Design

Value Engineering Final Rule

The Value Engineering Final Rule (pdf) was published on September 5, 2014. (Docket No. FHWA-2013-0039).

This Final Rule modifies Federal regulation, Title 23 Code of Federal Regulation (CFR) part 627, to reflect the revisions made in Federal law (Section 1503(a)(3) of Moving Ahead for Progress in the 21st Century Act, MAP-21). The changes to the regulation are:

- Increases the project thresholds for required VE analyses to:
  - Projects on the National Highway System (NHS) receiving Federal assistance with an estimated total cost of $50,000,000 or more; and
  - Bridge projects on the NHS receiving Federal assistance with an estimated total cost of $40,000,000 or more;
- Removes the VE analysis requirement for projects delivered using the design/build method of construction; and
- Provides VE analysis guidance for projects delivered using the construction manager/general contractor (CM/GC) method of project delivery.

About VE

Value Engineering (VE) is defined as a systematic process of review and analysis of a project, during the concept and design phases, by a multidiscipline team of persons not involved in the project, that is conducted to provide recommendations for:

1. providing the needed functions safely, reliably, efficiently, and at the lowest overall cost;
2. improving the value and quality of the project; and
3. reducing the time to complete the project.

The successful application of the VE process can contribute measurable benefits to the quality of the surface transportation improvement projects and to the effective delivery of the overall Federal-Aid Highway Program.

This web site describes the FHWA's VE program; discusses many subjects crucial to the administration of a successful VE program; and attests to the program's benefits through the compilation of annual accomplishment reports and descriptions of successful practices and VE analyses. The web site also addresses a series of Frequently Asked Questions on VE and the Federal VE requirements.

Background. The FHWA's VE program applies to the Federal-aid program under which the funds authorized in Federal-aid highway acts are distributed to States for projects developed and administered by State Departments of Transportation (DOT). This program is designed to:

- encourage State DOT's to use VE,
- assure the projects required by law and regulation receive VE analyses,


- encompass a variety of VE activities focused on technical assistance, liaison with industry (such as the American Association of State Highway and Transportation Officials' (AASHTO) Value Engineering Technical Committee) and the States, promotional activities, and active participation in studies, and
- focus on education and training of Federal, State, and local highway employees through the presentation of the National Highway Institute’s VE workshop.

**History of VE in the Federal-aid Program.** VE has long been applied both within the Federal Government and in the transportation industry. The Federal-aid Act of 1970 required VE and cost reduction analyses on Federal-aid projects. The Office of Management and Budget (OMB) Circular A-131 http://www.whitehouse.gov/omb/circulars/a131/a131.html, issued in May 1993, required all Federal agencies to use VE and report on VE practices on an annual basis.

In late 1995, Congress passed the National Highway System (NHS) Designation Act which included a provision requiring the Secretary to establish a program that would require States to carry out a VE analysis for all Federal-aid highway funded projects with an estimated total cost of $25 million or more. On February 14, 1997, the FHWA published its VE regulation in part 627 of title 23 of the Code of Federal Regulations (23 CFR 627) that formally established the program.

After the FHWA published the final rule establishing regulations for the design-build project delivery method in December 2002, the VE regulations in 23 CFR 627 were amended accordingly to require VE on qualifying design-build projects.

In 2005, the language contained in Section 1904 of the SAFETEA-LU authorizing legislation brought further changes. In addition to the requirements previously established for projects requiring studies (which now reference the Federal-aid System), VE studies were additionally required for:

- a bridge project with an estimated total cost of $20 million or more
- any other project designated by the Secretary of Transportation

In 2012, VE requirements were further changed under the Moving Ahead for Progress in the 21st Century (MAP-21) act. The following outlines the major VE requirements under MAP-21 which became effective for any new construction contract authorized after October 1, 2012.

- Projects on the National Highway System (NHS) receiving Federal assistance with an estimated total cost of $50,000,000 or more; and
- Bridge projects on the NHS receiving Federal assistance with an estimated total cost of $40,000,000 or more;
- VE analysis is not required for projects delivered using the design/build method of construction

FHWA Divisions may require additional VE analysis beyond the Federally required minimum thresholds if they determine the project may benefit from a VE analysis.

**On August 28, 2013, the FHWA updated its VE Policy to:**

Incorporate the provisions made in MAP-21 (Moving Ahead for Progress in the 21st Century). See the above VE Notice of Proposed Rule Making for specific MAP-21 changes.

This Policy also incorporates the following program improvements.
- Clarify FHWA's requirements for conducting VE analyses;
- Identify the characteristics of a VE analysis process, including life-cycle cost analyses;
- Influence when VE analyses are conducted to maximize their effectiveness;
- Provide more consistent documentation of the VE analyses;
- Delineate responsibilities for establishing and sustaining VE programs and ensuring VE analysis recommendations receive proper review and resolution; and
- Ensure the appropriate level of FHWA involvement, monitoring, and oversight.

**Savings Achieved with VE.** The FHWA annually collects information on VE accomplishments achieved within the Federal-aid and Federal Lands Highway Programs. The following table summarizes recent savings realized by conducting VE. Additional details are available by reviewing the complete versions of the FHWA VE Summary Reports.

| Summary Of Past VE Savings Federal-Aid and Federal Lands Highway Programs |
|-------------------------------------------------|--------|--------|--------|--------|--------|
| Number of VE Studies                          | FY 2012 | FY 2011 | FY 2010 | FY 2009 | FY 2008 |
| Cost to Conduct VE Studies and Program Administration | $12.0 M | $12.5 M | $13.8 M | $17.08 M | $12.47 M |
| Estimated Construction Cost of Projects Studied | $30.3 B | $32.3 B | $34.2 B | $29.16 B | $29.93 B |
| Total Number of Proposed Recommendations       | 2,905   | 2,950   | 3,049   | 3,297   | 3,022   |
| Total Value of Proposed Recommendations        | $3.78 B | $2.94 B | $4.35 B | $4.16 B | $5.58 B |
| Number of Approved Recommendations             | 1,191   | 1,224   | 1,315   | 1,480   | 1,323   |
| Value of Approved Recommendations              | $1.15 B | $1.01 B | $1.98 B | $1.70 B | $2.53 B |
| Return on Investment                           | 96:1    | 80:1    | 146:1   | 99:1    | 203:1   |

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