

Strategic Analysis and Estimating Office

Cost Risk Estimating Management Unit

Home of the Cost Estimate Validation Process, CEVP®

Project Risk Management – WSDOT Hallmark

“WSDOT took the lead and directed the cost budget evolution as the project scope; schedule and other characteristics were adjusted during the planning and design process. For WSDOT the CEVP project management process works.”

RETc Paper titled: “Emerging Methodologies to Improve Cost and Schedule Estimates, Using Risk-based Evaluation – The Success of CEVP”

Fundamental

Transportation engineers, project managers, business managers and executives must be prepared to answer three questions raised by the public.

The questions:

How much will this project cost?

How long will this project take?

Why?

WSDOT has found that the answers to these fundamental questions rest in the fact that an estimate is best expressed as a range comprised of two parts: the base project estimate, with appropriate variability, and risk. Providing reliable project estimates is a fundamental responsibility of the WSDOT.

Due to increasingly complex projects, paired with funding uncertainties, the importance of estimating project costs and schedules has never been greater.



Valuable

Our experience demonstrates that effective project risk management saves projects time and money. The benefits WSDOT enjoys from its project risk management efforts include:

- ◆ Independent risk reviews reduce errors and omissions.
- ◆ Enhanced forecasting of project costs and schedules.

- ◆ Improved project assumptions.
- ◆ Improved communication.
- ◆ Improved ability to make key project decisions.
- ◆ Serves as QA/QC for project estimate review and validation.
- ◆ Fewer surprises.

“What gets us in trouble is not what we don’t know. It’s what we know for sure that just ain’t so.”

Mark Twain

CEVP informs and Enhances Project Management Performance

The signature CEVP® workshop process has led to increased accountability for public declarations of estimated project cost ranges and better management of resources.

Project Risk Management Processes in use at WSDOT are being emulated by organizations across the country and inspiring others around the world.

Better processes have led to greater attention to estimating and management practices. These practices include improved project management and communications strategies. Key principles for higher performance in project management have emerged from the use of CEVP.

These principles include:

- Avoid single number estimates; cost should be presented as a range in year-of-expenditure dollars.
- Use a collaborative process combining external critical review and project expertise.
- Acknowledge uncertainty and risk with a high level of scrutiny and common sense risk descriptions and quantification.

Best Practice

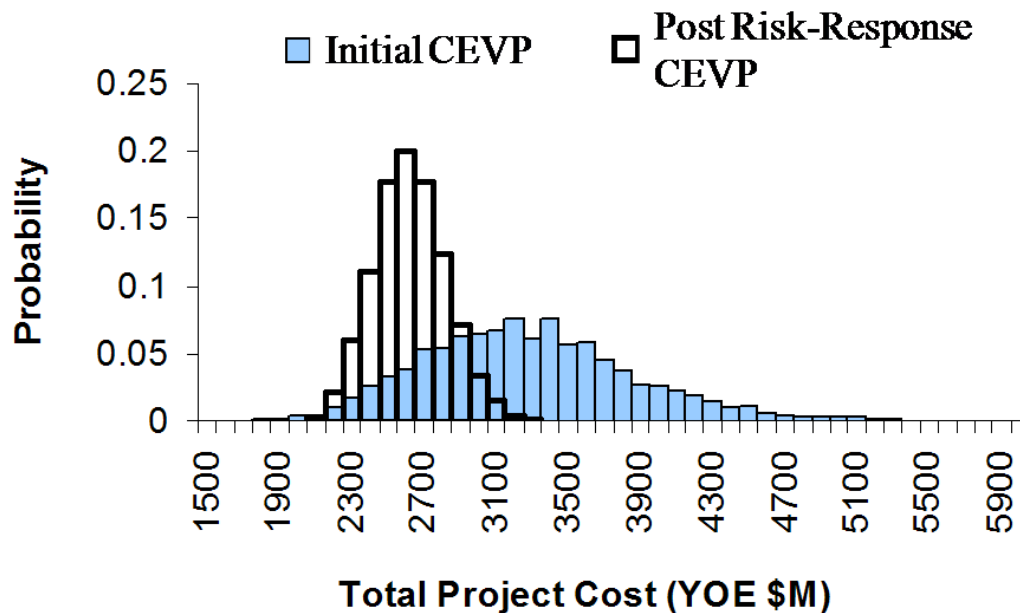
Traditional estimating practices tend to produce “the number” for a project. But a single number masks the critical risk and variation assumptions made implicitly or explicitly for a particular project. A single

number estimate implies a sense of precision beyond what can be achieved during planning, scoping or the earlier phases of project design.

In order to more fully convey the characteristics of a project we must determine the uncertainty and risk associated with the project. Knowing our tolerance for risk is an integral part of project management.

In collaborative workshops we identify and validate what we know; we recognize there are things we do not know; we assess the possibility of risk and uncertainty. These workshops offer robust communication about real project issues.

“The first time it happens we can claim we were surprised; after that, if it happens again, we were unprepared.”



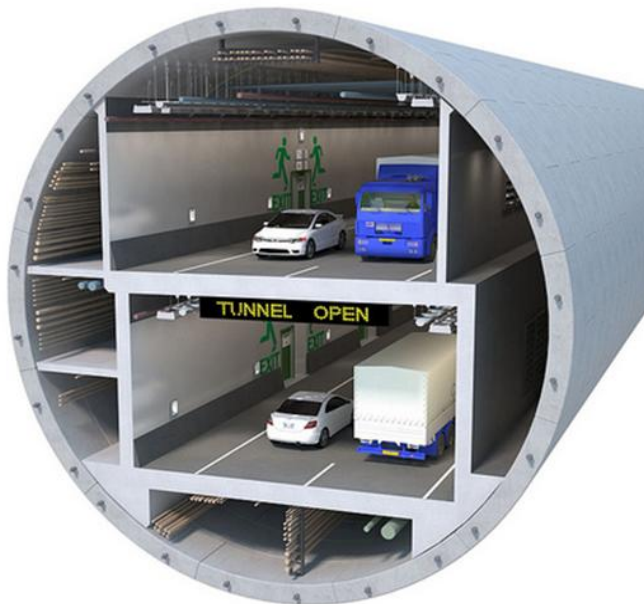
Project Risk Management provides actionable information that, if used effectively, can shift odds in favor of successful project delivery,

Success

Examining the data of CEVP in the context of Project Management there is a broader conclusion to be drawn. In the world of heavy civil engineering and major transportation projects, this includes almost all WSDOT projects; there are significant changes throughout project development. These changes can include project timing, design strategies, and overall project scope. For these reasons one should not expect the results of a CEVP assessment, especially at an early point in design, to anticipate the final bid amount. It is WSDOT's project management process, informed in detail by CEVP, which allows for management to a final cost estimate within the authorized cost range. When combined with a strong management policy that puts a priority on managing to budget, WSDOT is successful in delivering projects on budget. These results illustrate the success that WSDOT has had in using CEVP and a project management process that takes advantage of the special information about a project outcome that CEVP provides.

Conclusion

There are many important and unique aspects for every project. The overall conclusion represented in the data studied for the WSDOT project risk management experience, is that using a methodology, such as CEVP, allows project delivery of new transportation infrastructure within authorized budget constraints. WSDOT took the lead and directed the cost budget evolution as the project scope; schedule and other characteristics were adjusted during the planning and design process. For WSDOT the CEVP project management process works.



“WSDOT is doing the right things to address and manage these risks. WSDOT has assembled a strong team, combining their experienced staff with external tunnel and risk experts, and the design-build process provides the opportunity for this team to work together with the selected Design-Build (DB) contractor team giving the project the best chance for success.”

*July 12, 2010 Seattle City Council Presentation by CDM Newby
SR 99 Deep Bored Tunnel Design-Build Contract and Engineering Challenges*

Thoughts

“Deciding our Futures” *(with a light touch of editing)*
(Futurist magazine, January-February 20-10)

The world is more complex –

- the likelihood of making poor decisions about our future increases
- the cost of bad outcomes is greater

Two types of decision making:

- intuition (fast, can lead to more errors)
- reason (expertise may not be sufficient)

Project Risk Management – provides an answer
(Workshops, like CEVP help make better decisions)

Our workshops blend intuition and reason to produce more informed project decisions. Relying on expert advice alone can also carry risks; expertise can be fractured into smaller areas where there are gaps in areas in which we may be unknowledgeable. Intuition alone can sometimes be biased that may lead us in a wrong direction. We bring a blend of appropriate subject matter experts to fill knowledge gaps and guard against bias.

Pitfalls in critical decision making

(developed by Stan Shapiro, Emergency Room physician);

Unique situations....

- must be approached cautiously.
- should be considered inherently risky.
- can be invitations to poor decision making.

Data deficits....

- need to be identified for critical decisions.
- additional data must be obtained if possible.
- are a fact of life.
- can be invitations to poor decision-making.

Emotional denial....

- Optimistic bias
- shifts our decision-making to the easier.
- may cause us to dismiss negative scenarios.

Project Risk Management – avoids pitfalls

Risk assessment workshops...

- ✓ Brings fresh insight and expertise to unique projects.
- ✓ allow scenario review for project options.

Rich data is provided through risk workshops...

- ✓ the information that is truly needed to make sound decisions is identified.
- ✓ process begins early in project development allowing greater opportunity for action.

“Get real” through risk workshops...

- ✓ get real about the good and the bad.
- ✓ Put project in context and use multiple perspectives to reduce bias.

Sometimes we may not realize the gravity of the stakes (for example it may not occur to us, that this small decision can be a fatal flaw to the project).

Focus:

What will affect the project objectives? (budget, schedule, safety, other?).

What is needed to make a decision?

Develop and evaluate information that will help decision-makers prioritize and decide.

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Visit the WSDOT CEVP® and CRA website at:

<http://www.wsdot.wa.gov/Projects/ProjectMgmt/RiskAssessment/>

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