

Cost Risk Assessment and Value Engineering (CRAVE)

Ken Smith, PE, CVS

Why not give your project managers something they really CRAVE by combining cost risk assessment with the proven tools and process of value engineering? Risk elements in a project that are not proactively managed can often lead to cost or schedule overruns.

Why Washington State Department of Transportation (WSDOT) adopted new policies and procedures for project delivery

In 2003, the legislature passed a nickel per gallon gas tax to fund 102 line item projects. Along with this funding package came strong requirements for accountability and reporting. In 2005, the legislature passed an additional nine and one-half cents gas tax to deliver an additional 274 line item projects. Again, it included strong requirements for accountability and reporting.

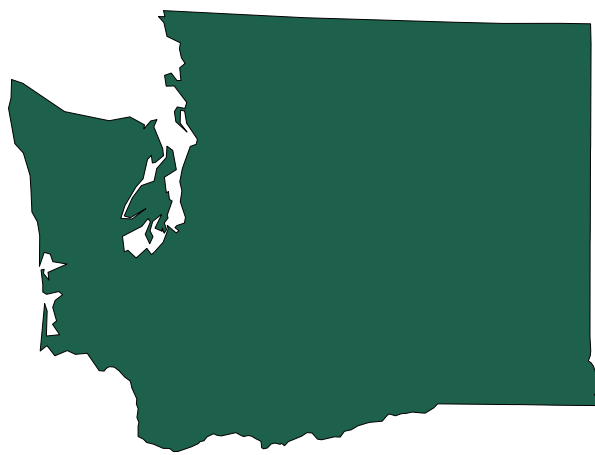
Delivering line item projects creates an added challenge over the programmatic approach we had for so many years.

With the programmatic approach, risk events that affect cost and budget would balance across the portfolio of projects within the contingencies of the entire program. With line item project delivery, we no longer had the flexibility to transfer dollars between projects to cover over- or under-runs. Therefore, the department defined a project management process that included a number of new and existing tools to deliver projects on time and on budget.

Cost Estimate Validation Process (CEVP®)

The Washington State Department of Transportation (WSDOT) is committed to constant cost evaluation as a means to better manage projects and respond to public skepticism and concern about project estimates and actual costs.

WSDOT has been tackling this issue since February 2002, when it developed the Cost Estimate Validation Process (CEVP®), a groundbreaking effort that identifies and quantifies



potential risks that may impact a project's budget or schedule. CEVP® will help communicate the identified risks and their potential cost impacts so that the public can understand the limits and assumptions of an estimate and better understand what people will actually see as the project proceeds.

What is CEVP®?

CEVP® is an intense workshop in which a team of top engineers and risk managers from local and national private firms and public agencies examine a transportation project and review project details with WSDOT engineers. Many of the participants have extensive first-hand experience in large project programming and delivery.

The CEVP® workshop team uses systematic project review and risk assessment methods to identify and describe cost and schedule risks, and evaluate the quality of the information at hand. Importantly, the process examines, from the very beginning, how risks can be lowered and cost vulnerabilities can be managed or reduced. A dividend of CEVP® is the promotion of activities that will improve final cost and schedule results.

What is Cost Risk Assessment?

Cost Risk Assessment (CRA) is a term used to describe a broad program of risk-based assessment being conducted within Washington State Department of

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Transportation. CRA is also a term that describes a workshop process similar but less intense than a Cost Estimate Validation Process (CEVP®).

all projects regardless of size.

How to use this valuable information in a VE study

- *Investigation phase*
 - Review the risk register, contingencies and bid items that are set up to mitigate risk.
- *Function analysis phase*
 - include the secondary function of “reduce risk.”
- *Speculation phase*
 - Brainstorm ideas on how to respond to risk (avoid, mitigate, transfer or accept).

- *Evaluation phase*
 - Include a risk assessment as part of the evaluation criteria.
- *Development phase*
 - Develop recommendations that reduce risk.
 - Include a risk assessment for VE recommendations that modify the original design.

Summary

- Use the risk assessment information throughout the VE study
- If a risk assessment was not performed prior to the VE study, consider adding one in as part of the VE study. (This will add about one day.)
- Look at contingencies and bid items that have a set estimated dollar

amount (often used to mitigate risk and can contribute to construction cost overruns)

Where to find more information

- *Cost Risk Assessment* (<http://www.wsdot.wa.gov/Projects/ProjectMgmt/RiskAssessment/default.htm>)
- *Project Management* (<http://www.wsdot.wa.gov/Projects/ProjectMgmt/>)
- *Value Engineering* (<http://www.wsdot.wa.gov/eesc/design/VE/default.htm>)

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Policies

- CEVP®—all projects in excess of \$100 million.
- CRA - all projects in excess of \$25 million.
- Value Engineering—all projects in excess of \$10 million
- Project Management—a project management plan including a risk assessment plan on

Value in Motion

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