the villages.</li> </ul> </li> </ul>	<p>As outlined in Para 15, the 2019 public consultation identified numerous comments for the preferred Brown Route, regarding:</p> <ul style="list-style-type: none"> <li>• The negative impact the proposals would have on the environment, due to the use of Green Belt land;</li> <li>• The negative impact that travel hub access routes and proposed stop locations would have on congestion along connected roads and in villages;</li> <li>• The poor accessibility of the stop locations which were not well-located to settlements; and</li> <li>• The possibility of using existing infrastructure (A1307 or former railway lines) in place of the proposed route.</li> </ul>	<p>Based on the information provided, it is <b>unclear whether responses have been received from key stakeholders including Anglian Water, Network Rail or the affected landowners.</b></p> <p>For a scheme of this nature, Atkins recommend having a clear stakeholder engagement strategy to identify key parties and understand the constraints from all parties.</p>
Land Acquisition	<p>The feasibility design, as illustrated in Appendix B of the 2020 Mott MacDonald report, requires demolition of residential and commercial properties and results in a negative score under the INSET Assessment.</p> <p>The proposed Mott MacDonald alignment would have a greater impact on existing residential properties, whilst avoiding acquiring land from Anglian Water and Network Rail.</p>	<p>Section 8 of the i-Transport report provides a high-level assessment of the likely impact on properties.</p> <p>Section 11 of the Report provides an alternative alignment to minimise the impact on residential properties, which instead impacts on:</p> <ul style="list-style-type: none"> <li>• Anglian Water sewage pumping station; and</li> <li>• Shelford station building (owned by Network Rail).</li> </ul> <p>The alignment proposed by i-Transport would have a lesser impact on residential properties, but would have a direct impact on the Anglian Water pumping station and the Network Rail station building.</p>	<p>Both parties accept that land acquisition will be required to implement the alternative alignment corridor.</p> <p>Whilst the quantity of land acquisition is reduced by i-Transport's suggested alignment, <b>Atkins consider that it is important to understand the feedback from Anglian Water and Network Rail regarding the timescale and cost associated with this initiative to confirm the scheme deliverability.</b></p>

<b>Construction Impact</b>	<p>As discussed in Section 2.2.8 of the 2020 Mott MacDonald report, the construction timescale is unknown and further liaison with Network Rail and the Office of Rail and Road (ORR) will be required.</p> <p>A score of -3 for Impact on the Rail Network has been given in the INSET Assessment Deliverability Theme.</p> <p>Further commentary has been provided in the 2021 Mott MacDonald report under Section 1.3.2.1 which sets out the challenges for implementing the design concept as presented by i-Transport, including:</p> <ul style="list-style-type: none"> <li>• Rail interface issues;</li> <li>• Requirement for Network Rail planning;</li> <li>• Replacement of the Shelford rail station building;</li> <li>• Liaison required with multiple parties; and</li> <li>• Potential disruptions to the rail operation during construction.</li> </ul>	<p>The report acknowledges that the i-Transport design would have a greater impact on the rail network, however, a score of -1 is given in Table 13.4 for Impact on Rail Network criteria.</p> <p>The report makes no formal comment about the construction timescale.</p>	<p>Based on the analysis provided by Mott MacDonald, <b>Atkins consider that it is not unreasonable to score this aspect -3, rather than -1 as suggested by i-Transport.</b></p> <p><b>The scheme may be ‘feasible’ from an engineering perspective; however, it is important to understand the feedback from Network Rail about the timescale and cost associated with this initiative to confirm the scheme deliverability.</b></p>
<b>Scheme Cost</b>	<ul style="list-style-type: none"> <li>• Preferred Option – £129.9 million total capital Infrastructure cost -(exclusive of any risk)- £103.9 million, additional £26 million estimated to cover risks at the P80 level; and</li> <li>• Rail Alignment – £159.1 million total capital Infrastructure cost -(alternative alignment exclusive of any risk)- £127.3 million, additional £31.8 million estimated to cover risks at the P80 level.</li> </ul>	<p>As discussed under Para 5.1.9, i-Transport agrees that the cost estimates provided by Mott MacDonald are broadly in line with those estimated in 2017/18 and indicate that the original estimates were accurate and that the scheme has not materially changed.</p> <p>No scheme cost audit has been carried out by i-Transport. It is acknowledged the land cost associated with the alternative rail alignment is one of the contributory factors for the scheme cost increase.</p>	<p>It is noted that i-Transport expressed concerns about the preferred Brown Route Scheme achieving a BCR of 0.81. Mott MacDonald are currently refining the BCR for the preferred Brown Route, as stated in their 2021 report.</p> <p><b>Atkins consider the scheme cost for the alternative rail alignment is likely to increase due to the complex rail interface requirement, together with the need for land acquisition, compare to the preferred Brown Route. We are unable to make an</b></p>

			<b>assessment of the validity of costs provided by Motts or i-Transport.</b>
		Social Impact (Quality of Life)	
Wider Economic Benefits	<p>The 2020 Report states that the alternative alignment is not deemed to have benefits above the shortlisted alignment and therefore the scores remain unchanged.</p> <p>This is because it is considered to have an equally positive impact on the commercial sites previously identified and is not expected to significantly alter the labour market catchment.</p>	<p>The i-Transport report does not highlight the Wider Economic Benefits scoring as being marginally worse when comparing the scores for the Rail Alignment and the preferred Brown Route.</p> <p>Other themes included in the Mott MacDonald Investment Sifting and Evaluation Tool (INSET) were highlighted as being marginally worse when comparing the Rail Alignment and preferred Brown Route:</p> <ul style="list-style-type: none"> <li>• Transport User Benefits (a difference of 0.47);</li> <li>• Environment (a difference of 0.13);</li> <li>• Deliverability (a difference of 0.36); and</li> <li>• Social Impact (Quality of Life) (a difference of 0.12).</li> </ul>	<p>Atkins consider the INSET process used by Mott MacDonald to be a fairly robust assessment of themes that were derived from the process, using a standard -3 to +3 scoring system.</p> <p>Within each main theme (7 main themes), there were additional subthemes that were derived and scored for each proposed route option.</p>

## 4. Independent Review Summary

### 4.1. Journey Times

Mott MacDonald and i-Transport both conclude that the route alignment of the alternative rail alignment through Great Shelford would be expected to lead to increased demand for the service from the village itself. However, the demand reduction at the Travel Hub site outweighs this extra demand from the village.

The demand data for the Mott MacDonald analysis was taken from the Cambridge Sub Regional Model (CSR) based on the modelled patronage demand from the preferred Brown Route. This is due to there being no existing observed data available. The Perceived Journey Times (PJT) calculated by including the access/egress time to the stops, origin wait time and in vehicle time.

With cost coefficients based on TAG guidance M3-2 section 3 having been applied to ensure the relative importance of each component perceived by passengers is reflected, this approach allowed for the access/egress and wait time to be “weighted” within the assessment. Atkins considers the methodology used by Mott MacDonald to weight the walking and in-vehicle times to be robust when analysing the two options.

### 4.2. Non-Motorised User Provision

Atkins consider that neither Mott MacDonald nor i-Transport have clearly illustrated what can be achieved, therefore further feasibility design work is required (ideally including a concept design sketch for Chaston Road residential area and Mill Court frontage), which would be need to be subject to a Stage 1 Road Safety Audit.

Overall, Atkins consider that the proposed NMU provision can be provided, and although this will need to be compromised at pinch points to overcome cross-section constraints, it is not considered to be a ‘show stopper’ for the SRA alignment.

### 4.3. Environment

Mott MacDonald have undertaken a high-level qualitative assessment and Atkins consider the results of their assessment to be mostly acceptable. i-Transport have raised a number of minor queries; however, Atkins consider than none of these are of major significance to the option appraisal process.

### 4.4. Engineering Feasibility

#### 4.4.1. Highway

Four areas of concerns have been raised by both parties, with Mott MacDonald and i-Transport demonstrating different engineering approaches to addressing the highway constraints to implement the alternative rail alignment corridor. Atkins consider the concepts presented by both parties to be reasonable, however further feasibility design and close liaison with Network Rail would be required through the design development stage. The highway alignment design would subject to Stage 1 Road Safety Audit.

#### 4.4.2. Structure

Both Mott MacDonald and i-Transport conclude that the bridge structures are key design constraints to implementing the alternative corridor, however no conclusions can be drawn at this stage due to lack of sufficient information to ascertain the details (i.e. topo survey, GI, structural survey and historic structure investigation report required). Atkins consider this to be a major risk as the potential cost cannot be accurately assessed without further assessment work of the existing bridge structures being undertaken.

#### 4.4.3. Rail Interface

Both Mott MacDonald and i-Transport outline the rail interface constraint and set out how this could be resolved by an engineering solution, however no detailed assessment or engagement with Network Rail has been undertaken. Therefore, based on the information provided, Atkins consider that there is insufficient information to draw a conclusive recommendation, other than that further liaison with Network Rail is required. Atkins consider this to be a major risk given the potential timescales and complexities of the Network Rail GRIP process.

## 4.5. Deliverability

### 4.5.1. Stakeholder Comments

It is understood that limited input from stakeholders such as Network Rail has been obtained at this early stage. According to the early feedback provided by GCP, Network Rail are unable to provide further design assistance due to the limited detail available at this project stage. Network Rail suggested additional design details, including the impact on level crossings, land ownership and East-West Rail, to be provided so that formal engagement can be carried out. It is understood that the requested information has not been prepared as the SRA was discounted at the option sifting stage. Also, no formal engagement has been carried out with the affected property owners. It is considered essential to understand the feedback from the affected parties if this scheme is to be progressed.

### 4.5.2. Land Acquisition

Mott MacDonald and i-Transport have set out different approaches; Mott MacDonald prefer to acquire residential properties, whilst i-Transport proposes to acquire land from Anglian Water and Network Rail and relocate infrastructure.

Atkins consider land acquisition to be a major risk as a scheme of this nature would be subject to public scrutiny from the affected property owners. Atkins also consider that it is important to understand the feedback from Anglian Water and Network Rail regarding the timescales and cost associated with i-Transport's proposal in order to confirm the scheme deliverability.

### 4.5.3. Construction Impact

No conclusion can be drawn at this stage due to lack of consultation with Network Rail and Anglian Water. Atkins consider this to be a major risk as the potential cost and programme impacts cannot be accurately assessed due to the engineering constraints discussed above.

### 4.5.4. Scheme Cost

It is noted that the BCR for the preferred Brown Route is 0.81, which is considered to be Poor under the Department for Transport (DfT) Value for Money Categories. Atkins understand that Mott MacDonald are currently reassessing the BCR for the preferred Brown Route, with an update on the BCR to be provided later in 2021.

Apart from the above, no BCR calculation is presented by both parties for this alternative rail alignment. Based on the scheme cost information provided by Mott MacDonald, it is likely that the BCR would be adversely impacted due to the increase in the scheme cost associated with this alternative rail alignment, with an increase from £129.9m to circa £160m. Scheme affordability should be considered by the scheme promoter to secure appropriate funding sources.

## 4.6. Wider Economic Benefits

A Multi-Criteria Assessment was conducted by Mott MacDonald, using their Investment Sifting and Evaluation Tool (INSET) analysis, to summarise and present evidence against the options. The INSET analysis is a tool based on the DfT Early Assessment Sifting Tool (EAST). The tool adopted a seven-point scoring system to assess how well options met the established thematic criteria, using a scale of -3 to +3, with -3 representing a very poor fit with criteria and +3 a very good fit. Seven key themes that were identified with additional sub-themes within each theme given a score. We have not been able to fully review the Mott MacDonald INSET as we have not been provided with the Option Assessment Report (OAR, reference 403394-MMD-BCA-00-RE-BC-0024), that provides details of the identification, appraisal, sifting and determination of the preferred option for the CSET Phase 2 Scheme.

Atkins consider the INSET process used by Mott MacDonald to be a fairly robust and proportionate assessment of themes that were derived from the process, using a standard -3 to +3 scoring system.

## 5. Conclusion

Atkins have been commissioned by GCP to conduct an independent review of the WSP, Mott MacDonald and i-Transport reports in relation to the SRA developed as part of the CSETS. Four documents have been reviewed, with the key focus on the analysis of the methodology and outputs from the 2020 Mott MacDonald report and the 2021 i-Transport report.

Atkins consider that the information presented in the 2020 Mott MacDonald report to be a fair assessment at feasibility stage. Based on the information presented in the documents, the SRA has been considered not to be a viable alternative relating to:

- Segregation;
- Land acquisition;
- Deliverability; and
- Cost.

Atkins consider that whilst segregation is one of the key scheme objectives, it is acknowledged that design compromise would be required at selected locations to overcome localised constraints and therefore it is not considered to be a 'show stopper' that rules out the feasibility of the SRA at this stage. Land acquisition, deliverability and cost are considered to be the major risks associated with the SRA, compared to the preferred Brown Route. The SRA would require the following:

- Land acquisition, which would be subject to third party agreement and public scrutiny; and
- Liaison with Network Rail and Anglian Water liaison, which could increase risk given the potential timescales and complexities of the Network Rail GRIP process.

Both Mott MacDonald and i-Transport are in agreement that scheme cost for the SRA would be higher than the preferred Brown Route due to the complex rail interface requirement, together with land acquisition costs.

In summary, the scheme may be 'feasible' from the engineering perspective; however, based on the information presented in both the Mott MacDonald and i-Transport reports, Atkins consider the risks associated with land acquisition, construction complexity and construction programme remain high and adversely impact on the scheme delivery. Further work would be required to properly understand the impacts of these elements on the SRA alignment.

**Project:** Cambridge South East Transport (CSET) Phase 2

**Our reference:** 403394-MMD-HWA-00-RP-HW-0874      **Revision:** B

**Prepared by:** J Montgomery / M Ring / C Payne      **Date:** 26 May 2021

**Approved by:** E Mellor      **Checked by:** M Payne

**Subject:** Pink Route Variant Alignment Further Assessment

## 1 Introduction

Mott MacDonald has been commissioned by the Greater Cambridge Partnership (GCP) to provide consultancy support for the Cambridge South East Transport (CSET) Phase 2 project. The project proposes a new dedicated Public Transport (PT) and active travel route between the Cambridge Biomedical Campus (CBC) and a new Travel Hub (known as the A11 Travel Hub) at the junction of the A11 and A1307.

In May 2020 the Brown Route presented in the 2019 public consultation was identified in the Outline Business Case (OBC) as the recommended preferred route alignment for the scheme. The OBC and this recommendation were approved by the GCP Executive Board in June 2020. The design for the preferred route alignment is currently being developed further alongside the Environmental Impact Assessment (EIA) of the scheme.

During a stakeholder meeting with Babraham residents on 30 November 2020 during the EIA Consultation on the preferred route, a query was raised by the residents regarding why a route alignment option running between the Brown and Pink Routes presented in the 2019 public consultation was not being considered.

Subsequently four responses to the EIA consultation which closed on 14 December 2021, were received that proposed and requested consideration of a variation to the Pink Route. This variation to the Pink Route is termed the Pink Route Variant in this note, and the alignment inferred from the residents' comments and the consultation responses is indicated below.

The key points of difference between the Pink Route Variant and the original (2019 consultation) Pink Route are:

- The variant takes a more direct route between the A11 Travel Hub and High Street, following an existing field boundary and avoiding land owned by Pampisford Estate.
- The variant alignment requires a tighter curve radius relative to the original Pink Route.<sup>1</sup>

Figure 1.1 overleaf shows the three route alignments.

<sup>1</sup> Note – this curve radius for the Pink Route Variant, whilst tighter than the original Pink Route, is still an acceptable design solution

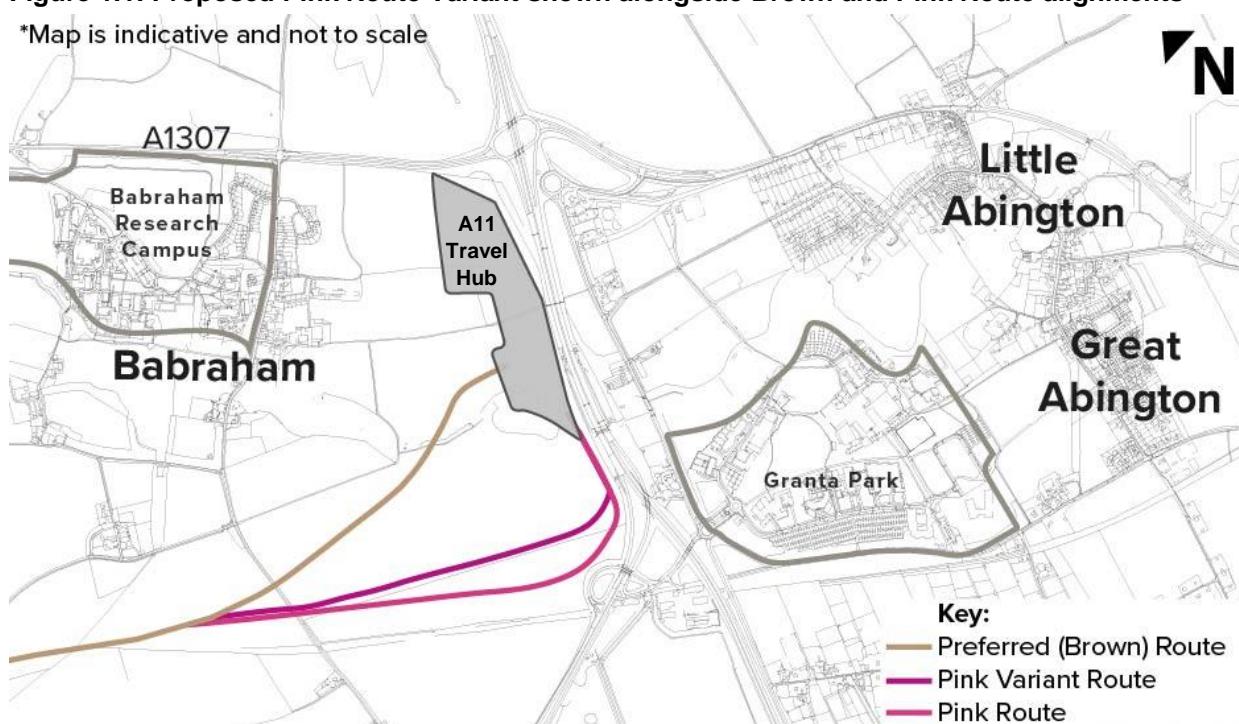
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**Figure 1.1: Proposed Pink Route Variant shown alongside Brown and Pink Route alignments**

\*Map is indicative and not to scale



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Both the original Pink Route and the Pink Route Variant would cross the River Granta in the same location immediately to the west of the A11 trunk road river crossing.

### 1.1 Previous Assessment of Pink Route Variant

An initial assessment of the Pink Route Variant was undertaken in February 2021. Full details can be found in technical note document reference no. 403394-MMD-MAN-00-TN-PM-0724 but a summary of this assessment is provided below.

The assessment of the Pink Route Variant initially looked back at the comparison of the Brown and Pink Routes that was carried out during the options assessment phase of the project and development of the Outline Business Case (OBC). This was done in order to understand if this original assessment of the Pink Route versus the Brown Route would help in understanding how the proposed Pink Route Variant might compare.

The results of the original assessment were reported in the OBC and summarised in the report to the GCP Executive Board meeting held on 25 June 2020. The Pink Route Variant was not considered or assessed at this stage as it was not conceptually different from other longlisted route alignment options.

These shortlisted options were appraised from multiple perspectives utilising three mechanisms:

- A multi-criteria assessment framework
- Benefit Cost Ratio (BCR) calculation and Value for Money assessment
- Analysis of the results of the 2019 public consultation on the shortlisted options.

The outcomes of a Green Belt assessment of the shortlisted options were also considered in arriving at a recommended preferred route.

The assessment summarised that the main points of difference between the Pink and Brown Routes leading to the Brown Route being chosen as the preferred route alignment were that:

- The Brown Route is more direct, offering shorter journey times, generating higher patronage, and delivering additional passenger benefits relative to the Pink Route.
- From a deliverability perspective, the Brown Route requires less land and reduces the number of landowners affected by the scheme by keeping this section of the route within land owned by a single stakeholder.
- The Brown Route was more strongly supported than the Pink Route in the responses to the 2019 public consultation, albeit by a small margin.

The Pink Route Variant was then initially assessed qualitatively by comparison with the previous assessment of the Brown and original Pink routes. However, it should continue to be noted that the multi-criteria assessment framework used during the OBC stage of the project considers route alignment and travel hub options holistically and so is relatively insensitive to varying one section of an existing alignment option.

### **1.1.1 Multi-criteria Assessment**

It was determined the Pink Route Variant would, in relative terms, perform better overall than the original Pink Route against the assessment criteria, but still worse than the Brown Route. The improved performance of the Pink Route Variant over the original Pink Route is due to the variant requiring less land and reducing the number of landowners affected by the scheme. However, the Brown Route requires less land than the Pink Route Variant, while affecting the same number of landowners.

### **1.1.2 Value for Money**

Similar to the Pink Route, travel times for the Pink Route Variant would be longer than the Brown Route as the route is longer. Due to the longer route length and journey times relative to the Brown Route, but slightly shorter route length and journey times relative to the Pink Route, the Pink Route Variant would have lower benefits relative to the Brown Route, but slightly higher benefits relative to the Pink Route.

In terms of scheme costs, it was assumed that the Pink Route Variant would offer cost savings compared to the Pink Route but not of a magnitude sufficient to offset the lower benefits for the Pink Route Variant relative to the Brown Route.

Accordingly, in terms of relative Value for Money, the Pink Route Variant was expected to have a BCR comparable to or slightly better than the original Pink Route, but still worse than the Brown Route.

### **1.1.3 Environmental**

A high-level review of the proposed Pink Route Variant was undertaken by environmental specialists to investigate if the proposed Pink Route Variant would be more acceptable from an environmental perspective than the Brown Route. This concluded that the Pink Route Variant would be unlikely to provide any environmental benefits of sufficient magnitude to make this a better route option than the Brown Route.

## **1.2 Purpose of this Technical Note**

Following submission of the earlier assessment work Mott MacDonald were commissioned by GCP to undertake further analysis of the Pink Route Variant as follows:

- Develop a single Pink Route Variant alignment to the same level of design as undertaken at the OBC stage.
- Prepare a cost estimate for the Pink Route Variant on a comparable basis to the OBC cost estimate for the Brown Route.

- Calculate an initial benefit cost ratio for the Pink Route Variant on a comparable basis with the initial Benefit Cost Ratios presented in the OBC for the Brown and Pink Routes.
- Undertake a Value for Money comparison of the Pink Route Variant and Brown Route alignment options.

The remainder of this technical note presents the results and discussions of this further analysis exercise.

## 2 Concept Design of Pink Route Variant

A concept design exercise for the Pink Route Variant alignment has been undertaken and is presented in Appendix A (drawing reference number 403394-MMD-HWA-00-DR-HW-0834).

The route alignment follows the existing field boundary to mitigate the creation of severed parcels of land and mitigate impact on agricultural activities. A small strip of land (approximately 8m wide) would be provided between the Public Transport (PT) route and existing hedgerow to ensure minimal effect on the existing hedgerow and vegetation. Furthermore, in the south eastern corner of the field where the route alignment bends a parcel of land will be created of circa 18,000m<sup>2</sup>. Both of these areas provide opportunities for environmental mitigation.

The PT route crosses the River Granta adjacent to and parallel with the A11. To minimise the impact of the new structure embankments are proposed outside the extents of the flood plain. This is consistent with the design of structures being progressed on the Brown Route alignment. As with the Brown Route alignment, flood plain mitigation will be required on the Pink Route Variant alignment due to the impact of bridge piers on flood plain capacity.

It should be noted that the flood plain where the Pink Route Variant crosses the River Granta is slightly wider than where the Brown Route crosses the river and therefore a longer bridge structure is required. The structure for the Pink Route Variant will be approximately 220m whereas the Brown Route alignment requires a structure 215m long. It should be noted that the length of the structure for the Brown Route has been updated to align with the Design Freeze 2 drawings for the preferred option being developed in parallel to this assessment. Previously the Brown Route structure length was 162m.

The design speed of the bend in the route alignment for the Pink Route Variant is the same as the Brown Route alignment.

A parallel active travel route will be provided for the length of the route with a signalised crossing (including a crossing designed for equestrian users) at the intersection with High Street.

As the PT route enters the southern extent of the A11 Travel Hub this will require a redesign of the travel hub layout to ensure PT vehicles are able to access the central interchange area. This design has not been undertaken at this stage of the assessment.

At the bend of the Pink Route Variant alignment an existing high-level power cable will need to be diverted. Most likely this will require burying to enable the PT route to cross the apparatus. It should be noted the same utility is affected by the Brown Route with similar diversion works proposed.

Following completion of the concept design exercise the length of the Pink Route Variant alignment is 2,090m. The length of the Brown Route alignment from the intersecting point with the Pink Route Variant to a common point in the A11 Travel Hub is 1,458m. The Pink Route Variant alignment is therefore approximately 630m longer than the Brown Route alignment.

### 3 Environmental Review of Pink Route Variant

The Babraham residents have advocated that there is an environmental case for the Pink Route Variant over the Brown Route. In response to this suggestion a review of the proposed Pink Route Variant has been undertaken by environmental specialists to investigate if the proposed Pink Route Variant would be more acceptable from an environmental perspective than the Brown Route.

The following factors were considered:

- Landscape and visual impact
- Air quality
- Noise
- Biodiversity
- Heritage
- Water resources and flood risk
- Greenhouse gases.

In this review no significant differences between the Brown Route, the original Pink Route and the Pink Route Variant were identified in respect of the following environmental factors:

- Air quality
- Noise
- Water resources and flood risk assuming the bridge crossings were on viaducts of similar scale in the flood plain.

#### 3.1 Landscape and Visual Impact

The unique sections of the Brown Route and Pink Route Variant are within the River Granta Valley Landscape Character Area. This is an area of moderate landscape sensitivity.

The visual impact of the Pink Route Variant is likely to be slightly lower than the Brown Route, as it is further from receptors, follows an existing field boundary, minimises the severance of the fields to the south of the River Granta, and runs closer to the existing A505 / A11 corridor.

#### 3.2 Biodiversity

The crossing of the River Granta for each option is similar in length and the riparian habitat is similar in value at the two crossing locations. The river itself has the same County Wildlife Site status at each crossing. The majority of each route crosses land that is largely arable in use and of limited biodiversity value as a result.

However, there are some potential impacts on biodiversity arising from the Pink Route Variant that are discussed below:

- There is evidence of increased otter activity at the crossing of the Pink Route Variant compared to the Brown Route crossing. There is no evidence of any holts in the area.
- As long as bats could fly below the Pink Route Variant bridge unimpeded then the impact on bat movement would be similar to the Brown Route option.
- The Pink Route Variant would be located close to the existing substantial hedge boundary running between the A11 and the High Street which probably provides nesting habitat for farmland bird species and breeding birds. Badgers could be using the hedgerow for setts as they frequently will dig sets in boundary hedgerows of this scale. Bats could be using the hedgerow as a commuting/feeding route so

there could be an increased collision risk for bats in this area. The Brown Route does not follow any such potential habitat. There is therefore an increased risk of an impact on birds, badgers and bats from the Pink Route Variant compared to the Brown Route.

- The Pink Route Variant will have a shadow effect on the River Granta adjacent to an area where the existing A11 bridge already has a large shadow footprint. The cumulative impact on the biodiversity in the river itself would probably be larger than the equivalent cumulative shadow effect of the Brown Route bridge and the A11 bridge due to the distance between the two crossings. Therefore, there would be a preference for the Brown Route crossing to reduce the potential for contributing impacts on a Water Framework Directive waterbody.

Overall, therefore, the Brown Route is likely to have a slightly lower impact on biodiversity than the Pink Route Variant.

### 3.3 Heritage

The Pink Route Variant would have a similar potential impact on heritage to the Brown Route. There are known heritage assets along the Brown Route, and it is highly likely there are heritage assets present along the Pink Route Variant. Both routes are therefore considered to have a similar potential impact on heritage assets. The location of the former water meadows has been considered in this assessment, but as these water meadows no longer exist, the impact is the risk to buried archaeological remains, which is of similar potential magnitude for both routes.

### 3.4 Greenhouse Gases

It is likely that the Pink Route Variant would have a slightly higher construction carbon footprint than the Brown Route as it is longer and so would consume more materials.

For PT vehicles propelled entirely by electricity or other renewable sources, there would be no material difference between the operational carbon footprints of the Brown Route and Pink Route Variant. However, such vehicles may not be available on the first day of operation.

In any interim period when PT vehicles might be powered by hybrid propulsion there would be a marginally higher carbon footprint of the Pink Route Variant due to the longer distance of each journey.

### 3.5 Summary

In summary the environmental review of the proposed Pink Route Variant identified the following points.

Environmental Issue	Assessment of Pink Route Variant compared to Brown Route
Landscape and visual impact	Pink Route Variant more distant from visual receptors than Brown Route with less severance of fields Slightly better than Brown Route
Air quality	No significant difference between Brown Route and Pink Route Variant
Noise	No significant difference between Brown Route and Pink Route Variant
Biodiversity	A slightly higher potential adverse impact from the Pink Route Variant compared to the Brown Route
Heritage	No significant difference in the potential impacts between the route options
Water resources and flood risk	No significant difference between Brown Route and Pink Route Variant
Green belt	No significant difference between Brown Route and Pink Route Variant
Greenhouse gases	Slightly higher embedded carbon due to increased length for the Pink Route Variant compared to the Brown Route

Environmental Issue	Assessment of Pink Route Variant compared to Brown Route
	Slightly higher operational footprint of Pink Route Variant until fully renewable powered PT vehicles in operation
Conclusion	<b>The Pink Route Variant does not provide any environmental benefits of sufficient magnitude to make this a better route than the Brown Route as it has some potential adverse impacts compared to the Brown Route</b>

## 4 Value for Money Exercise

### 4.1 Cost Estimates

A construction cost estimate for the Pink Route Variant has been prepared based on the alignment drawing shown in **Appendix A**. This exercise has been undertaken on the same basis as the cost estimate for the Brown Route and in accordance with GCP's standard cost estimation methodology and guidance.

This costing exercise follows the same principles and assumptions as that undertaken for the Brown Route alignment when preparing the OBC, with the exception of the costings for the Brown Route alignment now taking into account a larger structure over the River Granta. This has enabled a like-for-like comparison of the Brown Route and Pink Route Variant.

The costs provided in **Table 4.1** show the baseline construction estimates, excluding design, project management, environmental mitigation and risk for the Brown Route alignment and the Pink Route Variant alignment, and the overall estimated final cost, including design, project management, environmental mitigation and risk<sup>2</sup> is also shown. Land costs are excluded from construction cost estimates but are discussed below Table 4.1.

To clarify, the complete scheme is the route length between Francis Crick Avenue and the point of entry to the A11 Travel Hub, the A11 Travel Hub itself (as designed at OBC stage with 2,500 spaces) and the access junction on the A1307.

**Table 4.1: Brown Route and Pink Route Variant scheme cost comparison (£,000 - base date of 2Q19)**

Route	Estimated Baseline Construction Cost	Estimated Final Cost
Brown Route <sup>3</sup>	£61,007	£137,601
Pink Route Variant	£61,912	£139,643
<b>Difference</b>	<b>£905</b>	<b>£2,042</b>

In addition to the construction costs, there are costs associated with the purchase of land. However, the associated land costs for each option are not available to publish at the time of this report being issued as they are currently being finalised. However, what is clear from the initial land cost estimates is that the difference between the two options with regards to land costs is very limited. Based on the emerging land cost estimates, there is a difference in the region of £400,000 in favour of the Pink Route Variant.

Incorporating the land costs into the BCR assessment (see Section 4.2) would not change the Value for Money categories of the options, nor would it alter the difference between the two options in any significant manner that would help to differentiate the two options.

<sup>2</sup> Risk contingency has been applied using the P80 confidence level of 25%.

<sup>3</sup> Provisional costs allowing for a larger structure over the River Granta and subject to confirmation

Overall, the costing exercise has indicated that there is very little difference between the baseline construction cost estimates for the two route options and overall final anticipated costs. However, the Pink Route Variant costs are still slightly greater when compared to the Brown Route alignment.

## 4.2 Economic Benefits

A proportionate approach has been applied to determine the potential economic Present Value Benefits (PVB) for the proposed Pink Route Variant. This approach makes best use of the available economic assessment results from the OBC for the Brown and the Pink routes as presented in **Table 4.2** below.

The Pink Route Variant is similar to the previously assessed Pink Route, but with an alignment that is 120m shorter. This shorter alignment would generate a marginal improvement in PT travel times relative to the assessed Pink Route. As such it is considered disproportionate to remodel the Pink Route Variant option based on a variance of 120m.

The alternative proportionate approach is based on the differential between the economic assessment results for the Brown and Pink Routes as shown below, with the average operating speed assumed to be the same for both alignments. The benefit calculation is as follows:

- Difference in length between the Brown and Pink Routes is 0.75km and this distance is the only variance
- PVB difference is £7.44M between the Brown and Pink Routes
- Pink Route Variant is 16% shorter than the Pink Route, therefore an additional 16% of the £7.44M PVB differential can be attributed to the Pink Route Variant (£1.19M).
- PVB for the Pink Variant is therefore estimated at £63.51M which is a 1.9% increase from the Pink Route.

This proportionate approach is based on the premise that the additional benefit between the modelled Brown and Pink Routes is directly attributed to the difference in the route distance. The PVB value calculated for the Pink Route Variant is considered representative of the proposal based on the OBC results.

**Table 4.2: Pink Route Variant PVB Calculation (£M 2010 prices discounted)**

Option	Distance (km)	PVB (£M) OBC
OCB Brown Route	1.46	£69.76
OCB Pink Route	2.21	£62.32
<b>Difference</b>	<b>-0.75</b>	<b>£7.44</b>
Pink Route Variant	2.09	£63.51
Difference Pink & Pink Route Variant	-0.63	£1.19
% Difference Pink & Pink Route Variant	-16%	1.9%

## 4.3 Benefit Cost Ratio

To understand the relative Value for Money of each route option, separate Benefit Cost Ratios (BCR) for each option have been calculated. **Table 4.3** presents a summary of the BCR calculations for the Pink Route Variant and an updated BCR for the Brown Route based on the revised cost estimate.

The additional cost for the Pink Route Variant equates to an increase in the Present Value Costs (PVC) of 1.5% (£1.46M) from the Brown Route, with the increase in route distance accounting for a reduction in the PVB of -9% (-£6.25M).

The BCR for the Pink Route Variant is calculated as 0.64 which represents a -9.9% reduction in the BCR from the Brown Route based on the combination of an increase in PVC and reduction in PVB.

**Table 4.3: Brown Route and Pink Route Variant scheme benefits and costs comparison (P80 Risk Contingency 25% and Optimism Bias 15%, 2010 Prices Discounted, £M)**

Route	PVB	PVC	BCR
Brown Route	£69.76	£98.17	0.71
Pink Route Variant	£63.51	£99.63	0.64
<b>Difference</b>	<b>-£6.25</b>	<b>+£1.46</b>	<b>-0.07</b>
<b>% Difference</b>	<b>-9%</b>	<b>+1.5%</b>	<b>-9.9%</b>

In summary, comparison of the different alignment costs, benefits and resulting BCRs, shows that the Brown Route has a BCR that is 9.9% higher than the Pink Route Variant.

## 5 Summary

The Pink Route Variant alignment and the Brown Route alignment have been compared on the basis of environmental impacts, costs and value for money, to determine if there is any merit in the Pink Route Variant being considered for adoption as the preferred route instead of the current Brown Route alignment.

Based on this assessment, the following conclusions can be drawn:

### Environment

The Pink Route Variant does not provide any environmental benefits of sufficient magnitude to make this a better route than the Brown Route as it has some potential adverse impacts compared to the Brown Route. Whilst the Pink Route Variant performs slightly better on landscape and visual impacts, being more distant from visual receptors than the Brown Route, and with less severance of fields, the Pink Route Variant could have a slightly higher potential for impacting on biodiversity. The Pink Route Variant is also likely to have a slightly higher embedded carbon impact due to the slightly longer structure over the River Granta, although as there is only 5m difference in the length of the structures, this is likely to be a minimal difference.

### Costs

Based on concept drawings for the Pink Route Variant, a costing exercise was carried out in order to compare against the OBC cost estimate for the Brown Route. This exercise has shown that overall scheme costs for the Brown Route alignment and Pink Route Variant alignment are similar, with a £905,000 difference in construction costs in favour of the Brown Route, and £2.042M difference in total cost. This is mainly due to the Pink Route Variant having a slightly longer alignment (approximately 630m) and structure across the River Granta (approximately 5m longer structure) (Note – the Pink Route Variant is 2,090m and the Brown Route is 1,458m).

### Value for Money

Assessment of the relative benefits of the two route variants has shown there is a £6.25m (9%) difference in benefits in favour of the Brown Route. The primary reason for this is that the route length of the Pink Route Variant is 0.63km longer than the Brown Route, resulting in greater journey times. Using the benefits and costs, separate BCRs were then calculated for each route, with the Brown Route showing a BCR of 0.71, and the Pink Route Variant showing a BCR of 0.64. The difference in benefits is driven by the shorter distance of 0.63km for the Brown Route over the Pink Route Variant. There is also a £1.46m (1.5%) difference in PVC.

### Conclusion

Overall, the Brown Route Variant still performs better than the Pink Route Variant when considered against a set of criteria (see Table 5.1), including environmental impacts, costs and Value for Money. Although the difference between the BCRs is marginal in absolute terms (0.07) it remains the same as the difference between the Brown and original Pink Routes reported in the OBC (0.07), on the basis of which the Brown Route was recommended as the preferred option. In percentage terms there are more material differences between the PVB (9%) and BCR (10%) for the two options.

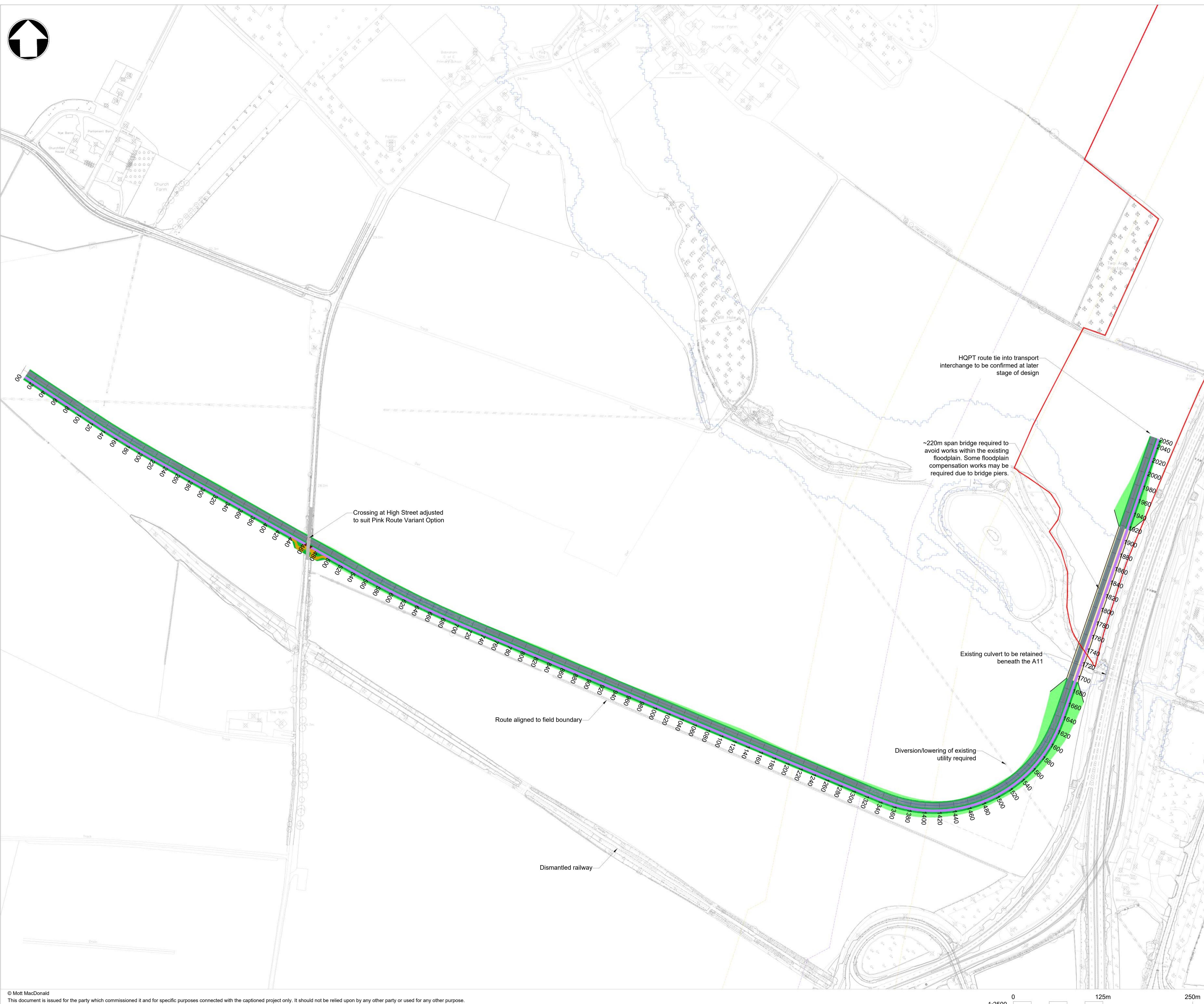
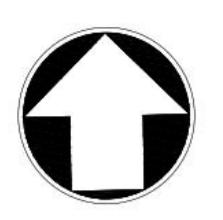
**Table 5.1: Summary Comparison of Pink Route Variant versus Brown Route**

Comparison Metric	Brown Route (metric result)	Pink Route Variant (metric result)
Multi Criteria Assessment (INSET)	✓ (1.08)	✗ (1.06 <sup>4</sup> )
Environmental Impacts	✓	✗
Capital Costs	✓ (£137,601,000)	✗ (£139,643,000)
Value for Money	✓ (0.71 BCR)	✗ (0.64 BCR)

Whilst the results of this assessment support the Brown Route as the preferred route alignment, the technical assessment results for the Pink Route Variant are sufficiently close that GCP could also take into account public/stakeholder opinion in reaching a decision on whether to consider the Pink Route Variant for adoption as the preferred route instead of the current Brown Route alignment.

<sup>4</sup> Based on the INSET score for the Pink Route – Pink Route Variant likely to score similar, if not slightly better, but no better than the Brown Route.

## **A. Concept Design of Pink Route Variant (drawing no. 403394-MMD-HWA-00-DR-HW-0834)**



- Notes**
- Dimensions are in metres unless stated otherwise. Do not scale from the drawing.
  - Drawing to be printed in colour.
  - Route alignment shown is based on the highway design principles set out in the Design Manual for Roads and Bridges (DMRB). This drawing has been provided to show a preliminary route alignment only and should not be relied upon as a final solution.
  - All works are subject to the approval of the local highway authority (Cambridgeshire County Council) and further stakeholder engagement including Highways England.
  - The design speed is 100km/h for the route with a reduction to 50km/h on approach to A11 Travel Hub.
  - Environmental constraints have been considered in the design such as the floodplain associated with the River Granta.
  - OS mapping licence no. © Crown copyright and database rights 2020 OS 100023205
  - and topo survey reference 25373ep-01.dwg.
  - The alignment north of the High Street will be as shown on drawings 403394-MMD-HWA-00-DR-HW-467 to 403394-MMD-HWA-00-DR-HW-0479.
  - The changes shown on this layout are independent of the information shown on the layouts 403394-MMD-HWA-00-DR-HW-467 to 403394-MMD-HWA-00-DR-HW-0483 and relate only to this variant option.

**Key to Symbols**

- Proposed Public Transport Route Alignment - Pink Route Variant
- Proposed Verge
- Proposed Hardstanding
- Proposed Active Travel Path
- Proposed Public Transport Route (PTR)
- Proposed Equestrian Crossing
- Proposed Controlled Crossing
- Embankment / Cutting
- Bridge Structure
- Existing Gas Main
- Existing Extent of Gas Main Easement
- Extent of Existing Flood Plain

P1	15/03/2021	MA	First issue	EK	MR
Rev	Date	Drawn	Description	Chk'd	App'd

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**Title** Cambridge South East Transport Phase 2 Public Transport and Active Travel Route - Pink Route Variant Sheet 1 of 1

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Dwg check	E. Karim	EK	Approved	M. Ring	MR
Scale at A1	Status	Rev	P1	Security	STD

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