REPORT OF THE
DEPARTMENT OF GENERAL SERVICES

Value Engineering of State Agency Capital Outlay Projects for Calendar Year 2000

TO THE GOVERNOR AND
THE GENERAL ASSEMBLY OF VIRGINIA

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EXECUTIVE SUMMARY

I. Introduction

The Director of the Department of General Services is required by Section 2.1-483.1:1 of the Code of Virginia to report to the Governor and the General Assembly on or before September 15 of each year the (i) number and value of the state capital projects where value engineering (VE) was employed and (ii) identity of the capital projects for which a waiver of the requirements of Section 2.1-483.1:1 was granted, including a statement of the compelling reasons for granting the waiver. The last report submitted was for calendar year 1999. This report provides information for the period of August 1, 1999 through July 31, 2000

II. Projects

Of all capital outlay projects under some stage of design during this reporting period, fifteen (15) projects with an estimated construction value of $171,055,000 qualified for Value Engineering as required by Section 2.1-483.1:1 of the Code of Virginia and Section 814.0 VALUE ENGINEERING of the Commonwealth of Virginia **Construction and Professional Services Manual for Agencies,** December 1996 (CPSM).

III. Savings

Fourteen projects were value engineered during the period with a total estimated construction value of $165,173,000. Estimated savings recommended by the value engineering teams and accepted by state agencies totaled $6,497,000, or 3.9% of the estimated construction value.

IV. Waivers Granted

One waiver of the VE analysis of a project with an estimated construction cost greater than $5,000,000 was granted.

VALUE ENGINEERING OF STATE CAPITAL OUTLAY PROJECTS FOR THE PERIOD AUGUST 1, 1998 - JULY 31, 1999.

1. Introduction

The Director of the Department of General Services is required by Section 2.1-483.1:1 of the Code of Virginia to report by September 15 each year to the Governor and the General Assembly on the (i) number and value of the capital projects where value engineering (VE) was employed and (ii) identity of the capital projects for which a waiver of the requirements of Section 2.1-483. 1:1 was granted, including a statement of the compelling reasons for granting the waiver. This report provides the information for the period August 1, 1999 - July 3, 2000.

2. Background

Section 2.1-483.1: 1 of the Code of Virginia establishes the requirement for use of value engineering on any capital project costing more than five million ($5,000,000) dollars. This requirement became effective in 1994 and procedures for implementing a value engineering program were developed and issued to state agencies in July 1994.

Value engineering is a systematic process of review and analysis of a project design performed by an independent team of persons not originally involved in the design of the project. The team members are themselves licensed design professionals and the team leader is specially trained in conducting the team study process.

The purpose of the review and analysis of the design is to offer suggestions to the project owner and project design firm that improve project quality and reduce total project cost by combining or eliminating inefficient or expensive parts or steps in the original design or recommending the total redesign of the project using different technologies, materials or methods. Value engineering is often used to deal with cost growth problems during project design. In some cases, a VE study may result in an increase in cost of portions of a project. This generally occurs when the team recommends a design change that may involve a higher initial investment during construction, but is more cost effective when measured on a life cycle basis (construction cost plus long term operating costs).

Not all projects are candidates for VE. Where an initial analysis of a project indicates that the cost of conducting the VE study may not produce sufficient recommendations of cost savings to cover study costs, there is no potential net benefit in conducting the study.

Current state procedures require any capital project with an estimated construction cost greater than $5,000,000 to be value engineered, unless waived by the Director of the Department of General Services. The VE study is conducted at the preliminary design stage of the project. The project design is approximately 35% complete at the preliminary design stage.

The Commonwealth process involves a 40-hour study of the project by the VE team. The team is composed of registered design professionals that practice architecture and the engineering disciplines (civil, electrical, mechanical, etc.) involved in the project design and a certified value specialist who is the VE team leader. The A/E firm that designed the project is a part-time participant in the VE study. Building shape, floor plan layout and building systems components are sufficiently developed at the preliminary stage of design for all VE team disciplines to evaluate the essential elements of the design and suggest alternatives where appropriate.

The recommendations produced by the VE team are reviewed by the project owner and the design A/E firm. Recommendations are selected or rejected by the project owner in consultation with the design A/E based on program requirements, cost, technical feasibility, esthetics and other related considerations.

Recommendations dealing with technical design issues must ultimately be accepted or rejected by the design A/E firm since the design A/E is the party with ultimate liability for the design and is required by law to professionally seal the design documents.

Accepted recommendations must be incorporated into the project design and most often this will require additional work on the part of the design A/E. Since the nature and scope of this additional work is not known when the A/E design contract and price are negotiated, the A/E is entitled to a fee for this additional design service.

Three of the fourteen projects evaluated during this report period were designed using abbreviated procedures for capital outlay projects authorized by Section 4-5.08.b. of the 1997 Acts of Assembly, Chapter 924. Under this provision, five designated colleges and universities were authorized to enter into a two-year pilot project in which each named agency was delegated all post-appropriation review, approval, administrative and policy and procedure functions performed by the Department of Planning and Budget, Department of General Services and the Division of Engineering and Buildings.

3. Projects Studied and Savings Identified

The fourteen projects that were value engineered are listed in the table on the next page. The estimated construction value of the fourteen projects was $165,173,000. The VE teams identified design changes to the projects that were acceptable to the agency that produced an aggregate estimated savings in construction cost of $6,497,000. The **largest** single project estimated savings identified and accepted by an agency was $1,304,000. The **smallest** single project estimated savings identified and accepted by an agency was $74,000 and the **mean** estimated savings identified and accepted by an agency was $450,000 and the **average** was $433,133.

4. Study Costs

The typical cost of a 40 hour VE study is approximately $35,000. Based on the studies completed this period the Commonwealth realized net savings in estimated construction cost of $6,007,000.

5. Waivers Granted

One waiver of the requirement to conduct a value engineering study of a project was granted. This waiver was granted for the Department of Transportation Elko Materials Laboratory Improvement project. The primary work was correction of occupational and safety deficiencies, providing proper environmental conditions for lab work stations, providing accessible toilet facilities and installing a fire protection system. The estimated construction cost of the project was $5,882,000.

2000 Value Engineering Studies
Summary Report

Project Code	Agency / Institution	Project Title	Preliminary Construction Budget	Estimated VE Savings (Accepted Items)	VE Savings as a % of Budget	Remarks
156-16028	Department of State Police	Headquarters / Emer. Operations Center	$11,444,000	$500,000	4.4%	
194-15953	Department of General Services	Virginia Distribution Center	$10,163,000	$196,000	1.9%	
207-15598	University of Virginia	Special Collections Library	$21,167,000	$946,000	4.5%	
207-15880	University of Virginia	Clark Hall Renovation & Addition	$21,918,000	$1,304,000	5.9%	
207-16280	University of Virginia	Nat'l Radio Telescope Observatory Add'n	$5,972,000	$562,000	9.4%	
246-15850	University of Virginia - College at Wise	Science Building	$7,687,000	$469,000	6.1%	
246-16219	University of Virginia - College at Wise	Student Center	$6,938,000	$516,000	7.4%	
208-15096	Virginia Tech	Southgate Center Addition	$2,604,000	$74,000	2.8%	
215-16082	Mary Washington College	Combs Hall Renovation	$4,680,000	$184,000	3.9%	
221-15869	Old Dominion University	Convocation Center Parking Structure	$12,500,000	$230,000	1.8%	
247-14650	George Mason University	Academic IV - Fairfax	$15,462,000	$790,000	5.1%	
247-16195	George Mason University	Academic IIIA - Prince William	$14,730,000	$450,000	3.1%	See Note #1.
260-16091	Tidewater Community College	Advanced Technology Center - Va Beach	$17,048,000	$199,000	1.2%	
501-16129	Department of Transportation	Elko Materials Laboratory				See Note #2.
942-16154	Museum of Natural History	New Museum Facility	$12,860,000	$77,000	0.6%	
		TOTALs	$165,173,000	$6,497,000	3.9%	

Notes:

1) Final savings amount still under review by agency.

2) A waiver of the requirements to prepare a VE study was granted by DEB as the project scope was primarily correction of occupational and safety deficiencies, providing proper environmental conditions for lab work stations, providi[illegible]essible toilet facilities, and installing a fire protection system.