1 Cambridge Autonomous Metro (CAM) – Next Steps

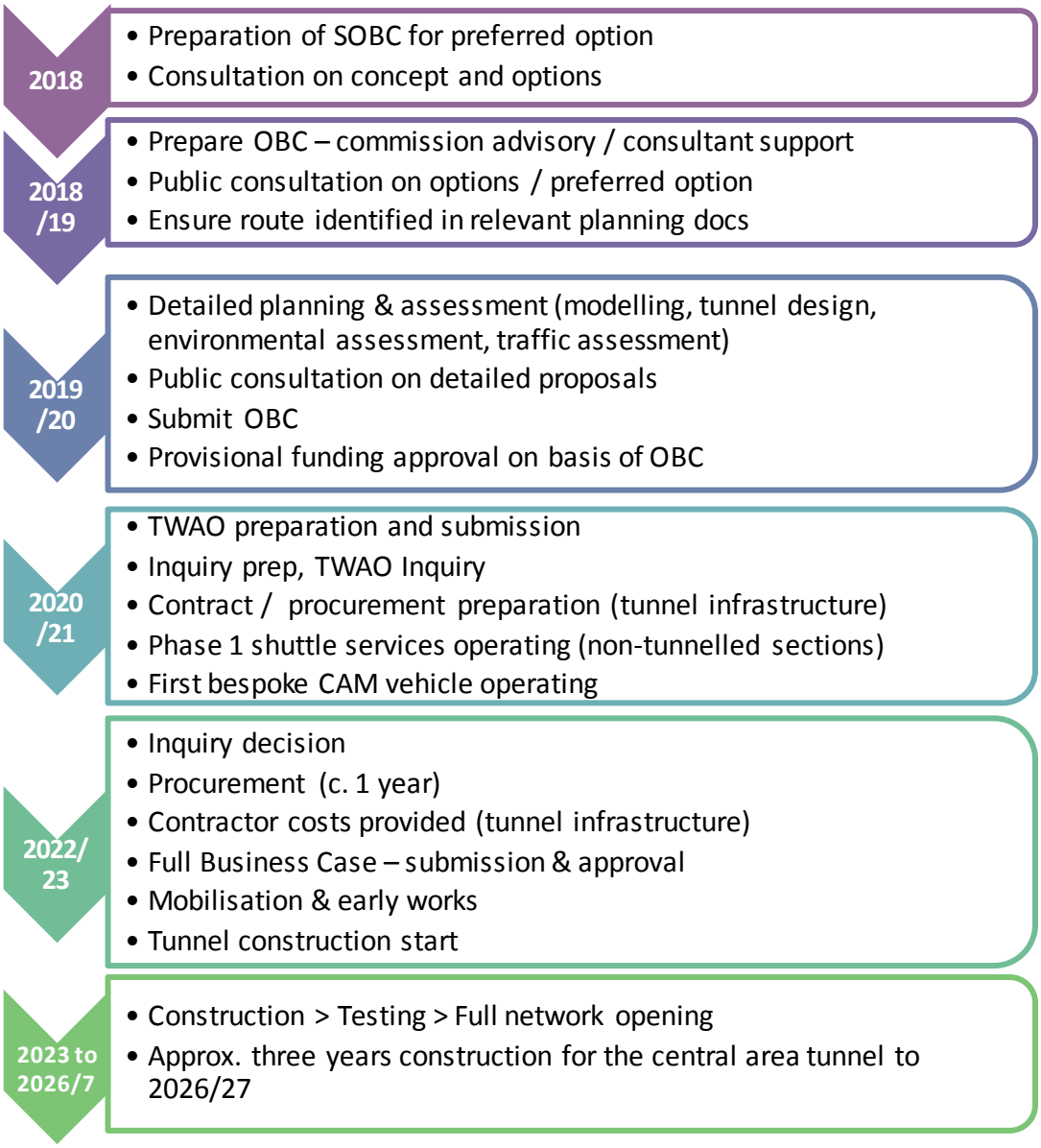
Key Project Stages and Indicative Programme

1.1 The key stages of project development of the CAM concept to the start of construction are:

- Preparation of a Strategic Outline Business Case. The purpose of the SOBC is to identify the need for intervention, to develop options to meet locally developed objectives and outcomes and to sift to identify better performing options. The current work developing the CAM concept provides much of strategic rationale for intervention, but further detailed work to develop and apprise the concept, and public consultation on the concept and options, is required for SOBC. The SOBC needs to be accompanied by an Options Assessment Report (OAR). **We believe an SOBC can be developed within a c. 6-month timescale.**
- Preparation of an Outline Business Case (OBC). This sets out the business case for the preferred option, based on the Treasury 5-Case model. The OBC includes a detailed assessment of costs, benefits and impacts, and detailed how the scheme would be funded, procured and delivered. The OBC provides the basis for conditional funding approval and includes much of the analysis to support a Planning / TWAO Inquiry. The OBC required substantive technical work, statutory and public consultation and detailed discussions with DfT. **A realistic timescale for OBC is for completion by the end of 2019/ early 2020** (subject to further scoping needed in relation to DfT compliant transport models and extent of environmental surveys).
- Post OBC activities
    - TWAO / Planning Inquiry preparation, submission and inquiry – 2020 / 2021
    - Procurement. This is likely to take a full 12 months from the Inquiry decision, unless procurement is undertaken at client risk in parallel to consents.
- Full Business Case. The full business case is prepared after procurement has been undertaken, and scheme costs and funding are confirmed. Construction can commence after powers are secured. There would typically need a mobilisation phase of land acquisition, entry and preparation (for CGB we needed archaeological, species relocation and flood works for example then mobilisation works and then construction. Early works and mobilisation might be separate or part of main works contract depending on procurement strategy. **An indicative construction start would be 2023**.

1.2 The overall timescale is shown in the table below. The overall duration is a year longer that those set out in our draft report / presentations.

Figure 1.1 Indicative Programme



Suggested Next Step – Scheme Development and SOBC

1.3 The current stage of work has established the ned for investment, identified options and the opportunity for a CAM concept, and built stakeholder and political support for the proposal. The scheme is, however, an outline concept with much detailed work to be undertaken to understand in more detail alignments, stations and likely operating scope so that the project development costs, likely impacts of the scheme, capital cost estimates and options, operating and maintenance costs and funding requirements can be understood with more certainty.

1.4 To support the development of the OBC, and to provide through to Inquiry a multi-disciplinary team and expert advisors will be required. However, we suggest that the most appropriate next stage of work would be to commission the work required to support the SOBC, and as part of this work expedite key activities that would be required for the OBC in parallel given:

- the current scope of the project for more detailed engineering, environmental and assessment work is still broad and reasonably vague for going to market for advisors;
- the larger procurement exercise of obtaining these advisors is likely to take some months and would provide a delay in the programme at a time when it will be important to demonstrate progress with key stakeholders;
- a tighter project definition at the end of SOBC should reduce the expenditure risk on project development costs for the multi-disciplinary team (for example identification of a short-list of sites and designs for a city centre station).

1.5 Steer Davies Gleave could continue to support the development and specification of the workstreams and advice that could then form the basis of an OBC procurement exercise in the latter part of 2018. By this point, the nature and scope of advice required would become clearer and a Steer Davies Gleave led team could mobilise straight away and ensure that momentum is maintained and that no time is lost within the overall project timescale.

1.6 Within the timeframe of the SOBC, an SDG-led team would draw on specialist advice in key areas such as property, technology, legal, heritage etc. This advice could be provided either by consultants on CCC's existing frameworks, or through our network of specialist consultant with whom we have established relationships. SDG would ensure the advice was focused on the material issues required to support the SOBC, i.e. focused and specific.

SOBC Workstreams and Tasks

1.7 The table below outlines the workstreams and high-level tasks that would be undertaken within the SOBC study.

Figure 1.2 SOBC Workstreams and Tasks

Workstream	SOBC Tasks	Outputs	Lead / support
Project coordination	• Coordination of workstreams incl. technical & comms	• Regular progress reporting to officers and Members (if required)	• SDG could provide specialist project coordinator.
Engineering Design & Costing	• Develop route alignment options • Tunnel options • Develop city centre stop options • Costing	• Route options for consultation and assessment • Preferred options for OBC – incl. low cost alternative (no tunnel)	• SDG to provide engineering workstream lead. • Support from either CCC framework contractor or SDG contractor.
Modelling	• Model review • Specification of modelling programme, runs & scenarios	• Forecasts to support financial and economic assessment, and to refine / optimise scheme	• SDG modelling lead – specify runs and outputs. • Atkins to run models under CCC framework contract.
Environment & Planning / Heritage	• Environmental / constraints mapping • Planning designations / proposals/ aspirations • Environmental assessment of options	• Inform option development (e.g. alignment and stations) • Support assessment of options for SOBC • Specification of surveys to support OBC / Inquiry	• SDG oversight / coordination • Led by consultant from either CCC framework contractor or SDG contractor.
Business Case & Appraisal	• Preparation of SOBC and Options Assessment Report • Lead strategic & economic case • Coordination / authorship of financial, commercial & management case •	• Options appraisal to inform shortlisting and preferred scheme • SOBC & OAR	• SDG lead
Land & Property	• Identify land ownership of potentially affected buildings • Identify potential land costs / development opportunities	• Inform option identification, development and assessment	• SDG oversight / coordination • Specialist land / property consultants to lead (from either CCC framework contractor or SDG contractor.)

Workstream	SOBC Tasks	Outputs	Lead / support
Vehicles and Technology	• Develop vehicle concept • Consider infrastructure required to support autonomy	• Outline vehicle specification and cost • Infrastructure requirement and costs to support autonomous operations	• SDG oversight / coordination • Opportunity for this workstream to be let by, for example, Cambridge University / Smart Cambridge in conjunction with Oxford and Milton Keynes.
Operations	• Assess operational scenarios and costs	• Service patterns • Vehicle fleet requirement & cost • Operating costs • Informing infrastructure requirements	• SDG lead
Funding, finance, procurement	• Identify full range of national and local funding sources • Stakeholder liaison on local funding options e.g. intelligent charging, land value capture • Assess financial performance (ongoing revenue and cost) of options • Identify procurement options	• Inform financial and commercial case sections of SOBC	• SDG lead
Legal	• Identify route to securing powers	• Inform SOBC management case • Inform OBC work programme	• SDG oversight / coordination • Led by consultant from either CCC framework contractor or SDG contractor.
Stakeholder consultation, public consultation & comms	• Ongoing stakeholder consultation • Public consultation on concept and options	• Consultation to inform option development and assessment	• Client or SDG lead

SOBC Outputs

1.8 The key outputs from the SOBC will be:

- A Strategic Outline Business Case. This makes the case for the scheme, and to justify progression to OBC.
- An Options Assessment Report. This provides the audit trail showing how options were developed to meet objectives, option assessment and the identification of preferred options for OBC. We anticipate the options for OBC will be a CAM preferred scheme

including a tunnelled city centre section, and a low-cost alternative which would be at-grade. Public consultation findings will inform the OAR.

- An Appraisal Specification Report (ASR). This sets out the approach to the OBC business case appraisal. The intention is that this would be agreed with DfT.
- An OBC work programme, which defines the workstreams, tasks and timescales for the development of an OBC. This will inform the development of a procurement exercise to secure the OBC project team.

Indicative Costs

1.9 Our indicative estimate is that the overall budget for a 6-month programme to prepare an SOBC and associated deliverables would be £350,000 to £500,000. This includes the costs for the technical workstreams above but excludes costs for public consultation.