



How reliable are your estimates?

The challenge: *Estimates are a forecast and inherently contain uncertainty, so:*

- ▶ How do I improve their accuracy?
- ▶ How do I make a realistic assessment of contingency?
- ▶ How can I reduce the possibility that I have missed something?
- ▶ What are the best areas to work on to improve the accuracy of my estimate?
- ▶ How can I manage contingency better as work is completed?

Assessing Inherent Contingency

The Process:

- ▶ Develop an estimate in your usual toolset, transfer this to Excel (if not already in Excel) and import to ContingencyEstimator.
- ▶ With your team (eg estimator, designer, project manager and client) hold an “inquisitorial” workshop. Review each line item and assess the range of values for quantity and rates (Best case and Worst case)
- ▶ The process identifies those items that are well founded (eg previous actual results) ranging through to those that are a guess. The team assess an appropriate “bandwidth” to accommodate this uncertainty.
- ▶ It is not unusual for this inquisitorial process to identify some items that may have been omitted so the scope is improved.

Input Screen

Item ID	Description	Unit	Q BC	Quantity ML	Q WC	R BC	Rate ML	R WC	Amount	Note
	Remove Trench	LxM		320.00			\$ 25.00		\$ 8,000.00	
	Remove No. 24 Trench	Item		2.00			\$ 6,000.00		\$ 12,000.00	
	Install New Track concrete Ties for MT1	LxM		8,565.00			\$ 265.00		\$ 2,267,875.00	
	Install New Track concrete Ties for MT2	LxM		6,045.00			\$ 285.00		\$ 1,693,825.00	
	Install New Track concrete Ties for Maintenance Trench	LxM		812.00			\$ 285.00		\$ 231,400.00	
	Roadside Track for MT1	LxM		600.00			\$ 57.00		\$ 34,200.00	
	Roadside Track for MT2	LxM		190.00			\$ 57.00		\$ 10,830.00	
	Install No. 24 Crossbones - Power Operated	Item		3.00			\$ 5,000.00		\$ 15,000.00	
	Install No. 8 Trench - Hand Operated	Item		2.00			\$ 3,000.00		\$ 6,000.00	
	Install Insulated Joints (Pins)	Item		6.00			\$ 30.00		\$ 180.00	
	Install Double Post Detail	Item		2.00			\$ 30.00		\$ 60.00	
									\$ 4,208,121.00	

Running the model

ContingencyEstimator uses a Monte Carlo simulation based on a triangular distribution using the range of quantity and rates. The number of iterations may be selected.

Reports

ContingencyEstimator produces three reports:

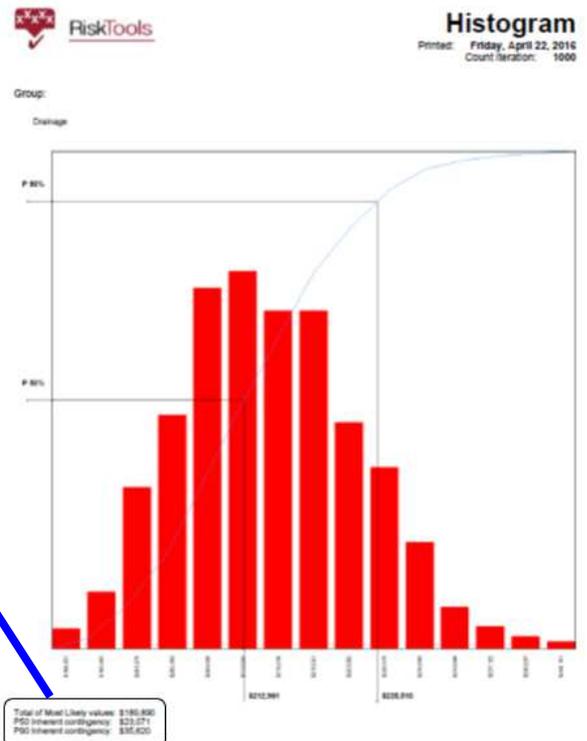
1. A Histogram which shows the P50 and P90 values (ie those values that have 50% and 90% of the outcomes below them).

The P50 value shows the point where the likely outcome resides (it may be a bit higher or lower). The P90 value is often used for a more conservative estimate (eg early in the project cycle or for a “once through” board approval).

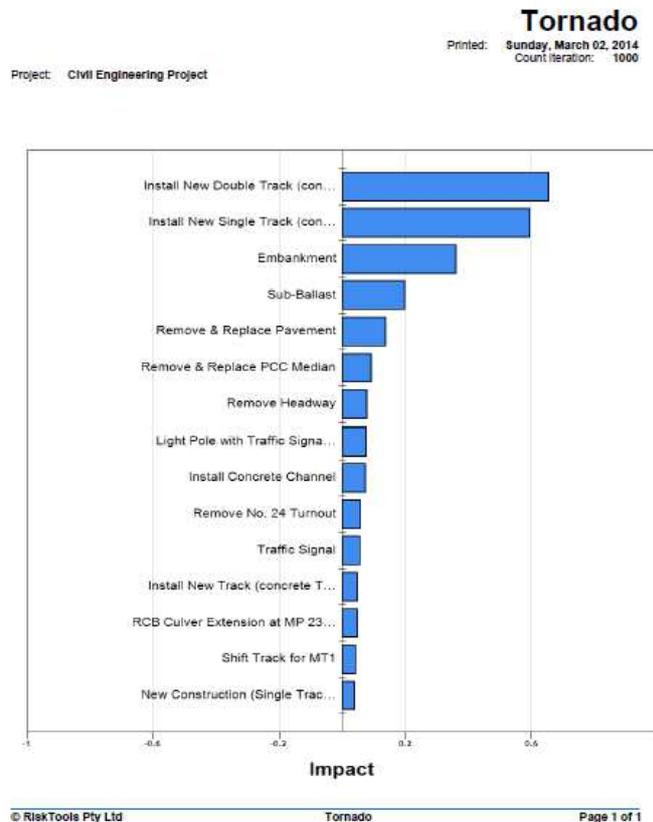
Total of Most Likely values: \$189,890
 P50 Inherent contingency: \$23,071
 P90 Inherent contingency: \$35,620

2. A list of inputs that enables data to be reviewed and gives stakeholders visibility thereby increasing their confidence in the estimate.

In conjunction with quantifying qualitative (Contingent) risks using RiskValuer the process substantially narrows the gap between estimates and actual cost outcomes.



3. A Tornado Diagram which highlights those line items that have the greatest effect on the “bottom line”. This helps to prioritise which items to focus on to improve the accuracy of the estimate.



Benefits

- ▶ Cost estimates by their nature have varying degrees of accuracy and hence confidence in the outcome also varies. Estimators are generally far more comfortable deriving a range of quantities and rates than nominating a single figure.
- ▶ A line by line review to assess the Best and Worst cases by a small team significantly enhances the accuracy of an estimate.
- ▶ Stakeholders confidence in the estimate is increased.
- ▶ As line items are completed the required contingency may be adjusted and funds returned to the organisation which assists management either through enhanced cash flow or the ability to fund other projects.
- ▶ The process, together with using a similar process for qualitative risks, (refer to RiskValuer information sheet) has been demonstrated to give substantially more accurate estimates for a project when measured against the actual turnout cost.

Contingency estimating—Where to from here?

A free trial of ContingencyEstimator may be downloaded from the website. The download includes a detailed procedure (under the Help tab.)

ContingencyEstimator is a subscription based product (Software as a Service) and pricing and purchasing are available from the website.

Our website is www.risktools.com.au

Additionally RiskTools has a number of consultants who can assist your team with:

- ▶ Facilitating a review of your estimate and running ContingencyEstimator.
- ▶ Training your team in the process with the goal of enhancing in-house competency.
- ▶ Facilitating a qualitative (Contingent) risk workshop and related contingency using RiskValuer.

For more information please visit our website www.risktools.com.au or send an email to queries@risktools.com.au.