

Mississippi Department of Transportation

Value Engineering Procedure

3/2/17

The Value Engineering program will support the MDOT mission of providing a safe intermodal transportation network that is planned, designed, constructed and maintained in an effective, cost efficient, and environmentally sensitive manner by adding value to and reducing cost of the project studied.

The Value Engineering program will be administered by the Value Engineering Coordinator who is appointed by the Roadway Design Engineer. As required by 23 CFR 627, a value engineering analysis will be performed on all federally funded projects on the National Highway System (NHS) whose combined design, ROW, and construction costs within the termini of the environmental document are estimated at \$50 million or more. Federal-aid bridge projects on the National Highway System will require a VE analysis if the combined costs of a single bridge, or one pair of parallel bridges, are estimated at \$40 million or more. Projects delivered using the design-build method of construction will not require VE analyses. A VE analysis will be conducted on all major projects (\$500 million or greater), whether they are on the NHS or not. Also MDOT will utilize value engineering analysis on projects which would benefit from it or where FHWA determines a VE analysis is required. If an environmental document includes more than one construction project, a value engineering analysis will be performed on all the construction projects either combined into one VE analysis or analyzed individually. Desirably, most projects will be studied after conceptual plans are produced. Value engineering requirements are tracked in the Project Development/Project Management (PDPM) database. The need for a VE analysis will be evaluated and noted in the database when a project is initially added to the PDPM database using the cost estimate from the environmental document. The need for an analysis will be reevaluated at every district PDPM meeting using the most recent cost estimate.

MDOT's Project Development Manual for Local Public Agencies includes a section on Value Engineering. If a Local Public Agency project requires a VE analysis, the Agency will be responsible for conducting the VE analysis. If a State Aid project requires a VE analysis, the County will be responsible for conducting the VE analysis in accordance with State Aid's rules and regulations. MDOT'S LPA Division and the Office of State Aid Road Construction will report the results of any Value Engineering analysis to the Value Engineering Coordinator for inclusion in the Annual Report. Value Engineering requirements for LPA projects will be tracked in Civic Tracker.

Most analyses will be conducted by teams whose members are all provided by consultants. Work assignments for individual VE analyses will be negotiated. The project manager must be a Professional Engineer registered in Mississippi. The multidisciplinary team will typically have between four and six members, and will consist of individuals with experience in the various aspects of the project being

analyzed, such as roadway design, structures, traffic, and construction. Analyses will usually be four or five days in length, however, for less complex projects shorter studies may suffice.

The following stakeholders, as appropriate, will be invited to the VE study kick-off meeting and concluding presentation.

- Assistant Chief Engineer – Preconstruction
- Assistant Chief Engineer – Operations
- Assistant Chief Engineer – Field Operations
- District Engineer
- Assistant District Engineer
- Roadway Design Division Engineer
- Assistant Roadway Design Division Engineer
- Roadway Design Division Section Engineer
- Bridge Division Engineer
- Assistant Bridge Division Engineer
- Bridge Division Section Engineer
- Materials Division Engineer
- Construction Division Engineer
- Construction Division Area Engineer
- State Estimator
- Traffic Division Engineer
- Traffic Division Area Engineer
- Environmental Division Director
- Environmental Division Area Engineer
- Right-of-Way Division Director
- District ROW Coordinator
- Planning Division Engineer
- Hydraulics Division Engineer
- Assistant Hydraulics Division Engineer
- FHWA Field Operations Engineer
- FHWA Area Transportation Engineer
- Design Consultant (if applicable)

VE Analysis

Each analysis will begin with a kick-off meeting where designers and district personnel make a presentation of the project's scope, history, and challenges to the VE team, the MDOT stakeholders, and FHWA. The presentation should include any restraints the VE team needs to be aware of, including Environmental Commitments. The VE team will visit the project site accompanied by a district representative familiar with the project. After the presentation and site visit, the VE team will use the SAVE international method to study the project. They will develop recommendations through the functional analysis, creative, evaluation, and development phases. Analyses on bridge replacement projects will look at superstructure and substructure construction materials and be evaluated on life-

cycle costs and duration of project construction. The team will present their recommendations to the MDOT stakeholders and FHWA at the conclusion of the study. After the final presentation on the last day all pertinent MDOT personnel will meet to discuss the study's recommendations.

Post-Analysis

Within two weeks of the conclusion of the study, the VE team will submit the project's draft VE report. The report will include: (1) project information, (2) list of VE team members, (3) background and supporting documentation, (4) documentation of the stages of the VE Job Plan including any life-cycle cost analysis, (5) summarization of the analysis, and (6) documentation of the proposed recommendations. The VE Coordinator will review the report for errors and grammatical mistakes.

The VE Coordinator will issue a decision memo summarizing which recommendations are accepted and which recommendations are rejected and why. The final decision memo will be included in the final VE report. The report with decision memo will be distributed to all stakeholders electronically. One hard copy will be filed and one will be mailed to FHWA. MDOT will permanently retain an electronic copy on ProjectWise.

Roadway Design Section Engineers will be responsible for incorporating the accepted recommendations into the project's plans. The final decision memo will be reviewed at field reviews and office reviews and included in the field review and office review reports. The MDOT Construction Division (for MDOT projects) and the LPA Division (for LPA projects) will be responsible for reporting accepted Value Engineering Change Proposals (VECPs) to the VE Coordinator for inclusion in the annual report.

Training

MDOT will provide training on value engineering concepts to MDOT stakeholders approximately every three years.

Annual Report

The VE coordinator will provide an annual report to FHWA for each federal fiscal year. It will be submitted to the Mississippi Division Field Operations Engineer. The report will summarize the recommendations of each study, how many were accepted, and the cost savings of each. The report will include project information including construction cost estimate. MDOT VE training throughout the year and a schedule of analyses planned for the next two years will be included in the report.