Major Road Network (MRN) and Large Local Majors (LLM) Schemes

Pre- Strategic Outline Business Case (SOBC) Submission

If an SOBC has not yet been prepared, the following form should be submitted

(a) This completed pro-forma

(b) Minimum business case requirements as outlined in the MRN and LLM Guidance document (also see the Department's Transport Business Case Guidance) and any annexes/supporting documentation as necessary

For schemes seeking to start construction starting in 2023/24 and 2024/25 a SOBC is desirable, but not required at this stage. If an SOBC has not been prepared for submission this pro-forma must be provided alongside the MRN Regional Evidence Base and scheme priorities. This will inform any decision as to whether the scheme should be progressed.

Proposed MRN and LLM schemes should only be road schemes as both programmes are now funded from the National Roads Fund. MRN schemes should be situated on the MRN, while LLM schemes should be for local roads which could include but are not limited to roads on the MRN. The Department's contribution will normally be between £20 million and £50 million for MRN schemes and above £50 million for LLM schemes.

Major Road Network and Large Local Majors Schemes: Pre-SOBC Information Submission

Pro-forma

Scheme Name		Ely to Cambridge A10 Improvement (Dualling)
STB Region / Regional Group		England's Economic Heartland
Promoting Authority		Cambridgeshire and Peterborough Combined Authority (CPCA)
Scheme location	Road name/number and section:	A10, between A142 (Witchford Road) and A14
	latitude and longitude:	Between 52.3862ºN, 0.2477ºE and 52.2376ºN, 0.1509ºE
Contact Please provide a contact name from the promoting authority for enquiries relating to this bid	Name:	Rowland Potter [redacted]
	Email:	Rowland.potter@cambridgeshirepeterborough-ca.gov.uk [redacted]
	Phone:	01480 277180
Consultancy Input Please provide the name of any consultancy companies/lead consultants involved in the preparation of the OBC and Modelling	OBC consultancy/consultant:	TBC following procurement.
	Modelling consultancy/consultant *(if different from above)*:	Atkins, with Mott MacDonald post-modelling analysis and interpretation

1. Introduction
Description *Please provide a clear narrative to describe the scheme (max 100 words)* The A10 between Ely and Cambridge is a key part of the Primary Route Network in Greater Cambridge, providing the main link between the two cities and to the Strategic Road Network via the A14 Milton Interchange. The route's two-lane single-carriageway configuration experiences significant peak-period congestion and presents a notable constraint to the delivery of the 17,000 new homes and 14,000 new jobs planned for this corridor over the next 15 years. Even with substantial investment in non-car modes, analysis shows that significant queueing and delays will remain. The proposed scheme therefore involves upgrading the route to dual two-lane standard.
2. Development of scheme so far

Which description best matches the current stage of scheme development? Please tick only one box

We have identified the problem (e.g. the stretch of road or junction) and have a wide range of potential options but have not yet started to identify specific solutions	
We have done some high level work to sift out some options and have a shortlist of high level options which can be described and drawn on a map. Alignments may not be precise.	✓
We have sifted down to a small number of options (e.g. 2 to 4) with precise alignments but have not yet settled on a preferred option.	
We have settled on a preferred option or alignment – possibly with some minor design elements left to decide (e.g. junction types)	

Have you produced any of the following documents (as defined in WebTAG)?

Option Appraisal Report (OAR)	N
Appraisal Specification Report (ASR)	N

Please provide any other information to describe what option development work has been done to date and reference with hyperlinks or attachments. In particular, illustrate why alternative/lower cost/phased options have been ruled out.

The Ely to Cambridge Transport Study (ECTS) conducted for Cambridgeshire County Council (CCC), working with the CPCA and the GCP, and issued in January 2018 (see here) took a policy-compliant incremental approach to examining the case for capacity-upgrade solutions for the A10 corridor by considering the following future 'Do Something' (DS) options:

- DS1 'Mode-shift' option – this option includes enhancements to the corridor's sustainable modes only
- DS2 'Junction Enhancements' option – this includes the DS1 improvements plus upgrades to junctions along the A10 route
- DS3 'Northern Dualling' option – this includes the DS1 improvements along the route and the DS2 improvements between the proposed Waterbeach new town and the A14 to the south, plus dualling of the remaining north section of the A10 route
- DS4 'Southern Dualling' option – this includes the DS1 improvements along the route and the DS2 improvements between the proposed Waterbeach new town and Ely bypass to the north, plus dualling of the remaining south section of the A10 route
- DS5 'Full Dualling' option – this includes the DS1 improvements plus dualling of the A10 along the full route

Each of these DS options was tested through a full demand-model run of the Cambridge Sub-Regional Model (CSRM) and assuming full corridor development growth by the Local Plan horizon year of 2031 (the 'with development' case). Corridor transport performance was then compared to the corresponding Do

Minimum (DM) 'without development' case, which represents the hypothetical case where only committed transport schemes and corridor developments take place.

All options return high value-for-money indicative BCRs, but only the three dualling options show transport performance improvements against the 'without development' DM when measured across key metrics.

This bid is seeking funding specifically for the A10 Dualling works (DS5); the DS1 'Mode-Shift' option is being taken forward through alternative projects in the corridor. The DS2 (Junction Enhancements) package, is the subject of an MRN bid for funding. Early implementation of the Junction Enhancements package allows for short term benefits and the unlocking of early development within the corridor.

Work has been undertaken by consultants in order to assess the interlinkages between the Junctions Enhancement package and the A10 Dualling package, and has reached two key conclusions:

1. That both the Junctions Enhancement package and the A10 Dualling package are required in the area. Significant work has been done to challenge whether improvements to transport can be delivered without dualling the A10; however the modelling has been clear that Dualling is the intervention which drives most benefit for the local area.
2. That if both the junctions and the dualling projects are implemented, the projects are complementary in nature. Whilst detailed designs are not currently available for each individual junction and therefore further development is required, the project team proposes to take programme approach to the A10 Junction Improvements and A10 Dualling projects. This approach will ensure that the work undertaken in the A10 Junctions project will facilitate and enhance the A10 Dualling scheme, whilst also unlocking earlier development in the corridor.

Given the early stage of the A10 Dualling project, it is not currently possible to confirm the alignment of the A10 Dualling project, as Options Appraisal will be completed during the Strategic Outline Business Case. As a best estimate, it is likely that certain elements of the A10 Dualling project will follow an online route, whilst other elements will likely be taken offline due to the location of nearby settlements and the likely need for significant CPO if the dualling route remains online. Where the route is likely to be offline, the junctions interventions are still needed in order to unlock early development of the corridor.

As such the A10 Junctions project works as a standalone scheme that enables the first phase of improvements to the A10 Dualling. However the modelling has been clear that A10 Dualling needs to be delivered as the long term solution for the area that supports an additional 17,000 homes and 14,000 jobs in the A10 Corridor area.

3. Strategic Case – Problems and Objectives

Please describe the problems the scheme is looking to solve and how the scheme can support MRN and LLM objectives (listed below) and key national strategic priorities (e.g. access to international gateways and HS2 connections) in no more than 250 words.

- *Ease congestion and provide upgrades on important national, regional or local routes*
- *Unlock economic and job creation opportunities, and support rebalancing*
- *Enable the delivery of new housing developments*
- *Support all road users*
- *Support the Strategic Road Network*

The capacity of the A10 between Ely and Cambridge is already insufficient to support its current Primary Route Network function and so presents a major constraint on local authority plans to deliver up to 17,000 new homes and 14,000 new jobs along the corridor over the next 15 years.

Currently, more than 18,000 vehicles use the corridor daily, with peak-period traffic congestion and network reliability issues resulting in trips taking over 45 minutes to travel the 16 miles length of the route, which is over twice the free-flow journey time. Analysis also shows that nearly 80% of trips along the route have either an origin or destination outside the corridor area, meaning that the potential market for mode-shift to local non-car alternatives is insufficient to address the significant levels of congestion.

Increased highway capacity along the length of the A10 corridor is therefore essential for:

- Easing existing and future congestion levels on a key national and local route, with the full dualling scheme predicted to improve corridor journey times by about 40% compared to the no-scheme equivalent
- Unlocking up to 14,000 new jobs at Cambridge Science Park and neighbouring innovation centres, which together form one of Europe's longest-serving and largest centres for commercial research and development
- Releasing new sustainable housing opportunities, including the 11,000 dwelling new town north of Waterbeach
- Reducing congestion for public transport services and providing new segregated routes for non-motorised users
- Supporting and maintaining sub-regional access to the Strategic Road Network at the A14 via Milton Interchange

Please describe/explain the impact of not taking forward this scheme (max 200 words)

If the scheme is not taken forward, the proposed development growth aspirations for the corridor will either not be fully realised and/or congestion on the A10 will significantly increase. Traffic modelling of the future 'with development' scenario without the proposed scheme predicted about a 40% increase in journey times along the whole corridor during both peak periods. Clearly this level of congestion would severely limit the ability of the corridor to perform both its local and strategic functions and would inhibit the economic and housing growth of the area.

Increased congestion on the A10 also has other undesirable effects. Current congestion already results in undesirable traffic levels on inappropriate parallel

rural routes such as the B1049 through Cottenham and the B1047 through Waterbeach, and this problem will only deteriorate without intervention on the A10. Similarly, accident statistics reveal that casualties involving pedestrians and cyclists on the A10 are concentrated around populated areas, so increased traffic levels would exacerbate this situation. Increased congestion also generates further bus service reliability and air quality impacts for local communities.

4. Economic Case - Value for Money

Please summarise your current understanding of the likely costs and benefits of the scheme. Please include your estimate of the indicative Benefit Cost Ratio if one is available.

At a minimum this should cover non-monetised costs and benefits. If available also include monetised costs and benefits.

Please reference any supporting documents where relevant and any reports on this to date (please provide hyperlinks or attachments).

If options have been identified please detail the indicative costs and benefits of each, if available. In doing so, please make clear the age and source of the underlying data and any assumptions.

DS3 'Northern Dualling' option (highway element only)	
Indicative Benefit to Cost Ratio (if available)	3.6
Indicative value for money category	High
DS4 'Southern Dualling' option (highway element only)	
Indicative Benefit to Cost Ratio (if available)	3.9
Indicative value for money category	High
DS5 'Full Dualling' option (highway element only)	
Indicative Benefit to Cost Ratio (if available)	3.0
Indicative value for money category	High

Please outline the assumptions and uncertainties behind these benefit estimations.

The above BCRs are based on WebTAG criteria, but with a simplified approach used for some elements to reflect the early development of the interventions. The key assumptions of the economic assessment were:

- A 60-year appraisal period with an opening year of 2031
- Appraisal based on model forecast years of 2031 and 2041 (with only a 2031 model available so assumed that benefits generated by each scheme remain fixed from 2031 to 2041).
- Three modelled hours including:
  - AM peak hour (08:00 – 09:00)
  - PM peak hour (17:00 – 18:00)
  - Average inter-peak hour (10:00 – 16:00)
- Each hour was assumed to be representative of the wider period, and these results were annualised by factors based on 253 working days in a year.

- The ‘highway-only’ BCRs have been derived by removing the benefits and costs of supporting non-car mode measures from the BCR calculation

Furthermore, the following assumptions were used with particular consideration for scheme cost inputs:

- Optimism bias taken as 66%, taken from WebTAG A1.2, Table 8
- All costs have been assumed to be construction costs with no operation and maintenance costs included, and a general uplift factor applied for land costs, which will require detailed review should the component schemes be taken forward
- A 4-year build period of 2028 to 2031 inclusive, with costs spread 25% across each year
- All costs calculated used a 2017 price base and were converted to a 2010 price base for TUBA calculations, with all TUBA output given in a 2010 price base

It should be noted that the 2031 opening year used for the early-stage modelling was selected to provide a common basis for assessing the comparative performance of different packages and to align with readily available model input data. This, plus other detailed parameters, will need to be revisited as part of the detailed SOBC, including reflecting the proposed opening year of the highway scheme of 2024.

Please outline any existing transport models available that are likely to be used for appraisal.

The Cambridge Sub-Regional Model (CSRM2) has been used in appraisals undertaken to date. In order to facilitate more detailed assessment of the A10 options, a cordoned version of CSRM2 has been created using 2018 data. This model has been validated to junction turning movements at the key junctions in the study area.

5. Financial Case

5.1 Indicative capital cost of scheme
Please provide your best estimate of the capital cost of the scheme (excluding the costs of producing an OBC).

We recognise that the scope and cost of the scheme may be approximate at this stage, but if possible, please

- *provide the cost of each option if more than one. And please express as a range if necessary.*
- *use outturn prices but ensure that the current prices and inflation uplift can be separately identified.*
- *include and separately identify the preparation costs (between OBC and start of construction)*
- *include a reasonable estimate of risk/contingency but do not add an additional optimism bias uplift (reference webtag guidance if unclear)*

The following format would be helpful.

	Preparation costs (between OBC and construction)	*Land purchase*	*Construction costs*	*TOTAL*
Base cost				
Risk				
Inflation				
TOTAL				

DS3 'Northern Dualling' option (highway element only)

	Preparation costs (between OBC and construction)	Land purchase	Construction costs	TOTAL
Base cost	17.2	7.0	105.4	129.6
Risk			28.9	28.9
Inflation	2.2	1.3	34.0	37.4
TOTAL	19.4	8.3	168.3	195.9

DS4 'Southern Dualling' option (highway element only)

	Preparation costs (between OBC and construction)	Land purchase	Construction costs	TOTAL
Base cost	10.1	4.1	62.0	76.2
Risk			17.0	17.0
Inflation	1.3	0.7	20.0	22.0
TOTAL	11.4	4.9	98.9	115.2

DS5 'Full Dualling' option (highway element only)

	Preparation costs (between OBC and construction)	Land purchase	Construction costs	TOTAL
Base cost	23.2	9.4	142.2	174.8
Risk			38.9	38.9
Inflation	3.0	1.7	45.8	50.5
TOTAL	26.2	11.1	226.9	264.2

In order to calculate the financial element of the schemes, non-highway elements of the scheme have been removed, and this bid does not incorporate those elements. If incorporated back in, the calculated BCRs still provide a high value for money (2.8 rather than 3.0 for the Full Dualling scheme).

5.2 Affordability (LLM schemes only)

Please provide a brief summary of why the scheme would be unaffordable other than via this bid to the LLM fund. Proposed LLM schemes should be single schemes that can only be delivered or justified as a whole. The Department's contribution will normally be above £50 million for LLM schemes.

The Cambridgeshire and Peterborough Combined Authority has identified the A10 as one of its key priorities within its business plan and draft Local Transport Plan. The road itself is one of strategic importance, serving over 17,000 trips per day.

The Cambridgeshire and Peterborough Combined Authority, as part of its devolution deal, was created in order to provide a coherent response to local strategic transport challenges, such as this one. The CPCA's capital budget between now and 2024/25 is just over half a billion pounds – however this is the total funding for all interventions by the CPCA, including housing and LEP funding. As such, the size of the proposed project to dual the A10 between Milton Interchange and the A142 (Witchford Road) is of such significant scale that it is not possible to fund solely from local contributions.

The CPCA is aware of the requirement to provide a local match contribution of 15%, and will be developing the sources of the local match funding contribution through the Strategic Outline Business Case process, as it is subject to Board approval. Whilst there is

significant viability pressure on the strategic development sites within the A10 Ely – Cambridge corridor, the Cambridgeshire County Council, as the relevant transport planning authority, has secured s106 funding towards strategic transport interventions such as the A10 Dualling project.

Together with its partners, the CPCA has and will continue to explore additional local funding options in order to support central government funding.

6. Management Case

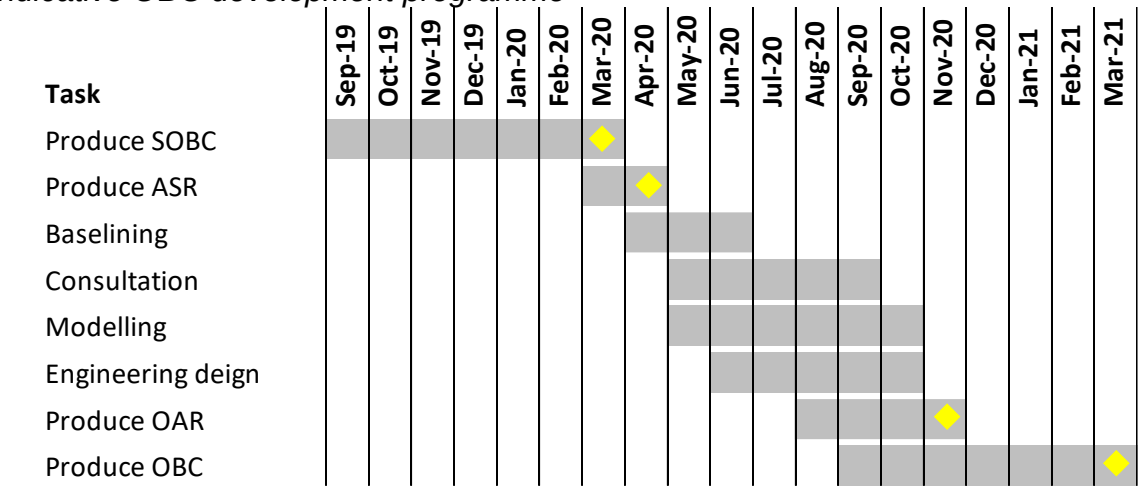
6.1 Outline Business Case delivery

Please provide a timeline for the production of an OBC.

A GANTT chart would be helpful but is not necessary. However please include the following milestones with dates

- *Production of SOBC, OAR and ASR (if not already produced)*
- *Production of LMVR*
- *Completion of base model (if necessary)*
- *Forecasting report*
- *Start and end of public consultation*
- *Adoption of preferred option*

Indicative OBC development programme



Please note that the base model and LMVR have already been produced. An initial forecasting report has also been produced, and will be revalidated at the SOBC and OBC stages, and would expect it would be available for discussion in detail with the funding partner.

6.2 Outline Business Case Governance

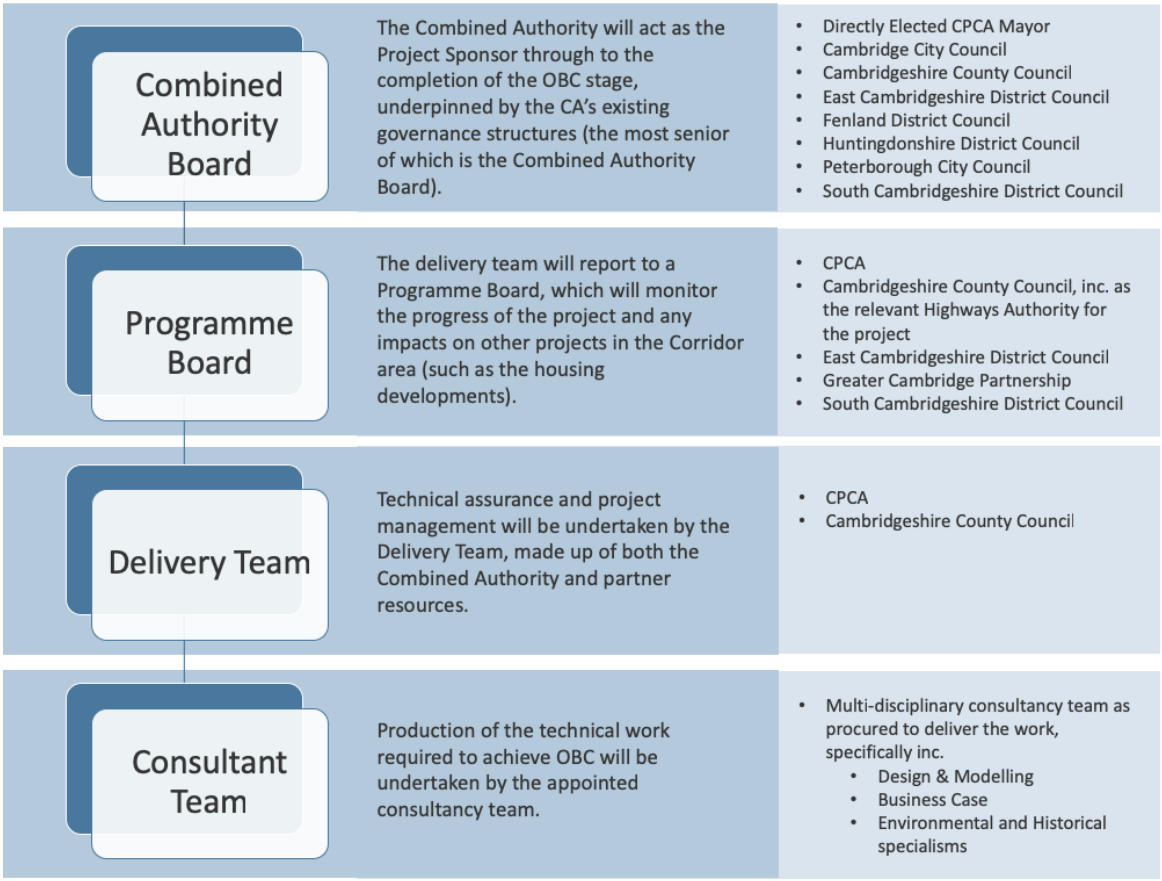
Please set out the basic governance arrangements for production of the OBC, roles, responsibilities, resources etc.

The Cambridgeshire and Peterborough Combined Authority is taking an approach to delivery which will see the strengths of the CPCA's position as a devolved authority leveraged in order to achieve a successful outcome for the project. The CPCA will

work with the relevant local Highways Authority and its partner Councils in order to deliver this cross-boundary scheme for the area and unlock significant housing potential in the Cambridgeshire and Peterborough region.

The proposed delivery governance will also enable the two proposed funding projects, the A10 Junctions Improvements (MRN) and the A10 Dualling (LLM), to interface appropriately, ensuring that work completed is neither abortive nor imposes unnecessary constraints on the other project.

An outline of the governance to OBC stage has been proposed below.



6.3 Scheme Delivery
Please state the estimated delivery milestones as below, assuming Programme Entry is granted at least 3 months after submission of the OBC. Please amend/add to milestones as necessary.

Submission of Strategic Outline Business Case (SOBC)	Mar 2020 (assuming start in Sep 2019)
Submission of Outline Business Case (OBC) *(for subsequent milestones assume at least 3 months from OBC to programme entry decision)*	Mar 2021 (funding decision Jun 2021)
Submission of planning application	Jul 2021 (subject to consent pathway decision at SOBC stage)
Determination of planning decision	Nov 2021 (subject to consent pathway decision at SOBC stage)
Publication of scheme orders/CPOs (see section	Jan 2022 (subject to consent

7 below)	pathway decision at SOBC stage)
Completion of Public Inquiry (if not applicable, see section 7)	Sep 2022 (subject to consent pathway decision at SOBC stage)
Confirmation of all statutory orders and consents	March 2023 (subject to consent pathway decision at SOBC stage)
Completion of procurement	July 2023 (subject to consent pathway decision at SOBC stage)
Full Business Case submitted to DfT	Dec 2023
Start of Construction *(assume 3 months from FBC to funding commitment)*	Jun 2024
Scheme open to public	Jun 2026
Note: If planning consent, scheme orders, CPOs or a public inquiry are not required please insert 'n/a' and provide an explanation in Section 7 below	

6.4 Outline the approach taken to assess if the proposal is deliverable.

If possible, provide evidence of similar projects that have been successful, to support the recommended project approach. If no similar projects are available for comparison, outline the basis of assumptions for delivery of this project e.g. comparison with industry averages for this kind of work.

The Cambridgeshire and Peterborough Combined Authority is a relatively young organisation, and as such is seeking a partnership approach to delivery of the A10 Improvements (Dualling) scheme. The CPCA intends to leverage the significant experience of partners such as Cambridgeshire County Council and the Greater Cambridge Partnership in order to deliver the scheme.

The Cambridge North Station is a large-scale infrastructure scheme that has been led by Cambridgeshire County Council in order to achieve delivery. The station development was led by CCC in the initial stages in order to demonstrate the case for the scheme, which was then adopted for delivery by Network Rail. This experience, alongside other major infrastructure schemes, has informed best practice for the delivery of schemes.

The CPCA has reviewed the best practice recommendations for the delivery and has identified several key approaches in order to ensure the deliverability of the scheme, specifically:

- Early environmental and historical surveys, given the nature of the geographical area around Cambridge;
- Early identification of land issues and ownership;
- A proactive approach to the identification and acquisition of land should it become available (subject to the compliance with other CPCA strategies related to growth and investment).

7. Orders and consents	
Do you envisage that CPOs will be necessary? *If not please explain here or insert appropriate reference to relevant SOBC paragraph.*	Y
Are other statutory/highways orders required that would normally	Y

require a Public Inquiry (e.g. Side Roads Orders, Transport and Works Act Order). Please specify. It is anticipated that a scheme of this size would require a Public Inquiry, unless a Development Consent Order pathway is undertaken. The specific consents route for the project has yet to be formally agreed and will be decided during the completion of the Strategic Outline Business Case, in consultation with the Department for Transport, the proposed programme board, and other key stakeholders.	
What other statutory orders/consents are required? (e.g. heritage, environmental consents) It is anticipated that both environment and heritage consents are likely to be required for this scheme.	
If CPO and other orders are required does your timetable assume that there will be a public enquiry? *If not please explain here or insert appropriate reference to SOBC document*	Y

8. Stakeholder Support

Please provide evidence of support for this scheme prior to the development of this bid, referencing activity from businesses, campaign groups, MPs etc.

It would be helpful to include any relevant links to news stories, campaign websites etc.

There is significant support for the dualling of the A10 between the Milton Interchange at Cambridge and the A142 (Witchford Road)/A10 roundabout at Ely. This stretch of primary road has been identified as a core priority for politicians and stakeholders and will unlock additional housing throughout the corridor. Evidence of engagement is broken into specific themes below.

News Stories

- BBC News – Cambridge A10 £500m upgrade plans suggested. *8th January 2018*
- Cambridge Independent - £510m project to dual A10 from Cambridge to Ely Backed 13th January 2018
- ITV News – Plans to dual the A10 between Ely and Cambridge could take another step forward. 27th March 2019
- Ely Standard – One more step along the road we go. 22nd March 2019
- Cambs Times – A10 and A47 upgrades top of the agenda as Mayor Palmer meets transport minister John Hayes. 28th December 2017
- Travel Plan Plus – Dualling of the A10 Between Ely and Cambridge. 26th January 2018
- CambridgeshireLive – 'Danger road' A10 to be dualled in half-a-billion pound

scheme. *8th January 2018*

Partner Press Releases

- Cambridgeshire County Council – Report backs A10 dualling between Ely and Cambridge. 8th January 2018
- Cambridgeshire and Peterborough Combined Authority – A10 dualling to pick up pace with Combined Authority investment, 22nd February 2018
- South Cambridgeshire District Council – Leading Councillors welcome Combined Authority A10 Pledge. 28th March 2019.

Letters of Support

Letters of Support have been collated for the A10 Dualling project at the web link below. There are over 20 letters of support that have been provided for the programme, including MPs, local authorities, local businesses and developers.

https://cambridgeshirepeterborough-ca.gov.uk/about-us/programmes/transport/a10

Policy Documents

The A10 Dualling project is a key project for the Cambridgeshire and Peterborough Combined Authority, and is referenced in a number of key policy documents, including:

- The Cambridgeshire and Peterborough Independent Economic Review (CPIER)
- The Cambridgeshire and Peterborough Combined Authority's Spatial Framework (Non-Statutory)
- The Cambridgeshire and Peterborough Business Plan for 2019 – 2020.
- The Cambridgeshire and Peterborough Combined Authority's Growth Ambition.

Petition

- Lucy Frazer, MP for South East Cambridgeshire – Petition to Dual the A10

Due to the stage of the project, statutory consultation with residents and stakeholders has not yet occurred, however will be completed as part of the Strategic Outline Business Case work.

Does this scheme have implications for Highway England or Network Rail infrastructure? If so, what discussions have taken place with either of these organisations to facilitate this scheme?

This scheme has no implications for Network Rail but does for Highways England, who have been an integral part of the Project Team that oversaw the earlier ECTS study work and will remain closely involved given the inter-relationship between this scheme and the A14 via the Milton Interchange.

9. Further Evidence

Please list any further information and evidence you have provided in annexes/supporting documentation.

As noted above, full scheme development details to date can be found here:

- Ely to Cambridge Transport Study – Preliminary Strategic Outline Business Case and supporting documents (January 2018) https://www.greatercambridge.org.uk/transport/transport-projects/ely-to-cambridge-a10-transport-study/
- Ely to Cambridge Transport Study – Strategic Outline Case (November 2018)
- Ely to Cambridge Transport Study – A10 Junction Assessment Report (October 2018)

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Please note that the size limit for attachments to a single incoming email to DfT is 20MB. If your submission is larger than this please submit separate emails, use a zip folder, or convert large files to an alternative format.
We would prefer it if annexes are separated out into individual pdf documents.