USACE-MED VE STANDARD
(A/E Contracts)

The goal of the VE Workshop is to document and/or verify functions, goals and objectives as defined by the project/program stakeholders. Evaluate the project documents and cost estimate to insure they comply with functions, goals and objectives.

A. Value Management (VM)/Value Engineering (VE) Study: The intent of VM/VE study is to apply the Value Methodology during the project development process to optimize the overall value of the project and to ensure that the functional requirements of the stakeholders are appropriately addressed.

B. Value Methodology Process: The SAVE International® 6 step process shall be used:

   1) Information Phase
   2) Function Analysis Phase
   3) Creative Phase
   4) Evaluation Phase
   5) Development Phase
   6) Presentation Phase

C. Life Cycle Cost Analysis (LCCA): The intent of LCCA is to provide a relative monetary comparison of alternatives when including operations and maintenance expenses over a defined economic life for the project. Include in alternatives as appropriate and/or provide an explanation for its exclusion. Prepare separate tables for comparison of first costs between options and first cost plus life cycle costs between options.

D. Workshop Team Qualifications: Team members shall be senior members in each discipline and experienced in the planning and design of similar facilities or structures. Team members shall not have been associated with the original design or plan to be involved with future contract awards for the project. It is preferable that VE team members not be employed by the same firm as the A-E firm completing the design work.

E. Quality Control: A quality control plan shall be submitted as part of the proposal and followed as part of the scope of work. The plan shall include the number of hours per day each VE team member will participate in the workshop. Ensure the proposal shows a separate cost for the VE effort.

TASKS

Pre-Workshop:
1. The Contractor will provide project documents and information, as made available by the design team. Contractor shall notify VE team of project documents and information that will be available prior to the study, at the start of the study, during the study or not at all. It is the responsibility of the VE team to document and notify the district VEO of the tasks in the scope that require modification due to lack of data or information.

2. The VE facilitator shall coordinate with the Contractor and district VEO to develop the agenda, identify participants, and define level of participation of USACE and the designer prior to the Workshop. An electronic copy of the agenda will be provided to all participants and others as designated by the VEO.

3. The VE team members shall become familiar with the Workshop materials provided. The Contractor shall coordinate with the VE team for the dissemination and review of the documents provided prior to the Workshop. The VE facilitator shall provide a list of any additional information desired for the Workshop to the Contractor.

4. The VE team shall prepare a cost model or other histogram if a detailed project cost estimate and other necessary information is furnished to the VE team at least one week in advance of the Workshop.

5. The VE facilitator shall coordinate the VE team members' attendance for the entire Workshop duration unless otherwise agreed to by the VEO.

6. The VE facilitator shall coordinate with the Contractor and district VEO on meeting announcements for the in-brief, out-brief and other meetings, including conference call numbers, meeting times and locations.

Workshop

1. Workshop shall be 5 days unless otherwise approved by the district VEO.

2. The VE team will attend the project in-brief. The VE team is responsible for asking questions in order to gain knowledge and understanding of the project. The focus should be on understanding the rationale for key planning and design decisions.

3. The team shall attend the site visit, if scheduled in the scope of services.

4. The VE Facilitator shall lead and manage the Workshop activities.

5. The Facilitator shall work with the VE team and other Workshop participants to establish and maintain the following information during the Workshop (Note -depending on the project or process, some of these factors may be not applicable. If that is the case, identify as such):

   a. Workshop Participants and contact information
   b. Action Items – These are aspects of the project or specific issues that the District, designer, or other stakeholders have asked the VE team to review for validation of the current concept or to offer alternative solutions. The VE team shall solicit such action items during the in-brief (kickoff).
   c. Key Agreements – There are typically a number of agreements, formal and informal, which affect the decision-making throughout the planning and design process. The Contractor shall identify any such key agreements that may affect or limit the identification of alternative solutions.
   d. Critical Assumptions – Through the planning and design process, many assumptions have to be made in order to advance the project. The VE team shall identify those critical assumptions that have influenced the decision-making on this project.

e. Study Constraints – Constraints or limits on the VE study are used to define the boundaries for those project aspects that the project team will consider changing and those that cannot be changed. These constraints may result from a variety of political, technical, schedule, or environmental causes. Excessive constraints tend to inhibit the VE team's ability to identify creative opportunities for value improvement. Inadequately defined constraints can result in the VE team's effort being wasted in areas where there is no possibility of change. The Facilitator shall coordinate with the Contractor or District to identify any such constraints.

f. Risks (both threats and opportunities) –The VE team shall identify any significant risks that have not been addressed by the project design or by the project management plan.

g. Quality Objectives – The VE team shall identify any specific quality objectives for the project or feature of the project (e.g. LEED requirement, finishes requirement, durability, sustainability, maintainability, etc.).

h. Function Analysis – The VE team shall discuss and document the functional requirements of the project. This is often shown in a FAST Diagram but other function analysis methods are equally acceptable.

i. Alternative Summary – The VE team shall develop a summary table of the VE Alternatives/Proposals, including the VE team's list of alternatives that would result in the optimum reasonable cost avoidance.

6. The VE team shall develop customary analysis and documentation of the VE Alternatives/Recommendations. Each VE Alternative/Recommendation should include a description of the original design (if applicable), description of the alternative concept, advantages and disadvantages of making the change, detailed discussion, sketches and calculations (where appropriate), and cost comparison to assess the cost savings potential. Additionally, each should include a Life Cycle Cost Analysis (LCCA) if appropriate. If the alternative concept is a deviation from the project's programming document, i.e. DD Form 1391, or other guidance and local requirements, this should be documented as well.

7. Unless otherwise coordinated with the VEO, the VE team shall prepare and present the results of the Workshop to the District, designer, and other key stakeholders at the conclusion of the Workshop.

Post-Workshop

1. The Facilitator shall review the alternatives/recommendations for accuracy and completeness, revise as necessary.

2. The Final VE Report (see Report Content) and the Alternative Tally Sheet shall be submitted in accordance with the scope. The scope contains the distribution list which includes the number of bound reports required and location to be delivered. A searchable PDF of the report shall be submitted to the VEO.

3. Alternative Tally Sheet Excel file with the VE Alternative/Recommendation summary, cost avoidance, rating columns for key decision makers, and remarks column (see attached example; an electronic version may be requested from the VEO).

4. The Facilitator shall lead and manage the implementation meeting. The following information shall be included in a PowerPoint® (or similar) presentation:

a. Study Dates and Location
b. P2 number
c. Project number
d. Project name and location
e. VE team roster
f. Summary table of VE Alternatives/Recommendations with recommended action for implementation
g. Slides for illustration during discussion of individual ideas

5. After the Implementation Meeting, the Contractor shall electronically submit to the VEO an update to the Alternative Tally Sheet and a VE Study Executive Summary. Results shall include technical justifications why each proposal is accepted/partially accepted/further evaluated/rejected/withdrawn. The Alternative Tally Sheet shall be sorted by acceptance category and an order of magnitude savings shall be reported for each category.

REFERENCES

ER 11-1-321, Change 1 Value Engineering; dated 01 January 2011

ER 1110-345-100, 15 Feb 94, Design Policy for Military Construction, paragraph 6q, "Value Engineering."

ASTM E 833-00, Standard Terminology of Building Economics, presents a definitive glossary of terms used in value engineering and cost analyses of construction alternatives.

ASTM E 1699-95, Standard Practice for Performing Value Analysis (VA) of Buildings and Building Systems, based on the standard methodology established by SAVE International presents detailed explanations of the value engineering process.

ASTM E 2013-99, Standard Practice for Constructing FAST Diagrams and Performing Function Analysis During Value Analysis Study, is an explanation of some of the methods used for function analysis, as taught in both the USACE PROSPECT course in Value Engineering and the SAVE Module I course.

Value Methodology Standard, published by SAVE International®, presents detailed illustration of the Value Engineering process.

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REPORT CONTENT

1. Cover shall identify:
    a. District
    b. Project name and location
    c. Value Engineering contractor's name
    d. P2 number and project number (if applicable)
    e. Report date
2. Executive Summary shall include or summarize the following
    a. P2 number
    b. Project number
    c. Project name and location
    d. Acquisition method (Design/Build, Design/Bid/Build, etc.)
    e. Level of design (Draft RFP, 35%, 65%, 95%, etc., do not use ambiguous terms like 'interim')
    f. Workshop date and location
    g. District responsible for the design
    h. Project designer
    i. Value Engineering contractor
    j. Summary project description
    k. Action items
    l. Key agreements
    m. Critical assumptions
    n. Study constraints
    o. Risks
    p. Quality objectives
    q. Function analysis findings
    r. Summary table of VE Alternatives/Recommendations and related cost avoidance
    s. Summary table of VE team's opinion on those VE Alternatives/Recommendations that when combined result in the optimum realistic cost avoidance
3. Project description (brief 1 to 3 page overview of the project plan or design being studied)
4. Provide a list of VM/VE Workshop participants
5. Identify the VE team
6. Function Analysis System Technique (FAST) Diagram or other recognized technique
7. Developed Alternatives with:
    a. Description of Original Concept
    b. Description of Alternative Concept
    c. Bullet list of Advantages and Disadvantages
    d. Discussion/Justification explaining the alternative and the rationale for the recommended alternative; include discussion of any deviations from the programming document (DD1391), agency guidance or local requirements
    e. Sketches
    f. Calculations
    g. Cost analysis including life cycle cost analysis, if appropriate
8. Creative idea list, a complete list of brainstorming ideas, not just those analyzed/developed
9. Cost Model or other histogram

12 September 2016