Strategic Estimating Model - Estimate Release Form

CP056 Version 1.4.0

Capital Expenditure

Scheme Details

Project Name	M6 - A1(M) - Pack II, Segment 2B, 3B: A629 Skipton to New Jcn with A658 (Airport)
Type of Estimate Requested	Strategic Estimate
Estimate Identification Number	1125
Type of Project	New Construction
Primary Classification of Scheme	Bypass
Date of This Estimate Release	31/03/2020
Scheme length	28.35 Km

Category	Scope of Works
New Link Roads	New Link with a D2AP cross section for 28.35km; No.of structures: 6 viaducts, 1 riverunderbridge, roadbridges, 1 railbridge, 17 other structures such as minor road structures, private access structures,accomodation bridges and underpasses; Length of Retaining Walls in Cut and Fill:1930m; Length of Tunnels: 3630m; No.of culverts:16; Demolition of commercial/residencial buildings:77 no. Cut volumes:1,185,516 m3 and Fill volumes: 2,595,328 m3.The earthworks quantities provided by the Project Team are including for topsoil but excluding of capping and the new pavement box.The capping thickness assumed within estimates is 0.3m (0% proportion of capping).Earthworks Strategy Most Likely Scenario includes for 80%Acceptable Material other than 5A,19%Un-Acceptable Material U1A and 1% Un-Acceptable Material U2.Percentage of Re-use the Acceptable Material:100%.Percentage Processed for re-use Un-Acceptable Material:80%.Minimum Scenario includes for 90% Acceptable Material other than 5A,9%Un-Acceptable Material U1A and 1% Un-Acceptable Material U2.Percentage of Re-use the Acceptable Material:100% Percentage Processed for re-use Un-Acceptable Material:100%.Maximum Scenario includes for 70% Acceptable Material other than 5A,29%Un-Acceptable Material U1A and 1% Un-Acceptable Material U2.Percentage of Re-use the Acceptable Material:100%.Percentage Processed for re-use Un-Acceptable Material:75%.
Widening	
New Junctions	2 no Diamond has been included within this scheme. 1 no Roundabout has been included within this scheme.
Junction Improvement	
Technology	

Base Cost Estimate & Risk (Q1 2016)

	Minimum	Most Likely Scheme (Mode) ML	Maximum
Base Estimate	£1,31 ,911,675.71	£2,73 ,355,3 7.57	£ ,915,112,691.30
Risk Adjustment	£65,7 5,583.79	£683,588,836.89	£1,867,7 2,822.69
Subtotal	**£1 380 657 259 49**	**£3 417 944 184 46**	**£6 782 855 514 00**

Inflation and Portfolio Risk

	Minimum	Most Likely Scheme (Mode) ML	Maximum
Inflation Adjustment	£753,823,719.00	£ ,586,796,819.00	£19,579, 22,078.00
Portfolio Risk Adjustment	£276,20 , 02.00	£780, 80,699.00	£1, 66,026,287.00
RET Adjustment Subtotal	£1,030,028,121.00	£5,367,277,518.00	£21,0 5, 8,365.00
Estimate Outturn	**£2 410 685 380 49**	**£8 785 221 702 46**	**£27 828 303 879 00**

Summary of Proposed Scope of Works

PACK I Scope of Works includes Segments 2B & 3B as follows:
Construction Duration;
Minimum: 79 months
Most Likely: 9 months
Maximum: 152 months

Bespoke Items included such as:
Ground Improvement considered for 700m in proximity of south of Skipton,south of Silsden and Reva Reservoir.
590 000m2 of Additional ecological and landscaping measures;
7.07ha Relocation of wood and;
3 Coal mining holes to be grouted,after Skipton (km 21000-km21500) and Keighley area.
Pumping Station and hydrobrakes included as advised by Project Team.
Archaeology and aftercare allowances have been added within the estimate.

Stage Dates

	Normal Start	Normal Finish
Pre PCF	05/06/2019	30/05/2020
Stage 1	01/11/2029	30/0 /2031
Stage 2	01/05/2031	30/0 /2032
Stage 3	01/05/2032	31/10/203
Stage 4	01/11/203	31/01/2036
Stage 5	01/02/2036	30/06/2037
Stage 6	01/07/2037	30/0 /20 5
O (Open to Traffic)		01/05/20 5

Comments

This range estimate has been produced using an estimating approach (Strategic Estimating Model) that is suitable for schemes before they enter the Project Control Framework (PCF Stage 0, prior to entry into the Major Projects portfolio). The maturity level of project definition is low, limited to an outline concept. Guidance from AACE recommends that for schemes of a similar stage of design and maturity an expected range of accuracy around the most likely value would be -30% to 50%. Whilst this estimate does not consider these generic percentage ranges, the guidance provides a level of assurance around the range.
Use of SEM to produce an estimate for this scheme has been agreed with the Project Manager in order to provide a high level order of magnitude range estimate of the scheme costs based on the SGARs provided by the Project Team. Highways England Cost Planning has reviewed the SEM model outputs against the proposed design and made top-down adjustments to better reflect the scope. However, due to the time constraints and level of detail , this approach does not consider the specific design, project and site characteristics that may be available. It is likely that mode (most likely) of the estimate could be subject to significant change once the scheme scope, design, schedule and risk basis are specifically considered.
The estimate assumes that all works shown on the supplied design drawings, will be delivered through a Highways England Major Projects to a delivery programme in accordance with the SGAR dates in this form 300. These SGAR dates have been used to budget time-related costs and inflation. The estimate assumes that the scheme will need to complete all of the PCF Stages including Stage 0 (Pre-Options), Options and Development.
- Estimated costs for the MM-HW Series 100 project overheads and method-related costs have been based on a percentage of estimated direct works costs, in line with schemes of a similar value and scope from cost intelligence data on historic Highways England schemes.
- The range applied to the direct works represents the expected variation of scope and delivery from the most likely position. It does not consider the construction and delivery of an alternative solution to that proposed by the project team.
- Historical costs are included with the estimate as spend to date 19/02/2020 and that has been provided by the Project Manager.
- Lands and Statutory Under takers costs are derived from top-down metrics within the SEM and District Valuer / Third-party lands cost estimates have not been considered.
Estimated lands and SU costs are therefore based on historical norms from historic Highways England schemes.
- Unscheduled Item Allowance, Project specific risks, Uncertainties and Portfolio Risk allowances are estimated based on a proportion of the base estimate. This is aligned to HM Treasury Green Book supplementary guidance.
Inflation allowance included in the estimate is based on the latest agreed inflation profile .
Where the proposed scheme includes works where the SEM approach is not considered suitable, other estimating methods have been used, including: i) specific quantity take-off and pricing of items using Cost Planning's rate libraries; ii) duplicating quantities and rates from previous estimates for similar works produced by Cost Planning.
The direct works costs are built-up using the following drawings and design assumptions provided by the project team:
- General arrangement plans for each corridor;
- Longitudinal profiles;
- Bulk cut and fill earthworks volumes;
-Schedule of structures (bridges), junctions, retaining walls, tunnels and culverts;
-Minimum,Most likely and Maximum Construction durations;
-Start and end of works dates.
Using the information available, the estimating team also identified and estimated the costs for any local access structures and demolition of any conflicted commercial/ residential buildings.This estimate assumes that there is asbestos within the commercial/residential buildings being demolished. Therefore a lowances for the disposal of hazardous materials are included within the cost estimate.
In assuring the cost estimates are suitable for use by the project team, the costs have been benchmarked against similar schemes in scope and complexity. When compared against the estimated costs for the Oxford to Cambridge study, the A66 Northern Trans Pennine Project and the Manchester North West Quadrant schemes the costs for this study converged well.
Additional Risk has been added at this stage due to the scheme complexity.

Approval

Cost Engineer	Signed [redacted]	Name [redacted]	Date: 18.03.2020
Confirmation that the estimate has been produced in accordance with the MP Cost Estimating Manual and other relevant guidance. **Estimating Manager**	Signed [redacted]	Name [redacted]	Date: 25/03/2020
Confirmation estimate reflects information provided and will be reported consistently **Project Manager**	Signed [redacted]	Name [redacted]	Date: 25/03/20
Confirmation for estimate release. **Head of Cost Planning**	Signed [redacted]	Name [redacted]	Date: 25/03/2020