



PULSAR

**Proof of Evidence – Traffic and Transport
(Mr Kamran Haider)**

**The Cambourne to Cambridge Order
Inquiry Reference (TWA/24/APP/03)**

Transport and Works Act 1992:

**Transport And Works (Applications and Objections
Procedure) (England and Wales) Rules 2006**

Objector Number (OBJ213)

August 2025

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1 INTRODUCTION

Qualifications and Experience

- 1.1 My name is Kamran Haider. I am the Founding Director of Pulsar Transport Planning. I have been retained by Clare Hall (College), Cambridge to provide specialist advice on Traffic and Transport matters pertaining to the Cambridge to Cambourne (CtoC) scheme.
- 1.2 I have over 30 years' of experience as a Traffic and Transport Planning specialist, working in a variety of UK consultancies, in a local authority and in a consultancy in Canada. During this time, I have provided advice on the public transport, active travel, traffic impact and highway safety aspects of schemes.
- 1.3 I am a Fellow of the Chartered Institution of Highways and Transportation, which is the highest position that can be attained within this professional body. I hold a BEng (Hons) degree in Civil Engineering and an MSc in Transportation Planning and Engineering.

Declaration

- 1.4 I confirm that the evidence presented in this statement is true and given in accordance with the guidance of my professional institution.

Involvement with the Project

- 1.5 I have been instructed by Clare Hall since November 2021 to review the highway and transport implications relating to the route alignment of the CtoC scheme from the West Cambridge university site to Grange Road.

Scope and Structure of Evidence

- 1.6 I will provide evidence on Traffic and Transport matters but will draw upon evidence provided in the following expert proofs of evidence:
- Alan Short – Clare Hall
 - Fiona Lamb – Heritage
 - Jonathan Blacklock – Acoustics
 - Jessica Wilson - Planning
- 1.7 The structure of my proof is as follow:
- Scheme and Policy Overview (Section 2)
 - Decision Making Process (Section 3)
 - The Proposed RRR Route (Section 4)
 - Design Issues with the Applicant's Scheme (Section 5)

- Impact of RRR route on Clare Hall's future development plans (Section 6)
- Alternative Route Alignment utilising Adams Road (Section 7)
- Optioneering Review (Section 8)
- The CPPF alternative (Section 9) and
- My conclusions (Section 10).

2 SCHEME AND POLICY OVERVIEW

- 2.1 This section sets out a brief overview of the scheme, Clare Hall's concerns and a review of the transport policy and guidance that is relevant to the scheme and my evidence.

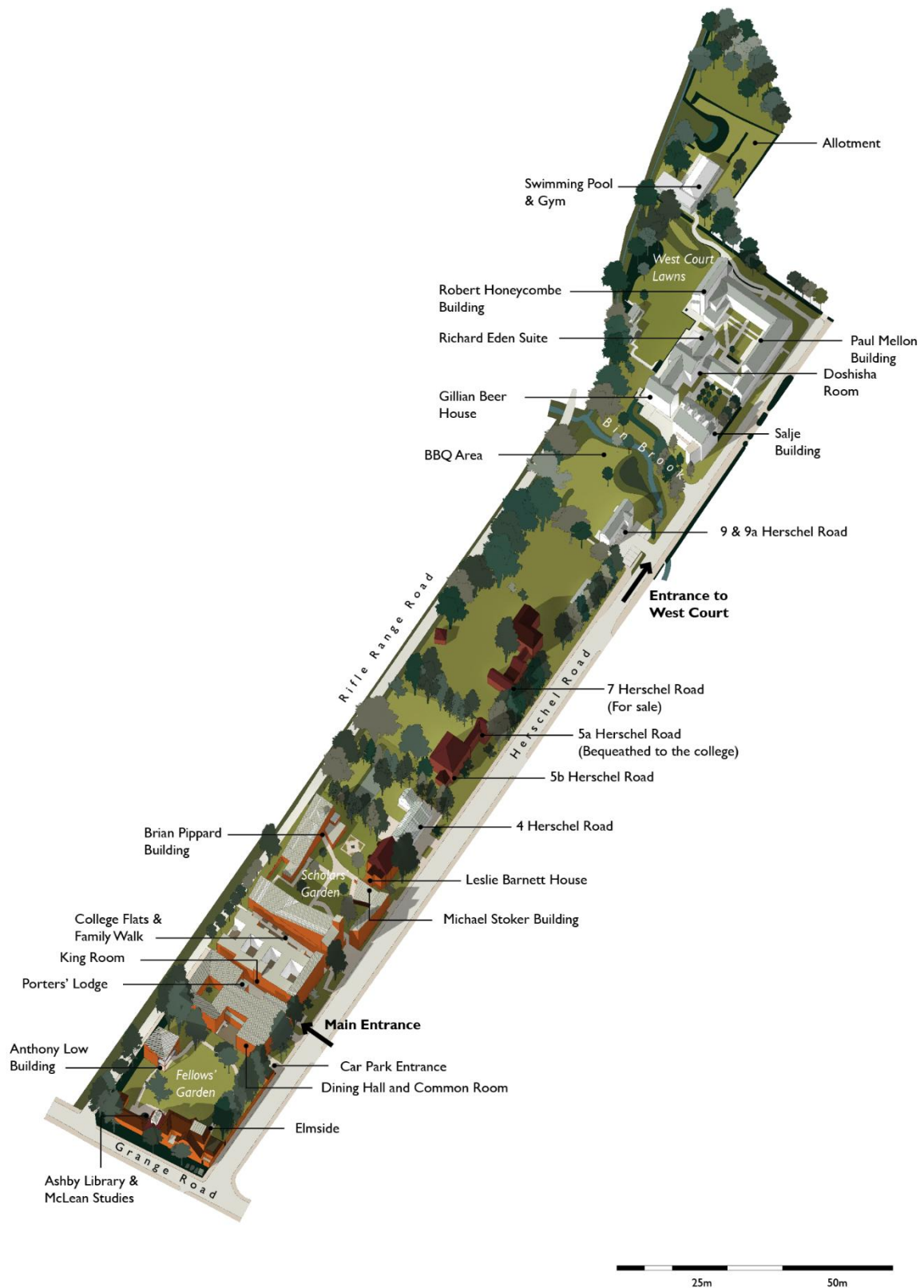
Proposed Development

- 2.2 The Applicant, Cambridgeshire County Council (CCC), has applied to the Secretary of State for Transport, pursuant to section 6 of the Transport and Works Act 1992, for an Order to authorise works and purchase of land to allow the implementation, operation and maintenance of a guided busway between Cambourne and Cambridge.
- 2.3 The guided busway will pass through major development sites at Bourn Airfield and West Cambridge. The busway will also pass through a section of the Green Belt (West Fields), over the Bin Brook and will travel along an existing track known as Rifle Range Road (RRR) passing adjacent to the southern boundary of Clare Hall.
- 2.4 The section passing Clare Hall is part of the section of CtoC that links the West Cambridge site to Grange Road.
- 2.5 The Order would authorise CCC to construct, operate and maintain:
- a two-way guided busway commencing at Sterling Way, Cambourne and terminating at Grange Road, Cambridge;
 - intermediate bus stops along the route and an emergency and maintenance access track running alongside the two-way guided busway for most of the length of the guided busway which would be accessible to pedestrians and cyclists. Most of the length of the track will also function as a bridleway or permissive bridleway;
 - a new travel hub building and Park and Ride site at Scotland Farm, Dry Drayton with access for the buses over the existing bridge carrying Scotland Road over the A428;
 - new bridges over the M11 and at Bin Brook to provide for the two-way guided busway and adjoining emergency and maintenance track; and access roads, temporary compounds, stopping up, diversion and creation of public rights of way, highway crossings, drainage works and attenuation and infiltration ponds.

Clare Hall's Transport Related Concerns

- 2.6 Clare Hall is a college within the University of Cambridge located between Herschel Road and RRR. **Figure 2.1** showing the location and layout of Clare Hall is included below.

Figure 2.1 Clare Hall Site Plan



- 2.7 The college admits postgraduate students, alongside postdoctoral researchers and fellows. Founded in 1966, it enjoys a world class reputation and has hosted several Nobel Prize winning Visiting Fellows.
- 2.8 The College provides on-site accommodation for students and visiting academics, with the grounds also hosting office space, public rooms, a dining hall and a sports complex with swimming pool. The College seeks to provide a “place to think, a place to meet, a place to talk and a place to share” in peaceful surroundings.
- 2.9 A more detailed description of Clare Hall is provided in the Proofs of Evidence prepared by Alan Short and Fiona Lamb.
- 2.10 It is Clare Hall’s view that the impacts of the CtoC scheme on Clare Hall (and for the wider area) have been underestimated. Many of these matters including flooding, heritage, noise and planning are dealt with in the proofs of evidence of other expert witnesses on behalf of Clare Hall.
- 2.11 I will provide evidence on the following transport matters:
- That the consultation/decision making process that led to the selection of the RRR was flawed and inconsistent
 - The reasoning for selecting RRR rather than Adams Road has not been supported by a technical review
 - The benefits of the incorporating the RRR route into the overall busway have been overstated (in terms of journey time reliability and level of segregation)
 - There are significant and unresolved highway safety issues relating to the RRR scheme that may not be resolvable under the scope of the Order
 - The RRR scheme will affect the operation of Clare Hall
 - The RRR scheme will preclude further essential development at Clare Hall
 - There is a safe, viable and less costly alternative CtoC route that can utilise Adams Road
- 2.12 I have also undertaken a review of the relevant policy and guidance, which I set out below.

National Policy

National Planning Policy Framework (2024)

- 2.13 The revised National Planning Policy Framework (NPPF) [CD8-01] was updated in February 2025 and sets out the Government’s planning policies for England and how these are expected to be applied.
- 2.14 The NPPF, at paragraphs 7 and 11, states that “*the purpose of the planning system is to contribute to the achievement of sustainable development including the provision of homes, commercial development and supporting infrastructure in a sustainable*

manner" and "at the heart of the Framework is a presumption in favour of sustainable development".

2.15 Paragraph 8 sets out the three overarching objectives: economic, social and environmental, *"which are interdependent and need to be pursued in mutually supportive ways"*.

2.16 The environmental objective is set out as follows:

to protect and enhance our natural, built and historic environment; including making effective use of land, improving biodiversity, using natural resources prudently, minimising waste and pollution, and mitigating and adapting to climate change, including moving to a low carbon economy.

2.17 The Applicant's RRR route option involves the construction of a new road through the Green Belt as well as a new bridge structure crossing the Bin Brook and a new traffic signal junction at Grange Road. These are described further in section 5 below.

2.18 I have put forward alternative route options in section 8 below, which would involve the widening of an existing route (Coton Path) and alterations to an existing road (Adams Road).

2.19 Section 9 of the NPPF deals with promoting sustainable transport. Paragraph 109 states that:

Transport issues should be considered from the earliest stages of plan-making and development proposals, using a vision-led approach to identify transport solutions that deliver well-designed, sustainable and popular places. This should involve:

e) identifying and pursuing opportunities to promote walking, cycling and public transport use; and

f) identifying, assessing and taking into account the environmental impacts of traffic and transport infrastructure – including appropriate opportunities for avoiding and mitigating any adverse effects, and for net environmental gains.

2.20 Paragraph 115 notes that in assessing sites that may be allocated for development in plans, or specific applications for development, it should be ensured that:

- sustainable transport modes are prioritised taking account of the vision for the site, the type of development and its location;*
- safe and suitable access to the site can be achieved for all users;*
- the design of streets, parking areas, other transport elements and the content of associated standards reflects current national guidance, including the National Design Guide and the National Model Design Code; and*

- *any significant impacts from the development on the transport network (in terms of capacity and congestion), or on highway safety, can be cost effectively mitigated to an acceptable degree through a vision-led approach.*

2.21 Paragraph 116 states:

Development should only be prevented or refused on highways grounds if there would be an unacceptable impact on highway safety, or the residual cumulative impacts on the road network, following mitigation, would be severe, taking into account all reasonable future scenarios.

2.22 As discussed in section 6 below, the proposed scheme has been the subject of a Stage 1 Road Safety Audit (RSA). The RSA report identified a number of highway safety “problems” and potential recommendations at the RRR/Grange Road junction. These have not been addressed by the Applicant and in my view cannot be addressed without acquisition of further land outside the limits of the proposed Order.

2.23 Paragraph 117 sets out the requirements for development, which should:

create places that are safe, secure and attractive – which minimise the scope for conflicts between pedestrians, cyclists and vehicles; avoid unnecessary street clutter; and respond to local character and design standards;

Local Policy

Greater Cambridge City Deal (2014)

2.24 The City Deal [CD7-02] was signed by representatives from central government, council leaders, businesses and the University of Cambridge on 19th June 2014.

2.25 The Deal sought to secure additional funding for investment in transport infrastructure to support high quality economic and housing growth over the next few decades.

2.26 Two of the key strategic objectives against which projects were to be prioritised were:

- to markedly improve connectivity and networks between clusters and labour markets so that the right conditions are in place to drive further growth; and
- to attract and retain more skilled people by investing in transport and housing

Transport Strategy for Cambridge and South Cambridgeshire (2014)

2.27 The transport framework for the City Deal was developed based on the Transport Strategy and High-Level Programme for Cambridge and South Cambridgeshire (TSCSC) [CD7-07].

2.28 The TSCSC was a sub-strategy of the Cambridgeshire Local Transport Plan and sought to align with the emerging Local Plans for Cambridge and South Cambridgeshire. The transport strategy objectives of the TSCSC (and therefore also the transport strategy objectives of the 'City Deal') were as follows

1) "To ensure that the transport network supports the economy and acts as a catalyst for sustainable growth"

2) "To enhance accessibility to, from and within Cambridge and South Cambridgeshire (and beyond the strategy area)"

3) "To ensure good transport links between new and existing communities, and the jobs and services people wish to access"

4) "To prioritise sustainable alternatives to the private car in the strategy area, and reduce the impacts of congestion on sustainable modes of transport"

5) "To meet air quality objectives and carbon reduction targets, and preserve the natural environment"

6) "To ensure that changes to the transport network respect and conserve the distinctive character of the area and people's quality of life"

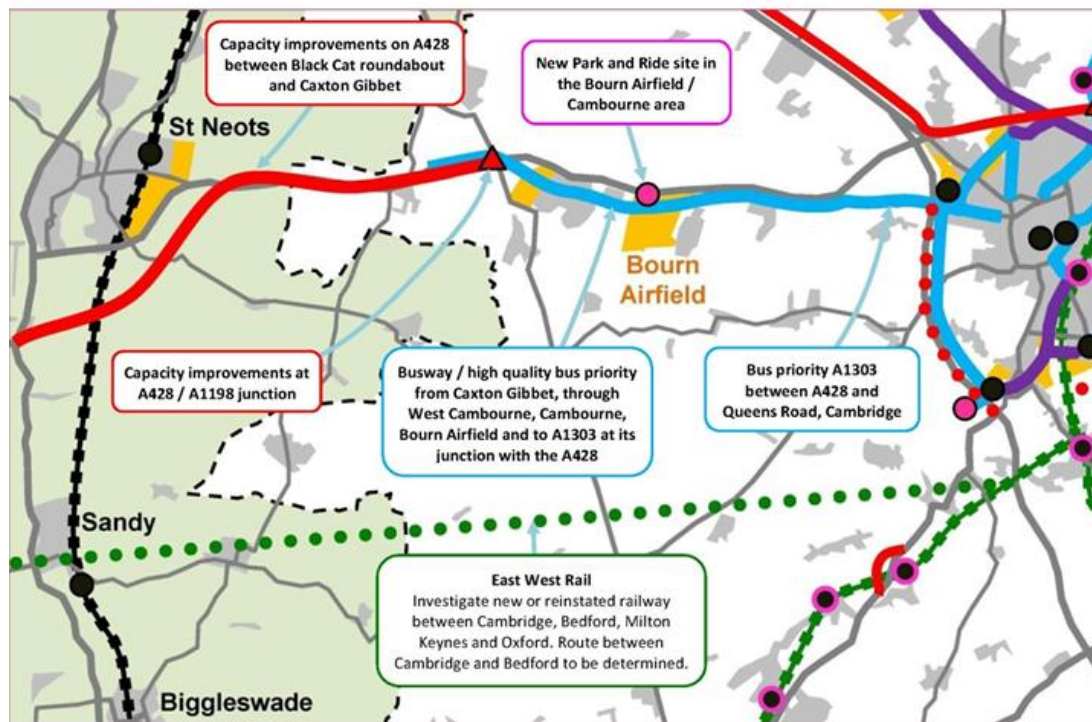
7) "To ensure the strategy encourages healthy and active travel, supporting improved well-being"

8) "To manage the transport network effectively and efficiently."

2.29 The TSCSC provides policy and strategy for a number of transport corridors including the St Neots and Cambourne to Cambridge Corridor. The document states that the public transport strategy will be "bus-based" and notes that there is a Park & Ride (P&R) site just within the M11 on Madingley Road. The TSCSC also lists the committed and future growth anticipated in the corridor from developments at St Neots East, West Cambourne and Bourn Airfield.

2.30 The document provides a list of proposed interventions and a diagram summarising these interventions. An extract is included below in **Figure 2.2**:

Figure 2.2 TSCSC Transport Interventions



- 2.31 The figure does not have a key. My understanding is that the red line refers to highway improvements, the green line/dots relate to rail and the blue line refers to bus improvements.
- 2.32 The blue line running from the west of Cambourne to Cambridge has two annotations. The first annotation indicates a busway/high quality bus priority between the A428 junctions with the A1198 (Caxton Gibbet) and the A1303.
- 2.33 The second annotation indicates bus priority on the A1303 between the A428 and Queens Road.
- 2.34 Policy TSCSC 21: 'Planning obligations for Bourn Airfield and West Cambourne', provides a bullet point list of interventions that are expected to be required. These include:
- Busway between West Cambourne site and the junction of the A1303 / A428.
 - Segregated bus links between the A428 and the M11
- 2.35 The transport strategy for the Greater Cambridge City Deal did not include or envisage a segregated busway east of the M11, and there was no policy requirement set out in the document for a segregated busway between the M11 and Cambridge city centre.

Cambridge Local Plan (2018)

2.36 The Cambridge Local Plan (CLP) was adopted in October 2018. It is still the current development plan for Cambridge City Council.

2.37 Policy 19 (West Cambridge Area of Major Change) relates to the site allocation for development in West Cambridge for primarily educational and academic/commercial research purposes. The policy states that:

Any densification of development on the site that results in a significant increase in floorspace, over that already approved, will be supported providing that:

that walking, cycling and public transport links (including access for all) to the city centre, railway station(s), other principal educational and employment sites, and other key locations within the city are enhanced to support sustainable development

2.38 No specific measures on how the above would be achieved are mentioned. An enhancement of walking, cycling and public transport links can be achieved by a wide range of measures.

2.39 Policy 80 (Supporting sustainable access to development') is aimed at promoting sustainable transport for new developments. It requires that all new developments demonstrate how they will reduce the need to travel by car and encourage walking, cycling and public transport use. This includes considerations for their location, design and the provision of necessary infrastructure to facilitate active travel and public transport, ensuring that new growth contributes to a more sustainable and accessible transport network across the district. Policy 80 states this will be achieved by:

by ensuring major developments on the edge of the city and in the urban extensions are supported by high quality public transport linking them to Cambridge's city centre and major centres of employment. The public transport links should be within walking and cycling travel distance of the development.

ensuring that any development requiring a new road or road access accords with the following:

it is designed to give high priority to the needs of pedestrians and cyclists, including their safety

there is safe and appropriate access to the adjoining road, pedestrian and cycle networks

2.40 The Cambridge Local Plan includes policy support for sustainable travel but does not specify the need for a segregated busway. There is also a policy requirement to prioritise the safety of pedestrians and cyclists.

South Cambridgeshire Local Plan (2018)

- 2.41 The South Cambridgeshire Local Plan (SCLP) [CD6-02] was adopted in September 2018. It sets out the planning policies and land allocations to guide future development to 2031 and is still the current adopted Development Plan for South Cambridgeshire District Council (SCDC).
- 2.42 Part 8 (a) of policy SS/7 "*New Village at Bourn Airfield*" sets out that the public transport improvements should include the following:
- "i. Provision of a segregated bus link from Cambourne to Bourn Airfield new village across the Broadway, and on through the development to the junction of the St Neots Road with Highfields Road.*
- ii. Any measures necessary to ensure that a bus journey between Caldecote / Highfields and the junction of the A428 and the A1303 is direct and unaffected by any congestion suffered by general traffic.*
- iii. Provision of high-quality bus priority measures or busway on or parallel to the A1303 between its junction with the A428 and Queens Road, Cambridge;"*
- 2.43 The TSCSC 2014 envisaged bus priority measures along the A1303 from the A428 to Queens Road, Cambridge. The SCLP requires either bus priority or a busway on or parallel to the A1303 up to Queens Road.
- 2.44 It also mentions for these measures to be taken up to the junction of the A1303/Queens Road. In the case of the RRR route, buses are required to go south from RRR on to Grange Road and would not go through that junction.
- 2.45 It is noted that Madingley Road does not currently include any bus priority. Currently there are six bus services operating along the A1303 just west of Grange Road. In the event that bus priority associated with a CtoC scheme was introduced along the A1303, it would benefit these existing services as well as the CtoC buses.
- 2.46 Policy SS/8: Cambourne West, under the Sustainable Villages section of the SCLP, states that land northwest of Lower Cambourne, including an area within the current Business Park "*is allocated for the sustainable, fourth linked village to Cambourne of approximately 1,200 dwellings by 2031 with high levels of green infrastructure*", which will generate additional travel demands.
- 2.47 Item 12 within the policy lists a series of measures that the development will need to address in co-ordination with other developments (but subject to detailed strategy development and to the transport assessment of development proposals). These measures include:
- High quality segregated bus priority measures on the A1303 between its junction with the A428 and Queens Road, Cambridge.*

- 2.48 This policy specifically highlights bus improvement measures on the A1303 between the A428 and Queens Road. As noted above, bus improvement measures along the A1303 would provide benefits to new and existing services.
- 2.49 The CtoC scheme will not deliver these measures, as the CtoC scheme does not provide bus priority between the A1303 junctions with the A428 and Queens Road. The CtoC scheme terminates approximately 850m south of the A1303 and at Grange Road (approximately 415m west of Queens Road 'as the crow flies')

The Cambridgeshire and Peterborough Local Transport Plan (January 2020)

- 2.50 This was the first Local Transport Plan (LTP) for the Cambridgeshire and Peterborough Combined Authority (CPCA).
- 2.51 The document replaced the Interim LTP, which was published in June 2017 and was based upon the then existing LTP for Cambridgeshire and the LTP for Peterborough. It sets out the policies and strategies intended to secure growth and ensure that planned large-scale development can take place in the county in a sustainable way.
- 2.52 The LTP describes their priority schemes including the Cambridgeshire Autonomous Metro (CAM):

Within urban and surrounding areas, solutions to manage demand for road space are being explored, such as the construction of the Cambridgeshire Autonomous Metro (CAM). CAM will provide high quality, high frequency metro services, delivering a step change in connectivity across the city....

Work is already underway on the first phase of the CAM through the Greater Cambridge Partnership's programme to provide high quality, segregated public transport routes along key corridors, including links to Cambourne, Granta Park, Cambridge East and Waterbeach.

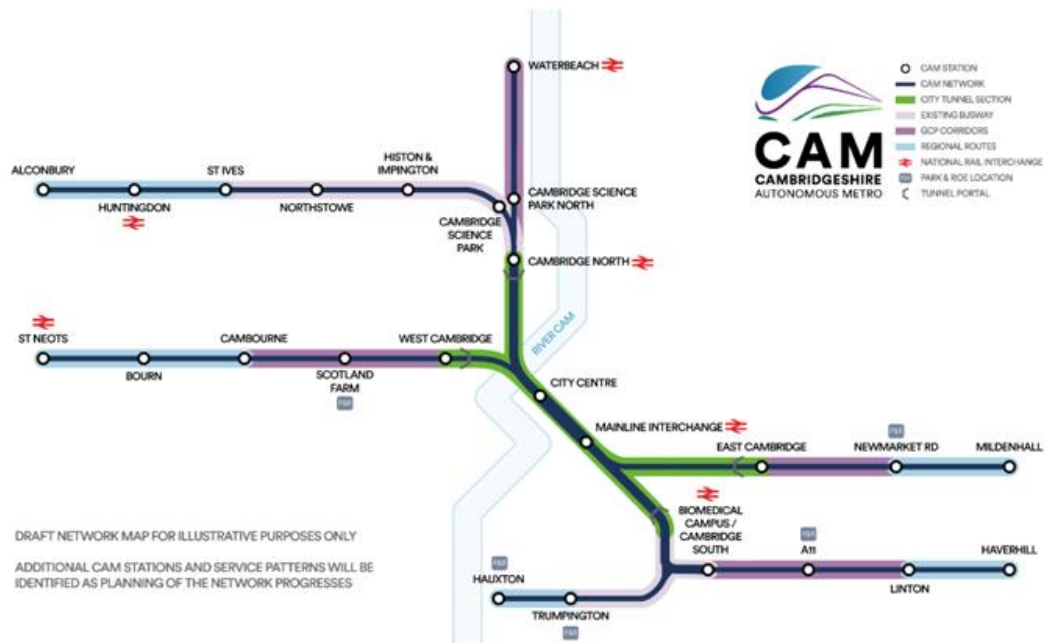
- 2.53 CAM was envisaged to be a metro-style network that would connect regional settlements, major employment sites and key growth areas across the region with railway stations and Cambridge city centre. CAM was expected to use a flexible zero emission vehicle.
- 2.54 The LTP also notes that the CPCA will be working in collaboration with key local partners. This includes:
- The Greater Cambridge Partnership, who are currently leading the development of a series of segregated public transport corridors from Cambridge to Cambourne, Granta Park and Waterbeach that will form part of the future CAM network.*
- 2.55 Within the LTP's 'Local Strategies' section, the document describes the strategic projects 'West – towards Cambourne, St Neots and Bedford':

Along the A428/A1303 corridor, the Cambourne to Cambridge scheme being led by the Greater Cambridge Partnership will deliver a segregated public transport corridor from Cambourne. This corridor will serve the future housing sites at Cambourne West and Bourn Airfield, to West Cambridge and other key employment sites and destinations. Similarly, to Waterbeach, this will form a first phase of the CAM network, operated by high-quality electric vehicles, and will include a new Park & Ride site at Scotland Farm or Madingley Mulch.

Cambridgeshire Autonomous Metro (CAM) Sub-Strategy (April 2020)

- 2.56 The CAM was first proposed in 2017 by the CPCA Mayor.
- 2.57 During 2018, the CPCA and the GCP delivered a Strategic Outline Business Case (SOBC) for the CAM Network. The SOBC was approved by the CPCA Boards in March 2019.
- 2.58 The CAM Sub-Strategy was a daughter document of the CPCA LTP and was published in April 2020. The document states that:
- It describes the policy framework for the CAM metro. Schemes which form part of the CAM metro will be compliant with the policies in this document.*
- 2.59 This document is specific to the CAM scheme. The objectives and sub-objectives set out in the sub-strategy document are only relevant to the CAM or to other schemes in the event that the CAM is implemented.
- 2.60 The document describes the "CAM programme" as comprising of several components:
- The City Tunnel Section, including underground tunnels and planned major interchange hubs at the city centre and at the mainline railway station, under the city of Cambridge;
 - Inner Corridors, often referred to as the 'GCP Corridors'; and
 - Regional Routes to extend the system to reach Garden Villages, employment sites, etc.
- 2.61 **Figure 2.3** below is an extract from the sub-strategy document showing the potential CAM network.

Figure 2.3 CAM Network (as proposed in the Sub-Strategy document)



- 2.62 The green lines represent the city tunnel sections. The network map shows that the intention was for this to extend out from the city centre to West Cambridge.
- 2.63 **Appendix A** contains a public consultation leaflet for CAM (for a consultation between 21st February 2020 and 3rd April 2020). The leaflet states that the western portal (i.e. where the CAM emerges from the city tunnel) would be located "Near University of Cambridge west site" although it notes that the precise locations for the portals have yet to be confirmed as further technical work is required.
- 2.64 From the map and the description, it can be concluded that the section of CAM passing Adams Road and RRR was intended to be underground, and therefore fully segregated.
- 2.65 This means that the CtoC sections along either Adams Road or RRR would not have been used by the CAM metro and would have become redundant. Therefore, neither option would have had contributed to future-proofing, which was one of the criteria that was assessed during the options appraisal process.
- 2.66 The dark purple lines on the network map represent the "GCP Corridors". From the map, the intention was that from West Cambridge to Cambourne the CAM network would be above ground.
- 2.67 The sub-strategy noted that:
- CAM is currently anticipated to be segregated as a default assumption.*
- 2.68 This is also stated within sub-objective CAM-E-15.

- 2.69 From Cambridge City Centre to West Cambridge the segregation of the CAM would have taken place within underground tunnels.
- 2.70 In the sub-strategy document, there is no policy set out for transport improvements in the event that CAM is cancelled.
- 2.71 The CAM scheme was cancelled in May 2021 following the election of a new mayor of the CPCA.
- 2.72 The sub-strategy and the policies contained within them were therefore no longer applicable following this date, given that these were specifically related to the CAM scheme.

Greater Cambridge Local Plan: First Proposals (November 2021)

- 2.73 The City Council and South Cambridgeshire District Council (SCDC) worked together to create a joint Local Plan for the two areas. The Greater Cambridge Local Plan will seek to ensure that there is a consistent approach to planning and building across both areas up to 2041.
- 2.74 The Emerging Plan places a strong emphasis on the further development of the "University Innovation District" at West Cambridge/Eddington (Policy S/WC: West Cambridge). Similar emphasis is set out in Policy 19: "West Cambridge Area of Major Change" of the Cambridge Local Plan (Site M13).
- 2.75 The Emerging Plan Policy S/WC: West Cambridge states that it should *"maximise the opportunity provided by the public transport improvements such as the proposed Greater Cambridge Partnership Cambourne to Cambridge Scheme"*.
- 2.76 There are several references to the GCP CtoC scheme but no detailed description of the scheme within the Emerging Plan.

Cambridgeshire Active Travel Strategy (2023)

- 2.77 Cambridgeshire's Active Travel Strategy provides a set of policies to support the provision of active travel infrastructure and initiatives in Cambridgeshire to contribute to the County Council's target to achieve Net Zero carbon by 2045.
- 2.78 The aim of the strategy is to make active travel safe, pleasant and convenient in order to become the preferred travel choice for local journeys. It seeks to have a significant role to play in addressing the following:
- Improvements to Cambridgeshire's wider transport network by reducing the pressure of ever increasing vehicular traffic on the roads and the significant impact this has.
 - Sustainable growth in Cambridgeshire through well-connected and integrated sustainable transport networks and supporting infrastructure.

- Achieving a number of significant environmental targets at a local level, including for Net Zero carbon, air quality and biodiversity.
- Achieving a significant positive impact on people's health, wellbeing and quality of life by enabling more active lifestyle choices, creating pleasant spaces for people to travel along and spend time in, and provide affordable, inclusive access to key services for people of all ages and ability.
- Ensuring that all new developments meet a common standard of infrastructure provision for inclusive walking and cycling across the county.

2.79 Policy AT07: 'All highway improvement schemes must consider active travel' states:

As set out in Local Transport Note (LTN) 1/20 appropriate cycle facilities should be provided within all new highways schemes and development proposals, regardless of whether the scheme is on a designated cycle route, unless there are clearly defined and suitable alternatives.

Improvements for walking should also be provided to meet the Healthy Streets indicators where appropriate. Highway improvement schemes must consider active travel improvements and it will not be acceptable to continue an existing poor level of service for those walking or cycling.

Cambridgeshire's Local Cycling and Walking Infrastructure Plan

- 2.80 Cambridgeshire's Local Cycling and Walking Infrastructure Plan (LCWIP) aligns with the government's ambition to increase walking and cycling, particularly to school, as outlined in the Cycling and Walking Investment Strategy (CWIS, 2017 and CWIS 2, 2022). The CWIS sets out the government's aim to make walking and cycling the natural choice for all short journeys, or as a part of a longer journey.
- 2.81 The LCWIP forms part of a long-term vision to improve Cambridgeshire's walking and cycling networks in order to increase the number of residents travelling on foot and by cycle and thereby improve the health and well-being of all those living and working in Cambridgeshire.
- 2.82 The aim is to build on the already high levels of cycling in Cambridge and to spread the cycling culture out to the rest of the county whilst encouraging more walking by improving journeys in town centres and to schools and employment areas. Walking and cycling routes to transport hubs are particularly important and feature strongly in the routes proposed for improvement.
- 2.83 The document also highlights the need for safe facilities. The Policy section starts with the following quote:

'More people cycling and walking more safely more often'

- 2.84 The document also reiterates the need to establish safe, interconnected pedestrian connections.

National Guidance

WebTAG/TAG (Transport Analysis Guidance)

- 2.85 The Transport Analysis Guidance (TAG) contains guidance prepared by the Department for Transport (DfT) on the conduct of transport studies. The guidance includes or provides links to advice on how to:

- set objectives and identify problems
- develop potential solutions
- create a transport model for the appraisal of the alternative solutions
- how to conduct an appraisal that meets the requirements of the Department for Transport (DfT)

Projects or studies that require government approval are expected to make use of this guidance in a manner appropriate for that project or study. For projects or studies that do not require government approval, TAG should serve as a best practice guide.

TAG: Transport Appraisal Process

- 2.86 This document provides detailed advice on the steps in the appraisal process.
- 2.87 For public consultation the document states the following:

It is good practice to draw on evidence about the view of the public regarding potential options, in order to gauge the level of public support and identify any (previously unidentified) public acceptability issues. These views can then be accounted for in selecting the better performing options to be taken forward for further appraisal in Stage 2.

Manual for Streets and Manual for Streets 2

- 2.88 The highway design of the non-trunk road network is required to follow national design guidance set out in Manual for Streets and Manual for Streets 2.
- 2.89 Manual for Streets (2007) and its companion guide, Manual for Streets 2 (2010), are key design guidance documents in the UK aimed at creating more people-oriented streets. While Manual for Streets (MfS) primarily focuses on the design, construction, adoption, and maintenance of lightly-trafficked residential streets, prioritising "place" over just traffic movement, Manual for Streets 2 (MfS2) extends these principles to a wider application, covering busier urban and rural streets and bridging the gap in guidance between residential streets and trunk roads.
- 2.90 MfS applies a user hierarchy to the design process with pedestrians at the top. This means considering the needs of pedestrians first when designing streets.

- 2.91 Both manuals advocate for a collaborative approach to street design, emphasising the needs of pedestrians and cyclists before motor vehicles, and promoting designs that naturally control vehicle speeds and contribute to the overall quality of life and community building.
- 2.92 Adams Road is a residential road and therefore, its design should follow the principles set out in MfS and MfS2. I would also expect RRR to follow these principles.

Design Manual for Roads and Bridges (DMRB)

- 2.93 The Design Manual for Roads and Bridges (DMRB) is a comprehensive suite of documents that sets the standards and provides guidance for the design, assessment, and operation of motorways and all-purpose trunk roads in the United Kingdom. It is continuously reviewed and updated to incorporate new research, technology, and best practices.
- 2.94 While primarily for trunk roads, its principles can be partially applicable to other roads with similar characteristics, for example roads where higher speeds (usually above 40mph) occur.
- 2.95 DMRB standards and principles are often applied to non-trunk roads and are also often requested by highway authorities for local streets, particularly in the absence of other prescriptive guidance. An example of this is the use of DMRB's GG119 guidance to inform Road Safety Audits (RSAs).
- 2.96 I would expect both the Adams Road and RRR to primarily follow the MfS and MfS2 principles where there is relevant guidance, rather than DMRB.

Road Safety Audit Guidance

- 2.97 Where schemes interface with public highways, a Road Safety Audit (RSA) process is required. DMRB document GG119 'Road Safety Audits' provides the requirements for road safety audit for highway schemes on the trunk road and motorway network. However, it is also widely applied to other categories of road
- 2.98 The objective of the road safety audit process is to provide an effective, independent review of the road safety implications of engineering interventions for all road users.
- 2.99 GG119 has been followed by CCC's RSA team when reviewing the Applicant's scheme. The RSA team that has reviewed the alternative Adams Road schemes I have put forward, has also followed GG119.
- 2.100 The Road Safety Audit process will continue throughout the subsequent detailed design stages in collaboration with CCC.

LTN 1/20 National Guidance

- 2.101 LTN 1/20, "Cycle Infrastructure Design," is the Department for Transport's definitive national guidance for local authorities and highway engineers in the UK on designing high-quality, safe and attractive cycling infrastructure.
- 2.102 Published in 2020 alongside the "Gear Change" policy paper, it sets out significantly higher design standards than previous guidance, emphasising physical segregation from motor traffic, direct and coherent networks, and facilities accessible to all ages and abilities, including non-standard cycles. The document promotes five core design principles – Coherent, Direct, Safe, Comfortable, and Attractive.
- 2.103 LTN 1/20 provides guidance on minimum recommended cycle track widths and lanes, as well as design guidance on the interface between cyclists and other road users.
- 2.104 The concept of Cycle Streets is also referenced in LTN 1/20. The Applicant is seeking to implement a Cycle Street on Adams Road as part of the Comberton Greenway scheme.
- 2.105 The alternative schemes that I have put forward allowing buses to use Adams Road whilst maintaining a cycle route have been designed in accordance with LTN 1/20.

Britpave - Guided Busway Design Handbook 2017

- 2.106 The Britpave Guided Busway Design Handbook 2017 provides comprehensive guidance for the design and construction of guided busways.
- 2.107 The handbook covers various design/construction considerations and operational aspects.
- 2.108 Typical cross sections for guided busways are set out within the document. I understand that the cross-sections in this Handbook are similar to those employed for the current Cambridge Guided Busway.
- 2.109 These cross-sections incorporate a solid central reserve, which acts as a physical guide for the bus (wheels), between the two bus running lanes.
- 2.110 However, the cross-sections [CD1-16.05] put forward by the Applicant do not include a central reserve. The Applicant's Statement of Case (SoC) [CD23-01] section 10.7 discusses the operation of the proposed scheme, and notes that new technological advances allow guidance of buses using non-physical means. The SoC notes that full details of the guidance technology and vehicle design have not yet been fully defined for the project.
- 2.111 Cross-section examples, with and without a maintenance track, are included in the document. Where a maintenance track is shown, the guided busway is shown with an evacuation strip on one side. The example cross-section without the maintenance track shows evacuation strips on both sides
- 2.112 The evacuation strip is described as follows:

A minimum evacuation strip of 0.7 metres (desirable minimum 1.0 metres) is required adjacent to the guideway for use in times of emergency (Figure 4.1). This strip may also serve as a maintenance walkway, enabling inspection of the guideway and providing a safe walking area for maintenance staff during normal operation.

- 2.113 The function of the maintenance track is described as follows:

Consideration should be given to providing a wider maintenance track (4 metres) alongside the guideway, particularly in rural environments where space is available (Figure 4.2). Maintenance tracks can also serve as public footpaths and bridleways, provided they are adequately segregated from the guideway. If no maintenance track is to be provided, maintenance will have to be carried out online using special maintenance vehicles.

DfT's Inclusive Mobility document

- 2.114 The DfT's *"Inclusive Mobility: Making transport accessible for passengers and pedestrians"* document provides comprehensive guidance for transport providers and local authorities on creating a truly accessible transport system for people with disabilities. It outlines best practices for improving access across various modes of transport, including pedestrian environments and bus stops.
- 2.115 The guidance emphasises that designs catering to disabled individuals ultimately benefit a wider range of users, such as those with temporary mobility issues, older people, or those traveling with children or luggage, thus promoting overall social inclusion.
- 2.116 The guidance provides information on minimum widths of footways. The Adams Road schemes have been designed to allow for all road users.

Local Design Guidance

Highways Development Management – General Principles for Development (January 2023)

- 2.117 The 'Cambridgeshire Highways Development Management – General Principles for Development' (HDM) document is a set of guidelines from Cambridgeshire County Council for developers, applicants, their agents and local authority officers. Its purpose is to set out the requirements for new highway infrastructure, accesses, and adoptable roads in Cambridgeshire. It is not prescriptive nor exhaustive but rather a fluid document that evolves with best practices and policies.
- 2.118 The guidelines are used as part of the planning application process, where the County Council acts as the Local Highway Authority and a statutory consultee. It ensures that development proposals meet safety standards and do not have an unacceptable

impact on the transport network. Key areas covered include the design of access and junctions, road safety audits, pedestrian and cycle infrastructure.

2.119 Section 1.2 of the HDM document notes the importance of properly assessing the implications of development and ensuring that access can be secured to the site that is safe and meets all the necessary standards.

2.120 It also notes that in relation to planning submissions:

In certain circumstances the LHA may place a holding objection, until such a time as the Authority is satisfied that the proposal will not compromise highway safety to an unacceptable degree.

2.121 Section 1.2 also reiterates policy wording from the NPPF in relation to the refusal of development on highway grounds where there would be an unacceptable impact on highway safety. This was set out in paragraph 111 of the NPPF in January 2023 but is in paragraph 116 of the current version of the NPPF.

2.122 Section 2.1 notes that when designing new highway infrastructure:

the following principles must be adhered to for users in order of the above hierarchy:

- *Safe*
- *Direct*
- *Comfortable*
- *Coherent*
- *Attractive*
- *Adaptable*

2.123 The HDM document prioritises highway safety first, and therefore, I would expect the Applicant to demonstrate that any highway safety concerns identified within their scheme can be mitigated to an acceptable degree.

2.124 Section 2.4 of the document relates to Road Safety Audits. It states:

Stage 1 Road Safety Audits are required at planning stage for all new major junction designs, new controlled pedestrian / cycle crossings, and proposals which result in changes to the vertical or horizontal alignment of the existing highway.

Stage 2, 3 (& 4 as required) RSA will be secured as part of any agreement to undertake works within the public highway; the audits will be undertaken at detailed design stage and at appropriate milestones through the implementation process.

2.125 Section 2.8 deals with pedestrian, cycle and equestrian infrastructure. The document notes that, generally, new cycleways shall accord with LTN 1/20.

- 2.126 The document also provides guidance on bus routes noting that these are appropriate on carriageway widths between 6.1m and 7.3, subject to swept path analysis and any necessary widening on bends/junctions.

Greater Cambridge Sustainable Design and Construction SPD (2020)

- 2.127 The 'Sustainable Design and Construction SPD', jointly adopted by Cambridge City Council and South Cambridgeshire District Council in January 2020, provides technical guidance for implementing policies related to sustainable design, construction, and environmental impact reduction in new developments.
- 2.128 A key aspect is encouraging sustainable transport modes such as walking, cycling, and public transport by ensuring new developments are well-connected and integrated with existing transport networks, ultimately supporting the councils' climate change targets and wider environmental aspirations.

District Design Guide SPD (2010)

- 2.129 The District Design SPD adopted by South Cambridgeshire District Council in March 2010, serves as a comprehensive guide to ensuring high-quality, sensitively designed, and sustainable new developments across the district. It provides detailed design principles and requirements for various types of development, ranging from new towns to individual extensions, with a strong emphasis on respecting and enhancing local landscape and townscape character, promoting sustainable construction practices, and fostering community well-being. Although some of the Development Plan Documents it supported have been superseded, it remains a material consideration in planning decisions, providing guidance on aspects such as urban structure, public realm, green infrastructure, and environmental sustainability.

Summary

- 2.130 National policy seeks to promote and facilitate sustainable development through the provision of sustainable transport infrastructure. These aims are also reflected in the local policy that has been developed in the Cambridge area.
- 2.131 The Greater Cambridge City Deal signed in 2014 provided impetus and funding commitments for transport infrastructure to support growth in Cambridge and the wider area. A key focus of the accompanying transport strategy involved the provision of high quality public transport along various corridors, including the St Neots – Cambourne – Cambridge corridor, as it was acknowledged that significant development would be coming forward in the corridor.
- 2.132 To support these developments, the TSCSC set out objectives for busways and segregated bus links from Cambourne up to the M11.
- 2.133 The South Cambridgeshire Local Plan (2018) includes a policy for the provision of high-quality bus priority measures or busway on or parallel to the A1303 between its

junction with the A428 and Queens Road to support development at Bourn Airfield and West Cambourne. The Applicant's route does not support this requirement as it would not run to the A1303 junction with Queens Road.

- 2.134 As the above requirement is for the bus route to end at the A1303/Queens Road junction, the intention is for the bus route to run on or close to the A1303. I have not seen any evidence to suggest that this could mean a route as far south as RRR. In my view, it was not envisaged or suggested in the SCLP that a route "parallel to the A1303" would mean traversing RRR and terminating at Grange Road.
- 2.135 The Cambridgeshire Autonomous Metro (CAM) scheme was put forward in 2017 by the CPCA mayor. The scheme became a key transport priority and a Strategic Outline Business Case for the scheme was published in March 2019.
- 2.136 The default assumption for CAM was to provide segregated routes. From Cambridge city centre to West Cambridge, the CAM scheme involved underground tunnels.
- 2.137 As part of the CAM sub-strategy, schemes such as GCP's CtoC scheme were to become part of the CAM network. It was envisaged that CtoC would be delivered first and some sections of the CtoC would be utilised by the CAM. Other CtoC sections (including the section between Cambridge and West Cambridge) would not be needed for the CAM, as a tunnel would be constructed for the CAM.
- 2.138 Notwithstanding the above, the CAM sub-strategy was developed specifically for the CAM with the assumption that the CAM is the centrepiece of the strategy. Once the CAM was cancelled in 2021, the sub-strategy became obsolete.
- 2.139 There are no local policies that I am aware of that specifically require a segregated bus route from West Cambridge to Cambridge. Where a segregated bus route is mentioned as an option, the policy notes that the bus route should link to the A1303 junction with Queens Road.

3 DECISION MAKING PROCESS

- 3.1 I have set out below an outline of the relevant consultation and decision-making processes undertaken by the Applicant. Where appropriate I have added commentary on particular flaws or inconsistencies.

Transport Strategy for Cambridge and South Cambridgeshire (2014)

- 3.2 CCC prepared a Transport Strategy and High Level Programme document 'Transport Strategy for Cambridge and South Cambridgeshire' in March 2014, to support growth in jobs, population as well as the local and wider economy.
- 3.3 The backbone of the strategy involved a high quality passenger transport (HQPT) network, fed and complemented by pedestrian and cycle networks. It was noted that buses had a role to play in providing a HQPT option on most major corridors into Cambridge including the St Neots and Cambourne to Cambridge corridor.
- 3.4 Figure 4.1 of the strategy document highlights that the primary HQPT focus is a guided bus supported by a P&R, however it notes that there is the potential for a rail option "depending on route choice and deliverability of the East West Rail central section between Bedford and Cambridge" in the medium to longer term.
- 3.5 Figure 4.5 of the strategy document confirms that at the time of writing the document, the East West Rail project was not currently planned by the rail industry.
- 3.6 For the Cambridge to Cambourne corridor, the strategy noted that in the short term this would involve bus priority measures on the inbound trip on the A1303, and in the longer term, "a more comprehensive solution for both inbound and outbound services will be sought".
- 3.7 Figure 5.14 of the strategy document lists a number of "interventions" for creating this HQPT corridor:
- Provision of an outer Park & Ride (P&R) between Cambourne and A1303;
 - A1303 busway/HQPT infrastructure to serve Bourne Airfield/Cambourne; and
 - A428 Caxton Gibbet to Black Cat improvements
 - Create direct cycle route along corridor, connecting Cambridge to Cambourne and onwards to St Neots
- 3.8 At this stage, there are few details of the specific measures along the section linking West Cambridge to the city centre.

A428 Cambourne to Cambridge Corridor Study Draft Interim Report (June 2015)

- 3.9 CCC commissioned Atkins to prepare a study on the A428 corridor which, *"looks specifically at public transport improvement options between Cambourne and*

Cambridge". A report was published in June 2015 [CD13-01], with the aim of presenting various options for the A428 corridor and providing "preliminary details on their performance, feasibility and key risks".

3.10 The study reviewed two "tranches". Tranche 2 (in later studies this is referred to as Phase 2) reviewed options for the western section from Cambourne to the Madingley Mulch roundabout) and the eastern section (Tranche 1 – later referred to as Phase 1) reviewed route options between the Madingley Mulch roundabout and Cambridge City Centre. For both tranches, the study put forward three options.

3.11 **Figure 3.1** below represents an extract from the Atkins 2015 report illustrating the route options. For Tranche 1, Option A is shown as the orange line, Option B is shown as the red line and Option C is the green line.

Figure 3.1 Phase 1 and 2 CtoC Route Options (2015)

Madingley Road / A428 Cambourne to Cambridge Corridor Study
Interim Report

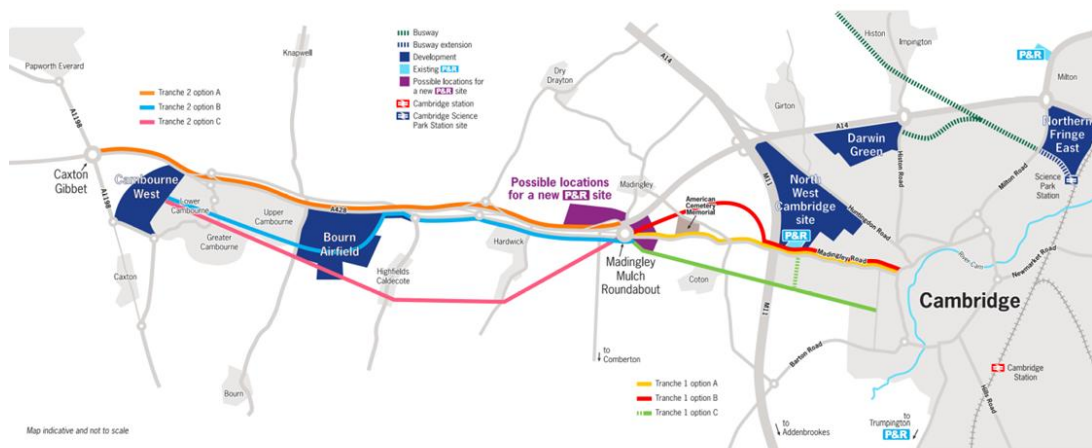


Figure 1-1 Summary of options

3.12 These options (1A, 1B and 1C), were as follows:

- 1A (light orange/yellow line in above figure) – Online eastbound bus lanes from the A1303 / A428 junction along Madingley Rise and Madingley Road to Lady Margaret Road;
- 1B (red line) – A new offline dedicated bus route running north-east from the A1303 / A428 junction, connecting to Madingley Road just west of the M11. A further eastbound bus lane on Madingley Road would be provided to Lady Margaret Road; and
- 1C (green line) – A new offline dedicated bus route running north of Coton and parallel to Madingley Road and Madingley Rise to Grange Road, with a connection to the West Cambridge University site.

3.13 At this stage, Option 1C is conceptual and does not mention either Adams Road or RRR. However, the above plan appears to show the route indicatively running along Adams Road.

- 3.14 The report includes estimates for bus journey times for the three options, and notes that *"All bus journeys are going to Queens Road, although Options 1A and 1B connect to Northampton Street, while Option 1C connects to Silver Street (via Sidgwick Avenue). All highway journey times are to Northampton Street junction"*. The bus journey times are stated as:
- Option 1A – Between 9 and 10 minutes;
 - Option 1B – 8 minutes; and
 - Option 1C – 5 minutes
- 3.15 These all compare favourably to journey times by car which are given as between 11 and 13 minutes (depending on the route taken by the driver).
- 3.16 The report concluded that all the above options (i.e. 1A, 1B, and 1C) had the potential to deliver the desired standard of HQPT to meet the requirements of the Cambridge City Deal Partnership. The report recommended that the three options were taken forward to a public consultation process before proceeding to a detailed options assessment.
- 3.17 Tranche 2 was also divided into three options (2A, 2B and 2C). These were independent of the Tranche 1 route, in that any of the Tranche 1 route could join onto each of the Tranche 2 routes.

CtoC Better Bus Journeys Public Consultation (October 2015)

- 3.18 The Atkins 2015 report led to the CtoC Better Bus Journeys public consultation exercise (undertaken by GCP) that took place during October and November 2015. The two-page leaflet [CD1-06.03] lists the three Tranche 1 options as Area 1 North, Central and South. These relate to Options 1B, 1A and Option 1C, respectively from the Atkins 2015 report.
- 3.19 Descriptions for the options are provided on page 2 of the leaflet.
- 3.20 The journey times presented in the leaflet do not correspond to the numbers provided in the Atkins report. In the leaflet, journey times are shown as follows:
- Area 1 North – 14 minutes;
 - Area 1 Central – 14 minutes; and
 - Area 1 South – 7 minutes.
- 3.21 I note that, in the leaflet, only the Area 1 South option is described as a "high quality" bus route, whilst the previous Atkins report confirms that all the options had the potential to deliver HQPT.
- 3.22 I am not aware of any updated journey time or route design information following the Atkins 2015 report. In the absence of any new estimations, the information in the

leaflet does not appear to accurately reflect the relative merits of the options and therefore represents a flaw in the consultation process.

- 3.23 This inconsistent messaging may have led to more favourable consultation results for the Area 1 South route.
- 3.24 The results of the consultation are included in a report [CD1-06.04] prepared by WSP in February 2016.
- 3.25 The results showed that Area 1 South (the off-road route that would pass through either Adams Road or RRR) had the least support with 58% of respondents strongly opposing it. The main issues listed by respondents were the significance of green spaces and landscape. Respondents also stated that environmental impact had not been fully considered. A particular concern was the use of (and impact on) West Fields. The RRR option would involve a larger degree of encroachment on West Fields.
- 3.26 Area 1 Central was the most popular, gaining support from 67% of respondents. This option involved the online eastbound bus lanes from the A1303 / A428 junction along Madingley Rise and Madingley Road to Lady Margaret Road.

Strategic Outline Business Case (September 2016)

- 3.27 The Strategic Outline Business Case (SOBC) set out the case for change and how this advanced the Applicant's aims and objectives (the strategic fit). It provided suggested or preferred ways forward and presented the evidence for decisions.
- 3.28 The SOBC notes that:

Following completion of the public consultation and analysis of the responses it was necessary to combine a number of the options for further assessment, as described in the following sections. All options propose a new Park & Ride site at Madingley Mulch roundabout.

Five options have been assessed in this Strategic Outline Business Case, as described below. We describe how each of these options could serve the A428 corridor (based on indicative routes) with both offline and online sections and levels of high and low segregation. It should be noted that all offline alignments on greenfield and privately held land would need significant stakeholder agreement and associated permissions and as such the areas shown are indicative and subject to further design development.

The options are summarised as follows:

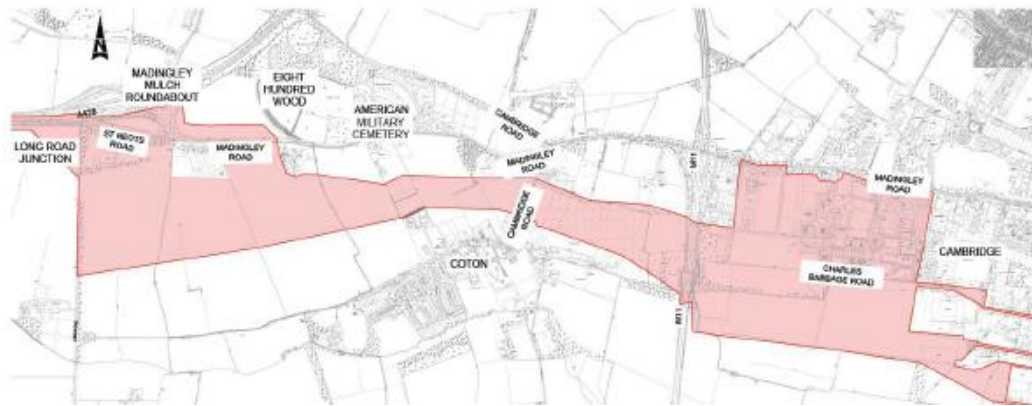
- Option 1 – A combination of 1A and 2A;
- Option 2 – A combination of 1B and 2B;
- Option 3 – A combination of 1C and 2C;

- Option 4 – A combination of 1BC and 2B; and
 - Option 5 – A combination of 1C and 2B.
- 3.29 A bespoke Multi Criteria Assessment (MCAF) was utilised in order to appraise each scheme option against specific strategic goals. MCAF is a WebTAG based assessment which uses a set number of criteria to assess the options considered. These criteria are based on a combination of the various attributes derived from the Government's Assurance Framework and WebTAG guidance.
- 3.30 The MCAF methodology assessed the options against a range of criteria *"such that the overall performance of each option can be taken into account based on a wider range of evidence than compared to Value for Money alone"*. The assessment criteria fall into the following categories - Scheme costs and benefits, transport impacts; risks; accessibility; environmental impacts; stakeholder support.
- 3.31 At this stage, the MCAF appears to have been applied as a qualitative assessment rather than a quantitative assessment.
- 3.32 The SOBC concludes that there is a case for the overall scheme but does not appear to provide a recommendation for one of the options. However, it notes that the options 3,4 and 5 offer a good strategic fit.

Greater Cambridge City Deal Executive Board Minutes (13th October 2016)

- 3.33 The Greater Cambridge City Deal Executive Board meeting held in October 2016 involved extensive discussions on the CtoC scheme and the route choices.
- 3.34 A point of discussion included a review of catchment areas to describe an area where the busway would pass through and serve. This was considered to be more appropriate at this stage given that detailed routes had not yet been decided.
- 3.35 The executive board instructed officers to undertake a topographical survey of the A1303 from Maddingley Mulch to the M11 and undertake preliminary design to assess whether or not it is feasible to provide a two way busway, a cycleway and a road within the existing highway boundary along that corridor.
- 3.36 The executive board also instructed officers to undertake further appraisal on possible specific route alignments within catchment area 3a, with catchment area 3 as an alternative if option 3a proves unviable, noting that both would connect with and potentially through Cambridge West on the way to Grange Road.
- 3.37 Catchment 3 relates to Option 3 mentioned in the SOBC as shown in **Figure 3.2**.

Figure 3.3 Catchment 3a (section from West Cambridge to Grange Road)



Skanska was commissioned by the Applicant to assess proposals for connecting Option3/3a with Grange Road. This included proposals for incorporating a busway on Adams Road, Herschel Road, RRR and Cranmer Road. A report [CD13.09] setting out their findings was published in August 2017.

Four different design proposals for Adams Road and three design proposals for RRR were put forward within the report. Each of these proposals provided a slightly different solution; in the case of the Adams Road proposals, the four designs provided varying degrees of bus priority, on-street car parking and pedestrian/cycle segregation.

Adams Road, Cranmer Road and the Rifle Range access have the ability to provide varying levels of bus priority, with the Rifle Range able to provide segregated bus rapid transit through the use of a guided busway or bus only road. If bus priority was to be provided along Adams Road, there would potentially be a negative impact on cyclist safety due to the conflict with buses on this busy cycle route.

The Adams Road, Herschel Road and Cranmer Road proposals can all be provided within the public highway. The Rifle Range access proposals would all require land purchase, therefore early engagement with land owners would be prudent.

- 3.43 The report puts forward potential layout solutions to incorporate the CtoC bus route on Adams Road, Herschel Road, RRR and Cranmer Road. The report does not discount the possibility of the CtoC scheme on either Adams Road or RRR.

Cambourne to Cambridge Better Bus Journeys - End of Stage Report (2017)

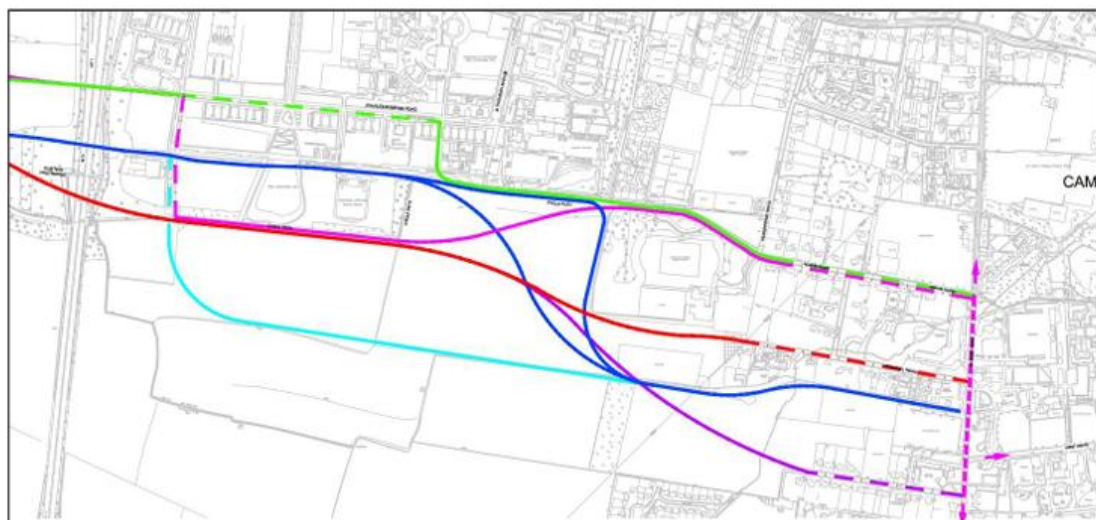
- 3.44 The Applicant commissioned Atkins to prepare an 'End of Stage' Report to develop and review four options. The report [CD13-06] was published in September 2017.

- 3.45 The four options were as follows:

- Option 1: An on-road option which includes the introduction of bus lanes on Maddingley Road between Maddingley Mulch Roundabout and Lady Margaret Road;
- Option 3/3a (two options): An off-road busway running between Cambourne and Grange Road, Cambridge;
- Option 6: An on-road tidal lane on Maddingley Road running between Maddingley Mulch Roundabout and High Cross – put forward as an alternative option by the Local Liaison Forum (LLF), a local consultation group.

- 3.46 The report concludes that various on-road portions of option 3 in Cambourne were not viable, therefore it was not taken forward for further assessment. In the study, option 3a was split into three sections, with the eastern section containing 5 route choices between the M11 and Grange Road. These are shown below in **Figure 3.4**.

Figure 3.4 Option 3a eastern end split into five route choices



- 3.47 All five routes at the eastern end of Option 3a, terminate at Grange Road. Buses would then proceed using local streets towards the city centre.
- 3.48 In Figure 3.4 above, two of the five options show the route travelling along Adams Road (pink and light green routes) and one of the options is shown on RRR (blue route), although the report also notes that there is flexibility within the routes, for example, the blue route could use Adams Road and the red route could use RRR.
- 3.49 The study undertook a Multi-Criteria Assessment Framework (MCAF) of the three main options 1, 3a and 6.
- 3.50 Two stages of MCAF were undertaken. In the first stage, an initial analysis undertaken by Atkins and Skanska resulted in option 3a achieving the best score. A subsequent analysis following comments from the LLF, resulted in option 6 with the highest score. Atkins then reviewed the LLF comments and provided revised scores (and eliminated some errors). This resulted in Option 1 having the best score.
- 3.51 The second stage, involved further MCAF analysis with a broader range of criteria. This resulted in option 3a achieving the highest score.
- 3.52 The report concludes that all three options should be taken forward to the next stage of consultation. The report also noted:
- The MCAF analysis has shown that using a MCAF can be subjective and relies on the appropriate criteria to assess each option in turn over a broad spectrum of transport related aspects. The high level MCAF assessment has demonstrated that Option 3a reports the highest score over the two on-road comparators. It is considered however that the analysis would benefit from further additional information and that all three options should be taken forward to the public consultation whilst further data is collected.*
- 3.53 At this stage, the assessment was not conclusive and acknowledged that further analysis and consultation was required.

CtoC Better Bus Journeys: Phase One Public Consultation (2017/18)

- 3.54 The End of Stage Report led on to the next round of public consultation 'by GCP; the 'CtoC Better Bus Journeys: Phase One' [CD1-06.06] between November 2017 and January 2018. The consultation presented the three route options described in the End of Stage report, and two P&R options.
- 3.55 The results of the consultation are presented in a report dated February 2018 [CD1-06.08]. The off-road 'Route C' choice (as per Option 3a in the End of Stage report), was the 2nd choice. The preferred choice was Route B (as per Option 6 in the End of Stage report). The main reasons given by respondents was the impact of Route C on the environment and cost, as well as the negligible journey time savings anticipated for Route C given the need to use Grange Road.

3.56 The public consultation results should inform the design process. WebTAG notes:

It is good practice to draw on evidence about the view of the public regarding potential options, in order to gauge the level of public support and identify any (previously unidentified) public acceptability issues. These views can then be accounted for in selecting the better performing options to be taken forward for further appraisal in Stage 2.

3.57 The public consultation results do not appear to have been a significant factor in assessing whether to proceed with an option. Their purpose in the first instance was for the scoring of the public acceptability criteria (one of 18 criteria) in the multi-criteria assessment framework scoring process.

Options Assessment Reports (OAR 1, 2 and 3)

3.58 Option development and appraisal was undertaken in 3 stages. Stage 1 assessed the options that were presented in the 2017 public consultation. The results of the consultation are summarised in Options Assessment Report 1 (OAR 1).

OAR 1 (February 2018)

3.59 OAR 1 [CD1-20.07] was prepared by Mott McDonald (MM) and published in 2018. The purpose of the work was to “inform the selection of a recommended on and off-road options for further assessment”.

3.60 The report contains an assessment of the three route options presented in the 2017 public consultation, and also a comparison of the Adams Road v. RRR options within Route C (formerly 3a).

3.61 For the purposes of OAR 1, the off-road and on-road routes were broken down into areas.

3.62 The off-road options were broken down as follows:

- Area 1: Cambourne to Madingley Mulch
- Area 2: Madingley Mulch Roundabout
- Area 3: Coton Village
- Area 4: West Cambridge
- Area 5: Adams Road/Formal Rifle Range Track

3.63 The on-road options were broken down as follows:

- Area 1: East of M11 Junction 13
- Area 2: M11 Junction 13
- Area 3: West of M11 Junction 13

- 3.64 The assessment of the options was undertaken using MM's in-house Investment Sifting and Evaluation Tool (INSET), which applies weighted scoring to each option based on how well an option meets identified criteria. INSET is an example of a MCAF decision support toolkit.
- 3.65 As noted at the End of Stage 1 Report, MCAFs can be subjective and rely on appropriate criteria selection.
- 3.66 MM describe INSET as drawing upon DfT's EAST (Early Assessment and Sifting Tool), whilst incorporating additional functionality to these existing tools.
- 3.67 The INSET scoring methodology includes a review of schemes against 18 criteria at stage 1 (OAR 1) and then 37 criteria at Stage 2 (OAR 2). The criteria are categorised across 6 themes; Policy Fit, Contribution to Economic Growth, Contribution to Improved Transport Network, Contribution to Quality of Life, Scheme Deliverability and Stakeholder Support.
- 3.68 Each criteria is scored from 1 (significant negative) to 7 (significant positive), with a score of 4 representing a neutral impact.
- 3.69 The OAR 1 INSET analysis concluded that the RRR route scored marginally better than the Adams Road route. The scoring is subjective and whilst I would agree with some of the scores, I would also score others differently. It also appears that MM were not aware of the construction requirements along RRR, which affects criteria such as scheme cost and the engineering feasibility criteria.
- 3.70 Notwithstanding the above, OAR 3 updates (and therefore supersedes) the scoring for the Adams Road and RRR options based on information that the Applicant receives later in the process. As such, there is no benefit in reviewing the OAR 1 scoring within my evidence, however, I discuss the OAR 3 scoring in more detail below in section 9 below.
- 3.71 Following the INSET analysis of options, OAR 1 proposes a single recommended on-road option and a single recommended off-road option.
- 3.72 The recommended on-road option was Option A, whilst the recommended off-road option utilised RRR rather than Adams Road.

OAR 2 (December 2018)

- 3.73 The recommended options from OAR 1 were combined with the two potential Park and Ride locations, and then assessed in more detail to arrive at a final recommended option.
- 3.74 The assessment of the refined shortlisted options from OAR 1, forms the basis for OAR 2 [CD1-20.08] which sets out the assessment of these options using INSET against a series of assessment criteria, and traffic modelling to provide initial Benefit

Cost Ratios (BCRs) for each option. This assessment also incorporates the findings and feedback from the consultation phase to arrive at a recommended option.

3.75 OAR 2 assessed the following shortlisted options:

- Do Minimum – Delivery of committed schemes between Madingley Mulch Roundabout and Cambridge City Centre (this includes improved cycle infrastructure between the University West development and Storeys Way)
- Low Cost a and b – Completion of recommended on-road option between Madingley Mulch Roundabout and Cambridge City Centre, with incorporation of a Park and Ride site either at Water Works (a) or Scotland Farm (b)
- Do Something 1a and 1b – Recommended off-road option running between Madingley Mulch Roundabout and Cambridge City Centre, incorporating a Park and Ride site either at Waterworks (a) or Scotland Farm (b) and improvement to the off and on slips of the M11 junction 13 and the junction with Madingley Road.
- Illustrative Comparator – All above options tested against an illustrative comparator from Camborne to Cambridge. This comparator comprises an off-road scheme between Camborne and Grange Road with a Park and Ride at the Waterworks site, near to Madingley Mulch roundabout.

3.76 For OAR 2, each criteria was given an equal weighting. For OAR 1, the journey time reliability criteria was given a double weighting.

3.77 OAR 2 concluded that the recommended option for phase/Tranche 1 was the Do Something 1a, whilst the emerging strategic option (a consideration of phase 1 & 2) was the illustrative comparator. At this stage (during OAR 2), the off-road route from West Cambridge to Grange Road utilised RRR, as this had been recommended at OAR 1. No re-assessment was undertaken of the relative merits of traveling along Adams Road or Grange Road.

OAR 3 (November 2019)

3.78 OAR Part 3 [CD1-20.09] reviews the assessment using the consultation information, multi criteria assessment and Benefit Cost Ratios (BCRs) based on user benefits and scheme costings to present a final recommended option.

3.79 However, OAR 3 amended the Adams Road and RRR scoring in light of further evidence and consultation feedback.

3.80 The OAR 3 report acknowledges that the RRR section will need to provide access for a range of users and will be “shared” with those users. Table 5 within OAR 3 states:

Further engagement with stakeholders has identified a range of additional users of the Rifle Range track which would impact the segregated nature of the track and therefore impact negatively on journey time

- 3.81 The Applicant's Statement of Case (SoC) [CD23-01] also highlights (in paragraph 10.3.4) that there is a risk of cyclists using the busway.
- 3.82 The OAR 3 INSET scoring for Adams Road is slightly higher than the score for RRR. In my view, scores for some of the criteria are not justified and the difference should be larger in favour of Adams Road. I will discuss this in section 9 below.
- 3.83 As a result of the INSET scoring, the report concludes that Adams Road would be the better route alignment for this segment of Phase 1. The report states:
- In the light of the potential CAM scheme, there has been a suggestion from stakeholders that the need for a dedicated route to the east of West Cambridge is not justified as it will become redundant in due course. C2C is to be promoted in advance of CAM, and there is no guarantee that CAM will proceed to construction. C2C will be assessed on its own merits and a business case which assumes an end to end scheme. Therefore, from a future-proofing perspective this is a significant argument, but the selection of a solution should be based on the full range of criteria.*
- 3.84 The INSET methodology includes a future-proofing criteria, which is based on the Cambridge Autonomous Metro (CAM) potentially coming forward in the future, and the potential for CAM to use the CtoC route.
- 3.85 As I have noted in my evidence, the CAM proposals featured underground tunnels from the city centre up to West Cambridge with the portal (where buses would emerge) in a yet to be defined location. Both the Adams Road or RRR section would have become redundant and were not going to be used by CAM. The future proofing argument would have been relevant from the West Cambridge to Cambourne section, but not along the section adjacent to Clare Hall.

Strategic Outline Business Case (SOBC) – Strategic Case (January 2020)

- 3.86 The SOBC [CD1-20.05] prepared by MM and published in January 2020 followed closely after OAR3. This report confirms that the preferred route (at that time) was the off-road option through Adams Road, according to the INSET assessment, which in turn is "*based on criteria derived from scheme objectives*".
- 3.87 The report notes that as the scheme progressed, results from consultation with key stakeholders prompted a review of the INSET assessment (as summarised in OAR3). The report states:
- Taking into account the reassessment, it was recommended at this stage in the scheme development that Adams Road, as the slightly better performing option with the reduction in harm to the Green Belt, would be the better route alignment for this segment of Phase 1.*

- 3.88 The key process to this point involved use of the INSET tool (following additional information and feedback), establishing the reassessed scores and proposing a recommended route based on the higher scoring option.

GCP Joint Assembly Minutes 4th June 2020

- 3.89 Item 14 at the Assembly dealt with the CtoC scheme. The GCP Transport Director provided an update on the project. The minutes state:

The proposals within the report had also been updated following the publication of the CPCA's CAM Sub-Strategy consultation and early analysis of the impact of Covid-19.

The Joint Assembly was informed that although the overall project complied with the CAM Sub-Strategy, the Adams Road section of the route had not met the Sub-Strategy's default positions for segregated routes and the complimenting of walking and cycling. Following further consultation, the proposed route alignment had reverted to the Rifle Range proposal.

- 3.90 As I have noted earlier in my evidence, the CAM sub-strategy relates solely to the CAM and is only relevant if the CAM is delivered.
- 3.91 Furthermore, the default position of segregated routes for the CAM metro does not apply to the CtoC section from Grange Road to West Cambridge.
- 3.92 The CAM involves sections of tunnel, which would include the section from Grange Road to West Cambridge. The CAM sections from West Cambridge to Cambourne were to be above ground.
- 3.93 The intention was that the CtoC scheme would be implemented first, and the CAM would follow. There would have been a future proofing argument involving bus segregation for the CtoC sections from West Cambridge to Cambourne. Essentially, this section, which would have been built first as part of the CtoC, would then have been utilised as part of the later CAM.
- 3.94 For the CtoC section from Grange Road to West Cambridge there is no requirement for this to be part of the CAM at a later date, as the intention was for this section of the CAM to be part of the city tunnels, bypassing the above ground route. The westbound CAM would then emerge from the tunnel at or near the West Cambridge site.
- 3.95 Therefore, the segregation of buses from other road users, between Grange Road and West Cambridge, along either Adams Road or RRR, is irrelevant to the CAM. It follows that an Adams Road option would not be contrary to the CAM sub-strategy and should not be assessed against any of the objectives of the CAM sub-strategy, as this section would not be part of the CAM.

- 3.96 There is also no mention of any reassessment based on the INSET methodology or any other technical analysis. Whilst the OBC provides recommendations based on the INSET methodology, i.e. an analytical method, the final route recommendation made to the GCP Joint Assembly does not appear to benefit from the same approach.
- 3.97 The decision to change the route in June 2020, from Adams Road to RRR is based on an incorrect application of policy and a misunderstanding of the inter-relationship between the CtoC and the CAM schemes, rather than a review of criteria based on the CtoC scheme's objectives.
- 3.98 The CAM was cancelled in May 2021, and the sub-strategy immediately became obsolete. Despite the emphasis placed on the CAM sub-strategy for the decision-making process, there was no INSET reassessment of the route options.

Change from Adams Road to RRR

- 3.99 The OAR 3 undertook an appraisal assessment of both the Adams Road and RRR routes following stakeholder feedback, which resulted in amended scoring using the INSET tool.
- 3.100 The OAR 3 INSET scores showed that RRR was the preferred route, and this recommendation was made in the OBC in January 2020.
- 3.101 At the June 2020 GCP Joint Assembly Meeting, it was stated that the Adams Road route did not align with the objectives of the CAM sub-strategy, and the preferred route was now along RRR.
- 3.102 The reasoning and justification to amend the route from Adams Road to RRR is not set out in any technical reports produced by the Applicant in 2020 before it was confirmed at the GCP Executive Board Meeting in December 2020.

GCP Executive Board Meeting Minutes 10th December 2020

- 3.103 GCP's Executive Board meeting minutes [CD10-06] states "a route amendment had been made from Adams Road to the Rifle Range Track in order to minimise the impact on the greenbelt, while an elevation of the route after crossing the Bin Brook would avoid causing flooding".
- 3.104 The minutes also note that the Project Manager "highlighted the importance of safeguarding a corridor along Charles Babbage Road as soon as possible, which would serve the Cambourne to Cambridge route as well as potential future usage for the Cambridgeshire Autonomous Metro".
- 3.105 The reasoning given in the minutes for the change from the Adams Road to RRR route appears to be related to impacts on the Green Belt and the potential to resolve any flooding impacts caused by the RRR route crossing the Bin Brook. This differs from the reasoning given in the GCP Joint Assembly meeting in June 2020, which mentions alignment with the CAM sub-strategy.

- 3.106 The Agenda Pack that accompanied the minutes provides the following explanation in paragraphs 12.19 – 12.23:

12.19 In order to investigate the green belt issue further, GCP commissioned a second LDA assessment of the options, reflecting more detailed alignments – see [Cambourne to Cambridge Interim Planning Assessment](#). This new research has concluded that, despite amendments to the alignment through Grange Field to minimise its impact, the Rifle Range option would lead to greater harm to the green belt than the Adams Road option.

- 3.107 The agenda pack statement that the RRR route would lead to greater harm on the Green Belt, contradicts the statement in the minutes.

12.20 Further dialogue with landowners on the Rifle Range route also identified a number of access requirements which, whilst not insurmountable, would each lead to a degree of disruption to the route.

- 3.108 The applicant also acknowledges that the RRR route would effectively need to be shared between buses and other road users (including a risk that some cyclists will use the carriageway). This was also reflected in the OAR 3 INSET scoring. In other words, RRR would not be a segregated bus road. In recent correspondence, the Applicant has confirmed that St John's College and Jesus College (both University of Cambridge colleges), Kings College School and the Rugby Club would continue to enjoy access rights along RRR.

12.21 As a result, the preferred alignment was updated to travel down Adams Road in order to minimise land take of green belt land through the West Fields. Subsequently, however, a number of concerns were raised with regards to that option. The main concern voiced by CamCycle and Residents Groups was with regards to the potential impact on cycle usage of Adams Road including the potential growth in cycle demand as the campus grows.

12.22 The publication of the CAM LTP Sub-Strategy has prompted a revisiting of that section to reflect the need to ensure segregation. Having reviewed the assessment it is concluded that the options remains finely balanced.

12.23 In order to reach a decision between the two options they have been reviewed against the CPCA sub-strategy. Against these specifically, Rifle Range would appear to be the better fit because it offers a higher level of segregation to enable a better public transport service, and also creates better NMU linkages, especially to West Cambridge, whilst avoiding the conflict with NMUs that would occur on Adams Road. As such, whilst both Adams Road and Rifle Range have comparable advantages and disadvantages officers have concluded that Rifle Range is better aligned.

- 3.109 The agenda pack notes the concerns from a cycle group and residents groups regarding the impact on cyclists.

- 3.110 The agenda pack acknowledges that the RRR and Adams Road options remain “finely balanced”. I understand this to mean that the Applicant’s appraisal of the two schemes and in particular their INSET scoring is similar.
- 3.111 However, the Applicant states the CAM sub-strategy has been reviewed “to reach a decision”, which then tilts the assessment in favour of RRR.
- 3.112 I highlight the following points:
- The decision making (as set out in the OBC and OARs) had used the INSET tool up to this point, which provided a quantitative assessment following a review of 18 criteria.
 - INSET was, up to the 2020 SOBC, the key methodology for providing route recommendations.
 - The INSET methodology appears to have been discarded without reasoning for a qualitative assessment of a few selective issues (level of segregation, NMU linkages and conflicts with NMUs).
 - The INSET methodology is based on a review against a range of scheme objectives. The criteria assessed includes journey time reliability, walking and cycling connectivity, safety and public acceptability. No evidence is provided by the Applicant that the scores for these or any other criteria would change.
 - The CAM sub-strategy specifically relates to the CAM and not the CtoC scheme. Segregation for CAM was inherent from its conception. This was not the case for CtoC.
 - As noted above in my evidence, the CAM does not require a segregated CtoC route along this section (West Cambridge to Grange Road) as it would use underground tunnels.
 - RRR is not a segregated route, as acknowledged by the Applicant
 - As I explain in section 5 below, the NMU linkages along RRR are substandard towards Grange Road and are unsafe at the junction with Grange Road - and potentially unsafe along the majority of the route from Grange Road to West Cambridge.

Cancellation of CAM

- 3.113 In December 2020, plans for the implementation of CAM were still in place, and the CAM sub-strategy was still applicable. The sub-strategy was given as a reason for recommending that the route change from Adams Road to RRR.
- 3.114 This timeline is not consistent with the explanation provided in the Applicant’s SoC (paragraph 7.3.61), which notes that *“Once the CAM was cancelled, and in the light of some of the implications of Adams Road which emerged as that option was developed, it was concluded that the Rifle Range track remained the preferable option”*.

- 3.115 The scheme was subsequently cancelled in May 2021 following the election of a new mayor of the Cambridge and Peterborough Combined Authority.

Independent Audit of Key Assumptions and Constraints (May 2021)

- 3.116 An independent audit [CD8-27] was commissioned by the Applicant in early 2021. The scope of the audit was to review the assumptions and constraints that underpinned the analysis that led to the selection of the preferred route and the elimination of alternative options.
- 3.117 The audit concluded that there was no reason for the Applicant not to proceed to the next stage in the development of the CtoC scheme. It notes that "*it appears that the appraisal has been carried out in a robust manner*".
- 3.118 It also confirmed that there was uncertainty over CAM following election of a new CPCA Mayor.
- 3.119 A number of recommendations were proposed including:
- The business case and objectives will need updating following uncertainty over CAM
 - City Centre access remains a constraint and needs further examination
 - The environmental impact of the scheme is mixed – assumptions will need further investigation as part of the Environmental Impact Assessment (EIA) process
- 3.120 The audit provides a high-level review of the appraisal process and does not drill down into detailed assumptions. There is no detailed review of the MCAF criteria and scoring, although the audit states that by its nature it is subjective.
- 3.121 The decision to use the RRR route rather than Adams Road is also not examined in detail within the audit, but it is noted that the decision "*went through several iterations*". Reference is made to the impacts on the Adams Road conservation area as a reason to choose RRR, and no other reasons are mentioned.

GCP Executive Board Meeting Minutes (July 2021)

- 3.122 The findings of the Independent Audit report were presented at the GCP Executive Board Meeting in July 2021.
- 3.123 The minutes note that the overall conclusion of the Audit report was that there was no reason to delay the CtoC scheme from progressing to the next stage.
- 3.124 In the discussions it was noted that onward travel into central Cambridge was the "weak link" and relied on ongoing work on the City Access Strategy.

- 3.125 It was also acknowledged that the audit had evaluated the assumptions and constraints of the preferred option, as opposed to alternative routes such as the A428, which meant that it was unable to provide conclusions related to alternative alignments. As I have stated in my evidence above, the Audit did not discuss the relative merits of RRR and Adams Road.
- 3.126 The Executive Board resolved unanimously to approve the Preferred Route, i.e. the off-road route incorporating RRR, and to proceed with the EIA.

EIA Public Consultation Brochure (June 2022)

- 3.127 The public were invited in June/July 2022 to provide feedback on environmental impacts associated with the scheme.
- 3.128 At this stage, a single route was put forward, which included buses travelling along RRR. The brochure [CD1-06.12] notes that "a previously proposed alignment using Adams Road was discounted in response to feedback". The public consultation brochure included a questionnaire, but did not ask respondents to choose between route options.

Outline Business Case – Strategic Business Case Addendum (OBC Addendum) (November 2024)

- 3.129 The OBC Addendum seeks to provide a narrative on the route decision making choices.
- 3.130 It notes that:

At that time, and following a review of Green Belt impacts, the emerging preferred route was modified to access Grange Road via Adams Road. This modification was made as Adams Road offered future-proofing given the potential delivery of CAM which would have rendered the section of CtoC on the Rifle Range access track between West Cambridge and Grange Road redundant.

Subsequently to the production of the OBC, but prior to approval of the preferred route, the CAM was cancelled, reversing the future-proofing argument, and the recommended alignment reverted to the Rifle Range access track.... The two options were recognised to be finely balanced, but the Rifle Range access track alignment, which offers a segregated route, was considered better aligned with the scheme objectives as assessed in the OAR1.

- 3.131 This explanation is not consistent with the route appraisal process undertaken by the Applicant.
- 3.132 The Executive Board Meeting in July 2021 which approved the preferred route, was held after the CAM was cancelled in May 2021, however, the decision to recommend RRR instead of Adams Road was made prior to the GCP Joint Assembly in June 2020.

- 3.133 In the June 2020 meeting, the reason given for changing from Adams Road was based on the alignment of the scheme with the CAM sub-strategy. This is also one of the reasons mentioned in the GCP Executive Board Meeting minutes from December 2020.
- 3.134 The Applicant notes that the choice between Adams Road and RRR was finely balanced, however, following a review of the schemes against the CAM sub-strategy, RRR was considered a better fit.
- 3.135 The cancellation of the CAM made the CAM sub-strategy obsolete. This should reverse the arguments above, back in favour of the RRR route.
- 3.136 This is not mentioned (or taken into account) instead the Applicant states that the CAM cancellation would reverse a future proofing argument. The Applicant had previously considered that Adams Road represented a better level of future proofing for CAM. My understanding is that this relates to the potential location of tunnel portals which would be located on or adjacent to the Coton Path.
- 3.137 The OBC Addendum also states that the RRR "segregated route" better aligns with the scheme objectives as assessed in OAR 1. This fails to mention that OAR 3 contained a more up-to-date assessment of the schemes against the scheme objectives.
- 3.138 Furthermore, the Applicant has recognised that RRR would not be a fully segregated route. This was also recognised in OAR 3, which recommended Adams Road as the preferred route.
- 3.139 I consider the failure to re-run the INSET scoring, which has been used as the main tool for recommending options, to be a significant flaw in the optional assessment process.

ES Addendum 2 (July 2025)

- 3.140 The Applicant has also sought to provide justification for the change of route back to RRR within an ES Addendum 2 (ESA2) document. Chapter 5 provides the Applicant's narrative with regard to "Alternatives".
- 3.141 The document provides a detailed description of the outcome of MM's INSET scoring results with OAR 1. I have made reference to this earlier in this section, and will also review the scoring later in my evidence.
- 3.142 It is clear from the explanation in ES Addendum 2 and the OBC Strategic Case (2020) that the Applicant placed a high level of emphasis on the INSET scoring methodology in order to determine the most appropriate option.
- 3.143 Whilst it is acknowledged that OAR 1 scored the RRR route higher than Adams Road using the INSET tool, the scoring was revised in OAR 3, as a result of further work and consultation. ESA2 notes that the CAM scheme "*would have rendered the RRR route*

obsolete", which altered the future proofing scoring in favour of the Adams Road option.

3.144 Only one of the 18 criteria within INSET relates to future proofing, and this was only one of seven criteria where the scoring was revised in OAR 3.

3.145 The ESA2 document notes that residents voiced their opposition to the Adams Road option. It also states that the CAM proposals "have now been abandoned". Although they had not cancelled CAM when the route was recommended for change from Adams Road to RRR in June 2020.

3.146 ESA2 paragraph 5.1.12 states:

OAR 3 contains a reappraisal which reflects how the Adams Road option offered an increased level of future proofing which led to an amended scoring in favour of Adams Road. At the time that the OBC was finally reported to the Executive Board the decision was taken that there was no requirement to publish a further appraisal because the July 2021 Executive Board was being asked simply to confirm the position as agreed in December 2018.

3.147 Paragraph 5.1.13 states:

That said, and for completeness, if the assessment of Future Proofing in OAR3 reverts to its original OAR 1 value, and any other amendments remain, the Rifle Range remains the highest scoring option with a score of 2.94 when compared to Adams Roads score of 2.82. In reality, on the basis of the stakeholder events it would be likely that the Adams Road scores on safety and acceptability would be lowered further.

3.148 This statement acknowledges that the decision making process leans heavily on the INSET scores.

3.149 The revised scores stated in EAS2 are incorrect. Rather than reverting to the original OAR 1 values, the future proofing score for Adams Road has been reduced to zero, whilst the score for RRR has been kept at 3. The Inset scoring for each criteria is from 1 – 7, so a score of zero is not technically possible using the prescribed methodology.

3.150 Furthermore, the future proofing criteria related to the ability of the route to be used by CAM. Given that CAM has been cancelled, neither the Adams Road nor the RRR route offers any future-proofing. Both of these scores should be set to zero (in effect the future proofing criteria should be eliminated from the process).

3.151 By simply removing this criteria, the Adams Road option would still result in a higher INSET score of 3.00, compared to Rifle Range Road which would score 2.94.

3.152 Furthermore, my view is that the INSET for a number of criteria Adams Road could have been scored higher and RRR slightly lower. I describe this further below in my evidence.

3.153 The reasoning provided in ESA2 fails to provide a clear and demonstrable set of reasons for the preferred route.

Justification for RRR v. Adams Road

3.154 A decision was made to change the route from Adams Road to RRR between January and June 2020.

3.155 Various reasons for this decision have been mentioned in different documents. These have included:

- Alignment with the CAM Sub-strategy (GCP Joint Assembly Meeting June 2020)
- Not complimenting walking and cycling (GCP Joint Assembly Meeting June 2020)
- Green belt impacts (GCP Executive Board Meeting December 2020)
- Ability to mitigate flood risk impacts associated with RRR option (GCP Executive Board Meeting December 2020)
- "Feedback" (EIA Public Consultation Brochure 2022)
- Residents' opposition (Various GCP Board Minutes & ES Addendum 2)
- Cancellation of the CAM (Applicant's SoC & ES Addendum 2)
- Future proofing implications (SOBC Addendum 2024)
- Implications of Adams Road option (Applicant's SoC)

3.156 At the time the decision was made in 2020, CAM was yet to be cancelled.

3.157 The reasoning provided appears to change and at times is misleading.

3.158 The statement that Adams Road does not align with the CAM sub-strategy requiring segregation as a default is particularly misleading as the sub-strategy specifically relates to the CAM and not the CtoC scheme. Also, the CAM would have resulted in the CtoC section from Grange Road to West Cambridge becoming redundant, so there would be no reason for segregation.

3.159 Furthermore, the INSET appraisal takes many of the above issues into account when appraising schemes. For example, the INSET assessment includes criteria for green belt impacts, public acceptability, safety and future proofing.

3.160 I am not aware of any INSET or other appraisal analysis taking place after OAR 3 to demonstrate that RRR was preferable. Instead, the decision was taken to default to OAR 1 and ignore other information that had been received to inform OAR 3. The ESA2 seeks to provide revised INSET scores by adjusting the future-proofing scores within the OAR 3 scores, but applies an inappropriate set of assumptions.

3.161 I have seen reference to cycle groups and residents groups voicing concerns. I am not aware of any engineering technical work subsequent to 2020 that reviews these

concerns to ascertain whether they are justified or makes a judgement on potential conflicts. No work appears to have taken place to understand whether a scheme could be developed on Adams Road that would alleviate these concerns.

- 3.162 I note that Skanska produced a report in 2017 outlining four potential options for Adams Road to accommodate the CtoC scheme. The report did not raise any fundamental concerns with any of the four options.
- 3.163 Furthermore, there were other groups such as the Local Liaison Forum as well as Clare Hall that have voiced concerns regarding the RRR option (and the off-road option in general). The two public consultation exercises in 2015 and 2017/18, both resulted in a majority of respondents preferring on-road routes.

Conclusions

- 3.164 On-road options were the most favoured in the public consultation process but were not taken forward following an option appraisal process using the INSET tool, which is a multi-criteria appraisal framework tool.
- 3.165 The public consultation process does not appear to have been influential at this stage to inform the decision making, whereas the INSET scoring provided the main tool for determining which options to progress.
- 3.166 The INSET tool provided higher scores for the off-road options. Initially (in OAR 1), the RRR option was awarded the higher score. With additional information prior to OAR 3, the scoring was updated and Adams Road achieved a higher score.
- 3.167 Following further discussions with cycle and residents groups between January and June 2020, the decision changed back to RRR. The reasons provided for changing back to RRR were inconsistent and varied depending on the report or event.
- 3.168 The process involved reverting back to the conclusions in OAR 1.
- 3.169 This was flawed, as the updating of scores as part of OAR 3 involved several factors most of which were still valid. Therefore, the OAR 1 scores were no longer correct and should not have been relied on as a robust basis for decision-making.
- 3.170 No formal INSET rescoring was undertaken. I find this inconsistent with the previous processes that focus on the INSET scoring for the purposes of decision making.
- 3.171 In summary, I find the decision making and consultation process to be selective following an intervention in 2020 to change the route from Adams Road to RRR. A robust justification for selecting the RRR route has not been provided by the Applicant, and from the information available to me, the Adams Road route would score higher against the criteria chosen for the overall CtoC scheme.

4 APPLICANT'S PROPOSED ROUTE

Scheme Description

- 4.1 The CtoC scheme proposed by the Applicant would provide a two-way bus route from Cambourne to Cambridge using a combination of new roads (with no access to private vehicles except where access rights previously existed) and existing roads.
- 4.2 The proposed route would start at Sterling Way (in Cambourne) and would pass via the Bourn Airfield development, Hardwick, Coton and the West Cambridge site before reaching Grange Road. Buses would then travel into Cambridge city centre along local streets.
- 4.3 I have included a plan (**Figure 4.1**) prepared by the Applicant showing the route from Cambourne to Grange Road below.

Figure 4.1 Proposed Route (from WSP Environmental Statement)



- 4.4 The bus only sections would generally consist of a 7.3m wide carriageway and a 3.5m wide emergency/maintenance (EM) track separated by a margin strip or planted swale. From the Brian Pippard Building to Grange Road, there is no margin strip proposed. For the last 65 metres of the bus route (up to Grange Road), the EM track narrows down to a width of 3m.
- 4.5 The purpose of the EM track is described in the Applicant's SoC, which states that "it is an essential component of the Scheme". The SoC lists four reasons for the EM track:

- enable maintenance teams to access the Scheme in order to tend to landscaping, drainage, and signage and other routine maintenance activities without disrupting bus services
- provide a utility corridor for any power, communications cables etc. required for the Scheme and will also create opportunities for existing utilities impacted by the Scheme such as the Granta Backbone Network to be relocated outside of the main busway. Safe access for inspection and maintenance of utilities can be achieved without disrupting the flow of bus services
- reduces the risk of pedestrian and cyclist incursions providing them with a safe dedicated shared path
- provides a safe evacuation route. Should an incident occur, passengers can quickly reach safety on the track. Emergency vehicles, too, rely on this track as their backup route, ensuring they can reach those in need even if the main busway becomes blocked.

4.6 The RRR route would provide a more direct and shorter route between West Cambridge and a range of destinations towards the southern part of Grange Road (such as Selwyn College, Newnham College and other university related buildings along West Road).

Bus Route Lengths

4.7 I have measured the Applicant's proposed bus route from Cambourne (Sterling Way) to Grange Road - the measurements have been taken for the route from west to east using AutoCAD software and the Applicant's CAD files.

4.8 The measurements are shown in **Appendix B** and also distinguish between the bus only sections and shared sections. For the purposes of this exercise, I have shown the RRR as a bus only section, but as noted in OAR 3 and GCP's Executive Board meeting minutes December 2020, the Applicant acknowledges that RRR will be a shared route.

4.9 The sections also include the loop that the bus follows to enter the proposed P&R site. The total length of the bus route is approximately 12.93 km.

4.10 According to the Applicant's Transport Assessment (CD1-25.01), the CtoC is envisaged to stop at the following locations:

- Cambourne at Sterling Way
- West of Bourn Airfield
- East of Bourn Airfield
- Scotland Road P&R
- Hardwick
- Coton
- The University's West Cambridge campus

- 4.11 The Applicant has suggested in correspondence that the bus service is likely to continue to Cambridge Rail Station along the same route as the existing U bus services. The CtoC bus would then potentially travel onwards to the Cambridge Biomedical Campus from the rail station.
- 4.12 There is no mention of the CtoC stopping at Grange Road or any other stops on the way to Cambridge City Centre, however, the OBC Strategic Case 2020 Figure 53 suggests that other stops could be undertaken at Silver Street and Pembroke Street.
- 4.13 Both the existing U1 and U2 bus services currently travel between Grange Road and Cambridge rail station, along slightly different routes. The routes and the total distance from the Rifle Range Road/Grange Road junction to the rail station bus stop that they currently serve are shown on plans contained in **Appendix C**.
- 4.14 The shorter of the two routes (the U2 service) involves a distance of 4.05km from RRR to the rail station.

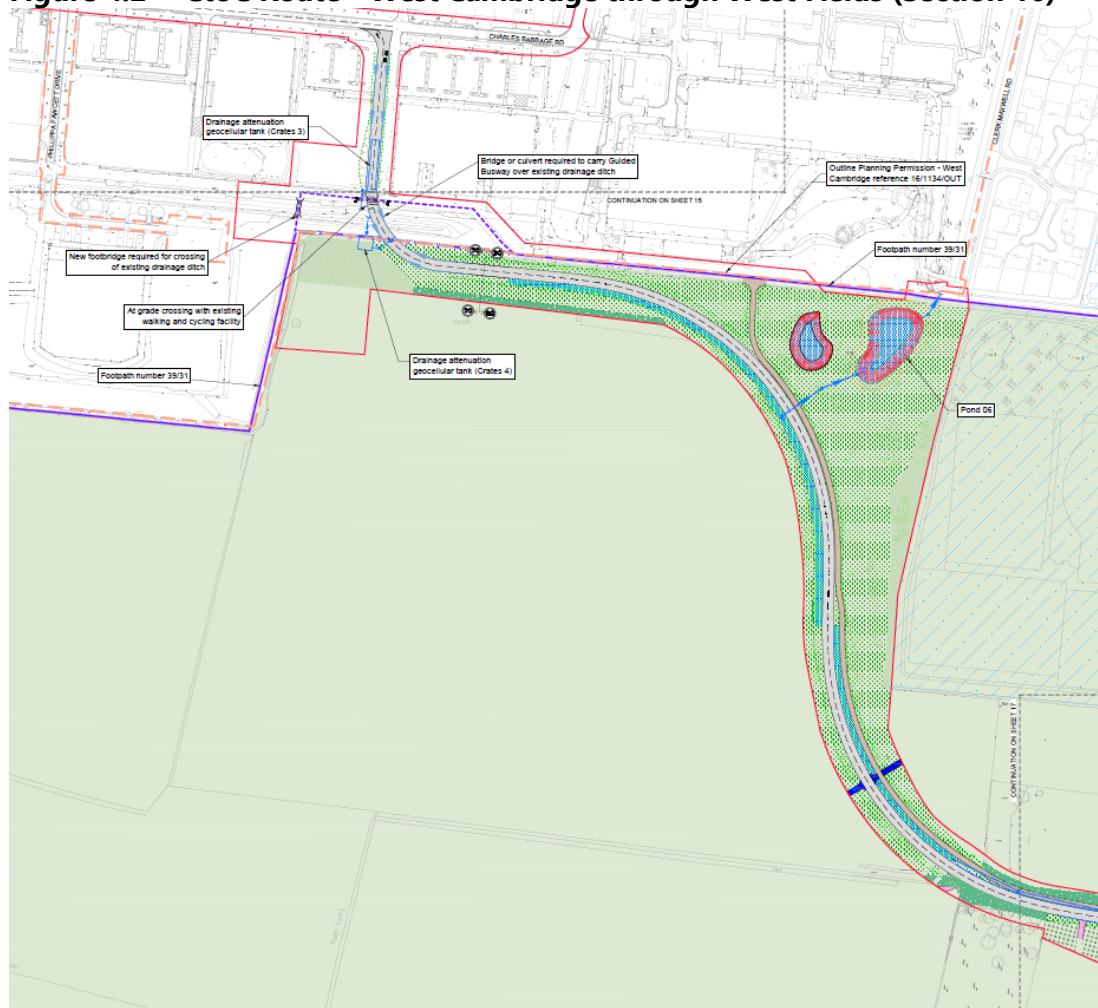
Route Past Clare Hall

- 4.15 The alignment and current preliminary design of the proposed scheme is shown in the Deemed Planning Drawings – Proposed Site Plans [CD1-16.04]. These plans have been split into 17 sheets, with Sheet 1 starting at Cambourne and Sheet 17 ending at Grange Road.
- 4.16 The section that Clare Hall is concerned with, is shown in Sheets 16 and 17. This is the section from the West Cambridge campus to Grange Road (via RRR). The entire route south of the Coton Path passes through the Green Belt.
- 4.17 I have also included two plans (**Figures 4.2 and 4.3**) showing the section from West Cambridge to Grange Road.

Section 16 – Charles Babbage Road through West Fields

- 4.18 Section 16 shows the route from Charles Babbage Road within the University West Cambridge campus crossing an existing ditch and the Coton Path. The route then swings round to the east and through West Fields towards RRR.

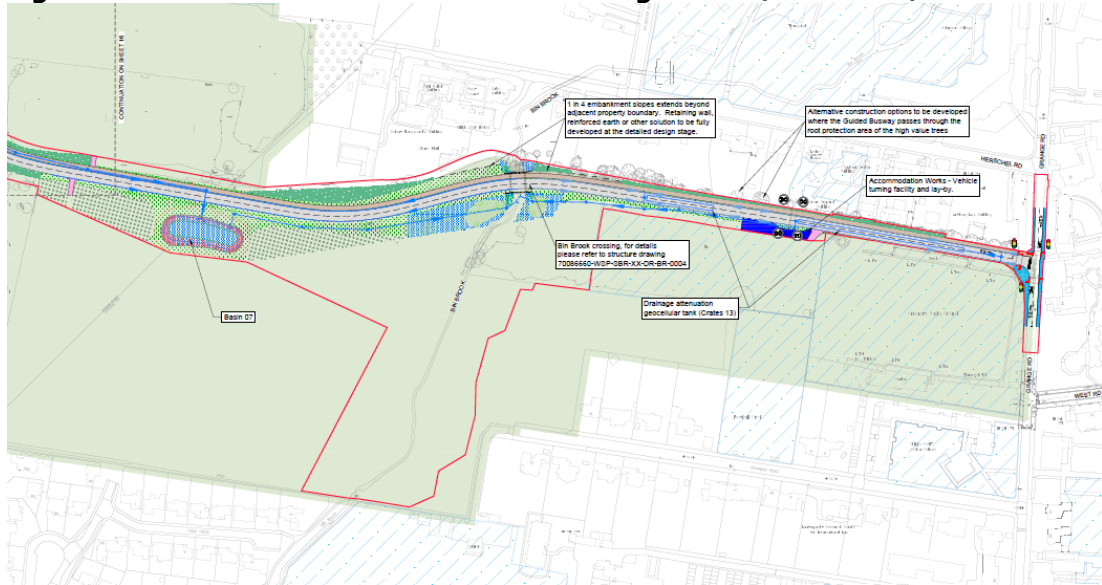
Figure 4.2 CtoC Route - West Cambridge through West Fields (Section 16)



Section 17 – West Fields over Bin Brook to Grange Road

- 4.19 Section 17 shows the bus route as it approaches to the west of Bin Brook. The busway would then bridge Bin Brook.

Figure 4.3 CtoC Route - West Fields to Grange Road (Section 17)



- 4.20 The bridge structure is shown indicatively on sheet 17 and also in Deemed Planning Drawings – Structures [CD1-16.06]. The structure incorporates a combination of earth embankments and retaining walls. From the Applicant’s drawings, the height of the bridge structure over the Bin Brook is approximately 2.2m above existing ground level to the bridge carriageway level. With the parapet, the bridge measures 4m above ground level.
- 4.21 The roof line of a single decker bus (assuming a typical height of c.3m for a single decker bus) would pass approximately 5.2m above ground level as it passes over Bin Brook. The roof-line of a double decker bus would pass approximately 6.4m above ground level at the same point.
- 4.22 The bus route would continue eastwards passing immediately south of Clare Hall and to the rear of other properties fronting Herschel Road. It would also pass to the north of the Rugby Club practice pitches and grounds. The bus route would require a traffic signal junction with Grange Road due to the substandard visibility and to provide bus priority.
- 4.23 The junction would also require some kerblines modifications to accommodate cyclists within the shared cycle/footways adjacent to the junction, and the removal of a large tree at the south-west corner of the junction. The proposals would require some land-take from the rugby club.
- 4.24 To avoid further land-take from the rugby club, or land from Clare Hall, the section approaching Grange Road (starting approximately 65m west of Grange Road and then eastwards up to Grange Road) incorporates a narrower 3m wide EM track.

- 4.25 As noted above, the EM track is required for a number of reasons, including access for service/maintenance vehicles associated with the busway and accommodating pedestrians/cyclists. Pedestrian and cycle traffic is likely to be significant along the EM track, as it provides a more direct route from West Cambridge to a range of destinations compared to using Adams Road.
- 4.26 I discuss the shortcomings of the EM track in terms of its width, its intended use and potential requirement for maintenance /construction vehicles associated with Clare Hall in section 7 below. The EM track and the CtoC route passing Clare Hall has not been designed adequately to accommodate the anticipated users.
- 4.27 LTN 1/20 provides guidance on the minimum width of shared footway/cycleways. For this section, cycle flows are expected to be relatively high, as there are a significant number of cyclists that currently turn south from Adams Road to Grange Road. Most of these cyclists would be expected to use the new segregated footway/cycleway. LTN states that the recommended minimum width should be 3.5m.
- 4.28 As noted further in my proof, there are a number of design issues for the junction of RRR/Grange Road that have been raised by CCC's Road Safety Audit team.

Grange Road to Cambridge City Centre

- 4.29 In recent correspondence, the Applicant has stated that once the CtoC bus reaches Grange Road (travelling from Cambourne) it is likely to follow the route of the existing U1 or U2 services (although the routing may evolve in the future) to Cambridge rail station. Some buses will then travel on to the Cambridge Biomedical Campus (CBC).
- 4.30 For the purpose of this proof, I have assessed the CtoC bus service from Cambourne to Cambridge rail station.
- 4.31 I have shown the routes of the U1 and U2 services in **Figure 4.4** below. **Appendix C** contains route distance measurements for both bus services.

Figure 4.4 U1 and U2 Bus Maps



Courtesy of Whippet

- 4.32 The route of the U1 service from Rifle Range Road to Stop 8 at Cambridge rail station is 4.90km. For the U2 service (which takes a different route) the distance is 4.05km.
- 4.33 Therefore, the total bus route from Cambourne to Cambridge rail station is 16.98km (using the shorter bus route).

RRR Route Level of Segregation

- 4.34 The Applicant's proposed CtoC bus route from Cambourne to Grange Road is 12.93 km in length.
- 4.35 The unsegregated sections of the route from Cambourne to Cambridge are as follows:
- St Neot's Road to proposed Scotland Road P&R
 - Section of St Neots Road
 - Roads within West Cambridge Campus – Charles Babbage Road
 - Grange Road to Cambridge Rail Station (an additional 4.05km over and above the 12.93km noted above)

4.36 For the purposes of this assessment, I have not included the link between the West Cambridge campus and Grange Road (using RRR) as a shared/unsegregated section of the bus route.

4.37 The OAR 3 report acknowledges that the RRR section will need to provide access for a range of users and will be "shared" with those users. Table 5 within OAR 3 states:

Further engagement with stakeholders has identified a range of additional users of the Rifle Range track which would impact the segregated nature of the track and therefore impact negatively on journey time

4.38 This led to a downgrading of the "Reliability of Journey" INSET score for the RRR section from 7 ("significant positive") to 3 ("slight negative").

4.39 The measurements from Cambourne (Sterling Way) to Grange Road are as follows:

- Length = 12,934m
- Shared Use Sections (including section to P&R) = 3,416m
- Segregated Sections = 9,518m

4.40 The measurements from Cambourne (Sterling Way) to Cambridge Rail Station are as follows:

- Length = 16,984m
- Shared Use Sections (including section to P&R) = 7,466m
- Segregated Sections = 9,518m

4.41 I have applied the bus route distance for the shorter U2 service rather than the bus distance for the U1 service.

4.42 **Table 4.1** below provides a summary and breakdown of bus route distances.

Table 4.1 Bus route distances and level of segregation (RRR Route)

	Cambourne to Grange Road	Cambourne to Cambridge Rail Station
Total Length (km)	12.93	16.98
Segregated Length (km)	9.52	9.52
Shared Length (km)	3.42	7.47
Segregated Route Percentage (by length)	74%	56%
Shared Route Percentage (by length)	26%	44%

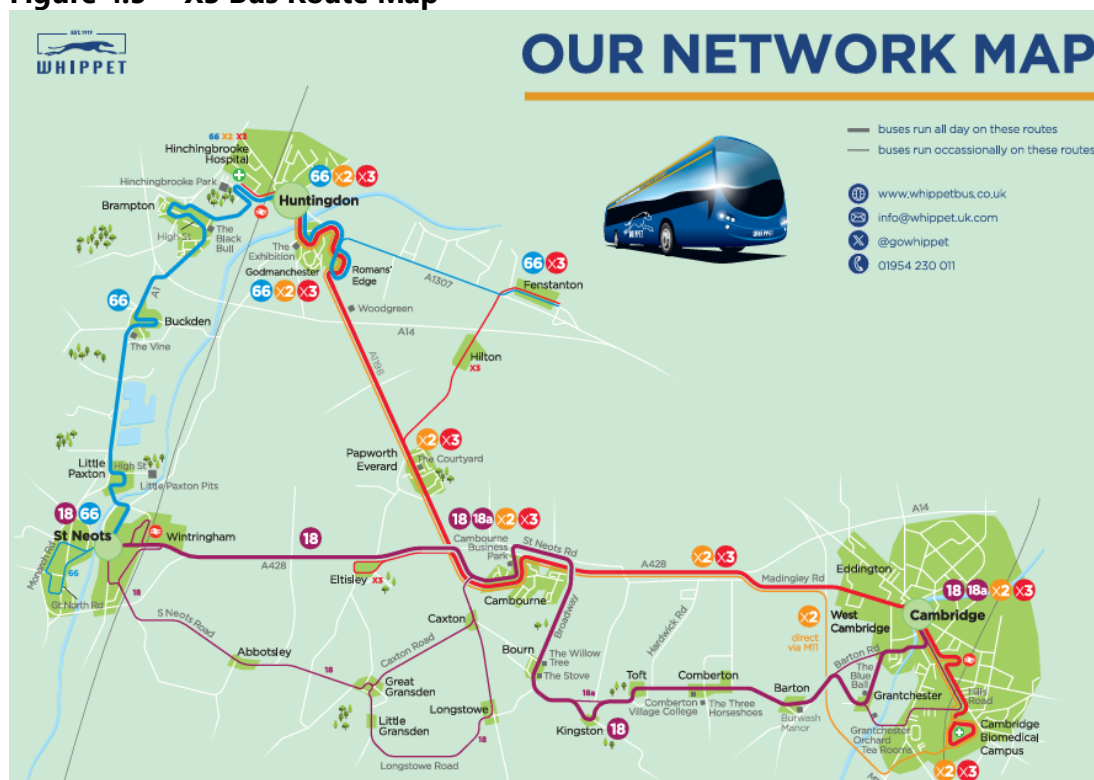
4.43 The length covered by the unsegregated sections of the Applicant's scheme is approximately 3.42km. This represents approximately 26% of the bus route from Cambourne to Grange Road.

- 4.44 However, buses will not terminate at Grange Road and will continue to the city centre and then the Cambridge Biomedical Campus (CBC).
- 4.45 The Applicant has recently noted that it is likely that the bus service will run from Cambourne to Cambridge rail station. For this route, the length covered by the unsegregated sections is approximately 7.47km. This represents 44% of the route.
- 4.46 The provision of a segregated route has been cited during the decision-making process as a reason for selecting RRR over Adams Road. For example, the OBC Strategic Case Addendum (November 2024) noted that the two options were finely balanced but as RRR offered a segregated route, it was better aligned with scheme objectives.
- 4.47 The RRR section is a relatively small proportion of the whole route and whilst it offers a degree of segregation (noting that it will still need to be used by other users), the overall journey time benefit of the RRR route up to Grange Road will be minimal.
- 4.48 A review of the RRR bus route shows that it would be shared/unsegregated for approximately 44% of the route.

Adams Road Route Level of Segregation

- 4.49 The Adams Road route is a more direct route to Grange Road compared with the RRR route. It is approximately 220m shorter.
- 4.50 Adams Road is approximately 480m in length. This represents 2.8% of the route from Cambourne to Cambridge rail station.
- 4.51 The Adams Road/Grange Road junction can be modified relatively easily to allow buses to turn north towards Madingley Road. No modifications are required to enable them to turn south towards West Road.
- 4.52 For the purposes of this assessment, I have assumed that buses would travel to Madingley Road and then on to the rail station using the X3 bus service route (see **Figure 4.5** below). The bus route length from Adams Road/Grange Road to Cambridge rail station is approximately 4.5km (refer to **Appendix D**).

Figure 4.5 X3 Bus Route Map



Courtesy of Whippet

- 4.53 **Table 4.2** below provides a summary and breakdown of bus route distances for the Adams Road alternative option.

Table 4.2 Adams Road bus route distances and level of segregation

	Cambourne to Grange Road	Cambourne to Cambridge Rail Station
Total Length (km)	12.71	17.21
Segregated Length (km)	8.80	8.80
Shared Length (km)	3.90	8.40
Segregated Route Percentage (by length)	69%	51%
Shared Route Percentage (by length)	31%	49%

- 4.54 The tables above show that the Adams Road route will be shared for 49% of the route compared with 44% for the RRR route.
- 4.55 Both routes are segregated for the majority of the route. Whilst the RRR route has a higher proportion of segregation, the difference is relatively small.
- 4.56 As noted above, the OAR 3 stated that RRR would need to be shared with other road users. If the RRR section is included as a shared route, this would reduce its segregated route percentage further.

Conclusion

- 4.57 The RRR section and Adams Road section are a small part of a wider route from Cambourne to Cambridge rail station. These routes are c.17km in length.
- 4.58 I have demonstrated that these routes would be shared for c.44-49% of their length (depending on whether the route travelled via RRR or Adams Road).
- 4.59 The difference in the proportion of segregated route between the two options is relatively small. This minor difference is at odds with the importance placed on the segregated nature of RRR in the decision-making process undertaken by the Applicant.
- 4.60 It is not reasonable to assert that the RRR route would provide a significant journey time advantage over Adams Road. Adams Road is only 480m in length and any added journey time would be minimal.

5 RIFLE RANGE ROAD DESIGN ISSUES

Road Safety Audit

- 5.1 A Stage 1 RSA has been undertaken by CCC RSA team on the Applicant's proposed scheme. This is consistent with the approach set out in Cambridgeshire's HDM document that requires a Stage 1 RSA for new highways. The RSA team has referenced the use of DMRB's GG119 guidance document on Road Safety Audits.
- 5.2 The RSA report [CD14-01] identifies 24 "problems". This includes 3 "general" problems that apply to the whole route and 21 location specific problems.
- 5.3 Of the 21 location specific problems, 5 problems have been identified at the proposed signal junction arrangement at Grange Road – these problems are numbered 1.20 – 1.24, and (in this order) include:
- Problem 1.20 - Vehicle tracking could lead to vehicles colliding with pedestrians or cyclists
 - Problem 1.21 - Property access could lead to collisions with pedestrians and cyclists
 - Problem 1.22 - Restricted visibility to the left for NMUs and vehicles could increase the risk of collisions
 - Problem 1.23 - Removal of pedestrian guardrail could lead to pedestrian collisions with vehicles
 - Problem 1.24 - Vehicle collisions with pedestrians using the crossings as a result of the narrow carriageway
- 5.4 Further description is provided in the RSA report along with recommendations from the auditors.
- 5.5 Problem 1.20 – The RSA recommends that there should be additional space for the bus to make the left turn into RRR from Grange Road without encroaching onto the proposed shared pedestrian/cycle path. There is a concern that buses would be passing too close to shared users of the adjacent path.
- 5.6 The Designer's Response [CD14-03] from the Applicant only partially accepts this recommendation. The Applicant acknowledges that there are land constraints around this junction and notes that this recommendation will be taken forward as part of the subsequent design stages. Given the identified land constraints, it is not possible to provide additional space for vehicle turning without increasing the land take from the rugby club or acquiring land from Clare Hall. Without this additional landtake the Applicant is unable to act upon this recommendation.
- 5.7 Problem 1.21 – the RSA notes that Clare Hall enjoys vehicular access at the northwest corner of the junction with Grange Road/RRR. As noted in the RSA, the proposed junction design would require vehicles using the Clare Hall access to overrun the

shared use path and tactile paving to gain access whilst also having to negotiate the traffic signal equipment. The recommendations notes that the design should maintain a safe or alternative access arrangement into Clare Hall.

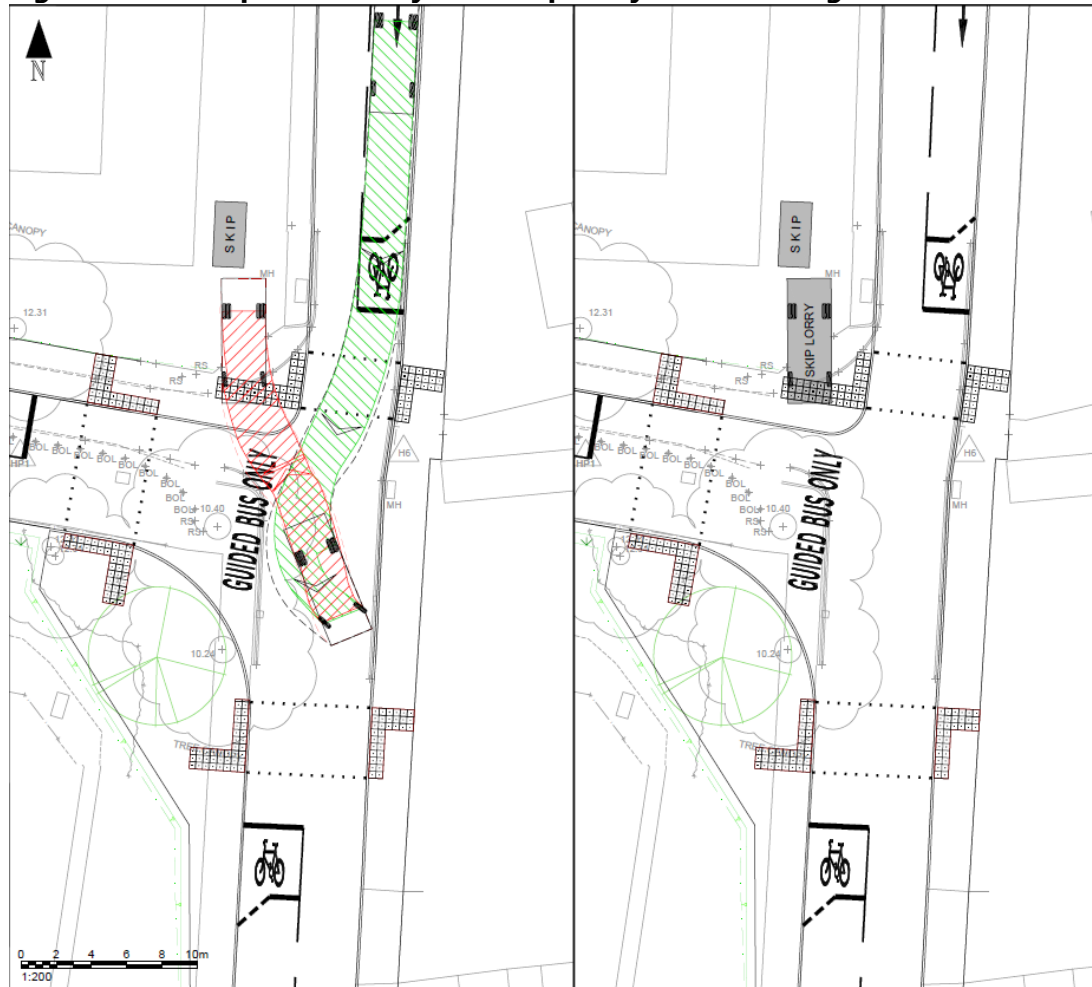
- 5.8 This access leads to a workshop (for maintenance purposes) and greenhouses (gardening) which are in regular use, as critical deliveries necessary for the operations of the College arrive there. **Photo 5.1** below shows the access in use.

Photo 5.1 Clare Hall Access at corner of Grange Road/RRR



- 5.9 The access also leads to a waste skip, which regularly requires access from skip lorries to collect and empty. The skip is required in this location within the Clare Hall site due to the proximity to the workshop.
- 5.10 I have included the swept path analysis of this manoeuvre superimposed on to the Applicant's scheme layout for the Grange Road/RRR junction (extract in **Figure 5.1** below and full drawing within **Appendix E**).

Figure 5.1 Swept Path Analysis of Skip Lorry at RRR/Grange Road Junction



- 5.11 The swept path plan shows that the skip lorry would need to reverse within the junction and back across the pedestrian facilities at the junction. The introduction of the shared pedestrian/cycle facilities along RRR will result in a substantially higher number of NMUs waiting in this location. The EM track will link on to a shared foot/cycleway that runs along the eastern side of the Grange Road carriageway. At present there is no significant desire line for pedestrians to cross Grange Road at this location.
- 5.12 Figure 5.1 also highlights that skip lorries would protrude on to the proposed tactile paving. Currently skip lorries encroach on to Grange Road but do not block pedestrians walking along Grange Road.
- 5.13 This Clare Hall access will not be controlled by traffic signals and vehicles may emerge when other vehicles are passing through the junction and not expecting any conflicts. Visibility between bus drivers exiting RRR and drivers exiting the Clare Hall access would be very poor, again leading to a potential highway safety issue.

- 5.14 The Response from the Applicant agrees that the design should maintain a safe or alternative access but does not put forward a solution, instead stating that this will be taken forward as part of subsequent design stages.
- 5.15 In recent discussions, the Applicant has suggested that the access will continue to be useable after the busway is constructed. This does not address the highway safety issues raised by the Road Safety Auditors and described above in my evidence.
- 5.16 There is no certainty that a solution can be found. Under the current proposals, I would consider the proposed junction arrangements to be unacceptable in terms of highway safety, and contrary to NPPF paragraphs 116 and 117, CCC's HDM document and Policy 80 (part c) of the Cambridge Local Plan.
- 5.17 Problem 1.22 – The RSA notes that visibility to the left (northbound) at the approach to Grange Road, would be restricted for non-motorised users and vehicles which could increase the risk of collision. The audit notes that this is a concern if the signals fail and recommends the following:
- A junction envelope should be provided and maintained with clear unrestricted visibility through the junction.*
- 5.18 The Applicant again notes the land constraints and that the recommendation will be taken forward as part of subsequent design stages. They also note that a departure from standard will be required for substandard visibility at this junction.
- 5.19 In my professional view, the Applicant would not be able to achieve clear unrestricted visibility through the junction without acquiring land from Clare Hall or additional land from the Rugby Club.
- 5.20 Problem 1.23 – The auditor notes that the pedestrian guardrail in front of Kings School's pedestrian gate has been removed within the proposed scheme. The guardrail currently assists to ensure pupils do not stray into the Grange Road carriageway. The RSA recommends the guardrail's reinstatement within the design.
- 5.21 The shared pedestrian/footway (which also acts as the emergency track) along RRR leads directly on to the footways on Grange Road. There are no measures to divert cyclists on to the Grange Road carriageway. On the western side of Grange Road, there is a shared use cycle/footway, but it is relatively narrow and below the minimum width of 3m suggested in LTN 1/20. The design does not seek to widen the footways despite the possibility for additional pedestrian and cycle use in the future.
- 5.22 It is assumed that the removal of the guardrailing is intended to increase the effective cycle/footway width at this point along Grange Road.
- 5.23 Again, the Applicant is seeking to address this at a later design stage. In my view, the only appropriate measure would be to reinstate the guardrailing, however, this would

result in a significantly narrow section of shared footway/cycleway. To resolve this would require additional landtake, which is not being sought by the applicant.

- 5.24 Problem 1.24 – The RSA notes that the carriageway narrowing on Grange Road (further to north) may result in vehicles blocking back through the RRR junction leading to pedestrian safety issues. The RSA recommendation involves widening the carriageway to allow two vehicles to pass.
- 5.25 Again, the Applicant notes that there are land constraints and that the recommendation will be taken forward as part of subsequent design stages. Widening the carriageway further along Grange Road would require further landtake and is not being sought by the applicant.
- 5.26 The RSA identifies five problems with the design of the junction and suggests a recommended way forward. The Applicant has not prepared an amended layout to address these problems. Instead, the Applicant has acknowledged that there are land constraints which have led to the current design and limit their ability to make changes.
- 5.27 The Applicant has not put forward a proposal to address any of the five problems and has stated that the recommendations will be “taken forward” at later design stages.
- 5.28 Without a plan showing how the recommendations of the RSA will be achieved, there is no certainty that a safe junction can be delivered within the bounds of the powers and land to be acquired in the order.
- 5.29 If the “problems” are not resolved within the detailed design, then I would expect the Stage 2 RSA (as required by Cambridgeshire’s HDM document) to continue to raise these problems.
- 5.30 The proposed design is contrary to national policy. It does not provide safe and suitable access for all users and the applicant has not demonstrated that the impact on highway safety can be cost-effectively mitigated to an acceptable degree (NPPF paragraphs 115).
- 5.31 In my view, the scheme would lead to an unacceptable impact on highway safety. Therefore, as per paragraph 116 of the NPPF, the scheme should be refused on highway grounds.

Substandard shared cycleway/footway widths on RRR

- 5.32 The bus route consists of a 7.3m wide carriageway, and an emergency/maintenance (EM) track. The EM track is also proposed to be used as a shared cycle/footway.
- 5.33 As noted by the Applicant, there are land constraints at the junction with Grange Road. The shared cycle/footway (EM track) is shown as 3.5m wide for the majority of

the route from West Cambridge to Grange Road. However, it reduces in width to 3m for a distance of c.65m from Grange Road towards West Cambridge.

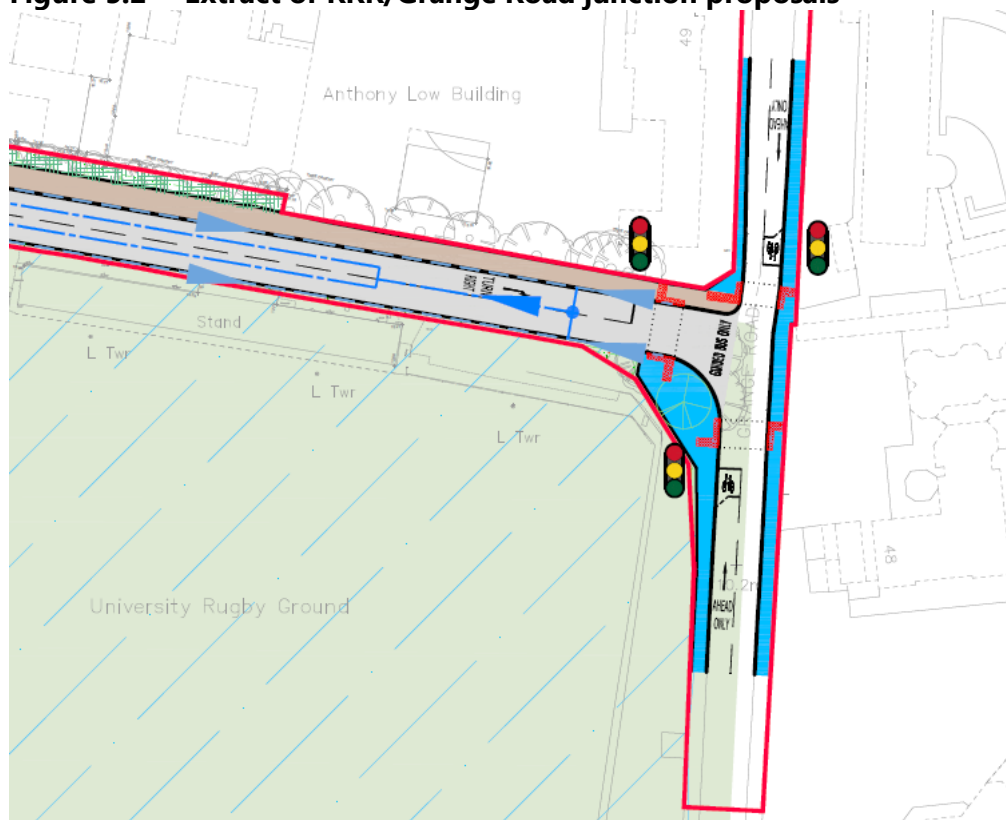
- 5.34 There are no forecasts provided for the number of cyclists and pedestrians that would use the EM track in this location.
- 5.35 Minimum widths are provided in Table 6.3 of LTN 1/20 for shared use paths. This notes that a minimum width of 3m is only recommended for up to 300 cyclists per hour and for pedestrian flows of up to 300 per hour. For shared paths of over 300 cyclists per hour, the minimum width should be 4.5m. Where pedestrian flows are higher than 300 per hour, greater widths should also be used.
- 5.36 Cambridgeshire's HDM document sets out example cross-sections for 'bus roads'. On both sides of the carriageway, the guidance suggests a 3m wide cycle track and a 2m wide footway. This represents a total of 5m for pedestrians and cyclists (on both sides of the road).
- 5.37 A traffic survey in 2019 (included in **Appendix F**) commissioned by the Applicant showed that 1260 cyclists travelled from Adams Road to/from Grange Road (to the south) between 7am and 7pm. This information has not been broken down on an hourly basis, but it is reasonable to assume that the flow will not be exactly the same for each of the 12 hours and that there are peak periods within the 12 hours where the cycle flows are significantly higher than the average. Furthermore, with additional development planned further west, it is likely that cycle trips will increase between Cambourne and Cambridge.
- 5.38 The 3m (or 3.5m) EM track width would not meet Cambridgeshire's HDM guidance for pedestrian/cycle facilities.
- 5.39 It is also highly likely that future cycle demand would exceed 300 cyclists per hour during peak periods, meaning that it would not comply with LTN 1/20.
- 5.40 There is also no scope to increase the width of the EM track adjacent to Clare Hall in the future to allow for a higher number of pedestrians/cyclists, unless additional land is acquired from the Rugby Club or Clare Hall.
- 5.41 The reduced design does not meet national standards (LTN 1/20). It also does not comply with the guidance in Cambridgeshire's HDM document.
- 5.42 It is also contrary to the NPPF (paragraph 117), which states that development should give priority to pedestrians and cycle movements first. The scheme incorporates substandard cycle/pedestrian facilities along the bus route and particularly along the section adjacent to Clare Hall.
- 5.43 An unintended consequence will be that some cyclists will choose to use the RRR carriageway instead. I have not seen any physical measures in the design that would stop a cyclist from entering the carriageway. Once a cyclist enters the carriageway

(for example to overtake a group of pedestrians), there is a good chance that they will stay on the carriageway given that it will only be used by buses and other occasional vehicles.

Cycle/Pedestrian Conflicts along EM Track

- 5.44 The EM track is also intended to be used for routine servicing/maintenance of the busway and emergency vehicle use. I understand that maintenance vehicles would drive along the EM track.
- 5.45 On the Deemed Planning Drawings, the EM track is shown as a light brown shaded strip on the northern side of the carriageway along RRR (as shown in **Figure 5.2** below). It starts at the junction with Grange Road at the tactile paving associated with the pedestrian crossing and then heads west along RRR (crossing another set of tactile paving).

Figure 5.2 Extract of RRR/Grange Road junction proposals



- 5.46 The drawing suggests that vehicles would enter/exit the EM track at the Grange Road junction. In my view, in practice, I would expect those vehicles to enter and exit the EM track further west to avoid conflict with pedestrians at the Grange Road crossing facilities. If this is not designed for in the detailed design stage, I would consider this an unacceptable highway safety issue and the scheme to be contrary to the NPPF paragraph 116.

- 5.47 Notwithstanding this, there will be conflict between service/maintenance vehicles using the EM track and pedestrians/cyclists. As noted above, the EM track width does not meet standards for pedestrians/cyclists, resulting in conflict between these two users. The introduction of vehicles (even occasional vehicles) would result in further conflicts.
- 5.48 The Britpave Guided Busway guidance notes that an EM track can be reduced in width to 3m if necessary (but recommends a minimum width of 4m). The guidance also notes that it can also be used as a footpath and bridleway. However, the guidance does not provide details on the volume of pedestrian/cycle traffic that would be appropriate in this case. My view is that the guidance was referring to relatively quiet paths/bridleways, rather than a route in constant use with a significant level of pedestrian/cycle traffic.
- 5.49 To avoid these conflicts, the bus route along this section would need to be re-designed to incorporate separate EM and shared pedestrian/cycle tracks, or maintenance/service vehicles would need to use the main carriageway (where buses would travel along).
- 5.50 For the scenario where maintenance vehicles drive along the carriageway, they will at some point need to stop/park along the route. The Applicant has stated that this will happen within the EM track. Pedestrians/cyclists would need to be routed around the stationary maintenance vehicle. This is likely to be a van/truck. In doing so, there will not be sufficient space for a cyclist or a pedestrian to pass the stationary vehicle within the EM track.
- 5.51 I would expect under these circumstances that some traffic management will be in place to allow for pedestrians and cyclists to be temporarily diverted off the EM track. This will need to be into the carriageway particularly along the sections adjacent to Clare Hall, where the EM track is adjacent to hedgerows, embankments and solid boundaries.
- 5.52 Whilst I would fully expect pedestrians to move onto the EM track once they have passed the obstruction, some cyclists may choose to continue along the carriageway.
- 5.53 The use of traffic management to divert NMUs on to the road and the potential for cyclists to cycle along the carriageway will have an impact on journey reliability. The latter further erodes the notion of this section of the CtoC as a segregated bus route.

6 CLARE HALL IMPACTS

Current Use

- 6.1 Professor Alan Short's Proof of Evidence includes a description and plans of the existing Clare Hall layout. The primary pedestrian and vehicular access is taken from Herschel Road, on the northern side of Clare Hall.
- 6.2 Clare Hall also enjoys direct pedestrian access on to RRR, as well as a vehicular access at the corner of Grange Road/RRR.
- 6.3 Clare Hall's maintenance staff currently use RRR to access the southern part of the site. This can include maintenance of trees, hedges and other gardening related activities but also maintenance of the drainage channels and boundaries.
- 6.4 Vehicular access is required to undertake these activities.
- 6.5 The access at the corner of Grange Road/RRR leads to a workshop and greenhouses via a wooden gate (refer to **Photo 6.1** below). Vehicles pick up and drop off material from this location.

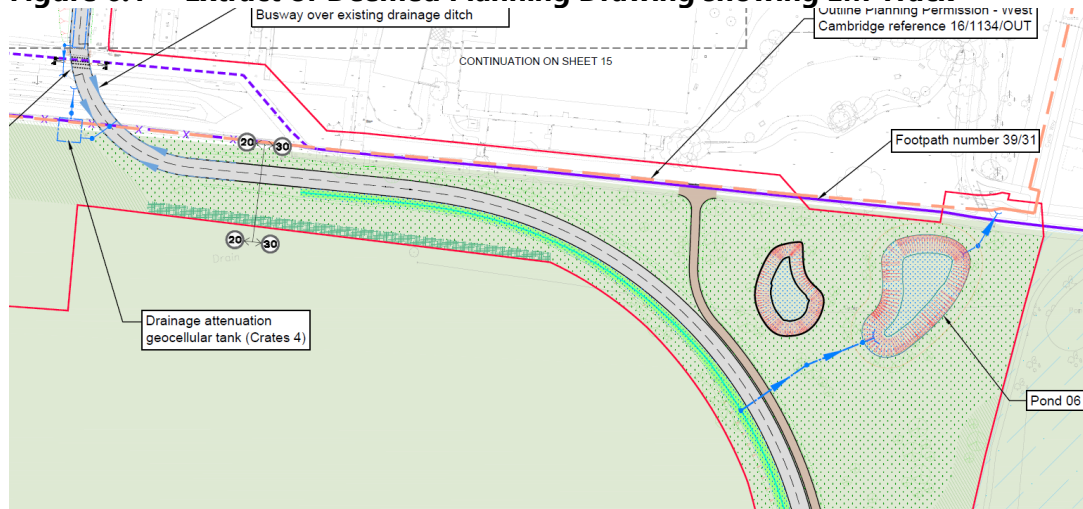
Photo 6.1 Gates and Access on corner of RRR and Grange Road



- 6.6 Clare Hall also retains a skip behind the access to serve the workshop. Skips are deposited and collected on an ad-hoc basis.

- 6.7 The area adjacent to the workshop is the only area within Clare Hall that is suitable for a skip.
- 6.8 The skip lorry reverses into the access from Grange Road to collect or drop-off the skip. During this process the skip lorry protrudes into RRR but does not interfere with movement along Grange Road for either vehicles or pedestrians. I have shown how the skip would manoeuvre into the access with the Applicant's proposed junction layout discussed the safety implications of this in Section 8 of my proof.
- 6.9 This issue has been raised in the RSA for the Applicant's scheme. The Applicant's Designer's Response agrees that they should maintain a safe or alternative access, but no solution has been provided or discussions held with Clare Hall on this matter.
- 6.10 Clare Hall would require continued access into their site from this existing gate for maintenance purposes.
- 6.11 RRR is also regularly traversed by Clare Hall staff to maintain their assets along their southern boundary. This involves vehicles travelling along RRR and stopping adjacent to the southern boundary.
- 6.12 It has not been formally confirmed by the Applicant whether Clare Hall would continue to be afforded maintenance access.
- 6.13 In informal discussions, the Applicant has suggested that Clare Hall would be able to utilise the EM track for this purpose, in the same manner that they have suggested that the busway maintenance vehicles would use the EM track. I do not consider this a safe or practical option for either Clare Hall's maintenance vehicles or the CtoC maintenance vehicles given the level of pedestrian and cycle traffic I would expect to use the EM track. This would be contrary to paragraphs 116 of the NPPF, CCC's Design Guidance as set out in their HDM document and Policy 80 part c of the Cambridge Local Plan.
- 6.14 The EM track starts at the Grange Road junction but does not extend all the way to Charles Babbage Road; instead, it joins the Coton Path (refer to **Figure 6.1** below).

Figure 6.1 Extract of Deemed Planning Drawing showing EM Track

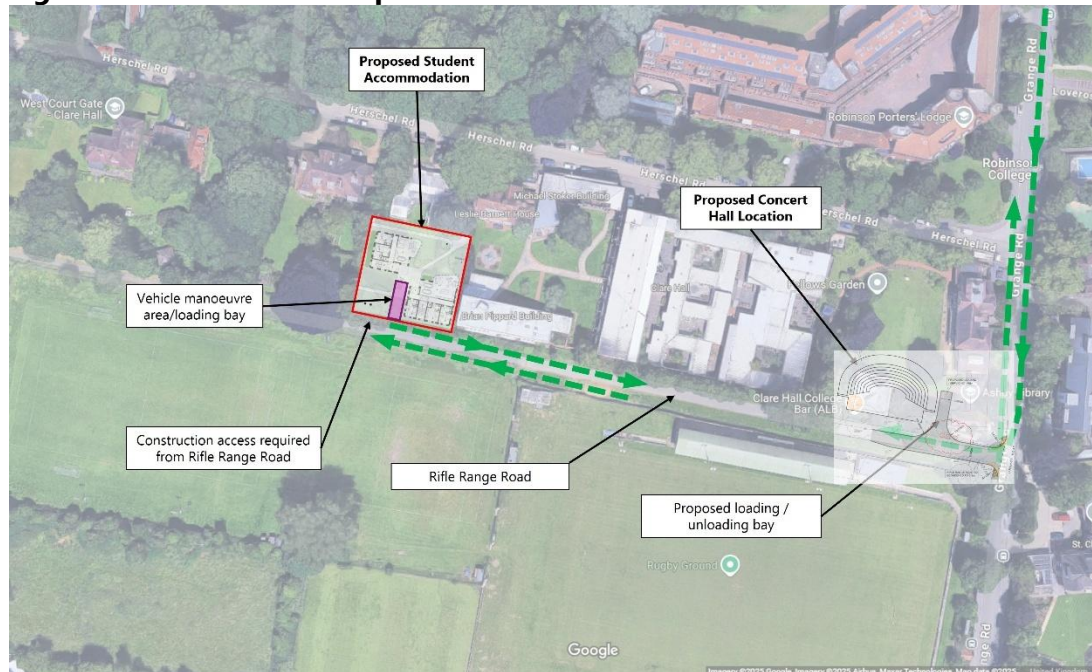


- 6.15 For cyclists travelling between Charles Babbage Road and Grange Road, the CtoC carriageway would be the most direct route. It is likely that some cyclists would choose to use the carriageway rather than the less direct Coton Path and the EM track.
- 6.16 The EM track is 3.5m wide, which is not sufficient for a vehicle to turn around. Even if maintenance vehicles travelled along the EM track (for maintaining the busway or Clare Hall), at some point along this section of the CtoC, these vehicles would need to enter the carriageway.
- 6.17 An alternative solution would be for maintenance vehicles to travel along the carriageway and then park along the EM track at the location requiring maintenance. Traffic management to ensure that pedestrians/cyclists are managed during these operations may be required. I have discussed this further in my proof within Section 6.
- 6.18 Clare Hall would require a legally enforceable commitment from the Applicant allowing use of the busway to provide practical and reasonable access to the southern boundary of their premises for maintenance purposes.

Clare Hall's Future Plans

- 6.19 Clare Hall has future plans for additional beneficial development within its land, including proposed student accommodation at 4 Herschel Road, and a new concert hall venue within the southeast of the College site, adjacent to RRR. The status of these schemes is discussed in Professor Alan Short's Proof of Evidence.
- 6.20 **Figure 6.2** below shows the location of these two schemes. The proposed student accommodation scheme would be located approximately 180m from Grange Road, whilst the concert hall would be located approximately 25m from Grange Road.

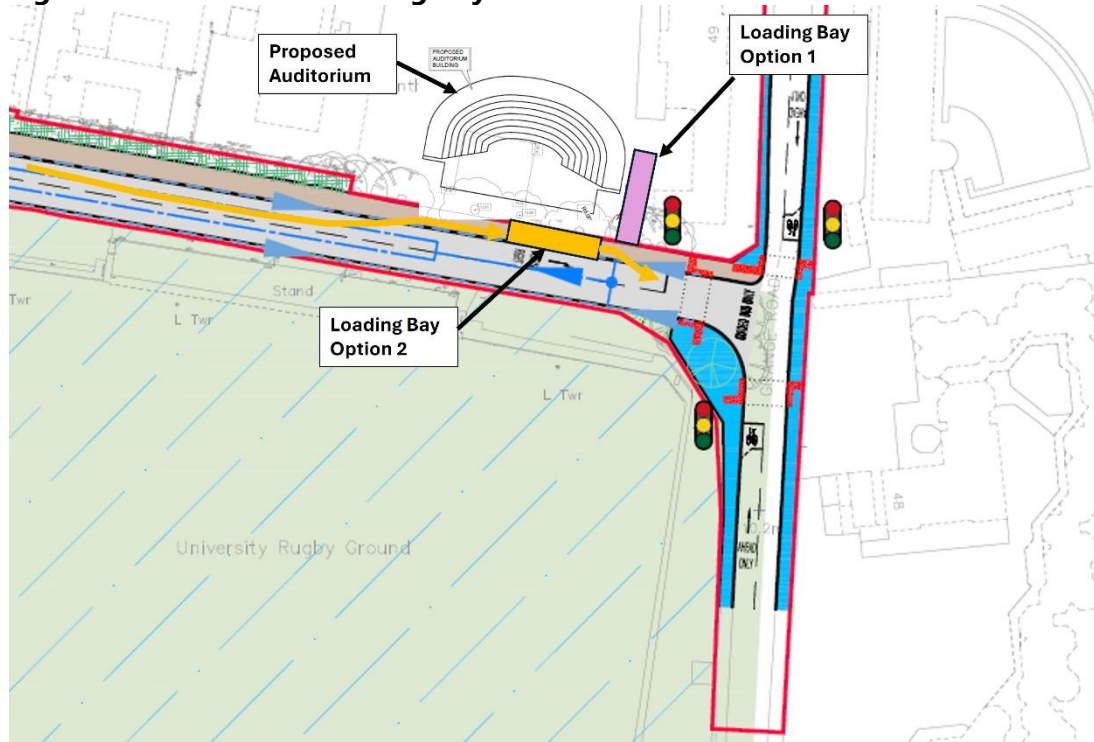
Figure 6.2 Future development schemes at Clare Hall



Auditorium/Concert Hall

- 6.21 The College has been drawing up plans for a new concert hall venue (or auditorium) with the Clare Hall site. The concert hall would be located along the southern edge of Clare Hall, adjacent to RRR.
- 6.22 The auditorium is proposed to be a modern, state of the art music venue with excellent acoustics, a facility urgently needed in Cambridge and strongly supported by the Vice Chancellor and the Chair of the Faculty of Music. Low levels of external noise are essential for the concert hall.
- 6.23 The auditorium would require occasional deliveries of heavy and bulky items such as stage sets and musical/audio/lighting equipment, from RRR.
- 6.24 **Figure 6.3** below shows two potential arrangements to support deliveries at the auditorium development. Both arrangements have been developed taking account of the proposed busway scheme.

Figure 6.3 Potential Loading Bays for Auditorium scheme



- 6.25 Option 1 shows a loading area to the eastern side of the auditorium, which would allow vehicles to load and unload within the Clare Hall site. Delivery vehicles would reverse on or off the RRR carriageway and across the EM track. A suitable crossover on the EM track with dropped kerbs would be provided to facilitate this manoeuvre. These manoeuvres could also be managed by a banksman to ensure that these are carried out with minimal conflict.
- 6.26 These deliveries would be infrequent but may involve some very minor delay to buses and pedestrians/cyclists, whilst the delivery vehicles are entering and exiting the site. These manoeuvres would be completed very quickly (typically in under a minute).
- 6.27 For option 1, delivery vehicles could enter and exit via Grange Road.
- 6.28 The applicant has suggested that vehicles could drive along the EM track. As noted in my evidence above and in Section 8, I consider vehicles travelling along the proposed EM track to represent an unacceptable highway safety issue for pedestrians and cyclists. The route, and specifically the EM track, between West Cambridge and Grange Road has not been adequately designed to safely accommodate maintenance vehicles as well as the volume of pedestrians/cyclists that I would expect to use the route.
- 6.29 Option 2 involves the loading area within the EM track, as envisaged by the Applicant for the CtoC maintenance vehicles. The delivery vehicles would not need to turn around, but would continue along RRR and exit at the other end of RRR. In this example, delivery vehicles would enter the bus route from Charles Babbage Road and then exit via Grange Road. This is indicated by the yellow arrows on Figure 6.3. Access

for these vehicles would need to be granted through the proposed bus gates at either end of this busway section.

- 6.30 At this location, the EM track is proposed to be 3m wide. It directly abuts the Clare Hall boundary on one side and the carriageway on the other side. There is no margin either side of the EM track. Whilst it is wide enough to physically accommodate a delivery vehicle (such as a pantechicon), it does not leave sufficient space for a driver to walk around the vehicle or potentially open their door.
- 6.31 Furthermore, to manage traffic, cyclists and pedestrians would need to be diverted temporarily off the EM track (potentially on to the carriageway) with the aid of signage and traffic cones. This would create a pinch point, resulting in one running lane for a short section on the RRR carriageway, which would result in minor delays to some buses.
- 6.32 For option 2, a wider EM track would be required and agreement to use part of the carriageway to allow for safe working space around the delivery vehicle and to manage pedestrians/cyclists.
- 6.33 I have included a drawing in **Appendix G** showing the potential loading bay arrangement, if RRR was not used for the busway. Alternatively, an arrangement involving vehicles reversing from Grange Road with the aid of banksman could also be put forward, particularly as these would be infrequent. This would avoid the need for a turning head within the site, and could involve vehicles loading/unloading directly from RRR. However, with the presence of traffic signals, pedestrians crossing at the junction and more frequent use of the junction with buses turning, this is less likely to be acceptable with the busway on RRR.
- 6.34 Option 1 and 2 shown above are also potential options for construction loading. Again, I do not consider construction vehicles travelling along the EM track to represent a safe highway arrangement. Potential arrangements involve construction vehicles manoeuvring on to the site (as per option 1) or construction vehicles manoeuvring on to the EM track (as per option 2). For option 2, a wider EM track would be required and/or agreement to use part of the carriageway.

4 Herschel Road Student Accommodation

- 6.35 A pre-application enquiry process was undertaken for the proposed student accommodation in 2020 ((Ref: 20/51128/PREAPP) for 30 study-bedrooms and common spaces over 3 storeys plus a basement.

"Retention of existing house and erection of two new student accommodation buildings: one building with 20 study bedrooms and common spaces over four storeys and basement; second building with 10 study bedrooms and common spaces over three storeys."

- 6.36 This application follows a previous submission (Ref: 19/5164/PREAPP), with the scheme since adjusted from a proposed single building hosting 30 study bedrooms.
- 6.37 The principle of the scheme was deemed acceptable, with highway safety and car/cycle parking amongst other aspects of the scheme also marked as 'green'. Some aspects, such as some details of residential amenity, required further detail or amendment or site visit. Following the recommended amendments, the report notes that *"Officers are likely to support [the proposals]"*.
- 6.38 Vehicular access to the rear of 4 Herschel Road is only achievable from RRR. There are no gaps along the frontage on Herschel Road for a construction vehicle to pass through to the rear.
- 6.39 The construction logistics arrangement is likely to be similar to the two options described above for the auditorium scheme. This could either be in the form of a turning head (albeit temporary in this case) adjacent to the proposed buildings off RRR (the approximate location is shown as a pink rectangular area in Figure 6.2). This would allow construction vehicles to turn on and off RRR.
- 6.40 Alternatively, the EM track could be used for construction vehicles. This would avoid the need for construction vehicles to turn around, and they could enter the bus route from one end of this section (Grange Road or Charles Babbage Road) and exit via the other end. The proposed EM track is 3.5m in this location, which provides slightly more working space.
- 6.41 Operational deliveries and the majority of servicing for the student accommodation would be possible via Herschel Road (as it is for other accommodation at the Clare Hall site). Some limited maintenance may still be required via RRR (again as it currently takes place – as described above).

Construction Access Requirements Summary

- 6.42 The construction of the Brian Pippard Building along the southern frontage of Clare Hall, and adjacent to RRR took place between 1996 and 1997. Construction access and material storage was undertaken on RRR with the agreement of Jesus College. **Appendix H** includes documentation and correspondence with Jesus College on this matter.
- 6.43 There is a precedent for the use of RRR to construct development within Clare Hall.
- 6.44 In recent discussions, the Applicant has stated that Jesus College may retain ownership of RRR, and would grant a 125-year lease to the Applicant for the construction and use of the new road. The Applicant has stated that any construction access would need to be agreed with Jesus College, but the Applicant would need to be assured that their buses would not be impeded.

- 6.45 Jesus College has previously confirmed that they would allow construction vehicle access to Clare Hall if they retained ownership of RRR, subject to agreement.
- 6.46 I have put forward two options for construction access arrangements for both the student accommodation and auditorium schemes. These will require construction vehicle access via RRR and manoeuvring of these vehicles either into the site or along the EM track.
- 6.47 Depending on the preferred option, the bus route may require design alterations such as a crossover along the EM track or a wider EM track. In all cases, some form of traffic management will be required.
- 6.48 Informally, it has been suggested that construction vehicles could travel along the EM track. In my view, the use of the EM track for either maintenance or construction vehicles is not acceptable in highway safety terms. It is also unclear where construction vehicles could safely join and exit the EM track. The western end of the EM track joins the Coton Path and therefore, construction vehicles will either need to proceed on the carriageway (shared with buses) or turn around by encroaching on to the carriageway.
- 6.49 Clare Hall first discussed the future auditorium and student accommodation proposal with the Applicant including the need for construction access from RRR, in November 2022.
- 6.50 I am not aware of any consideration that has been given by the Applicant for the construction of these schemes when designing the busway along this section. The applicant has recently stated that access will be provided on the basis that it will not interfere with the operation of the bus route and would "need to be considered as part of the planning process".
- 6.51 My evidence describes that construction vehicles will need to travel along the carriageway for highway safety reasons and for manoeuvring purposes. This could be minimised if there were pedestrian/cycle facilities along the southern side of the carriageway as well. There is insufficient width to provide an additional path along the section of the route adjacent to Clare Hall, unless additional land is acquired outside the limits of the Order.
- 6.52 Traffic management will be required to ensure the safety of pedestrians and cyclists using the EM track. Depending on the preferred construction logistics solution, this may require pedestrians and cyclists to be diverted into the carriageway (with the use of appropriate barriers).
- 6.53 Clare Hall requires a legally enforceable agreement with the Applicant that they will not withhold appropriate construction access for the student accommodation scheme (and other future development) via RRR.

Conclusions

- 6.54 Clare Hall currently relies on RRR for vehicular access to their workshop and greenhouses, which support their ongoing operations as well as maintenance of their southern boundary along RRR. This vehicular access occurs at the junction of Grange Road/RRR.
- 6.55 Continued vehicular access from this point, would have safety implications for road users following implementation of the busway. Access to the skip would also result in the blockage of the proposed emergency track on RRR. This is discussed in more detail in section 8 below.
- 6.56 Clare Hall requires continued vehicular access to this part of its land. To avoid an unsafe highway arrangement in terms of conflict with pedestrians and cyclists, Clare Hall's maintenance vehicles will need to share the carriageway with buses.
- 6.57 The applicant proposes that maintenance vehicles stop on the EM track. Pedestrians and cyclists would need to be diverted around the stationary vehicle, potentially on to the carriageway. This would also have an impact on bus journeys.
- 6.58 Clare Hall also has future development plans including a new auditorium building and a student accommodation block along its southern boundary adjacent to RRR. Both of these will require construction access from RRR.
- 6.59 In addition, the auditorium will also require ongoing operational access from RRR, for deliveries of bulky equipment.
- 6.60 Again, I do not consider construction and delivery vehicles driving along the EM track to be an acceptable arrangement. These vehicles will need to share the road with buses.
- 6.61 To service or construct the auditorium, drivers will need to reverse on or off the carriageway, unless it is considered preferable for vehicles to load/unload from the EM track. For the latter, this will require vehicles to drive from Charles Babbage Road to Grange Road. Depending on the applicant's preferred arrangement, pedestrians and cyclists would need to be diverted around the stationary vehicle, potentially on to the carriageway.
- 6.62 Some cyclists that are required to join the carriageway (even for a short section) may decide to carry on using the carriageway. Other cyclists travelling from West Cambridge to Grange Road may decide to use the section of the carriageway from Charles Babbage Road to the point where the EM track joins the carriageway (or beyond).
- 6.63 The above highlights that there are likely to be a range of users of the bus route carriageway. These could include cyclists, maintenance vehicles (for Clare Hall and for the busway) and the users that already have rights to use RRR (Jesus College, St

John's College, Kings College School and the Rugby Club). The route will be shared and is not segregated. This was reflected in the OAR 3 INSET scoring, which reduced the RRR scoring for journey time reliability.

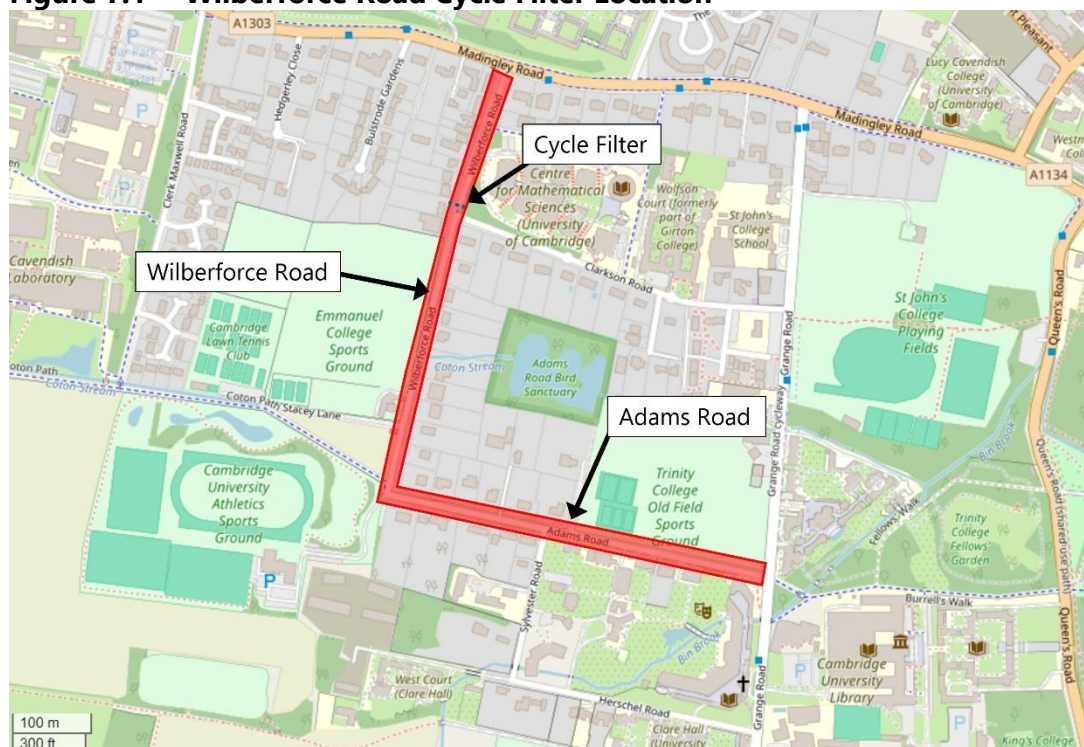
- 6.64 The applicant has noted that they do not object in principle to construction access on the RRR route but have stated that this should not interfere with the operation of the busway and would be considered as part of the planning application process. It is unclear what would be construed as interference.
- 6.65 Clare Hall requires a legally enforceable agreement with the Applicant to allow it appropriate access via RRR to their future developments.
- 6.66 Without a suitable legal agreement, the current CtoC scheme has the potential to restrict Clare Hall's future development plans. The consequences of this are described in Professor Alan Short's proof.

7 ADAMS ROAD OPTIONS

Adams Road

- 7.1 Adams Road is a two way single carriageway road running in an east-west alignment from Wilberforce Road to Grange Road. As Wilberforce Road incorporates a cycle filter approximately 180m south of Madingley Road, Adams Road does not allow through movement for cars from Madingley Road to Grange Road. **Figure 7.1** shows the location of the cycle filter.

Figure 7.1 Wilberforce Road Cycle Filter Location



- 7.2 Adams Road is subject to a 20mph speed limit. It is a low speed road with relatively low volumes of motorised traffic.
- 7.3 At its western end, cyclists and pedestrians are currently able to continue from Adams Road on to the Cotton Path, which leads to Cotton via the West Cambridge campus.
- 7.4 Adams Road has a carriageway width of c.8m throughout its length and footways of 2m on either side. The footway widths nearer to Wilberforce Road, narrow slightly (partly due to overgrown vegetation).
- 7.5 On-street parking takes place during the day along Adams Road. I have visited Adams Road on several occasions during the working day, and both sides of Adams Road have been heavily parked (refer to **Photo 7.1** below).

Photo 7.1 Adams Road looking west at c.12.30pm



- 7.6 I have also included a photograph of Adams Road (**Photo 7.2** below) and Sylvester Road (**Photo 7.3** below) at 9pm on a weekday, showing only a handful of cars parked on-street.
- 7.7 At 9pm, we would expect the majority of residents to be back home and to have parked their vehicles, whilst commuters would have left the area to go home.

Photo 7.2 Adams Road looking west at c.9pm



Photo 7.3 Sylvester Road looking south at c.9pm



- 7.8 It is understood that student tenancy agreements include clauses prohibiting students from keeping a car at the university. Furthermore, the nearby colleges have off-street parking for staff.
- 7.9 Residential properties along Adams Road include driveways and off-street parking.
- 7.10 Given that the nearby colleges (including Clare Hall) have off-street parking and students are not allowed to have a car at the university, the substantial reduction in parked vehicles indicates that the vast majority of on-street parking was undertaken by commuters.

Adams Road Option

- 7.11 Section 4 above, notes that the Applicant commissioned Skanska to develop options for the CtoC bus route along Adams Road. Skanska prepared four different options with varying degrees of bus priority, on-street parking and footway/cycleway facilities.
- 7.12 Pulsar also prepared two initial option drawings for a busway route running along the Coton Path and then Adams Road. These were included in the Statement of Case.
- 7.13 Option 1 included a shared use carriageway for buses and cyclist running along the segregated Coton Path. Buses then join Adams Road, which would include parking restrictions for the whole length of the road.
- 7.14 Option 2 included a fully segregated bus route along the Coton Path, running alongside both the cycleway and footpath. The bus route then emerged on to Adams Road.
- 7.15 In both options it had been proposed to remove all of the on-street parking. Buses and cyclists would share the Adams Road carriageway, which would effectively be wider given the removal of on-street parking. The volume of general traffic would be reduced along Adams Road given the removal of on-street parking opportunities, which attracts commuter parking.
- 7.16 The reduction in motorised traffic and removal of on-street parking would lead to a reduction in conflicts with cyclists.
- 7.17 I engaged an independent road safety auditor to review the acceptability of the two options in highway safety terms. This complies with the requirements set out in Cambridgeshire's HDM guidance, which requires Stage 1 Road Safety Audits to be prepared at the planning stage for highway proposals that involve alterations to the horizontal or vertical alignment of the road.
- 7.18 Following the Stage 1 Road Safety Audit (RSA), option 2 has been refined to incorporate recommendations from the audit. Option 1 is no longer being proposed, as the auditor raised fewer safety comments with option 2.

Option 3 – Coton Path and Adams Road

- 7.19 Option 3 (in Drawing No. PTP/21086/10 as shown in **Appendix I**) incorporates the comments from the Stage 1 RSA on option 2.
- 7.20 Option 3 includes a segregated bus route running from Charles Babbage Road (as per the Applicant's scheme) which then heads towards Adams Road by running parallel to the Coton Path. The existing cycle path and footpath along the Coton Path would be retained in its current form. The carriageway width along the Coton Path would vary between 6.5m and 7.3m, in compliance with the guidance set out in Cambridgeshire's HDM document.
- 7.21 Option 3 includes further segregation at the Adams Road junction with Wilberforce Road, and priority to cyclists travelling between Adams Road and the Coton Path. The proposed layout also provides improved pedestrian connections from the Adams Road southern footway on to the Coton Path, and introduces additional pedestrian crossing facilities at the junction. This is also compliant with MfS guidance that promotes a pedestrian first approach for its road user hierarchy.
- 7.22 Currently, pedestrians travelling along the southern footway need to cross on to the northern footway, then cross Wilberforce Road before joining the pedestrian section of the Coton Path.
- 7.23 The give-way arrangements at the junction would be amended to ensure that vehicles joining Adams Road from Wilberforce Road would give way. Currently, cyclists travelling east from the Coton Path on to Adams Road give way.
- 7.24 On Adams Road, on-street parking would be removed through the introduction of double yellow lines and 2m wide advisory cycle lanes would be provided in both directions along Adams Road. The removal of centre line markings on Adams Road seeks to reduce vehicle speeds and complies with LTN 1/20 guidance,
- 7.25 Option 3 removes on-street parking on Adams Road, which will reduce traffic flows as this measure should decrease demand associated with the significant level of commuter on-street parking along the whole length of Adams Road. Restrictions could also be placed on neighbouring streets such as Sylvester Road, Wilberforce Road and Herschel Road to restrict traffic flows further. These could restrict all on-street parking or could allow for some limited parking (for example residential permit parking).
- 7.26 On Adams Road, the provision of 2m wide cycle lanes along Adams Road provides a generous space for cyclists and would provide an improvement on the current arrangements, where there are no specific facilities for cyclists.
- 7.27 The proposed scheme aligns with LTN 1/20 and with Policy AT07 of Cambridgeshire's Active Travel Strategy.
- 7.28 The Stage 1 RSA for option 3 and the Pulsar Designer's Response is included in **Appendix J**. The auditor does not raise any significant safety problems associated

with the proposals, demonstrating that a CtoC scheme involving Adams Road is both technically possible and acceptable in highway safety terms. In contrast, the RSA for the Applicant's scheme raises a number of fundamental safety concerns, and the Applicant has not demonstrated that these can be resolved.

Comberton Greenway

- 7.29 GCP has prepared plans for a scheme on Adams Road as part of the Comberton Greenway proposals. These are included in **Appendix K**.
- 7.30 These Adams Road proposals involve reducing carriageway widths, removing the majority of on-street parking and introducing wider footways and planted areas. The carriageway would include a wide cycle path along the centre of the road in a different colour (red) surfacing.
- 7.31 The proposals are described as a "Cycle Street" as briefly noted in DfT guidance LTN1/20. There is limited guidance on the implementation of cycle streets in the UK.
- 7.32 The proposals will create a more cycle dominant arrangement on Adams Road but will not remove all conflict between cyclists and motorised vehicles, as the central cycle path would still be used by other vehicles. As such, it would be an unsegregated cycle route with cyclists sharing carriageway space with other vehicles.
- 7.33 I have not seen a Road Safety Audit for the scheme.
- 7.34 The proposals include a carriageway width of 5.5m (from a current kerb to kerb width of 8m) and localised pinch points of c.4.3m. The 5.5m width is not sufficient for two buses to pass and would need to be widened to 6.5m to allow two buses to pass.
- 7.35 From recent correspondence with CCC, it is understood that construction works for the Adams Road Cycle Street are scheduled to start in mid-September 2025. If the construction takes place the Cycle Street is likely to be completed before any Public Inquiry decision on the CtoC scheme.
- 7.36 The decision to undertake works on Adams Road prior to the CtoC Inquiry process appears to be inappropriate given that the route alignment of the busway is one of the key issues being addressed at the Inquiry.
- 7.37 I have produced an Option 4 (Drawing No.PTP_21086_021 included in **Appendix L**), which is a further alternative bus route scheme incorporating the principles of the Cycle Street. This includes a central path for cyclists using coloured surfacing and incorporates planters within the footway. The proposed carriageway width is wider than GCP's Cycle Street proposals, to allow for two buses to pass along Adams Road.
- 7.38 This can be achieved by scaling back on the planted areas and footway widening. This would still result in sufficiently wide footways in excess of 2m on both sides of

Adams Road, thereby resulting in an improved pedestrian facilities compared to the current layout.

- 7.39 To improve safety for cyclists, further speed reducing measures including ramps have been incorporated into the design. Planters/verges are also retained in the design to provide localised narrowings to further reduce speeds.
- 7.40 A Stage 1 RSA has been undertaken on Option 4 and is included in **Appendix M**. The auditor considers that there would be benefit if speeds along Adams Road could be lowered further through additional speed ramps. The auditor also suggests additional traffic signage to emphasise to drivers that they are entering a Cycle Street.
- 7.41 A Designer's Response is also included in **Appendix M**. A review of traffic signs can be undertaken at the detailed design stage, and will also be required for the GCP scheme.

Cyclist/Bus Conflict

- 7.42 It is acknowledged that buses will share road space with cyclists along Adams Road.
- 7.43 Cyclists already share Adams Road with motorised transport such as cars, vans, refuse and delivery vehicles. There are also coaches/buses and minibuses that transport visiting teams to the University Sports Ground at the western end of Adams Road.
- 7.44 It is not unusual for buses and cyclists to share road space. This currently happens on numerous streets in Cambridge including the next street to the east (Grange Road) and on many bus lanes throughout the UK. Magdalene Street and Bridge Street in Cambridge are examples of streets with a high volume of cyclists and several bus services.

Overall Traffic Reduction on Adams Road

- 7.45 I have shown above that on-street parking levels are substantially reduced at 9pm compared to the middle of the day. This demonstrates that on-street parking is almost exclusively undertaken by commuters.
- 7.46 The introduction of parking controls in the area would reduce traffic volumes on Adams Road, as there would be a reduction in vehicles seeking a parking space. The effect of this can be enhanced by adding further parking controls on the other local roads that can be accessed by Adams Road (primarily Sylvester Road and Wilberforce Road, but potentially Herschel Road and Clarkson Road).
- 7.47 The increase in traffic as a result of the new bus route would be offset by a reduction in traffic volumes by commuter vehicles seeking a parking space.
- 7.48 As well as the associated reduction in traffic, the removal of on-street parking on Adams Road would improve cycle safety by eliminating:

- vehicles waiting along Adams Road to enter a parking space;
- vehicles parallel parking into spaces; and
- vehicle doors opening on to the carriageway.

Journey Time Impacts

- 7.49 I recognise that a segregated free flowing route would be quicker than a route that is shared.
- 7.50 In this case, the Adams Road option is segregated up to the western end of Adams Road (i.e. parallel to the Coton Path) and is then shared for a distance of 480m. Overall, the Adams Road route section is shorter by 220m up to Grange Road compared to the RRR route.
- 7.51 The journey time impact of the short section of Adams Road (480m long) is likely to be negligible when comparing to the whole route. As a pessimistic case, assuming that a bus travels at an average of 10 mph along Adams Road, it would take 108 seconds to traverse its length.
- 7.52 The RRR route from Charles Babbage Road to Grange Road has been designed as a mix of 20 mph and 30mph sections. As a robust comparison (and assuming an average speed of 25mph), I have reviewed the time taken to traverse 700m of the RRR route. This takes into account that the route is 220m longer. This equates to a journey time of 63 seconds.
- 7.53 This assumes free-flowing conditions on RRR. As I have set out in my evidence, RRR will be used by several groups that currently enjoy access rights on RRR. Furthermore, the carriageway may also be used by maintenance vehicles and cyclists.
- 7.54 The Adams Road route could take 45 seconds longer based on the assumptions set out above. Over a distance of 17km, this is not considered to represent a significant difference.
- 7.55 I have reviewed bus journey times from Grange Road to Cambridge rail station in the evening peak using the U services. These are in the order of 25 minutes. Again, an additional 45 seconds for a journey that would then take a further c.25 minutes into Cambridge is likely to be imperceptible to passengers.

Increased Routing Flexibility

- 7.56 The Adams Road/Grange Road junction can be amended to allow buses to turn from Adams Road towards Madingley Road. These amendments are shown on both the Adams Road route options I have put forward.
- 7.57 This provides greater flexibility in terms of routing buses, if it is decided that buses via Madingley Road are preferable to routing them south along Grange Road.

- 7.58 Even if it is decided that bus services should be routed to the south, the Adams Road junction layout provides greater resilience for bus services in the event that there are road closures along the southern route. Buses can be re-routed towards Madingley Road (temporarily if needed) whilst the closures are in place. This flexibility, in my view, would offset the perceived disadvantages associated with the minor journey time increase from using Adams Road.

Conclusions

- 7.59 Adams Road was considered a viable bus route during the appraisal process and was the favoured route up to a point between January and June 2020.
- 7.60 Skanska were appointed in 2017 by the Applicant to review technical solutions for a bus route along Adams Road. They put forward four possible layout options, with varying degrees of bus priority, pedestrian/cycle facilities and on-street parking. To my knowledge, all four options were considered viable.
- 7.61 I have put forward two Adams Road options. The first one considers alterations to the current layout and the second considers alterations to the proposed Cycle Street scheme currently being put forward by GCP for Adams Road.
- 7.62 Both options have been the subject of a Stage 1 RSA, and I consider both of them to represent safe and viable solutions.
- 7.63 The journey time impacts of routing buses through Adams Road are considered to be minimal in comparison to using RRR.
- 7.64 The Adams Road/Grange Road junction can be amended to allow for greater bus routing flexibility.

8 OPTIONEERING AND SCHEME COMPARISON

Public Consultation

- 8.1 For the CtoC section between Madingley Mulch Roundabout and Cambridge, the option appraisal and consultation process undertaken by the Applicant has included a review of on-road versus off-road options. For the off-road option, the Applicant also undertook a comparison of Adams Road and RRR options.
- 8.2 As I discussed above in Section 4 above, the results from the public consultation process showed that an on-road solution via Madingley Road was the preferred approach. Furthermore, I have noted that the Applicant relies heavily on the INSET (multi-criteria assessment framework) tool for the decision-making process.

Option Appraisal

- 8.3 The Options Appraisal assessment utilised a scoring system (INSET) developed by MM. A total of 18 criteria were assessed in OAR 1 when reviewing the various options in OAR 1. One of these criteria ('engineering feasibility – construction method') was omitted when assessing both the Adams Road and RRR options. As I discuss below, this criteria should have been retained for these options as there is a clear difference in the engineering feasibility between the two options.
- 8.4 As noted above, INSET analysis was undertaken at various stages of the scheme evolution process to assist with the decision-making process. The final use of INSET appears to have been within the OAR 3 report, where it was concluded that an off-road route following Adams Road achieved the highest score and was, therefore, the preferred route.
- 8.5 The 18 criteria are listed and described in OAR 1.
- 8.6 The scoring range for each criteria is 1-7. This relates to significant negative (score = 1) to significant positive impacts (score = 7). However, for several of the categories (including the environmental impact categories) it is difficult to conclude that there could be any positive impact. MM acknowledge this for the scheme cost criteria, restricting their scores to 1-4. This is significant, as there is a substantial difference in the estimated cost of the RRR and Adams Road options.
- 8.7 **Table 8.1** below provides a summary of the INSET scores at OAR 1 and OAR 3. As the Applicant's consultants have acknowledged, scoring for these types of multi-criteria assessments can be subjective. I have also included my scoring for the two schemes in the table below.

Table 8.1 INSET Scoring

	Adams Road	RRR
OAR 1	3.06	4.24
OAR 3	3.18	2.94
Kamran Haider Adjusted Score	3.29	2.06

8.8 **Table 8.2** below provides my score for each criteria as well as the justification for those scores.

Table 8.2 Breakdown of My INSET Scores

Category	Weighting	Adams Road Score	RRR Score	Justification
Journey Reliability	2	2	3	Adams Road will involve some delays but relatively short section. RRR required for access by others and route then involves using west street and silver street, also involves new junction at Grange Road.
Route Flexibility	1	4	1	Adams Rd buses can link back on to Madingley Road. RRR buses can only go south on Grange Road,
Walking/Cycle Connectivity	1	3	3	Improvements for pedestrians and cyclists on Adams Road but acknowledged increase in bus traffic. RRR provides new formal routes but emergency track width not to standards and conflicts with other maintenance vehicles.
Impact on Traffic	1	3	3	Slight impact on traffic along Adams Road. RRR route introduces slight impact on Grange Road with new signals
Visual Impact	1	4	1	Removal of parking should enhance visual impact on Adams Road. Bridge structure and new road creates visual impact on West Fields and RRR
Noise	1	3	1	Noise score for Adams Road kept the same. Jonathan Blackwood notes significant impact for Clare Hall with RRR route
AQ	1	4	4	Kept the same as OAR 3
CO2 Emissions	1	3	1	Criteria mention emissions of scheme and embedded carbon. However, I have made an assumption that emissions are dealt with in AQ category, so have only considered embedded carbon. New road and bridge structure on RRR considered to involve higher carbon impact.
Biodiversity	1	2	1	Kept the same as OAR 3
Heritage	1	3	1	Scoring informed by Fiona Lamb's proof
Green Belt	1	3	1	Coton Path section encroaches slightly on to Green Belt and there may be opportunities to reduce this further. RRR section almost entirely within Green Belt.
Safety	1	3	3	Perceived impact for cyclists on Adams Road but reviewed by RSA. Safety issues at corner of Grange Road/RRR

Public Acceptability	1	3	3	Stakeholder (residents and cycle group) concerns for Adams Road. Public consultation and stakeholder concern regarding RRR route through West Fields and Green Belt
Scheme Cost	1	4	1	As each option is expected to have some cost impacts the scores will all be between 1 and 4. Gleeds have estimated RRR route would cost an additional £10M. This is considered substantial so highest difference in scores given.
Engineering Feasibility	1	4	1	In my view, this criteria should be used for the off-road options. Adams Road route requires road of Coton Path route, alterations to ponds and minor alterations to Adams Road. RRR route requires new road and bridge structure, embankments and retaining walls as well as careful construction around protected trees. RRR route is considered to be significantly more challenging in terms of construction.
Land Acquisition	1	4	2	Kept the same as OAR 3 but argument for lowering RRR score to 1
Impact on Local Roads during construction	1	2	2	This should not be limited to impact on local roads, but should look at all impact of construction, including noise impacts
Future Proofing	1	N/A	N/A	Neither scheme contributes to future proofing
	Total	54	32	
	With weighting	56	35	
	INSET Score	3.29	2.06	Divided by no. of criteria

- 8.9 I have sought to score objectively. Where the criteria are outside my area of expertise, I have sought input from the relevant experts.
- 8.10 I would score the Adams Road option 3.29, and the RRR route 2.06. There will always be a degree of subjectivity but in my view, the scores are sufficiently far apart to justify Adams Road as the preferred route when assessed against scheme objectives.
- 8.11 As I have discussed, the Applicant's final decision was based on additional stakeholder feedback and a view that the scheme would need to be as segregated as possible. However, these aspects are already considered within the INSET criteria, as they contribute to several criteria including, journey reliability, public acceptability, safety and (potentially) walking/cycling connectivity.
- 8.12 The last INSET scoring process undertaken by the Applicant, occurred for OAR 3. At the time Adams Road was part of the preferred route. Following further stakeholder consultation, the Applicant recommended RRR to the GCP Executive Board.

- 8.13 The Applicant also cited a review of the options against scheme objectives for changing to RRR. However, INSET already inherently assesses the scheme against scheme objectives.
- 8.14 Despite relying heavily on INSET for their decision making process up to the end of 2020, the Applicant did not formally use INSET to support their final decision. I consider this a flaw in the decision making process, and the final route selection appears to lack transparency, given the change in the decision making approach.

Route Option Cost Comparison

- 8.15 Clare Hall instructed Gleeds to prepare cost estimates for the Applicant's scheme and as a comparison, costings were also prepared for the two Adams Road options that I have proposed in section 8 above.
- 8.16 The costings were for the section between Charles Babbage Road to Grange Road for all three cost estimates.
- 8.17 A report containing Gleeds' cost estimates is included in **Appendix N**. I have also included an extract of their summary scheme comparison table in **Figure 8.1** below.
- 8.18 Option 1 in the Gleeds Table corresponds to Pulsar Adams Road Option 3 (as per drawing no. PTP_21086/010). Option 2 in the Gleeds Table corresponds to Adams Road Option 4 (as per drawing no. PTP_20186_021).

Figure 8.1 Summary Cost Table (prepared by Gleeds)

Ref.	Description	Rifle Range Route	Adams Road Route Option 1	Adams Road Route Option 2
1.0	Construction Works including Main Contractor On Costs	£16,200,000	£8,300,000	£8,900,000
2.0	Total Construction Cost	£16,200,000	£8,300,000	£8,900,000
2.1	Project / Design Team Fees - 10% allowance	£1,620,000	£830,000	£890,000
2.2	Other Development / Project Costs	Excluded	Excluded	Excluded
3.0	Sub Total Excluding Risk and Inflation (Rounded)	£17,800,000	£9,100,000	£9,800,000
3.1	Risk (Design / Construction / Employer Change) - 25% allowance	£4,450,000	£2,275,000	£2,450,000
3.2	Risk (Employer Other Risk) - Excluded	Excluded	Excluded	Excluded
4.0	Sub Total Including Risk (Rounded)	£22,300,000	£11,400,000	£12,300,000
4.1	Tender Inflation – 5.2% allowance (On Construction Costs Only)	£840,000	£430,000	£460,000
4.2	Construction Inflation – 2.7% allowance (Tender Return to Mid-Point of Construction)	£460,000	£230,000	£250,000
4.2	Allowance for inflation on other project costs - 5% allowance	£300,000	£160,000	£170,000
5.0	Estimated Project Cost Including Inflation (Excluding VAT)	£23,900,000	£12,200,000	£13,200,000

- 8.19 Figure 8.1 shows that the project cost for the RRR route is estimated by Gleeds at £23.9M, whilst Option 4 Adams Road scheme is estimated to cost £13.2M.

Review of Criteria

- 8.20 The difference in cost between the RRR and Adams Road options is estimated at c.£10.7M or £11.7M depending on the Adams Road option. In the OAR 3 INSET scores, the Adams Road option is rated as slight negative (3) and RRR is rated as significant negative (1). By limiting the scoring to 1-4, the difference in INSET scores (1 opposed to 3) does not, in my view, appropriately reflect the cost difference for a relatively small section of the route.
- 8.21 The OAR 1 includes an “Engineering Feasibility” criteria, however, it has not been applied for the Adams Road or RRR options. MM note that this has only been applied to the on-road options “as there are differences between Routes A and B due to the requirement for gantries and the bridge structure over the M11”. Routes A and B are the two on-road options assessed within OAR 1.

- 8.22 This suggests that MM were unaware that a substantial bridge structure would be required over the Bin Brook for the RRR route. There will also be other significant construction challenges along the RRR route, including the need to construct around a number of protected trees and the heritage listed features of Clare Hall. I anticipate that the construction challenges for the Adams Road scheme would be significantly lower. I would score this as a significant negative impact for RRR and a neutral score for Adams Road.
- 8.23 Another criterion used within INSET is "Impact on Local Roads during Construction". It is accepted that this is a valid measure to assess, however, INSET does not include a more general "Impact during construction" criteria that would account for noise/vibration disturbance on nearby sensitive receptors, even though this would clearly be a relevant consideration for planning purposes. My score for this criterion reflects the wider consideration of impacts during construction,
- 8.24 I acknowledge that there is an element of subjectivity when using a scoring system, however, it appears that MM were unaware of the scale and complexity of construction associated with the RRR route.
- 8.25 In terms of Green Belt impacts, the design I put forward deviates from the Applicant's scheme just south of the Coton Path and west of existing ponds. It enters the Green Belt area for a short section before running parallel to the Coton Path. My scoring for Green Belt impacts reflects this. However, an option could be developed where the route runs parallel to the Coton Path and this would potentially avoid entering the Green Belt or just skirt the edge of the Green Belt.
- 8.26 In contrast, the Applicant's route from the Coton Path up to Grange Road runs entirely through Green Belt land. In OAR 1, MM scored the Green Belt impacts for both options as "Neutral". In OAR 3 the scores were revised to 3 (Adams Road) and 2 (RRR). I would score them as 3 (Adams Road) and 1 (RRR) but, again, the scoring difference of 2 (3-1) does not, in my view, accurately quantify the relative difference in impacts.
- 8.27 Clare Hall has also instructed Gleeds to undertake a carbon assessment of the RRR and Adams Road busway routes. Whilst this is still being prepared by Gleeds at the point of submission of this Proof of Evidence, I am informed that the difference between the relative carbon impact of the Rifle Range Road route and the alternative Adams Road proposals is expected to reflect the costs appraisals – therefore showing the Rifle Range Road alignment to be not only more expensive but also more costly in terms of its carbon impact. It is expected that the carbon report produced by Gleeds will be submitted to the Inspectors shortly after this Proof of Evidence and it is kindly requested that it is considered by the Inspectors in their examination of the proposal.

Option Appraisal Summary

- 8.28 The INSET tool has been at the forefront of the Applicant's decision-making process.
- 8.29 The options appraisal process undertaken by the applicant originally marked RRR with the higher score (making it the preferred route). Following information from stakeholders, the Applicant amended the INSET scores to make Adams Road the preferred route.
- 8.30 Following further stakeholder feedback and a review of the scheme against the CAM sub-strategy, the Applicant reverted back to RRR as the preferred route. However, the Applicant did not amend the INSET scores at that stage.
- 8.31 The scoring is subjective, and this has been acknowledged by the Applicant's consultants.
- 8.32 Table 8.1 above shows the Applicant's previous scores and my "adjusted score". Following a review of the 18 criteria, my scoring shows that Adams Road would be the preferred route. I have provided a breakdown and justification for my scores in Table 8.2.

9 OTHER ALTERNATIVE ROUTES

- 9.1 I acknowledge that there are other parties including Cambridge Past Present and Future (CPPF) that are proposing additional alternative routes.
- 9.2 My evidence deals with the section of route from West Cambridge into the city centre, and it does not seek to assess the overall case for the CtoC bus scheme or the relative merits of the additional alternative routes.

10 SUMMARY & CONCLUSIONS

Consultation and Decision-Making Process

- 10.1 The consultation and decision-making process that led to the selection of the off-road route via RRR has been flawed and inconsistent.
- 10.2 The public consultation exercises in 2015 and 2017/18 resulted in respondents stating a preference for an on-road bus route via Madingley Road and strong opposition to the Area 1 South route (i.e. the route potentially involving Adams Road or RRR). In terms of the route selection process, the public consultation appears to have had very little influence in determining whether to proceed with a route option.
- 10.3 The Applicant has primarily used a bespoke multi criteria appraisal framework tool called INSET to provide scores for each option and then provided recommendations based on these scores.
- 10.4 After three options appraisal reports and three rounds of using INSET, Adams Road was considered part of the preferred off-road route.
- 10.5 The preferred route was changed to RRR in June 2020 without an updated INSET analysis. The reasoning for the change has not been consistent or satisfactorily explained.

Level of Segregation

- 10.6 The segregated nature of the route has been one of the key reasons for justifying RRR. I have calculated that the bus route from Cambourne to Cambridge rail station would be shared for 44% of its route. The level of segregation of the proposed scheme has been overstated.
- 10.7 I have also calculated that by routing via Adams Road, the route would be shared for 49% of its route. This represents a relatively minor increase of 5%. The importance attached to incorporating a segregated section of route in this area has also been overstated.
- 10.8 RRR will be used by at least four other parties that currently enjoy rights of access along this route. The carriageway may also be used by maintenance and construction vehicles associated with Clare Hall. The Applicant has acknowledged that the RRR would be a shared route, which will impact on the bus service's journey time reliability.

RRR Design Issues

- 10.9 Five highway safety issues have been raised by safety auditors on the design of the Applicant's Grange Road/RRR junction. None of the five issues have been resolved, and in my view do not appear to be resolvable without acquiring additional land outside the limits of the Order.

- 10.10 The EM track is intended for shared cycle/pedestrian use. At the approach of the Grange Road/RRR junction it narrows to 3m. This is below the minimum width set out in national guidance for the anticipated number of cyclists and pedestrians for the route.
- 10.11 The EM track would also be used by maintenance vehicles associated with the CtoC, and potentially also by Clare Hall. Given the level of pedestrians and cyclists that could use the EM track, this poses significant highway safety issues.
- 10.12 The Grange Road/RRR junction layout is constrained and does not allow buses to turn left from RRR on to Grange Road. This reduces the flexibility for routing buses.

Impact on Clare Hall

- 10.13 The RRR scheme will affect the operation of Clare Hall as it relies on access at the corner of the junction with Grange Road/RRR. The continued use of this access would constitute a highway safety risk given the increased pedestrian/cycle and bus activity at this junction.
- 10.14 RRR is also regularly traversed by Clare Hall staff to maintain their assets along their southern boundary. This involves vehicles travelling along RRR and stopping adjacent to the southern boundary. It has not been confirmed by the Applicant whether this maintenance access would continue and the arrangements for Clare Hall's maintenance vehicles to park. Clare Hall is seeking a legally enforceable agreement to allow them to maintain their current operations.
- 10.15 The RRR scheme will preclude further essential development at Clare Hall, as access arrangements have not been agreed with the Applicant, and only appears possible if there is no impact on bus movements.
- 10.16 Construction traffic will be required to access RRR to allow future development plans. I have put forward a potential construction logistics proposal for two schemes that Clare Hall are looking to pursue. This will, to some extent, have an impact on bus movements as well as pedestrians/cyclists on the emergency/maintenance track.
- 10.17 In addition to construction access requirements, the proposed auditorium would require delivery access for bulky equipment to be brought via RRR. Two outline arrangements have been put.
- 10.18 Additional development is essential for Clare Hall to maintain their world-class reputation. The Applicant has not confirmed that either construction or any other access to allow the existing operation or future development will be allowed along RRR. Again, Clare Hall is seeking a legally enforceable agreement to allow them appropriate access along RRR.

Adams Road Route Options

- 10.19 I have put forward two busway options that involve routing via Adams Road. Both have been the subject of Stage 1 Road Safety Audits.
- 10.20 This demonstrated that there is a safe and viable alternative route that can utilise Adams Road rather than RRR.
- 10.21 The journey time impacts of routing via Adams Road rather than RRR would be minimal, particularly in relation to the time that the bus would take for the entire route from Cambourne to Cambridge rail station.
- 10.22 The Adams Road route can also lead to greater route flexibility as buses would be able to travel to/from Maddingley Road as well as to/from the southern side of Grange Road.

Option Testing

- 10.23 The INSET scoring is subjective. I have used INSET to score the Adams Road and RRR options. My results show that the Adams Road route scores higher and therefore, should form part of the preferred route.

Summary

- 10.24 It is concluded that there would be unacceptable highway safety impacts associated with the RRR scheme. Furthermore, the case for the scheme has not been justified when assessed against scheme objective and a safe and viable alternative bus route is achievable via Adams Road.



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www.pulsartransport.co.uk

REGISTERED OFFICE: Pulsar Transport Limited, Gilmoora House, 57-61 Mortimer Street, London W1W 8HS.