

Work Package Scope

Cost Planning Service Provider Framework

P124 – LTC Schedule Assurance

1 Introduction & Background

The Commercial Services Division (CSD), within the Commercial and Procurement Directorate support the delivery directorates to achieve good business outcomes by developing cost, time and supplier intelligence required for effective decision making.

The Cost Planning team provide cost plans to Major Projects (MP) and the Operations Directorate (OPs), to support investment decision making and associated scheme delivery.

The Cost Planning Framework provides CSD, the additional service capacity to deliver Cost Plans and other cost planning services.

This document describes the work package scope for the service required from the Cost Planning Service Provider Framework.

2 Scope

Purpose

Provide independent schedule & Quantified Schedule Risk assurance to Highways England following the LTC schedule update. This follows the findings and recommendations of the review completed by Turner and Townsend (T&T) in November 2019 and the interim review concluded in May 2020.

Output

The output from this work will be a brief report which confirms T&T's independent assurance of the quality and deliverability of the schedule range of Opening to traffic date of 4th October 2028(P50) to 1st May 2029(P90) with a OFT deterministic date of 24th November 2027.

This report should include a view of the level of detail included in the schedule for a project of this size at this stage of its lifecycle (development phase pre DCO or procurement) and an assessment of the level of duration uncertainty and risks included in the range. This should include a consideration of the challenges to delivery schedule baseline schedule with OFT of 4th October 2028(P50).

The final report will build on (but not repeat) the work undertaken to date – as per *italics* below:

General

- Progressive assurance through weekly updates provided by LTC and specific reviews of deliverables;
- Ongoing periodic reviews and schedule integrity and quality checks referring to:
 - Major Projects Directorate Planning and scheduling manual
 - Complex Infrastructure Programme Planning & Scheduling Appendices Handbook

- Complex Infrastructure Projects Key Milestone Definitions and Coding

In this context it would be useful for T&T to provide a view of the extent to which the Major Project and CIP manuals are fit for purpose for a project of this size at this stage of its lifecycle

Schedule

- **Quality** checks based on the latest HE Planning and Scheduling manual requirements. Including TRA, Negative Float, Calendars, Schedule Narrative, Critical Paths etc
 - Check for open ends ie. every activity should have at least 1 successor and 1 predecessor except the first and last activity, otherwise it is not a valid network.
 - Check for floats. If activities have huge floats (depending on project type), then it is not a good network.
 - Check for work flow sequence using experience of project life cycle and dependencies to verify whether the activities in a network are flowing smoothly and connecting to each other or activities are haphazardly connected to make a network.
 - Check for milestones and its types (e.g. must finish, finish not later than etc.).
 - Check the critical path of the network to ascertain if the activities on the path are really critical or they have been made critical by using false lags and leads.
 - Check the type of links on the critical path. Each type of link will give different result when updated.
 - Check the calendar of the programme in the context of the locality of use and make sure work hours, week days and holidays are included.
 - Check the activity durations are based on benchmarked productivity norms appropriate for the size and complexity of the project.
 - In construction normally, there are two types of activities, a) hard core activity and b) soft core activity. The main difference is that hard core activities have a fixed logic and must be done in a specific sequence, whereas soft core activities have a flexible logic (e.g. we can do the flooring first and then do the ceiling or vice versa).
- **Cost** assessment of resequencing, front loading of resources/plant/materials; Exclusion: As agreed with HE costs for the Development Stage to be loaded on high level summary activities.
- **Benchmarking** review of current programme benchmarking data and independent benchmarking of comparable projects

- **Opportunities** review for schedule impact, advice on possible additional opportunities
- **Scenario Modelling** will be included in the programme. Review suitability of implementation.
- **Detailed Integrated Planning** review for near term works including DCO, Main Works Procurement, Land etc

It is not intended that the current report revisits all of this work – but merely revalidates the position outlined in the May 2020 report as a consequence of recent changes that have been made

Risk

- **QSRA**
 - Check three point schedule produced by using deterministic schedule, duration uncertainty and risks are appropriate for the purpose producing a QSRA using montecarlo simulations.
 - Check number of risks included in the QSRA modelling is appropriate and consideration of all time related risks events in the modelling will not change the overall outcome
 - Check QSRA including the duration uncertainty only, Risk only and Opportunity only QSRA runs
 - Review Uncertainty position against other projects
 - Assess validity of improved Range Impact positions
 - Validate individual Contract Impact on cost of prolongation
- **QCRA**
 - Review targeted estimating on high risk areas
- **Assumptions & Exclusions**
 - Review approach and application in the models of new schedule of assumptions risks
- **Governance approved HILPs** Review approach, application and quantification assessment
- **Pre and Post mitigated position** in light of efficacy of mitigations, review approach and validity
- **Correlation** review of approach and application

The review should consider the adjustments made to the schedule in the light of the senior leadership review of uncertainty and risks. This includes a far stronger emphasis on the opportunities available which go some way to offsetting the risks and uncertainties identified. It also represents a more targeted consideration of the appropriate level of uncertainty for the different contract packages reflecting levels of experience and knowledge in Highways England to deliver against these packages (eg highways versus tunnels)

Deliverability:

The report should confirm whether the schedule is appropriate for a project of the size and complexity of LTC at this stage of its development phase and should consider:

- Has the schedule assumed appropriate methodologies?
- Are the durations of key activities in the base schedule at 'most likely' values? (e.g. free from bias and inherent contingency, optimism, pessimism)
- Is the sequence of key activities determined by sound and tested assumptions? (e.g. could some activities that are currently sequential be partially or wholly concurrent)
- Are there opportunities to complete key activities faster without increasing unit costs? (e.g. more work faces, plant density, less restrictive working hours)
- Is the level of risk allowance for the key activities in the preconstruction phase appropriate – i.e. enabling works, procurement, mobilisation
- Is sufficient time allowed for the project as a whole and individually for the 3 construction packages, to develop the design to the appropriate level of maturity
- Is there sufficient contingency in the period during which the project is moved to operations

Approach

- Engage with Commercial Services Division and their independent reviewers on the outcome of the assurance of the cost and schedule;
- Engage with Gardiner & Theobald on the independent cost review
- Engage with senior leaders to discuss understanding of risks, uncertainties etc
- Engage with project team as required

3 Timescale

The review will start on 13 July 2020 and the draft findings will be available by 28th July 2020. The final report to be provided by 5 August 2020.

4 Additional information

n/a

5 Contact Information

Role	Location	Phone
Project Sponsor: Redacted per Freedom of Information Act 2000, S40(2)	The Cube, Birmingham	Redacted per Freedom of Information Act 2000, S40(2)
Project Manager: Redacted per Freedom of Information Act 2000, S40(2)	The Cube, Birmingham	
Framework Manager: Redacted per Freedom of Information Act 2000, S40(2)	Lateral, Leeds	
Procurement Officer: Redacted per Freedom of Information Act 2000, S40(2)	Lateral, Leeds	