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 Jon w th A658 (Airport)
Type of Estimate Requested	Strategic Estimate
Estimate Ident fica ion Number	1125
Type of Project	New Construction
Primary C assification 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 D2M cross sect on for 28.35km; No.of structures: 6 viaducts, 1 riverunderbridge, roadbridges, 1 railbr dge, 17 other structures such as minor road structures, private access structures,accomodation br dges and underpasses; Length of Retaining Wal s in Cut and F ll:1930m; Length of Tunnels: 3630m; No.of culverts:16; Demolition of commercial/residential bu ildings:77 no. Cut volumes: 1,303,388 m3 and Fi l volumes: 3,087,589 m3.The earthworks quantit es provided by the Project Team are including for topso l 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-Acceptab e Material U2.Percentage of Re-use the Acceptable Material:100%.Percentage Processed for re-use Un-Acceptable Mater al:80%.Minimum Scenar o includes for 90% Acceptab e Material other than 5A,9%Un-Acceptable Material U1A and 1% Un-Accep able Mater al 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-Acceptab e Material U2.Percentage of Re-use the Acceptable Material:100%.Percentage Processed for re-use Un-Acceptable Mater al:75%.
Widening	
New Junct ons	2 no Diamond has been included within th s scheme. 1 no Roundabout has been included within this scheme.
Junc ion Improvement	
Technology	

Base Cost Estimate & Risk (Q1 2016)

	Minimum	nterim Scheme (Mode) ML	Maximum
Base Estimate	£1, ,2 ,582.52	£2,989,186, 71.21	£5,30 ,773, 5.92
Risk Adjustment	£72,212,229.13	£7 7,296,617.80	£2,015,813,909. 5
Subtotal	**£1 516 456 811 65**	**£3 736 483 089 01**	**£7 320 587 355 37**

Inflation and Portfolio Risk

	Minimum	nterim Scheme (Mode) ML	Maximum
Inf ation Adjustment	£828,071,106.00	£5,01 ,6 1,767.00	£21,077,638,22 .00
Portfo io Risk Adjustment	£303, 28,595.00	£856,699,150.00	£1,606,310,939.00
RET Adjustment Subtotal	£1,131, 99,701.00	£5,871,3 0,917.00	£22,683,9 9,163.00
Estimate Out urn	**£2 647 956 512 65**	**£9 607 824 006 01**	**£30 004 536 518 37**

Summary of Proposed Scope of Works

PACK I Scope of Works includes Segments 2B & 3B as follows:
Construction Durat on;
Minimum: 79 months
Most Likely: 9 months
Maximum: 151 months

Bespoke Items and allowances included such as:
Ground Improvement considered for 700m in proximity of south of Skipton,south of S laden and Reva Reservoir.
590 000m2 of Additional eco ogical and landscaping measures;
7.07ha Relocation of woodland;
3 Coal mining holes to be grouted,after Skipton (km 21000-km21500) and Ke ghley area.
Pumping Station and hydrobrakes included as advised by Project Team.
Archaeology and aftercare al owances have been added w thin the estimate.

Stage Dates

Normal

	Start	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 raffic)		01/05/20 5

Comments

Th s range estimate has been produced using an estimating approach (Strategic Estimating Model) that is su table for schemes before they enter the Project Control Framework (PCF S age 0, prior to entry to the Major Projects portfolio). The maturity evel of project definition is ow, lim ted to an outline concept. Gu dance 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 es imate does not consider these generic percentage ranges, the gu dance provides a level of assurance around the range.
Use of SEM to produce an estimate for this scheme has been agreed w th the Project Manager in order to prov de a high evel order of magnitude range estimate of the scheme costs based on the SGARs provided by the Project Team. Highways England Cost Planning has rev ewed the SEM model outputs against the proposed design and made top-down adjustments to be ter reflect the scope. However, due to the time constraints and level of de ail , 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 spec fica ly considered.
The estimate assumes that all works shown on the supplied design drawings, w l be de ivered through a Highways England Major Projects to a de ivery programme in accordance with the SGAR dates in this form 300. These SGAR dates have been used to budget time-related costs and inf ation. The estimate assumes that the scheme w ll need to complete a l of the PCF S ages including Stage 0 (Pre-Op ions), Opt ons and Development.
- Estimated costs for the MMHW Ser es 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 h storic Highways Eng and schemes.
- The range app ied to the direct works represents the expected variation of scope and delivery from the most likely pos tion. It does not consider the construction and delivery of an a ternative solut on to that proposed by the project team.
- His orical costs are included with the estimate as spend to da e 19/02/2020 and it has been provided by the Project Manager.
- Lands and Statutory Under akers costs are derived from top-down metrics within the SEM and D strict Valuer / Third-party lands cost estimates have not been considered.
Estimated lands and SU costs are therefore based on his orical norms from h stor c Highways Eng and schemes.
- Unscheduled Item Al owance, Project spec fic risks, Uncertainties and Portfol o Risk allowances are estimated based on a proport on of the base estimate. Th s is al gned o HM Treasury Green Book supp ementary guidance.
Inf ation allowance included in the estimate is based on the latest agreed inflat on pro ile .
Where the proposed scheme includes works where the SEM approach is not considered suitable, other estimating methods have been used, including: i) spec fic quantity take-off and pricing of items using Cost P anning's rate ibraries; i) dupl cating quantities and rates from previous estimates for similar works produced by Cost Planning.
The direct works costs are bui t-up using the fol owing drawings and design assump ions prov ded by
the project team:
- General arrangement plans for each corridor;
- Longitudinal profiles;
- Bulk cut and f ll earthworks volumes;
-Schedu e of structures (bridges), junctions, retaining wa ls, tunne s and culverts;
-Minimum,Most likely and Maximum Construct on durations;
-Start and end of works dates.
Using the information avai able, the estimating team also identified and estimated the costs for any local access structures and demolit on of any conf icted commerc al/ residential bu ildings.This estimate assumes that there is asbestos w thin the commercial/residential bu ildings being demol shed. Therefore allowances for the disposal of hazardous materials are included w thin the cost estimate.
In assuring the cost estima es are su table for use by the project team, the costs have been benchmarked against simi ar 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 th s study converged well.
Add tional 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 Estimation Manual and any other relevant guidance. **Estimating Manager**	*Signed* [redacted]	*Name* [redacted]	*Date:* 25/03/2020
Confirmation estimate reflects informat on provided and wi l be reporte l consistently. **Project Manager**	*Signed* [redacted]	*Name*	25/03/2020
Confirmation for estimate release. **Head of Cost Planning**	*Signed* [redacted]	*Name* [redacted]	*Date:* 25/03/2020