

In this article, I'm continuing the series of posts on Managing Construction Risk. So picking up where we left off...

My last article emphasized the importance of establishing a process for managing risk, determining who will be part of the risk management group/team, and determining broad risk categories. The next step is to get about the business of identifying risks that might affect the construction project/program and documenting their characteristics.

But first, an example...

Very early in my career I was involved in a project where the surveyor failed to identify a major municipal sewer line (think 60" diameter) and easement that ran through campus and directly under the project's foundations. The foundations were fast-tracked and the easement was overlooked during the review process by both the campus engineers and the project engineers. The mistake wasn't discovered until the piles were being driven, foundations and, eventually, the

Even worse, it caused a five week project. 1,800 students would be was no other campus housing to construction manager assured the able to meet the schedule, "no

As other delays occurred (one thing delays will occur), the contractor laid and still meet the move-in deadline. It wasn't until six weeks before move-in that everyone came to the full realization that the project wasn't going to be ready. A scramble ensued as students were temporarily housed in hotels and "tripled" in double rooms while the new project was finished.

It may be that, even with a formal risk identification process in place, the error by the surveyor would not have been caught. However, it is certain the implied risks of that error would have been quickly identified (i.e. not meeting the completion deadline, compromised construction quality as other parts of the project were fast tracked, the increased impact of other minor delays on the overall schedule, the need to develop a contingency plan to house the students, etc.). Strategies to deal with each of those risks could have been developed and implemented while there was still adequate time to do so. There would be costs and impacts on the project, to be sure, but they could have been minimized. As it was, the worst case scenarios materialized and the impact was much greater than it needed to be.

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process are helpful to bear in mind:

Focus on identifying both upside (opportunities) and downside risks (threats/vulnerabilities). While it's critical that negative shocks to a project get identified and dealt with, make sure that you identify risks that can have a positive impact as well. For example, by paying a premium of \$85K to the window manufacturer, delivery could occur 4 weeks earlier than anticipated and shave 3 weeks off of the overall project schedule resulting in an overall savings of \$250K.

Include a wide range of sources. Typically, this includes the project team, major contractors and suppliers, regulatory agencies and officials, and for a university, elements of the broader campus community as well. If a major campus event coincides with a concrete pour, impacting the trucks ability to get to the job site, that needs to be identified far enough in advance to deal with it.

Use a variety of identification techniques. Techniques range from the basics – brainstorming, interviews, "lessons learned" files from previous projects – to more sophisticated and structured techniques - project management questionnaires, surveys, environmental scans, SWOT (Strengths, Weaknesses, Opportunities, Threats) analysis, and Delphi Techniques. Clearly, the range of identification techniques will vary depending on project size and complexity. But even on small projects, it's important to utilize a broad range of sources and techniques to cover as much of the risk spectrum as possible.

Record the results in a risk register. The risk register records the spectrum of all known project risks (both upside and downside) in a single place. At this stage, it is utilized to record the nature of the risk, its broad category (see my last post for a discussion of categories), the source, how it was identified, and the date that it was identified. During the identification stage it's important not to make qualitative judgments (impact, probability, response strategies). Those characteristics and decisions will be fleshed out as risks are analyzed and response strategies are formulated.

Again, it is crucial that the keys above form part of an iterative process of risk identification that is ongoing throughout design and construction.

It's not enough to go through the process at the beginning of the construction phase and call it a day. The Risk Register is a living document that identifies all known project risks to date. It is only effective if it continues to be updated as team members identify risks that were previously unknown. The earlier a risk is detected, the more flexibility the project team has in developing strategies to deal with it.

-Robert Stickney, Partner | RPM

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