GREATER CAMBRIDGE PARTNERSHIP

Growing and sharing prosperity

Delivering our City Deal

Report to: Greater Cambridge Partnership Joint Assembly 4th June 2020

Lead officer: Peter Blake – Director of Transport, Greater Cambridge Partnership

CAMBRIDGE SOUTH EAST TRANSPORT SCHEME

1. Purpose

1.1. 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.

1.2. 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.

1.3. 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.

1.4. This programme takes on even greater importance in light of Covid-19 and the likely increase in commuters wanting to access active travel solutions for their daily journey to work.

1.5. The paper has two parts:

- Phase 1 - a decision about two Traffic Regulation Orders required for the previously agreed short term programme of works; and
- Phase 2 - reviews the technical work and public consultation undertaken to date contributing to the production of the Outline Business Case (OBC). Work on the detailed design of the scheme will continue in the next phase of development and will continue to involve local stakeholders.

2. Background

2.1. The Cambridge South East Transport project consists of 2 Phases: Phase 1 which consists of 16 discrete small to medium works packages under construction and development, and Phase 2, which is the main focus of this paper.

2.2 The project is made up of three key elements: a dedicated public transport link between the A11 and the Cambridge Biomedical Campus, a new Park & Ride facility near the A11/A1307 junction, and new cycling, walking and equestrian facilities.

2.3 The project was presented to the Executive Board in June 2019 where it was agreed to undertake public consultation, and present a report in early 2020 outlining the response to the consultation, Outline Business Case and final proposals for the scheme.

2.4 This report to the Joint Assembly provides a summary of work carried out on development of the OBC since June 2019.

2.5 The OBC considers the Cambridge South East Transport Phase 2 scheme, and the proposed new travel hub, in order to seek approval to progress towards applying for planning consent and powers for construction of the works.

3. Phase 1 – Traffic Regulation Orders

Scheme 12: Linton High-Street TRO Objection (Yellow lines) outside public dwellings.

3.1 An objection has been raised by local residents to extension of waiting restrictions on Linton High Street. The objectors live in close proximity to the top of Linton High Street by the junction. The objection is in relation to the current design that show the existing yellow lines extended by an additional 8m – which will pass across their property frontage, thus preventing them to park directly outside of their properties. The purpose of the extension is to allow vehicles to pass traffic queuing on the High Street. *Background information can be found in Appendix A.*

Scheme 14: West bound bus lane on approach to B1052

3.2 An Objection has been raised to the Traffic Regulation Order (TRO) for a westbound bus lane at Linton between Bartlow Road and the B1052. Linton Parish Council has raised an objection the TRO and the loss of trees and habitat and the number of buses benefiting.

3.3 The scheme benefits the X13 and 13 C services which only run in the peak hour. However, bus lanes generally only provide benefits where congestion exists, which is the case only in peak hours, and delivers a 34min saving in journey time - Benefit Cost ration of 4.5. Trees lost would be replaced with new trees on a 1:1 basis. It is intended to deliver 10% to 20% of biodiversity net gain by means of planting elsewhere. *Background information can be found in Appendix B.*

4. Phase 2 - Strategic Case

4.1 The Cambridge South East Transport Scheme supports the GCP and CPCA transport vision of delivering a world class transport network that makes it easy to get into, out of, and around Cambridge in ways that enhance the environment and retain the beauty of the city. Transport infrastructure is essential in supporting the delivery of sustained growth, prosperity and quality of life for the people of Greater Cambridge. Earlier work identified a strong policy and strategic basis for delivering a High Quality Public Transport scheme along the corridor.

4.2 Between 2011 and 2031 there are significant planned additional new homes and jobs in development locations to the east and south of Cambridge, including Cambridge Biomedical Campus, Cambridge Southern Fringe and at Haverhill.

4.3 The Cambridge South East Transport project therefore forms an important part of the overall GCP and CPCA aim to develop a sustainable transport network for Greater Cambridge that keeps people, business and ideas connected, as the area continues to grow; to make it easy to get into, out of, and around Cambridge by high quality public transport, by bike and on foot.

4.4 Through City Deal investment in transport and infrastructure, the GCP seeks to bring forward schemes 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.

4.5 The GCP delivery programme is based on the policy framework established by the local planning and transport authorities. These include the adopted Local Plans for Cambridge City and South Cambridgeshire (2018) and emergent transport policy being established by the Cambridgeshire and Peterborough Combined Authority (CPCA), in particular the compatibility of the project with the proposed Cambridgeshire Area Metro (CAM) - a mass rapid transit scheme. Local Plan policies for the strategic developments of sites require High Quality Public Transport to link new homes to employment and services in and around Cambridge.

4.6 The Transport Strategy for Cambridge and South Cambridgeshire (TSCSC) prepared in parallel with the development of the Local Plans 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. Policy within the TSCSC requires a range of infrastructure interventions in Cambridge corridor as a key part of the integrated land use and transport strategy responding to levels of planned growth.

4.7 The Transport Modelling Report 2015 supporting the Cambridge and South Cambridgeshire Local Plans and TCSC concluded;

- sustainable transport measures, in particular High Quality Public Transport facilities are necessary to support delivery of the plan;
- such public transport routes need to be able to bypass queues and congestion to offer reliable and swift journeys;
- The Transport Strategy will help to make the City and key destinations more accessible and should reduce the amount of car growth.

4.8 The Cambridgeshire and Peterborough Combined Authority (CPCA) published a first draft Cambridgeshire and Peterborough Local Transport Plan (CPLTP) in June 2019. Following consultation, a final version was adopted in February 2020. The CPLTP replaces the Interim Local Transport Plan which was produced in June 2017 and is based upon the pre-existing Cambridgeshire Local Transport Plan (LTP3) and the Peterborough Local Transport Plan (LTP4).

4.9 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.

4.10 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.

4.11 The Local Plan for Cambridge and South Cambridgeshire estimates that more than 44,000 additional jobs will have been created in the area by 2031, whilst 8,000 new homes are expected to be delivered across south east Cambridge over the next 15 years. The rate at which residential and commercial development is anticipated to be delivered across south east Cambridge will place significant pressure on a transport system on which demand is

already exceeding capacity during busy periods. Journey times are expected to increase by around 50%, primarily as a result of increased demand and a transport network which lacks the flexibility and capacity to respond appropriately.

4.12 As such, to meet this growing demand, the main objective of the Cambridge South East Transport Phase 2 project as defined in the business case is:

- *Support the continued growth of Cambridge and south Cambridge's economy.*
- *Relieve congestion and improve air quality in South East Cambridge.*
- *Improve active travel infrastructure and public transport provision for South East Cambridge.*
- *Improve Road Safety for all users of the A1307 Corridor*
- *Improve connectivity to employment sites in South East Cambridge and Central Cambridge*

5. Part of a Wider Network

5.1 The project is part of the GCP's transport programme, investing devolved City Deal funding in a comprehensive package of measures to tackle congestion through the creation of a world class transport system.

Cambridgeshire and Peterborough Combined Authority's (CPCA) - Cambridgeshire Autonomous Metro (CAM)

5.2 The CPCA was established in March 2017 and is led by an elected Mayor and Board comprising representatives of the constituent local authorities. The key ambitions for the CPCA include:

- Doubling the size of the local economy;
- Accelerating house building rates to meet local and UK need; and
- Delivering outstanding and much needed connectivity in terms of transport and digital links.

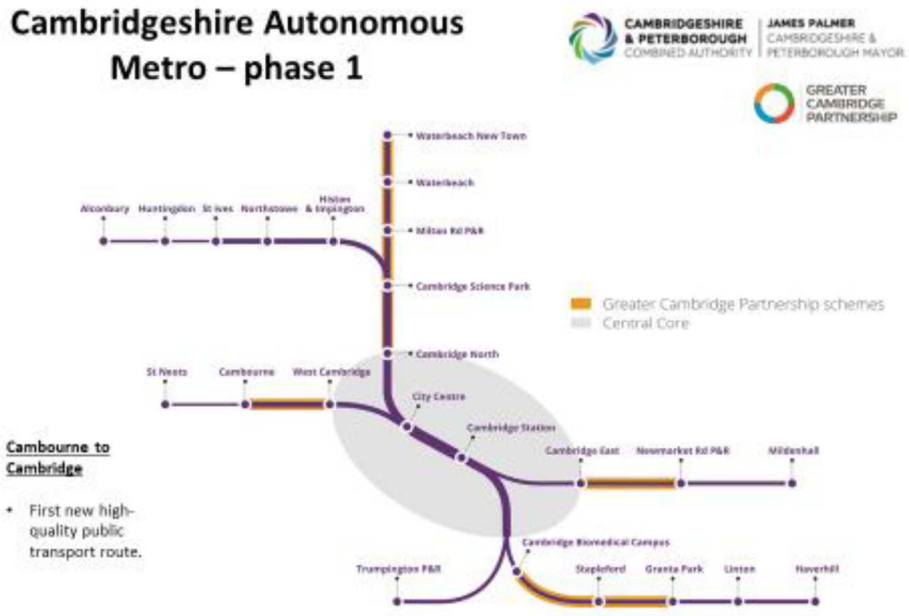
5.3 At a CPCA meeting on 31 October 2018 the CPCA Board agreed that the Cambridge South East Transport scheme should be progressed by the GCP as an essential first phase of developing proposals for the CAM. GCP has continued to work closely with CPCA to ensure alignment of the developing proposals.

5.4 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 Greater Cambridge and the wider region.

5.5 CAM will operate entirely segregated from traffic beneath Central Cambridge through underground tunnels, ensuring fast and reliable services are unaffected by traffic congestion. Services will be provided by electric, low-floor 'trackless metro' vehicles.

5.6 The vision for the CAM network includes regional connections to St Neots, Haverhill, Alconbury and Mildenhall, serving locations with significant planned or potential growth. These regional connections will only be viable if they directly connect into new segregated infrastructure serving the City Centre. The potential CAM network is set out in Figure 1 and includes an alignment along the Cambridge South East corridor.

Figure 1 – Potential CAM network



5.7 As set out in Figure 1, as part of the Cambridge future network, GCP's arterial routes, including Cambridge South East Transport, will provide a step change offering a viable public transport alternative for quicker and more reliable journeys to key destinations in and around Cambridge, as well as safe and segregated cycling and pedestrian routes.

5.8 Engagement with the Combined Authority continues on the integration of the Cambridge South East Transport scheme and CAM projects.

City Access

5.9 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.

5.10 The objectives of the City Access scheme complement the Cambridge South East Transport project by seeking to improve conditions for sustainable transport within the City Centre, thereby benefitting users of the scheme either through improved journey times for public transport or better connectivity to pedestrians and cyclists. City Access will also complement Cambridge South East Transport by providing an alternative to car journeys for trips from new developments served by the scheme.

Cambridge South Station

5.11 The proposed new rail station at Cambridge South aims to improve connectivity between the growing Biomedical Campus and international gateways, to reduce reliance on Cambridge station for travel to the Southern Fringe, and to improve sustainable transport access into the Southern Fringe. The Station will further improve the public transport offer for south Cambridge. The proposed scheme integrates with Cambridge South station, connecting with it at the Biomedical Campus.

5.12 The proposed CSETS scheme will provide connectivity between Cambridge South station and Babraham Research Campus, Granta Park and destinations east of the A11, including Haverhill.

Sawston Greenway

5.13 The proposed Sawston Greenway would be built around the successful DNA path that runs between Cambridge Biomedical Campus and Great Shelford, which is now so popular that it needs to be widened. This improvement will be part of this project.

5.14 The initial development of the Sawston Greenway proposals acknowledge that should Cambridge South East Transport Phase 2 include an off-road cycle/pedestrian route, work undertaken to date could help the development of this element of the Cambridge South East Transport scheme.

East West Rail

5.15 Since adoption of the South Cambridgeshire Local Plan, and as part of the Cambridge-Milton Keynes-Oxford Arc project, further development work has been undertaken on the concept of East West Rail (EWR) to re-establish a rail link between Cambridge and Oxford, and to improve rail services between East Anglia and central and southern England, including enhanced rail connections with national mainline services. Work has progressed on the western section between Oxford, Aylesbury and Bedford.

5.16 The EWR Company are currently working with Network Rail to develop route options for a Central Section between Bedford and Cambridge. Five options for the East West Rail route between Bedford and Cambridge were consulted on in early 2019, with a final preferred corridor announced in early 2020. The preferred corridor envisages joining the London to Cambridge Main Line railway in the vicinity of Great Shelford. The actual point of joining being either south or north of Great Shelford, but yet to be determined.

5.17 On the basis of consultation, the East West Railway Company are now beginning to develop alignment options within the preferred route corridor. Consideration will be given to station sites, land and connections with local transport networks and the Cambridge South East Transport development team is liaising with the East West Railway Company to ensure synergies between the schemes. In this way, the benefits of both schemes can be maximised in a holistic manner that addresses the wider strategic objectives of economic growth and improved transport connectivity in the area.

5.18 East West Rail 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. The GCP proposals integrate with East West Rail at Cambridge South station, and do not preclude potential routes for East West Rail. There is sufficient flexibility in the proposals to allow for additional tracks and flyovers that may be required.

A505 Royston to Granta Park Strategic Transport Study

5.19 A strategic transport study for the A505 corridor between Royston and the A11 at Granta Park has recently been commissioned by Cambridgeshire County Council on behalf of CPCA. This study will look at current traffic problems and potential future demand on the A505 between Royston and the A11; a corridor which skirts the southern edge of the scope of the

Cambridge South East Transport Phase 2 scheme, and will investigate options for better provision for cyclists, pedestrians and public transport users. Any proposals put forward will need to consider the Cambridge South East Transport Phase 2 proposals, just as the development of Cambridge South East Transport will need to take into account any emerging findings from this study to ensure a joined-up approach to infrastructure delivery.

North Uttlesford Garden Village

5.20 The North Uttlesford Garden Village proposes 5000 new homes close to the A11 at Great Chesterford. Opportunity exists, and is being examined by the developers, for potential extension of the Cambridge South East Transport Phase 2 and CAM scheme to the development.

Wellcome Genome Campus

5.21 Expansion of the Wellcome Genome Campus includes significant employment as well as 1,500 homes for key workers. The developers will bring forward local network improvements and a package of measures for sustainable travel and public transport connections.

Whittlesford Station Masterplan

5.22 The Whittlesford Station transport masterplan study has undertaken an in-depth look at the range of issues affecting access to the station, with a primary focus on improving sustainable transport options. The process has considered how best to meet an agreed vision to "create an accessible multi-modal travel hub which forms a strategically important interchange and gateway to facilitate sustainable local economic growth". From this process a Transport Investment Strategy for the station area has emerged, comprising 33 proposed schemes which, collectively, are intended to achieve this vision.

5.23 A draft delivery plan was presented to the Executive board in February 2020 for support as a basis for further engagement with Stakeholders. As an early delivery priority further work is to be undertaken to prepare outline designs and cost estimates for a bus interchange and access improvements. Further engagement with bus operators, business parks and the Imperial War Museum is also planned to achieve greater clarity and certainty on how the station will be served by scheduled bus services in the future. This will enable any future synergies with the Cambridge South East Transport scheme to be identified.

Huawei, Sawston

5.24 Huawei have purchased and intend to develop the former Spicers paper mill site that lies to the west of Sawston. The first planning application for a research and development and office facility is currently being considered by South Cambridgeshire District Council as the local planning authority. In the future there is an intention to develop the wider site to be a campus with many more employees. These plans will need to include sustainable travel and public transport connections, building on those to be delivered by the Cambridge South East Transport scheme.

6. Technical Work – Key Findings

Transport Issues and Challenges

6.1 The transport issues and challenges identified within the Cambridge South East Transport study area can be summarised as:

- Existing congestion and delays;
- Unreliable public transport journey times, as a result of congestion and delay;
- Development pressure; and
- Highway safety.

6.2 Existing car mode share and car ownership within the A1307 corridor is high, with 63% of Cambridge and South Cambridgeshire's workforce commuting by car or van. This suggests that, by providing an attractive and viable alternative to the car such as high quality, reliable public transport, there is scope for a substantial modal shift to more sustainable options.

6.3 Automatic Traffic Count data for five out of six sites located along the A1307 between Haverhill and Cambridge shows continuous growth over four years, illustrating that, outside of the city centre, demand is increasing along the entire length of the A1307. The highest volumes of traffic were recorded at the two sites on the section of the A1307 between the A11 and the Cambridge Biomedical Campus.

6.4 Planned residential and commercial development across south east Cambridge will place significant pressure on a transport system on which demand is already exceeding capacity during busy periods. If action is not taken to futureproof the transport network here, journey times on the A1307 between the A11 and central Cambridge are expected to increase by around 50%, primarily as a result of increased demand and a transport network which lacks the flexibility and capacity to respond appropriately.

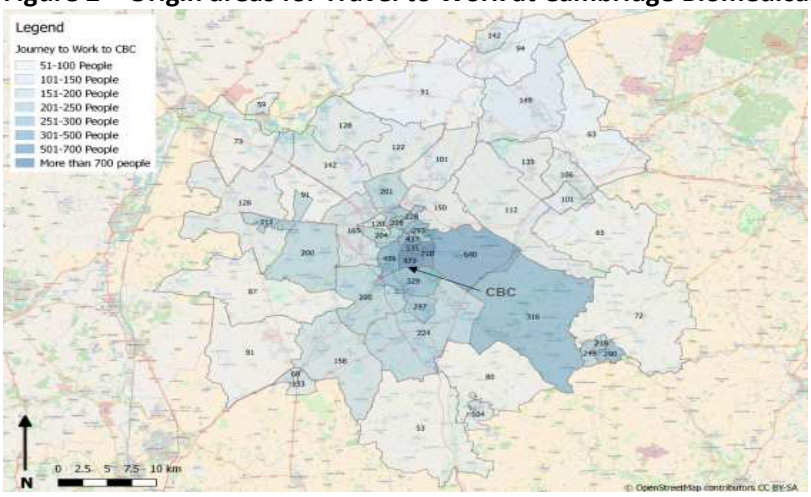
6.5 Ongoing growth at key employment sites across south east Cambridge and central Cambridge will result in increased commuter demand on the A1301 and A1307 corridors where there is a lack of alternate travel modes to car.

6.6 The Cambridge Biomedical Campus employs a large number of people, is a significant generator of travel demand and the key attractor of vehicle trips along the A1307. 40% of staff at the campus access the site from the south east, using the A1307, resulting in congestion and delays at peak times.

6.7 Trafficmaster data for 2018 shows that weekday peak hour traffic speeds on the A1307 between the A11 and central Cambridge are significantly slower than during the same periods at weekends. The greatest variations were recorded on the westbound approach to the junction of the A1307 with Cherry Hinton Road (70% slower in the AM peak) and the eastbound approach to the A1307/A11 junction (68% slower in the PM peak).

6.8 Travel to work data has been used to identify travel patterns along the corridor, including key origins/destinations and mode choice (see Figure 2). Cambridge South East Transport presents a key opportunity for growth areas to be better connected to key employment centres and encourage future sustainable travel rather than continued reliance on the car.

Figure 2 – Origin areas for Travel to Work at Cambridge Biomedical Campus (ONS 2011)



Source: Cambridge Biomedical Campus Transport Needs Review (Atkins, 2018)

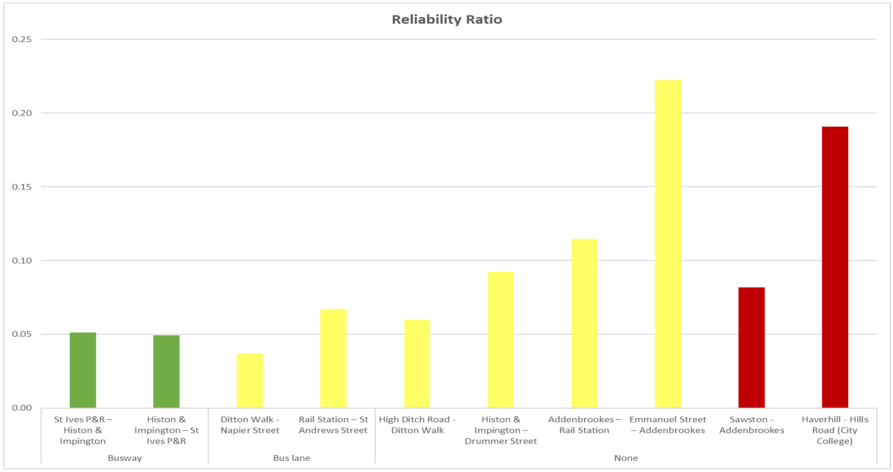
6.9 While up to five bus services per hour operate along the A1307 corridor, travel times by bus can be uncompetitive compared to car travel.

6.10 In the absence of bus priority on the corridor, congestion and delays mean bus journeys of around 18 miles between Haverhill and Cambridge take around 1 hour 10 minutes during interpeak hours, this is approximately 30 minutes longer than undertaking the same journey by car. During peak travel hours bus journey times can increase by a further 10 to 20 minutes.

6.11 Figure 3 illustrates the bus reliability challenges on the A1301 and A1307 corridors and how these compare to other corridors where bus priority is provided, and the existing Cambridgeshire Guided Busway. Using a Reliability Ratio, this shows that the existing Busway services perform significantly better than those operating on the A1301 and A1307 corridors without the benefit of bus priority measures, meaning that the dedicated public transport infrastructure is delivering journey times that are more consistent.

6.12 It is notable that the reliability performance of the 13/13A/X13 group of services using A1307 between Haverhill and Cambridge is significantly worse than services using the A1301 between Sawston and Addenbrooke's, and comparable with services operating in congested conditions in central Cambridge.

Figure 3: Reliability comparison of non-segregated routes vs segregated routes



6.13 Despite Cambridgeshire's existing Park & Ride network, facilities are not well positioned to serve demand associated with growing economic hubs across south east Cambridge. The Babraham Road Park and Ride site is close to capacity. GCP are planning an expansion of the site to cope with increased demand. The existing site is not well located to relieve congestion on the A1307.

6.14 There is a lack of continuous active travel routes along the A1307 and within the wider Cambridge South East Transport study area. The area particularly lacks connections to/from more rural settlements to the south east of Cambridge which would cater for the potential increased modal share of cyclists along the corridor.

6.15 Therefore, High Quality Public Transport from a Travel Hub in a strategic location, plus the provision of additional cycling and walking facilities, has a key role in providing an attractive and competitive alternative to car use, which would alleviate congestion, poor journey time reliability and delay. Crucially, such interventions will help to accommodate future growth planned at employment sites to the south east of Cambridge, including the Cambridge Biomedical Campus, Granta Park and Babraham Research Campus, improve access to housing and employment sites alike, and improve quality of life in the local communities

Planning Constraints

6.16 The Local Plan for Cambridge and South Cambridgeshire estimates that more than 44,000 additional jobs will have been created in the area by 2031, whilst 8,000 new homes are expected to be delivered across south east Cambridge over the next 15 years.

6.17 The proportion of jobs in Human Health and Social Work activities is shown to be significant, representing 12.8% of all jobs in Cambridgeshire. This proportion can also largely be attributed to the significance of the Biomedical sector within Cambridgeshire and the ongoing investment from large pharmaceutical companies such as AstraZeneca in the south of Cambridge. It should be noted that both Cambridge Biomedical Campus and the headquarters of AstraZeneca are located in close proximity to the A1307 corridor, indicating the significance of the study area as an employment hub.

6.18 In recent years business growth across the south east of Cambridgeshire has placed increased pressure on the corridor, leading to long delays during peak times and unreliable journey times for commuters.

6.19 The Cambridge South East Transport 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 South. The provision of a High Quality Public Transport service supporting journeys to key employment sites presents a viable alternative to car use/purchase for residents in new developments.

7.0 Developing the Business Case

7.1 Development of the Cambridge South East Transport project commenced in 2015 with initial public consultation on high-level options undertaken in 2016. The established method of progressing major transport projects such as Cambridge South East Transport is via a 'business case' which assesses the overall case for public investment by measuring the public benefits and costs of different options.

7.2 A Cambridge South East Transport Local Liaison Forum (LLF) was formed in 2017 and convened to regularly review and contribute to progress as part of the scheme development process. To develop the options five LLF workshops were held and the better-performing options were assembled into three route strategies as reported to the GCP Executive Board in November 2017. The Executive Board approved public consultation on the three strategies. This consultation started on 9 February 2018 and finished on 9 April 2018.

7.3 In October 2018 the GCP Executive Board received a report on the outcome of consultation on the three strategies and agreed the adoption of Strategy 1, the off-road strategy, as the preferred strategy for the A1307 Cambridge South East Transport corridor. The Executive Board requested that officers develop detailed proposals for delivery of the scheme, including the route alignment, travel hub site, and landscaping and ecological design proposals which could add enhancements to the area, maximising the potential of the off-road option including considering the possibility of a linear park alongside the off-road public transport route.

7.4 Following the October 2018 GCP Executive Board meeting, detailed work to identify potential route alignments and travel hub locations and assess these in accordance with the Department for Transport's major scheme development process was undertaken, as summarised in a report to the Executive Board in June 2019, recommending a shortlist of five routes serving three alternative travel hub sites to be the subject of further public consultation.

7.5 Throughout the course of the scheme's development there have been significant efforts to review and assess alternative options as proposed by stakeholders, including the Local Liaison Forum. Updates were provided to the GCP Executive Board in June 2019 on the consideration of an alternative brownfield site for the travel hub, east of the A11 and south of Fourwentways service station, in response to an LLF request, and an alternative route following the disused Haverhill railway and then running alongside the existing railway to Great Shelford Station.

7.6 In June 2019, the GCP Executive Board agreed that public consultation be undertaken on the five shortlisted options as part of the further development of the business case. This consultation took place between 9 September and 4 November 2019.

7.7 The full option development and assessment process, starting with 231 possible combinations and sifting these first to a longlist of 90 options, then a shortlist of five and finally the recommended preferred option presented in this report, is detailed in the Options Appraisal Report (OAR).

7.8 The consultation findings, the Options Appraisal Report and supporting reports are available on the Cambridge South East Transport webpages.

7.9 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 Great Shelford Station. This route was previously considered at high level before the public consultation in 2018, 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 Great Shelford Station.

7.10 The assessment, modelling, stakeholder input and consultation results, as presented in the OAR, have all contributed to the completion of the Outline Business Case presenting the recommended end-to-end route and travel hub site option.

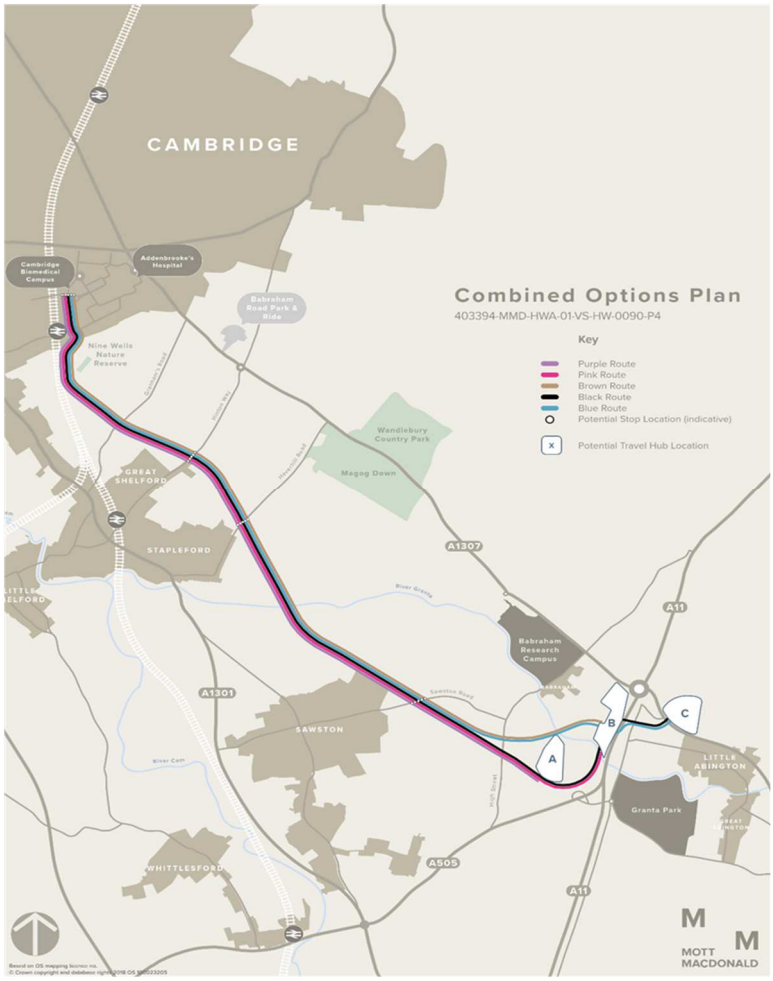
8.0 Basis of Selecting and Refining an Option

8.1 A multi-stage appraisal process as shown in Figure 8 was adopted for the Cambridge South East Transport Phase 2 project. The final step in this process was further assessment of the shortlist of five options approved for public consultation by the GCP Executive Board in June 2019 to arrive at the recommended preferred option.

Option Shortlist

8.2 The five shortlisted options are shown in Figure 4. There are three Travel Hub sites denoted by letter: A, B and C; and five route alignments, which are denoted by colour: Black, Blue, Brown, Pink and Purple.

Figure 4: Option Shortlist



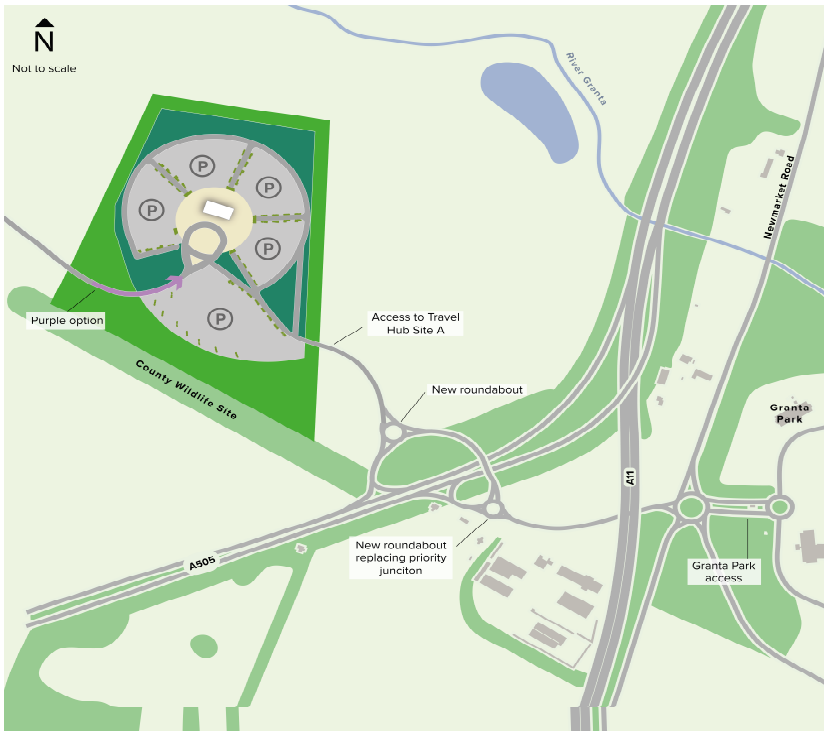
8.3 All five options follow the same route between the Cambridge Biomedical Campus and Sawston, from which point they diverge into five alternative alignments, leading to one of the three Travel Hub sites. All options would have the same High-Quality Public Transport service levels and have similar levels of provision for pedestrians and cyclists. The shortlisted Travel Hub sites and route alignments are summarised below, with the main differences between the options outlined and constraints and risks to delivery for each option identified.

Shortlisted Travel Hub Sites

Travel Hub Site A

8.4 Site A is located to the west of the A11/A505 junction. The site is set back from the A505 so additional infrastructure would need to be implemented for access. The site has potential to provide between 2,000 and 3,000 spaces. Figure 5 shows the proposed access to this site from the A505/Granta Park junction, with a roundabout at the access/exit and a second roundabout, where the northbound access road meets the access road from the A505 southbound to Granta Park.

Figure 5: Travel Hub Site A and Proposed Access



Travel Hub Site B

8.5 Site B is located west of the A11 and in a location which would be passed by all traffic travelling west into Cambridge on the A1307, avoiding the need for many users to deviate from their existing route and being visible to drivers which would encourage future use. Access to this site would be from the A1307 via a new roundabout junction (Figure 6).

Figure 6: Travel Hub Site B and Proposed Access

Travel Hub Site C

8.6 Site C is located on the A1307 east of the A11. It has a parking capacity of 2,100 and could accommodate an expansion of up to 3,000 vehicles. The site is currently used as arable farmland but is outside of the designated green belt.

8.7 A new bridge over the A11 would be required to connect this site with the route alignment options west of the A11. Figure 7 shows the proposed access to this site. A new signalised junction would be required on the A1307 to provide a crossing point for public transport vehicles to enter the site. General traffic could enter the site by replacing the existing priority junction between Newmarket Road and the A1307 with a four-arm roundabout.

8.8 The site is relatively well located for vehicles travelling towards Cambridge from Haverhill, Linton and other points east of the A11; however, those travelling on the A11 would need to deviate from their desire line into Cambridge and the site location would not be as visible to them.

Figure 7: Travel Hub Site C and Proposed Access

Source: Mott MacDonald

Shortlisted Route Alignments

Cambridge Biomedical Campus to Sawston

8.9 The section of the route common to all options runs along Francis Crick Avenue before exiting on the southern side of the Cambridge Biomedical Campus 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. All four stops proposed at this stage are within this section and in the same locations for each option.

8.10 These would be at the Cambridge Biomedical Campus, Hinton Way (Great Shelford), Haverhill Road (Stapleford) and Sawston Road (Sawston). The route would cross 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 options then diverge as outlined within the following sections.

Brown Option

8.11 The Brown (and Blue) route takes a direct alignment across fields towards the A11, which includes a second crossing of the River Granta. The Brown route ends at Travel Hub Site B, located to the south west of the junction between the A1307 and A11. General traffic would access it from the A1307 via a new junction whilst the site itself would have a linear arrangement in order to accommodate it between a high-pressure gas main, over which development is restricted, and the A11. The site could provide parking for up to 2,800 cars.

Blue Option

8.12 The Blue route extends beyond the Brown route to cross the A11 via a new bridge. The route would then cross Newmarket Road at a new junction, before running through the south of the former Comfort Café site and crossing the A1307 via a new junction to connect with Travel Hub Site C, located on the north side of the A1307. As with the junctions on the common section of route, all new junctions would be at-grade and signalised with priority

for public transport vehicles. Site C would have a separate roundabout junction to provide general traffic with access into the site at the current junction between the A1307 and Newmarket Road. It could provide parking for up to 2,100 cars.

Black Option

8.13 The Black, Purple and Pink routes follow the route of a former railway; however, as this is now designated as a County Wildlife Site, the proposed alignment would be slightly to the north of this, also avoiding the need for a bridge or significant regrading works at the former High Street crossing. All three options follow the same route initially with the Black and Pink options continuing to the A505 junction before running parallel with the A11 and crossing the River Granta. The Black route would then cross the A11 before following the same alignment as the Blue option from Newmarket Road to Travel Hub Site C.

Pink Option

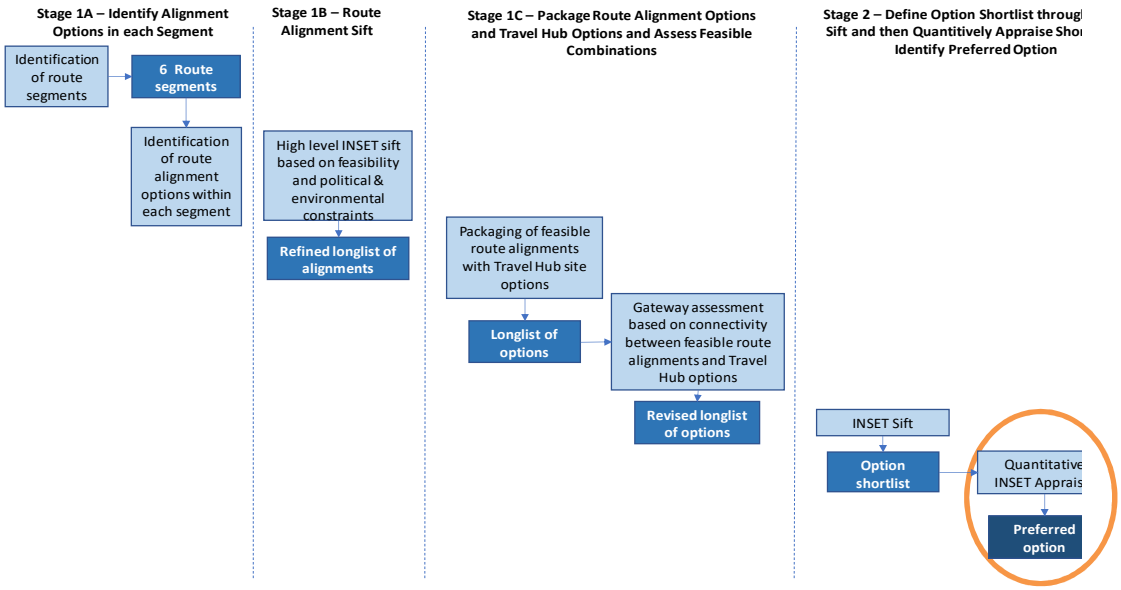
8.14 The Pink option is the same as the Black option but, instead of crossing the A11, it terminates at Travel Hub Site B to the north of the River Granta. This would be the same as the Travel Hub site for the Brown route but would have a slightly different layout in order to accommodate public transport vehicles entering the site from the south rather than west. This would result in a slightly lower capacity of up to 2,500 cars.

Purple Option

8.15 The Purple route is the shortest of all options and, unlike other options, crosses the River Granta once only. It follows the same route as the Pink and Black route but stops to the west of the A11/A505 junction and would serve Travel Hub Site A. This would be accessed via a new roundabout junction to the north of the A505 slip road and require an extended access road to the site itself. This would be necessary in order to avoid the high-pressure gas pipeline. The site would provide capacity for approximately 2,000 cars but has potential for expansion.

8.16 It was from these five shortlisted options that the recommended preferred option was selected as outlined below.

Figure 8: Options Assessment Framework



8.17 The shortlisted options were appraised from multiple perspectives utilising three mechanisms:

- A multi-criteria assessment framework,
- Benefit Cost Ratio calculation and Value for Money assessment,
- Analysis of the results of the public consultation on the shortlisted options held during the autumn of 2019.

Multi-Criteria Assessment

8.18 The options were evaluated, using multi-criteria analysis, against a series of assessment criteria grouped by the following seven themes:

- Transport user benefits,
- Environment,
- Scheme deliverability,
- Social impacts (contribution to quality of life),
- Wider economic benefits (contribution to economic growth),
- Alignment with scheme objectives,
- Policy fit.

8.19 The results of the multi-criteria assessment are shown in Table 1. They show that the Brown Route option from Travel Hub Site B was the best performing option overall against the assessment criteria.

Table 1: Multi-criteria assessment results

Option	Scoring Summary Ranks
Brown Route from Travel Hub Site B	Ranked 1st
Pink Route from Travel Hub Site B	Ranked 2nd
Blue Route from Travel Hub Site C	Ranked 3rd
Purple Route from Travel Hub Site A	Ranked 4th
Black Route from Travel Hub Site C	Ranked 5th

8.20 Both the first and second ranked options in the scoring include Travel Hub Site B. The main point of difference for preferring the Brown option to the Pink option is that the Brown route is more direct, offering shorter journey times, generating higher patronage and delivering additional passenger benefits relative to the Pink option. This is reflected in a higher score for the Transport User Benefits theme.

Benefit to Cost Ratios [TO BE UPDATED]

8.21 In addition to the multi-criteria assessment of the options, an initial assessment of the Value for Money (VfM) of the different options was carried out using traffic modelling outputs and appraisal of the economic performance of the schemes. This resulted in a series of initial Benefit to Cost Ratios (BCRs) for each option to provide a comparison of the VfM. The BCRs are shown in the table below.

Table 2: Benefit Cost Ratios

	Site A Purple	Site B Brown	Site B Pink	Site C Blue	Site C Black
Benefit Cost Ratio	0.54	0.47	0.39	0.39	0.34

Source: Mott MacDonald

8.22 Appraisal of the options based on the BCR calculation resulted in the Purple Route from Travel Hub Site A being identified as the best performing option in terms of VfM, with the Brown option ranked second. The main factor influencing the better performance of the Purple option relative to the Brown option is the lower cost of the Purple option. This reflects the shorter route length required to connect to Travel Hub Site A and avoidance of the need for a second crossing of the River Granta.

8.23 All options at present represent a Poor VfM case, based on the DfT appraisal criteria. However, future work to develop and refine the preferred option will explore the potential to enhance the VfM of the scheme, including further consideration of measures to generate additional patronage and user benefits, and of the wider economic benefits of the scheme.

8.24 The third element for the basis of selecting a preferred route was the results of the Public Consultation, refer to Section 6.25

8.25 Under all three mechanisms the preferred option was either Brown (INSET and consultation feedback) or Purple (BCR). This narrowed the potential options down to either Travel Hub Site A (Purple route) or B (Brown route).

8.26 Travel Hub Site B ultimately has greater potential to fulfil the role of a multi-modal Travel Hub and to facilitate enhancements to sustainable transport connectivity to both employment campuses than Site A. Site B is better located to intercept traffic on both the A1307 and A11, and to act as a public transport hub than Site A, to which access is

compromised by the lack of a northbound exit from the A11 at the A505 junction. Site A is also more remote from Babraham Research Campus.

8.27 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 INSET appraisal process and at public consultation, while ranking second for value for money.

8.28 The Brown Route from Travel Hub Site B is recommended as the option to be taken forward for GCP Executive Board approval as the preferred option to be progressed for planning and further development to Full Business Case stage.

Role of Consultation in Developing and Assessing Options

8.29 Throughout the scheme's development, there has been significant and continuing effort to engage with stakeholders and members of the public in order to inform, consult, address concerns and, wherever possible, reflect feedback in developing plans.

Stakeholder Input

8.30 In addition to three public consultations, activities have included:

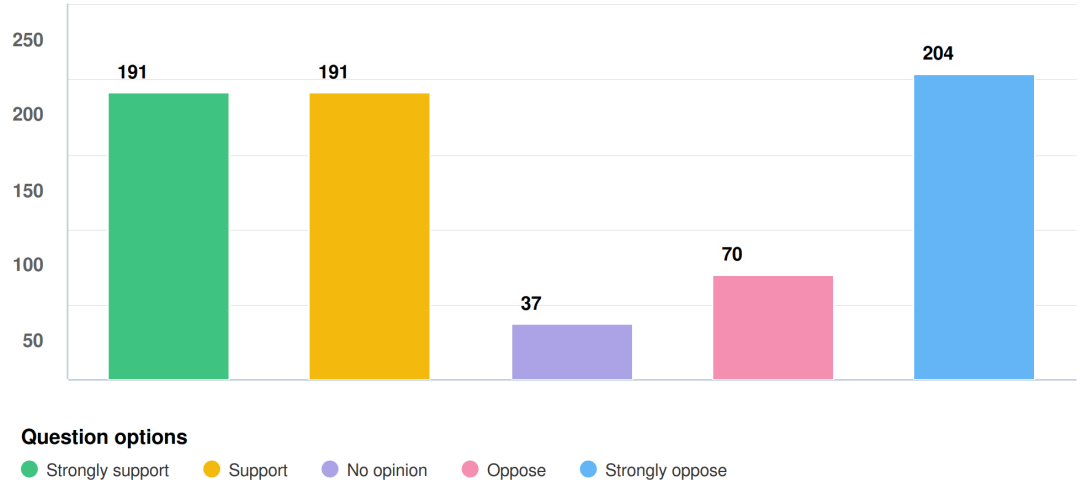
- regular Local Liaison Forum meetings, including representation from Stagecoach and workshops with representatives from the Local Liaison Forum, forming a 'Technical Group' covering subjects including modelling, Wider Economic Impacts and Environmental Scoring & Mitigation.
- multiple and continuing representations at community meetings including local Parish Council meetings, drop-ins and area committees
- meetings with local businesses and landowners

Phase 2 Consultation Findings

8.31 Public consultation on the five shortlisted options was held between September and November 2019. Quantitative data was recorded through the consultation questionnaire (online and hard copy) with 702 responses in total recorded, though not all respondents answered all questions.

8.32 In terms of general support for the scheme proposals it was found that 382 (55%) out of 693 responses received to this question supported them to some extent as opposed to 274 (40%) who opposed the proposals to some degree; 37 (5%) of the respondents expressed no opinion.

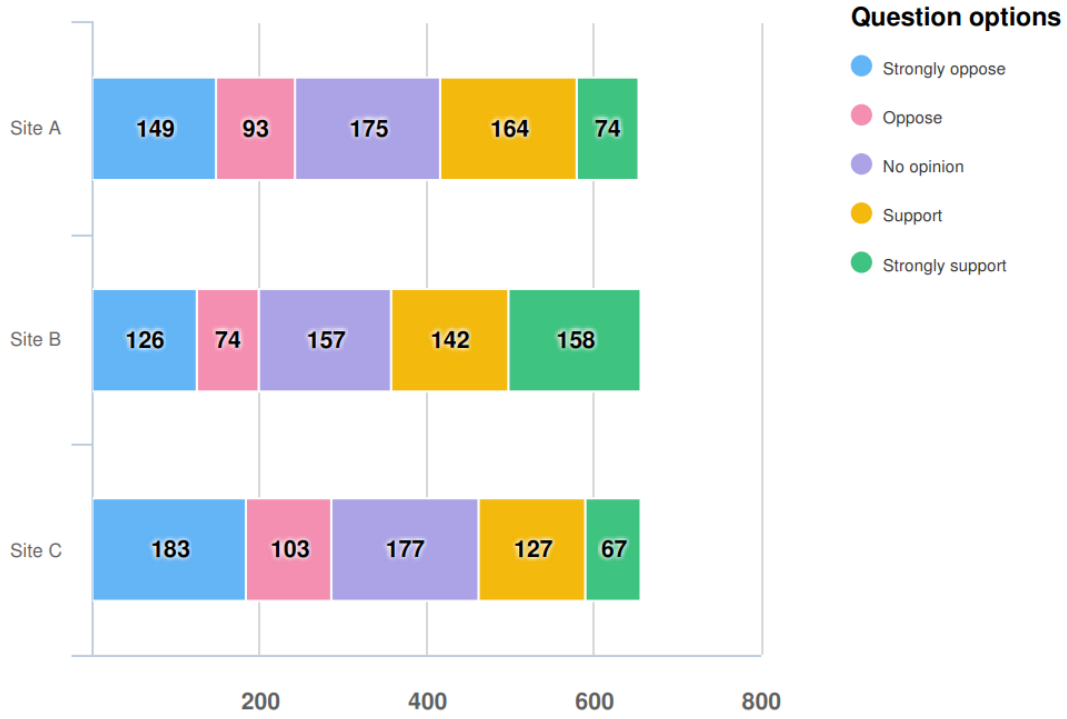
Figure 9: Level of Support for the Scheme Proposals in General



Source: Consult Cambridgeshire

8.33 Regarding the preferred location for the Travel Hub most support was expressed for Site B, with 300 (45%) of the 668 responses either supporting or strongly supporting the option and 200 (30%) opposing the site to some degree. Site C proved to be the least attractive site with only 194 (30%) supporting it to some extent and 286 (43%) opposing it.

Figure 10: Level of Support for the Travel Hub Sites



Source: Consult Cambridgeshire

8.34 Stakeholders were concerned about:

- The ability to access the site from surrounding roads and the potential impact this could have on those roads.
- The impact on the environment and nearby villages;
- Access to Granta Park and Babraham Research Campus; and
- The possibility of future proofing through expanding the site and extending the public transport route towards Haverhill.

8.35 When asked about the route alignments the Brown option, which connects to the most strongly supported Travel Hub site (Site B) received the greatest level of approval with 228 out of the 651 responses received supporting this option to some extent, compared with 198 opposing it to some degree. The Black and Blue options which connect to Site C, the least popular Travel Hub site, received the least support with only 158 and 173 respondents respectively showing some level of support.

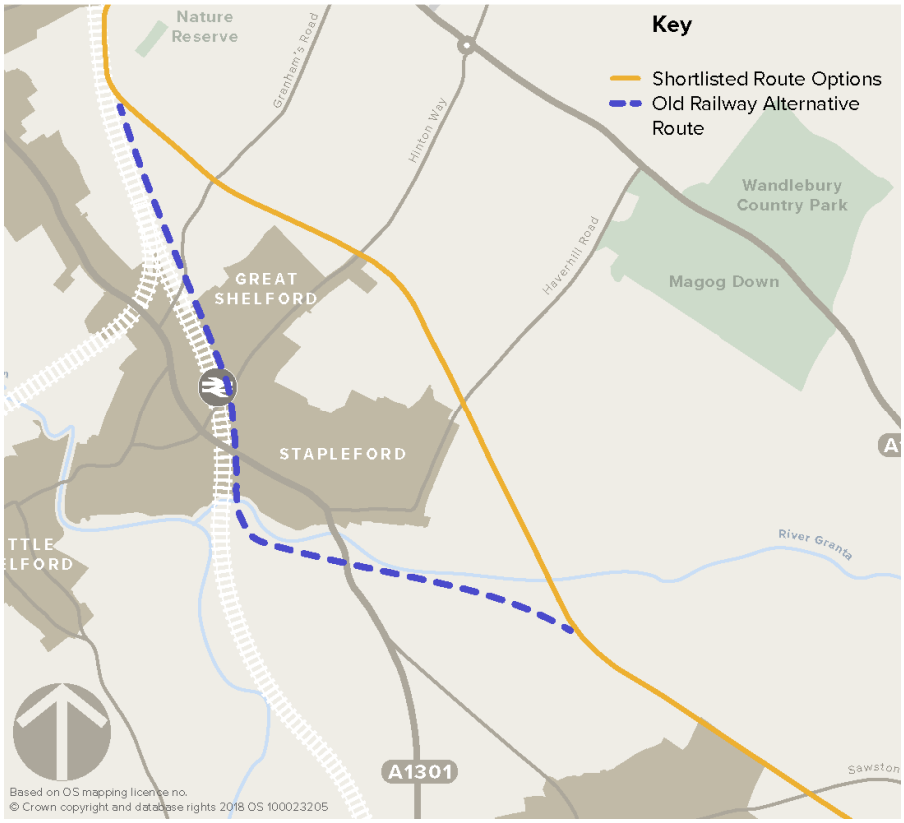
8.36 36 stakeholder responses were also received on behalf of groups and organisations. Although individual stakeholders had preferences for the location of the Travel Hub, no individual site had clear support or opposition. All of the responses from these groups were made available to board members in full and published alongside the results of the public consultation survey on the GCP website - https://consultcambs.uk.engagementhq.com/CSET-consultation-2019

8.37 On this basis consultation concluded the Brown Route from Travel Hub Site B was, from a public acceptability standpoint, the preferred option - aligning with the findings of the multi-criteria appraisal process. See Appendix 3 - Cambridge South East Transport Phase 2 Consultation Summary Report.

Railway Alternative Route

8.38 Consideration has been given to an alternative route (Figure 11) following the disused Haverhill railway and then running alongside the existing railway to Great Shelford Station.

Figure 11: Old Railway Alternative Route



8.39 This was first considered prior to the public consultation in 2018, 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 Great Shelford Station.

8.40 A number of respondents to the 2019 public consultation stated that the proposed public transport service should be routed via the centre of the villages with the most common reasons being cited that this would provide better accessibility for residents to the new service and avoid the need for development in the Green Belt to the east of the villages.

8.41 In response to stakeholder requests to provide further evidence to demonstrate the consideration and support the rejection of this alternative route, a design development and feasibility assessment technical report [link] was commissioned and published in May 2020.

8.42 Outline designs based on a similar cross section to the shortlisted options were produced and assessed by rail and environmental specialists. The feedback from this assessment was then reflected in the development of feasibility design drawings. This produced an alignment which followed the applicable standards as closely as possible but at the same time providing a fair basis for comparison with the shortlisted options.

8.43 A section of route to the north of Shelford station shared between public transport vehicles and general traffic has been incorporated in order to minimise the impact on the railway and residential properties. However, given that this runs on what is currently a residential cul-de-sac, the design speed would need to reduce to 20 mph on this section. This would increase public transport journey times relative to the shortlisted options.

8.44 A demand assessment was undertaken to estimate the impact of adopting the alternative alignment on demand, both from the Travel Hub and within the villages. This concluded that there would be some additional demand from Shelford; however, this would be outweighed by reduced patronage overall as a result of increases in journey time and decreases in journey time reliability that a route following the railway alignment would introduce.

8.45 Alternative routes following the railway alignment would be expected to cost an additional £25 million compared to the shortlisted options.

8.46 A multi-criteria assessment was undertaken using the same criteria used to assess the shortlisted options. This indicates how the shortlisted options would have performed were they to follow the former railway alignment. The results show that the amended alignments following the railway alignment score less well in the assessment than the equivalent shortlisted option.

8.47 Whilst the potential for the route to provide better accessibility for Shelford residents is acknowledged, 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.

Stakeholder Working Groups

8.48 Two working groups were established in May 2019 for organisations representing Landscape, Heritage and Ecology (LHE) and Non-Motorised Users (NMU) and continue to meet regularly to contribute to scheme design. Working group members include CamCycle, the National Trust, Cambridge Past, Present and Future and the British Horse Society.

8.49 More recently, LHE and NMU working groups have devised GCP Working Group Design principles (Appendix 4 & 5) to adopt on Cambridge South East Transport and all GCP transport schemes. The objective of the principles is to ensure GCP projects go above and beyond minimum requirements in scheme development and delivery.

8.50 OBC Appendix 1 – Statement of Community Involvement provides further stakeholder engagement information and full consultation summary reports.

Other Stakeholders

8.51 The proposals are strongly supported by Cambridge University Hospitals Trust, Cambridge Medipark Ltd. Babraham Research, and Granta Park.

9. The Preferred Option

9.1 The Brown Route from Travel Hub Site B (Appendix X) is recommended as the preferred option to be progressed for planning and further development to Full Business Case stage.

9.2 The Brown option follows the same alignment as all other shortlisted options up to a point just north of High Street, in that it runs along Francis Crick Avenue before exiting on the southern side of the Cambridge Biomedical Campus 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.

9.3 Four passenger stops are proposed at the Cambridge Biomedical Campus, Hinton Way (Great Shelford), Haverhill Road (Stapleford) and Sawston Road (Sawston). The route then crosses each of these roads and Granham's Road, via a 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.

9.4 The route ends at Travel Hub Site B, located to the south west of the junction between the A1307 and A11. General traffic would access the Travel Hub from the A1307 via a new roundabout junction whilst the site itself would have a linear arrangement in order to accommodate it between a high-pressure gas main, over which development is restricted, and the A11. The site could provide parking for up to 2,800 cars with the current known constraints.

Journey Reliability Analysis

9.5 A key aspect of the Cambridge South East Transport scheme is its ability to deliver reliable journey times for those using High Quality Public Transport services operating on dedicated infrastructure.

9.6 A quantitative assessment of the journey reliability benefits of delivering a fully segregated public transport route between the A11 and the Cambridge Biomedical Campus, connecting with the existing Cambridge Guided Busway, was undertaken by analysing observed journey time data from Cambridgeshire County Council's real time bus tracking and passenger information system for the key bus services operating on the A1301 and A1307 corridors and calculating reliability ratios for these services for comparison with services operating on the existing Busway.

Wider Economic Benefits Analysis

9.7 The development of the three residential sites and single employment site identified in the South Cambridgeshire Local Plan (2018) could produce:

- Approximately 404 gross jobs and £18m of gross GVA per annum; and
- A single uplift in land values of approximately £113m.

9.8 The development of sites across this area are likely to further increase demand on the road network along the A1307 and nearby roads, thereby leading to increase in congestion, journey times, resulting in greater transport costs for users and greater levels pollution in the local area.

9.9 Although these sites are not dependent on Cambridge South East Transport to come forward, the future growth of these sites can be directly supported by this scheme in the future through the sustainable public transport access provided to a number of key sites by this scheme.

Environmental impact

9.10 Overall there is likely to be a minor to moderate adverse effect on the environment along the route corridor which will be mitigated by: route refinement to minimise impacts; sensitive landscape design; high value habitat creation to ensure positive biodiversity net gain is achieved; and providing mitigation for noise from existing sources along the A11. In addition, the NMU path will increase wellbeing by increasing access to the countryside and facilitating more people moving away from vehicles to cycling, walking and horse riding. These measures will reduce the impact of the scheme on the environment and will lead to some benefit in places.

9.11 The precise mitigation requirements will be identified through engagement with stakeholders and the project team during the Environmental Impact Assessment that would be completed on the approved scheme to support the planning approval process, including consideration of a linear park.

9.12 The preferred route as detailed in the Green Belt Assessment report would result in a moderate-minor degree of encroachment into undeveloped countryside. Overall, there would be partial changes to relevant aspects of the landscape, resulting in a Moderate degree of harm to Green Belt arising from the impact on openness and a conflict with National Green Belt purpose 3, Cambridge Green Belt purpose 2 and National Green Belt purpose 4.

9.13 The impact on the Green Belt will be mitigated by landscape planting that screens the route from local communities where practical to achieve this. This will improve over time as the planting schemes mature, reducing the impact on the Green Belt.

10. Public Transport Network Strategy

10.1 A public transport network strategy has been developed for the project, including new High Quality Public Transport services using the Cambridge South East Transport public transport route between the Travel Hub site and Cambridge Biomedical Campus, but extending beyond this at both ends to serve Haverhill, Granta Park and Cambridge City Centre and link key employment destinations along the A1307 corridor (see Appendix 1 to OBC). This has been drawn up with reference to other GCP schemes such as the Cambourne to Cambridge Better Public Transport project, and also ongoing work on the City Centre Access Strategy,

but also noting the need to be compatible with future opportunities such as CAM and any potential changes to bus operating models such as franchising.

10.2 The proposals are based on realistic service levels and forecast demand. This approach builds upon the successful approach adopted as part of the Cambridge Guided Busway scheme which has delivered a significant increase in service and patronage.

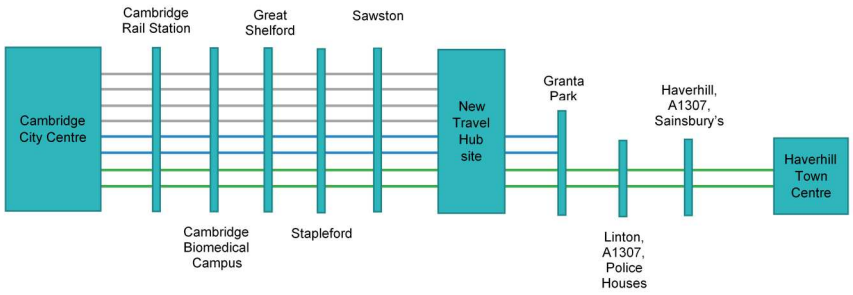
10.3 Existing bus services would have the option of using the new public transport route, providing they comply with clean vehicle standards. However, the existing Citi 7 and 13/13A bus services on the A1301 and A1307 corridors have been assumed to continue to serve existing stops.

10.4 The proposed High Quality Public Transport network strategy has three new direct express services:

1. New Travel Hub – Cambridge Biomedical Campus – Cambridge Rail Station – Cambridge City Centre at 15-minute intervals (4 services per hour)
2. Granta Park – New Travel Hub – Cambridge Biomedical Campus – Cambridge Rail Station – Cambridge City Centre at 30-minute intervals (2 services per hour)
3. Haverhill – Linton – Granta Park – New Travel Hub – Cambridge Biomedical Campus – Cambridge Rail Station – Cambridge City Centre at 30-minute intervals (2 services per hour).

10.5 The proposed High Quality Public Transport network is shown in schematic form in Figure 13 below, with each line representing one service per hour. The three routes combined provide a 7/8-minute interval service on the common section of route between the new Travel Hub site and Cambridge City Centre and a 15-minute interval service between Granta Park and Cambridge.

Figure 13 – Schematic Proposed High Quality Public Transport Network



Proposed Stops

10.6 The proposed stops are located approximately:

- 1.2km from Shelford station (15 minute walk)
- 200m from Gog Magog Way, Stapleford (3 minute walk)
- 400m from Lynton Way, Sawston (5 minute walk)

10.7 The Shelford and Stapleford stops will increase the number of households within accessible distance of High Quality Public Transport (i.e. those not already within this distance of the station) by 20% (329). For Sawston, a further 444 households would be within this distance of the stop, giving an overall total of 1,058.

10.8 Local evidence from research carried out following opening of the existing Cambridgeshire Guided Busway suggests people are prepared to walk significant distances to access High Quality Public Transport.

10.9 In addition, national guidance (CIHT, 2000) suggests up to 2km is an acceptable distance for commuting trips. Were this higher distance to be used, 1,669 households would be within reach of the Shelford stop, 1,411 of the Stapleford stop and 2,220 of the Sawston stop.

10.10 Concerns were raised during the public consultation regarding the potential impact on residents living close to the proposed stops of people driving to reach these stops and parking in nearby residential roads.

10.11 However, data from the Cambridgeshire Guided Busway Post-Opening User Research (Atkins, September 2012) shows that only 2% of respondents starting their journey at home to reach Busway halts drove a car and parked it before continuing their journey on the Busway.

10.12 By limiting parking provision at the proposed stops to disabled parking, and providing car drop-off facilities, cycle parking and cycle lockers, the aim is to encourage walking and cycle access to stops and to deter car use.

10.13 However, in the event of commuter parking around stops becoming a problem, it would be possible to implement local parking control measures to mitigate this.

11. Scheme Proposal

11.1 The design approach and quality of new segregated High Quality Public Transport infrastructure has and will continue to be informed by principles agreed by the GCP Executive Board in October 2016 (supplemented by LHE and NMU working group principles, as above) – namely:

- Location of public transport infrastructure – respecting the urban and rural context for example through assessing proximity to and the relationship with the existing built up areas.
- Testing accessibility from the start to the end of journeys through the centres of employment (e.g. Cambridge Biomedical Campus) and housing and the environmental effects with a view to integrating with existing infrastructure and minimising impacts.
- Siting – positioning of infrastructure to minimise visual intrusion on the existing landscape through considering issues such as ground levels, slopes and other natural features and also minimising impact on important features such as ecological and heritage assets.
- Design – the materials, features and introduced landscaping that will form the new infrastructure and achieve high quality design, minimising environmental impacts consistent with delivering the scheme's objectives, and integration with existing infrastructure and the ends of the route and along it.

11.2 The preferred route will be subjected to a detailed Environmental Impact Assessment, which would definitively assess the impact and potential benefit of mitigation options.

12. Environment Considerations/Commitments

12.1 GCP intends that electric vehicles would be used at the earliest opportunity, aligned with the preferred mode for the CAM scheme. Any interim mode required will meet minimum Euro VI emissions standards or better to ensure a minimal impact on air quality.

12.2 A biodiversity net gain assessment will be completed and there will be a requirement for GCP to deliver a minimum of 10% gain, with the objective of achieving 20% gain. This will include exploring the feasibility of a linear park along the route, as previously committed to during public consultation.

12.3 A significant number of environmental surveys and assessments are being undertaken and will be available on the GCP website, covering wildlife habitats along the route for animals including reptiles, bats, breeding and wintering birds, badgers, barn owls, reptiles, water voles and invertebrates.

12.4 Further ecological surveys and baseline noise surveys will continue into Autumn 2020 to inform the emerging final scheme design, and to be used in the Environmental Impact Assessment.

12.5 Engagement with Natural England will be undertaken on the results of the surveys.

12.6 Initial air quality reports for communities and villages in closer proximity to the route propose a negligible impact on air quality.

12.7 A final scheme design will be subject to a full Environmental Impact Assessment.

12.8 GCP will continue to work with LHE and NMU stakeholder groups to develop scheme design.

12.9 A Green Belt assessment report has been produced and the preferred route shows minimum impact on the Green Belt. See Appendix xx.

13.0 Delivering a Scheme

Financial Case

13.1 The total base capital costs for the infrastructure needed to deliver the preferred option, exclusive of any risk allowance, amount to £99.3 million. An additional amount of £24.8 million (25% of base costs) has been estimated to cover risks at the P80 level and excludes optimism bias. The estimated total capital infrastructure cost of the scheme, inclusive of risk, and exclusive of Legal and other costs is £124.1 million as shown in Table 3.

Table 3: Capital Costs – Infrastructure Adjusted for Risk

Cost Item	Cost (£ million)
Construction	61.7
Design	8.5
Project Management	11.7
Environmental Mitigation	2.8
Statutory undertakings	12.0
Land Costs	11.4
Inflation	16.0
TOTAL	**124.1**

Source: Mott MacDonald

13.2 The total capital infrastructure cost of the preferred scheme option is £124.1 million. These costs constitute the funding ask. Table 4 below shows the expected annual spend profile for the project.

Table 4: Funding Profile – Preferred Option (£ million)

Funding source	2015 to 2019	2020	2021	2022	2023	2024	2025	Total
City Deal	2.4	1.8	1.9	14.2	52.1	44.6	9.5	126.5
TOTAL	2.4	1.8	1.9	14.2	52.1	44.6	9.5	126.5

Source: GCP

13.3 The estimated high level scheme costs at this stage of the project's development are based on a number of assumptions and exclusions, which are detailed within the Financial Case of the OBC Appendix 1.

Funding

13.4 Funding for the project is intended to be sourced primarily through the Greater Cambridge City Deal. The total scheme costs for the scheme of £124.1M are deemed affordable based on successfully securing funding from the identified funding source.

13.5 GCP will seek future opportunities to recover an appropriate proportion of the scheme cost from local developer contributions, secured through the planning process. Although no immediate opportunities to secure developer contributions to the scheme have been identified, significant development in the area in the pipeline is expected to result in a level of developer contributions to this scheme over time.

Commercial Case

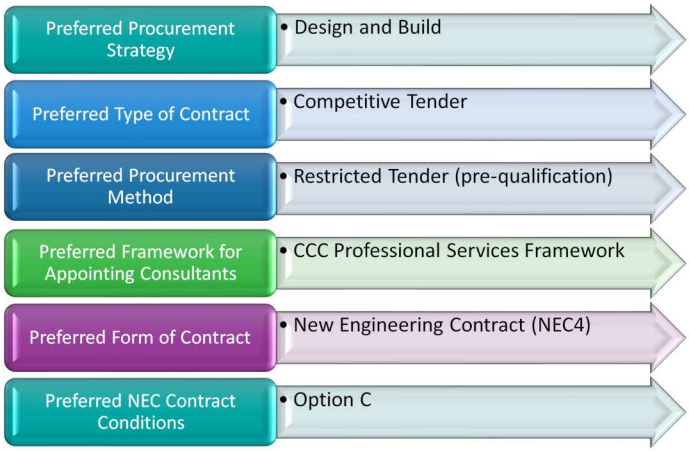
13.6 The Commercial element of the business case covers a range of commercial factors related to delivery of options. Examples are the issues associated with procurement, contractual risk etc. These commercial factors did not significantly differentiate between the options.

13.7 An initial procurement work stream has commenced for each option as currently defined there is a clear commercial strategy for the range of options currently under consideration. The procurement strategy will be influenced by further developments in options for example around optical guidance technology which is being further developed in order to establish the applicable process for the application of powers and consents.

13.8 Operational and maintenance considerations will also form part of the final Commercial Case but at this stage do not offer a basis of differentiation between options.

13.9 Figure 14 sets out the emerging procurement route for the Cambridge South East Transport scheme.

Figure 14: Cambridge South East Transport procurement route summary



Management Case

13.10 The Management section of the business case focuses on project delivery and management/ governance arrangements in place. The management case also considers the planning process and legal powers necessary to undertake to build a scheme. This is based on a review of previous projects delivered by GCP authorities such as Cambridgeshire County Council and lessons learnt.

13.11 Broadly, the management case does not differentiate in terms of the options under consideration.

13.12 The GCP includes a governance structure via the Executive Board and a standard approach to project management including a standard project control framework. A project management team exists with defined roles and responsibilities. A series of commercial contracts are in place with third party suppliers (designers, consultants, legal advisors etc.) which are managed by the project team. The GCP Joint Assembly reviews projects at the strategic level prior to recommendations being presented to the Executive Board. An Assurance Framework exists between central Government and GCP in terms of project prioritisation and delivery.

13.13 The management case also identifies the key risks and mitigations for the project. It also reviews the process of public consultation and engagement. 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.

14. Summary

14.1 This report provides an update on the development of the Business Case and the development of a recommended Option for the Cambridge South East Transport Phase 2 project. The report summarises outcomes of stakeholder engagement and public consultations on developing options and the technical assessment work carried out in the context of the Government's '5 Cases' business case methodology.

14.2 The business case assessment reaffirms the findings of the previous stages, that there remains a strong strategic case to undertake a major transport infrastructure project from A1307 Haverhill to Cambridge based on both current and projected transport demand along

the corridor, and given the GCP objectives to promote sustainable economic growth and reduce congestion.

14.3 The Strategic Case demonstrates a proposed off-road segregated alignment for High Quality Public Transport which will provide significant transport benefits over bus priority on the existing highway and is consistent with the CPCA's CAM proposal.

14.4 The Cambridge South East Transport scheme is necessary to futureproof the transport network in Cambridge and South Cambridgeshire and engagement on this scheme, both with Stakeholders and members of the public has been significant and far beyond the level expected for a scheme such as this.

14.5 The scheme is underpinned by strong environmental design principles to ensure net gain or betterment of the natural environment as part of the design process.

14.6 The report also sets out a recommended alignment for a rapid transit route between key destinations in and around the city, and presents a public transport network strategy for regular services.

14.7 The report recommends a Travel Hub site location at Travel Hub Site B.

14.8 The Green Belt study finds moderate adverse effects before mitigation in Sector IV (area west of A11) due to the impacts of Travel Hub B on the openness of the Green Belt. These decline to moderate-minor when maturing mitigation planting is taken into account.

14.9 Further assessment work and refinement will continue to be aligned with the development of CAM.

15. Next Steps and Milestones

15.1 The next steps in the development of the project include the key elements set out in Table 5 below.

Table 5: Indicative Programme

Task	Commentary	Timescale
OBC to Executive Board	The Board will be presented with the Full OBC for selection of a single preferred option and a PARK & RIDE site.	June 2020
Prepare and submit application for statutory consent	The power 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. 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.	Submit application early 2021 with a determination period estimated of around 18 months – completed in 2022
Seek authority to construct project	Following the completion of the statutory permissions stage, the Board will be presented with the Final	2022 depending on statutory powers process

	Business Case for approval. This will trigger the construction of the project.	
Opening of the scheme to operational services	Planned opening	Planned for 2024

16. List of Appendices

Appendix A	A1307 Linton High Street – Traffic Signals - TRO
Appendix B	A1307 Westbound Bus Lane – Linton - TRO
Appendix 1	OBC - Strategic Case, Economic Case, Commercial Case, Financial Case and Management Case and Appendices including Appendix A Options Appraisal Report and Appendix D Public Transport Network Strategy Report
Appendix 2	OBC Executive Summary Report
Appendix 3	Cambridge South East Transport Phase 2 Consultation Summary Report
Appendix 4	NMU Working Group Design Principles
Appendix 5	LHE Working Group Design Principles

Appendix 1

To be added

Appendix 2

To be added

Appendix 3

To be added

Appendix 4

NMU Working Group Design Princi

Appendix 5

LHE Working Group_Principles FIN

15. Background Papers

Option Appraisal Report	
Option Appraisal Report 2	
National Infrastructure Commission's (NIC) report	https://www.nic.org.uk/publications/national-infrastructure-assessment-2018/
Local Plan for Cambridge City	https://www.cambridge.gov.uk/local-plan-2018
Local Plan for South Cambridgeshire	https://www.scambs.gov.uk/planning/local-plan-and-neighbourhood-planning/the-adopted-development-plan/south-cambridgeshire-local-plan-2018/
Transport Strategy for Cambridge and South Cambridgeshire (TSCSC)	https://ccc-live.storage.googleapis.com/upload/www.cambridgeshire.gov.uk/residents/travel-roads-and-parking/2014_01_23_TSCSC_Strategy___v4.0_JSTSPG_changes_POST_JSTandSPG.pdf?inline=true
Transport Modelling Report 2015	https://ccc-live.storage.googleapis.com/upload/www.cambridgeshire.gov.uk/residents/travel-roads-and-parking/CSRM_Modelling_Summary_Report_July_2013_and_appendices%20%281%29.pdf?inline=true
Draft Cambridgeshire and Peterborough Local Transport Plan (CPLTP)	https://cambridgeshirepeterborough-ca.gov.uk/assets/Transport/Draft-LTP.pdf
East of England Forecasting Model 2017	https://cambridgeshireinsight.org.uk/eefm/
Options Outline Technical Note	
Northern route technical note	https://citydeal-live.storage.googleapis.com/upload/www.greatercambridge.org.uk/transport/transport-projects/C2C%20LLF%20Technical%20Note%20Northern%20Route%2022-05-2019.pdf
Cambridge South East Transport Segregated Bus Route: Consideration of Green Belt Issues Report	
Interim Planning Assessment	
Environmental surveys and assessments including initial air quality assessments	https://www.greatercambridge.org.uk/transport/transport-projects/cambourne-to-cambridge/cambourne-to-cambridge-background/

Appendix A

A1307 LINTON HIGH STREET – TRAFFIC SIGNALS

Background

The objective for scheme 12 is to modify the existing priority junction to improve the ability for buses and traffic to turn left and right out of Linton High Street onto the A1307. The proposals (see attached General Arrangement drawing) incorporate the following features:

- Incorporate existing pedestrian crossing into the new traffic signalised layout
- Improvement of existing carriageway surfacing

Design & Road Safety Audit Status

As part of the Design, a combined Stage 1 & 2 Road Safety Audit was carried out. One of the comments raised was in relation to potential for traffic to queue back onto the A1307 due to queueing traffic on the High Street. See comment below, along with the designer response which agreed with the recommendation to extend the existing double yellow lines.

Road Safety Audit (RSA)	**RSA Recommendation**	**Designers response**
Problem 2.2 Location: A1307 j/w the High Street. Summary: Vehicles stopping suddenly due to queuing back onto the A1307 contributing to the increased risk of nose to tail collisions. The proposed design does not show any additional waiting restrictions on the High Street. Vehicles parked on the western side of the High Street currently obstruct northbound vehicles. This issue is likely to be exacerbated with the introduction of traffic signals, with southbound vehicles queuing at the stop line to join the A1307. Road users entering the High Street will not be able to proceed until the traffic waiting at the signals receives a green light and clears the junction. This may lead to queuing back onto the A1307, with road users having to brake suddenly to avoid this queuing traffic, leading to the increased risk of nose to tail collisions.	It is recommended that the length of the existing waiting restrictions on the western side of the High Street are extended further north to ensure road users can clear the A1307 when entering the High Street.	It is proposed to increase the waiting restrictions further north up to the entrance to the Crown Inn which currently has a T-bar marking across the driveway. This equates to an extension of approximately 18m.

Objections to Proposed Traffic Regulation Order (extended waiting restrictions)

3 Residents in Linton have objected to the 18m extension of waiting restrictions on grounds of loss of residents parking. However, it should be noted that Linton Parish council wish to see a greater length of double yellow lines installed as part of this scheme (they have requested them on both sides of the road as part of their response to the TRO submission).

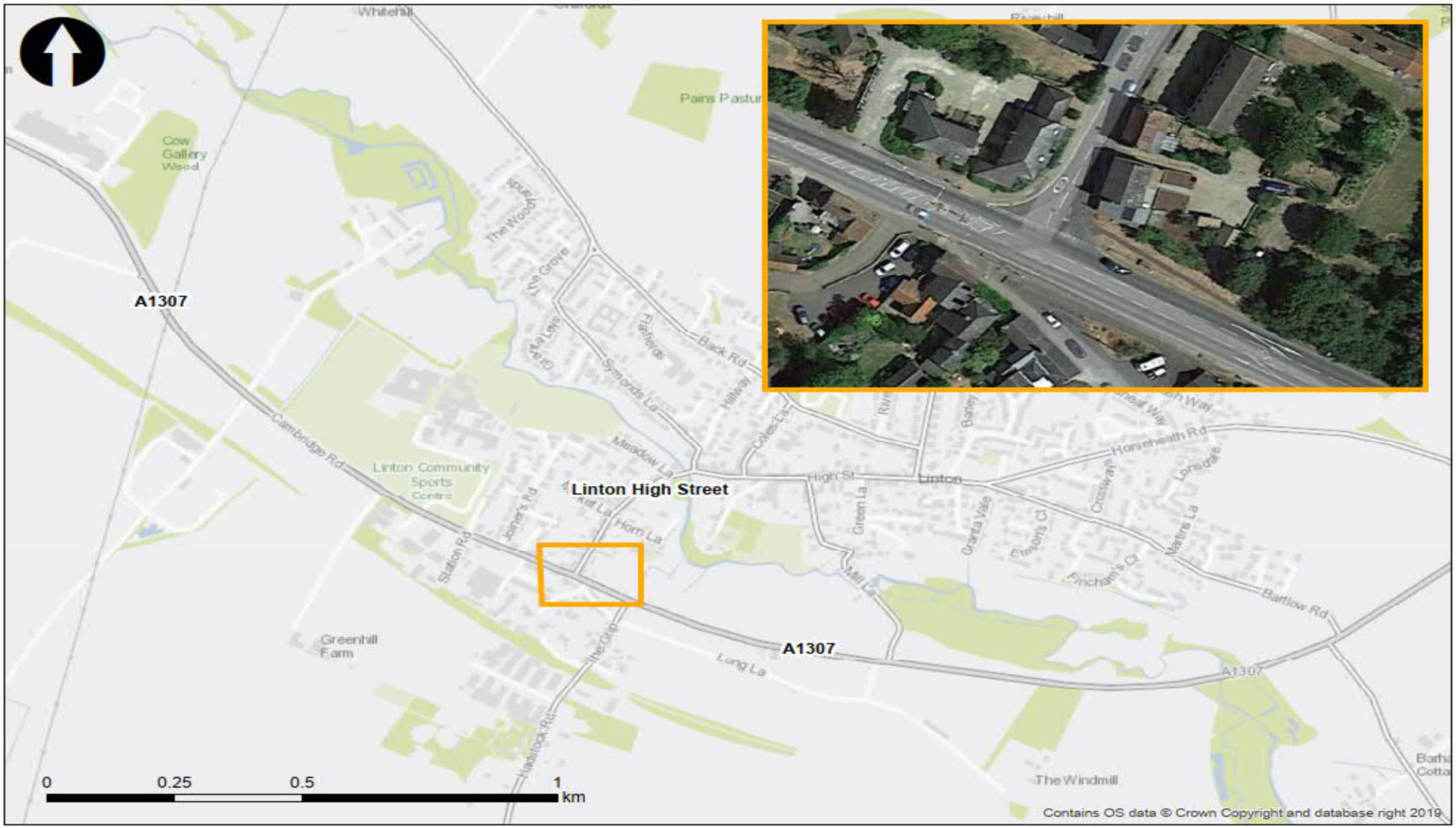
Resolving the TRO objections

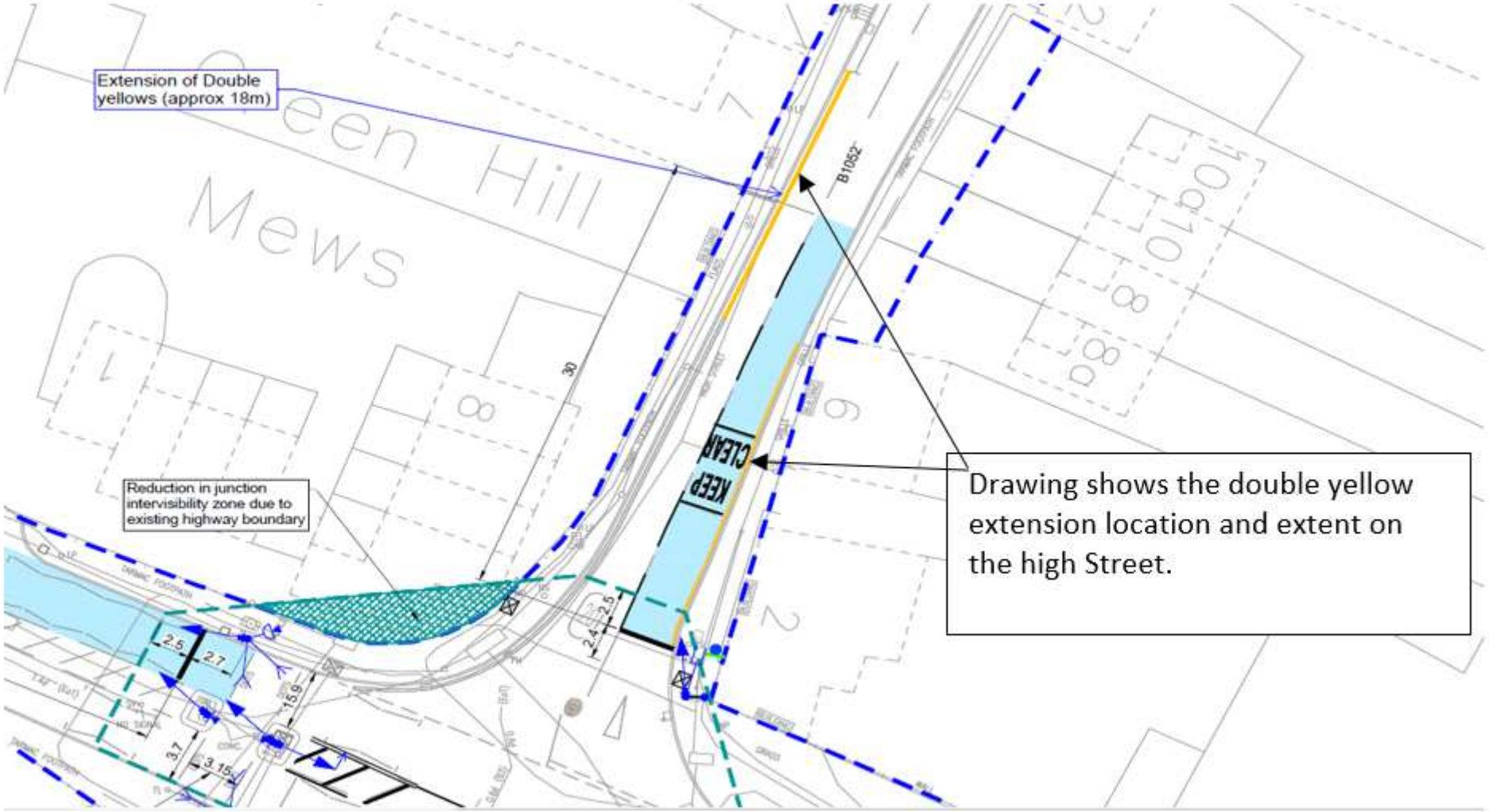
The implication of not installing the increased double yellow lines is that the risk identified by the RSA materialises. Without the yellow line extension, there is approximately 30m of length available for left-turning traffic to queue. This equates to a queue space of 5 cars, or 3 cars and 1 bus available without blocking of the A1307. Traffic data surveys carried out in November 2018 showed that the peak number of vehicles turning left was 27 in the morning, which equates to an average of 3 vehicles per 90 second signal cycle. This would just fit in the existing gap available, assuming that the 3 vehicles comprise 2 cars and 1 bus. This assumes that there is no illegal parking on the existing double yellows, whereas anecdotal evidence form site visits suggests that illegal parking on double yellows does occur from time to time and this would create pinch points for left turning traffic.

With the yellow line extension, this queue space increases by approximately 22m to 52m (18m extended double yellows plus an existing 4m white bar marking across an existing access). This equates to a queue space of 9 cars, or 7 cars and 1 bus available without blocking of the A1307, assuming that no illegal parking on double yellow lines is occurring.

Construction of the scheme was completed in February 2020. Post opening traffic surveys have been undertaken to assess if the extended waiting restrictions are still needed. A traffic survey was undertaken to see what the current state of traffic flow is now that the scheme has been completed. The survey showed that traffic does queue back on the high Street up to the A1307, but did not queue back onto the A1307. However, it would not take much more traffic in order for queuing to occur during peak hours. It is noted that there was a slight reduction in traffic volumes when the survey was carried out (the week preceding the governments COVID 19 lockdown). Therefore the recommendation remains to install the double yellow extension as per the original design.

To avoid blockage of the exit from the A1307 at Linton High Street (which is currently being achieved by temporary cones/signs) the Executive Board are recommended to make the Traffic Regulation Order.


A1307
Linton High Street
A1307
Cambridge Rd
Linton Community Sports Centre
Greenhill Farm
Horseheath Rd
Bartlow Rd
Long La
Horn La
Mill La
Meadow La
Black Rd
Symonds La
Station Rd
Hadstock Rd
The Windmill
0
0.25
0.5
1
km
Contains OS data © Crown Copyright and database right 2019


Extension of Double yellows (approx 18m)
Reduction in junction intervisibility zone due to existing highway boundary
Drawing shows the double yellow extension location and extent on the high Street.
B1052
KEEP CLEAR
Mews
30
2.5
2.7
15.9
3.7
3.15
2.4
2.5

Appendix B

A1307 WESTBOUND BUS LANE – LINTON

A westbound bus lane is proposed on the A1307 between Bartlow Road and the B1052 junction (see drawings below). Linton is a notorious bottleneck on the A1307, and while most bus services go through Linton, some limited stop express services do not.

Linton Parish Council (LPC) have raised an objection TRO in relation to scheme 14, the new westbound bus lane, the objection centres on the loss of trees & habitat and the number of buses benefiting. The objection submitted was "Linton Parish Council reiterate its previous concerns and opposition to the provision of bus lanes, for the benefit of four X13 buses, to the detriment of all other road users and the environment."

Further discussions have been had with Linton Parish Council and the current status is Linton Parish Council is proposing to meet with them to discuss the revised Scheme 14 layout. This meeting has not taken place due to the current Covid 19 restrictions.

The objection centres on two principle points: (a) environmental loss and (b) frequency of bus services. GCP has mitigated to some extent item (a) but LPC still have concerns over item (b).

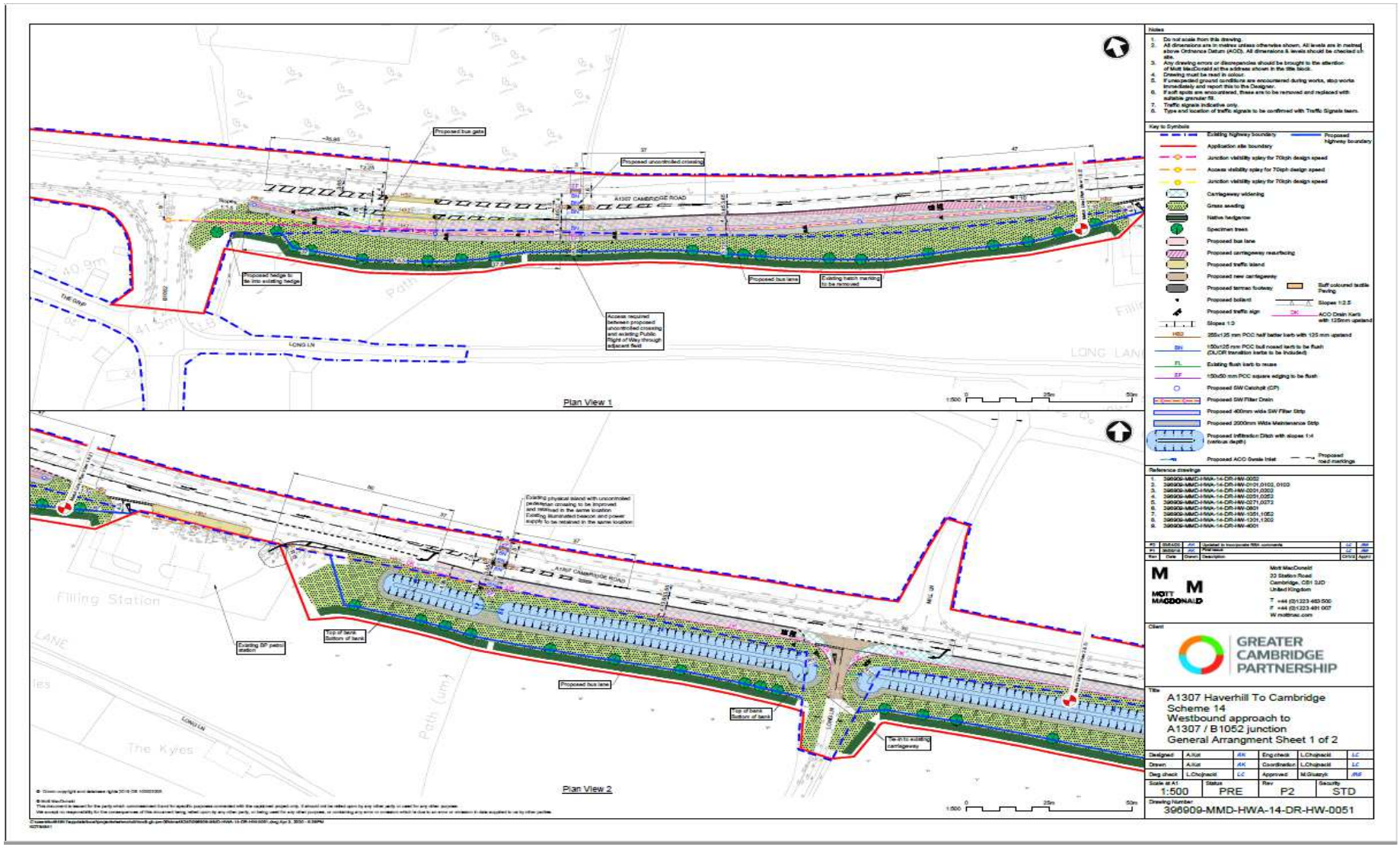
The scheme benefits the X13 and 13C services which only run in the peak hour. However, bus lanes generally only provide benefits where congestion exists, which is the case only in peak hours. The value for money of the proposals has been reviewed. Value engineering has been carried out to reduce the length of the bus lane to the minimum to deliver benefits. The current estimated cost of the scheme is £1,031,308m and it delivers a 3 to 4 minute saving in journey time. Over a 30 years assessment period the scheme will generate £9m of monetised benefits with a Benefit Cost Ratio (BCR) of 4.5. A BCR exceeding 2 is considered by the Department of Transport to represent good value for money.

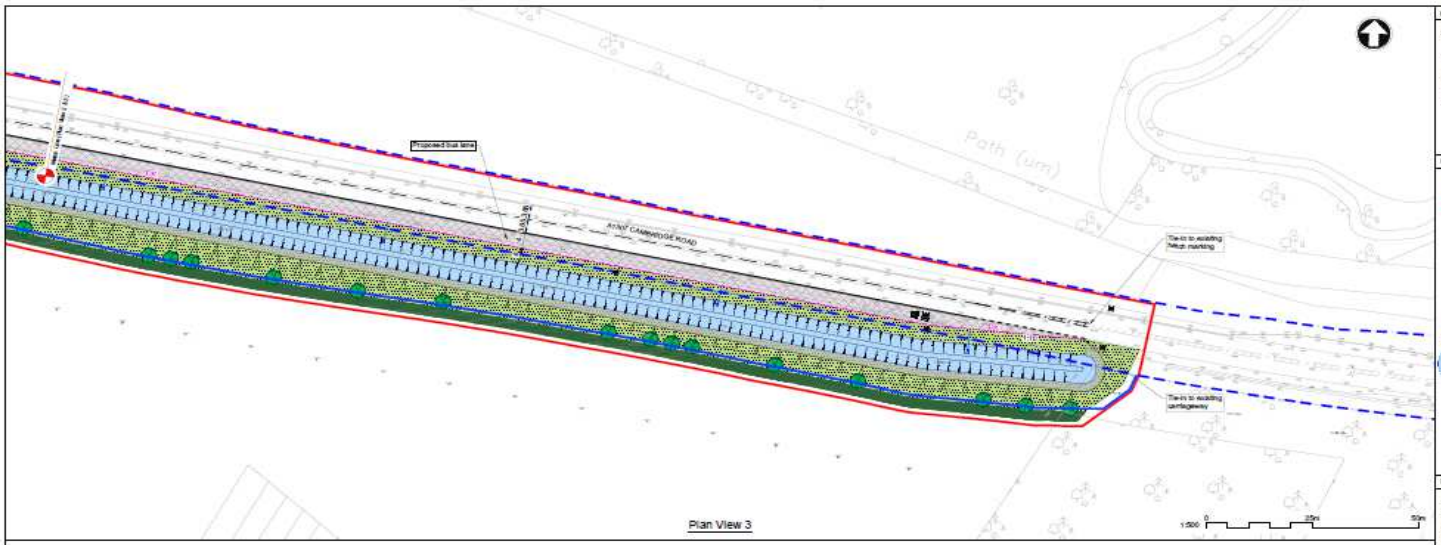
There is potential for Stagecoach and other operators to provide more services if the route becomes more attractive. However, Stagecoach have not indicated any current desire to provide additional services.

Trees lost would be replaced with new trees on a 1:1 basis. A higher replacement ratio of 3:1 was discussed with the landowner, but the tree belt created would result in existing narrow fields becoming difficult to farm. It is intended to deliver 10% to 20% of biodiversity net gain by means of planting elsewhere. Discussions are in hand with the County Council regarding potential areas if none can be found locally.

The scheme represents good value for money, and makes the use of public transport between Haverhill and Cambridge more attractive and on that basis the Executive Board is recommended to make the Traffic Regulation Order.

Drawings:


Plan View 1
Plan View 2
A1307 CAMBRIDGE ROAD
LONG LN
Proposed bus gate
Proposed uncontrolled crossing
Proposed bus lane
Existing hatch marking to be removed
Proposed hedge to be into existing hedge
Access required between proposed uncontrolled crossing and existing Public Right of Way through adjacent field
Existing physical island with uncontrolled pedestrian crossing to be improved and relocated in the same location
Existing illuminated beacon and power supply to be retained in the same location
Existing BP petrol station
Top of bank
Bottom of bank
Tie-in to existing carriageway
Filling Station
The Kyles
Path (um.)
Notes
Key to Symbols
Reference drawings
MOTT MACDONALD
GREATER CAMBRIDGE PARTNERSHIP
A1307 Haverhill To Cambridge
Scheme 14
Westbound approach to
A1307 / B1052 junction
General Arrangment Sheet 1 of 2
1:500
PRE
P2
STD
396909-MMD-HWA-14-DR-HW-0051



Notes

1. Do not scale from this drawing.
2. All dimensions are in metres unless otherwise shown. All levels are in metres above Ordnance Datum (AOD). All dimensions & levels should be checked on site.
3. Any drawing errors or discrepancies should be brought to the attention of Mott MacDonald at the address shown in the title block.
4. Drawing must be read in colour.
5. If unexpected ground conditions are encountered during works, stop works immediately and report this to the Designer.
6. If soft spots are encountered, these are to be removed and replaced with suitable granular fill.

Key to Symbols

- Existing highway boundary
- Proposed highway boundary
- Application site boundary
- Carriageway widening
- Grass seeding
- Native hedgerow
- Specimen trees
- Proposed bus lane
- Slopes 1:2.5
- ACO Drain Kerb with 125mm upstand
- Proposed 2000mm Wide Maintenance Strip
- Proposed Infiltration Ditch with slopes 1:4 (various depth)
- Proposed ACO Swale Inlet
- Proposed traffic sign
- Proposed road markings

Reference drawings

1. 396909-MMD-HWA-14-DR-HW-0051
2. 396909-MMD-HWA-14-DR-HW-0101,0102, 0103
3. 396909-MMD-HWA-14-DR-HW-0201,0202
4. 396909-MMD-HWA-14-DR-HW-0251,0252
5. 396909-MMD-HWA-14-DR-HW-0271,0272
6. 396909-MMD-HWA-14-DR-HW-0601
7. 396909-MMD-HWA-14-DR-HW-1051,1052
8. 396909-MMD-HWA-14-DR-HW-1201,1202
9. 396909-MMD-HWA-14-DR-HW-4001

Rev	Date	Drawn	Description	Check	Appd
P2	03/12/20	AK	Updated to incorporate RSA comments	LC	AM
P1	06/03/19	AK	First issue	LC	AM

Mott MacDonald
22 Station Road
Cambridge, CB1 2JD
United Kingdom

T +44 (0)1223 463 500
F +44 (0)1223 461 007
W mottmac.com

Client

GREATER CAMBRIDGE PARTNERSHIP

Title

A1307 Haverhill To Cambridge
Scheme 14
Westbound approach to
A1307 / B1052 junction
General Arrangment Sheet 2 of 2

Designed	A.Kot	AK	Eng check	L.Chojnacki	LC
Drawn	A.Kot	AK	Coordination	L.Chojnacki	LC
Dsg check	L.Chojnacki	LC	Approved	M.Stupnyk	AM

Scale at A1	Status	Rev	Security
1:500	PRE	P2	STD

Drawing Number

396909-MMD-HWA-14-DR-HW-0052