



**INDIANA DEPARTMENT OF TRANSPORTATION**  
*Driving Indiana's Economic Growth*

**Design Memorandum No. 16-14**  
**Policy Change**

April 7, 2016

**TO:** All Design, Operations, and District Personnel, and Consultants

**FROM:** /s/Trevor Mills  
Trevor Mills  
Director, Project Support  
Capital Program Management

**SUBJECT:** Value Engineering

**REVISES:** *Indiana Design Manual (IDM) Section 50-3.0*

**EFFECTIVE:** Immediately

The Department's policy and procedures for Value Engineering have been incorporated into the referenced *Indiana Design Manual* section.

The revisions are available on-line from the Design Manual website at [http://www.in.gov/indot/design\\_manual/design\\_manual\\_2013.htm](http://www.in.gov/indot/design_manual/design_manual_2013.htm), Part 3.

Questions regarding the policy and procedures should be directed to Trevor Mills at [tmills@indot.in.gov](mailto:tmills@indot.in.gov).

Chapter 49 provides the Department's warrants for guardrail and other safety appurtenances. AASHTO *Roadside Design Guide* Appendix A in conjunction with the Department input data (e.g., accident costs) should be used to determine the appropriate warrant application. Section 49-10.0 provides a step-by-step guide on how to use ROADSIDE (i.e., the ROADSIDE Computer Software Program for Appendix A).

### **50-3.0 VALUE ENGINEERING [REV. APR. 2016]**

#### **50-3.01 General [Rev. Apr. 2016]**

Value engineering is not merely a method of cost cutting but a methodology to review alternatives and to suggest choices that still provide a reasonable product without reducing its quality. Value engineering is a proven effective tool for both product improvement and design enhancement. VE can substantially improve design and cost-effectiveness of projects, facilities, operations, procedures and other areas of the transportation program.

The Department must comply with the US Code of Federal Regulations, 23 CFR Part 627, regarding value engineering for each project that utilizes Federal-aid highway funding. A Value Engineering (VE) analysis should be conducted generally around the Public Hearing, during the environmental phase, for complex new or reconstruction projects or 30% plans (Stage 1) for simple projects. The VE analysis must be completed prior to the completion of final design on each applicable State and Local Public Agency (LPA) project. Failure to comply with the VE requirements by PS&E will preclude the use of federal funds and delay the project letting.

Projects that require a VE analysis include the following:

1. Road projects on the National Highway System (NHS) receiving federal assistance with an estimated total cost of \$50 million or more. The total cost includes the sum of all engineering, environmental, right of way, Utility, Railroad, and construction costs attributable to the project.
2. Bridge projects on the NHS receiving federal assistance with an estimated total cost of \$40 million or more. The total cost includes the sum of all engineering, environmental, right of way, Utility, Railroad, and construction costs attributable to the project.
3. Any major projects, located on or off of the NHS that utilizes Federal-aid highway funding in any contract or phase comprising the major project. A major project is defined as a project with an estimated total cost of \$500 million or more.

4. Any project where a VE analysis has not been conducted and a change is made to the project's scope or design between the final design and the construction letting which results in an increase in the project's total cost exceeding the thresholds identified above for road and bridge projects.
5. A project determined to be appropriate by FHWA that utilizes Federal-aid highway program funding.

### **50-3.02 Value Engineering Analysis [Rev. Apr. 2016]**

The VE analysis may be completed anytime during the planning, environmental, or design phases of a project as long as there is enough project information available to conduct an effective VE analysis. However, the VE analysis should be completed as early as practical in development of a project to maximize the opportunities for savings.

In accordance with 23 CFR 630.205, all approved VE recommendations must be included in the project's plans, specifications and estimates (PS&E) prior to authorizing the project for construction. VE analyses are not required for non-NHS bridge projects or for projects delivered using the design/build method of procurement.

If after conducting a VE analysis the project is subsequently split into smaller projects, now under the thresholds shown above, in the design phase or the project is programmed to be completed by the letting of multiple construction projects, an additional VE analysis is not required. However, the project manager may not avoid the requirement to conduct a VE analysis on an applicable project by splitting the project into smaller projects, or programming multiple design or construction projects.

#### **50-3.02(01) Value Engineering Team [Rev. Apr. 2016]**

It is the responsibility of the project manager assigned to deliver the project to assemble a multi-disciplinary team to complete the VE analysis and provide recommendations. The team may not include individuals who were directly involved in the planning and development phases of the project, e.g. project manager or designer. The team should be comprised of 3-5 people and led by a different project manager within the Capital Program Management Division. The VE project manager will be responsible for completing the VE analysis in accordance with the Value Engineering Workbook.

### **50-3.02(02) Value Engineering Workbook [Rev. Apr. 2016]**

The Value Engineering Workbook should be completed as soon as possible after Stage 1 review is complete. The project manager will provide the recommendations to the designer for review. The designer should provide comments to the project manager within 15 days. Value Engineering Workbook instructions are available from the Department's [Project Management website](#).

### **50-3.02(03) Value Engineering Recommendation and Implementation [Rev. Apr. 2016]**

The Value Engineering Recommendation Memo is completed by the VE project manager and should be presented to the Capital Program Management Deputy Commissioner within 15 days of receiving and reconciling the comments from the designer.

The final direction to implement the recommendations will be given by the Deputy Commissioner of Capital Program Management. The Deputy Commissioner will sign off on each recommendation from the memo and include a justification.

The project manager should include the signed VE Recommendation Memo as part of the VE workbook and upload it into ERMS. The following naming convention should be used: FT ValEngStudy DesNumber for Contract Services.

A hard copy of the workbook and recommendations should be distributed to the Project Support Division Director. The changes recommended for implementation are compiled by project and reported to FHWA as part of the annual Value Engineering report.

### **50-3.03 References [Rev. Apr. 2016]**

The following references are available for more detailed information on value engineering techniques and procedures.

1. FHWA Value Engineering Policy, FHWA Order 1311.1B, August 28, 2013.
2. *AASHTO Guidelines for Value Engineering*, 2010, AASHTO.
3. *Value Engineering Workshop*, National Highway Institute, Course Number 134005.
4. Value Engineering, 79 Fed. Reg. 52972 (September 5, 2014) (to be codified at 23 CFR Part 627)