
Value Engineering

Background

The Federal Highway Administration (FHWA) has revised 23 CFR Part 627 – Value Engineering. This regulation requires the application of value engineering (VE) to all federal aid highway projects on the National Highway System (NHS) with estimated costs as follows:

1. Projects on the National Highway System (NHS) receiving Federal assistance with an estimated total cost of \$50,000,000 or more; and
2. Bridge projects on the NHS receiving Federal assistance with an estimated total cost of \$40,000,000 or more.

The project is defined as “a portion of a highway that a state proposes to construct, reconstruct, or improve as described in the preliminary design report or applicable environmental documents. A project may consist of several contracts or phases over several years.”

Value engineering is defined as “the systematic application of recognized techniques by a multi-disciplined team to identify the function of a product or service, establish a worth for that function, generate alternatives through the use of creative thinking, and provide the needed functions to accomplish the original purpose of the project, reliably and at the lowest life-cycle cost without sacrificing safety, necessary quality and environmental attributes of the project.”

The costs to be included in the \$40 or \$50 million limit are all costs associated with environmental studies, preliminary engineering, final design, right-of-way and construction. The study should be performed during the final design phase to address design issues such as geometrics, vertical and horizontal alignments, drainage, construction staging, traffic control, pavement and structure details, etc. A VE study may be performed during location or preliminary design; however, according to FHWA, a VE study must be performed during final design regardless of whether a VE study was performed during earlier phases of project development.

ALDOT Value Engineering Process

1. The lead bureau will be responsible for conducting the VE study on projects over \$40 million on the NHS as described above.
2. The VE study should be conducted during final design at GDCP #207 or using the Plan-in-Hand submittal.
3. The VE study should include a multi-disciplined team lead by a trained VE team leader. Depending on the nature of the project, the team may include representatives from Construction, Materials and Tests, Right-of-Way, Maintenance, Design, Bridge, FHWA, Hydraulics, or other disciplines as deemed appropriate. The VE team should always include the

project designer as a resource person. The teams may be composed of a combination of Central Office and Region personnel.

4. The team will review high cost items such as earthwork, base and pavement, bridges, major drainage structures, etc. VE studies should be limited to items that have the potential of significant savings. The feasibility of implementing the VE changes should consider the impact on project schedule and previous environmental clearances and/or agreements.
5. The reviews may be conducted within any timeframe as deemed appropriate. For example, the team can work continuously for several days or information can be submitted for the independent review of team members with a meeting convened to develop a consensus (similar to Plan-in-Hand or PS&E inspection).
6. A written report shall be prepared documenting the findings and recommendations of the VE team.
7. Implementation of the VE recommendations will be the decision of the Implementation Committee and will consider the projected cost savings and impact on project advancement at the time.

Contact

[Freddy Naranjo](#)

State Value Engineer

334-242-6620