



# United States Department of the Interior

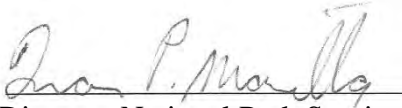
NATIONAL PARK SERVICE

1849 C Street, N.W.

Washington, D.C. 20240

IN REPLY REFER TO:

## DIRECTOR'S ORDER #90: VALUE ANALYSIS

Approved:   
Director, National Park Service

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NPS Guideline 90, "Value Engineering," (Release No. 1, July 29, 1994) is superseded and replaced by this Director's Order and Reference Manual 90, the Value Analysis Handbook.

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## 1. BACKGROUND

Value analysis is an organized team effort directed at analyzing the functions of facilities, processes, systems, equipment, services, and supplies for the purpose of achieving essential functions at the lowest life-cycle cost consistent with required performance,

reliability, quality, safety, and achievement of NPS mission priorities such as resource protection, sustainability and quality visitor experience.

Value analysis is an overlay of the planning and project pre-design, design and procurement process, with the goal of ensuring that all viable cost savings and performance improvements are identified and considered in the decision making. It is a milestone that ensures that alternatives, such as pre-prefabrication, pre-engineered buildings, modular construction, alternative building and construction concepts, and other cost savings and performance improvements will be fully evaluated through design and contracting efforts.

As used herein, value analysis includes value analysis, value engineering, value planning, value management, value methods, and value control (see definitions in section 4), performed by qualified personnel (i.e., those with Society of American Value Engineers certification, or its equivalent).

The National Park Service (NPS), as steward of many of America's most important cultural and natural resources, is charged to preserve them for the enjoyment of present and future generations. The NPS must achieve this mission in a cost-effective and environmentally responsible manner, ensuring value returned for every agency expenditure and action. Management decision-making and activities throughout the national park system should utilize value analysis, which is mandatory for all Department of the Interior (DOI) bureaus, to help achieve this goal.

Value analysis will be informed by consideration of all (1) statutory and regulatory requirements, for example, those imposed by the National Environmental Policy Act of 1969 (NEPA) and the National Historic Preservation Act (NHPA), and (2) additional requirements or standards imposed as a matter of NPS policy, such as National Fire Protection Association (NFPA) codes. Value analysis in and of itself, however, cannot ensure compliance with such requirements.

## **2. PURPOSE AND SCOPE**

The purpose of this Director's Order is to set forth the policy and required procedures necessary to establish and maintain a productive value analysis program.

Value analysis is mandatory for all DOI bureaus, and the NPS value analysis program will apply to all NPS programs, projects, and activities. Consistent with the thresholds established in sections 5.B and 5.C, the following are subject to value analysis:

- All construction programs (as defined in section 4), including but not limited to, line item, recreation fee demonstration, Federal highways, donations/partnerships, fire protection, housing, repair/rehabilitation, and park pass; and
- All administration and management programs (such as administration, supervision, labor, procurement, operations and maintenance).

This Director's Order is not intended to document all relevant procedures and requirements. For a comprehensive compilation, employees must refer to Reference Manual 90, the Value Analysis Handbook.

### 3. AUTHORITY

Authority to issue this Director's Order is contained in the [NPS Organic Act \(16 USC 1 through 4\)](#), and delegations of authority contained in [Part 245 of the DOI Manual \(DM\)](#).

Other specific authorities and requirements governing NPS value analysis operations are found in [41 USC 432](#), [OMB Circular No. A-131](#), [369 DM 1](#), and [Executive Order No. 13148 \(Greening the Government through Leadership in Environmental Management\)](#). Sections 9.1.1, 9.4.2, 9.4.3.5, and 10.2.6.1 of [Management Policies \(2001\)](#) address value analysis.

### 4. DEFINITIONS

**Choosing by Advantages (CBA).** A system of concepts and methods to structure decision-making. CBA quantifies the relative importance of non-monetary advantages or benefits for a set of alternatives and allows subsequent benefit and cost consideration during decision-making. CBA may be used as an evaluation method during the evaluation phase of the value analysis job plan, in lieu of the more traditional weighted-factor analysis. CBA is the preferred evaluation method where critical non-monetary benefits need to be evaluated.

**Construction Program.** Comprises planning, design, construction, maintenance, alteration or repair of buildings, structures, or other real property, and includes all preparatory pre-design design activities. Structures include but are not limited to, buildings, pavement, bridges, dams, irrigation systems, water supply and sewer systems, power generation and transmission systems, hatcheries, recreation facilities, and installation of fixed equipment.

**Function Analysis.** A process that defines the goal or objective to be achieved by a project, program, concept, system or system component. A basic function reflects basic needs, the primary reasons for the existence of the project, system or component. A secondary function reflects desires or wants beyond basic needs.

**Life-cycle cost (LCC).** The total cost of a system, facility, or other product, computed over its useful life. It includes all relevant costs involved in acquiring, owning, operating, maintaining, and disposing of the system or product over its useful life or other specified period of time, including environmental and energy costs. Economic analysis is used in determining LCC.

**Modeling.** An analysis of a design or its alternatives in terms of square footage, cost, life-cycle cost, time, or risk, with the objective of identifying opportunities for reducing costs or improving benefits or performance. For example, a cost model would look for areas of high cost or poor value where a value study team's effort might be most effectively focused to improve or reduce the cost of the project.

**Program/Project/Activity (PPA).** Any item specifically identified in tables or written material set forth in the Interior and Related Agencies Appropriations Act or accompanying reports.

**Value Analysis/Value Engineering/Value Management/Value Planning.** In general usage, these terms may be used interchangeably.

- Value analysis is typically applied at facility programming and pre-design stages of construction
- Value planning is most often used when value methods are applied on general management or similar planning activities.
- Value engineering most typically relates to using value methods during design and construction phases.
- Value management is often used when conducting a value engineering study of administrative procedures, organizational structures, or management systems.

**Value Methods.** Methods used in value analysis include (1) function analysis, (2) cost modeling and analysis, (3) project modeling (quality, square footage, risk, etc.), (4) life-cycle costing, (5) creative techniques to expand alternatives, such as brainstorming, and (6) structured evaluation methods using benefit/cost comparisons, such as Choosing by Advantages (CBA).

## **5. INSTRUCTIONS AND REQUIREMENTS**

### **5.A. Value Analysis Program**

**5.A.1** In accordance with Part 369, Chapter 1 of the DOI Manual (369 DM 1):

(a) All NPS programs, projects, and activities will use value analysis as a management and decision-making tool in (1) “performing or contracting for the planning, design, construction, repair and rehabilitation/renovation of facilities,” and (2) “administrative and management programs to improve operations, identify and remove nonessential capital and operating costs, and improve and maintain optimum quality of program and acquisition functions.”

(b) Programs, projects, and activities that “administer Federal grant programs involving construction, repair and rehabilitation of facilities, will encourage grantees to implement value analysis wherever possible.”

**5.A.2** The NPS value analysis program will comply with the substantive and procedural requirements of OMB Circular No. A-131, 369 DM 1, and Executive Order No. 13148.

**5.A.3** The NPS will meet or exceed its DOI-imposed fiscal year cost-savings (costs avoided and saved) goal of four percent of the aggregate value of all construction, repair, rehabilitation, and renovation projects with estimated costs of \$500,000 or more. (See, 369 DM 1, section 1.7A.) The NPS will use value analysis studies and contractor-generated proposals to meet its savings goal.

**5.A.4** Programs, projects, and activities requiring value analysis study pursuant to this Director’s Order will be the subject of value analysis workshops, multi-

disciplinary team efforts conducted by NPS and/or contractor personnel, varying in duration according to the complexity of the subject and the decisions to be reached.

## **5.B Value Analysis Program Thresholds – Construction Related**

**5.B.1** All projects with estimated net construction costs of \$1,000,000 (\$2 million Total Project Cost<sup>1</sup>) or more, without exception, will be subject to at least one value analysis workshop, typically at the pre-design stage. Value-based decision making and value methods are encouraged below \$1 million Net Construction. Value studies and/or documentation may be submitted to the Value Analysis Program Coordinator (VAPC) in the Washington Office – Construction Program Management Division (WASO-PPFL-CPMD).

Scalable value analysis methods such as a Value-based Decision Inventory (VBDI) and mini-value analysis can be considered for projects from \$1 million to \$3.5 million Net Construction (\$2 million to \$5 million Total Project Cost) or with a waiver from the VAPC.

**5.B.2** All projects with estimated net construction costs of \$10 million or more will, at a minimum, utilize value analysis at both the (1) pre-design stage, and (2) design stage (during design development and final design).

## **5.C Value Analysis Thresholds – Non-construction Related**

**5.C.1** Non-construction programs, projects, and activities with estimated initial costs of \$1 million or more will be subject to value analysis to improve operations and reduce cost. Such programs, projects and activities include, but are not limited to, general management planning, implementation planning, major Service-wide standards, administrative support systems, major Service-wide procurements, major office reorganizations, and major projects related to park operations and management (e.g., resource inventories, fire management, ecological restoration, artifact conservation, interpretive exhibit development and installation).

Value analysis may also be required when a program, project, or activity is estimated to incur major life-cycle costs exceeding \$1 million.

**5.C.2** Non-construction programs, projects, and activities below the \$1 million threshold will be subject to value analysis at the request of the Director, a Deputy Director, or any Associate or Regional Director with line authority over the program, project or activity. Programs, projects and activities below the \$1 million threshold that are not subject to formal value analysis study are nonetheless encouraged to apply the value analysis methods identified in section 4 of this Director's Order.

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<sup>1</sup> Value analysis is required for all fund sources funding construction-related projects. Net Construction Costs (expected payment to a contractor) are included since it is the only consistently defined figure across all fund sources. Total Project Cost is Net Construction + Construction Contingency [10%] + Construction Management [8%] + Pre-design and Design Costs [17%] + Compliance [5%] + any other construction-related costs. Line Item Construction (gross) is Net Construction + Construction Contingency [10%] + Construction Management [8%].

## **5.D Value Engineering Change Proposal Program – Construction and Non-construction Related**

A Value Engineering Change Proposal (VECP) is a proposed change submitted by a contractor which, through a change in a project's plans, designs, or specifications, would lower the project's cost or improve project benefits to the NPS while maintaining required function and design objectives. Savings are then shared by the contractor and the government.

**5.D.1** All programs, projects, and activities having contractual authority for procurement and/or construction will implement contractor VECP programs, in accordance with Title 43, Part 12, Subpart C and Title 48, Parts 31 and 48, of the Federal Acquisition Regulation (FAR), and Part 48 of the DOI Acquisition Regulation.

**5.D.2** The NPS will encourage contractor participation in the VECP program sufficiently to meet a goal of one VECP for every contract over \$1 million. VECPs will be reviewed by the design team and procuring office for equivalency of quality, function, and value (initial and life-cycle costs). Contract value engineering incentive clauses permit a contractor to retain 55% of the net savings resulting from an adopted VECP. The remaining savings will be retained by the NPS, in accordance with section 1.7(C) of 369 DM 1. Standard contract clauses can be found at FAR 52.248-1, -2, and -3.

**5.D.3** A value engineering incentive clause will be included in all subcontracts of \$500,000 or more, and may be included in any subcontract of lesser value. A contractor may establish any arrangement for subcontractor value engineering incentive payments, provided that such payments will in no way reduce the NPS share of the savings resulting from the adoption of a VECP.

**5.D.4** All NPS programs, projects, and activities will notify the VAPC of any contract modification submitted under the VECP contract clauses, and the disposition thereof. Notification will include a description of the proposed modification, design team evaluation of the contractor's proposal, the design team recommendation and rationale for the decision. Upon acceptance of a VECP by the contracting officer, a copy of the final modification will be forwarded to WASO-CPM documenting the final allocated savings.

## **5.E Annual Report**

**5.E.1** The NPS will prepare an annual value analysis program report (Annual Report) containing data on program savings (costs avoided and saved), project improvements and value added, study costs, and program costs. The Annual Report will be submitted to the DOI Value Engineering Program Manager (MRPS-VEPM) and the Assistant Secretary, Fish and Wildlife and Parks, for review prior to final transmission to OMB.

**5.E.2** All NPS programs, projects, and activities will submit copies of all value analysis study reports to WASO-CPM (2 copies) and the Denver Service Center's

Technical Information Center (1 copy). Where DAB review is required, value analysis reports should be submitted with or before the board submission. Such submissions should include data on (1) study savings (costs avoided and saved), (2) increases in project benefits and enhanced implementation of NPS policies on, e.g., resource protection, sustainability, accessibility, etc., and (3) study costs.

### **5.F Plan of Action**

The NPS will prepare and implement an annual value analysis plan of action (Plan of Action) which clearly lists and prioritizes specific projects and programs for value analysis study. The Plan of Action will be submitted to MRPS-VEPM and the Assistant Secretary, Fish and Wildlife and Parks, for their review.

## **6. RESPONSIBILITIES**

### **6.A Directorate Level**

#### **6.A.1** The Director will:

(a) Ensure that the NPS value analysis program has adequate trained staff (such as Certified Value Specialists and study team leaders), with funding necessary to conduct requisite studies, provide technical assistance, and review all value analysis proposals. The budget will also include funds necessary to cover training, travel and professional activities related to value analysis.

(b) Appoint the VAPC.

(c) Review and forward the Annual Report submitted by the VAPC to the Assistant Secretary and MRPS-VEPM.

(d) Submit the Plan of Action to the Assistant Secretary and MRPS-VEPM, and ensure that it is implemented.

(e) Review value analysis study results through the DAB or the WASO-CPM, which will make recommendations as to (a) the adequacy of value analysis study, and (b) implementation of specific value analysis proposals.

**6.A.2** The Associate Director, Park Planning, Facilities and Lands will develop and issue Reference Manual 90, the Value Analysis Handbook, to further implement *Management Policies* (2001) and this Director's Order. The Value Analysis Handbook will contain standards and other requirements, consistent with Federal law and regulation, with which NPS managers must comply in carrying out their responsibilities. In the interval between issuance of this Director's Order and the Value Analysis Handbook, NPS Guideline 90 may be used to provide necessary interim

guidance. The DOI Value Engineering Guidance Handbook (VE-1), copies of which may be obtained from the DOI Office of Managing Risk and Public Safety (MRPS), may also be used for guidance.

## **6.B Program and Field Staff**

### **6.B.1** The VAPC will:

(a) Promote value analysis throughout the Park Service and provide technical assistance to construction and non-construction-related programs, projects, and activities.

(b) Review and approve value analysis study reports for technical adequacy and provide staff support concerning value analysis to DAB.

(c) Develop and implement Service-wide value analysis training programs.

(d) Conduct selected value analysis studies.

(e) Prepare the Annual Report and submit it to the Director for review prior to its presentation to MRPS-VEPM and the Assistant Secretary. The Report will be submitted so as to reach MRPS-VEPM within 90 days following the end of the fiscal year.

(f) Prepare the Plan of Action and submit it to the Director for review prior to its presentation to MRPS-VEPM and the Assistant Secretary.

(g) Assist the Associate Director, Park Planning, Facilities and Lands in developing the Value Analysis Handbook.

(h) Attend all meetings of DOI bureau/office value analysis coordinators arranged by MRPS-VEPM.

(i) Represent the NPS within the Society of American Value Engineers, International (SAVE, International) and other associations concerned with value analysis and value-based decision-making.

(j) Promote collaboration and the exchange of technical advice between the NPS and the Society of American Value Engineers and other associations concerned with value analysis and value-based decision-making by actively participating in such organizations.

(k) Prepare and submit such additional reports as may be requested by the Director or MRPS-VEPM.

**6.B.2** All NPS managers will assure that the programs, projects, and activities for which they are responsible, comply with all value analysis procedures, requirements, and standards.

*---- End of Director's Order ----*