



Proof of Evidence – Strategic Case for the Project (Mr Lewis Wingfield) NRE11.2

(Inquiries Procedure (England & Wales) Rules 2004)

January 2022

The Network Rail (Cambridge South Infrastructure Enhancements) Order
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GLOSSARY

CBC	Cambridge Biomedical Campus
CCiC	Cambridge City Council
CCoC	Cambridgeshire County Council
CGB	Cambridgeshire Guided Busway
CSET	Cambridge South East Transport
CSIE	Cambridge South Infrastructure Enhancements
DfT	Department for Transport
DIA	Diversity Impact Assessment
DPD	Development Plan Document
EA	Environment Agency
EIA	Environmental Impact Assessment
EW R	East West Rail
GCP	Greater Cambridgeshire Partnership
GCSP	Greater Cambridge Shared Planning
GSM-R	Global System for Mobile Communications – Railway
LTP	Local Transport Plan
NCN	National Cycle Network
Network Rail	Network Rail Infrastructure Limited
NSIPs	Nationally significant infrastructure projects
OBC	Outline Business Case - Cambridge South Rail Station
OHLE	Overhead Line Equipment
ORR	Office of Rail and Road
ROGs	The Railways and Other Guided Transport Systems (Safety) Regulations 2006
SOBC	Strategic Outline Business Case
TOCs	Train Operating Companies
TWAO	Transport and Works Act Order
UK	United Kingdom

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‘Up’ and ‘Down’ The terms ‘Up’ and ‘Down’ are rail industry standards for the direction of train travel. At this location, ‘Up’ means trains travelling towards London and ‘Down’ means trains moving towards Cambridge Station. The terms are, by extension, commonly used to refer to the lines the trains use and the side of the railway alignment. In this location, the ‘up’ side is the eastern side of the railway alignment.

WAML West Anglia Main Line

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1. INTRODUCTION

1.1 Qualifications and Experience

- 1.1.1. My name is Lewis Wingfield.
- 1.1.2. I am employed by Network Rail Infrastructure Limited as a Sponsor with four years' experience in the role. I have been employed by Network Rail in various other positions over the last seven years. In my current role, I am accountable for delivery of benefits, corporate governance, stakeholder relationships, budget and requirements of the Cambridge South Infrastructure Enhancements (CSIE) Project ("**CSIE Project**").
- 1.1.3. In previous roles I have worked on long term rail strategy and prioritisation of railway enhancements.
- 1.1.4. I hold a BA (Hons) in Philosophy, Politics, and Economics and an MA in International Studies with a focus on European rail.
- 1.1.5. My role involves leading the project team through the lifecycle of the project. I also agree the strategic purpose and direction of the project, determine the corporate risk appetite, act on behalf of the client (the Department for Transport ("**DfT**")) and am the overall ambassador for the project.
- 1.1.6. The evidence I will provide concerns the strategic context to, and case for, the CSIE Project, and consultation undertaken to date. This includes the overall outputs and outcomes of the Project, the benefits expected to be realised and the strategic and economic business case for the Project.

1.2. Involvement with the Project

- 1.2.1. I have been the sponsor of this project since August 2018 when the project was in GRIP 1 – Output Definition¹ and as such have overseen the formal design process to date including sifting of options and option selection itself.

1.3. Scope and structure of evidence

- 1.3.1. In this proof I set out:
 2. the nature of the Applicant;
 3. the contents and structure of the Application
 4. the development of the project at a strategic level
 5. approach to consultation, responses received and actions taken
 6. the need for the project and how this has been demonstrated,
 7. the benefits of the project

¹ Output Definition is the earliest stage of Governance of Railway Infrastructure Projects ("**GRIP**"). During this stage the high level outputs of the project are set out. For CSIE, the focus was on translating the objectives of the Strategic Outline Business Case into appropriate requirements and the planning and procurement of the next two GRIP stages which focus on early design and development.

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8. costs and funding
9. support, representations and objections received in response to the TWAO application.
10. A brief conclusion

1.3.2. My proof therefore deals with matters identified at points 1, 2 and 9 of the Statement of Matters dated 27 October 2021.

1.3.3. Due to its overarching nature, this evidence is drawn from multiple key documents including the Outline Business Case (**NR20**) and the Statement of Case (**E1**).

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2. THE APPLICANT

2.1 Network Rail

- 2.1.1 Network Rail owns and operates the rail infrastructure of Great Britain (the network). Its purpose is to deliver a safe, reliable and efficient railway for Great Britain.
- 2.1.2 Network Rail is primarily responsible for the maintenance, repair and renewal of track, stations, signalling and electrical control equipment. Train services on the network are operated by Train Operating Companies (“**TOCs**”) to which Network Rail, as facility owner, grants rights to use the network in the form of track, station, and depot access contracts approved by the Office of Rail and Road (“**ORR**”).

2.2 Network Rail’s Licence Obligations

- 2.2.1 The activities of Network Rail as network operator are regulated by the ORR by means of a network licence granted under section 8 of the Railways Act 1993 (**B9**). The network licence requires Network Rail to secure the renewal and replacement of the network, and the improvement, enhancement and development of the network, in each case in accordance with best practice and in a timely, economic and efficient manner so as to satisfy the reasonable requirements of persons providing services relating to railways and funders in respect of the quality and capability of the network.
- 2.2.2 As the infrastructure manager, Network Rail is also under a duty as regards the safety of the network, principally under The Railways and Other Guided Transport Systems (Safety) Regulations 2006 (“**ROGS**”). The ROGS implement the EU Railway Safety Directive and require that any Infrastructure Manager or railway operator on the mainline railway must maintain a Safety Management System (“**SMS**”) and hold a safety certificate or authorisation indicating that the SMS has been accepted by the relevant safety authority, before being allowed to operate. The ROGs are EU-derived domestic legislation which I am advised continue to have effect in accordance with section 2 of the European Union (Withdrawal) Act 2018.

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3 THE CSIE ORDER APPLICATION

3.1 Overview

- 3.1.1 The CSIE Order application (“the **TWAO application**”) includes the application for the CSIE Order (“the **proposed TWAO**”), the deemed planning application and the Open Space Certificate application. These are each dealt with in turn in the following sections.

3.2 The proposed TWAO

- 3.2.1 The TWAO application seeks powers to construct, operate and maintain the works comprised in the CSIE Project.
- 3.2.2 The main works to be authorised by the Order and the deemed planning permission (addressed below) are as follows:

In the County of Cambridgeshire, City of Cambridgeshire and District of South Cambridgeshire

In the County of Cambridgeshire, City of Cambridge—

- (a) **Work No. 1** – A railway (Down Cambridge Loop Line) (580 metres in length) on the western side of the course of the existing railway (Bethnal Green to King’s Lynn line) commencing 20 metres north of Long Road (A1134) overbridge and terminating at Work No.3.
- (b) **Work No. 2** – A railway (Up Cambridge Loop Line) (586 metres in length) on the eastern side of the course of the existing railway (Bethnal Green to King’s Lynn line) commencing 20 metres north of Long Road (A1134) overbridge and terminating at Work No.3.
- (c) **Work No. 3** – A new station (Cambridge South) located directly south of the (Guided Busway) overbridge consisting four new platforms and associated railway lines, a station footbridge with stairs and lifts, high level concourse, eastern and western entrance buildings with ticketing and staffing facilities and associated forecourt areas and a secondary means of escape footbridge.
- (d) **Work No. 4** – A new path (pedestrian and cycling) (378 metres in length) commencing at the Guided Busway route on the west side of Hobsons Park and terminating at Work No. 3.
- (e) **Work No. 5** – A new pedestrian path (96 metres in length) including an at grade crossing over the Guided Busway commencing at Work No.4 in Hobson’s Park and terminating 96 metres on the north of its commencement on the north of the Guided Busway route within the Active Recreation Area.
- (f) **Work No. 6** – A railway (Down Cambridge Loop Line) (448 metres in length) on the western side of the course of the existing railway (Bethnal Green to King’s Lynn line) commencing at Work No.3 and terminating 110 metres south of Addenbrookes Road (Nine Wells) overbridge.

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- (g) **Work No. 7** – A railway (Up Cambridge Loop Line) (447 metres in length) on the eastern side of the course of the existing railway (Bethnal Green to King’s Lynn line) commencing at Work No.3 and terminating 108 metres south of Addenbrookes Road (Nine Wells) overbridge.

In the County of Cambridgeshire, District of South Cambridgeshire [Parish of Great Shelford]—

- (h) **Work No. 8** – Realignment of the railway (Down Shepreth Branch Line) (1036 metres in length) on the western side of the existing railway commencing 775 metres south of Addenbrookes Road (Nine Wells) overbridge and terminating 25 metres east of Cambridge Road overbridge, works include the relocation of the existing telecommunications mast and associated equipment and the installation of a new equipment building.
- (i) **Work No. 9** – A crossover (138 metres in length) between the Up and Down railway lines of the existing railway (Bethnal Green to King’s Lynn line) commencing 35 metres south of Dukes No.2 Level Crossing and terminating 138 metres south of its commencement.
- (j) **Work No. 10** – Realignment of the railway (Up Shepreth Branch Line) (502 metres in length) on the eastern side of the existing railway commencing 200 metres north of Webster Level Crossing and terminating 25 metres east of Cambridge Road overbridge.

In the County of Cambridgeshire, City of Cambridge and District of South Cambridgeshire [Parish of Great Shelford]—

- (k) **Work No. 11** – Agricultural accommodation bridge over the Hobsons Brook 420m west of the railway, commencing at a point 25 metres south of Addenbrookes Road and terminating at a point 82 metres south of its commencement

3.2.3 The draft CSIE Order (**NR2**) also includes powers to compulsorily purchase and temporarily use land and property, stop up streets and public rights of way, close level crossings, undertake street works, construct and maintain new or altered highways, carry out survey and investigatory work and undertake other ancillary works and activities.

3.2.4 Mr. Barnes’s Proof of Evidence (**NRE1.2**) provides more detail on the component parts of the scheme, and Mr Simms’s Proof of Evidence (**NRE10.2**) provides more detail in respect of the land and rights sought.

3.3 Deemed planning application

3.3.1 In addition, Network Rail has applied to the Secretary of State for Transport under section 90(2A) of the Town and Country Planning Act 1990 (**B7**) for a direction that planning permission, so far as it is required, be deemed be granted for the Order works.

3.3.2 In making the request for Deemed Planning Permission, it is proposed that a direction be given that planning permission shall be deemed to be grant subject to conditions. Network Rail’s originally proposed conditions were set out in the Appendix to **NR13**. These draft planning conditions were prepared by Network Rail in consultation with officers from the Greater Cambridgeshire Shared Planning Service. The proposed conditions have however since been revised and the latest position regarding these planning conditions is set out in Mr. Pearson’s Proof. (**NRE9.2**)

3.3.3 The Proof of Evidence of Mr Pearson provides greater detail in respect of this element of the CSIE Project.

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3.4 Open space certificate

- 3.4.1 On 23 August 2021, Network Rail applied to the Secretary of State for Transport for a certificate (the Open Space Certificate) (**NR21**) pursuant to section 19 and under section 28 and Schedule 3 of the Acquisition of Land Act 1981 (the 1981 Act) (**B12**) in respect to the provision of replacement land following the compulsory acquisition of land comprising existing open space.
- 3.4.2 Network Rail has received confirmation from the Secretary of State for Levelling Up, Housing and Communities that he is minded to grant the necessary certificates. At the time of writing, one objection had been received.
- 3.4.3 Mr. Jones's Proof of Evidence (**NRE8.2**) provides more detail in respect of this element of the application.

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4 DEVELOPMENT OF THE CSIE PROJECT

4.1 Introduction

4.1.1 This section explains the development of the CSIE Project at a strategic level including the role of the business case documents. Development from an engineering perspective is covered in Mr Barnes's Proof of Evidence (**NRE1.2**). Together with that part of Mr Barnes's evidence, this addresses Issue 2 (main alternative options considered) within the Statement of Matters.

4.2 Context

4.2.1 For much of the early design stage, the Project used Network Rail's Governance of Rail Infrastructure Projects ("**GRIP**") process. In particular, the Project used GRIP for GRIP stages 1-3. GRIP 1 is output definition, which for this project primarily consisted of formalising a remit and resulting cost and programme for GRIP 2-3. GRIP 2 is feasibility, which saw the start of formal design work and the consents workstream. During this stage many options are considered and progressively sifted out based on criteria aligned with the Project's objectives. GRIP 3 is Option Selection, during which Network Rail further developed the remaining options in order to inform the selection of a single option that would be progressed.

4.2.2 Key activities for each of these stages undertaken on the CSIE Project are set out in the table below:

Stage	Dates*	Headline activities for CSIE
GRIP 1: Output Definition	March 2018- Oct 2018	Working with funders to clarify remit Procurement of design contractors for GRIP 2 and 3 Setting up project team
GRIP 2: Feasibility	Oct 2018- April 2020	Development of 'Concept' scope Development of 'OBC' (remitted) scope ² Planning surveys Round One Public consultation (key focus – station location)
GRIP 3: Option Selection	Oct 2019- May 2021	Refinement of infrastructure designs including feedback from Round One consultation Selection of station location Round Two Public consultation (key focus – access to station, footprint and construction arrangements) Additional surveys

*Please note that GRIP 2 and GRIP 3 were overlapped to aid with programme acceleration.

Table 1: Development timelines for the project

4.2.3 The Project is now using GRIP's replacement, Project Acceleration in a Controlled Environment ("**PACE**") which seeks to take a more proportionate and flexible approach to the development, design and delivery

² This is the scope based upon the Indicative Train Service Specification (i.e. quantum and type of train services) the project was remitted to accommodate.

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of rail projects. It is based on similar principles to GRIP and as such all work to date is valid within the new framework.

4.2.4 Future PACE stages are:

- PACE 2 ES5 – Detailed Design
- PACE 3 (including ES6 and ES7) - Project Delivery
- PACE 4 – Project Closeout.

4.3 Strategic outline business case

4.3.1 Prior to Network Rail's involvement in the project, options had been explored by local stakeholders for a simple two-platform station in a similar location. Whilst a two-platform option may have been possible with the lower of level train services running at the time, additions to service including those resulting from the Thameslink upgrade in 2018 meant a greater level of infrastructure was found to be required when Network Rail and operators evaluated previous timetabling work.

4.3.2 On the basis of this advice and resulting proposed rail infrastructure scope, the Department for Transport produced a Strategic Outline Business Case ("**SOBC**") (**C3**) which considered various options, including a railway station. These options were considered alongside the strategic objectives set out in section 4.4.2 below. The rail infrastructure anticipated to be required at this stage was substantially greater than that now proposed as more detailed modelling and design work have demonstrated that remitted outputs can be delivered with a smaller infrastructure solution. Owing to the relatively weak performance of the non-rail options, Network Rail was remitted to develop plans for a railway station and associated railway infrastructure in the area. The other options considered by the Department were as follows:

- i. **New longer distance direct bus or coach services:** Operating between the Cambridge Biomedical Campus ("**CBC**") and other urban centres within the Cambridge travel to work area, such as Bury St Edmunds, Ely, Huntingdon, and St Neots. This is the closest substitute to the new station option, albeit with a smaller geographical cover due to probable slower journey times than by rail, and with a likely lower overall capital cost.
- ii. **Busway service enhancement:** Increased service frequency and capacity on Cambridge Busway routes that serve Addenbrooke's Hospital, the CBC and the busway towards Trumpington Park and Ride. This option would improve transport accessibility, but mainly within the Cambridge area.
- iii. **Expanded Park and Ride sites:** Larger car parks and increased bus service capacities at Trumpington and Babraham, with Babraham services operating a loop around the CBC. Since the SOBC, increased Park and Ride capacity at Babraham serving the Campus and Cambridge City Centre is now planned to be delivered as part of the Cambridge South East Transport ("**CSET**") project promoted by the Greater Cambridge Partnership. This option would improve accessibility to and from areas where the highway network generally operates effectively.

4.3.3 Each option was scored against the core objectives of the scheme and a number of other relevant factors, with a railway station performing best. The current version of the table from section 1.5 of the OBC is reproduced in Table 2 below. The formatting of this version of the table is better suited to presentation in this document.

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Objective	Option			
	Busway service enhancement	New longer distance direct bus or coach services	New Cambridge South rail station	Expanded Park and Ride sites
1 – sustainable transport access	Moderate beneficial	Moderate beneficial	Large beneficial	Slight beneficial
2 – minimise highway congestion	Slight beneficial	Slight beneficial	Moderate beneficial	Slight adverse
3 – reduce reliance on Cambridge city centre transport infrastructure	Neutral	Moderate beneficial	Large beneficial	Slight beneficial
4 – integrating and enhancing Thameslink and East West Rail opportunities	Neutral	Neutral	Large beneficial	Neutral
5 – connectivity to international gateways	Slight beneficial	Moderate beneficial	Large beneficial	Neutral
Deliverability (risk level)	Low	Low	Medium	Medium
Financial affordability (risk level)	Low	Medium	Medium	Low
Stakeholder acceptability (risk level)	Medium	Medium	Low	Medium

Table 2: Evaluation table for all options considered taken from the Outline Business Case (minor update of version from SOBC)

- 4.3.4 In addition, the Benefit Cost Ratios (“BCRs”) for the alternatives were judged to be far lower than a railway station when assessed in line with HMT Green Book methodology. Busway service enhancement was found to have a BCR of 1.0 representing low/poor value for money, and longer distance coach services to have a BCR of 0.0 representing very poor value for money. A BCR for expanded Park and Ride was not calculated owing to its poor performance against the strategic objectives as set out in Table 2 above. The railway station option has a BCR of 1.9 (medium value for money) in the Outline Business Case, and interim analysis undertaken since its production has indicated that the BCR could be 2.2, putting it into the high value for money category.

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4.4 Development background

4.4.1 During GRIP stages 1-3, the following principal alternative options for the CSIE Project were considered:

- i. No development
- ii. Four means of public transport (of which one was the railway station; the others as described in the preceding section)
- iii. Six railway station locations and layouts and four Shepreth Branch Junction layouts

4.4.2 During this process, the options were assessed against the following strategic objectives (the Strategic Objectives):

- i. Improvement in sustainable transport access to housing, services, and employment within the Cambridge Southern Fringe and CBC area, to fulfil existing and future demands.
- ii. Contribution to minimising highway congestion associated with the Southern Fringe and Cambridge Biomedical Campus by increasing the mode share for sustainable transport modes.
- iii. Reducing reliance on Cambridge city centre transport infrastructure for serving the Southern Fringe and Biomedical Campus.
- iv. Capacity to integrate with and enhance the opportunities presented by Thameslink and East West Rail (“**EW**R”), to support development of the Biomedical Campus as part of the Golden Triangle life sciences cluster.
- v. Increasing public transport connectivity between the Cambridge Biomedical Campus and international gateways, in recognition of its international significance.

4.4.3 Details of the consideration of each option, and the subsequent development and refinement of the CSIE Project is set out below, by GRIP stage.

4.5 GRIP 1: Output Definition

4.5.1 As noted above, at the inception of the project, a SOBC (**C3**) was produced, which assessed the option of a railway station adjacent to the CBC. The outcomes of this assessment led to funders remitting Network Rail to undertake development work on a railway station and formed the starting point for GRIP 1. It was at this stage that the alternative options set out in the Introduction above were initially considered. The conclusions of the assessment of each of the options is summarised briefly below.

4.5.2 The ‘No Development’ option

4.5.2.1 At the time of the assessment, the (now superseded) Cambridgeshire Local Transport Plan (“**LTP**”) 2011-2031 (**D18**) identified the need for a new station to serve the Addenbrooke’s Hospital, the CBC and the Cambridge Southern Fringe residential development.

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- 4.5.2.2 The LTP Long Term Transport Strategy (**D18**) also recognised that ‘additional track capacity is likely to be needed between Cambridge Station and Shelford junction [referred to as Shepreth Branch Junction within Network Rail’s Statement of Case to this inquiry] to facilitate this work’.
- 4.5.2.3 Network Rail therefore concluded that a ‘No Development’ option would not be in line with planning policy.
- 4.5.2.4 Subsequently, the LTP 2011-2031 (**D18**) was superseded by the Combined Authority Local Transport Plan (**D9**). The current Plan identifies Cambridge South Station as one of the Combined Authority’s priority transport schemes, and recognises that the new station would support development at the CBC and would help to relieve congestion in and around the campus. The view that a ‘No Development’ option would conflict with planning policy therefore continues to be valid, notwithstanding the change of policy.
- 4.5.2.5 It was further recognized that the planning policies adopted in Cambridgeshire indicate that it is expected to accommodate a significant level of employment and housing growth. Having regard to this, and as set out in the SOBC and reaffirmed in section 1.2 of the Outline Business Case for the Cambridge South Rail Station (2021) (**NR 20**), the ‘No Development’ alternative was considered also to be likely to result in:
- i. Increased pressure on an already constrained Cambridge Station, as all rail trips associated with the Southern Fringe and CBC currently route through the main city centre station;
 - ii. Increased levels of highway congestion on radial routes, and local routes throughout the Southern Fringe, and for longer periods of the day. Increased congestion is likely to reduce the attractiveness and viability of later development phases;
 - iii. Accessibility problems for employees based at the CBC, due to highway congestion, constrained parking availability, and indirect public transport journeys; and
 - iv. Increased emissions and reduced air quality within the Cambridge Air Quality Management Area, which would additionally have adverse climate change implications.
- 4.5.2.6 In combination, these issues have the potential to affect the ability of businesses at the CBC to retain their highly skilled and globally mobile employees, and ultimately the success of the entire CBC.
- 4.5.2.7 Supporting the workforce with good connectivity between key employment and residential sites will continue to be important for Cambridge’s current and future economic competitiveness on an international scale.
- 4.5.2.8 On the basis of all of the above, it was therefore concluded that the ‘No Development’ alternative would not meet the Strategic Objectives.
- 4.5.3 Four Public Transport Options
- 4.5.3.1 Four public transport options were considered in section 2.5 of the SOBC (**C3**) against the Strategic Objectives as set out in Section 4.3 of this Proof.
- 4.5.3.2 It was identified that a new Cambridge South Station has the potential to bring about large beneficial impacts aligned to four of the five objectives, and therefore achieved the highest rating. The SOBC (**C3**) reported as follows:

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- i. A new Cambridge South rail station would connect the CBC directly to international airports including London Stansted and London Gatwick, via the rail network. Long distance coach services could also be beneficial, but only if direct services were provided from multiple airports to the Biomedical Campus. The other options would not lead to a noticeable benefit for international travellers.
- ii. All options improve sustainable transport accessibility, but Cambridge South Station is rated above other options because it represents a substantial upgrade in provision.
- iii. Three of the four options would help to minimise highway congestion associated with the development areas. However, Park and Ride expansion received an adverse rating as this would be likely to encourage higher traffic volumes in the Southern Fringe area.
- iv. To effectively reduce reliance on city centre transport infrastructure, the selected scheme must provide direct access to the CBC from the national transport network. Long distance coach services could contribute to this. Cambridge South Station would contribute the most by connecting the Southern Fringe area to London and in future the East West Rail link could connect the area to other parts of the Golden Triangle.
- v. The Cambridge South Station proposal is designed to integrate with and complement the Thameslink and potential future East West Rail schemes. The other options have less of an ability to integrate.
- vi. Deliverability risk is considered to be higher for options requiring a significant level of new infrastructure.

4.5.3.3 Although the Cambridge South Station option is likely to be the most challenging option in terms of deliverability and is the highest cost option, the assessment that formed part of the SOBC showed that the station is the most effective way to deliver the Strategic Objectives. This is largely because it provides the most substantial improvement in public transport accessibility between the CBC and the Southern Fringe and the largest potential catchment area. The OBC (NR 20) revisited these considerations and reconfirmed this conclusion of the SOBC.

4.5.3.4 No design work for the CSIE Project took place in GRIP 1 other than very high-level operational modelling which produced some indicative track layouts. Refinements to the remit during this stage allowed the project to progress with GRIP 2 without undue risk of excessive development costs that could have resulted from a poorly defined remit. Procurement during this stage gave funders confidence of cost certainty for GRIP 2 and 3.

4.6 GRIP 2 – Feasibility

4.6.1 During this stage our design consultant was brought on board, and significant development work commenced to identify feasible options that achieved remitted outputs in a way that was likely to represent good value for money.

4.6.2 As site constraints and opportunities formed an integral part of the sifting and option selection process for the CSIE Project these are explained here before the process of development itself is explained.

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4.6.3 Key engineering constraints

- 4.6.3.1 A number of structures or civil assets, including bridges, culverts and a Global System for Mobile Communications-Railway (“**GSMR**”) mast, were identified along the proposed route. Within the proposed extents (i.e. just south of Shepreth Branch Junction to Cambridge Station) there are a number of assets that require consideration when producing the design options. Mainly, these are structures that are identified as constraints or would need to be modified, removed or replaced.
- 4.6.3.2 A review of the existing buried services identified several buried services present within the project boundary. A schedule of the assets and whether the service is likely to be impacted by various layout options was included in optioneering considerations.
- 4.6.3.3 Existing overhead line equipment constraints between Shepreth Branch Junction and Cambridge Station were identified as:
- Position of the Neutral section³ and Track Sectioning Cabin⁴
 - Overbridge electrical clearances
 - Overbridge parapet heights

4.6.4 Environmental constraints

- 4.6.4.1 The location of the CSIE Project is subject to a number of environmental constraints which have been taken into account in the project development, including:
- i. Green belt designation;
 - ii. Flood risk;
 - iii. Historic environment; and
 - iv. Biodiversity interest.

4.6.5 Green Belt

The Green Belt designation relates to the western portion of the site, which lies within Hobson’s Park, which forms part of the Cambridge Green Belt, and contains the Hobson’s Park Nature Reserve. Further details of this are included in Mr Pearson’s Proof of Evidence (**NRE9.2**).

4.6.6 Flood risk

- 4.6.6.1 The Environment Agency (“**EA**”) ‘Flood Map for Planning (Rivers and Sea)’ (see Figure 7 in the Flood Risk Assessment (NR16 Volume 3: Appendix 18.2), “**FRA**”) shows that the majority of the CSIE Project is located in Flood Zone 1 (low probability). Land where the station is proposed is designated as Flood Zone 2 (medium probability) and Flood Zone 3 (high probability). The source of flood risk is identified by the EA as the North Ditch.
- 4.6.6.2 A study has been undertaken to qualify fluvial flood risk to the CSIE Project from North Ditch. The modelling results showed that no out-of-bank flooding is predicted for the 1 in 100 year or 1 in 1,000 year events.

³ Neutral section is a section of overhead line that is not energised

⁴ Track sectioning cabin - At the neutral section between the feeder stations, a Track Section Location (TSL) or a Track Section Cabin (TSC) can be found. These are in place to measure and transform the current and the voltage to the overhead line.

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4.6.6.3 There are areas of elevated surface water flood risk and a surface water flow path in the vicinity of the proposed station. These have been taken into account in the drainage design for the proposed station, as detailed in section 6 of the FRA (NR16 Volume 3: Appendix 18.2). Similarly, areas of elevated surface water flood risk along the railway line have informed the drainage proposals for the rest of the CSIE Project.

4.6.6.4 Further details relating to flood risk are provided in Chapter 18: Water Resources and Flood Risk of the Environmental Statement (NR16), in Ms Brocken's Proof of Evidence (**NRE5.2**), and Mr Pearson's Proof of Evidence (**NRE9.2**).

4.6.7 Historic environment

4.6.7.1 There is one designated asset within the CSIE Project boundary, being the Scheduled Monument west of White Hill Farm. There are several Listed Buildings within 200m of the boundary, including the Nine Wells Monument, located within the Nine Wells Local Nature Reserve.

4.6.7.2 The land within the site boundary and the surrounding landscape demonstrates significant archaeological potential, with all periods represented in the archaeological resource from the Mesolithic through to the Modern. The focus of activity in the study area occurred during the Iron Age and Roman periods when the landscape was more actively used by human settlement.

4.6.7.3 The Project's development and design work has aimed to reduce negative impacts on these features. Further details of this are covered in Ms Wylie's Proof of Evidence (**NRE7.2**) and the Chapter 11: Cultural Heritage of the Environmental Statement (**NR16**).

4.6.8 Biodiversity

4.6.8.1 Eversden and Wimpole Wood Special Area of Conservation is located approximately 11km from the site. There are also a number of Local Nature Reserves of county importance within 2km of the site, including the Nine Wells Local Nature Reserve. There are City Wildlife Sites within the site boundary, namely Hobson's Brook, as well as adjacent to the site boundary, namely Long Road Plantation. There are also a number of City Wildlife Sites and County Wildlife Sites within 2km of the site.

4.6.8.2 The CSIE Project's development and design work has aimed to reduce negative impacts on biodiversity in the area. For example temporary and permanent land requirements have been reduced in the design stage and measures to allow for the project to achieve biodiversity net gain of at least 10% have been developed. Further detail is provided in Chapter 8: Biodiversity of the Environmental Statement (**NR16**) and in the Proofs of Evidence of Mr Pearson (**NRE9.2**) and Mr Guy Stone (**NRE12.2**).

4.6.9 Site Opportunity

4.6.9.1 In addition to the site constraints, the area of the CSIE Project presents an opportunity in relation to sustainable travel.

4.6.9.2 As part of the Transport Assessment, a gap analysis of the existing walking and cycling infrastructure was undertaken to identify opportunities to improve provision, connections, widths and quality of existing infrastructure and facilities where possible without adding in additional scope or cost to the CSIE Project.

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4.6.9.3 To facilitate access to the station and to promote sustainable transport modes for passengers, several additional changes to the existing infrastructure are proposed:

- Widening of the existing crossing on the southern arm of Francis Crick Avenue/Cambridgeshire Guided Busway (“CGB”) junction to accommodate additional pedestrian and cycle movements between the station and trip attractors and generators within the CBC; and
- Widening of the existing crossing on the CGB connecting Trumpington residential area and Hobson’s Park and adjacent section of the shared use path on the western side of the CBG to accommodate additional pedestrian and cycle movements.

4.6.9.4 The CSIE Project will encourage active travel which also has positive health and climate change implications, although this is not location specific.

4.7 Evolution of the Design in GRIP 2

4.7.1 As set out in the above, the design for Cambridge South Station evolved through three clear stages within Network Rail’s project governance model known as Governance for Railway Investment Projects (GRIP). GRIP 1 is a pre-feasibility stage involving problem definition, GRIP 2 is an option identification and feasibility stage. GRIP 3 is option development and single option selection.

4.7.2 Initial Concept Design (GRIP2A) for the Wider Railway Network around Cambridge

4.7.2.1 Design work started in GRIP 2. Concept Designs were developed during GRIP 2A for different operational concepts for a future 4 track layout.

4.7.2.2 Different track layout options and different station locations were developed to deliver the 2043 Indicative Train Service Schedule (“ITSS”). This ITSS is a document that includes potential future uplifts in services on the railway network around Cambridge Station including those anticipated to be operated by the East-West Rail company.

4.7.2.3 The key purpose of this work was to anticipate future railway layouts running through Shepreth Branch Junction to the south, a new station at Cambridge South, Cambridge Station and onwards to the north to the Coldham’s Lane Junction, and ensure that the CSIE Project could co-exist successfully with those if and when they eventually come forward.

4.7.2.4 It should be noted that this larger scope was never remitted to Network Rail for delivery, it was only intended to better inform the design of the CSIE Project.

4.7.3 Outline Business Case Design (GRIP2) for the Cambridge South Station

4.7.3.1 GRIP 2 designs specific to the CSIE Project were limited to the railway infrastructure required to support a new station, comprising:

- Track layouts
- Station locations; and

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- Operational layouts

4.7.3.2 The track and signalling layout was designed to accommodate a new station for Cambridge South to deliver the 2020 Indicative Train Service Schedule. This layout allows for this primarily by maintaining the three minute headway of the line (i.e. allowing trains to run a minimum of three minutes apart) whilst allowing for flexibility over which services call at the new station. The key objective is that the new Cambridge South station does not preclude options for additional rail infrastructure should this be required in the future. This is why the future (2043) state of the network was considered as part of the 'concept' stage of design.

4.7.3.3 At GRIP 2 stage, station design was primarily associated with location and these were referred to as the South, Central and North options, referring to the proposed location of the station between Addenbrookes Road (Nine Wells bridge) in the south and the Guided Busway bridge (Addenbrooke's Bridge) to the north.

4.7.3.4 The 3 alternatives considered were:

- North – close to the Guided Busway bridge
- South – close to the Addenbrookes Road bridge
- Central – located almost equidistant between the two bridges

4.7.3.5 Images of these station options are provided in Figure 1 below.

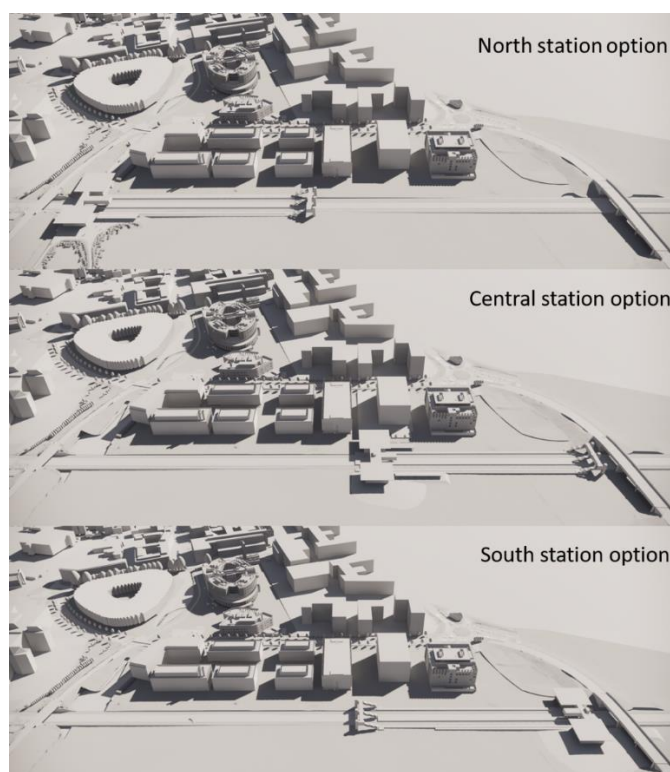


Figure 1: Station options

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- 4.7.3.6 There was no preference identified at this stage as to whether the main station facilities would be focussed to the west of the railway or the east, or both. The options proved the high-level feasibility of the proposals.

Operational layouts

- 4.7.3.7 Track and signalling high level designs and a footprint for a station were developed for the three Operational Layouts (see Figure 2), with tweaks for each of the three station location options. Layouts proposed also included layouts with curved platforms to avoid the Scheduled Monument to the south - all were considered to be feasible.

- 4.7.3.8 The three Operational Layouts were:

- Option T2a – a four-platform station with two island platforms with loops either side
- Option T2b – a four-platform station with three island platforms
- Option T6 ‘Lite’ – a hybrid of T2a/T2b, and T6 (i.e. four-platform layout with additional platforms constructed to the site) with less infrastructure

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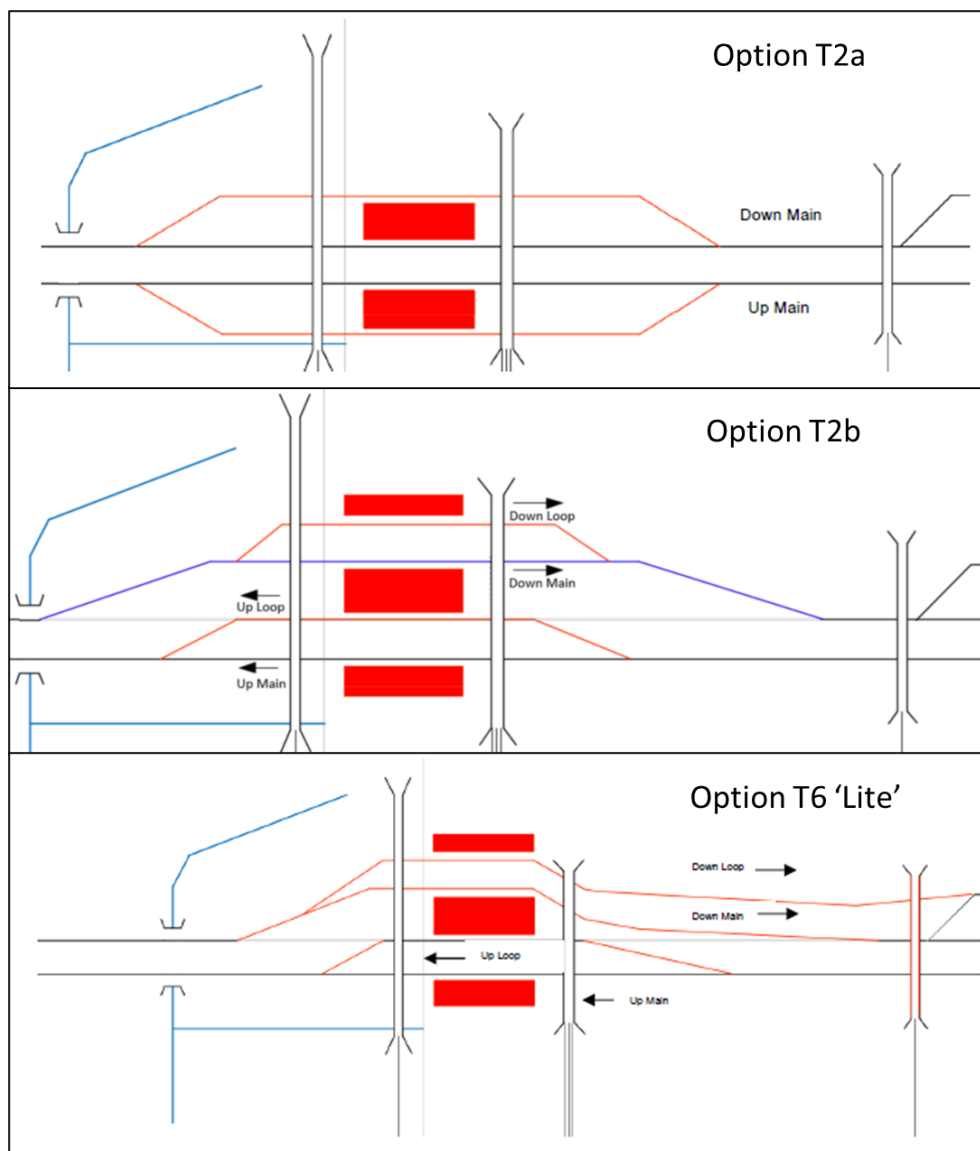


Figure 2: Operational Layouts (T2a, T2b and T6 'Lite')

Consultation During GRIP 2

4.7.3.9 This level of design information was used to inform the first round of consultation with statutory and non-statutory consultees. In summary, the feedback received concerning the location options was as follows:

- The Northern station option was favoured by the majority of stakeholders as it is closest to the centre of the CBC, and offers the best opportunity for interchange between services on the Busway and bus stops. However, concerns were expressed that this location could cause the most disruption to Addenbrooke's Bridge (Guided Busway) during construction.
- The Central station location option poses spatial constraints for the University of Cambridge's

developments adjacent to the railway track.

- The Southern station location option was favoured by a small number who felt it would better serve the future proposed expansion of the CBC, which is proposed to the south.

4.7.3.10 Where environmental concerns were raised during the first round of consultation, these were taken into account during the process of option selection as appropriate. The Environmental Statement (**NR16**) outlines how consultation feedback has been addressed in each topic chapter. The Consultation Report (**NR7**) also provides information on feedback from consultation, including responses citing environmental concerns.

4.8 GRIP 3: Option Selection

4.8.1 GRIP 3 built upon all the information gathered and produced in GRIP 2 to further refine remaining options and compare and contrast their benefits and challenges in order to select a single option. This included consideration of feedback from the first round of consultation.

4.8.2 Operational concept development

Early operational modelling of the railway in GRIP 3 predicted that the Option T6 Lite layout offered additional benefits, but the additional cost and environmental impact (due to increased land requirements and additional infrastructure) was not considered justified. This option extended a third track to the north of the proposed Cambridge South station connecting to the Down Loop line at Long Road (see Figure 4.2). In view of the additional cost and environmental impacts, the project team took a decision to stop the development of T6 Lite options. Only the T2a and T2b layouts were therefore pursued at this time.

4.8.3 Track and Signalling development

4.8.3.1 During GRIP 3, track layouts were prepared for individual station locations.

4.8.3.2 An opportunity was also identified to modify the T2b layout to support an option for a northern station that both obviated the need to demolish and reconstruct Addenbrookes Bridge carrying the Guided Busway and which had a reduced footprint in Hobsons Park. This became known as T7.

4.8.3.3 Track layouts associated with the T2a, T2b, T6 Lite and T7 operational layouts were sifted at a workshop on 24 February 2020. The workshop concluded that the T7 options were preferred. This sift was nominally part of GRIP 2 but took place at the outset of GRIP 3 given the overlap of stages.

4.8.4 Station location options

4.8.4.1 Conceptual station arrangements were considered for each of the Southern, Central and Northern locations between the Nine Wells and Addenbrooke's bridges.

4.8.4.2 initial sift was undertaken, rationalising the conceptual arrangements to six feasible station access options. The six options were:

- i. North – 2 (West = Full access; East = pedestrian and cycle (P&C) access)

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- ii. North – 4 (West = P&C access; East = Full access)
- iii. Central – 2 (West = Full access; East = P&C access)
- iv. Central – 4 (West = P&C access; East = Full access)
- v. South – 2 (West = Full access; East = P&C access)
- vi. South – 4 (West = P&C access; East = Full access)

4.8.4.3 These options all met Network Rail's key criteria, which were:

- Provide access for passenger & emergency vehicles to one side of the railway only.
- Provide pedestrian and cyclist access to both sides of the railway.

4.8.4.4 However, these options did not all perform equally well with regards to Network Rail's 'additional development objectives', which are set out below:

- i. To ensure there is likely to be no significant detrimental impact upon the purposes of the Cambridge Green Belt in this area.
- ii. To ensure there is likely to be no significant detrimental impact upon purposes and character of the adjacent Hobson's Park.
- iii. To ensure there is likely to be no significant detrimental impact upon the route, character, hydrology and biodiversity of Hobson's Conduit and its tributaries.
- iv. Avoiding a significant impact upon the purpose biodiversity of the surface water attenuation features between Addenbrooke's Bridge and Nine Wells Bridge.
- v. Providing a legible transport interchange within the Southern Fringe between the CBC and Clay Farm.
- vi. To ensure there is likely to be no significant detrimental impact upon the local road network and parking.
- vii. Avoiding a significant detrimental impact upon the scheduled monument and its setting.

4.8.4.5 North - 4, Central - 4 and South - 4 performed well; no significant detrimental impacts upon the additional development objectives were predicted, while North - 2 and Central - 2 did not perform well. These options were considered likely to bring about significant detrimental impacts upon the Green Belt and Hobson's Park due to the imposition of the station's full vehicular access requirements in that location. This was factor was also applicable to South – 2, but just in terms of the likely impact on the Green Belt.

4.8.4.6 These six layouts were then developed forming localised responses to acknowledge key site constraints and opportunities. Although it was identified that three of the options would likely bring about

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significant negative environmental effects, those options nonetheless met the key criteria. Other factors were required to be taken into account, for example, operational performance and cost. In addition, the iterative design process presented an opportunity to mitigate the risks identified.

4.8.5 Sifting Station Location and Access Options

4.8.5.1 Two separate sift workshops attended by key project personnel and relevant technical experts were conducted to reduce the number of station location and access options. Initially, the list of six options was reduced to three at a sift workshop on 1 April 2020. These were:

- North – 4 (West = P&C access; East = Full access)
- Central – 4 (West = P&C access; East = Full access)
- South – 2 (West = Full access; East = P&C access)

4.8.5.2 Generally, the provision of full access via routes through Hobsons Park was not preferred due to the environmental impact. However, it was judged that a western highway access for a southern station had less impact on the park directly, albeit this was still in the Green Belt. The southern station option was further developed to move the station building further to the south alongside the Addenbrookes Road embankment to further reduce the visual impact.

4.8.6 Option selection

4.8.6.1 A further option selection sift workshop was held on 28 May 2020 where the three options were considered.

4.8.6.2 These three options all shared track layout T7 and a comparable station building concept and size. The track layout had been chosen to minimise impact on the Green Belt and existing infrastructure, but the station building had not yet been developed in significant detail. The three options considered are summarised below:

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Station	Road	Key Advantages	Key Disadvantages
Northern	East	<ul style="list-style-type: none"> - Preferred by most stakeholders and public - Closest to key destinations/greatest passenger journey time benefit - DfT/funder preference - Smaller land take requirement than Southern option - Avoids High Pressure Gas main - Least operational noise impacts 	<ul style="list-style-type: none"> - Site is most constrained (adjacent to AstraZeneca and drainage structures) - Marginal journey time impact (c. 2 seconds) for some non-stopping trains - Possible need for Temporary Speed Restrictions during construction (c.2seconds of journey time impact) - More complex and slightly longer construction programme - Complexity of integration with busway extension (C-SET)
Central	East	<ul style="list-style-type: none"> - More space on eastern side - No marginal journey time impact for some non-stopping trains 	<ul style="list-style-type: none"> - Conflict with land to East - Identified for future lab development. - Traverses High Pressure Gas Main - Significant Landowner security concerns over sharing access roads - Concerns around visual and access impact on Hobson's Park - Potential higher operational noise impacts at the Anne McLaren Building - Least popular at consultation

Table continues overleaf

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Station	Road	Key Advantages	Key Disadvantages
Southern	West	<ul style="list-style-type: none"> - No marginal journey time impact for some non-stopping trains - Sufficient space for bus turnaround facilities etc. - Avoids High Pressure Gas Main - Least constrained option for construction and future growth 	<ul style="list-style-type: none"> - Strong stakeholder objections to western road access (including council planning department) - impacting Hobson's Park - Greatest use of green belt - Furthest away from campus destinations so smallest journey time benefit.

Table 3: Key advantages and disadvantages of the three station options

4.8.6.3 The sift considered many factors, but the key differentiators are shown in the table above. In general, there were no significant differences in the overall environmental impact of the Northern, Central and Southern options. The conclusion reached in the sift workshop was that the Southern option was preferred from a technical perspective (as it has the least engineering, programme and cost risk due to lesser complexity and the greater amount of space). However, it was clear that stakeholders had to a great extent expressed a preference for the northern option, and that progressing the southern option would likely make the future of the project far more challenging due to the concerns previously raised by key stakeholders. Further design work on Shepreth Branch Junction, to increase the line speed, has subsequently removed the journey time impacts associated with the Northern option.

4.8.6.4 The project team discussed the issues with the DfT, as lead client, which confirmed that as the options were expected to be of similar cost, and because of the strength of support for the Northern option as well as level of stakeholder concerns regarding the Southern option, it was most prudent to proceed with the option which would retain the greatest level of local support. This led to the selection of the northern option.

4.8.6.5 This option was expected to have the simplest passage through the TWAO process, and was also demonstrated to provide the most convenient access to key destinations, which is evidenced by section 1.6.1 in the OBC (NR20) through work on journey time savings undertaken by DfT.

4.8.7 Additional Track and Signalling Works to Enhance Operational Performance

4.8.7.1 Network Rail reviewed the operational performance of the proposals at each stage of option development. The final iteration of operational modelling identified some concerns that the proposed track and signalling layouts could have a negative impact on some services. This was a key project requirement and opportunities to develop additional capability were therefore explored.

4.8.7.2 Primarily, this looked to increase the operational speed of Shepreth Branch Junction, which is currently 30mph and which needed to be increased to 50mph. In addition, a new crossover was proposed at Hills Road just outside Cambridge Station to support parallel moves into and out of Platform 7&8. Some modifications to signal locations were also proposed to reduce headways (i.e. space between trains).

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4.8.7.3 Whilst the signalling works and the works at Hills Road are contained entirely within the railway boundary, the modifications to Shepreth Branch Junction needed to be more extensive and the options were explored and are summarised in the following section.

4.8.8 Shepreth Branch Junction

4.8.8.1 The junction remodelling would be achieved by means of an 'opened out' double junction. Four options were considered in order to deliver a junction speed of 50mph, in terms of their impacts upon the area of the existing junction and surrounding infrastructure, constructability, maintainability and prevalence of any non-preferred geometry or componentry.

4.8.8.2 The option referred to as Option 3 was selected as the preferred layout for the proposed modifications to Shepreth Branch Junction. This decision was predominantly safety and engineering driven since one option was not acceptable to the route asset engineer and another would have introduced additional safety risks to maintenance staff seeking to access the Global System for Mobile Communications-Railway (GSM-R) mast. Of the two remaining options, the one with the lowest impact on non-railway land was chosen. Option 3 was the minimum operationally acceptable solution.

4.8.9 Conclusion of option selection process

4.8.9.1 The Project identified that a northern station location with vehicular access from Francis Crick Avenue provides the best solution for a Cambridge South Station. Additional infrastructure is required to ensure that there are no service disbenefit for passengers resulting from the new station. These works are in the form of a new higher speed extended double junction at Shepreth Branch Junction along with a new crossover immediately south of Cambridge Station at Hills Road.

4.8.9.2 The environmental impacts for all options for the station location and Shepreth Branch Junction works were assessed but were not the deciding factor during the option selection process as the decision was made against cumulative impact when considering all categories equally.

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5 CONSULTATION

5.1 Overview

5.1.1 This section summarises the consultation undertaken by Network Rail detailed further in the Consultation Report (**NR7**) in relation to the CSIE Order application.

5.1.2 The stages reported on in this section are:

1. The early engagement undertaken with key stakeholders in 2016 and 2017
2. Stakeholder identification
3. The carrying out of a first round of consultation between 20 January and 2 March 2020 to seek feedback predominantly on three options for the location of the station and potential access from both sides of the railway for each option (Round One consultation).
4. Engagement following the Round One consultation
5. The carrying out of a second round of consultation held between 19 October and 29 November 2020 to obtain views on the massing and footprint for the station, to demonstrate an operational layout and space for 1,000 cycles, access arrangements on both sides of the railway, the need and scope of enhancement works at Shepreth Branch Junction, how the station could look and emerging construction design and methodology (Round Two consultation).
6. Engagement following the Round Two consultation

5.1.3 Engagement with affected landowners (including ongoing engagement) is covered in the Proof of Evidence of Mr Simms (**NRE10.2**). The topic-specific proofs also set out pre- and post-application consultation in relation to their relevant discipline.

5.2 Early Engagement

5.2.1 A station to serve the CBC was identified as part of the Cambridgeshire Long Term Transport Strategy. It was considered that a railway station adjacent to the CBC would provide a significant benefit to the local transport network, the CBC and to current and new residents in the south of Cambridge.

5.2.2 Early work undertaken in 2016 by John Laing Group Plc, with support from AstraZeneca and Cambridgeshire County Council, focused on timetable feasibility of a station with two platforms on the current twin tracks of the West Anglia Main Line ("**WAML**").

5.2.3 Further timetable analysis was subsequently carried out which demonstrated the need for a station with four platform faces to provide a reasonable level of service at the station and having four tracks in the vicinity of the station to allow non-stopping trains to pass by without journey times being impeded.

5.2.4 In the 2017 Autumn Statement, the Chancellor announced £5m to match funds from three local partners, the GCP, AstraZeneca UK and Cambridgeshire and Peterborough Combined Authority, and consequently Network Rail assumed responsibility for progressing the development of a station with four platform faces and enabling works.

5.3 Stakeholder mapping

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- 5.3.1 A stakeholder mapping exercise was undertaken to assist consultation in terms of compliance with the Transport and Works Act Application Rules 2006 (the 2006 Rules) (**B3**) (Rule 10(2)(d)). It has also aided the general method of consultation and engagement. In addition, Network Rail has also sought to engage with others who are not specified within the 2006 Rules but have been identified as part of the ongoing engagement strategy.
- 5.3.2 Table 3.1 of NR7 sets out all groups and organisations that were consulted upon the CSIE Project through two rounds of public consultation and who were served or notified under either Schedule 5 or Schedule 6 of the 2006 Rules (known as Schedule 5 or 6 consultees).
- 5.3.3 The administrative boundary between Cambridge City Council and South Cambridgeshire District Council runs through the CSIE Project. Network Rail entered into formal pre-application discussions with the authorities' fully integrated planning service delivered through the Greater Cambridge Shared Planning ("GCSP") Service. Regular meetings have taken place between Council officers and the Network Rail project team, its consultants and designer. This engagement has seen GCSP provide technical and planning input into both the design and scope of the Environmental Statement chapters in particular.
- 5.3.4 Engagement has been undertaken with Cambridge County Council ("CCoC") as the Local Highways Authority on the Transport Assessment, as the Lead Local Flood Authority on flood issues and as landowners on property matters.
- 5.3.5 Network Rail has been in technical dialogue with all known statutory undertakers who have equipment in the areas that are subject to the proposed CSIE Order. Cadent Gas and South Staffordshire Water objected to the scheme proposals in respect of protection of their assets (see **OBJ12** and **OBJ16**). Discussions between parties have been ongoing, Network Rail are providing Protective Provisions for both parties and a number of other statutory undertakers which will see the withdrawal of these objections.
- 5.3.6 Network Rail has further undertaken a land identification exercise for each round of consultation that identified those with an interest in the land within the footprint of the CSIE Project in respect of which compulsory acquisition powers could be sought through the TWA0 application if private treaty arrangements could not be made with the affected landowners in advance of the TWA0 application being submitted.
- 5.3.7 Contact has been made with those identified as having a potential land interest and offers of engagement have been made to those parties to discuss the CSIE Project with the Network Rail Property Surveyor and its land agent (previously Brown & Co and subsequently Bruton Knowles). This engagement remains ongoing at the time and is covered in greater detail in the Proof of Evidence of Mr Simms (**NRE10.2**).
- 5.3.8 Discussions regarding the land required to be taken and the rights over land which are required for the CSIE Project have continued with the aim of securing these by private treaty. However, as these discussions have not yet concluded, land has been included within the proposed Order in the event that those discussions are not successful.

5.4 Round One Consultation

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- 5.4.1 The Round One consultation ran for a six-week period from 20 January to 2 March 2020.
- 5.4.2 Three station location options were put forward for consultation: a northern location –Option 1; central location –Option 2 and southern location –Option 3 (Further detail on the options can be found in **NR7** Section 4.1)
- 5.4.3 Each option showed the potential preliminary permanent and temporary land requirements for the platforms, infrastructure and proposed temporary use of a portion of Hobson's Park as a work site.
- 5.4.4 Feedback was sought on the location options between the two bridges and how access arrangements would work for passengers for each location.
- 5.4.5 Recognising the diverse range of stakeholders with different interests in the project, consultation was carried out using a variety of communication and engagement activities.
- 5.4.6 Various promotional activities were used to raise awareness amongst stakeholders of the consultation and when and how they could participate and contribute. Further details about promotion of Round One consultation can be found in **NR7** Section 4, copies of promotional materials used to support Round One Consultation can be found in **NR7** Appendix A.
- 5.4.7 A total of 967 items of feedback were received for Round One Consultation, of these 867 specified that they either strongly supported or supported the station in the south of Cambridge; 21 strongly did not support or did not support the station and 35 declared they were 'undecided'.
- 5.4.8 Themes emerging during the first phase of consultation were mainly focused on preference of station location, with option 1 (the northern location) being the preferred option. Other emerging themes included access to the station and the design of the building; cycle spaces; pedestrian connections, road congestion; impacts on the environment (in particular noise, vibration and biodiversity); land requirements including challenges on permanent and temporary land use requirements; location of construction compounds and interface with other proposed transport schemes and drainage.
- 5.4.9 Overall, the level of support from Schedule 5 and 6 consultees was high with comments on the improved connectivity the CSIE Project brings to visitors to the CBC and requests that detailed proposals were discussed at the earliest opportunity with stakeholders.

5.5 Engagement following Round One Consultation

- 5.5.1 Following the first round of consultation, it was clear that what was important to stakeholders in relation to the location were access and how the location would interact with the wider environment and future developments.
- 5.5.2 Each option took into consideration the high-level feasibility of construction, operation and maintenance. To demonstrate the feasible footprint and massing required, a preliminary station building design for each option was developed to justify spatial provision for operations, passenger capacity

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and growth, interchange and connectivity to and from the station. Outline layouts for each option were developed to inform further engagement with stakeholders.

5.5.3 Engagement was carried out as follows:

- i. with officers from CCoC's highways team to discuss the scope of the Transport Assessment;
- ii. with cycling teams to discuss cycling facilities and potential changes to National Cycle Network ("NCN") Route 11;
- iii. with officers from GCSP (involving Cambridge City Council and South Cambridgeshire District Council) planning, landscape, Open Spaces and ecology teams to gain views on the location options in the context of the relevant discipline;
- iv. with Cambridge City Council's Access Officer, Disability Cambridgeshire, Cambridgeshire County Council's Equality Officer, Cambridge University Hospitals NHS Trust, Cambridgeshire and Peterborough Healthwatch and the University of Cambridge to gain views on the location options in relation to accessibility and to inform the Diversity Impact Assessment (DIA) which has been updated as the project has progressed;
- v. with representatives of the University of Cambridge, AstraZeneca, Cambridge University Hospitals NHS Trust, Abcam, Medical Research Council, GCP, Cambridge Medipark Limited, CBC Estate Management Ltd, Cambridge Past, Present and Future, Smarter Cambridge Transport, Trumpington Residents' Association, Cambridgeshire Constabulary, Cambridgeshire Fire and Rescue Services, Camcycle, CTC Cambridgeshire, Countryside Properties, East of England Ambulance Service, Queen Edith's, Hobson's Conduit Trust, Railfuture, Ramblers' Association, Stagecoach and Sustrans to gain views on the location options.

5.5.4 The northern location option was preferred on the basis that it could be most visually contained in the Green Belt because it would fit in between existing or approved developments.

5.5.5 CCoC expressed a preference for a northern station location as this would be closest to the centre of the CBC and would remain so even as further growth pulls the centre of the Campus southwards. This option also would offer the best opportunity for interchange between existing bus services and with new bus stops on Francis Crick Avenue.

5.5.6 Following input from the DfT, the northern option was selected as the preferred station location. The preferred option was then developed further in advance of the second round of consultation.

5.6 Round Two Consultation

5.6.1 The Coronavirus pandemic meant changes were made on how the second round of consultation was conducted. This resulted in a greater focus on digital and non-digital methods of engaging with members of the public and stakeholders.

5.6.2 Traditional consultation events were replaced by webchats and a freephone telephone line so engagement could still take place directly. The consultation brochure was despatched to households and

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businesses within the consultation area, posters were put up in a number of railway stations along the route, and a static stand was displayed in Cambridge Station and two London stations - Liverpool Street and Kings Cross. Full details of how the consultation was promoted and conducted can be found in Section 6 of **NR7**.

- 5.6.3 The consultation ran for a six-week period from 19 October to 29 November 2020.
- 5.6.4 The preferred station location was refined further for the second round of consultation. The proposals focussed on its location and general layout -the station footprint, access by foot, cycle and by road, emerging construction aspects such as location of compounds and haul roads, and cycle facilities.
- 5.6.5 531 items of feedback were received: 11 emails providing feedback were received from Schedule 5&6 Consultees, 20 items were received from Community Groups and other interested parties and the remainder came from the general public.
- 5.6.6 Feedback that emerged from Round Two Consultation included: role of the station, elements of station design; sustainability, access arrangements; interface between pedestrians and cars/cycles; Francis Crick Avenue interface with the Guided Busway and CSET and integration with other transport developments; NCN 11; Cambridge Biomedical Campus integration; integration with Astra Zeneca; land acquisition; drainage and community impact.
- 5.6.6.1 **Key Changes**
The key changes made to the CSIE Project in response to consultation and engagement are set out in the table below:

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Proposal/theme	Change made
Station location	Preferred station location selected nearest to Addenbrooke's Bridge (the northern option)
Station facilities	<p>Incorporated two lifts per platform instead of one lift and provided contingency against lift breakdown.</p> <p>Incorporated a Changing Places facility and breast feeding facilities into station footprint</p> <p>Installed shelters on platforms for passenger comfort</p> <p>Bays for Blue Badge holders positioned parallel to the kerb</p>
Station access	<p>Station access road moved further south to consider CSET interface</p> <p>Boundary treatment design adjusted to be sympathetic to the AstraZeneca plot on the east</p> <p>Retention of NCN Route 11 under Nine Wells Bridge after construction</p> <p>Proposed pathway alignment moved closer to Great Kneighton where the ground is more level</p>
Land requirements	Reduced land requirements on Hobson's Park in the permanent state and temporarily during construction, minimising impact on landowners and users of the Park
Environment	As part of the Project's BDN an additional 8 ponds will be developed across the footprint of the project.
Exchange Land	Exchange land will be provided to account for the loss within Hobson's Park

Table 4 –Key changes made to the CSIE Project in response to consultation

- 5.6.7 Consultees raised specific questions about how the Project would demonstrate how effects on the environment during construction and operation are considered and the evidence to assess these effects and the residual impacts once proposed mitigation is applied.
- 5.6.8 A full Environmental Impact Assessment (EIA) (**NR16**) has been carried out to support the proposed TWAO and the ES reports on the findings of this EIA and forms part of the application. The ES sets out the

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construction and operational effects of the Scheme on air quality, biodiversity, climate change including adaptation, cultural heritage, ground conditions and contamination, landscape and visual impact, materials and waste, noise and vibration, population and human health, socio-economic effects, traffic and transport, and water resources and flood risk. The ES also identifies the appropriate mitigation measures that will be put in place to reduce/compensate for significant effects.

5.7 Other engagement**5.7.1 Pre-application**

The project team engaged with key stakeholders in the run up to submission of the TWAO application. This included sharing of land plans with interfacing projects and keeping stakeholders that had already been engaged up to date with progress of the application and relevant changes to design or approach.

5.7.2 Ongoing Engagement

Engagement with the CSIE Project's stakeholders has continued following the submission of the TWAO application and is currently ongoing. A 'relationship manager' has been appointed for each organisation or individual who has raised an objection or representation in relation to the Order application. These relationship managers provide a consistent and direct point of contact to the project team and enable questions and concerns to be promptly considered and addressed. Regular meetings have been and are being held and correspondence exchanged thereby maintaining an ongoing dialogue with parties.

6 NEED FOR THE CSIE PROJECT

6.1 Introduction

6.1.1 In this section I summarise the current and future need for the CSIE Project and Network Rail's objectives in bringing it forward. Need for the Project and its aims and objectives is identified within Issue 1 in the Statement of Matters.

6.2 Current need

6.2.1 Taking into consideration the scale and type of the development taking place in the area, a range of existing and future transport problems in Cambridge have been identified:

- i. There is a lack of long-distance public transport opportunities to access the CBC and Cambridge Southern Fringe area. As the area has changed and continues to grow (particularly the Campus) this will become more of a constraint as visitors and commuters are attracted from further afield.
- ii. The area suffers from indirect public transport connectivity to international gateways, for example to Europe via Stansted Airport or via the Channel Tunnel rail links from London which does not support the world leading research community developing on the CBC.
- iii. There is indirect public transport accessibility in the Cambridge Southern Fringe area, with a dependence on public transport infrastructure within Cambridge city centre to access it. Cambridge station had its own capacity issues before the COVID-19 pandemic and changing of transport modes is an inconvenience to passengers.
- iv. Highway congestion in Cambridge has been increasing along with associated environmental concerns of pollution and poorer air quality resulting from increased traffic. The station gives travellers (and potential travellers) who can access a local railway station another option for travelling to or from the CBC and Southern Fringe
- v. Parking availability at the Cambridge Biomedical Campus is currently constrained and will remain so in the future as a result of planning policy to limit new parking provision.

6.2.2 These issues are set out in greater detail in section 1.2 of the Strategic Case within the OBC (**NR20**)

6.2.3 Network Rail's objectives for the CSIE Project are therefore to:

- i. Improve sustainable transport access to housing, services, and employment within the Cambridge Southern Fringe and Biomedical Campus area, to fulfil existing and future demands;
- ii. Contribute to minimising highway congestion associated with the Southern Fringe and Cambridge Biomedical Campus by increasing the mode share for sustainable transport modes;

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- iii. Reduce reliance on Cambridge city centre transport infrastructure for serving the Southern Fringe and Cambridge Biomedical Campus;
- iv. Be capable of integrating with and enhancing the opportunities presented by Thameslink and East West Rail, to support development of the Cambridge Biomedical Campus; and
- v. Increase public transport connectivity between the Cambridge Biomedical Campus and international gateways, in recognition of its international significance.

6.2.4 These objectives, and as such the need for CSIE, are strongly supported in planning policy, as described in greater detail in the Proof of Evidence of Mr Pearson (**NRE9.2**).

6.3 Future need

6.3.1 The current needs set out above are wide-ranging and require multiple elements to address them in the medium and long term. As such they can also be considered the future needs for the area.

6.3.2 Local and regional policy seeks to support Cambridge's dynamic and growing economy by facilitating sustainable and strategically directed growth. This includes consideration of housing, employment and transport across the region. The CSIE Project will help support these strategic aims by increasing sustainable regional and national connectivity to the Southern Fringe of Cambridge which is identified as an Area of Change. Further information is provided in Mr Pearson's Proof of Evidence.

6.3.3 East West Rail Connection Stage Three (CS3) is also expected to increase the number of services at the proposed Cambridge South station should that programme proceed to delivery and follow the proposed southern approach into Cambridge. Whilst the CSIE Project is not a required prerequisite for EWR CS3, both Network Rail and EWR expect CSIE to strengthen the benefits of EWR CS3. This is because the CSIE Project will add connectivity to EWR CS3 through provision of an additional station, with a resultant increased demand for EWR services.

6.3.4 I note that no objector has questioned the need for the project.

7 BENEFITS OF THE PROJECT

7.1 Introduction

7.1.1 This section provides a summary of the benefits that will be realised by the delivery of the CSIE Project, as set out in the Outline Business Case (**NR20**) approved by the DfT. The justification for the proposals is relevant to Issue 1 in the Statement of Matters, and Issue 9a (compelling case in the public interest).

7.1.2 Throughout the development of the CSIE Project there has been an effort to explore benefits where possible and to consider these throughout the evolution of the design to improve value for money. This has led to an improvement in the Benefit Cost Ratio (“**BCR**”) of the project from 1.3-1.5 in the 2017 Strategic Outline Business Case (**C3**) to 1.9 in the Outline Business Case (**NR20**). Additional analysis in August 2021 has indicated that the BCR may sit around 2.2, representing high value for money. This will be confirmed as part of the Full Business case that will be submitted in early 2022. These identified benefits are by definition socio-economic in nature hence their evaluation within the Economic Case of the OBC (**NR20**)

7.1.3 The benefits identified in section 1.5 of the OBC relate to:

- Travel Time Savings and Benefits to Passengers
- Sustainable Transport Access & Highway Congestion
- Reduction in City Centre Reliance
- International Connectivity
- Integration with Other Schemes

Each of these is discussed in turn in the remainder of this section.

The benefits of the project with regard to planning policy as set out and in Mr. Pearson’s proof (**NRE9.2**) should also be taken into account when considering the overall benefits of the Project.

7.2 Travel Time Savings and Benefits to Passengers

7.2.1 When assessing the economic benefits of a transport intervention to passengers, the monetised value of time saved is the key metric. Option sifting has identified that a new Cambridge South rail station stands to deliver the highest passenger benefit in comparison to other public transport options tested (as set out in Section 4) due to the superior point-to-point journey times that can be delivered by rail, compared to other modes. The journey time advantages also enable rail to cover a wider catchment area, delivering benefit to a larger demand base than could be offered by bus or direct coach alternative.

7.2.2 The DfT conducted a demand scoping exercise to identify both the current and future origins of demand for travel to the CBC. An appreciation for the true origin and destination of passengers is intrinsic to the understanding of how best to meet the needs of the travelling public, promote demand growth and influence behavioural change.

7.2.3 The DfT has utilised data from the Cambridge Sub-Regional Model (“**CSRM**”), a strategic model maintained by Cambridgeshire County Council (“**CCoC**”) and Greater Cambridgeshire Partnership (“**GCP**”), used to inform both local and regional transport policy and planning decisions. This provides more granular information for the region when compared with national models.

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7.2.4 The 2015 demand matrix from the CSRM indicates that the CBC has a wide- reaching catchment area, covering the majority of East Anglia. The 2026 scenario from the CSRM, which contains known changes in housing, jobs and planned transport schemes, indicates that key growth areas for travel to the CBC are:

- i. Central London
- ii. Outer London
- iii. Ely
- iv. Stevenage
- v. Letchworth Garden City
- vi. Bishop Stortford
- vii. Gatwick, Heathrow & Stansted Airports.

7.2.5 The growth areas identified are of a distance from the CBC where bus or coach services are unlikely to deliver journey time benefits comparable to rail.

7.2.6 Journey time savings have also influenced the design of the station itself, for example having station entrances on both sides of the railway has a quantifiable impact on journey time and improves the value for money of the CSIE Project.

7.2.7 Figure 3 illustrates the potential saving in generalised journey time for an average trip to the CBC, both with and without the new station. It can be seen that for the average rail journey, a new station could reduce the generalised journey time by approximately 20 %, with this significant saving delivered to a large catchment of both current and potential travellers. The SOBC indicated that 1.8m passengers per annum could be attracted to Cambridge South Station in the first few years after opening.

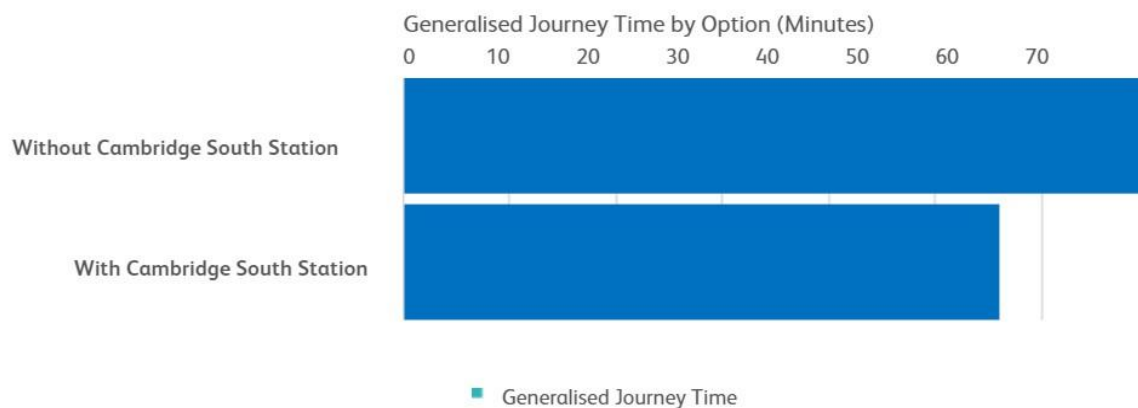


Fig 3: Average generalised journey time by rail for a trip to the CBC, with and without new station at Cambridge South.

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- 7.2.8 In short, this reduced time to travel to the campus and the other areas near the station will make some journeys that people already make quicker and easier, and will enable others to travel to the campus who either currently rely on private transport or, in the case of potential future campus employees, do not currently travel to the area at all.
- 7.2.9 Detailed analysis of the values attached to this benefit are contained in the Outline Business Case (**NR20**). They amount to c.£3.2m per annum (2010/11 prices)⁵ which is significant when applied to the 60- year appraisal period.

7.3 Sustainable Transport Access & Highway Congestion

- 7.3.1 The Cambridge Local Plan (2018) (**D6**) places a significant emphasis on mitigating transport impacts of housing and employment growth. It states that Cambridge City Council will support a range of sustainable transport interventions, by promoting sustainable transport and access for all to and from major employers, education and research clusters, hospitals, schools and colleges.
- 7.3.2 Rail passenger count data published by the DfT for 2019 indicate that for trains arriving into Cambridge Station during the AM Peak period (07:00 - 09:59), 54 % of seated capacity is unused. For the AM Peak hour (08:00-08:59), 36 % of seated capacity is unused. With a proportion of these services passing the CBC, a new station at Cambridge South provides the opportunity for new passengers to utilise existing capacity on the network, thereby improving the commercial viability of existing services. In addition, utilising existing capacity removes the need to provide additional services, thus not impacting on rail network congestion.
- 7.3.3 Both busway enhancements and longer distance bus/coach services would offer a degree of sustainable transport access, due to the potential for travellers to transfer from private cars, reducing road congestion and vehicle emissions. However, this would require the provision of additional services and capacity, unlike rail where the capacity is already present.
- 7.3.4 As noted in section 7.1 above, analysis has been undertaken to understand the origins of current passengers and likely future growth areas, using the CRSM, for a base year of 2015. Figure 4 illustrates the origin of demand for travel to the CBC, with the depth of the purple shading corresponding to a higher number of origins. Even in the absence of a rail station, the CBC has a wide- reaching catchment area, covering the majority of East Anglia.

⁵ 2010/11 prices are used in business cases as standard to facilitate consistent comparison across projects rather than each project using a different price base.

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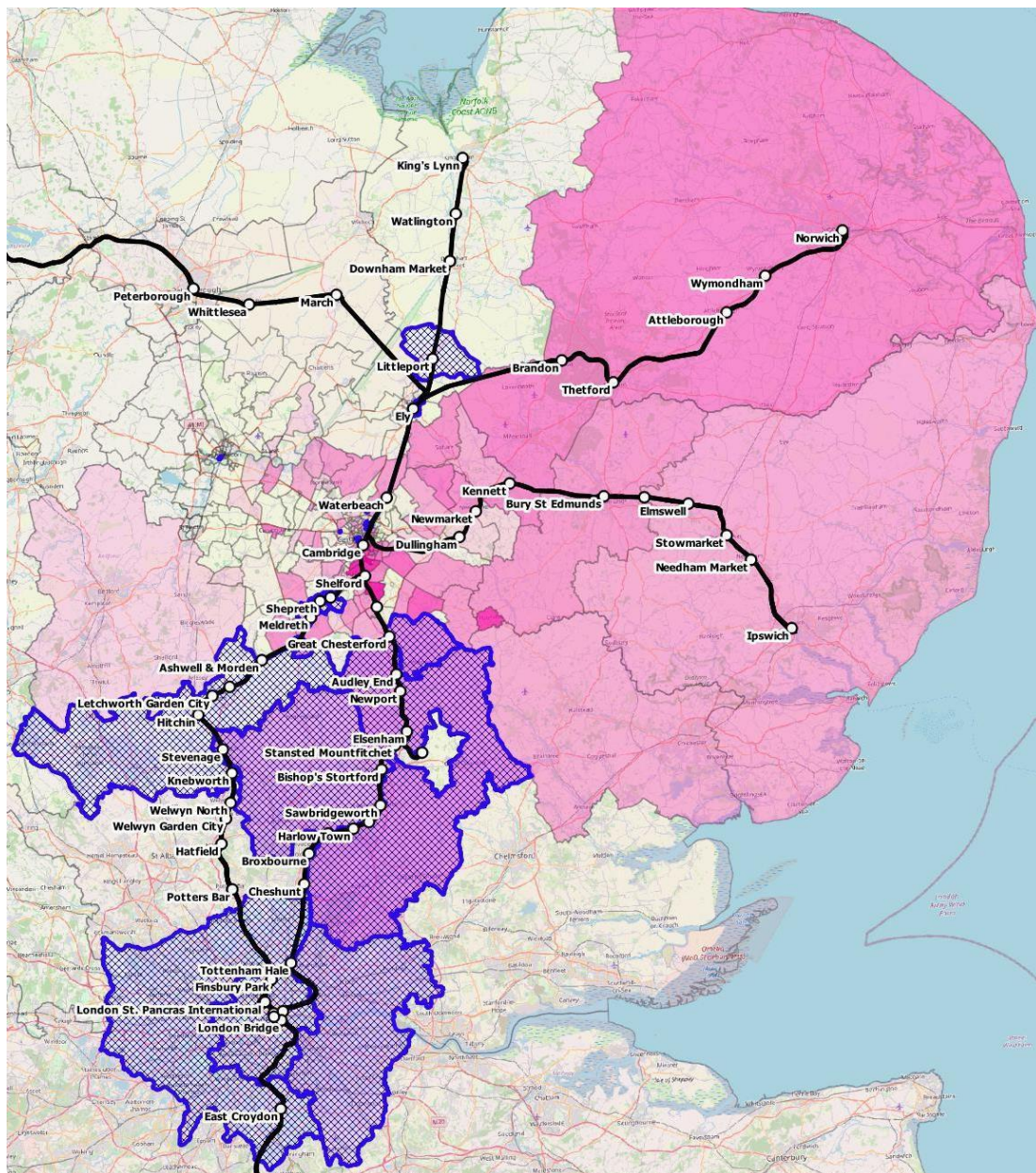


Fig 4 - Origins of 2015 Demand to the Cambridge Biomedical Campus (Purple) and Potential Future Growth Areas (Source: Mott MacDonald / CSRM Model)

- 7.3.5 Also shown on the map are areas identified either from the SOBC or from the CSRM model future scenarios, that are likely to generate significant increases in trips to the CBC in future years (blue shading). Except for Ely, the major growth areas are forecast to be concentrated in South Cambridgeshire, Hertfordshire and Greater London.
- 7.3.6 In the absence of a rail station at Cambridge South, it is likely that future growth in these areas identified would see a proportional increase in private car access to the campus. Expanding Park and Ride sites could reduce traffic at the CBC, but vehicular access to the Park and Ride sites would still contribute to increased levels of highway congestion at points on the network

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7.4 City Centre Reliance

- 7.4.1 A new rail station at Cambridge South will reduce city centre reliance, as passengers travelling by rail will no longer need to interchange at Cambridge Station and then use another transport mode to access the CBC. Cambridge station has seen rapid growth in demand over the past twenty years and can become crowded at peak times.
- 7.4.2 Whilst a limited number of passengers will use their interchange at Cambridge station as an opportunity to access the city centre, for many this need to interchange not only increases pressure on the local transport infrastructure, it also represents an inconvenience when compared with being able to take a train directly to Cambridge South station.
- 7.4.3 The benefits of enhanced bus options would only serve passengers travelling relatively short distances to the CBC, passengers from further afield would still be reliant on the city centre, therefore offering no improvement. Direct bus/coach services may be able to serve catchments slightly further away but are unlikely to offer a competitive service at more significant distances, thus only marginally benefitting city centre reliance.

7.5 International Connectivity

- 7.5.1 The UK Life Sciences Industrial Strategy highlights the importance of international competitiveness to put the UK in a world-leading position to take advantage of the health technology trends of the next 20 years. This is a sector that has only increased in prominence as a result of COVID -19. International connectivity will therefore be important to the success of the CBC, as it is intended to attract a highly skilled workforce and visiting professionals from around the world. Minimising the travel time to international gateways, such as London Heathrow, Gatwick, and Stansted Airports is therefore relevant and important.
- 7.5.2 Option sifting between other public transport options has identified that a new Cambridge South rail station would be the best scheme for reducing travel times to international gateways. With existing rail services to Stansted Airport already operating on the track passing the CBC, the new station creates the opportunity for a direct rail link between Cambridge South and Stansted Airport via existing services. The same is true of Thameslink services, which could provide direct rail access to Gatwick Airport. For Heathrow, Cambridge South Station could offer direct rail services to London, with onward connections to Heathrow via the Elizabeth Line from Liverpool Street or Farringdon, or the Piccadilly Line from Kings Cross. Only rail can provide this connectivity.
- 7.5.3 The Passenger Demand Forecasting Handbook identifies passengers travelling to/from airports as the most time sensitive user class, with their sensitivity to changes in generalised journey time up to 35 % higher than other passengers. Therefore, the necessity to interchange (due to the associated impact on generalised journey time) can be a significant detractor for using public transport for airport access and may ultimately deter passengers from travelling at all.
- 7.5.4 Expanding Park & Ride sites is unlikely to have an impact on international connectivity, as this method of access/egress is unlikely to be utilised by passengers travelling to/from international gateway.

7.6 Integration with Other Schemes

- 7.6.1 A station at Cambridge South allows integration with other schemes, such as the recent Thameslink upgrades and potential East West Rail Connection Stage 3. In addition to this, it would also offer a direct service to Liverpool Street for connections to the Elizabeth Line.
- 7.6.2 The CSET project, under the sponsorship of the GCP, will improve the transport corridors between the Cambridge south area and each of Haverhill and Babraham. This will increase the onward travel options for people using CSET as they have the option of accessing rail at the new station rather than the city centre.
- 7.6.3 CSIE is awaiting Final investment Decision, and CSET will also require similar approvals. Therefore, each project has progressed a separate design to be implemented should the other project not be delivered. A joint design has also been developed that will be used should both projects be delivered. This joint design sees stops on the CSET alignment (which runs along Francis Crick Avenue) placed as close to the station entrance as current requirements allow. These stops will be moved closer to the entrance to the eastern station forecourt if this is found to be possible through further refinements to design.
- 7.6.4 The CSET and CSIE Projects are expected to complement one another as they both serve different markets but both seek to improve public transport connectivity to the area.

7.7 Conclusion

- 7.7.1 There are multiple benefits arising from the CSIE Project, all of which seek to deliver upon existing national and local planning, transport and economic policies and allow the region to continue to prosper whilst mitigating some of the potential negatives of this such as increased road congestion.
- 7.7.2 Reducing the journey time for people wishing to access the CBC and other areas in the vicinity of Cambridge South Station is fundamental to the case for this CSIE Project, and will make trips easier for patients visiting the hospitals, medical staff, researchers, and other employees, residents accessing the station to travel elsewhere, and business travellers meeting others on the campus.

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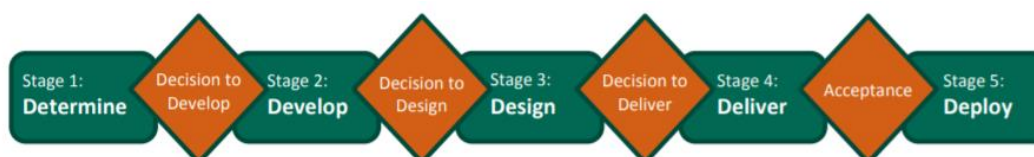
8 COSTS AND FUNDING

8.1 Costs

- 8.1.1 The Estimate of Costs (**NR 06**) sets out the costs for the station as estimated prior to Application. Since then ongoing value engineering work has taken place to explore opportunities for reducing the cost of the scheme whilst protecting core benefits. It is therefore likely that the cost of the scheme will be less than the £183.7m in the Estimate of Costs.

8.2 Funding

- 8.2.1 The availability of funding is identified as an issue to be addressed at point 9(c) of the Statement of Matters.
- 8.2.2 The Funding Statement (**NR 05**) confirms that funding for the project is available within the Rail Network Enhancements Pipeline, which is the framework used for allocation of government funding to railway enhancements schemes.
- 8.2.3 In the Railway Network Enhancements Pipeline ("**RNEP**") investment decisions about individual projects are made when those projects have sufficiently mature evidence to demonstrate their viability for progression. This evidence is presented in increasingly refined business cases at each key decision point.



- 8.2.4 The CSIE Project received its Decision to Develop in February 2018, its Decision to Design in March 2021 and will be applying for a formal Decision to Deliver in early 2022. Whilst this final investment decision has not yet been secured, it should be noted that the Chancellor committed to funding for delivery of the project in the March 2020 budget in addition to provision of the Funding Statement and the accompanying letter (**NR 05**).
- 8.2.5 The 'Develop' stage CSIE Project received half of its funding from three local stakeholders: AstraZeneca UK Ltd, Cambridgeshire and Peterborough Combined Authority, and Greater Cambridge Partnership.
- 8.2.6 The Project is named as a 'Funder Priority' within RNEP and therefore funding is expected to be granted at Final Investment Decision in Spring 2022.

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9 SUPPORT, REPRESENTATIONS AND OBJECTIONS

9.1 Overview

- 9.1.1 The objection period for the Order closed on 2 August 2021. A total of 22 objections, nine representations and five letters of support were received. Letters have been sent to all who responded, in the case of representations and objections answering queries raised and providing responses where required. A series of engagement meetings have been held with objectors with a view to understanding where issues can be resolved that will result in the objection being withdrawn.
- 9.1.2 Since Statements of Case have been received, the Cambridge City Council and the Greater Cambridge Shared Planning Authority have asked TIPU to re-categorise their representations as objections. This took the total number of objections to 24, with seven representations and five letters of support.
- 9.1.3 Below I summarise the nature of the support, representations and objections received, and provide a table setting out where each aspect of the objections has been addressed in greater detail.

9.2 Support for the Project

- 9.2.1 Support for the project has been received from 1 individual who resides close to Hobson's Park and an individual who resides in Kings Lynn who supports the proposals due to the enhanced direct access to the hospitals that the proposals will provide. Support was also received from Rail Futures East Anglia, Fen Line Users Group and Hobson's Conduit Trust who are responsible for the upkeep of Hobson's Brook which runs through and adjacent to Hobson's Park.

9.3 Representations made in relation to the Project

- 9.3.1 As mentioned above, representations were made by Cambridge City Council and the Greater Shared Planning Authority that have now been categorised as objections. These representations are largely focused on conditions and the Network Rail Planning team are working closely with these local authorities to deal with the issues raised so that they may formally be withdrawn.
- 9.3.2 Representations were made by 5 individuals raising queries such as whether the size of the station was adequate, in particular questioning whether it would be sufficient to accommodate the East West Railway; the methodology used to assess the Open Space and stating concern for wild life within Hobson's Park and the level of both temporary and permanent land acquisition.
- 9.3.3 Historic England made a representation in respect of the Scheduled Monument and suggested a slight change to the wording of a condition protecting the monument which has been agreed by Network Rail. Historic England have confirmed that they are now satisfied.

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9.3.4 Great Shelford Parish Council raised a concern about traffic management during construction and Network Rail have committed to sharing further information when this is developed.

9.3.5 National Grid's representation confirmed that there were none of their assets in the vicinity of the proposals.

9.4 Response to representations made

9.4.1 All representations have been responded to with no further queries being raised. The representations of Cambridge City Council and the South Cambridgeshire District Council are being dealt with as objections (**OBJ23** and **OBJ24**).

9.5 Objections to the Project

9.5.1 As noted above, there have been 24 objections to the TWAO application. These comprise objections from:

- i. Eleven 'Schedule 6' consultees;
- ii. Five 'Schedule 5' consultees;
- iii. Three private individuals;
- iv. Two statutory undertakers;
- v. Two community groups; and
- vi. One residents' association.

9.5.2 None of the objections disputes the need for the CSIE Project. Of the 24 objections submitted, 15 contain a statement of qualified support for it.

9.6 Withdrawal of objections

9.6.1 At the time of writing, two objections (**OBJ05**, Environment Agency and **OBJ13**, Ramblers Association) have been withdrawn. Discussions with other parties are progressing well and other withdrawals are anticipated. The Inquiry will be kept updated of further withdrawals as they are secured.

9.7 Response to issues raised by outstanding objectors - General

9.7.1 All objections have been responded to in writing. There has also been further engagement with many of the objectors as outlined below and in the Applicant's evidence as a whole.

9.7.2 Landowner objections largely focused on individual concerns relating to impacts upon their ownership. Engagement is ongoing with the Network Rail Property Team and Bruton Knowles who have been appointed by Network Rail to assist in property matters. At the time of writing, HoTs are due to be issued to landowners and negotiations continue.

9.7.3 Campus consultees including Cambridge Medipark (**OBJ11**), CBC Estates (**OBJ10**) and Countryside Properties (**OBJ17**) and Cambridge University Hospital Foundation Trust (**OBJ06**) objected on a range of issues including impact to drainage, highways impacts and

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construction impacts potentially affecting each entity. A series of engagement meetings have been undertaken with each party with a view to resolving the outstanding issues and securing withdrawal of the objection or failing that, a Statement of Common Ground.

9.7.4 In particular:

9.7.4.1 Astra Zeneca (**OBJ03**) & Network Rail have engaged extensively resulting in some changes to land acquisition particularly in the vicinity of their boundaries. A Land and Works Agreement is in the process of being agreed by both parties with a view to the objection being withdrawn.

9.7.4.2 A series of engagement meetings have been arranged and have taken place with the University of Cambridge (**OBJ08**) & the MRC (**OBJ09**) who have raised concerns in particular about vibration, noise and electromagnetic interference. Network Rail have appointed Ramboll to assist with further assessment to provide both parties with assurance that these concerns can be mitigated. Network Rail will continue to work with both parties to secure withdrawal of the objection or a Statement of Common Ground.

9.7.5 Private individuals

All private individuals have been responded to and follow up communications are currently being issued to see if the information provided has satisfied the points of objection they raised. Network Rail are asking for objections to be withdrawn if individuals feel that their questions have been answered.

9.7.6 Statutory undertakers

Cadent Gas and South Staffordshire Water both submitted an objection (**OBJ12** and **OBJ16**). Protective Provisions have been provided and agreed and it is expected that these objections will be withdrawn.

9.7.7 Local authorities

A protocol agreement is being drawn up in respect of the Cambridge County Council objection with a view to the objection being withdrawn once agreed (**OBJ18**). Engagement with South Cambridgeshire District Council (**OBJ24**) and Cambridge City Council (**OBJ23**) has continued and agreement in respect of Conditions and outstanding matters have been extensively discussed with them. Network Rail have asked both local authorities if they now consider that their points of objection have been satisfied and whether they intend to withdraw. At the time of writing a number of matters had been resolved (as set out in Appendix E and Appendix F to Mr Pearson's proof **NRE9.2**).

9.7.8 Others

Smarter Cambridge Transport ("SCT") (**OBJ22**) raised concerns particularly around the sufficiency of the capacity of the proposed new station. A meeting has taken place with the MP, SCT and other campus stakeholders where Network Rail presented evidence to demonstrate how the demand had been modelled for the scheme. It is not clear at the time of writing this whether they require further information. An additional meeting was held with SCT and the DfT consultant who produced the Outline Business Case and the project

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team on 30 November 2021. The demand modelling methodology was explained further to SCT as well as the reasons that the alternative proposed by SCT would not be appropriate.

9.7.9 The Trumpington Residents Association ("**TRA**") (**OBJ07**) have raised a number of concerns in respect of the impact upon Hobson's Park. Network Rail have formally responded to their concerns. A site meeting was held with the Association and Cambridge Past Present and Future (**OBJ14**) with a view to providing further information. Significant progress was made with the Association and a Statement of Common Ground is being prepared to identify matters resolved and outstanding ahead of Public Inquiry.

9.7.10 Each of the objections, both as set out in the letters of objections and the statements of case (where provided) have been carefully considered and are responded to in detail in Network Rail's evidence to the public inquiry. **Appendix 1** to this Proof identifies each of the objections received, summarises the broad issues raised by them, and identifies the Proofs of Evidence within which those issues are addressed.

9.8 Response to issues raised by outstanding objectors relevant to the subject matter of this Proof

9.8.1 A small number of objections raised include points relevant to the subject matter of this proof. The nature of these points of objection and Network Rail's response for each relevant objector are set out below.

9.8.2 **OBJ02 C. Pointon**

9.8.2.1 This objection makes points in line with **OBJ22** from Smarter Cambridge Transport, therefore please see 9.8.9 below for the detailed response.

9.8.3 **OBJ06 Cambridge University Hospitals Foundation Trust**

9.8.3.1 In the section of their objection dealing with the 'Transport Assessment and Environmental Statement Observations', CUH express concern about the patronage estimates for the new station. They note the use of MOIRA (which is described in 9.8.4.8 below), but express concern that the results are inconsistent with travel patterns observed at CUH. In particular they express concern about:

- i. The 80/20 split for weekday/weekend demand;
- ii. The 47/53 split for arrivals and departures using the AM peak;
- iii. Whether patronage has been underestimated.

9.8.3.2 As a result of this, they request the undertaking of a cross check between the MOIRA patronage forecasts and the rail mode share this generates at CBC, and between MOIRA and the Atkins Transport Needs Review which was commissioned by Cambridgeshire County Council to consider the future transport needs at CBC.

9.8.4 **Network Rail response:**

9.8.4.1 The Outline Business Case (OBC) (**NR20**) used two sources of demand data:

- i. MOIRA, which provided the total pre-pandemic (2019) annual rail journeys made to/from Cambridge station; and

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- ii. The Cambridge Sub Regional [transport] Model (CSRM) which is managed by Atkins on behalf of Cambridge City Council. This is the most granular source of information, containing data on the origin and destination of all transport trips made to, from and within the Cambridge area. The origin and destination of travel within Cambridge and the Cambridge South area is very detailed, with a disaggregation broadly equivalent to the size of postcode sectors.
- 9.8.4.2 No other data was made available to us during production of the OBC. The DfT requested data on employee travel from various Biomedical Campus employers but did not receive this information. Data has been shared subsequently for the purpose of developing the Full Business Case (FBC).
- 9.8.4.3 The OBC demand forecast was therefore conducted broadly as follows:
 - i. Estimate how many passengers per year (2019) travelling to/from Cambridge station would instead use to use Cambridge South station if it existed. This was done by multiplying total annual rail journeys to/from Cambridge station by the proportion of total journeys from CSRM which would have a shorter access/egress time to/from Cambridge South.
 - ii. Estimate the uplift in this base level of demand as a result of the reduced journey time and improved convenience of having a station at Cambridge South.
 - iii. Grow the resultant estimate for future years in line with the population and employment forecasts from the Cambridge Local Plan (CLP) and in line with Department for Transport (DfT) projections for other relevant variables such as GDP.
- 9.8.4.4 This approach is consistent with DfT's TAG (formerly WebTAG) appraisal guidance, which itself uses the principles set out in the HMT Green Book.
- 9.8.4.5 Forecast annual passenger demand in the OBC based on the above was 1.8m in 2023/24 and 2.3m in 2040/41.
- 9.8.4.6 The OBC forecasts were annual figures only, and there was no requirement at that stage to estimate demand on a daily or peak period basis, aside from a check that on-train capacity was likely to be sufficient.
- 9.8.4.7 The figures used in Network Rail's station design are consistent with the total annual forecasts from the OBC. However, Network Rail used a separate process to estimate station using during the busiest periods.
- 9.8.4.8 Forecasts included predicted demand for a typical weekday as well as the AM and PM peak hours. The adopted method used the rail industry's MOIRA model and demand forecast estimates undertaken for the SOBC and accepted by the DfT. MOIRA is a software package widely used in the rail industry to calculate the impact of timetable

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changes on demand levels and on revenue allocations. It is also used to show the effects on demand of changes in journey time and in other attributes of the journey. Network Rail has tested the station design using the industry-standard passenger flow modelling software LEGION. This showed that the station can accommodate a far higher passenger number (than the OBC forecast) of a least 6.0m per year, contingent on a small change to the planned ticket gate line.

9.8.4.9 The SNC Lavalin/Atkins *Transport Needs Review part 3 (D32)* forecasts 5,800 return trips per day in 2031 at Cambridge. Using typical annualisation factors we would expect this to equate to 3.5m-3.8m journeys per year (multiply by 2 get convert into single trips, then by a range of 300–330 to covert to annual. This is higher than the OBC forecast, but significantly lower than the capacity of the station described above.

9.8.4.10 To note, we do not fully understand the method that has been used to generate the figures in the *Transport Needs Review Part 3*. Appendix D in the review refers to a trip rate method, provides the following explanation:

“1.2. Demand Forecasts

For 2031 Demand forecasts have been taken from a trip-rate spreadsheet model supplied by John Laing, the key assumptions of which are identified in Table 1. Following a review of the modelling assumptions, off-model uplifts have been identified to reflect more up to date knowledge of employment and housing developments in the CBC study area as defined in the Part 1 and Part 2 Reports. John Laing tested a core scenario of 4tph (trains per hour in each direction) and a sensitivity scenario of 8tph. For the purposes of the CBC Study and following discussions between CCC and Network Rail, 8tph is considered a credible realistic target. Therefore, this has been applied as the core scenario in this Study.”

9.8.4.11 Table 1, referenced in this excerpt, does not show the trip rates which were used or explain how the John Laing spreadsheet model works, and we have not found any further information which would help us to understand the method.

9.8.4.12 The *Transport Needs Review part 3* presents a maximum scenario replacing the component of the previous forecast indicated to be transfer from the highway network, with an alternative method to estimate mode transfer. We have the following concerns with the approach:

- (i) In various places in the report demand is interchangeably referred to as return journeys and one way trips. It is difficult therefore to say with certainty what level of demand has been forecast, and we have not been able rule out the possibly of an error in the arithmetic used.
- (ii) There may be an element of double-counting between the trip rate method referenced in Appendix D, and the alternative method used to forecast abstraction from highway travel. It is not clear whether this is the case given the limited information provided.
- (iii) The method does not look to have analysed in detail the relative attractiveness of rail and highway travel, instead relying on some simplistic assumptions.

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- (iv) Section 7.3 *The Transport Needs Review part 3* appears to suggest that the maximum daily abstraction from highway demand is 4,769 one way trips per day. Multiplying this by an annualisation factor ranging from 300-330 would result in 1.4m-1.6m trips annually. Adding this to the forecasts from bullet point 8 above would result in 4.9m-5.4m per year. This acknowledged maximum case forecast is still below the capacity of the station.

9.8.4.13 In light of all of the above, Network Rail is satisfied that the capacity of the station is adequate and that there is no need for the cross checking suggested by CUH.

9.8.5 OBJ08 University of Cambridge

- 9.8.5.1 **OBJ08** includes points regarding the level of consultation Network Rail undertook with UoC and the impact of possible mitigations needed to address UoC's concerns on the funding viability of the project.
- 9.8.5.2 Network Rail have undertaken two rounds of public consultation (January and October 2020), which were well publicised, lasted 6 weeks each and received high levels of response from local residents and businesses. In Round One of consultation three options were presented resulted in the proposed option being identified as the preferred option.
- 9.8.5.3 Network Rail sent all relevant correspondence to UoC prior to the application being made to ensure that the proposals included in the order application were clear and understood.
- 9.8.5.4 Since Order application was made a regular series of meetings have been undertaken (on 24 August 2021, 24 September 2021 and 25 November 2021) and are ongoing to understand and address the impacts of the points of objection made by the UoC. This has been supplemented with ongoing exchange of information via email correspondence.
- 9.8.5.5 Since the submission of the application, Network Rail has also undertaken further work, in consultation with UoC in areas of key concern. Network Rail has a better understanding of the potential mitigations required. The mitigations Network Rail expects to be necessary are not anticipated to require an increased funding requirement. Areas of key concern are dealt with in more detail in the proofs of Mr Spencer-Allen (**NRE3.2**), Mr Taylor (**NRE4.2**), and Mr Hameed (**NRE13.2**).
- 9.8.5.6 In view of the above it is not accepted that consultation with the University has been inadequate. I am advised that it has met and indeed exceeded the legal requirements.

9.8.6 OBJ09 Medical Research Council

- 9.8.6.1 **OBJ09** includes a point regarding the impact of possible mitigations needed to address MRC's concerns on the funding viability of the project.
- 9.8.6.2 Since the submission of the application, Network Rail has undertaken further work, in consultation with MRC in areas of key concern. Network Rail has a better understanding

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of the potential mitigations required. The mitigations Network Rail expects to be necessary are not anticipated to require an increased funding requirement. Areas of key concern are dealt with in more detail in the proofs of Mr Spencer-Allen (**NRE3.2**), Mr Taylor (**NRE4.2**), and Mr Hameed (**NRE13.2**).

9.8.7 **OBJ10 CBC Estates Management Co Ltd**

9.8.7.1 **OBJ10** includes a point regarding the maintenance contribution that it considers Network Rail would need to make towards upkeep of the private roads and public realm in the CBC, as is the case for other campus tenants.

9.8.7.2 Network Rail agrees in principle with this requirement and has been engaging constructively with this objector to come to an agreement on the value of this. This commitment will be included in the agreements being drafted between the two parties.

9.8.8 **OBJ11 Cambridge Medipark Ltd**

9.8.8.1 **OBJ11** Raises the same point as **OBJ10** with regard to a maintenance contribution towards upkeep of the private roads and public realm in the CBC. As above, Network Rail agrees in principle with this requirement and the commitment will be included in the agreements being drafted between the two parties.

9.8.9 **OBJ22 Smarter Cambridge Transport**

9.8.9.1 In **OBJ22** SCT make several points regarding the projected patronage of the station and the resulting suitability of the design solution.

9.8.9.2 The level of patronage projected in the OBC and reflected in the Transport Assessment is questioned and is considered by SCT to be far too low given the local context of the CBC. An alternative methodology for predicting passenger demand is proposed which results in a significantly higher level of demand (c.9m. journeys per annum).

9.8.9.3 The demand modelling used for the station is based on MOIRA which is the standard industry approach for railway projects. This was then updated using the Cambridge Sub-Regional Model (CSRM) as set out in 7.2-7.3 of this Proof.

9.8.9.4 Such an approach is compliant with the HMT Green Book (**D22**), with which the business case for this project must comply. Further details of the demand forecasting methodology used by the project are set out in 9.8.4.1-9.8.4.7 above.

9.8.9.5 SCT's figures include several key assumptions that are unrealistic, and which are not consistent with Transport Appraisal Guidance (TAG) which is the more detailed, transport-specific, guidance for application of HMT Green Book. These assumptions include:

- i. Definition of the base market (without Cambridge South station) as the total number of car journeys to, from, and through the Biomedical Campus

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in 2031 forecast in the publication *Cambridge biomedical campus transport needs review - part 2 (D31)*. This forecast indicates a 63 % increase between 2017 and 2031, from 28,475 trips per weekday to 46,400 trips per weekday.

- ii. An assumption that car traffic has fallen to 25 % of 2017 levels (21,356 trips per weekday) by 2031 and that all of the reduction (46,400 – 21,356 = 25,044) transfers to other modes. The 25 % reduction stems from a June 2016 policy recommendation made by the Greater Cambridge City Deal Board as part of the Cambridge Access and Capacity Study.
- iii. An assumption that 50 % of the transfer to other modes is accounted for by rail travel to/from Cambridge South station. This assumption does not appear to have a source listed.
- iv. Further assumptions to convert weekdays figures into annual forecasts.

9.8.9.6 For context, 9m journeys per year to Cambridge South would be comparable to the following pre-pandemic observed demand at key stations on the network:

Station	Annual journeys (2019)
Cambridge	12.0
Oxford	8.3
Nottingham	8.0
Milton Keynes Central	7.0
Bath	6.5
Basingstoke	6.0
Cambridge S (2043) NR High	6.0
Leicester	5.6
Peterborough	5.1
Colchester	4.5
Bedford	4.1
Ipswich	3.4
Bolton	3.1
Ely	2.4
Cambridge S (2043) NR Central and OBC	2.3
Swansea	2.1
Lincoln	2.0
Oxford Parkway	1.1
Cambridge North	0.8

Table 5: List of selected stations by annual demand (actual, save for Cambridge South)

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- 9.8.9.7 In Table 5, the 'Cambridge S (2043) NR High' scenario is based on an extremely high consistent growth rate aligning with the highest single year growth seen at Cambridge station in the preceding few years. This is not a figure Network Rail or DfT think realistic but was included as a scenario to test station design only.
- 9.8.9.8 Based on the significantly higher demand that SCT's method yields, the proposed design of the station is also questioned by SCT, which suggests that the design capacity of the station is insufficient.
- 9.8.9.9 The station design solution proposed provides sufficient capacity for both the compliant projected demand (c.2.3m journeys per annum by 2043) and the much higher sensitivity tested within the pedestrian capacity LEGION modelling of c.6m journeys per annum by 2043. Network Rail is therefore confident that the station has more than sufficient capacity for the demand it is likely to experience.
- 9.8.9.10 I note that at the Pre Inquiry Meeting, SCT indicated that it would issue details of a proposed alternative to Network Rail's station proposal, so that Network Rail could comment upon this in its evidence. Details were required to be provided by 26 November 2021 as per the Inspector's note from the Pre-Inquiry Meeting. No such details were submitted, either to the inquiry or to Network Rail.
- 9.8.9.11 but Network Rail does have possession of a very high level alternative concept SCT provided during a previous consultation round, as referred to in its objection (see OBJ 22 at pp.9-10). It is not clear to me whether this remains the proposed alternative or whether SCT were intending to submit an alternative design. As such, I deal with this option at relatively high level and reserve the right to respond to any evidence provided by SCT.
- 9.8.9.12 In summary, this alternative proposes construction of a large deck above the existing railway tracks which would then support a station building, cycle parking and interchange with the guided busway via a significantly widened Addenbrooke's Bridge, with no taxi rank or private pick-up/drop off area (see OBJ 22 p.9). This would be in the same location that Network rail is proposing the station.
- 9.8.9.13 A number of benefits of the alternative are identified by SCT (see **OBJ 22**). Of these more convenient interchange with the guided busway is potentially correct but this factor alone does not justify the additional scope and cost associated with the alternative..
- 9.8.9.14 A concept like this was considered at a very early stage of project development but discounted. Specifically, the reasons included that: the cost of rebuilding the guided busway bridge and substantially widening it are substantial and would also cause significant disruption during construction. Building the station building and bike parking above the tracks would significantly increase the visual impact of the station, lead to a major increase in cost for the project and ongoing maintenance costs for the railway. If the only entrance to the station was on the bridge, this would require all station users to ascend and descend a long incline to gain access which will not be suitable for all potential users. It is therefore likely that entrances at platform level would also be required on each side of the railway so land would still be required.

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- 9.8.9.15 SCT claim that greater benefits from higher passenger numbers would offset the increase in cost of their proposed alternative station concept. For the reasons outlined above NR maintain that the passenger projections used for the project are appropriate and so the larger user benefits claimed by SCT are not expected to arise. It would therefore be inappropriate to inflate the scale and cost of the project on this basis and such additions are not required to address the Project's objectives.
- 9.8.9.16 SCT cites that a temporary diversion of guided bus services needed for their alternative option would not be overly burdensome. Whether or not this is the case, their proposal would also cause a greater level of disruption to railway users as rebuilding of Addenbrooke's Bridge and constructing a station building above the railway would require more closures of the railway.
- 9.8.9.17 A much larger decked structure across the railway would lead to an increase of maintenance costs for the lifetime of the assets.
- 9.8.9.18 Some mitigations to safety risks of a constrained area at height may be possible, but this will still represent a risk that is not within Network Rail's proposal.
- 9.8.9.19 SCT suggest that the visual impact of a development on top of the railway can be mitigated by sympathetic architecture and landscaping. The station is already being designed with sympathetic architecture and landscaping, so a major increase in its scale and far more prominent placement above the railway as suggested by SCT would result in a far greater visual impact than Network Rail's proposal. It would also fully arrest the landscape gap between AstraZeneca's development and Addenbrooke's Bridge.
- 9.8.9.20 Overall, Network Rail's view is that the current station design is sufficient for the projected demand and a significantly more costly and disruptive option delivering unnecessary scope would not be appropriate for Network Rail to propose.

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10 CONCLUSIONS

10.1 This section summarises the principal points made in each section of this Proof of Evidence.

10.2 Section 2: The Applicant explains the statutory role Network Rail plays for railway infrastructure in Great Britain demonstrating that the organisation has an appropriate status to be promoting the CSIE Project.

10.3 Section 3: The CSIE Order Application sets out the contents of the Order. This includes explanation of the inclusion of a request for deemed planning permission and the application for an Open Space Certificate, as well as specifying the eleven elements of work that constitute the CSIE project.

10.4 Section 4: Development of the CSIE Project

10.4.1 This section explains how the project progressed from initial concepts and stakeholder requests through to a single option. In conjunction with the Proof of Evidence of Mr Barnes (**NRE1.2**) it demonstrates the volume of work and number of considerations that have gone into early design, sifting, option selection and subsequent refinement of the design for the Project.

10.4.2 The Strategic Outline Business Case (SOBC) considered non rail options against the strategic objectives of the scheme. These objectives are:

- i. Improvement in sustainable transport access to housing, services, and employment within the Cambridge Southern Fringe and CBC area, to fulfil existing and future demands.
- ii. Contribution to minimising highway congestion associated with the Southern Fringe and Cambridge Biomedical Campus by increasing the mode share for sustainable transport modes.
- iii. Reducing reliance on Cambridge city centre transport infrastructure for serving the Southern Fringe and Biomedical Campus.
- iv. Capacity to integrate with and enhance the opportunities presented by Thameslink and East West Rail, to support development of the Biomedical Campus as part of the Golden Triangle life sciences cluster.
- v. Increasing public transport connectivity between the Cambridge Biomedical Campus and international gateways, in recognition of its international significance.

10.4.3 A railway station in the vicinity of the CBC was shown to best meet these objectives.

10.4.4 The section also sets out the reasons that significant rail infrastructure, including four platforms, is required in order to deliver a station at this location. This is in order to allow for services to call at the new station in a very busy area of the network that is subject to significant timetabling constraints elsewhere.

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- 10.4.5 Multiple track layouts that could deliver the required service pattern were developed with significant effort being devoted to mitigating the need for land outside the existing railway corridor as far as feasible.
- 10.4.6 The section explains the considerations given to station location and the significant challenges posed by the sites available. All the sites next to the CBC (and therefore offering the best journey times to key CBC destinations) have the common traits of being adjacent to committed or existing development on the East and requiring some green belt and Open Space land on the West.
- 10.4.7 Stakeholder feedback was taken into account in selecting the proposed station location, in particular feedback from the first consultation in early 2020 where the Northern option was clearly preferred. This resulted in the Southern option being discounted despite its potential for fewer technical constraints.
- 10.4.8 The infrastructure required to protect train performance is also explained and justified. It is critical that alongside new journey opportunities and enhanced connectivity that the Project will bring, passengers using this busy part of the railway are not inconvenienced through poor performance or significantly extended journey times that would result from delivery of less capable infrastructure.
- 10.5 Section 5: Consultation explains the process Network Rail went through to formally engage with stakeholders as well as additional engagement with those with a high level of interest in the Project. Two formal rounds of public consultation were undertaken with all responses logged, categorised and responded to where relevant. The information gathered has also been used to influence the development of the project where feasible and in line with other necessary frameworks. This has informed decisions on station location, station facilities, station access, land requirements, environment, and exchange land.
- 10.6 Section 6: Need for the CSIE Project sets out the current needs, the resulting objectives of the CSIE Project and the future needs. The area the new station would serve is growing rapidly with major further expansion planned meaning existing transport infrastructure will only become busier, exacerbating existing problems identified. Key issues identified are:
- i. There is a lack of long-distance public transport opportunities to access the CBC and Cambridge Southern Fringe area. As the area has changed and continues to grow (particularly the Campus) this will become more of a constraint as visitors and commuters are attracted from further afield.
 - ii. The area suffers from indirect public transport connectivity to international gateways, for example to Europe via Stansted Airport or via the Channel Tunnel rail links from London which does not support the world leading research community developing on the CBC.
 - iii. There is indirect public transport accessibility in the Cambridge Southern Fringe area, with a dependence on public transport infrastructure within Cambridge city centre to access it. Cambridge station had its own capacity issues before the COVID-19 pandemic and changing of transport modes is an inconvenience to passengers.

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- iv. Highway congestion in Cambridge has been increasing along with associated environmental concerns of pollution and poorer air quality resulting from increased traffic. The station gives travellers (and potential travellers) who can access a local railway station another option for travelling to or from the CBC and Southern Fringe
 - v. Parking availability at the Cambridge Biomedical Campus is currently constrained and will remain so in the future as a result of planning policy to limit new parking provision.
- 10.6.1 The objectives that address these needs and that underpin the development of the project are listed in 10.4.2 above.
- 10.6.2 The CSIE Project represents an essential part of the transport solution for the area and this is highlighted by no objections to the need for the project.
- 10.7 Section 7: Benefits of the Project summarises the benefits identified and evaluated within the Economic Case of the Outline Business Case. These benefits are socioeconomic in nature hence their inclusion in the Economic Case. Key benefits identified are:
- i. Travel Time Savings and Benefits to Passengers
 - ii. Sustainable Transport Access & Highway Congestion
 - iii. Reduction in City Centre Reliance
 - iv. International Connectivity
 - v. Integration with Other Schemes
- 10.7.1 It is also in this section that the demand modelling methodology is set out, which has been the subject of a small number of Objections to the scheme. The methodology employed represents a standard approach for this type of project with incorporation of the best regional and local data that was made available to the DfT team at the time.
- 10.8 Section 8: Costs and Funding explains that the project is a priority for government investment and that it is accounted for within existing spending plans. This is demonstrated in **NR05**, which includes a Funding Statement Letter from the Department of Transport.
- 10.9 Section 9: Support, Representations and Objections summarises the responses received to the TWAO since submission with particular focus on those relevant to the subject matter of this Proof of Evidence, relating to:
- i. Adequacy of consultation, (**OBJ08** (University of Cambridge))
 - ii. Impact of potential mitigations on funding viability, (**OBJ08** (University of Cambridge), **OBJ09** (Medical Research Council))
 - iii. Maintenance contribution for upkeep of private roads (**OBJ10** (CBC Estate Management Company), **OBJ11** (Cambridge Medipark Limited))
 - iv. The calculation of demand at the station (**OBJ02** (Chris Pointon), **OBJ06** (Cambridge University Hospitals NHS Trust, **OBJ22** (Smarter Cambridge Transport))
- 10.9.1 Further explanation of the demand modelling methodology (supporting Section 7) is detailed. This reinforces the suitability of the approach taken for the context of the area

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and also makes clear that even if demand is above the Central Case of the OBC, the station's capacity is sufficient for far more journeys than are expected.

10.10 In conclusion, it is clear that the CSIE Project has a business case that is at least 'medium' value for money. I believe the evidence outlined makes it clear that it will contribute to economic, environmental and societal benefits to the UK. This evidence demonstrates a clear needs case for the Order scheme. No party to the Inquiry suggests that there is no need for the CSIE Project and no party has challenged the benefits to which it would give rise.

10.11 My colleagues will demonstrate that Network Rail has undertaken the appropriate level of assessment on all design options for the works comprised in the proposed TWA0 (see Mr Barnes's Proof of Evidence – **NRE1.2**) and that all adverse effects can be reduced to acceptable levels, under the controls imposed through the Order and by means of conditions attached to the deemed planning permission.

10.12 I urge the inspector to consider this evidence, in conjunction with that of my colleagues, and I respectfully request the inspector to recommend that the Order be made, and that the relevant powers required by Network Rail to complete the works are granted.

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11 DECLARATION

I hereby declare as follows:

- I. This Proof of Evidence includes all facts which I regard as being relevant to the opinions that I have expressed and that the inquiry's attention has been drawn to any matter which would affect the validity of that opinion;
- II. I believe the facts I have stated in this Proof of Evidence are true and that the opinions expressed are correct; and
- III. I understand my duty to the inquiry is to help it with matters within my expertise and I have complied with that duty.

Signature: 

Date: 7 January 2022