
Project:	Cambridge South East Transport (CSET) Phase 2		
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Approved by:	S Cox	Checked by:	M Payne
Subject:	Updated Business Case Position		

1 Introduction

Since the submission and approval of the CSET Phase 2 OBC in May 2020 by the Greater Cambridgeshire Partnership (GCP) Executive Board, further work has been undertaken to develop the scheme in advance of submitting a Transport and Works Act Order (TWAo). This has included:

- Environmental Impact Assessment development and engagement.
- Design development, in particular more detail on the size of the Travel Hub facility, structures along the scheme and final route alignments.
- Market soundings with the public transport operator market, establishing the appetite for operating transport services along the CSET scheme infrastructure.

This technical note captures the key outcomes from these areas of work and presents them as an updated position on the scheme's business case. This includes an initial review of recent policy and strategy published since the OBC was approved to help demonstrate the continued alignment of CSET Phase 2 with current policy. The technical note concludes with a view on the impact of COVID-19 on the scheme.

2 Policy Review

The policy review summarises key national, regional, and local policy and strategy documents in relation to the strategic need for investment in CSET Phase 2 that have been published since the submission of the OBC in May 2020. The existing summary within the OBC of policies and strategies published before the submission of the OBC remains relevant in its current form for the scheme.

2.1 Achieving Net Zero

In November 2020 the UK government published 'The Ten Point Plan for a Green Industrial Revolution'¹, looking to position Britain as a world leader in clean technology investments. The Ten Point Plan will lay the foundations for a Green Industrial Revolution, starting by supporting 90,000 jobs across the UK within the current Parliament, and up to 250,000 by 2030. The focus of the Ten Point Plan is shown in Figure 2.1.

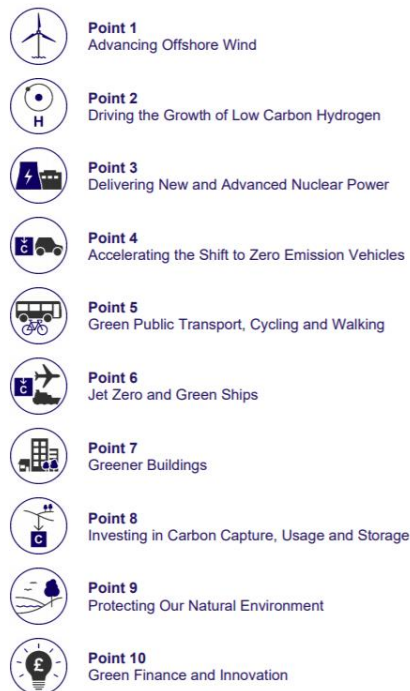
¹ [The Ten Point Plan for a Green Industrial Revolution](#)

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Figure 2.1: The Ten Point Plan for a Green Industrial Revolution



Source: HM Government Ten Point Plan²

CSET Phase 2 would help to deliver the Ten Point Plan through its investment in new infrastructure that facilitates and promotes sustainable travel. This includes:

- **Point 5** – new high quality public transport (HQPT) using electric vehicles, as well as a new active travel route will provide alternative green transport to the private car.
- **Point 7** – inclusion of solar panels within the design of the A11 Travel Hub will allow the travel hub building and facilities to use renewable energy.
- **Point 9** – the scheme enables and promotes the use of sustainable travel modes, helping to reduce emissions, helping to improve the environment, along with providing new landscaping and habitat to support biodiversity net gain of at least 10% within the scheme area³.

CSET Phase 2 will help to meet Net Zero targets and the carbon budgets and target of net zero by 2050 by using green technologies i.e. electric vehicles, solar panels, and encouraging active mode travel.

2.2 Bus Back Better: National Bus Strategy for England

In March 2021 the Government published its National Bus Strategy for England, titled Bus Back Better.⁴ This sets out the Government's vision and opportunity to deliver better bus services for passengers across England, through ambitious and far-reaching reform of how services are planned and delivered.

Over a number of years bus patronage has been in decline throughout much of England, putting strain on operators and local authorities trying to balance connectivity and commercial viability of buses, emphasised

² [The Ten Point Plan for a Green Industrial Revolution](#)

³ [Biodiversity Net Gain is an approach to development that leaves biodiversity in a better state than before. The 10% net gain is in line with ongoing development of the Environment Bill \(27th November 2020\)](#)

⁴ [Bus Back Better, National Bus Strategy for England](#)

further with the recent challenges imposed throughout the COVID-19 pandemic. To tackle this decline, the Government have developed the Bus Back Better strategy which has the central aim to:

“get more people travelling by bus – first, to get overall patronage back to its pre-COVID-19 level, and then to exceed it”.

The strategy also states that:

“we will only achieve this if we can make buses a practical and attractive alternative to the car for more people.”

The objectives set out in the strategy seek to make buses more frequent, more reliable, easier to understand and use, better co-ordinated and cheaper. These objectives clearly align with CSET Phase 2, which aims to deliver a HQPT scheme with the provision of a segregated route, enabling services to offer faster journey times which are more reliable, connecting key locations within Greater Cambridge, therefore providing an attractive alternative to cars, and supporting an increase in patronage.

CSET Phase 2 also aspires to use all electric public transport vehicles which will contribute to reductions in carbon and pollutant emissions and associated improvements in local air quality, not only supporting the Government’s green ten-point plan, but also the Bus Back Better strategy, which seeks to support the purchasing of at least 4,000 new net zero emission buses. This in turn has the potential to reduce operating costs, given the expected lower associated costs of running electric vehicles compared to conventional diesel vehicles.

2.3 England’s Economic Heartland - Regional Transport Strategy

England’s Economic Heartland (EEH) is a strategic collaborative partnership and the sub-national transport body covering the areas stretching from Swindon to Cambridgeshire and from Northamptonshire to Hertfordshire. EEH includes the entirety of the Oxford-Cambridge Arc. A Regional Transport Strategy for EEH titled “Connecting People, Transforming Journeys”⁵ was published in March 2021.

The strategy makes it clear that enabling growth in a way that improves the environment requires a fundamental switch in the way the region’s transport system is planned and delivered. It includes policies to:

- Harness the region’s expertise in clean technologies to deliver a greener transport system.
- Use investment in East West Rail and mass transit systems such as the Cambridgeshire Autonomous Metro and Milton Keynes Mass Rapid Transit as a catalyst for transforming public transport across the Heartland.
- Champion digital technologies to make transport smarter.
- Improve local and rural connectivity.
- Support the freight sector while reducing its environmental impact.

The strategy also includes an investment pipeline of infrastructure projects in the region. This includes CAM, of which CSET Phase 2 is intended to form one part.

2.4 The Oxford-Cambridge Arc: Spatial Framework

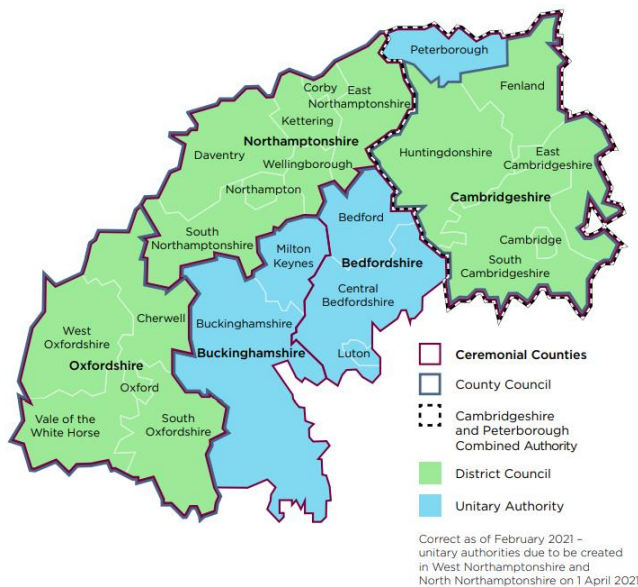
The Government published a new policy paper in February 2021 in relation to the Oxford-Cambridge Arc Spatial Framework, titled “*Planning for Sustainable Growth in the Oxford-Cambridge Arc: an introduction to the spatial framework*”.⁶ This spatial framework is a cross-boundary planning document that has been

⁵ EEH Regional Transport Connecting People, Transforming Journeys

⁶ [Planning for Sustainable Growth in the Oxford-Cambridge Arc: an introduction to the spatial framework](#)

established to help steer development across the Arc area, including Oxfordshire, Northamptonshire, Buckinghamshire, Bedfordshire and Cambridgeshire. The Oxford-Cambridge Arc is an important area within the UK where investment is key to stimulate and accelerate economic growth in towns and cities renowned for innovation and prosperity. In particular investment in transport is key to addressing some of the constraints relating to travel and development.

Figure 2.2: Oxford-Cambridge Arc



Source: Planning for Sustainable Growth in the Oxford-Cambridge Arc: an introduction to the spatial framework, February 2021

The preparation of the Arc Spatial Framework directly aligns with the development of the Greater Cambridgeshire Local Plan (see Section 2.6), with the Local Plan having to take into account how it responds to the Arc Spatial Framework and what it says in relation to infrastructure, housing and jobs.

The Arc Spatial Framework will also sit alongside National Planning Policy Framework (NPPF) and national transport policy, and will therefore have legal weight with those local planning authorities across the Arc preparing their own Local Plans, and require them to take into account transport schemes that support both the delivery of the Local Plan and the Arc Spatial Framework.

This provides further weight towards the need for CSET Phase 2 which supports the delivery of the aims of the Arc Spatial Framework, supporting both local development and economic growth in Cambridgeshire and beyond. It also illustrates the joined-up planning approach being adopted in this region to ensure future development needs are met and supported by transport schemes such as CSET Phase 2.

2.5 Local Transport Plan Sub-Strategy for the Cambridge Autonomous Metro

Whilst the Cambridgeshire Autonomous Metro (CAM) is under review following the May 2021 Mayoral elections, and a new Mayor being elected, at the time of writing this technical note, CAM is still a component for the Cambridgeshire and Peterborough Local Transport Plan (LTP), which sets out an overarching vision to:

“Deliver a world-class transport network for Cambridgeshire and Peterborough that supports sustainable growth and opportunity for all”⁷

⁷ Local Transport Plan - Cambridgeshire & Peterborough Combined Authority (cambridgeshirepeterborough-ca.gov.uk)

CAM could support this through the provision of a high quality, high frequency metro-style services that would deliver a step change in connectivity in the region and improving connectivity to settlements and employment sites.

Specifically, CAM could bring high quality public transport (HQPT) to Cambridgeshire and Peterborough, offering seamless connections and interchange with other transport, including buses and rail, while supporting more cycling and walking. Investment in CAM, or similar style scheme, would help to boost the economy in the region, enabling existing businesses to grow, while attracting future investment which will create more jobs and wealth for local people.

Currently CSET Phase 2 would be intended to be part of an initial phase of CAM, if CAM were to be delivered, delivering the route from the Cambridge Biomedical Campus to the south east towards the A11.

The CAM Sub-Strategy (2020)⁸ was produced by the Cambridgeshire and Peterborough Combined Authority to support the LTP and sets out the current policy framework for CAM. The CAM objectives include:

- CAM 1: Promote economic growth and opportunity.
- CAM 2: Support the acceleration of housing delivery.
- CAM 3: Promote Equity.
- CAM 4: Promote sustainable growth and development.

The objectives of CAM are summarised in the Sub-Strategy alongside those of the LTP. Table 2.1 shows how these objectives are aligned.

A further detailed assessment of the compliance of CSET Phase 2 with the CAM Sub-Strategy was undertaken by the GCP and reported to the GCP Executive Board in June 2020.⁹

The purpose of this assessment was to review the CAM Sub-Strategy in relation to the GCP's first two high quality public transport corridors, CSET and Cambourne to Cambridge Better Public Transport scheme (C2C). What this concluded was that CSET Phase 2 is fully compliant with the CAM Sub-Strategy and that the GCP can continue with works and engagement to deliver the schemes.

If CAM were not to progress, and policy change with the change of Mayor, CSET Phase 2 would still be providing the much needed high quality public transport infrastructure the overarching vision set out in the LTP of a *“world-class transport network”, “that supports sustainable growth and opportunity for all”*.

⁸ [Cambridgeshire and Peterborough Local Transport Plan: Cambridgeshire Autonomous Metro \(CAM\) Sub-Strategy](#)

⁹ [Greater Cambridge Partnership Executive Board, Thursday 25th June 2020, Item 12 'Local Transport Plan – Cambridgeshire Autonomous Metro \(CAM\) Sub Strategy'](#)

Table 2.1: Comparison of LTP, CAM and CSET Phase 2 objectives

Goal	LTP Objective	CAM Objective	CSET Phase 2 Objective
Economy	<p>Support new housing and development to accommodate a growing population and workforce, and address housing affordability issues.</p> <p>Connect all new and existing communities sustainably so residents can easily access a good job within 30 minutes, spreading the region's prosperity.</p> <p>Ensure all of our region's businesses and tourist attractions are connected sustainably to our main transport hubs, ports and airports.</p> <p>Build a transport network that is resilient and adaptive to human and environmental disruption, improving journey time reliability.</p>	<p>CAM 1</p> <p>CAM 2</p>	<p>Support the continued growth of Cambridge and south Cambridge's economy.</p> <p>Improve connectivity to employment sites in south east Cambridge and central Cambridge.</p>
Society	<p>Embed a safe systems approach into all planning and transport operations to achieve Vision Zero – zero fatalities or serious injuries</p> <p>Promote social inclusion through the provision of a sustainable transport network that is affordable and accessible for all</p> <p>Provide 'healthy streets' and high-quality public realm that puts people first and promotes active lifestyles</p> <p>Ensure transport initiatives improve air quality across the region to meet good practice standards</p>	CAM 3	Improve road safety for all users of the A1307 corridor.
Environment	<p>Deliver a transport network that protects and enhances our natural, historic and built environments</p> <p>Reduce emissions to 'net zero' by 2050 to minimise the impact of transport and travel on climate change</p>	CAM 4	<p>Relieve congestion and improve air quality in south east Cambridge.</p> <p>Improve active travel infrastructure and public transport provision in south east Cambridge.</p>

2.6 Greater Cambridge Local Plan

The Greater Cambridge Local Plan (GCLP) is a joint local plan currently being developed by Cambridge City Council and South Cambridgeshire District Council (SCDC), ensuring a consistent approach to land-use planning and development across both areas for the next 20 years, to 2040. The GCLP will replace the two existing individual local plans drawn up by the two councils, which were included in the policy review section of the OBC.

As part of the development of the GCLP, Calls for Sites went out in February and March 2019, and in 2020. From this a total of 688 sites for housing and employment use have been submitted, comprising over 16,500ha of land. Figure 2.3 shows all sites that were put forward through the Call for Sites process. This helps to demonstrate that there is still huge demand for significant future development in the Greater Cambridge area from landowners, agents and developers.

The first round of engagement on the emerging GCLP also took place in early 2020, and was called the “First Conversation”.¹⁰ The purpose of this was to establish how communities wanted the area to change, by asking about the GCLP’s ‘big themes’, where to build, and what sites should be protecting green space. The ‘big themes’ included:

- Climate change
- Biodiversity and green spaces
- Wellbeing and social inclusion
- Great places
- Jobs
- Homes
- Infrastructure.

The key findings from the “First Conversation” suggest that there is support for the GCLP and that it’s emerging proposals meet the needs and expectations of the local population. More detailed information regarding the First Conversation and Call for Sites is covered in a report released in October 2020.¹¹

Further to the call for sites and “First Conversation”, the GCLP Development Strategy has been developed and was published in November 2020.¹² This report brings together the findings from the initial stage of work to develop the evidence base and test growth and spatial options for the GCLP. This included a transport evidence review¹³, which set out estimated requirements for future housing and employment for different growth scenarios and included CSET Phase 2 in its baseline network and demand in 2041 in order to help deliver these requirements and meet future growth targets.

With the evidence base still being developed, the GCLP is planned to be taken through further public consultation in the summer and autumn of 2021. Following this consultation, a well-informed preferred option will be developed, outlining the level of development to be proposed in the region. It is expected that corridor transport schemes that enable sustainable travel will form a key part of the delivery of the GCLP.

The key stages going forward for the GCLP include:

- Preferred Options Consultation - Summer/Autumn 2021
- Draft Plan Consultation - Summer 2022
- Proposed Submission Consultation - Spring 2023 or autumn/winter 2023
- Submission to Secretary of State - Autumn 2023 or spring 2024.

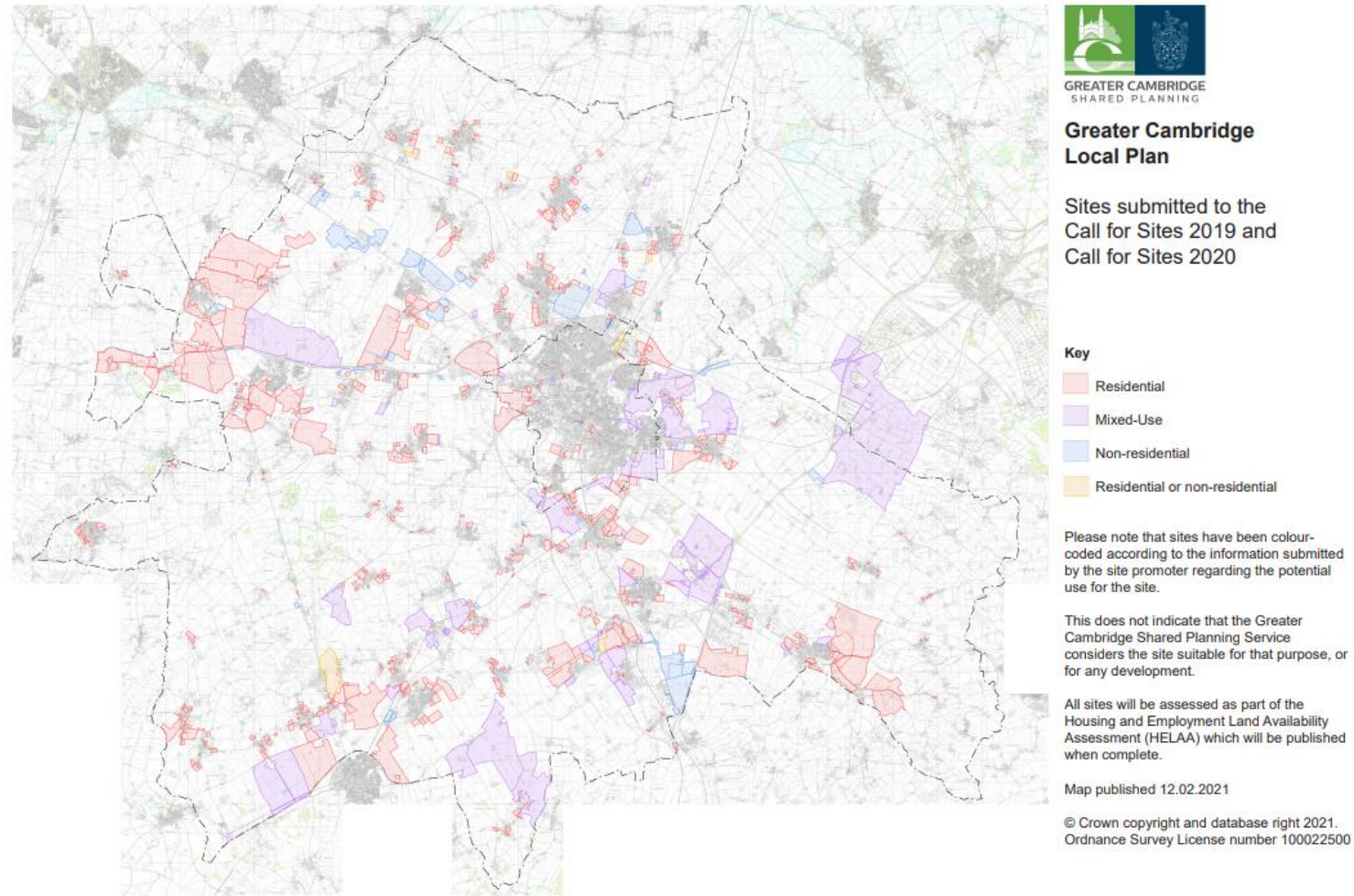
The uncertainty around the later stages of developing the GCLP from 2022 onwards, reflects some of the complexities and uncertainty around the delivery of a number of major infrastructure schemes, including CAM and the schemes such as CSET Phase 2 which make up part of the initial phases of the delivery of CAM. As CSET Phase 2 progresses and gains a greater level of certainty, this should help to support the progression and adoption of the new GCLP as it will provide greater certainty about the development of the public transport network, around which future development will be planned. Currently the GCLP is expected to be adopted in 2025.

¹¹ [First Conversation, Call for Sites and Call for Green Sites Data](#)

¹² [Development Strategy Options – Summary Report \(November 2020\)](#)

¹³ [Greater Cambridge Local Plan Transport Evidence Report \(Cambridgeshire County Council Transport Infrastructure Policy and Funding Team\) November 2020](#)

Figure 2.3: Greater Cambridge Call for Sites 2019 and 2020



Source: Greater Cambridge Local Plan¹⁴

¹⁴ <https://www.greatercambridgeplanning.org/media/2080/gclp-call-for-sites-submissions-map-at-210212.pdf> (Accessed February 2021)

2.7 Cambridge City Access Strategy and Plan

The Cambridge City Access Strategy and Plan (CCASP) (first published, 2019) aims to tackle the issues of congestion and high levels of pollution caused by current traffic levels and forecast increases in traffic in and around Cambridge City Centre. This will be achieved through improved public transport and offering improved mode choice to people travelling to and in Cambridge.

The core City Access principles are to:

- Tackle both congestion and air pollution now and in the future, with benefits sustained over the long term, and supporting a reduction in carbon emissions locally.
- Encourage behaviour change to reduce car journeys and emissions, in particular for people to make more journeys using public transport, cycling and walking.
- Significantly improve access for people travelling into and around Greater Cambridge for regular journeys, supporting the economy and creating better journeys for our communities.
- Be fair and equitable to both those travelling to Greater Cambridge from further away, as well as to those residing within the City and South Cambridgeshire.

The Choices for Better Journeys report summarises 2019 public engagement, highlighting how 81% of residents would choose a traffic reducing measure as their first choice for reducing congestion and raising funds for alternative sustainable modes such as public transport, while 44% of respondents would choose a pollution charge as their first or second choice option.¹⁵

Further engagement in 2020 resulted in the GCP agreeing the continued development of short term 'quick wins', including a £400,000 partnership with Stagecoach to introduce the first electric buses into Greater Cambridge. Additional 'quick wins' were presented to the GCP Executive Board in October and December 2020, to highlight how they could support COVID-19 recovery. This included highlighting the need for immediate investment for cyclists and pedestrians, providing transport support for people and business to recover, and public transport recovery.

The March 2021 Executive Board meeting was presented with data which suggested a clear risk of a car-based recovery from the COVID-19 pandemic, highlighting the opportunity for the GCP to help shape and support a green recovery through the GCP's existing sustainable transport programme which includes CSET Phase 2. The Executive Board agreed to a comprehensive package of measures to promote sustainable transport, improve air quality, and reduce congestion and carbon emissions, whilst supporting a sustainable recovery. Resulting from this Executive Board, the GCP Future Investment Strategy outlined the additional support to be provided for the delivery of City Access measures, with £2.5m allocated for 2021/22 and £5m allocated for 2022/23.

The CCASP seeks to manage traffic and reduce the dependency on cars travelling into the city centre, which has several negative impacts, including on journey time reliability and negative impacts on environmental conditions. Seeking to reduce car usage into the city centre is reliant upon alternative provisions being made. The HQPT services and active travel infrastructure to be delivered by CSET Phase 2 will provide viable alternative options for many users. CSET Phase 2 allows the CCASP to be delivered and for it to achieve its aims. The 'quick wins' that have been promoted since the OBC are further proof of how CSET Phase 2 and CCASP are aligned. CCASP introduces measures which CSET Phase 2 then delivers, including the provision of a HQPT route that would support ongoing public transport recovery, new infrastructure that enables active travel, and the use of electric vehicles.

¹⁵ [Choices for Better Journeys](#)

3 Development of the Preferred Option

The latest designs for the preferred option have been developed and progressed since the submission of the OBC. These have been informed by ongoing stakeholder feedback and the findings of the Environmental Impact Assessment consultation. The current designs for the scheme are from April 2021, Design Freeze 3.

3.1 Environmental Impact Assessment Feedback

As part of the Transport and Works Act Order (TWAO) process, an Environmental Impact Assessment (EIA) has been undertaken, which included a period of engagement which took place between October and December 2020. 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. Based on the feedback from this consultation, the design has changed in the following ways:

Table 3.1: Design refinements due to consultation survey comments

No.	Element of the scheme and issue raised in consultation	Design change as a result of consultation response
1	Some consultation respondents considered the proposed River Granta (Stapleford) crossing was too high. It was noted by some respondents that an alternative crossing could be provided via an at grade crossing further south of the river.	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.
2	A handful of other respondents were concerned about possible noise pollution created by public transport vehicle operations along the route.	The precise locations where noise barriers would be required are being confirmed in the noise modelling assessment for the EIA. 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.
3	Consultees were asked for their views on an emerging proposed route alignment along Sawston Road between Sawston and Babraham compared to the preferred scheme alignment in this area.	A majority of respondents objected to the emerging proposed route alignment along Sawston Road. Taking this into account this option was dropped, and the OBC preferred route alignment was taken forward in the CSET Phase 2 design.
4	Several respondents suggested that additional cycle storage at stops along the public transport route should be provided.	Additional cycle storage has been incorporated into the design development of stops.
5	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 alongside the scheme 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.
6	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.

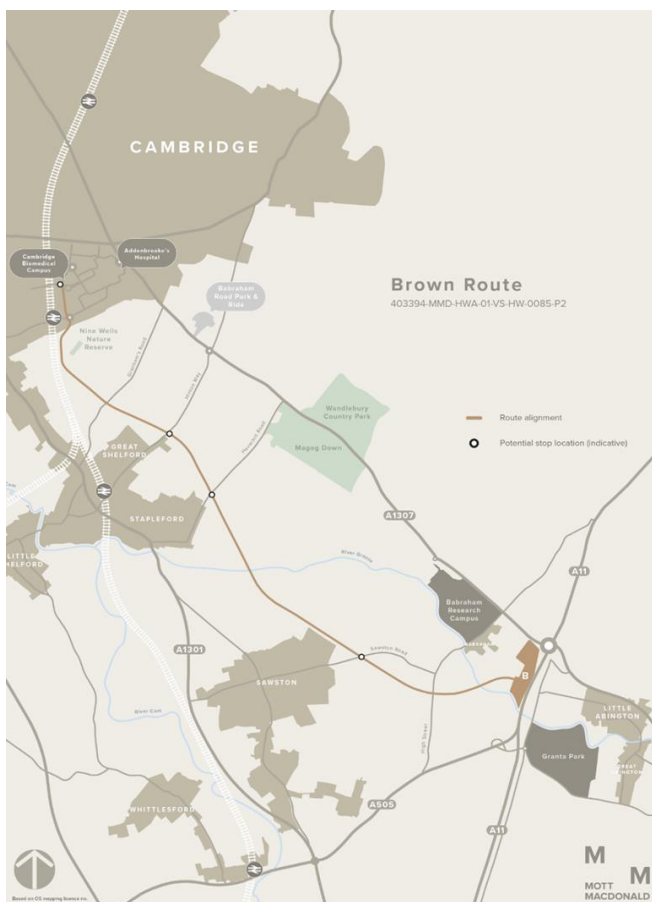
Source: Mott MacDonald

3.2 Route Alignment Consideration

At OBC the preferred route alignment for CSET Phase 2 was the Brown route, see Figure 3.1. However, as part of the EIA consultation, an alternative route between Babraham and Sawston was considered and presented for feedback. This route would run closer to Sawston Road and was intended to reduce the impacts on land severance and landscape character in the area. This route refinement straightened out the route and would be slightly shorter, by roughly 50m. While this reduces severance of fields, reducing the impact on landscape character, it would run closer to houses on Sawston Road. An options assessment exercise was carried out to compare the Brown and alternative route alignments in this area, with the alternative route subject to the same multi-criteria analysis as the previous shortlisted routes that included the Brown route. The results of this assessment are presented in an Options Assessment Technical Note. This concluded that there was very little separating the two options and recommended that the alternative route should go to consultation in order to determine the preferred alignment.

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.

Figure 3.1: CSET Phase 2 – Preferred Route Alignment - Brown Option

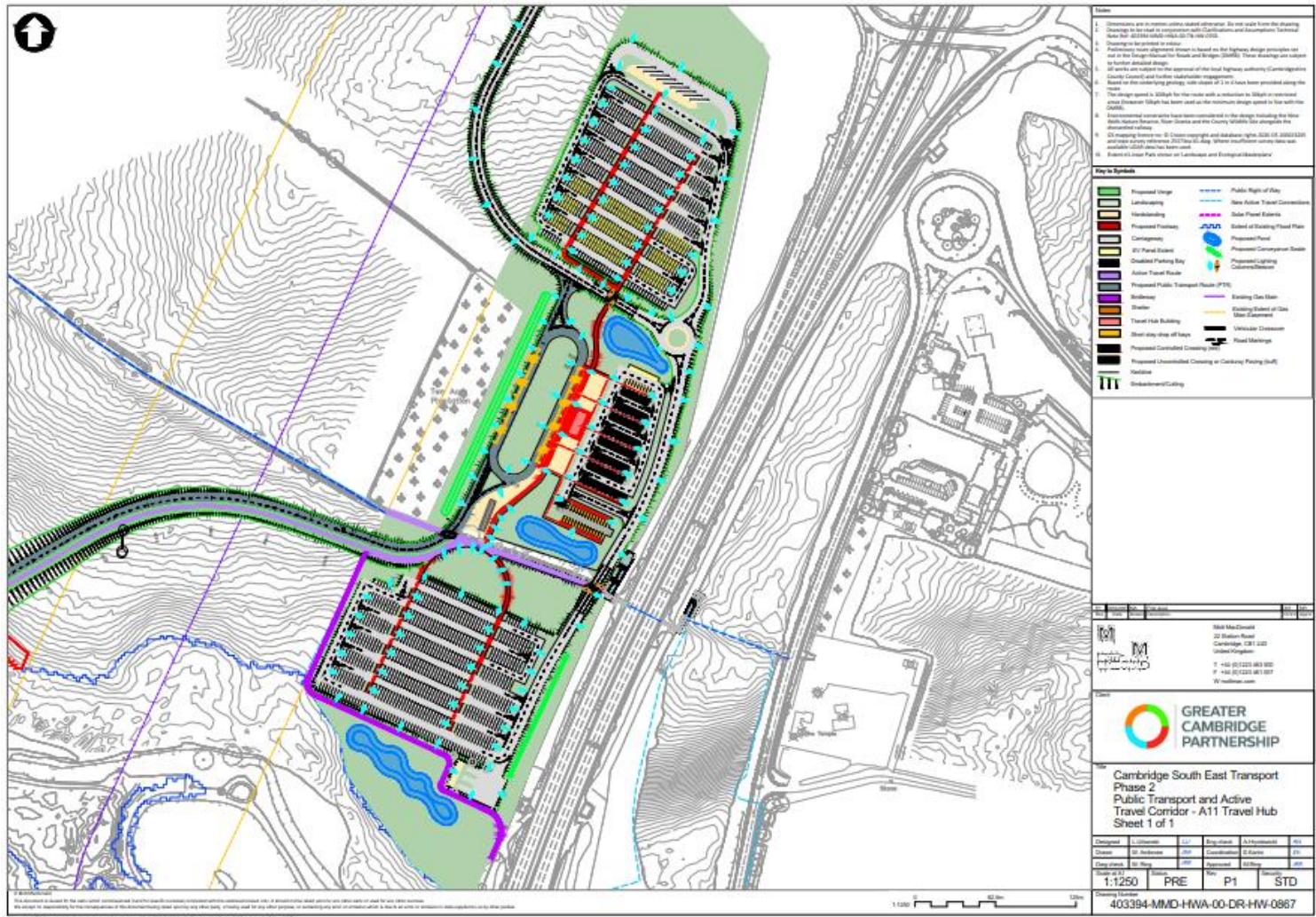


Mott MacDonald Outline Business Case, May 2020

3.3 Travel Hub Design

The Travel Hub site is proposed to be located between the A11 and Babraham with access from the A1307. Whilst the location of the Travel Hub remains unchanged since OBC, there is a proposed change to the initial sizing of this element of the project. To date there has been an aspiration to deliver a large amount of car parking space provision to best capture the benefits the scheme offers in intercepting traffic at a point further outside Cambridge accessible from the A11 and A1307. However, since the approval of the OBC further consideration has been given to a phased approach to the development of the Travel Hub to reflect the build-up of demand over future years. As a result of this exercise, the number of spaces initially being proposed and designed as part of Design Freeze 3 has reduced from up to 2,000 (as proposed in the EIA consultation) to 1,250. This enables a lower density of parking and enhanced landscaping. There is space within the footprint of the Travel Hub for further car parking provision if and when demand justifies this, potentially taking total provision up to 2,000 spaces.

Figure 3.2: CSET Phase 2 Travel Hub Design (Design Freeze 3)



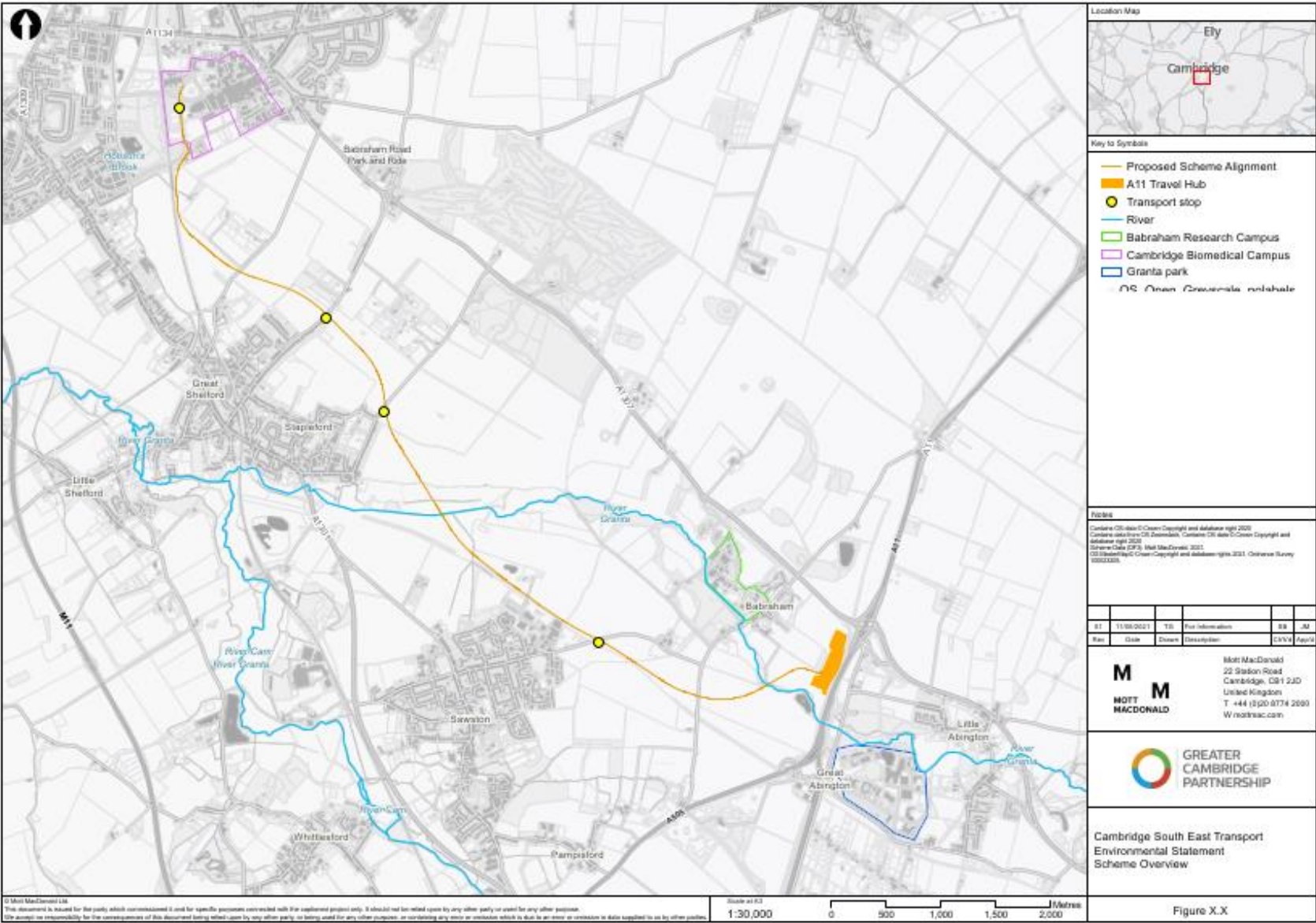
3.4 The Preferred Option Summary Description

As stated in Section 3.2, the preferred option for CSET Phase 2 remains as the Brown route, and comprises of the following:

- The preferred option starts on the Cambridge Biomedical Campus (CBC) at the junction of the existing guided busway with Francis Crick Avenue. It runs along Francis Crick Avenue before exiting on the southern side of the 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 a new at-grade junction 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 located to the south west of the junction between the A1307 and A11. General traffic would access it 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 proposed provides parking for up to 1,250 cars and is shown in Figure 3.2. Figure 3.3 on the following page shows an overview of the scheme in its entirety.

Figure 3.3: CSET Phase 2 Overview



Source: Mott MacDonald (May 2021)

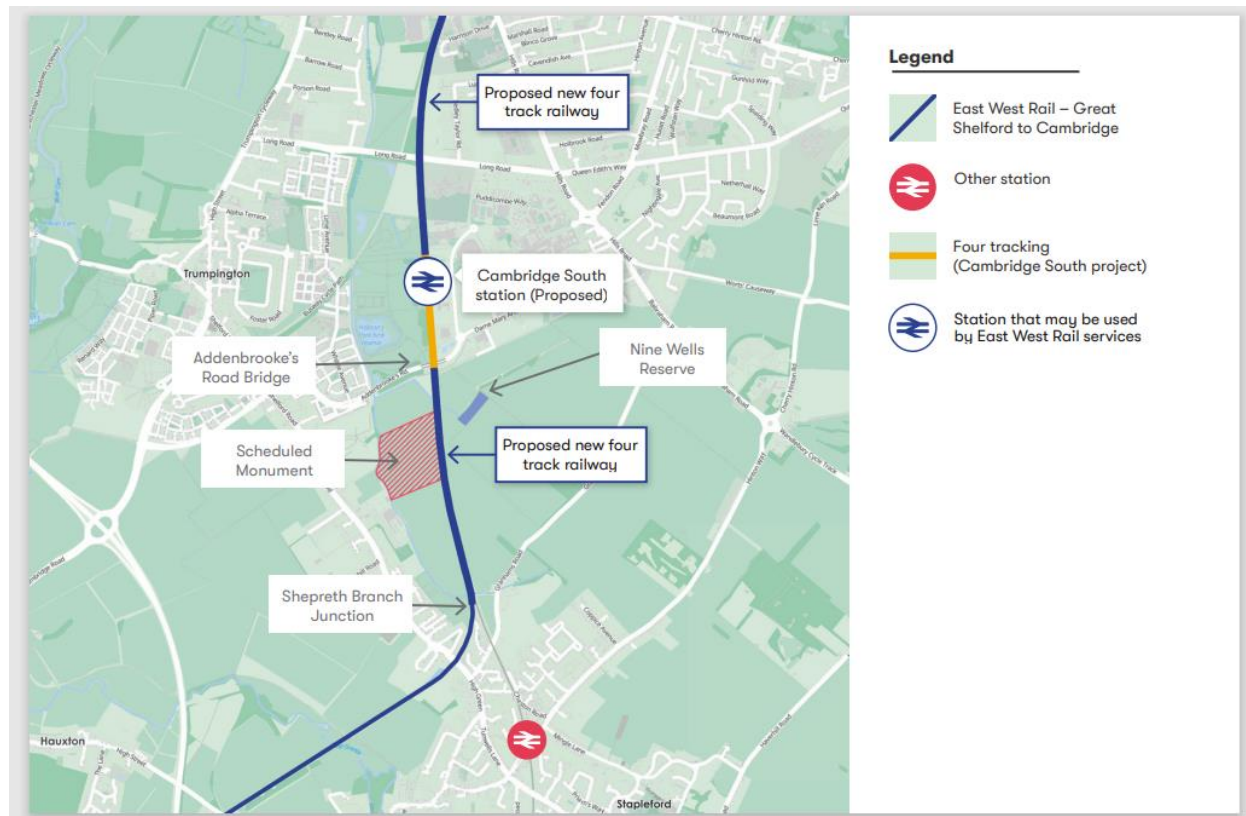
3.5 Constraints and Interdependencies

At OBC stage several constraints and dependencies were identified and set out in the Strategic Case. These need to be taken into consideration during the development of CSET Phase 2. Since the OBC was published, progress has been made in relation to the following constraints and interdependencies:

- **Available technology** – As the scheme plans to use alternative guidance systems for the public transport vehicles operating along the route, the scheme needs to demonstrate that this technology is available. Since the OBC the project team have engaged with an existing supplier of optical guidance technology and planned tests to provide assurance of the capability of this technology to meet the requirements of the project. The scheduling of these tests has been delayed by the COVID-19 pandemic, but new arrangements to complete these during June 2021 have now been made. The project has also engaged with the market around operating new vehicles. The conclusions from the market engagement show that technological guidance along the route is possible, with optical guidance technology being proven to work and operate in countries within Europe, where technical regulations governing the construction, certification and operation of road passenger transport vehicles are equivalent to those applicable in the UK.
- **Changes to legislation** – The scheme is planning to obtain the powers necessary to build the CSET Phase 2 infrastructure and operate services on it through a Transport and Works Act Order (TWAo). At present, the TWAo process does not cover all of the proposed guidance technology options the scheme is pursuing, therefore the Guided Transport Modes Order (GTMO) needs to be amended. Since the OBC the scheme has engaged with the TWA Unit at the DfT to seek the amendment. This is currently being progressed by DfT, and should the amendment be made, would enable the scheme to be delivered through a TWAo for the preferred choice of guidance system.
- **Potential Conflict with Non-Motorised Users** – The scheme includes a segregated active travel path along the length of the route, which raises concerns around safety and the need to ensure this is sufficiently separated from the public transport route to mitigate risks to users of the active travel path as a result of interacting with the public transport route. Since the OBC, the design has evolved to take this concern on board and introduce a minimum safe separation distance of 2m between the active travel path and the public transport route to mitigate the risk of an accident resulting from an active travel user falling onto the public transport route.
- **Location of utilities** – The location of utilities is a key constraint for the scheme, as these may require protection or relocation, or the route alignment to be modified in order to avoid high costs and technical difficulties in accommodating any existing utilities. A key constraint is the National Grid high pressure gas main that runs to the west of the A11 next to the Travel Hub site. As the design has progressed since the OBC, further work has been done to identify the locations of utilities, including the main gas pipeline, with the design for the preferred route alignment and Travel Hub site layout developed to avoid the constraints associated with the high pressure gas main and further engagement undertaken with National Grid. Where the need for protection or relocation of utilities has been identified, cost estimates have been requested from statutory undertakers and the estimates received will be reflected in future project cost estimates.
- **Cambridge South Station** – CSET Phase 2 and the proposed Cambridge South Station (CSS) are considered to be complementary to each other, but not interdependent, meaning each scheme could still be delivered with or without the other. All CSET Phase 2 scheme modelling, including that for the OBC, includes the CSS in both the Do Minimum and Do Something scenarios, however this was only confirmed after investigation, post OBC. Regular meetings have taken place since the OBC between CSET Phase 2 and Network Rail Cambridge South Infrastructure Enhancements (CSIE) project teams to manage the interface between the two schemes as plans have developed, including work to deconflict construction programmes and activities.

- East West Rail** – Similar to CSS, CSET Phase 2 and East West Rail (EWR) are not interdependent. However, there was a possibility that the EWR preferred route alignment could impact on the CSET Phase 2 route alignment on its approach into Cambridge from the south. Since the OBC was submitted, EWR have launched a further consultation on the scheme (March-June 2021), providing new information on infrastructure proposals, such as route alignments. For the Shelford to Cambridge section of the route (shown in Figure 3.4), this shows that EWR would join the existing Cambridge to London Liverpool Street line at the Shepreth Branch Junction. Widening of the existing two track railway into a new four track railway between Shepreth Branch Junction and CSS is proposed. Although no design information is available for the proposed four track sections of railway shown in Figure 3.4, 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. The latest EWR consultation document acknowledges that the CSET Phase 2 project is also planning works in the same area and that these will be a consideration at the next stage of design for the Shelford to Cambridge section.

Figure 3.4: EWR Great Shelford to Cambridge route alignment proposal



Source: EWR, 2021 Public Consultation

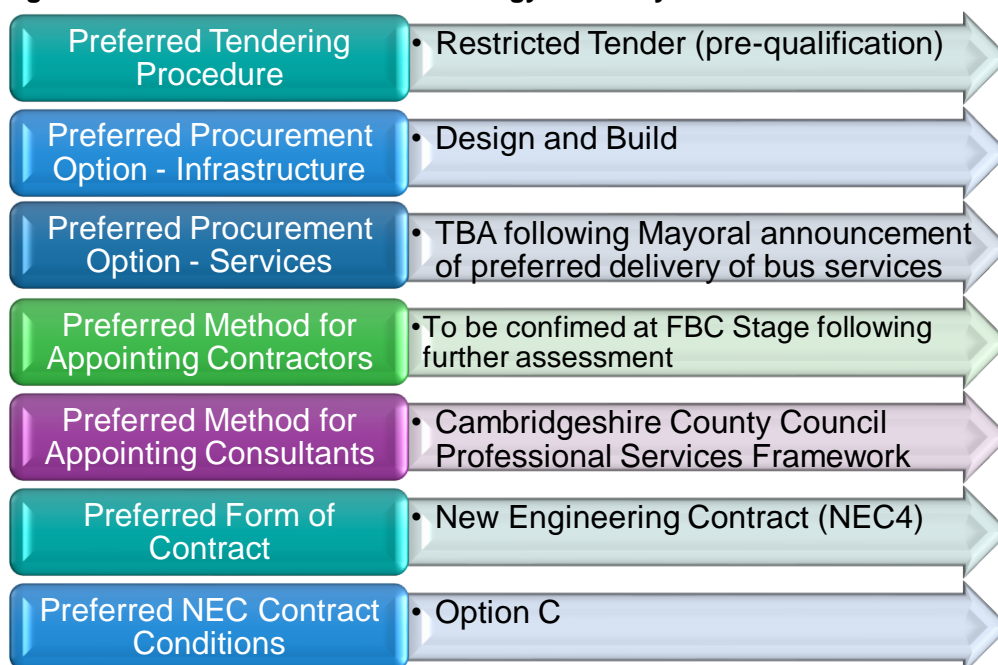
4 Market Engagement Outcome

Since the OBC was published, the scheme has undertaken market engagement with bus operators to understand the appetite for operating public transport services along the route, using the new infrastructure. This included testing the appetite for the proposed alternative guidance technology and the scheme's aspiration to utilise electric vehicles.

4.1 Procurement Strategy

The Procurement Strategy sets out the procurement options for CSET Phase 2, including the benefits and disbenefits for each option. This ultimately concluded in the OBC with a preferred Procurement Strategy and is an integral part of demonstrating that the scheme is deliverable. The established preferred Procurement Strategy presented in the OBC is summarised in Figure 5.1.

Figure 4.1 Preferred Procurement Strategy Summary



Source: Mott MacDonald, CSET Phase 2 OBC – Commercial Case (May 2020)

At the point of submission of the OBC, the preferred option for operating the services was to be confirmed following any Cambridgeshire & Peterborough Combined Authority (CPCA) Mayoral announcement on a future preferred business model for delivery of services in the Cambridgeshire and Peterborough area. Whilst work is still being progressed to firm up this element of the Procurement Strategy, the scheme has looked to understand further how the scheme could be delivered and operated within the current market framework that is in place. Primarily since the OBC was submitted, this has involved a market engagement exercise with public transport operators, the findings of which are summarised in the following section.

4.2 Market Soundings

To understand the market appetite for operating public transport services along CSET Phase 2 infrastructure, and the adoption of proposed electric vehicles with alternative guidance technology, the project carried out a market engagement exercise in December 2020 and January 2021. Four operators were selected to take part in the market engagement exercise, ranging in size and the area they covered. These operators cover both national and local levels of operation and include those who currently run services in the area, and those who don't.

The market engagement looked to understand the following points in more detail:

- Available operating models for providing services.
- Appetite in the market to engage with those models.
- Impact and influence on patronage.
- Key associated risks with those models.
- Commercial implications for use of zero emission vehicles.

In brief, this work found that the operators' response to the market engagement exercise was positive, despite the uncertainties around the potential delivery of CAM, the outcome of the CPCA investigation into a bus franchising scheme as well as the recovery from the impact of the COVID-19 pandemic, suggesting that operators will be willing to engage with GCP and the local transport authority to deliver services along the CSET Phase 2 corridor.

The following sections summarise the key findings and outcomes of the market soundings activity.¹⁶

4.2.1 Appetite to Engage with Possible Operating Models

There are several potential operating models available to the scheme, which are set out in detail in the OBC Commercial Case, however for the market engagement exercise, three potential models were discussed. These included:

- **Commercial model** – This is fully commercial operation, with a relationship directly between the operator and the passenger. Passenger payments are the main source of income, so services must be profitable in order to be sustainable, covering all cost elements of the operation.
- **Franchising** – This is a regulated bus market, with bus operators only being able to provide services under contract to the local transport authority. This offers the ability to bring together the strengths of private operators in efficient service delivery, within a public transport network coordinated and planned by the local authority.
- **Partnership approach** – This is an operating model that sees the local authority and bus operators making joint commitments to invest in the local bus network. This often involves the authority investing in on the ground infrastructure, while the operator invests in the provision of the bus fleet, although this split in resource is not always the case.

Of the operators who were engaged with, two were inclined towards a commercial operating model, suggesting that CSET Phase 2 would enable commercially successful services that wouldn't necessarily require public subsidy. The overall view was that the scheme that would be supported by operators on a commercial basis. The discussion around a partnership agreement was greeted with reasonable support, with operators acknowledging the benefits of this in allowing access for both larger and smaller scale operators into an agreement, with the potential to remove competitive risk if a quality partnership were to extend to the wider corridor. An Advanced or Enhanced Partnership scheme, building on the statutory Quality Partnership scheme made for the Guided Busway, would provide the delivery framework for a commercial operating model.

4.2.2 Impact and Influence on Patronage

Some concerns were raised about the potential impact the scheme could have on existing commercial services in the area. For example, operators believe that new services operating along the new route could have a negative impact on the ridership of existing routes. However, operators believe that a holistic approach to wider network planning could mitigate this risk by maximising patronage on both new and existing services, and a balance between existing and new services could be found.

¹⁶ Operator names have been omitted, given potentially commercially sensitive information.

4.2.3 Commercial Implications for use of Zero Emission Vehicles

CSET Phase 2 is aspiring to use all electric vehicles to operate along the new infrastructure. Operators were asked about their thoughts on this, including their preference on the technology used. The response from operators suggests they support the aspiration of the scheme to deliver ultra-low or zero emission vehicles along the CSET Phase 2 route, acknowledging the potential for this to be electric vehicles. However, the feedback suggests that range extended electric hybrid vehicles would be a potential interim solution given there were concerns over the suitability of current electric vehicles on the market to operate routes over the full length of the Haverhill – Cambridge corridor. Operators also suggested considering alternative fuel sources, such as hydrogen powered vehicles, which may overcome the range limitations of current electric vehicles whilst delivering the emissions benefits the scheme aspires to. None of the operators vocally expressed concern around the cost of delivering ultra-low or zero emission vehicles. However, one operator was keen to explore the potential for local authority ownership of vehicles, highlighting the potential benefits for futureproofing of infrastructure.

4.2.4 Technological Guidance

Discussions with operators also focused on the use of technological guidance. Again, no operators vocally expressed concern around the use of technological guidance, although comments were raised with regard to the level of benefits this could offer the scheme in its current level of development.

4.3 Market Engagement Summary

Since the OBC the scheme has engaged with bus operators to best understand the appetite to operate public transport services using the CSET infrastructure. As such, the scheme is confident there is appetite in the market to do so. In the absence of a decision on the Mayor's preferred operating model, these services could be run commercially under an Advanced or Enhanced Partnership scheme.

5 Impact of the COVID-19 Pandemic on Demand

The period since the publication of the OBC saw the relaxation of COVID-19 restrictions during the summer of 2020 resulting in some recovery in public transport demand. Demand has recovered more strongly for bus than rail – a contributory factor being the greater propensity for rail commuters to shift to home-working, whereas the occupations of bus users make this less feasible for many of them. The return to schools in September 2020 provided a further boost to demand, although this was reversed, except for school demand, during the subsequent two lockdowns.

The recovery of demand has now resumed following the re-opening of non-essential retail and the hospitality sector, aided by a relaxation of safer transport guidance for operators to permit the use of every forward-facing seat on bus services in England outside London from Monday 17 May 2021.

Data on patronage return collated by bus industry managers' group The Ten Per Cent Club has illustrated the scale of variation in recovery across the country. One bus operator serving an urban area in the North of England has seen fare paying passenger numbers on its commercial services in April recover to as high as 82% of the pre-pandemic level, while another in an urban area in the South has seen a return during April of only 47% of pre-pandemic patronage.

These early trends have informed an emerging level of consensus about how local public transport demand might recover over the next two years.

- In a November 2020 interview, Stagecoach UK Managing Director Carla Stockton-Jones saw the eventual return of 85-95% of pre-COVID levels of demand (Passenger Transport, 27 November 2020, pp20-23).

- First Bus expects to see passenger volumes return to 80-90% of pre-COVID-19 levels within one year of social distancing requirements on public transport ending. It anticipates further growth thereafter (Route One, 23 April 2021).
- A recent survey of around 400 transport industry professionals found that three-quarters of respondents expect ridership to return to pre-COVID levels, albeit that 44% expected it to take at least two years (Winning Back Ridership in the Aftermath of COVID-19, Optibus, April 2021).
- The Optibus report also identifies actions that the transport industry can take to grow ridership and address COVID-related health and safety concerns. About one-third of respondents called for increased frequency or reliability – the CSET Phase 2 scheme will deliver both.
- A report by KPMG (Maximising the Benefits of Local Bus Services, July 2020) assumes that under 'Do minimum' scenarios post-COVID demand would be down by 10% to 20% on 2018/19, a position reached in 2021/22 or 2022/3.
- A study by consultancy Steer for the Urban Transport Group (The Covid-19 Funding Gap: The Case for Continuing Support for Urban Public Transport, September 2020) suggests that local public transport might recover up to 85% of pre-COVID levels by 2022.

Although Steer's work is not based on any formal modelling, it was informed by what had happened to local public transport patronage up to the date of publication both in this country and elsewhere in the world, in particular New Zealand.

In Steer's "plausible Best Case Scenario, Scenario 4 Vaccine", which assumed that the UK would be an early adopter of a vaccine and there would be no further social distancing requirements – arguably that closest to the current situation, they postulate that:

- Local public transport demand will return to 85% of its pre-COVID levels
- This level of demand would be reached 12 months after the end of the national lockdown, i.e. mid 2022 allowing for the second and third lockdowns following publication of the report.
- There would be a steady and gradual increase in demand over this period
- After that, there would be a return to trend, which is on-going decline for bus perhaps tempered in the short to medium term by an increase in employment as the economy recovers, and modest aggregate growth for light rail and other forms of HQPT, in part fuelled by network expansion.

In summary, there is now a reasonable level of consensus amongst transport industry professionals and researchers about how local bus demand might recover over the next two years, but a high level of uncertainty remains regarding longer term trends. Accordingly, it remains too early to assess the longer-term impact of COVID on demand in the CSET Phase 2 opening year of 2025 with any confidence.

6 Next Steps

At the time of writing this technical note, a full set of updated costs using the latest designs for the preferred option were to be completed. Whilst an initial set of re-costings have been produced, these are currently undergoing independent assurance to ensure they are robust and reliable for informing an updated affordability statement for the scheme.

In addition, an updated appraisal of the scheme transport benefits based on updated modelling of the preferred option and current design has been carried out and is currently being independently assured. Additional appraisal has also been carried out examining the benefits associated with the scheme's active mode elements and the environmental benefits.

The assured updated costs and benefits will be used to produce an updated Value for Money position including a revised Benefit Cost Ratio.

Once the assurance of the updated costs and benefits appraisal has been concluded, the project will produce an OBC Addendum that captures these updates across the Strategic, Economic, Commercial, Financial and Management Cases.