



Oversight Procedure 30 — Value Engineering and/or Constructability Review

1.0 PURPOSE

The purpose of this Oversight Procedure (OP) is to describe the review, analysis, and recommended procedures and reporting requirements that the Federal Transit Administration (FTA) expects of the Project Management Oversight Contractor (PMOC) with regards to the completeness and reliability of the results of the project sponsor's Value Engineering (VE) and/or Constructability Review (CR) programs. This OP also provides instructions for how the PMOC should assess the respective program's usefulness as a management tool for controlling project costs and improving the overall value of the FTA's investment in the project.

While this OP focuses on Capital Investment Grant (CIG) projects, which have specific requirements by law, it also applies to all capital projects. FTA will issue Implementation Plans (IPs) to clarify the specific reviews and expected deliverables based on the project types.

2.0 BACKGROUND

2.1 Value Engineering

The value methodology is a systematic process that follows the Job Plan. A multidisciplinary team will apply a value methodology to improve the value of a project by analyzing the functions.

A Value Study is the formal application of a value methodology to a project to improve its value. This application is also referred to as value engineering, value analysis, value planning, or value management.¹

1. Applicability

- a) Major Capital Projects. VE is required for all major capital projects. A major capital project is usually identified early in the grant application process. FTA guidance requires VE on all projects unless the project sponsor receives an approved waiver from FTA.
- b) Non-Major Capital Projects. Project sponsors are encouraged to conduct VE on all construction projects including, but not limited to, bus maintenance and storage facilities, intermodal facilities, transfer facilities, revenue railcar acquisition and rehabilitation, and offices. The level of VE study should be commensurate with the size of the project.

2. Timing

- a) VE on a project should be performed early in the design process before major decisions have been completely incorporated into the design. This could be as early as FTA's evaluation of the project's entry to Project Development (PD) or near the end of PD and prior to a project's Entry to Engineering. For Design-Build projects, the VE should be conducted prior to completion and release of the Request for Proposal (RFP). Some large

¹For a discussion of the Job Plan see Appendix B.

or complex projects, generally with costs surpassing \$500 million, may need to two VE studies, one prior to Entry into Engineering and a second at approximately 60 percent design. Project sponsors should make this determination early in the project's life cycle and clearly document the VE plan and timing in the Project Management Plan.

3. Reporting

- a) Project sponsors with major capital projects are required to submit a VE report to the appropriate FTA Regional Office at the end of each Federal Fiscal Year (FFY) (October 1) indicating the results of their VE efforts. Copies of the VE report form are available in each Regional Office. **Note: This requirement is independent of the recommendations and guidance contained in the OP.**

4. Expected Results

- a) Well-conducted VE studies should generally return \$20 dollars in savings for every \$1 invested in the study. Many studies will realize higher ratios, and some will realize less. Greater savings are possible during the planning, conceptual design and project development phases because the potential to implement planning-level design changes is possible without affecting the schedule. Ideally, these changes would occur prior to Entry into Engineering.

5. Other Applications

- a) VE may also be required in cases where the project is found to exceed budget prior to award of a Full Funding Grant Agreement (FFGA), a Small Starts Grant Agreement (SSGA), at 100-percent design, or after the receipt of bids. In these cases, the intent of the VE is to reduce cost to the point of affordability. The PMOC may also be required to review Value Engineering Change Proposals (VECP)² initiated by the construction contractor or vehicle supplier. VE proposals may also take the form of Alternative Technical Concepts (ATCs) submitted (if allowed) by design-build teams during the proposal process. If ATCs are permitted by the procurement process, they are normally evaluated by the project sponsor's staff and consultants, and the project sponsor is normally under no obligation to accept any ATC.

2.2 Constructability Reviews

A Constructability Review (CR) is a structured review of the project and design documents to ensure that construction of the project is feasible, and that the design as represented in the plans³ and specifications or bridging documents are biddable and constructible in a safe manner.

²VECPs involve recommendations made by the construction contractor for saving cost after the award of their contract. Generally, the cost savings are split on a 50:50 basis between the owner and the construction contractor. Specific language must be included in construction or procurement contracts to incorporate the VECP process and define the sharing of any resultant savings.

³Bridging documents are those materials (plans, performance requirements, specifications, etc.) prepared by the project sponsor (or one or more consultants retained by the sponsor) to guide the

1. Applicability:
 - a) Major Capital Projects. CRs are encouraged on major capital projects. A major capital project is usually identified early in the grant application process.
 - b) Non-Major Capital Projects. Project sponsors are encouraged to conduct CR on all substantial construction projects including but not limited to bus or rail maintenance and storage facilities, intermodal facilities, transfer facilities, and offices, with the extent of the CR to be commensurate with the size and complexity of the project.
 - c) Projects Using Alternative Delivery Methods. Project sponsors are strongly encouraged to conduct a CR for any project considered for an alternate delivery method or for any contract being considered for an alternate delivery method.
 - i) Alternate delivery methods are those other than competitive low-bid and may include design-build, Construction Manager/General Contractor (CM/GC) or Construction Manager at Risk (CMAR); Design-Build-Operate and Maintain (DBOM); or Public Private Partnership (P3).
2. Timing:
 - a) A CR conducted early in the project development cycle should focus on (a) site constraints; (b) schedule constraints; and (c) resource constraints. Site constraints include the presence of existing underground and overhead utilities, access, availability of lay down and storage areas, and availability of utility services and height or clearance restrictions. Schedule constraints include time of year, weather restrictions, seasonal environmental restrictions, local construction moratoria, and permissible work hours. CRs conducted prior to the advertisement of a project or contract for bids or proposals focus on whether the project or contract is biddable and whether the contract documents are complete, clear, and unambiguous.
 - b) CR on a project should be performed relatively early in the design process before design concepts are fixed and while there is still an opportunity to influence factors such as location, access, etc. This may be near the end of PD and prior to a project's Entry to Engineering. For Alternate Delivery projects or contracts such as Design-Build, the CR should be conducted before the RFP is finalized and released. In Design-Build procurement that uses a Request for Qualifications (RFQ) process to pre-qualify Design-Build teams, it may be beneficial for the project sponsor to perform the CR after receiving and evaluating qualifications but before the RFP is completed.
3. Expected Results:
 - a) An effective CR early in the PD process may identify situations where conditions restrict access, limit the use of certain construction techniques or equipment, or result in unsafe working conditions. Late-stage CRs will point out gaps or inconsistencies in the contract

design-build contractors in the preparation of their design-build proposals. The objective of the bridging documents is to accurately communicate the sponsor's (including relevant third parties') responsibilities and expectations to the prospective design-build contractors so that parties' objectives are well aligned.

and design documents or missing information that, if not corrected, might cause contractors to prepare inaccurate bids with excessive contingency. In all cases, a CR should identify risks specifically associated with the constructability of the project or contract. Among the risks that should be considered are unusually complex or “signature” structures incorporating expensive materials, glazing, or coating systems that may be costly to construct and/or maintain. As in the case of VE reviews, greater benefits accrue early in the PD process by avoiding changes during later stages of design or potential construction change orders.

4. Other Applications:

- a) A CR may also be indicated in situations where a project or contract package is met with resistance in the marketplace. For example, if there are no bids or proposals or there are extremely high bids or proposals. In these cases, the project sponsor is advised to debrief the contractors to determine the probable cause of the resistance before proceeding with additional actions such as re-scoping or re-design. Re-bidding a job will result in delays in all cases; an alternative approach is to advertise the pre-final design documents for industry review in an effort to avoid an unsatisfactory procurement outcome.

3.0 OBJECTIVE

The objective of this review is to provide FTA with the PMOC’s professional opinions regarding the overall effectiveness of the project sponsor’s VE or CR programs. VE is a required activity for major capital projects. VE workshops are expected to identify alternative approaches to meeting project requirements that result in capital and/or operating cost savings to the project sponsor. CRs are designed to avoid problems and cost increases resulting from not adequately considering the factors that could affect a contractor’s ability to efficiently construct a project or the problems inherent to the project sponsor’s plans, specifications, and contract documents.

4.0 REFERENCES

The PMOC should be familiar with the statutes, regulations, policies, guidance documents and circulars listed in OP 01. These are the principal, but by no means the only, references to Federal legislation, regulation, and guidance that apply to the project work under this OP.

Value Engineering Reviews Only: The PMOC should refer to the Society of American Value Engineers (SAVE) International Value Standard 2015 (or current edition) and Appendix B, which describes the VE process.

5.0 PROJECT SPONSOR SUBMITTALS

The PMOC shall obtain the following from the project sponsor in advance of performing the review.

5.1 Value Engineering

Before conducting the VE workshop, the PMOC shall obtain the following from the project sponsor:

- VE work plan, including proposed list of participants/disciplines and estimated labor hours for the analysis; and
- Orientation memoranda including logistics, assumptions, any scope limitations applicable to the study, cost models (if used), and materials (e.g., plans, specifications, materials list, and cost estimates to be reviewed by participants prior to the study).

After completing the VE workshop, the PMOC shall obtain the following from the project sponsor:

- Draft VE report, including all VE recommendations;
- Final VE report, including the disposition of the VE recommendations; and
- Documentation that adopted VE recommendations have been incorporated/implemented.

5.2 CONSTRUCTABILITY REVIEW

Before conducting the CR workshop, the PMOC shall obtain the following from the project sponsor:

- CR work plan including scope of the review, preliminary schedule, list of participants/disciplines, and estimated labor hours for the analysis; and
- Orientation memoranda including logistics and schedule; scope of the review; limitations, if any; project delivery or project execution plan; and descriptions, plans, specifications, material lists, and cost estimates or other materials provided to participants for advance study.

After completing the CR, the PMOC shall obtain the following from the project sponsor:

- Draft CR report with recommendations;
- Final CR report, including the disposition of the constructability recommendations; and
- Documentation that adopted recommendations have been incorporated and/or implemented in the project plans or contract documents.

6.0 SCOPE OF WORK

6.1 GENERAL REQUIREMENTS

The scope of work for the PMOC will be similar for both a VE review or CR and will generally require the PMOC to do the following:

- Obtain copies of the project sponsor's documents for review in advance of the planned activities.
- Review the VE or CR work plan to determine if the plan is complete, meets the relevant standards and, if implemented as planned, is likely to produce the intended results and be beneficial to the sponsor's team and project.
- Prepare and submit a report to the COR/ACOR (Contracting Officer's Representative/Alternate Contracting Officer's Representative) summarizing the work

plan review including observations, comments, and recommendations for improvement. Provide a copy of the report to the project sponsor if directed by the COR/ACOR.

- If authorized by FTA, attend the sponsor's VE or CR workshop. Active participation by the PMOC (as distinguished from attendance and observation) is encouraged only in areas where the PMOC's knowledge and experience with relevant Federal processes would be beneficial to the participants. The PMOC should use discretion and good judgment when offering professional opinions on other topics being discussed.
- Prepare and submit a trip report to the COR/ACOR summarizing the PMOC's workshop attendance, including observations and comments. Provide summaries of significant findings or conclusions and identify planned follow-up activities.
- Obtain copies of interim and final VE or CR reports and associated documentation. Review the reports and provide comments to the COR/ACOR regarding the adequacy and completeness of the reports, including the PMOC's professional opinions regarding the appropriateness of the workshop recommendations and the disposition of the recommendations.
- Follow-up with the project sponsor on the implementation of workshop recommendations as part of the PMOC's routine monitoring of project activities. Include the relevant information as part of regular project monitoring reports.

6.2 VALUE ENGINEERING

6.3 Evaluation Criteria

The PMOC shall consider the following in assessing the effectiveness of the project sponsor's VE activities:

- VE study was conducted in accordance with the VE Job Plan and met the standards for VE workshops established by SAVE International (See Appendix B).
- Supplied design information was sufficient to conduct the VE study, including:
 - Complete cost estimate following the Standard Cost Categories (SCC) elements corresponding to the reviewed plan set
 - Design memoranda for key disciplines
 - Design criteria
 - Conceptual (10 percent), 30 percent, or 60 percent completed plan set
 - Draft specifications
 - Final Environmental Document (Environmental Impact Statement/Environmental Assessment/Categorical Exclusion) and applicable decision documents (Record of Decision/Finding of No Significant Impact)
 - Milestone schedule
- VE team is multidisciplinary, independent from the project team, and qualified to conduct the study.
- VE team leader is a Certified Value Specialist (CVS) certified by SAVE International.
- VE Job Plan endorsed by SAVE International has been followed.

- Final VE report includes the “disposition” of each VE recommendation.
- Decisions to reject VE proposals were based on reasonable criteria.
- Accepted VE proposals have been incorporated into the revised plan set and processed through the project sponsor’s Configuration Control Board (or equivalent organization).

Under some circumstances, VE may be less formal and may not strictly follow SAVE protocols, such as: 1) cost reduction efforts for specific elements of a project (e.g., high Right of Way [ROW] costs); 2) for very small projects; or 3) for the preparation of VECPs by the construction contractor.

6.4 Implications of Alternate Delivery Methods on Value Engineering

Project sponsors are increasingly using alternative project delivery methods such as Design-Build, CM/GC, CMAR, and P3 instead of the traditional Design-Bid-Build (DBB) approach. If the project sponsor chooses an alternate delivery method, the approach to VE would be the same as for a traditional DBB project up until Entry into Engineering or early in the engineering phase.

The specific timing of the VE activity will vary somewhat depending on the delivery method selected and the associated schedule for implementation, i.e., VE could be done near the completion of Project Development or early in engineering by the project sponsor. After a Design-Build contract is advertised, the prospective bidders will perform VE when competing for the project and during actual construction, assuming that a VECP provision is included in the contract documents.

The PMOC does not have oversight responsibility during the bidding phase but may be required to evaluate the contractor’s VECP documentation. Typically the project sponsor’s internal staff evaluates contractor-initiated VE or VECP efforts, not persons accredited by SAVE International, which is appropriate.

7.0 CONSTRUCTABILITY REVIEW

7.1 Evaluation Criteria

The PMOC shall consider the following when assessing the effectiveness of the project sponsor’s CR activities.

- Information supplied to the CR team was sufficiently complete and up-to-date to conduct the study, including:
 - Documentation related to the project sponsor’s selection of project delivery methods, contract packaging, and any owner-furnished materials
 - One or more plan sets representing the current level of project development (conceptual, 30 percent, 60 percent, 95 percent, etc.)
 - A complete cost estimate for the project or contract(s) being reviewed in native format (the estimate should also be keyed to FTA’s SCC)
 - Master project schedule in sufficient detail to show the relationship between the various construction contracts or packages, contract durations including procurement activities, and major project milestones such as completion of National Environmental Policy Act (NEPA), FFGA, ROW acquisition, etc.

- Draft contract provisions and technical specifications
- Draft or Final Environmental Document (EIS/EA/CE) and FTA Decision Document
- CR team is multidisciplinary, independent from the project team, and qualified to conduct the study
- CR team leader has the experience and qualifications to conduct the review
- Constructability Review Plan has been followed
- Final Constructability Review Report includes the “disposition” of each of the CR recommendations
- Disposition of the CR recommendations is reasonable and based on sound criteria
- That the accepted recommendations have been incorporated into the sponsor’s Project Delivery Plan and the appropriate plans and other contract documents, and that these materials have been processed through the project sponsor’s Configuration Control Board (or equivalent organization).

7.2 CR Staffing

Staffing for a CR will depend on whether the scope is an entire project, a single contract, or multiple contract packages. The team should be multidisciplinary, including staff experienced in the construction or procurement of those SCC elements (10 through 80) that have the greatest effect on cost, operability, and risk. For a fixed guideway project, these will generally include:

- CR Team Leader
- Construction Manager
- General Civil Engineer
- Structural Engineer
- Systems Engineer
- Specialty Construction Experts (bridges, tunnels, underground stations, and trackwork, if applicable)
- Station Architect
- Construction Cost Estimator
- Construction Scheduler
- Project Sponsor Representatives (including Project Manager, Environmental Manager, and Construction Manager)

The team size will vary from five persons, for a small project or single contract package, to twelve or more for a complex project of \$1 billion or more with multiple contract packages or delivery methods. For these large projects, the team may be divided into two or three subteams assigned to individual contract packages.

8.0 REPORTS, PAPERS. PRESENTATIONS

The PMOC shall provide the COR/ACOR with a written report, formatted in compliance with OP 01, of their findings, analyses, recommendations, professional opinions, and description of the review activities undertaken, as well as other supporting information.

**TPM-20 Office of Capital Project Management
Project Management Oversight**

After the COR/ACOR has transmitted formal acceptance of the report, the PMOC should share the report with the project sponsor. If there are differences of opinion between the PMOC and the project sponsor regarding the PMOC's findings, the COR/ACOR may direct the PMOC to reconcile their findings with the project sponsor and provide the COR/ACOR with a report addendum covering the modifications agreed upon by the project sponsor and PMOC.

When directed by the COR/ACOR, the PMOC shall perform data analysis and develop data models that meet FTA requirements using Microsoft Office products, such as Excel and Word, and use FTA templates when provided.

Upon approval by the COR/ACOR, the PMOC may add other software as required, but they should provide the COR/ACOR with documentation and report data when complete.



APPENDIX A: ACCEPTABLE QUALITY LEVEL

	DESIRED OUTCOME	PERFORMANCE REQUIREMENT	CHECKLIST	ACCEPTABLE QUALITY LEVEL	PERFORMANCE MEASURE	MONITORING METHOD
1.	The PMOC shall validate the effectiveness of the project sponsor's project VE or CR process.	R1a. The PMOC shall develop and document a process for review and analysis of a project sponsor's VE or CR program.	<input type="checkbox"/>	Q1a. VE process exists and has been followed according to the SAVE International Standard. CR process exists and has been followed.	M1a. Evidence of a documented process	MM1a. Periodic review by FTA
		R1b. The PMOC shall use its professional judgment to validate the usefulness of the project sponsor's VE or CR program	<input type="checkbox"/>	Q1b. Assessment must be made.	M1b. Documented assessment of the VE or CR program	MM1b. Periodic review by FTA
2.	FTA and the PMOC shall have full understanding of the project sponsor's VE or CR program including:	R2a. The PMOC shall provide FTA with their opinion as to the completeness and level of detail of the pre-workshop activities.	<input type="checkbox"/>	Q2a. Professional opinion that the pre-workshop activities were completed per the SAVE International Standard for VE or per the plan for CR	M2a. Documented evidence of the PMOC's review for completeness of the pre-workshop activities	MM2a. Periodic review by FTA.

**TPM-20 Office of Capital Project Management
Project Management Oversight**

	DESIRED OUTCOME	PERFORMANCE REQUIREMENT	CHECKLIST	ACCEPTABLE QUALITY LEVEL	PERFORMANCE MEASURE	MONITORING METHOD
	Pre-Workshop Activities Workshop Post-Workshop Activities Documented implementation of accepted VE or CR proposals	R2b. The PMOC shall provide FTA their opinion as to the completeness and level of detail of the Workshop activities.	<input type="checkbox"/>	Q2b. Same as above for workshop activities	M2b. Documented evidence of a PMOC review for completeness of the workshop activities	MM2b. Periodic review by FTA.
		R2c. The PMOC shall provide FTA their opinion as to the completeness and level of detail of the post-workshop activities.	<input type="checkbox"/>	Q2c. Same as above for post-workshop activities	M2c. Documented evidence of a review by PMOC for completeness of the post-workshop activities	MM2c. Periodic review by FTA.
		R2d. The PMOC shall provide FTA their opinion as to the completeness and level of detail of the implementation of accepted VE or CR proposals. .	<input type="checkbox"/>	Q2d. Same as above for VE or CR implementation activities	M2d. Documented evidence of a PMOC review for appropriateness of the VE or CR implementation activities	MM2d. Periodic review by FTA.

**TPM-20 Office of Capital Project Management
Project Management Oversight**

	DESIRED OUTCOME	PERFORMANCE REQUIREMENT	CHECKLIST	ACCEPTABLE QUALITY LEVEL	PERFORMANCE MEASURE	MONITORING METHOD
3	The PMOC shall document that VE or CR changes have beneficial impact to the project sponsor's overall scope, schedule, and budget in their reports to FTA.	R3a. The PMOC shall clearly identify potential benefits of VE or CR recommendations to the project sponsor's program/project based on their professional opinion	<input type="checkbox"/>	Q3a. Potential benefits identified by the implementation of accepted VE or CR recommendations are documented	M3a. Identified risks and potential project impacts on safety and security, project scope, cost, and schedule	MM3a. Periodic review by FTA
4	The PMOC shall document their findings, professional opinions, and recommendations in a report to FTA.	R4a. The PMOC shall present their findings, conclusions, and recommendations to FTA and reconcile other reports and those recommendations with the project sponsor to the extent possible.	<input type="checkbox"/>	Q4a. Reports and presentations are professional, clear, concise, and well written. The findings and conclusions have been reconciled with other PMOC reports and have been reconciled with the project sponsor to the extent possible.	M4a. PMOC's findings, conclusions, recommendations, and presentation	MM4a. Periodic review by FTA



APPENDIX B: SAVE STANDARDS FOR VALUE ENGINEERING WORKSHOPS

SAVE International guidance provides the standard for how to conduct a VE workshop. Federal agencies, including FTA, the Federal Highway Administration, Environmental Protection Agency, Department of Defense, Department of Energy etc., base their value programs on the SAVE Standard. The PMOC shall evaluate the project sponsor's VE program against the SAVE Standard (the "standard") formally referenced as the *Value Standard and Body of Knowledge* (2015 or the latest edition), SAVE International.

1.0 MINIMUM STANDARDS

According to the SAVE Standard, the following conditions must be met to represent an acceptable VE study:

- The Value Study team follows an organized Job Plan that includes the six phases identified in this standard and perform Function Analysis on the project.
- The Value Study team is a multidisciplinary group of experienced professionals and project stakeholders. Team members are chosen based on their expertise and relevant experience.
- The Value Study team leader is trained in value methodology techniques and is qualified to lead a study team using the Job Plan. The SAVE International Certification Board certifies, with the designation CVS, those individuals who have met specified training requirements and have demonstrated competency in the application of the Job Plan.
- The team facilitator shall be a CVS or an Associate Value Specialist serving under the guidance of a CVS as defined by SAVE certification criteria or shall be the holder of another active certification recognized by SAVE International.

2.0 SAVE JOB PLAN

2.1 Pre-Workshop Phase

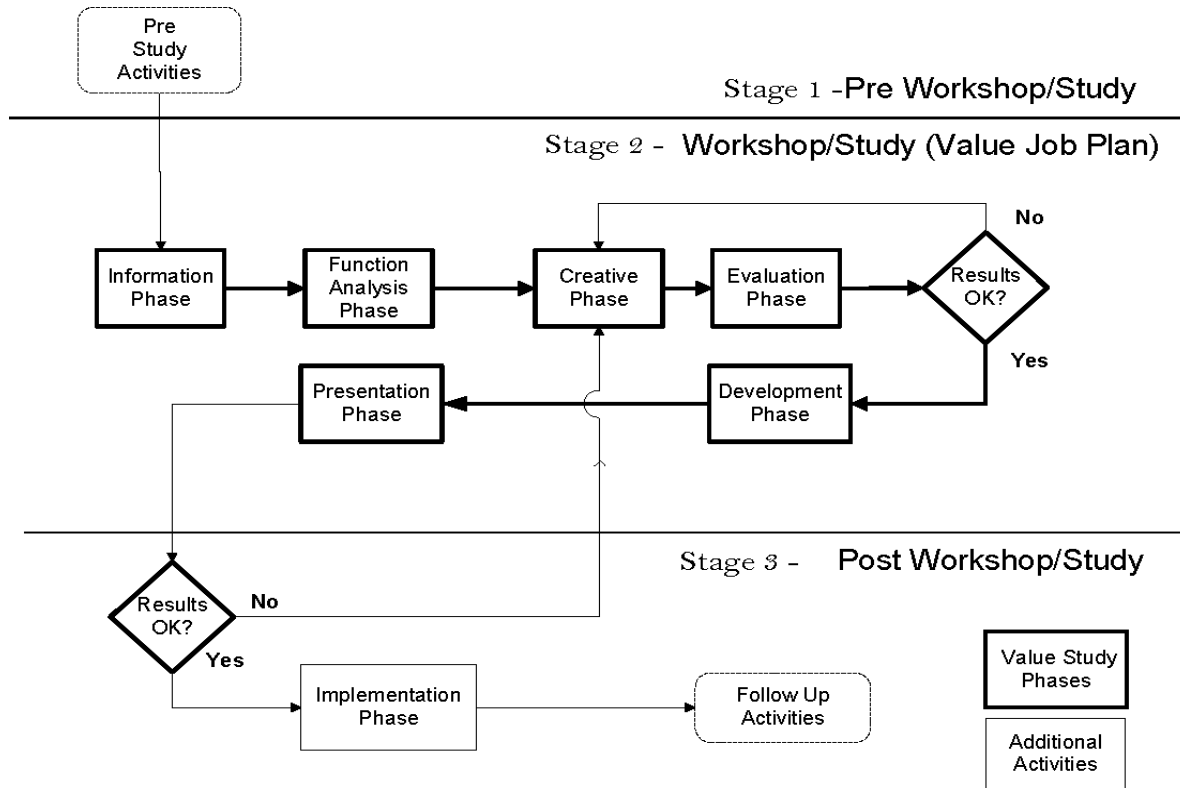
In this phase, the project sponsor prepares for the VE study. This typically involves getting management support for the VE, selecting the appropriate team members, developing the scope of work and objectives for the study, and collecting the required background information for the work.

This latter task includes transmitting the project discipline support memoranda, setting the plan, draft specifications and project schedule, and determining the capital cost estimate. The team defines and distributes the logistics for the study. The main deliverable for the pre-workshop activities includes an orientation memorandum, which will suffice as a work plan for the study.

2.2 Workshop Phase

The workshop includes the six-step process, typically held over five consecutive days, as shown in Figure 1 and described below.

Figure 1.1: Value Study Process Flow Diagram



Step 1: Information Phase – The team reviews and defines the current conditions of the project and identifies the goals of the study.

Step 2: Function Analysis Phase – The team defines the project functions using a two-word active verb/measurable noun context. The team reviews and analyzes these functions to determine which need improvement, elimination, or creation to meet the project’s goals.

Step 3: Creative Phase – The team employs creative techniques to identify other ways to perform the project’s function(s).

Step 4: Evaluation Phase – The team follows a structured evaluation process to select those ideas that offer the potential for value improvement while delivering the project’s function(s) and considering performance requirements and resource limits.

Step 5: Development Phase – The team develops the selected ideas into alternatives (or proposals) with a sufficient level of documentation to allow decisionmakers to determine if the alternative should be implemented.

Step 6: Presentation Phase – The team leader develops a report and/or presentation that documents and conveys the adequacy of the alternative(s) developed by the team and the associated value improvement opportunity.

2.3 Post-Workshop Phase

The purpose of the post-workshop activities is to confirm the disposition and benefits of the accepted VE recommendations. The PMOC shall document the benefits in a revised cost

estimate. This shall be performed through the PMOC's review of the modified plan set and through tracking the changes in the project sponsor's configuration management process.

2.4 VE Participants

VE workshops should be multidisciplinary and include staff representing those SCC elements (10 through 80) that have the greatest effect on cost, operability, and risk. For a fixed guideway project, these will generally include:

- Value Engineering Team Leader (CVS)
- General Civil Engineer
- Track Engineer
- Structural Engineer
- Traction Power Engineer
- Vehicle Specialist
- Construction Expert
- Station Architect
- Cost Estimator
- Owner Representatives

The team size will vary from five persons for a small project to fifteen or more for a project of \$1 billion and above. For these large projects, the team may be divided into two or three sub-teams; for example: one team covering the civil, architectural, and guideway elements; a second team covering the systems elements; and a third team evaluating project risks and mitigation measures. In most instances, the hours estimate for a VE evaluation will range between 300 (small project) to 800 (large project), with some projects exceeding 1,000 hours.



APPENDIX C: ACRONYMS

Acronym	Term
ACOR	Alternate Contracting Officer's Representative
ADA	The Americans with Disabilities Act
AGC	Associated General Contractors of America
ATC	Alternative Technical Concepts
AVS	Associate Value Specialist
BEA	Bureau of Economic Analysis
BLS	Bureau of Labor and Statistics
BRF	Beta Range Factor
BY	Base Year
CATEX or CE or CX or Exclusion	Categorical Exclusion
CCIP	Contractor Controlled Insurance Program
CE	Categorical Exclusion
CER	Cost Estimating Relationship
CFR	Code of Federal Regulations
CIG	Capital Investment Grant
CLIN	Contract Line Item Number
CM	Construction Manager

**TPM-20 Office of Capital Project Management
Project Management Oversight**

Acronym	Term
CM/GC	Construction Manager/General Contractor
CMAR	Construction Manager at Risk
COR	Contracting Officer's Representative
CPM	Critical Path Method
CPTED	Crime Prevention Through Environmental Design
CR	Constructability Review
CVS	Certified Value Specialists
DB	Design-Build
DBB	Design-Bid-Build
DBE	Disadvantaged Business Enterprise
DBF	Design-Build-Finance
DBFOM	Design-Build-Finance-Operate and Maintain
DBOM	Design-Build-Operate and Maintain
DEIS	Draft Environmental Impact Statement
DF	Designated Function
DHS	Department of Homeland Security
DTS	Department of Transportation Services
EA	Environmental Assessment
EIS	Environmental Impact Statement

**TPM-20 Office of Capital Project Management
Project Management Oversight**

Acronym	Term
EMP	Emergency Management Plan
ENR	Engineering News-Record
EPCM	Engineering/Procurement/Construction Management
ESWA	Early Systems Work Agreement
FEIS	Final Environmental Impact Statement
FEMA	Federal Emergency Management Agency
FFGA	Full Funding Grant Agreement
FHWA	Federal Highway Administration
FLSSC	Fire/Life Safety and Security Committee
FONSI	Finding of No Significant Impact
FRA	Federal Railroad Administration
FTA	Federal Transit Administration
GAO	Government Accountability Office
GC	General Contractor
GC/CM	General Contractor/Construction Manager
GMP	Guaranteed Maximum Price
HAZMAT	Hazardous Materials
IP	Implementation Plan
LONP	Letter of No Prejudice

**TPM-20 Office of Capital Project Management
Project Management Oversight**

Acronym	Term
LPA	Locally Preferred Alternative
MBE	Minority Business Enterprise
MCC	Management Capacity and Capability
MDBF	Mean Distance Between Failures
MPO	Metropolitan Planning Organization
NEPA	National Environmental Policy Act
NTE	Not-to-Exceed
NTP	Notice to Proceed
O&M	Operation and Maintenance
OCIP	Owner Controlled Insurance Program
ODCs	Other Direct Costs
OHA	Operational Hazard Analysis
OIG	Office of Inspector General
OMP	Operations and Management Plan
OP	Oversight Procedure
P3	Public Private Partnership
PCMG	Project and Construction Management Guidelines
PD	Project Development
PDM	Project Delivery Method

**TPM-20 Office of Capital Project Management
Project Management Oversight**

Acronym	Term
PHA	Preliminary Hazard Analysis
PMO	Project Management Oversight
PMOC	Project Management Oversight Contractor
PMP	Project Management Plan
POP	Project Oversight Plan
PTASP	Public Transportation Agency Safety Plan
QA/QC	Quality Assurance/Quality Control
R&D	Research and Development
RAMP	Real Estate Acquisition Management Plan
RAP	Rail Activation Plan
RCMP	Risk and Contingency Management Plan
RET	Risk Evaluation Tool
RFI	Request for Information
RFP	Request for Proposal
RFQ	Request for Qualifications
ROD	Record of Decision
ROW	Right-of-Way
RSD	Revenue Service Date
S/DBE	Small/Disadvantaged Business Enterprises

**TPM-20 Office of Capital Project Management
Project Management Oversight**

Acronym	Term
SABCE	Stripped and Adjusted Base Cost Estimate
SABS	Stripped and Adjusted Base Schedule
SAVE	Society of American Value Engineers
SCC	Standard Cost Category
SCIL	Safety Certifiable Items List
SGR	State of Good Repair
SIT	System Integration Testing
SITP	Systems Integration Test Plan
SOP	Standard Operating Procedure
SOW	Scope of Work
SSCVR	Safety Certification Verification Report
SSGA	Small Starts Grant Agreement
SSI	Sensitive Security Information
SSMP	Safety and Security Management Plan
STIP	Statewide Transportation Improvement Program
SYGA	Single Year Grant Agreement
TAR	Travel Authorization Request
TBM	Tunnel Boring Machine
TCC	FTA Office of the Chief Counsel

**TPM-20 Office of Capital Project Management
Project Management Oversight**

Acronym	Term
TCRP	Transit Cooperative Research Program
TIFIA	Transportation Infrastructure Finance and Innovation Act
TIGER	Transportation Investment Generating Economic Recovery
TIP	Transportation Improvement Program
TOD	Transit-Oriented Development
TPE	FTA Office of Planning and Environment
TPM	FTA Office of Program Management
TRB	Transportation Research Board
TSA	Transportation Security Administration
TVA	Threat and Vulnerability Assessment
URA	Uniform Relocation Assistance and Real Property Acquisition Act
U.S.C.	United States Code
VE	Value Engineering
VECP	Value Engineering Change Proposals
WBE	Women Business Enterprise
WBS	Work Breakdown Structure
YOE	Year of Expenditure