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The Cambourne to Cambridge Order

Cambridgeshire County Council

Transport and Works Act 1992
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Inquiry into:
THE CAMBOURNE TO CAMBRIDGE ORDER

REBUTTAL IN RELATION TO Engineering
of
John Lonergan MSc, BEng, BSc, FICE, FGS, CEng, MCIHT, MPWI
of WSP

On behalf of Cambridgeshire County Council

8th September 2025

Planning Inspectorate Reference: DPI/E0535/25/1

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1. INTRODUCTION

- 1.1 This rebuttal has been prepared in response to certain proofs of evidence submitted on behalf of Objectors to the Applicant's proposals for the Cambourne to Cambridge scheme.
- 1.2 My name is John Lonergan. I am a Technical Director in the Transport and Infrastructure Team at WSP. Details of my qualifications, professional career and key project experience are contained in my Proof of Evidence [CD26-01-APP-W8-1].
- 1.3 This rebuttal has been prepared with the expectation that it will assist the Inspectors with consideration of the issues raised.
- 1.4 The fact that a point has not been responded to should not be taken as indicating that it is accepted.

2. SCOPE OF REBUTTAL

- 2.1 The scope of my rebuttal is specifically in response to matters raised in the Proof of Evidence of the following individuals:
 - 2.1.1 Edward Leigh
 - 2.1.2 James Littlewood
 - 2.1.3 Steve Johnstone
 - 2.1.4 Charles Alan Short
 - 2.1.5 Kamran Haider

3. REBUTTAL

3.1 REBUTTAL: Edward Leigh

3.1.1 Introduction

- (a) From Proof of Evidence for objector: OBJ-251, pages 7 and 8 Mr Leigh's [CD26-10-W3-1] objections are (using his paragraph numbering):

"3.5 The Applicant's analyses of in-highway options have set excessively demanding specifications and have not considered reasonable mitigations to overcome constraints."

"3.6 The A1303 Busway Feasibility study (2 Feb 2017) [CD13-15] assumed a cross-sectional width of 21.8m, comprising 9.3m for the road (compared with up to 7.3m now), 8.5m for a two-lane busway, including separation strips and a verge, and 4m for a footway/cycleway. It did not consider any departures from this specification to overcome constraints."

"3.7 The Madingley Road 'Quick Win' Options Outline (14 May 2019) [CD13-07] considered an inbound bus lane only with a more reasonable cross-sectional width of 14.3m, comprising 7.3m for the road, 4m for the bus lane and 3m for the cycle/footway. However, it too did not consider any departures from this specification to overcome constraints."

"3.8 The CPPF Alternative Scheme – Engineering Assessment (July 2025) [CD9-31] specifies a cross-sectional width for a nearside bus lane of 23.3m, comprising 13.3m for the road and bus lane, 3m for the shared use path, and 7m for verges."

Again, it does not consider any departures from this specification to overcome constraints.”

3.9 In short, the Applicant has never attempted to design a deliverable in-highway scheme in order to test the business case for it against its preferred option. This point is picked up by Mr Johnstone in his proof at §6.03 (i).

3.1.2 Rebuttal

- (a) The Design Manual for Roads and Bridges (DMRB) is a suite of documents which contains requirements and advice relating to works on motorway and all-purpose trunk roads for which one of the Overseeing Organisations is highway or road authority, and this includes the A1303.
- (b) The route context of the A1303 Madingley Road is a critical factor in assessing the feasibility of the CPPF proposals and their likelihood of acceptance by the relevant Highway Authorities, including Cambridgeshire County Council and National Highways. The A1303 Madingley Road is:
 - (i) An ‘A’ Road, the classification given to major roads intended to provide large-scale transport links within or between areas.
 - (ii) Part of the Primary Route Network (PRN), which designates roads between places of traffic importance across the UK, with the aim of providing easily identifiable routes to access the whole of the country.
 - (iii) Part of the Major Road Network (MRN), the middle tier of the country’s busiest and most economically important local authority ‘A’ roads, sitting between the national Strategic Road Network (SRN) and the rest of the local road network.
 - (iv) A part of the (SRN) diversion routes which are a set of pre-planned routes used to guide traffic around road closures triggered by unplanned events or planned roadworks on England’s motorways and major A-roads.
 - (v) A preferred route for use by HGVs as indicated on the Cambridgeshire advisory Freight Map which forms part of Cambridgeshire’s HGV policy approved by the Highways and Transport Committee in October 2022.
 - (vi) The 2-way AADT on Madingley Road is forecast to be 24,075 in 2041. This figure is based on the Do Minimum baseline transport conditions in the study area as set out in the CtoC Transport Assessment [**CD1-25.01, Appendix D**] i.e. without the CtoC Scheme.
- (c) Cambridgeshire’s Active Travel Strategy [**CD7-34**] and Local Cycling and Walking Infrastructure Plan (LCWIP) [**CD7-35**] identify priority cycle routes for each district. These are based on census data mapping origin and destination points to highlight where the highest number of utility trips could be shifted from car to cycle. Madingley Road is designated as a Tier 1 route within the LCWIP, marking it as part of Cambridgeshire’s core active travel network.
- (d) Considering point 3.5, WSP have evaluated the alternative scheme (see Appendix A) proposed by CPPF, as outlined in Steve P. Johnstone’s Proof of Evidence [**CD26-10-W2-1**], and forming the basis of Mr Leigh’s objections. I note that Mr Leigh’s comments on our previous Engineering Assessment (July 2025) [**CD9-31**], and that our previous assessment was based solely on written descriptions due to the lack of detailed drawings.
- (e) I have reviewed the recently received proposed CPPF scheme drawings were to identify critical departures from standards, as well as relaxations and deviations

from guidance and good practice. The current CPPF design assumes that all of the departures are granted, and these are scheduled in Appendix C. In my opinion it is unrealistic to base a design on the assumption that this number of required departures will be granted on this type of road.

- (f) Referring to 3.6 and 3.7, we included these reports as they were part of the development of the Scheme, these were not developed further, based on the option selection process, the context of the A1303 Madingley Road set out above the impact on the local highway network, and the unrealistic number of design departures required.
- (g) Referring to point 3.8, Mr Leigh's comments on our previous Engineering Assessment (July 2025) [CD9-31], and that our previous assessment was based solely on written descriptions due to the lack of detailed drawings. Some drawings were provided in Mr Johnstone's objection, received in August 2025, and I, with the assistance of colleagues, have reviewed these in Appendix A.
- (h) Referring to 3.9, during the Scheme development it became apparent that a deliverable in-highway scheme was not viable, due to the context of the road, the number of departures required, the effect on the American Cemetery and the impact on the users of the road. This was part of the options development and selection process.

3.2 REBUTTAL James Littlewood

- 3.2.1 From James Littlewood OBJ251 Proof of Evidence [CD26-10-W1-1], using his paragraph numbers.

"7.25 There is no need to provide a maintenance and emergency track because the busway will be constructed as a regular road for use by optically guided vehicles. A maintenance and emergency track is only required when a physical guidance system is constructed, so that vehicles without the guidance technology can gain access."

"7.35 As a landowner affected by the scheme, we have had several meetings with the Applicant and its consultants to discuss the route alignment across our land. We have been advised by our tenant farmer that if the route moves up the hill towards the A1307 it will effectively sever the field making it non-viable for future farming use. We advised the GCP of this. "

"7.36 In order to mitigate the impact of the scheme we asked the GCP to put curves into their alignment on our land."

"7.37. We were told by the Applicant that they could not include curves in their scheme and therefore the choice was to make our fields non-viable for agriculture but go through the gap in the orchard or to ensure our fields were viable and go through the orchard. We did not support either option. We questioned why curves cannot be part of the scheme given that the busway is in effect a road, we were not provided with an answer.

"7.38. Therefore, the Applicants' Statement of Case at 14.23.29 is misleading: "An alternative route through Coton Orchard was proposed by the GCP in October 2022 and rejected by CPPF at the time. This more northern alignment utilised a gap in the line of original Bramleys and thus avoided impacts on these older trees." A similar statement is made at paragraph 7.3.63 in the Applicant's Statement of Case."

"7.39. We believe that adding curves to the scheme would achieve significant mitigation benefits and should be incorporated into the design by the Applicant."

3.2.2 Particular points raised

- (a) Referring to point 7.25. The Emergency and Maintenance Track is necessary to ensure the regular and reliable bus service, to encourage travellers to use the Scheme rather than private cars. This track is an essential and integral component of the Scheme for the following headline reasons. REFERENCE my proof of Evidence [**CD26-01-APP-W8-1**] at paragraph 5.14.4
 - (i) First, the track will enable maintenance teams to access the Scheme in order to tend to be landscaping, drainage, and signage and other routine maintenance activities without disrupting bus services on the main carriageway or creating a potential safety hazard. This is critical to the success of the Scheme because the Scheme's efficacy depends on the provision of a robust and reliable operation.
 - (ii) Secondly, the track will also 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.
 - (iii) Thirdly, the track reduces the risk of pedestrian and cyclist incursions providing them with a safe dedicated shared path. This removes risk of obstruction and hazard from the busway. This improves safety and also contributes to the provision of a robust and reliable operation.
 - (iv) Fourthly, in times of emergency, the track 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.
- (b) Referring to points 7.36-39 suggesting adding curves to the proposed alignment,. There were many views on the alignment from various parties, and we designed the alignment to minimise the visibility of the Scheme from Coton village and impact on the Orchard and Garden Centre. An alternative alignment was produced to minimise the impact on the orchard and was raised with Mr Littlewood but was not taken forward in his discussions.

3.3 REBUTTAL: Steve Johnstone

3.3.1 From Steve Johnstone, I comment on these sections of his Proof of Evidence [**CD26-10-W2-1**],

- (a) Appendix F, his new drawings of the CPPF alternative scheme
- (b) Appendix G, his identification and justification for departures from standards
- (c) Appendix H his response to WSP review

3.3.2 Particular points raised

- (a) With reference to Appendix F, CPPF's plans rely on limited topographical survey data, covering only a narrow corridor. This fails to provide sufficient context for key surrounding features such as Madingley Woods (SSSI) and the American Cemetery and Memorial. Numerous trees on or near the highway boundary—potentially impacted by the scheme—are also omitted.

- (b) The plans do not account for the additional space required beyond the footways and carriageway edge to accommodate verges, berms, or embankment/cutting slopes, creating a misleading impression of the scheme's actual footprint.
- (c) The sample of cross sections provided omit many critical pinch points along the route and lack contextual detail, further distorting the scheme's true spatial impact.
- (d) To illustrate the practical challenges of implementing CPPF's proposals, additional detailed cross sections have been produced (see Appendix D of Appendix 1). These highlight key pinch points and clearly demonstrate the difficulties of delivering the scheme within the existing highway boundary, as well as the potential impacts on sensitive sites.
- (e) His Appendix F drawings were first received in August 2025; we have marked these up with the departures required in our report in Appendix 1. It is not clear that the cross sections work within the topography. See our detailed comments in Appendix A.
- (f) Referring to Appendix G, we list in Appendix 1 the departures required that we have identified, noting that five of these assume the speed limit can be deduced to 40mph.
- (g) The current speed limits along Madingley Road are considered appropriate given the road's characteristics and are consistent with CCC's Speed Limit Policy. Madingley Road qualifies as a lower-quality A road with numerous bends, junctions, and access points—placing it firmly within the 50-mph upper tier of the policy.

(h)

Speed limit (Mph)	Upper tier (Roads with predominant traffic flow function)	Lower tier (Roads with important access and recreational function)
60	Recommended for most high quality strategic A and B roads with few bends, junctions or accesses	Recommended only for the best quality C and Unclassified roads with a mixed (i.e. partial traffic flow) function with few bends, junctions or accesses. In the longer term, these roads should be assessed against upper tier criteria.
50	Should be considered for lower quality A and B roads, which may have a relatively high number of bends, junctions or accesses. Can also be considered where mean speeds are below 50mph, so lower limit does not interfere with traffic flow.	Should be considered for lower quality C and Unclassified roads with a mixed function where there are a relatively high number of bends, junctions or accesses
40	Should be considered where there is a high number of bends, junctions or accesses, substantial development, where there is a strong environmental or landscape reason, or where there are considerable numbers of vulnerable road users.	Should be considered for roads with a predominantly local, access or recreational function, or if it forms part of a recommended route for vulnerable road users.

- (i) Figure 3-4 - Typical characteristics for speed limits in rural areas outside settlements
- (j) An assessment of Madingley Road's design speed, based on the methodology in CD 109 [CD9-07, page 13, paragraph 2.4] using alignment (Ac) and layout (Lc) constraints, indicates a design speed of approximately 85A kph. This supports the appropriateness of the existing 50 mph speed limit, which was introduced between August 2008 and April 2010 (as evidenced by Google Street View imagery).

- (k) The design speed assessment (see Appendix E in Appendix 1) is based on several assumptions, making the estimated 85 kph a conservative figure. The overall increase in carriageway width proposed by CPPF along Madingley Road resulting from the introduction of the bus lane is likely to reduce layout constraint (Lc), which in turn may lead to higher vehicle speeds due to the diminished influence of the cross-section on driver behaviour.
- (l) TRL Published Project Report on Rural Road Safety (PPR 200) examined the data available on the distribution of rural road casualties and the factors contributing to their occurrence. The reports suggests that increased road width is generally associated with lower accident rates, although the size of the effect varies in different studies. The report goes on to say that carriageway or lane narrowing potentially leads to lower speeds, but seemingly not enough to balance the increased risk of driving along the narrower roads.
- (m) According to the DfT Guidance on Setting Local Speed Limits, speed limits should be evidence-based, self-explaining, and aligned with drivers' perception of a safe speed. They should also promote self-compliance. Introducing an inappropriately low speed limit on a rural all-purpose road can have several negative consequences:
 - (i) Reduced likelihood of self-enforcement outside peak hours
 - (ii) Increased driver frustration and unsafe overtaking
 - (iii) Greater speed variance between drivers, raising collision risk
 - (iv) Lower credibility and compliance with posted limits
 - (v) Reduced traffic flow, leading to delays and congestion
 - (vi) Traffic displacement onto less suitable minor roads, increasing risk elsewhere
 - (vii) Compromised effectiveness of diversion routes during Strategic Road Network (SRN) incidents.
- (n) The proposed CPPF scheme drawings were reviewed to identify critical departures from standards, as well as relaxations and deviations from guidance and good practice. Findings are detailed in Appendices B and C of Appendix 1.
- (o) This reflects the likelihood of acceptance by the Highway Authority, considering route context, potential mitigation measures or lack thereof, proposed speed limit changes, and the cumulative impact of overlapping departures and deviations.
- (p) I consider it unrealistic to assume that any highway authority would grant the number of departures required. As a result, the scheme proposed by CPPF is not capable of being delivered

(q) Referring to Appendix H, our responses to his responses to the WSP review of the previous CPPF

WSP Review of CPPF Scheme	CPPF August 2025 Response	WSP September 2025 Response
Key Findings		
The CPPF proposals, particularly the central (offside) bus lane with filter pockets, do not comply with the Design Manual for Roads and Bridges (DMRB) or other relevant standards.	<i>A central bus lane is no longer part of the scheme.</i>	This comment also applies to the CPPF proposals for a nearside buslane which is also non-compliant with the relevant design standards.
Proposed lane widths are below the minimum recommended for high- speed rural roads and would require multiple Departures from Standard, especially in constrained sections near sensitive sites.	<i>Madingley Road does not fit the description of a High-Speed Rural Road. 40mph operation is proposed from just west of the Crome Lea Business Park junction to help mitigate the removal of the two protected right-turns and the shortened driveways.</i>	Madingley Road is a Rural Road with a 50mph speed limit. Irrespective of the CPPF proposal to extend the existing 40 mph speed limit the DMRB standards would still be applicable.
The Departures from Standard that would be required to implement the CPPF scheme as presented are considered critical as they would impact the land requirements and as such are fundamental to the viability of the scheme	<i>Maybe so, but these largely relate to a High-Speed Road Rural Road and the Central Bus Lane; neither of which apply.</i>	Madingley Road is a Rural Road with a 50mph speed limit. Irrespective of the CPPF proposal to extend the existing 40 mph speed limit the DMRB standards would still be applicable for a proposed layout incorporating a nearside bus lane.
Road Safety Concerns		
The central bus lane design proposed by CPPF introduces significant safety risks, including potential conflicts between buses and right- turning vehicles, lack of clear priority at filter pockets, and increased risk to cyclists and pedestrians.	<i>A central bus lane is no longer part of the scheme.</i>	Noted
A high-level safety review suggests that these issues would likely be raised in a formal Road Safety Audit and are likely to prevent the scheme from gaining technical approval.	<i>A central bus lane is no longer part of the scheme.</i>	Noted
Environmental and Heritage Impacts		

<p>The route passes alongside Madingley Wood Site of Special Scientific Interest (SSSI) and the Cambridge American Cemetery (Grade I Registered Park and Garden, with a Grade II* listed "Memorial and attached walls, steps and pool surround at American Military Cemetery").</p>	<p><i>The scheme has been designed to avoid direct or indirect impact on Madingley Wood SSSI. This has involved re-aligning the carriageway within the highway boundary to accommodate the bus lane and shared foot/cycle way without impacting significantly on trees and woodland contiguous with the SSSI. The scheme in this section moves the carriageway kerb south of its existing alignment and places the active travel path to the north, increasing the buffer between road traffic and the SSSI/woodland.</i></p> <p><i>The CPPF alternative scheme would be constructed in the highway boundary outside the American Cemetery. However, the scheme does not require any land that is covered by the grade I designation. The cemetery is already impacted by and screened from vehicles using the busy A1303. The screening consists of hedges, mature trees and a wall none of which are impacted by the CPPF alternative. Therefore, there would be no direct harm to the heritage asset and very low harm to the setting of the cemetery. The cemetery is a popular tourist destination that is served by tourist buses and bus services on the A1303.</i></p> <p><i>The CPPF alternative would provide a benefit to the cemetery by improving bus services for the cemetery, whereas the Applicant's scheme would divert bus</i></p>	<p>The previously stated environmental and heritage concerns regarding the CPPF scheme remain unchanged and are jointly supported by both Historic England and Natural England.</p>
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	<i>services away from the cemetery, making it less accessible.</i>	
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<p>Both central and nearside bus lane options would require land acquisition and removal of mature trees and hedgerows, potentially affecting protected bat habitats and the setting of heritage assets.</p>	<p><i>The scheme has been designed to avoid hedgerow and tree loss. Whilst loss of a number of trees may be unavoidable where the route passes through pinch-points in the highway land, there will be no severance of features likely to be used as bat flight lines and impacts will be contained within the zone of influence of existing noise, spray and lighting effects associated with the extant Madingley Rd, rendering the magnitude of overall change (to both environmental and heritage receptors) negligible and/or in any event less than a route passing through open country, severing hedgerows and directly impacting priority habitat/Local Wildlife Sites.</i></p>	<p>The previously stated environmental and heritage concerns regarding the CPPF scheme remain unchanged and are jointly supported by both Historic England and Natural England.</p>
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<p>Natural England and Historic England have previously expressed concerns about online options along Madingley Road.</p>	<p><i>The route has been designed in full cognisance and reactive to NE's concerns and with the overarching objective of avoiding any scope for measurable impact on Madingley Wood SSSI and/or barbastelle and other bat species. Tree/hedgerow loss has been kept to an absolute minimum and in any event orders of magnitude less than will arise from the GCP scheme. By modifying an existing A-road, the bus lane and associated active travel provision are delivered within the existing zone of influence of effects from lighting, noise, NOx emissions, salt spray &etc, minimising the net effect and vastly reducing the effects arising from a cross-country scheme.</i></p> <p><i>The application site lies 100m north of the northern boundary of the Coton Conservation Area. The Planning Statement recognises that the character of the conservation area is defined by its Grade I listed 12th century parish church, a further 12 designated heritage assets and by the visual and historic relationships of these assets to each other. The CPPF alternative avoids any heritage harm to these designated heritage assets .</i></p>	<p>The previously stated environmental and heritage concerns regarding the CPPF scheme remain unchanged and are jointly supported by both Historic England and Natural England.</p>
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Engineering and Buildability Challenges

The CPPF scheme lacks general arrangement plans and does not address critical engineering aspects such as drainage, utilities, and pavement condition.	<i>These plans are now provided. Drainage is not a key issue and utilities simply require prior diversion into the new cycleway.</i>	The provision of a resilient and accessible drainage system which helps to manage water quality is considered a key issue, see section 3.7 of the main report - Further Assessment of CPPF Alternative Scheme.
Construction would require prolonged lane closures and complex traffic management, with significant disruption expected over a 1 to 2-year period.	<i>This is not an accurate assessment.. Major maintenance such as re-surfacing will result in similar levels of disruption and can be deferred as a result of the works, reducing their overall net impact. Because the scheme involves essentially widening of the existing road to provide an inbound bus lane, the widening can be undertaken first and largely clear of the existing running lanes. Traffic can then be diverted onto the bus lane whilst the existing road is reconstructed in two parallel phases. This work can be undertaken largely at night and over the weekend when traffic flows are much lower. By this means the works can easily be completed within 1 year.</i>	This is an unrealistic assessment limiting working hours to nighttime and weekends would extend the construction programme significantly it would not be possible to provide the working space required clearance zones to undertake the works safely clear of the existing running lanes.
Alternative Concept Design		
An alternative nearside bus lane concept was developed by the applicant's team to test the feasibility. While safer, it still requires significant land acquisition and impacts on residential properties and environmental features.	<i>This is not correct – see enclosed plans.</i>	Land acquisition and impacts on residential properties and environmental features are considered unavoidable to deliver a nearside inbound bus lane and active travel infrastructure of a standard likely to secure technical approval.
The design confirms that a compliant on-road solution cannot be delivered within the existing highway boundary without unacceptable impacts.	<i>This is also not correct – see enclosed plans and Environmental Assessment.</i>	The previously stated environmental and heritage concerns regarding the CPPF scheme remain unchanged and are

		jointly supported by both Historic England and Natural England.
Assessment of Revised (April 2025) CPPF Proposals		
The revised CPPF scheme proposes a nearside bus lane, which is more conventional and mitigates some safety concerns	<i>Noted.</i>	Noted
However, it still relies on substandard lane widths and omits key features such as ghost islands and hard strips	<i>See SJ PoE</i>	See, schedule of departures in Appendix C
The use of the Active Travel England Route Cross-Section Tool to justify lane widths is inappropriate for the context of Madingley Road	<i>See SJ PoE</i>	Previous comment stands
Recommendations		
The CPPF alternative scheme, in both its original and revised forms, is not a feasible or viable alternative to the proposed CtoC guided busway.	<i>This is not accepted. The scheme is feasible and would represent a significant cost saving over the Applicant's solution. Viability is therefore not in question.</i>	The CPPF plans do not accurately represent the spatial requirements of the proposed scheme. Key elements such as verges and the interface between proposed and existing ground levels are omitted. The scheme fails to comply with relevant highway design standards and recommended good practice, resulting in anticipated reductions in safety and service levels. Cross sections indicate that the scheme's viability hinges on accepting multiple departures from standard. While some may be justifiable with mitigation, full technical approval of all the departures in combination is considered unlikely given the route context.

The scheme fails to meet essential design, safety, and environmental standards and would likely not receive technical approval from the Highway Authority.	<i>This is again not accepted. Environmental work demonstrates the acceptability of the scheme and Design and Safety considerations are addressed as part of the submission. Technical Approval comments are largely conjecture on the part of WSP and are not accepted by the CPPF team.</i>	Given the route context, limited mitigation options, proposed speed limit changes, and the cumulative effect of overlapping departures and deviations, the likelihood of all critical departures from standard being accepted by the Highway Authority is considered low. This poses a significant risk to the scheme's viability.
The proposed CtoC scheme remains the preferred option due to its ability to deliver reliable, segregated public transport infrastructure with fewer environmental and safety risks.	<i>The CtoC scheme is very expensive to deliver and a lesser alternative such as the one presented by CPPF has not been properly considered by the Applicant. Its performance should be assessed using an updated post-Covid traffic model and whilst it may be less than the CtoC scheme, its BCR is likely to be much higher due to the reduced costs. It would therefore represent much better value-for-money and a better use of limited public funds at a time of low UK economic performance. It would also not involve CPO and in CPPF's view, less environmental impact and not more.</i>	Previous comment stands
Limitations to September 2024 CPPF Alternative		
Bus priority is provided for inbound buses only from the Madingley Mulch roundabout to the Park and Ride site.	<i>See comments above.</i>	Previous comment stands

<p>Accidents, incidents and roadworks on the road network along with the variability in traffic conditions will lead to periods of increased congestion along Madingley Road that will impact inbound and outbound Cambourne to Cambridge buses, reducing the reliability of the scheme compared to a fully segregated route.</p>	<p><i>This may be so, but it is significantly cheaper to deliver and therefore there is a trade-off between these issues and the costs needed to reduce them. A lower costs scheme may well perform at a lower level, but that level CPPF would argue is still high enough to deliver the objectives of the scheme and at a fraction of the cost.</i></p> <p><i>The net benefits in terms of value-for-money would therefore be much higher and this is the key consideration.</i></p>	<p>Previous comment stands</p>
<p>Inbound traffic flow control, using traffic signals to 'hold' the inbound flow of general traffic is applied in some UK urban environments with co-ordinated urban traffic control networks. However, there are a number of challenges with this approach including:</p> <ul style="list-style-type: none"> • A substantial investment in new signal control infrastructure along Madingley Road will be required; • The increased delays to peak period inbound general traffic could result in reassignment to alternative routes including through Madingley, Comberton and other radial routes into Cambridge, and increased speeding due to driver frustration; and • Consistently delivering journey time benefits to inbound buses along Madingley Road at a level that is 'identical to the proposed scheme' is not demonstrated. The ability to consistently hold sufficient inbound traffic during peak times on the exit from Madingley Mulch Roundabout and the M11 off-slip to increase bus journey times has not been demonstrated, with concerns raised with the potential for queuing back onto the M11 and the A428. Therefore, there is a risk that an investment in signal control solution to 'hold' inbound 	<p><i>This is noted but the cost savings accrued by not building the CtoC scheme would outstrip those needed to provide reliable signal control infrastructure many times over.</i></p> <p><i>Journey time reliability, queuing and reassignment need to be assessed using an updated post-Covid traffic model, which is currently not available.</i></p>	<p>Previous comment stands</p>

general traffic will not result in the achievement of consistent improvements to bus journey times.		
Limitations of April 2025 CPPF Proposals		
The main limitation of the CPPF document is that it does not provide any general arrangement plans of the proposals to demonstrate that the Alternative Scheme proposals are feasible and will deliver the same scale of benefits as the proposed scheme.	<i>These plans are now provided as an appendix to the proof of Steve Johnstone</i>	Noted
Chapter 3 – Engineering Assessment – September 2024 Proposals		
<i>Interpretation of CPPF Proposals</i>		
3.2.3 The CPPF report provides very little information in relation to how right turn movements into and out of the numerous accesses along the corridor would be provided for. The only mention of this is in item B1 where it suggests that right-turn filter pockets could be incorporated into the central bus lane for the Crome Lea Business Park.	<i>The removal of protected right-turns or “filter pockets” is partially mitigated by reducing the speed limit and narrowing the lanes to encourage slower and more careful driving.</i>	It is considered unlikely that the proposed narrowing of the traffic lanes to 3.25m would be acceptable considering the route context. Narrow lanes would also be a safety risk at bends where the lanes would be insufficient to accommodate the dynamic swept paths of longer vehicles. It is also considered unlikely that reduced lane width in isolation would be sufficient

		to ensure adherence to the proposed 40 mph speed limit.
3.2.4 It is unclear what is meant by right-turn filter pockets but based on the cross sections presented in the report it is presumed that right- turning vehicles would be expected to wait within the central bus lane and that any existing facilities for right turn movements e.g. at Crome-lea Business Park would not be re-provided in the revised layout. This would not be compliant with standards and raises several road safety concerns. These issues are covered in more detail in the subsequent sections of the report.	<i>A central bus lane is no longer part of the scheme.</i>	Noted
<i>Compliance of CPPF Proposals with Current Design Standards</i>		
3.3.17 The 3.25m general traffic lane widths presented in Figures 4, 5 and 6 of the CPPF report appear to be based on the principles Contained in Manual for Streets 1 & 2 [CD9-02 & CD9-03] which is not considered appropriate for Madingley Road and would be more applicable to a Street setting in a low-speed urban environment.	See SJ PoE	Previous comment stands

<p>3.3.18 Traffic lanes narrower than 3.65m are sometimes used for economic or environmental reasons. However, research conducted on two-lane rural roads⁴ has shown that for increasing lane widths up to 3.65m there is a corresponding decrease in accident rates for vehicles running off the road, and for head-on and sideswipe accidents between vehicles travelling in opposite directions. A decrease in lane widths below 3.65m would be expected to have the opposite effect.</p>	<p><u><i>The cited research is of questionable relevance, being based on driving in the USA in the 1980s. A different conclusion may be found in a more recent (2017) paper on the same subject, but based on research in France, which concluded that the optimally safe arrangement of a 7m wide rural road is to have a 3m lane width and a 0.5m shoulder.</i></u>¹</p>	<p>The previous comment remains valid. The cited research is also referenced in the TRL report Accidents on Modern Rural Single-Carriageway Trunk Roads by D.A. Walmsley, I. Summersgill, and C. Binch.</p> <p>The Highways England Guide to Road Safety Route Treatments (June 2018) states: <i>“Reduced lane widths can negatively impact road safety by forcing vehicles closer to the edge of the carriageway or into adjacent lanes. This is particularly problematic on narrow bends, where it can lead to vehicles straying into opposing lanes and causing head-on collisions.”</i></p> <p>Multiple TRL reports and UK literature reviews (Walmsley & Summersgill 1998; Barker et al. 1998; Hughes & Amis 1996; Hamilton & Kennedy 2005) consistently show that wider paved cross-sections—through wider lanes and/or paved shoulders—are associated with lower crash rates, especially for run-off-road and lane-departure incidents. TRL predictive models explicitly include paved width and shoulder variables, which reduce predicted accident frequency when increased.</p>
<p>3.3.19 The A1303 Madingley Road forms part of the diversion route for the adjacent strategic road network. As such, the lane widths on Madingley Road need to be</p>	<p><i>The proposed lane widths would be suitable.</i></p>	<p>The narrow lanes would not be suitable to accommodate the dynamic swept paths of longer vehicles on the bends.</p>

suitable to accommodate diverted traffic in an emergency or during major maintenance or construction.		Narrower lanes would reduce the resilience of the diversion route.
3.3.21 The cross sections presented in the CPPF report include a 3m wide central bus lane. This is the minimum lane width recommended in the TSM. However, assuming that cyclists would be prohibited from using the central bus lane on safety grounds, a central bus lane width of 3.65m5 is considered to be more appropriate given the high-speed rural road environment.	<i>A central bus lane is no longer part of the scheme.</i>	Noted
3.3.22 Where an off-side bus lane is provided in a two-way road the TSM Chapter 3 [CD9-17, page 91, paragraph 9.1.3] recommends that it should generally be separated from the opposing flow of traffic by a solid island or hatch markings to diagram 1040 where the boundary line is formed by the marking to diagram 1049A. There is no such provision included in the cross sections contained in the CPPF report.	<i>A central bus lane is no longer part of the scheme.</i>	Noted
3.3.26 the cross section and lane widths depicted in Figure 5 of the CPPF report (see Figure 3-4 below) does not comply with the relevant design standards and does not include any provision for verges and other key features that would need to be accommodated within the overall cross-section. The total width of 13.5m stated in the CPPF report does not represent the true overall width of the corridor required to deliver an online bus lane	<i>See SJ PoE and engineering drawings</i>	Previous comment stands
3.3.29 The additional width required to deliver the proposed cross section will necessitate acquisition of land outside of the highway boundary and will impact the existing features along Madingley Road including the commercial and residential properties to the south.	<i>See SJ PoE and engineering drawings</i>	Previous comment stands

3.3.30 Extensive clearance of the existing trees (including mature specimens) and hedge lines to the south of Madingley Road depicted in Figure 3-7 below, would also be required to facilitate the construction of the proposed CPPF scheme	<i>The scheme does not require 'extensive clearance of trees or hedgerows'. By comparison with the GCP scheme the habitat losses occasioned are substantially less in all respects and deliver an improved performance whether considered via subjective assessment approaches or quantitative (BNG) scores.</i>	Previous comment stands
Junctions and Access		
3.3.36 The appropriate central road treatment for Madingley Road is the provision of ghost islands. Ghost islands afford right-turning vehicles some protection and assist free flow of major road through traffic.	<i>A central bus lane is no longer part of the scheme.</i>	This concern also applies to the CPPF proposals for a nearside bus lane, which do not comply with relevant design standards. Additionally, omitting ghost islands would require a formal departure from standard.
3.3.37. The CPPF proposals do not appear to make any provision for any central road treatments i.e. ghost islands and are non-compliant in this regard. If ghost islands were to be added to the CPPF proposals it would increase the area of land required outside of the existing highway to deliver the scheme, resulting in increased costs and environmental impacts. It is also unclear how a ghost island could operate safely in combination with a central bus lane. The omission of central road treatments gives rise to Road Safety Concerns which are covered in more detail in the subsequent sections of the report.	<i>A central bus lane is no longer part of the scheme.</i>	This concern also applies to the CPPF's nearside bus lane proposals, which do not comply with relevant design standards. Incorporating ghost islands into the scheme would further increase the overall corridor width required for delivery.
Horizontal Alignment		
3.3.38 The CPPF proposals do not contain details of the proposed horizontal alignment for the central bus lane scheme. However, it is assumed that the proposed scheme would closely follow the existing alignment of Madingley Road	<i>A central bus lane is no longer part of the scheme.</i>	Noted

3.3.40 It would not be possible to design out these non-compliant aspects without significantly deviating from the existing road alignment. As such these inherent departures would need to be taken into account when considering an online solution. This would include assessing the potential cumulative effects on road safety where several relaxations and departures from standard are proposed to be used in combination.	See SJ PoE and engineering drawings	Previous comment stands
3.3.41 A double white line system has been introduced along sections of Madingley Road as a mitigation measure for the various departures present. The double white line system prohibits drivers from overtaking where forward visibility levels are below the requisite overtaking sight distances for the design speed. Figure 3-8 below shows the tight bend and double white line system present on the section adjacent to Madingley Woods.	[Commentary not requiring a response]	The previous comment remains valid. This provides additional context on the numerous inherent departures that must be considered alongside any new departures introduced by the CPPF's alternative scheme.
3.3.42 Some of the existing horizontal radii along Madingley Road would make it impossible to meet the same passenger comfort criteria ⁶ that has been applied to the design of the proposed offline CtoC scheme. This would result in a reduced passenger experience when compared to the proposed off-road scheme.	<i>This is a complete non-point as the Madingley Road is already used by numerous buses without any reported incidents of discomfort or loss of passenger comfort.</i>	Providing an attractive and comfortable service will play an important part of encouraging modal shift.
Summary of Non-Compliant Aspects		

<p>3.3.43 As a preliminary design of the CPPF proposals has not been developed in sufficient detail it is not possible to identify all the potential relaxations and departures from standard (i.e. non-compliant aspects) that may be required. However, some of the key issues identified which are likely to require relaxations or departures include but are not limited to:</p> <ul style="list-style-type: none"> • Non-standard proposed central bus lane incorporating filter pockets; • Sub-standard lane widths; • Sub-standard horizontal radii; • Sub-standard transition curves; • Reduced separation between the shared use path and the edge of the carriageway; • Omission of a physical island or hatch markings between the central (offside) bus lane and opposing flow of traffic; • Omission of hard strips; • Omission of major road central treatment (ghost islands); and • Sub-standard stopping site distances and junction visibility. 	<p><i>These plans are now provided.</i></p>	<p>The plans provided confirm that the proposed CPPF scheme does not comply with the relevant design standards.</p>
<p>3.3.44 Many of the identified non-compliant aspects are related to the same locations and are within the immediate approaches to a junction or access. As such, they are likely to result in a significant number of issues being identified in the Road Safety Audit (RSA). The potential impacts of any interacting departures would need to be appraised collectively, as part of the Departure from Standard application process and it is unlikely that technical approval would be granted to implement an online solution.</p>	<p><i>Please refer to the Civilistix drawings (SJ proof Appendix F) to see how departures from standards have been justified.</i></p>	<p>The previous comment remains valid. Given the route context, the cumulative effect of overlapping departures near junction approaches, the limited justification provided, and the absence of meaningful mitigation measures, it is unlikely that all required departures would be approved.</p>
<p><i>Road Safety Concerns</i></p>		

<p>3.4.6 The high-level safety review has identified several potential road safety issues associated with the proposed layout described in the CPPF report i.e. a central inbound bus lane and removal of existing right turning facilities. These concerns include:</p> <ul style="list-style-type: none"> • Non-standard layout could potentially lead to driver confusion. • Potential conflicts between buses and right turning vehicles where the proposed “filter pockets” create areas with no clear priority for right turning traffic or buses. • Vehicles turning right from the mainline which choose to wait in the general traffic lanes would impede the progress of general traffic and this could lead to frustrated drivers using the central bus lane to overtake. • Buses heading eastbound in a central bus lane would meet head on with any Westbound vehicles turning right from the mainline that are waiting in a “Filter Pocket” located within the Bus Lane. This could result in a head on collision, or the progress of the inbound bus would be impeded and would also limit visibility of traffic in the nearside general traffic lane for the driver completing the right turn manoeuvre. • Eastbound vehicles turning right from the mainline which choose to wait in the general traffic lanes, resulting in buses approaching from the rear being positioned in their blind spot. • Drivers exiting side roads or private accesses may block the path of active travel users while waiting for an appropriate gap to turn right. • Drivers focused on identifying a gap in the traffic to complete a right turn may pull out in front of or potentially collide with active travel users. • Potential abuse of the bus lane for overtaking or early commencement of right turn manoeuvres by 	<p><i>A central bus lane is no longer part of the scheme.</i></p>	<p>Noted</p>
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<p>frustrated motorists.</p> <ul style="list-style-type: none"> • Lack of separation between the central bus lane and opposing traffic lane as recommended in the TSM may result in conflicts and potential head on collisions between buses and opposing traffic that intentionally or mistakenly enters the bus lane. • Potential use of central bus lane by cyclists unless prohibited placing them in a vulnerable position in a high-speed road environment. 		
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3.4.8 One of the key safety concerns that has been identified in relation to the CPPF proposals is the potential for conflicts between right turning vehicles, buses and active travel users. It is considered highly likely that this would be identified as a potential road safety issue through the RSA process and that recommendations would be made to eliminate or mitigate this issue.	<i>This risk would be mitigated by reducing the speed limit and narrowing lanes to encourage compliance. It would also mitigate the existing risk for right-turning vehicles at all the junctions that do not have protected right-turn lanes, most notably at the American Cemetery where buses (including the schedule city tour bus, which calls up to every 20 minutes) and coaches turn right into the entrance off Madingley Road.</i>	There is no guarantee that the proposed speed limit changes can be secured (see Section 3.6 of the main report – Further Assessment of CPPF Alternative Scheme). The current layout's lack of protected right-turns at several junctions presents a road safety risk. Moreover, the absence of such features at some existing accesses does not justify their removal where they currently exist.
3.4.9 Introducing a road layout which is non-standard and is unfamiliar to the public would come with an increased risk of road traffic collisions. The proposed filter pockets provide no clear indication of priority and would position right turning vehicles in a vulnerable position where they may be at risk of a collision with buses or other vehicles completing right turn movements.	<i>A central bus lane is no longer part of the scheme.</i>	Noted
3.4.11 The roundabout at the western end of Madingley Road would afford drivers an opportunity to make U-turns. However, there are no similar opportunities to the east of the existing accesses and junctions along Madingley Road. As such, the option to prohibit right turns does not appear to be viable as it is likely to result in round trips of over 2km which would not be considered acceptable.	<i>We are not proposing to ban right turns.</i>	Noted
3.4.12 The existing speed limits along Madingley Road are appropriate considering the existing characteristics of the road, they also align with CCC's current Speed Limit Policy ⁸ . An increase in the overall carriageway width along Madingley Road is likely to result in increased speeds as the level of constraint imposed by the cross section would be significantly reduced. As such, any reductions proposed to the	<i>The proposed reduction in the speed limit from just west of the Crome Lea Business Park entrance is paired with a reduction in lane widths to encourage compliance.</i>	There is no guarantee that the proposed speed limit changes can be secured (see Section 3.6 of the main report – Further Assessment of CPPF Alternative Scheme). Given the route context, reducing lane widths alone is unlikely to ensure compliance with a 40 mph speed limit.

existing speed limits are unlikely to be approved by the Highway Authority or supported by the local constabulary.		
Potential Engineering Difficulties - Drainage		
3.7.1 The existing drainage infrastructure along Madingley Road is unlikely to have sufficient spare capacity to accommodate the additional runoff generated by the increased impermeable areas created by the CPPF proposed scheme.	<i>The CPPF scheme is indicative and further work would need to be carried out at detailed design stage to determine the need for additional drainage works. However, additional online storage could be provided in the form of oversized pipes fitted with hydro-brakes to ensure the existing discharge rates are retained.</i>	Lack of a feasible drainage strategy which would be acceptable to the Highway Authority and the Lead Local Flood Authority represents a real risk to the viability of the CPPF scheme (see section 3.7 of the main report - Further Assessment of CPPF Alternative Scheme).
3.7.2 The CPPF report makes no mention of a drainage strategy, so it appears that this aspect of the design and the potential land requirements and associated environmental impacts have not been considered.	<i>See above and the PoE of SJ and DW</i>	See above.
3.7.3 It is highly likely that additional land will be required to deliver the drainage infrastructure required for the scheme including the provision of attenuation basins, ponds and ditches etc. to mitigate any increase in flood risk.	<i>See above and the PoE of SJ and DW</i>	See above.
3.7.5 Minimising the number of drainage inlets reduces the time taken to maintain them which brings both health and safety and cost saving benefits. If hard strips were to be omitted from the proposed cross section, this would only result in a width reduction of 1m as the buffer/verge width between the active travel facility would need to be increased by 1m to maintain suitable separation from the running lane.	<i>See above and the PoE of SJ and DW</i>	Narrow traffic lanes without hard strips are likely to cause surface water to flow into the running lanes, especially in areas with full superelevation. This increases the risk of aquaplaning. Where separation between the running lanes and shared use paths or footways has been omitted, road spray from passing vehicles will more frequently affect

		pedestrians and cyclists. Reducing gully spacing to mitigate this would be impractical.
3.7.6 There are sections of open drainage ditches located to the back of the existing shared use path on the south side of Madingley Road. It appears that it would be necessary to culvert sections of these existing ditches to re-provide the existing or improved walking and cycling facilities. Culverting the ditches would result in loss of flood storage capacity which may lead to an increased risk of surface water flooding especially when combined with the significant increase in impermeable area. Alternatively, the ditches could be re- provided but this would require additional land to be acquired.	<i>See above and the PoE of SJ</i>	Previous comment stands.
3.7.7 The Topographic Survey has picked up a section of an existing ditch that would be impacted by any widening to the north in the vicinity of Madingley Wood. If this ditch is lost this will result in loss of flood storage capacity. Re-providing the ditch would require additional land and increase the potential impacts on Madingley Wood.	<i>See above and the PoE of SJ and DW</i>	Previous comment stands.
3.7.9 The indicative cross sections presented in the CPPF proposals do not make any provision for these types of features which play an important part in the SuDS treatment train and help to manage flows and improve the quality of highway surface water runoff.	<i>See above and the PoE of SJ and DW</i>	Previous comment stands
<i>Potential Engineering Difficulties – Underground and Overhead Utilities</i>		

3.7.10 It is assumed that no enquiries have been completed to provide an indication of the scale and costs of the potential diversionary works required to enable the proposed online scheme to be implemented.	<i>This is noted but the cost savings accrued by not building the CtoC scheme would outstrip those needed to divert existing SU's many times over.</i>	Previous comment stands
3.7.11 The proposed changes to the corridor cross section may physically impact or affect access to existing utilities for inspection and maintenance purposes, this may necessitate significant and costly diversionary works.	<i>This is again noted but the cost savings accrued by not building the CtoC scheme would outstrip those needed to divert existing SU's many times over.</i>	Previous comment stands
Potential Engineering Difficulties – Pavement Condition		
3.7.13 It is assumed that no assessment of existing pavement surface or structural condition have been completed to confirm the level of intervention required to provide an acceptable residual life.	<i>It has been assumed that all of the existing pavement would be reconstructed in order to achieve the new levels and cross-falls so this is a non-point. All areas will be provided with the required residual life.</i>	Previous comment stands. If extensive reconstruction is required to ensure long-term durability, it would entail substantial costs and prolonged traffic disruption.
3.7.14 Notwithstanding the potential road safety and other issues associated with providing a narrow lane in a high-speed road environment, intervention measures may be required to ensure that the channelised traffic flows resulting from the proposed narrow traffic lanes proposed by CPPF would not lead to excessive rutting.	See SJ PoE	Previous comment stands
Buildability		
3.8.1 A single lane busway provides very little working space, and either needs an adjacent lane closure, or for the nearside option the verge widened, and trees removed to provide an off-road access.	<i>Off-road access is not required to maintain a nearside bus lane, as indeed exists already in many parts of Cambridge.</i>	Previous comment stands
3.8.4 The construction would need to be carried out after traffic management for utility diversions and works to lay new surface water sewers, this is potentially four to six months of lane closures with traffic lights.	See SJ PoE	Previous comment stands
Environmental Appraisal		

<p>3.10.1 The location of the Madingley Wood SSSI makes the route inherently sensitive to potential disturbance impacts to its wildlife communities; with the highly protected barbastelle bats in particular potentially vulnerable to impact. It is assumed that the CPPF scheme could be retained within the existing northern kerbline and that direct landtake to the wood could be avoided. Notwithstanding this, Natural England expressed concerns with regard to the use of an online option along Madingley Road in correspondence to the GCP in January 2018</p>	<p><i>This comment displays a lack of understanding of the degree of stand-off between the existing kerbline and the SSSI alongside Madingley Wood. Beyond that, the scheme has in any event been designed to avoid direct or indirect impact on Madingley Wood SSSI. This has involved slightly re-aligning the carriageway within the highway boundary to accommodate the bus lane and shared foot/cycle way without impact on trees and woodland contiguous with the SSSI. Consequently, the scheme in this section does not extend northward beyond the line of the existing northern carriageway kerb through most of this section and where it does only very minor trimming back of vegetation (and no tree loss) is required to accommodate build and sight lines. The insertion of the busway and active travel path actually increases the buffer between existing road traffic and the SSSI/woodland.</i></p>	<p>The previous comment remains valid. The additional cross sections in Appendix D demonstrate that impacts are more pronounced where the carriageway is superelevated, requiring extra space to accommodate the scheme.</p>
<p>3.10.2 The route's passage past the Grade I Registered Park and Garden of the American Cemetery would have potential impacts on the setting of this highly protected heritage designation, as it would also for the Grade II* listed memorial and attached walls, steps and pool surround. It is assumed that direct landtake within the curtilage of these two designated heritage assets could be avoided, although this is not certain, and were it required, it is assumed that Historic England would, based on the advice they provided to the GCP in February</p>	<p><i>See comments above</i></p> <p><i>Note: HE's letter to GCP Feb 2018 raises equal concerns about the off-road route.</i></p>	<p>Previous comment stands</p>

2018 [Appendix D] with respect to options along Madingley Road, also have concerns.		
3.10.4 To avoid impacts to the cemetery and SSSI, the more southerly alignment would also require the loss of mature trees and hedgerows to the south, east and west of the SSSI that are likely to be important habitat features for commuting and foraging barbastelle and other bat species as they exit the woodland, restricting their ability to move through the landscape. The loss of tall canopy at this location could also reduce the height that bats cross the existing carriageway if they use the canopy to cross at height over the road, which is currently being investigated. This could increase the risk of collision with road traffic. Widening the carriageway at this location could also affect the behaviour of bats crossing the carriageway, increasing the number of traffic lanes and overall width that they need to traverse. This could also increase the risk of collisions with road traffic	<i>The southerly adjustments to avoid impact on Madingley Wood SSSI and related vegetation may occasion the loss of a very small number of (c.5) mature ash trees along the highway boundary hedgerow west and east of the Woodfield Lodge entrance (some of which show signs of Chalara infection), but the low and box trimmed hedgerow on the highway boundary east of Woodfield Lodge and the other trees along this section should be able to be retained. There will be no substantive effect on high canopy or crossing points for bats. Even where there is no current canopy level connection or occluded gap over the highway, the carriageway widening will be de minimis, adding no more than a tiny fraction of a second to the time it would take a commuting bat to cross.</i>	The previous comment remains valid. Relocating the shared use path to the north side would significantly affect the American Cemetery, which is unlikely to be acceptable. As a result, additional widening to the south—beyond what is currently shown in the CPPF drawings—would be required.
3.10.6 In relation to Phase 1 only, the assessment has calculated that the CPPF Alternative would produce 3,890 tonnes of carbon dioxide equivalent (tCO ₂ e). This is compared with 14,910 tCO ₂ e for Phase 1 of the proposed CtoC Scheme, representing a total of 26% of the Scheme	See Proof of Dr Louise Hirst	Previous comment stands

3.10.7 Once construction of the full CtoC Scheme is considered from Cambourne to Cambridge, the infrastructure greenhouse gas emissions from the CPPF Alternative (incorporating the Phase 2 works and the P&R) is estimated to be 18,110 tCO ₂ e compared with the CtoC Scheme (Phase 1, Phase 2 and the P&R) which is estimated to be 29,130 tCO ₂ e [see Appendix C of this Note]. When compared to the CtoC Scheme, the potential infrastructure greenhouse gas emissions saving from an equivalent end to end route incorporating the CPPF Alternative is estimated to be 38%.	See <i>Proof of Dr Louise Hirst</i>	Previous comment stands
Chapter 4 – Assessment of April 2025 CPPF Scheme		
<i>Proposed lane widths</i>		
4.3.6 The ATE tool does not include an option in the Street Function drop down box which fits the context of Madingley Road. As such, the traffic lane widths and absolute minimum cross-sections indicated by the tool do not draw upon the relevant standards i.e. DMRB Standard CD 127 Cross-sections and headroom's [CD9-09] . This results in the tool suggesting inappropriate (substandard) traffic lane widths because the tool is not applicable in this context.	See <i>main PoE</i> .	Previous comment stands
4.3.7 The ATE Tool also fails to make any provision for level differences introduced at the interfaces with the existing ground levels due to cross falls on the carriageway, verges and active travel path, making the overall desirable and absolute minimum cross-sections generated by the Tool misleading, as a much wider corridor would be required to make them practically feasible.	See <i>SJ PoE</i> .	Previous comment stands

<p>4.3.8 Providing narrow lanes and omitting hard strips from any proposed improvements to Madingley Road is likely to result in:</p> <ul style="list-style-type: none"> • Increased accident risk • Reduction in capacity • Reduction in journey time reliability • Reduced network resilience 	<p><i>These assertions are disputed</i></p>	<p>The DMRB reflects the collective expertise of the Overseeing Organisations, their agents, supply chain partners, and industry bodies. It sets out requirements and guidance based on research, practical experience in constructing and operating motorways and trunk roads, and compliance with legislation. The specified use of 3.65m traffic lanes and 1m hard strips is grounded in this experience, and departing from these standards is likely to compromise all associated design and safety criteria.</p>
<p>4.3.9 Narrow lanes and no hard strips will reduce the carriageway width, limiting safe traffic management for planned and emergency maintenance on the highway or utilities.</p>	<p><i>The comment ignores the existence of a new adjacent bus lane. Compared with now, this would increase the available carriageway width for managing roadworks and traffic incidents.</i></p>	<p>While this is acknowledged, using the bus lane for planned works would compromise the reliability of bus services. In the event of unplanned incidents—such as a vehicle breakdown in the westbound lane—the bus lane would not offer a viable mitigation without the presence of relevant authorities to implement emergency traffic management measures, potentially causing significant disruption to the Strategic Road Network (SRN).</p>
<p>4.3.10 Narrow lanes would make it more difficult for traffic to safely pass a broken-down vehicle potentially leading to lengthy delays.</p>	<p><i>See previous comment.</i></p>	<p>See previous comment.</p>
<p>Relocating active travel path to the north side of Madingley Road and widening the carriageway to the south</p>		
<p>4.4.4 Several of the mature trees along the south side of Madingley Road have canopies that extend near or over the southern edge of the carriageway. This suggests that the construction of any carriageway widening to the south would impact the root protection areas of the existing trees. The use of no-dig construction methods</p>	<p><i>See DW PoE</i></p>	<p>Previous comment stands</p>

in this area would not be viable given the need to tie into the existing carriageway levels.		
4.4.5 Widening the carriageway to the south would also move the live traffic lanes much closer to the existing large diameter trees. Any of the larger trees that were not impacted by the carriageway widening and that were still deemed to be viable, would be considered a potential hazard and would need to be included in a Road Restraint Risk Assessment Process (RRRAP).	See SJ PoE	Previous comment stands
4.4.7 Given the proximity of the trees to the edge of the carriageway in the revised layout it is unlikely there would be sufficient space to provide a vehicle restraint system, leaving removal of the trees the only viable option	<i>A VRS is not required in the locations where trees are in close proximity due to either levels or the proposed 40mph Speed Limit.</i>	There is no guarantee that the proposed speed limit changes can be secured (see Section 3.6 of the main report – Further Assessment of CPPF Alternative Scheme). Collisions involving trees consistently result in severe outcomes across all routes. The proposed reduction in lane widths, combined with the omission of hard strips and substandard verge widths, increases the likelihood of errant vehicles striking existing trees.
<i>Potential departures for substandard active travel facilities</i>		
4.5.4 The 3.25m wide lanes proposed by CPPF sit within the range of lane widths not recommended in LTN 1/20 [CD8.23, page 74, paragraph 7.2.5] as they could result in unsafe overtaking of cyclists	<i>The provision of an adjacent shared-use path, which will be lightly trafficked, means that no-one need cycle in the bus lane.</i>	The CPPF's proposed scheme significantly compromises the quality of active travel provision, creating a high risk that cyclists may opt to use the bus lane instead.
<i>Offside bus lane and filter pockets</i>		
4.6.1 The updated CPPF report lacks specific plans or detailed explanations on the proposed filter pockets for a central bus lane.	<i>These plans are now provided.</i>	Previous comment stands. Latest plans do not accurately represent the spatial requirements of the proposed scheme. Key elements such as verges and the

		interface between proposed and existing ground levels are omitted.
4.6.3 What CPPF is proposing appears to be very different to a conventional ghost island arrangement. The CPPF report implies that the filter pockets they propose are effectively areas within the live central bus lane which could be used by right turning traffic to wait for a gap in the opposing general traffic lane to complete a right turn manoeuvre. No explanation is provided as to who would have priority within the filter pockets or how this unconventional arrangement could be regulated effectively to ensure safe operation.	<i>A central bus lane is no longer part of the scheme.</i>	Noted
4.6.4. The filter pocket arrangement proposed by CPPF has the potential to place right-turning vehicles in direct conflict with other right- turn movements and high-speed buses, which could lead to collisions or hinder the progress of inbound buses.	<i>A central bus lane is no longer part of the scheme.</i>	Noted
4.6.5 The CPPF report asserts that it is only the Crome Lea Business Park access that is provided with a ghost island and fails to acknowledge the existing ghost island at Madingley Rise. The original CPPF proposals for a central (offside) bus lane suggested that this Ghost Island and the associated hatching in the centre of the carriageway could be utilised to deliver a central bus lane.	<i>See response above.</i>	The CPPF plans continue to overlook the potential impacts of removing the ghost island junctions serving Madingley Rise and Crome-lea Business Park, which could have significant operational and safety implications.

3.4 REBUTTAL: Charles Alan Short

3.4.1 From Charles Short's Proof of Evidence [CD26-08-W1], using his paragraph numbering.

3.4.2 Particular points raised

- (a) Referring to 7.1.4. the vehicle turning and a layby area, this is for the sole use of the Rugby Club for their annual fundraising event. It is not intended for any other purpose.
- (b) Referring to 7.2.21 and 7.2.37 (and 10.4), a low retaining structure will be installed where there is insufficient space to create a 1 in 4 slope. This will be included in the detailed design.
- (c) Referring to 7.2.42, and the access for the delivery and removal of a skip at the Clare Hall maintenance yard at the proposed busway junction of Rifle Range Road with Grange Road. This was reviewed in the RSA, see Appendix B. As the junction is to be signalised, this will better control the vehicle access, noting that in the existing situation exit from the yard is uncontrolled.
- (d) Referring to 6.16 and 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
- (e) The alternative of using Adams Road rather than the Rifle Range Road has been considered during the Scheme development
- (f) Adam's Road is one of Cambridge's busiest cycle routes, with demand continuing to grow due to ongoing development in the area, including the University's West Cambridge site. Clare Hall's claim that the road can safely accommodate CtoC buses is therefore not supported.
- (g) Clare Hall have plans for proposed new student accommodation and auditorium development along the Rifle Range Road. Construction access will be allowed in line with any planning consent. Note that construction is likely to earthworks and drainage and involve piled foundations, with a steel or concrete framework to the superstructures and be in close proximity to the existing Clare Hall buildings.
- (h) Access will continue to be available for maintenance of Clare Hall property along the Rifle Range Road. This will use the maintenance track, and vehicles using the track as a wone way system, so there is no need for them to turn.

3.5 REBUTTAL: Kamran Haider

3.5.1 From Kamran Haider's Proof of Evidence [CD26-08-W2-1], I respond to his following points from paragraph 2.22 of his document:

- (a) The reasoning for selecting RRR rather than Adams Road has not been supported by a technical review
- (b) There are significant and unresolved highway safety issues relating to the RRR scheme that may not be resolvable under the scope of the Order

- (c) The RRR scheme will affect the operation of Clare Hall
- (d) The RRR scheme will preclude further essential development at Clare Hall

3.5.2 Response to the particular points raised

- (a) The alternative of using Adams Road rather than the Rifle Range Road has been considered during the Scheme development
- (b) Adam's Road is one of Cambridge's busiest cycle routes, with demand continuing to grow due to ongoing development in the area, including the University's West Cambridge site. Clare Hall's claim that the road can safely accommodate CtoC buses is therefore not supported.
- (c) Camcycle (Cambridge Cycling Campaign) previously published a briefing paper (see Appendix 2) that clearly set out their opposition to routing CtoC down Adam's Road. The paper provides further detail in relation to the significant risks of bus-cycle conflict on Adam's Road.
- (d) With reference to the proposals by Clare Hall to route CtoC down Adam's Road instead of the Rifle Range—shown in Kamran Haider's Appendices to Proof **[CD26-08-W2-2, Pages 43–48]**—raise significant concerns.
- (e) The layout involves removing all existing on-street parking. Currently, Adam's Road allows parking on both sides, reducing the carriageway to a single lane and preventing safe passage for opposing vehicles. While most properties have off-street parking, many have been converted into apartments, limiting available space. On-street parking is used by both residents and commuters accessing the city centre, and retaining some provision is essential for deliveries and servicing.
- (f) Clare Hall's proposal introduces 2m-wide advisory cycle lanes flanking a narrow central lane that cannot accommodate two-way traffic. This design forces buses and other vehicles into the cycle lanes, creating direct conflict with the thousands of cyclists who use Adam's Road daily—especially during peak hours when residential traffic is also high.
- (g) Environmental impacts are also a concern. The section from West Fields to the western end of Adam's Road would affect existing drainage ponds and surrounding habitats with potential high ecological value. The Clare Hall drawings show that the pond footprint would need to be reduced in this location to accommodate the busway, which would diminish flood storage capacity.
- (h) In contrast to Clare Hall's proposals for Adam's Road, the Comberton Greenway scheme (see Appendix 3) recognises the need for on-street parking and retains a substantial portion of existing provision. It also avoids impacts on drainage ponds and surrounding habitats.
- (i) Acknowledging Adam's Road as a vital cycling corridor, the Comberton Greenway scheme adopts the Dutch concept of a Bicycle Street, giving cyclists clear priority and enhancing safety and comfort. Additional environmental improvements proposed include rain gardens and significantly upgraded pedestrian facilities.
- (j) Adam's Road has been thoroughly assessed during the development of the CtoC scheme, and it is evident that bus priority cannot be delivered alongside safe, conflict-free cycling infrastructure. While the Rifle Range route presents some challenges, none are insurmountable. On balance, it offers clear advantages. Delivered in parallel with the Comberton Greenway, the Rifle Range route would provide safer, higher-quality infrastructure, result in more reliable journey times and minimise conflict between buses and vulnerable road users, especially cyclists.

- (k) Clare Hall have plans for proposed new student accommodation and auditorium development along the Rifle Range Road. Construction access will be allowed in line with any planning consent. Note that construction is likely to earthworks and drainage and involve piled foundations, with a steel or concrete framework to the superstructures and be in close proximity to the existing Clare Hall buildings.
- (l) Access will continue to be available for maintenance of Clare Hall property along the Rifle Range Road. This will use the maintenance track, and vehicles using the track as a wone way system, so there is no need for them to turn.
- (m) 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.
- (n) We have reviewed the RSA report, undertaken by the County RSA team, and the Pulsar comments, and there are no significant issues with the RSA report. Audit team qualifications / memberships have been identified, however as they are County auditors, the risk of rejection is very low. The audit is structured in line with the layout set out in GG119 and the problems / recommendations are appropriate for the design stage.

4. STATEMENT OF TRUTH

- 4.1.1 The rebuttal which I have prepared and provided is true and is given in accordance with the guidance of my professional institutions. I confirm that the opinions expressed are my true and professional opinions.