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SAUK RIVER EROSION PROJECT

Value Engineering

WSDOT

Making good Projects Great

The Value Engineering (VE) Job Plan: The Federal Highway Administration defines Value Engineering as "the systematic application of recognized techniques by a multi-disciplined team which identifies the function of a product or service; establishes a worth for that function; generates alternatives through the use of creative thinking; and provides the needed functions, reliably, at the lowest overall cost."

Timing, when to conduct a VE Study?

The timing of a VE study is critical to the successful project development. The WSDOT VE program identifies three potential windows of opportunity for accomplishing the VE study.

Concept Stage

At the concept stage of development, the project scope and cost are under consideration. Preliminary engineering information should be available and the specific deficiencies or "drivers" should be identified.

This stage offers maximum opportunity to consider alternatives or solutions and a high potential that the recommendations of the VE Team can be implemented.

At the conclusion of the VE study, the project scope and cost can be established and major decisions can be made to direct further development of the project.

When conducting studies on projects in early conceptual stages, care must be taken to focus on issues that affect project function and not focus only on the cost but also performance. Project teams can look out the best way to implement recommendations to enhance the value of the project.

Schematic Design Stage

At the schematic design stage, the project scope and cost have been established and major design decisions have been made. Normally some PS&E activities have begun and coordination has been initiated. *(Cont'd page 2)*



Projects that usually provide the highest potential for value improvements are:

- Projects with alternative solutions that vary the scope and cost.
- New alignment or bypass sections.
- Widening of existing highways for capacity improvements.
- Major structures. & Interchanges of multilane facilities.
- Projects with expensive environmental or geotech. requirements.
- Projects with difficult materials requirements/sources.
- Major reconstruction of existing highways.
- Projects with major traffic control.
- Projects with multiple stages.

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Various service units that will be involved with the design are engaged. At this stage, the established project scope, cost, and schedule will normally define the limits of the VE study. There is still opportunity for a VE study to consider technical issues for and specific design elements.

“30 Percent Design”

At thirty percent design decisions have been taken on many of the most important project issues. The opportunity to effect the project design is somewhat limited; but some opportunity remains to consider design issues identified during the development of the design. In addition, constructability, construction sequencing, staging, and traffic control elements are important to consider at this stage.

The VE study should be a tool to *advance* the project in the development process by validating or refining the scope.

Selecting the proper stage of development of the project to conduct the VE study allows the project manager and team to glean the most benefit from their VE study.

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AASHTO
AWARD

WSDOT Project SR 530, Sauk River Br. Bank Erosion CED

Project Issues

The SR 530, Sauk River Bank Erosion CED (chronic environmental deficiency) project is located approximately 8 miles south of the small town of Rockport, WA, along the banks of the Sauk River. This project was proposed as corrective action to reduce the risk to the roadway and to reduce recurring maintenance costs. Since the early 1990s, the Sauk River has eroded its stream banks and the SR 530 highway shoulder. When this occurs, the WSDOT is forced to close the road.

This poses a problem for many drivers, businesses and residents because the highway is the primary road in and out of the area. It also serves as the primary route for trucks carrying timber products and tourists. SR 530 is also the designated flood evacuation route for the Suiattle Tribe.



Summary of VE Results that enhance the Value of the Project

CRITERIA 1: Cost Savings as Compared to Original Design

- This VE study added \$2.1 M to the original project, which was the cost of Recommendation #1, to protect the roadbed adjacent to the side channel. This protects the road from being washed out during a future flood event.
- The Life Cycle Cost: The estimated cost to replace SR 530 at this location would have been well over \$4.0 M, an overall net savings of \$1.9 M.

CRITERIA 2: Project Improvements as Compared to Original Design

- The additional work recommended by the VE team was recognized by all parties as not only necessary, but should be accelerated to protect against catastrophic failure during the next flood event on the Sauk River.
- Log crib walls and revetment used to protect the river bank and roadway have been used on other projects but this was a first on a WSDOT project.
- WSDOT saved the roadbed by using “fish friendly” barriers.
- Accelerating the project reduced the possibility of future emergency repairs and the environmental impact of those emergency repairs.

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