

	STATE OF ALASKA DEPARTMENT OF TRANSPORTATION AND PUBLIC FACILITIES		POLICY AND PROCEDURE NUMBER DPDR 05.01.030	PAGE 1 of 6
	Policy and Procedure		EFFECTIVE DATE April 15, 1994	
SUBJECT Value Engineering		SUPERSEDES	DATED	
TITLE Design and Construction	CHAPTER General Design and Construction	APPROVED BY		

PURPOSE AND SCOPE

A. Purpose.

This procedure establishes the organization, implementation, and evaluation of a program for using recognized techniques of value engineering in order to reduce costs and to increase quality and function of selected projects or activities.

B. Scope.

1. Value engineering studies are to be available to every program and activity of the Department. The primary emphasis, however, will be in the design and construction of selected DOT&PF projects under the Capital Improvement Program.
2. All value engineering activities authorized under Policy No. DPOL 05.01.030 will be conducted in accordance with these procedures.
3. Activities of a similar nature, which may be performed by DOT&PF employees or consultants, but which are not in accordance with this procedure, shall not be referred to as "value engineering." This will avoid confusion about the value engineering program.

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PROCEDURE

A. Definitions

Function: The performance feature of a project, item, or activity. Its purpose or what it is designed to do.

Job Plan: Job Plan consists of the 9 phases or steps involved in the value engineering process. References: Value Engineering for Highways, Federal Highway Administration, U.S. Department of Transportation, 1980 Edition. Guidelines for Value Engineering, AASHTO, 1987 edition. The Job Plan includes:

1. Selection
2. Investigation
3. Analysis
4. Speculation
5. Evaluation
6. Development
7. Presentation
8. Implementation
9. Program Review

Life-Cycle Cost. The total cost of an item's ownership over a specified period of time. It includes initial acquisition costs (right-of-way, planning, design, construction), user costs, operation, maintenance, modification, replacement, demolition, financing, taxes, disposal, and salvage value, as applicable.

Region/System: Refers to the Central Region, Northern Region, Southeast Region, Marine Highway System, and HQ Bridge Design.

Value Engineering (VE): The systematic application of recognized analysis techniques, by a multi-disciplined team, which identify the necessary function of a product or service, establish a monetary value or worth for that function, generate alternatives through the use of creative thinking, and provide the necessary function reliably, at the lowest life-cycle cost consistent with performance, maintainability, safety, and aesthetics.

VEP: A Value Engineering Proposal submitted by a prime contractor in accordance with the provisions of a construction contract.

B. Organization

1. The State Value Engineer will be appointed by the Director of Engineering & Operations Standards, and will:
 - a. Develop and implement statewide VE policy and procedures.
 - b. Coordinate VE training.
 - c. Maintain the Headquarters VE program files.
 - d. Monitor, evaluate, and report on the VE activities of the Department.
2. Value Engineering coordinators will be appointed by the Design & Construction Directors for the Central Region, Northern Region, Southeast Region; the Director of the Marine Highway system, and the Chief Bridge Engineer, and will:

- a. Develop guidelines or desk manuals, as necessary, to supplement this procedure for their respective region/system operations.
- b. Establish the Annual VE Study Schedule of projects, utilizing the criteria given under C., below, to be considered for study.
- c. Appoint a study team and team leader for each study, in accordance with D., below.
- d. Ensure that each study is conducted in accordance with the approved VE Study Procedure under E., below.
- e. Maintain records of each VE study conducted and each VEP received.
- f. Monitor projects after the VE study and report on the implementation of VE recommendations.
- g. Follow up after project completion on selected projects to verify accuracy of assumed operating and maintenance costs and value improvement.

C. Study Selection

1. Any project, standard, specification, procedure, or material may be proposed for VE study. Most VE studies will involve CIP projects.
2. Value engineering studies will be proposed for those projects in the DOT&PF 6-Year Capital Improvement Program that will likely show substantial benefits from the application of VE principles. In general, these will be high cost or complex projects or projects with budgetary problems. As a minimum, all projects estimated to exceed \$4 million (for construction and/or right-of-way) will be considered. Further guidance will be developed by the region/system for its selection criteria. A lower threshold, for instance, may be established by each region/system, under its guidelines. Reasons for a non-selection of projects which meet such selection criteria, but which are not selected shall be documented.
3. Both in-house and consultant developed projects will be considered for VE study. Consultant design agreements will include a clause that makes VE study a DOT&PF option.
4. A project may be studied at one or more of the three stages in its development. The stages usually include the Project Assessment (scoping) stage, the Design Concept stage, and the Initial Design (30%) stage. Whenever possible, projects should be proposed during the Project Assessment stage, regardless of when the study itself will be performed.

5. During September, each design group will propose specific VE studies for the following Federal fiscal year. When approved by the appropriate region/system Design and construction Director, these studies will be combined and scheduled to form the basic Annual VE Study Schedule.
6. Value engineering studies may also be proposed at any time by employees of the Department or one of its consultants. Such proposals will require the approval of the appropriate region/system Design and Construction Director. If a proposal is rejected, a written explanation will be sent to the proposer. When approved, these studies will be added to the Annual VE Study Schedule.

D. Team Selection

1. Each Coordinator will maintain a roster of employees with VE experience. The roster will indicate the VE training and studies an employee has participated in. Copies will be available to interested parties on request.
2. Guidelines will be established by Region/System for the selection and appointment of study teams.
3. The VE study teams will be multidisciplinary and comprised generally of 5 to 7 members. A majority of the team members should have previous VE training and experience. Team members will be representative of the discipline areas most affected by the project or issue. Some teams will be supplemented with one or more employees of a consultant, another governmental agency, or the public sector. Assignment of persons directly involved in the development of the project should be avoided.
4. A qualified team leader will be appointed by the supervising engineer to lead each study. As a minimum, the team leader should have completed an approved 40-hour Value Engineering Workshop. Additional qualifications may be required as the size and complexity of projects warrant. Large complex projects should require the services of a Certified Value Specialist (CVS), as prescribed by the society of American Value Engineers.
5. When proposing a VE study, proposers should recommend any specific discipline or employee considered important to the success of the study.

E. Study Procedure

1. Value engineering studies will follow the systematic VE Job Plan. Value engineering studies will normally require 3-4 days of full-time effort by the entire team. The time allotted to each study will be determined in advance.
2. The Coordinator will ensure that an appropriate location is secured for each study and that arrangements are made for all necessary materials and equipment.

3. The Coordinator will ensure that a study Plan is prepared and distributed in advance to each team member. The Study Plan will contain information about the scope of the study, the logistics, and team preparation. The coordinator will also arrange for the pertinent documents to be made available to the team at the beginning of the study. The Study Plan will also indicate the appropriate project number, and activity charge code for the study.
4. Where appropriate, the Coordinator will arrange for persons to present information regarding the project to the team at the beginning of the study, lead a field trip to the project site, or provide other assistance.
5. The team leader will submit a Study Report to the Coordinator at the completion of each study who will review it for completeness and clarity. Any problems will be resolved with the team leader.
6. The Coordinator will forward the Study Report for review to the lowest level management personnel with implementation authority. In most cases an oral presentation is also desirable, in which case, a spokesperson from the study team will be selected to make the presentation.
7. The Coordinator will be responsible for the scope, schedule, and budget of the study.
8. Any person may appeal or contest study recommendations to the region/system director who shall adjudicate the matter.

F. Value engineering Proposals (VEPs)

1. Value Engineering Proposals will only be considered when presented under an approved VE specification which is a part of the construction contract.
2. When a VEP is submitted during the construction phase of a project, the Construction staff will be responsible for evaluating the proposal and making recommendations to management.
3. The Coordinator, when requested, will assist the Construction staff in the evaluation of proposals.
4. Construction will report on the status of all VEPs to the appropriate Coordinator, who will maintain records of each proposal and its outcome.

G. Review, Implementation, & Verification

1. The Coordinator will ensure the expedited review of all Study Reports and VEPs and will facilitate the decision and implementation mechanism whenever possible.
2. The Coordinator will monitor the implementation of all approved VE recommendations.

3. Where feasible, actual savings or other value improvements will be checked against those estimated during the study.

H. Reports

1. Each Coordinator will provide to the State Value Engineer:
 - a. A copy of the region/system VE Guidelines and all changes
 - b. A copy of the region/system Annual VE Study Schedule (due October 1st).
 - c. Copies of all VE study Reports (due 15 days after study).
 - d. An annual report for each Federal fiscal year which will summarize the activities, achievements, problems, and costs of the VE program (due on October 15th). The report will summarize each of the VE study recommendations that were actually implemented. Achievements will, in addition to cost savings, indicate other benefits to the public, the user, or the Department.
2. The State Value Engineer will prepare an annual report to the Director of Engineering & Operations Standards summarizing the activities, achievements, and problems of the statewide program (due on November 1st). The report will show the average benefit/cost ratio for VE studies and made conclusions and recommendations regarding the overall program.

I. Training

1. The 40-hour FHWA/NHI Value Engineering Workshop, or its equivalent will be offered from time to time to Department employees. As an alternative, a two or three-day Value Engineering course, approved by the State Value Engineer, may be substituted when it is determined that the 40-hour workshop is unavailable or not appropriate.
2. One or two positions on each team will be available for untrained individuals, for on-the-job training.
3. A team-leader training course will be offered as deemed necessary to develop a roster of in-house VE team leaders.