



MnDOT Cost Estimation Process Improvement and Organizational Integration Project

Risk and Contingency

Risk and contingency are critical to developing more accurate estimates. Identifying possible risks and determining their potential impact allow project managers and estimators to take into account factors that are not yet well defined but may ultimately influence project cost. This fact sheet highlights information about risk and contingency and offers tips on how to apply risk and contingency to projects.

Why is applying risk and contingency to projects important?

The project vision states that the department will create “reliable and accurate estimates,...[which includes] well-documented and complete cost estimates; and clearly spelled out assumptions and risks that can be easily communicated.” Risk identification is also a key step in working to mitigate and better manage risks.

What is risk and contingency?

Risk is defined as a known or unknown event or condition that cannot be adequately defined or estimated with confidence at the time of preparing an estimate.

The project contingency is an estimate of costs associated with identified risks, the sum of which is added to the base estimate.

The total project cost estimate for each of the project development phases includes a total for contingency, the amount that reflects the estimated costs of the remaining risks to the project.

How does the application of risk and contingency work?

As a start, project managers and estimators look at what they know and don't know about the project. Next, they assess the risks for the total project cost estimate elements and determine the amount of contingency on each element. As a last step, they add the contingency on all elements and include the sum as part of the total project cost estimate.

Analyzing risk involves considering the impact of many factors on the project, such as right of way, utilities, environmental issues, municipal consent, traffic management, and communications. For example, if a scope suggests that soil conditions may be a factor, the next step would involve an assessment of the potential financial impact on the project. It also can be helpful to investigate how such factors impacted projects in the past, which offers some guidance to their potential impact on current projects.

Are there tools available to help determine risk and contingency?

Yes. There are several tools that project managers and estimators can use to help determine contingency:

- The Total Project Cost Estimate spreadsheet includes a list of factors that may influence cost.
- With the Project Risk Register, project managers and estimators can list the risks for the job in one place, assign a rating, and develop a strategy and response. The Risk Breakdown Structure will you evaluate the rank to give the impact of the risk.

These tools are available on the project management guidance web site at <http://www.dot.state.mn.us/pm/guidance.html>.

How is risk and contingency documented?

Project managers and estimators can use these tools to document their estimate assumptions and estimates and include the documentation in the project estimate file. Better documentation for project scopes and estimates will allow project managers and estimators to refine estimates by comparing estimate assumptions with actual events.

What is the review process for contingency?

District management will review and approve the application of contingency on projects, as the review will help in overall management of the district program. As projects move through the project development process and risks are eliminated, project managers retire the contingency, subtracting the contingency amount that is associated with the eliminated risk. District management also reviews and approves the retirement of contingency.

Assessing risk and applying an amount for contingency may change estimates for some projects. However, it is better to understand how risks impact projects before they enter the STIP rather than later during the project development process.

Where can I find more information?

Check out the project management guidance web site at <http://www.dot.state.mn.us/pm/guidance.html> for more information.

The *Technical Reference Manual*, a guide for developing and managing project cost estimates, will provide procedures to aid MnDOT staff in preparing project cost estimates and managing costs throughout the MnDOT planning and project development process. The *Technical Reference Manual* will be available in the fall.