

St Austell to A30 Link Road

Risk Management Plan

10 November 2019

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Issue & Revision Record						
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1 Introduction

1.1 Purpose of Document

1.1.1 This document is an update of the Risk Management Plan (RMP) for the A30 to St Austell Link project promoted by Cornwall Council (CC). It is one of a suite of documents which supports the Project Initiation Document as outlined in the figure below:

Figure 1.1 – PID and “Daughter” Documents



1.1.2 The Risk Management Plan details the current progression and update on responsibilities for risk management to deliver A30 St Austell Link Road. Implementation of a structured, forward looking and continuous risk and opportunity management process is intended to increase the certainty of cost-effective scheme delivery and operational success. This is supported by the choice of contract for this scheme which is the NEC3 Option C.

1.1.3 The Risk Management Plan forms an integral part of planning and implementing a cost effective approach; improving certainty in scope, cost and time in the delivery and operation of the scheme.

1.1.4 This Plan provides:

- the basis for identifying who currently holds risk following the procurement process;
- the management of risks going forward through the contract stage to achieve the project's cost, programme and performance objectives and meet with compliance requirements;
- risk information to support further costing and schedule estimates.

2 Roles and responsibilities

- 2.1.1 The risk management organisation for this scheme consists of four key parties: the Project Board, the Project Manager, the Contractor and the Risk Owner who will be either the Contractor or the Employer.
- 2.1.2 **The Project Board** has overall responsibility for ensuring sufficient resources are available to manage risks across the scheme. The Project Board shall be primarily concerned with managing strategic level risks relating to interfaces between the scheme and the wider project environment.
- 2.1.3 **The Project Manager** has overall responsibility for ensuring that the risk management process is implemented and managed in accordance with the contract.
- 2.1.4 The Project Manager shall ensure that risks are actively managed in a consistent and appropriate manner across all work streams. All risks shall be reported by the Project Manager to the Project Board.
- 2.1.5 The Project Manager shall:
- Follow the appropriate procedural framework for risk as required;
 - Review and manage project performance and report to the Board;
 - Facilitate risk workshops/meetings as appropriate and be supported by a risk co-ordinator if required;
 - Be the custodian of the risk register and the contained data.
- 2.1.6 **The Risk Owner** shall be responsible for the day to day management of the risk(s) that they own. The identification of the risk owner by the Project Manager will be on a "best person for the task" approach and, once appointed, the Risk Owner will monitor and update the risk register informing the Project Manager of changes.

3 Risk Management Process

3.1 Risk Review

3.1.1 The process of project risk review will follow a three-step cyclical process:

- Identify possible risks
- Assess identified risks
- Management / control of risk

3.1.2 This approach is in line with Highways England's Risk Management Manual, and the OGC Management of Risk guidance and will be undertaken as part of the risk reduction meetings required by the contract.

3.2 Risk Identification

3.2.1 Further potential issues that might occur on the project, known as project risks, will be identified. Risks may be identified by any member of the project team, at any time. However, formal risk reviews and workshops will also be arranged throughout the life of the project to ensure a structured approach is maintained.

3.2.2 Risk identification will be carried out in numerous ways such as:

- Workshops
- Reviews –risk reduction meetings
- Design Meetings
- Day to day operation

3.2.3 Identified risks are to be described under the following primary categorisations:

- Commercial – an influence on the commercial aspects of the scheme such as funding, contractual issues or procurement
- Construction – Potential issues that could occur during the construction phase that are different to Health and Safety issues which will be captured separately
- Design - something that may affect the progress, cost or delivery of design
- Project Governance - something that affects the management or organisation of the project
- Statutory / Planning - something that could affect the view taken by the local planning authority or statutory consultees in determining a planning application or something which generates significant opposition from members of the public

- 3.2.4 When a risk is identified, the data is recorded within the Risk Register as described in Section 3.5 below.

3.3 Issue Log- Early Warning Process/Risk Register

- 3.3.1 The Contract requires matters of concern to be formally issued by a party as an Early Warning Notice (EWN). These EWN's will be captured and managed via CEMAR which is a contract management online tool that is live and accessible to both parties. CEMAR provides up to date contract management and reporting and will run for the duration of the contract.
- 3.3.2 A Risk Register exists for the scheme and this will continue to be utilised to record both potential and actual concerns, problems and changes experienced or anticipated by the project. This will be shared by the whole team in the delivery stage including the contractor.
- 3.3.3 The Project Manager holds the Risk Register. Issues that are risks will be recorded as and when they arise and will be managed by the Project Delivery Team.
- 3.3.4 Project Risks can be identified by any member of the project team at any stage in the project. For effective implementation, however, managers of each discipline are requested to provide an overview of the issue in their monthly reporting to the Project Manager. These Project Issues are reported at the monthly Progress Meeting to the Project Delivery Team in the monthly Progress Report.

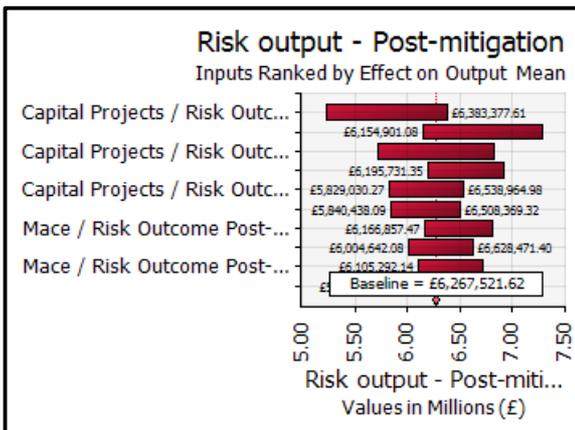
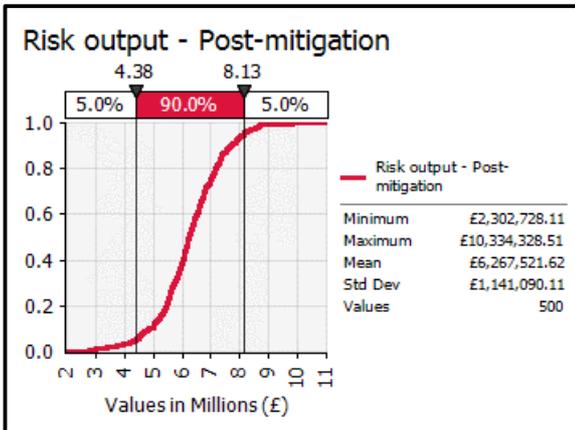
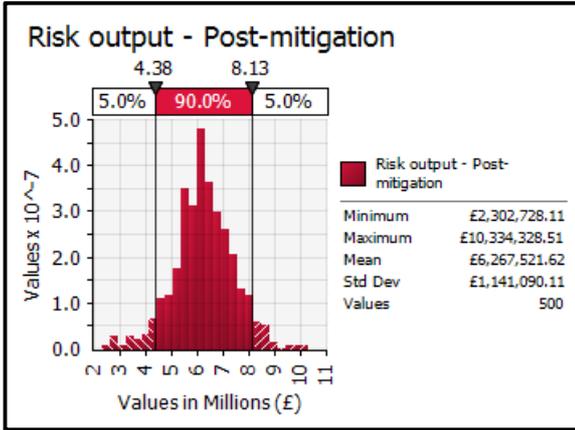
3.4 Risk Assessment

- 3.4.1 Identified risks are analysed and assessed both qualitatively and quantitatively.
- 3.4.2 Risks will be assessed qualitatively based on percentage on a case by case basis.
- 3.4.1 Quantitative risk assessment will be carried using a three point costing of risk. A minimum, most likely and maximum cost will be identified and recorded in the Project risk register. These figures are multiplied by the probability to return a predicted minimum, mostly likely and maximum cost.
- 3.4.2 The quantitative risk assessment figures facilitates risk modelling, which is carried out using a Monte Carlo risk analysis tool. This process determines the probability risk profile of the work(s) and associated cost.

@RISK Output Report for Risk output - Post-mitigation

Performed By: Vosper, Richard

Date: 29 November 2019 08:54:35



Simulation Summary Information	
Workbook Name	St Austell to A30 Link Risk Re...
Number of Simulations	1
Number of Iterations	500
Number of Inputs	330
Number of Outputs	2
Sampling Type	Latin Hypercube
Simulation Start Time	29/11/2019 08:54
Simulation Duration	00:00:04
Random # Generator	Mersenne Twister
Random Seed	400283622

Summary Statistics for Risk output - Post-mitigation			
Statistics		Percentile	
Minimum	£2,302,728	5%	£4,381,609
Maximum	£10,334,329	10%	£4,861,290
Mean	£6,267,522	15%	£5,227,744
Std Dev	£1,141,090	20%	£5,462,500
Variance	1.30209E+12	25%	£5,579,201
Skewness	-0.14469881	30%	£5,749,261
Kurtosis	3.830297983	35%	£5,909,487
Median	£6,232,781	40%	£6,043,110
Mode	£6,114,420	45%	£6,119,203
Left X	£4,381,609	50%	£6,232,781
Left P	5%	55%	£6,358,461
Right X	£8,127,278	60%	£6,502,212
Right P	95%	65%	£6,648,435
Diff X	£3,745,668	70%	£6,786,680
Diff P	90%	75%	£6,969,072
#Errors	0	80%	£7,110,204
Filter Min	Off	85%	£7,368,875
Filter Max	Off	90%	£7,727,462
#Filtered	0	95%	£8,127,278

Change in Output Statistic for Risk output - Post-mitigation			
Rank	Name	Lower	Upper
1	Capital Projects / Risk Outcome Post-mitigation	£5,224,818	£6,383,378
2	Mace / Risk Outcome Post-mitigation	£6,154,901	£7,281,106
3	Capital Projects / Risk Outcome Post-mitigation	£5,716,503	£6,822,116
4	Mace / Risk Outcome Post-mitigation	£6,195,731	£6,913,634
5	Capital Projects / Risk Outcome Post-mitigation	£5,829,030	£6,538,965
6	Mace / Risk Outcome Post-mitigation	£5,840,438	£6,508,369
7	Mace / Risk Outcome Post-mitigation	£6,166,857	£6,814,832
8	Design Team / Risk Outcome Post-mitigation	£6,004,642	£6,628,471
9	Mace / Risk Outcome Post-mitigation	£6,105,292	£6,719,553
10	Capital Projects / Risk Outcome Post-mitigation	£5,920,527	£6,530,543

- 'Impact' is the effect on the project objectives if this hazard were to occur. The scale for this is to be assessed quantitatively by the Project Manager. The impact is assessed with reasonable mitigation measures, within the control of the Project Manager, in place.
- 'Probability' is an estimate of the likelihood of the hazard occurring. The scale for probability is to range from 5% (unlikely) to 95% (almost certain). The probability is assessed with reasonable mitigation measures, within the control of the Project Manager, in place.

3.4.3 Probability and impact shall be determined by the qualitative risk assessment as described previously and the priority of the risk is assigned by the risk's probability as indicated in the risk register multiplied by the most likely impact value. Positioning of the risk as High, Medium or Low, should be based on the higher overall impact of cost, time and quality.

3.5 Risk Register

3.5.1 The risk register has been developed to enable recording of qualitative, quantitative and treatment detail of the risks. This register shall be the only location for storage of data regarding the scheme risks and opportunities and is owned by the Project Manager. The Project Manager has a duty to secure the integrity of the register and its contents. For the purposes of cost control, lands related risks shall be separated from those associated with the rest of the project. The outputs from any Construction Phase Risk Registers will form part of this main register

3.5.2 The risk registers serve to fully identify the risk, risk owner and mitigation measures. Additional key information associated with each risk is populated in the risk register including:

- Risk Type – Strategic or Project
- Risk Category - used to identify which discipline of the project the risk will effect
- Timing of Risk – used to identify at which project stage the risk is anticipated to occur

3.6 Opportunities

3.6.1 Opportunities shall be recorded in the same manner as risks, however these will be recorded as opportunities in the Risk description column within the register. Cost, programme and quality savings shall be recorded using the same qualitative and quantitative assessments as for risks.

3.7 Risk Review

- 3.7.1 Risk Review shall be undertaken to eliminate the risk or mitigate its impact. Strategies and actions will be identified that reduce the likelihood of occurrence or reduce the impact of an occurrence.
- 3.7.2 In parallel, contingency analysis can be undertaken to ensure that if the risk does materialise, a contingency plan that has been developed can be quickly put into effect.
- 3.7.3 When responding to risk, there are five basic options:
- Treat – mitigation action to reduce the likelihood of a risk or the effect of the risk.
 - Transfer – where the ownership of the risk is transferred to another party. This can sometimes achieved by an insurance policy.
 - Tolerate – if the likelihood of a risk occurring is very low and/or the consequence are small, it may be appropriate to ignore the risk.
 - Terminate – the project or activity – if the risks associated with a project or activity are beyond the risk appetite of the Project Board, or where the project is no longer viable due to potential risk costs.
 - Take the opportunity – it may be possible to exploit new opportunities resulting from mitigation or transfer of the risk.
- 3.7.4 The action in response to a risk will be recorded on the risk register. With the project risks identified during the risk review workshops and meetings, the Risk Manager will now work to identify the risk response and formally record this in the updated risk register.
- 3.7.5 Risk response strategies or actions should only be carried out if commercially viable i.e. the level of probability or impact reduces more than the strategy or actions cost if they are not carried out and the risk occurs.

4 Method of Risk Reviews

4.1 Frequency and Organisation

- 4.1.1 As described in Section 3, risk workshops, risk reduction meetings and dedicated risk review meetings are taking place. These dedicated sessions will be repeated through the project life cycle at regular intervals or as required or requested.
- 4.1.2 Informal reviews of the risk register shall be undertaken on a monthly basis when each work stream will be required to report on their activities for the month. Project Delivery Team managers will be requested to report any updates on the risks assigned to them through the compilation of the relevant information inputting to the monthly Progress Report.
- 4.1.3 High level risks are reported to the Project Board on a monthly basis. These risks are considered with any change to the mitigation measures or probability, and this is discussed and recorded. Key actions relating to project risk are minuted and disseminated to the project team as appropriate by the Risk Manager.

5 Reporting

5.1 Risk Reports

5.1.1 The Project Manager will report monthly via the Monthly Progress Report and associated Progress Meeting, where the Project Delivery Team is present. The Project Manager will present risk positions to the following groups as required:

- Chief Executives Steering Group
- Project Board
- Project Delivery Team

5.1.2 As detailed in section 4 the projects top risks will be reported to the Project Board for consideration through the Project Board meetings and accompanying Project Board papers.

6 Risk Management

The approach for determining an allowance for risk is Quantified Risk Analysis – using simulation techniques.

6.1 Risk Allowance

- 6.1.1 As the scheme has progressed, risks have been identified and where appropriate incorporated within the estimate. The residual element of these risks has then been quantified as a result of more detailed investigation and design. Quantified Cost Risk Analysis (QCRA) has been used to develop a Quantified Risk Register (QRR), included within Appendix F1 of the St Austell Link Road Full Business Case.
- 6.1.2 The procurement strategy was selected to be a single stage process. A review of contract terms was undertaken and the preferred risk balance captured in the issued tender documentation.
- 6.1.3 The Risk Register is a live document and is held by the Project Manager and will be updated as noted above. Due the “live” nature of the Document all of the risks will change as new relevant information becomes apparent.