



DEPARTMENT OF
GENERAL SERVICES

Value Engineering of State Agency Capital Outlay Projects for
Fiscal Year 2025

TO THE GOVERNOR AND MEMBERS OF THE GENERAL ASSEMBLY



**COMMONWEALTH OF VIRGINIA
RICHMOND
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EXECUTIVE SUMMARY

I. Introduction

The Director of the Department of General Services is required by Section 2.2-1133 of the *Code of Virginia* to report to the Governor and the General Assembly on or before September 15 of each year, the following:

- (i) the number and value of the state capital projects where value engineering (VE) was employed
- (ii) the identity of the capital projects for which a waiver of the requirements of Section 2.2-1133.B was granted, including a statement of the compelling reasons for granting the waiver.

II. Projects

Five (5) projects with a combined estimated construction value of approximately \$155.4 million were reported by Agencies as undergoing the Value Engineering process during Fiscal Year 2025. The requirements for Value Engineering are defined in Section 2.2-1133 of the *Code of Virginia*. The associated administrative procedures are provided in the Commonwealth of Virginia's *Construction and Professional Services Manual*.

III. Savings / Cost

Estimated savings for owner-accepted VE items were provided for these projects by the applicable agencies and institutions. The estimated savings recommended by the value engineering teams and accepted by state agencies for these projects totaled approximately \$3.24 million. The average VE savings were 2.1% of the estimated construction value.

The average cost of a VE Study was \$57,391 dollars. The average savings in construction value was \$648,568. The aggregate costs of the VE studies as a percent of aggregate savings were 8.8%. This is equivalent to a payback ratio of 11:1 for employing the VE process.

IV. Waivers Granted / Projects Excluded

Eighteen (18) reported projects were granted waivers or otherwise excluded from the VE process, twelve (12) of which were CM, Design-Build or emergency, and are identified in Table 3. The remaining projects and the associated reasons for exclusion are identified in Table 4. Projects approved for procurement using the Design Build methodology are excluded from the standard VE process as the Design Build Contractor provides a lump sum fixed price prior to design and contract award. Projects procured using Construction Management at Risk (CM at Risk or CM/GC) are also exempted from the VE process. The average "value" savings reported by agencies as being incorporated in the design for these waived/excluded projects was 5.7% of the estimated construction value.

Projects procured under the provisions of the Public-Private Education Facilities and Infrastructure Act of 2002 (PPEA) are exempted from the value engineering requirements defined in Code of Virginia Section 2.2-1133.

VALUE ENGINEERING OF STATE CAPITAL OUTLAY PROJECTS FOR THE PERIOD JULY 1, 2024 - JUNE 30, 2025

1. Introduction

The Director of the Department of General Services is required by Section 2.2-1133 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 2.2-1133.B was granted, including a statement of the compelling reasons for granting the waiver. This report provides the information for Fiscal Year 2025 which encompasses the period from July 1, 2024 - June 30, 2025.

2. Background

Section 2.2-1133.A 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. The procedures for implementing the VE process are contained in Section 5.14 of the Commonwealth of Virginia's *Construction and Professional Services Manual (CPSM)*.

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 Value Engineering 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 redesign of the project using different technologies, materials or methods. Value engineering is often used to deal with "cost growth" during the project design phase. In some cases, a VE study may result in an increase in initial cost for a portion 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.

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. Also, projects which are site adaptations and previously value-engineered projects are not typically cost-effective for a second VE study.

Current state procedures require capital projects with an estimated construction cost exceeding **\$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 after the design concept has been selected and the various building systems evaluated and selected by the designer.

The Commonwealth's 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, structural, electrical, and mechanical) involved in the project design and a Certified Value Specialist who is the VE team leader. The A/E (architect/engineer) 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 A/E firm employed to design the project. Recommendations are selected or rejected by the project owner in consultation with the design firm based on program requirements, cost, technical feasibility, aesthetics, and other related considerations.

Recommendations dealing with technical design issues must ultimately be accepted or rejected by the owner's design consultant as the designer of record 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 consultant. 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.

3. Projects Studied and Savings Identified

Five (5) projects with a combined estimated construction value of approximately \$155.4 million were reported by Agencies as undergoing the VE process during Fiscal Year 2025. The Value Engineering teams identified design changes which were accepted by the agencies and institutions. These accepted changes produced an aggregate estimated savings in construction cost of approximately \$3.24 million. (See Table 1.)

The aggregate VE savings reported are equivalent to 2.1% of the combined preliminary construction budgets of these projects.

4. Study Costs

The aggregate cost for preparing studies for these five (5) projects was \$286,953 dollars. Study costs ranged from a low of \$36,196 to a high of \$81,240. The average study cost was \$57,391 dollars. The median cost was \$59,150 dollars. Deducting the study costs, the Commonwealth realized a net savings in estimated construction value of approximately \$2.95 million by employing the Value Engineering process. The VE Cost as a percent of

the VE Savings as an aggregate for these five (5) projects was 8.8%. Stated otherwise, this represents a payback ratio of 11 to 1. (See Table 2.)

5. Waivers Granted / Projects Excluded

Agencies are requested each year to report all projects under their purview which were at the preliminary design phase during the reporting period, and which exceed the \$5,000,000 threshold, but did not undergo a formal VE process.

Eighteen (18) reported projects were granted waivers or otherwise excluded from the VE process, twelve (12) of which were Construction Management at Risk, Design-Build or emergency, and are identified in Table 3. The remaining projects and the associated reasons for exclusion are identified in Table 4.

Projects approved for procurement using the Design Build (D/B) methodology are excluded from the standard VE process as the Design Build Contractor provides a lump sum fixed price prior to design and contract award. Projects procured using Construction Management at Risk (CM at Risk or CM/GC) are also exempted from the VE process. Projects procured under the provisions of the Public Public-Private Education Facilities and Infrastructure Act of 2002 (PPEA) are exempted from the VE provisions mandated in Section 2.2-1133 of the Code of Virginia.

Exemptions from the formal VE process are primarily due to the use of these alternative procurement methods for major projects. Agencies did, however, report “value” savings of approximately \$73.5 million for exempted Construction Management at Risk projects. Based on an aggregate construction value of approximately \$1.29 billion, the savings reported represent 5.7% of the total construction value.

Table 1
VE Study Savings vs. Construction Budget (FY 2024)

Item No.	Project Code	Agency / Institution	Project Title	Estimated VE Savings (Accepted Items)	Preliminary Construction Budget	VE Savings as a % of Con. Budget
1)	207-B1395-000	University of Virginia	North Grounds Parking Garage	\$1,124,300	\$40,000,000	2.8%
2)	209-B1291-000	University of Virginia - Health System	Fontaine Research Park Parking Garage	\$1,186,000	\$51,352,476	2.3%
3)	234-18545-000	Virginia State University Cooperative Extension	Renovate Summerseat for Agriculture Center	\$239,000	\$8,405,217	2.8%
4)	212-17965-000	Virginia State University	Student Union	\$345,250	\$22,000,000	1.6%
5)	885-18705-000	Institute for Advanced Learning and Research	Expand Center for Manufacturing Advancement at IALR	\$348,288	\$33,703,849	1.0%
TOTAL				\$3,242,838	\$155,461,542	
AVERAGE				\$648,568	\$31,092,308	2.1%
MEDIAN				\$348,288	\$33,703,849	

Table 2
VE Study Savings vs. VE Study Cost (FY 2024)

Item No.	Project Code	Agency / Institution	Project Title	VE Study Cost	Estimated VE Savings (Accepted Items)	Study Cost as % of VE Savings	Payback Ratio
1)	207-B1395-000	University of Virginia	North Grounds Parking Garage	\$36,196	\$1,124,300	3.2%	31:1
2)	209-B1291-000	University of Virginia - Health System	Fontaine Research Park Parking Garage	\$59,150	\$1,186,000	5.0%	20:1
3)	234-18545-000	Virginia State University Cooperative Extension	Renovate Summerseat for Agriculture Center	\$45,700	\$239,000	19.1%	5:1
4)	212-17965-000	Virginia State University	Student Union	\$81,240	\$345,250	23.5%	4:1
5)	885-18705-000	Institute for Advanced Learning and Research	Expand Center for Manufacturing Advancement at IALR	\$64,667	\$348,288	18.6%	5:1
TOTAL				\$286,953	\$3,242,838		
AVERAGE				\$57,391	\$648,568	8.8%	11:1
MEDIAN				\$59,150	\$348,288		

Table 3
Other Projects Exceeding \$5,000,000 Threshold with Informal VE Process (FY 2024)

The requirement to perform a formal VE study was waived for the following projects. However, an informal VE process was utilized which yielded the following results:

Item No.	Project Code	Agency / Institution	Project Title	Estimated "Value" Savings (Accepted Items)	Preliminary Construction Budget	Savings as a % of Con. Budget	Reason Reported for VE Study Exemption	See Note
1)	236-B2236-060	Virginia Commonwealth University	Athletic Village Phase 1	\$7,287,814	\$28,662,137	25.4%	Construction Mgmt. project	(a)
2)	238-18430-000	Virginia Museum of Fine Arts	VMFA Planning - Expand & Renovate Museum	\$15,148,544	\$193,138,000	7.8%	Construction Mgmt. project	(a)
3)	216-18595-000	James Madison University	East Campus Power Plant - Phase 2	\$1,187,455	\$37,200,000	3.2%	Construction Mgmt. project	(a)
4)	216-18710-000	James Madison University	Spotswood Hall Renovation	\$269,943	\$13,507,643	2.0%	Construction Mgmt. project	(a)
5)	204-18678-000	The College of William & Mary	Renovate Historic Campus	\$698,370	\$10,248,644	6.8%	Construction Mgmt. project	(a)
6)	204-B4204-050	The College of William & Mary	2024 CWM Non-Capital Projects - West Woods Phase 2	\$3,268,000	\$83,900,000	3.9%	Construction Mgmt. project	(a)
7)	260-18573-000	Virginia Community College System	Expand Medical Campus	\$559,157	\$27,337,822	2.0%	Construction Mgmt. project	(a)
8)	207-B1320-000	University of Virginia	Ivy Corridor Housing	\$9,695,000	\$165,126,616	5.9%	Design Build	(a)
9)	207-B1318-000	University of Virginia	Darden Student Housing	\$825,000	\$132,668,527	0.6%	Construction Mgmt. project	(a)
10)	209-B1314-000	University of Virginia - Health System	University Hospital South Tower Floors 6-8 Fit Out	\$900,000	\$70,000,000	1.3%	Construction Mgmt. project	(a)
11)	209-B1303-000	University of Virginia - Health System	Manning Institute of Biotechnology	\$24,000,000	\$263,000,000	9.1%	Construction Mgmt. project	(a)
12)	208-18502-000	Virginia Tech	Replace Randolph Hall	\$9,685,942	\$264,000,000	3.7%	Construction Mgmt. project	(a)
TOTAL				\$73,525,225	\$1,288,789,389	5.7%		

Notes:

(a) The Code of Virginia section 2.2-1133.C exempts projects procured utilizing Design-Build or Construction Management at Risk from the requirement for a formal VE process.

Table 4
Other Projects Exceeding \$5,000,000 Threshold (FY 2024)

The requirement to perform a formal VE study was waived for the following projects for the reasons outlined below:

Item No.	Project Code	Agency / Institution	Project Title	Reason for Waiver	See Note
1)	247-18487	George Mason University	Improve Technology Infrastructure Phase II	This is the second phase of a telecom refresh across Mason's campuses. The first phase had a waiver for the VE study approved by DGS in 2019. The work for this phase is very similar and the need for a new waiver was overlooked. The PD's were approved in November 2024. The approval of the waiver is now on file. With Mason's tier 3 authority the waiver is now approved internally. A value engineering study would not be beneficial due to the scope of the project (extremely repetitive, the same materials in different dictated locations).	(a)
2)	912-18734	Department of Veterans Services	Suffolk Cemetery Expansion	The scope of the project is limited to the preparation of the grave site work to receive approximately 6,380 pre-placed precast concrete crypts and 2,400 in-ground cremains and a value engineering study would be of little value.	(b)
3)	207-B1317	University of Virginia	Hereford Dorms - Interior 4 Pipe Conversion	Work being led by UVA in-house forces. Specialists and UVA Energy & Utility personnel and engineers are in all Project meetings and working closely with the Project's engineer to coordinate connections and review any design decisions. VE for the Project is continuous. A formal VE process would not provide additional benefits for this Project.	(a)
4)	207-B1316	University of Virginia	Replacement of the Chemistry Additional Chillers	The experts on this utility Project are in every meeting. We have the Energy & Utilities directors, plant personnel, distribution supervisors, and project engineers in on all decisions to ensure total cost of ownership is considered. This applies to every major item, such as what type of equipment to specify, which type of pipe for a specific purpose, chiller operating temperatures, extent of replacement of existing components, and any other technical decision. VE is an ongoing, lengthy process on this Project, and in our professional opinion it was determined that a short duration VE study would not provide any additional value. Additionally, we identified a portion of the electrical and cooling tower scope of work that could be executed more cost effectively by UVA in-house forces and assigned that work to the UVA Energy & Utilities group. The Project will be competitively bid and awarded to the low bidder.	(a)
5)	194-18660	Department of General Services	Renovation of Eastern State Hospital	The justification for the waiver is as follows: 1) The scope of the project is limited to interior architectural finishes, bathroom fixtures and plumbing updates focused on patient and staff safety and 2) due to the interior work (interior finishes only) a value engineering study would provide little or no value.	(b)
6)	260-18572	Virginia Community College System	NVCC-M Construct Trades Building	Project budget has shared ARPA-SLFRF and 0700 Trust & Agency funds. The deadline for obligation of all SLFRF funds was escalated by central government ahead of previously scheduled deadlines. The design phases were accelerated to meet increased deadlines so as to not forfeit funds. Loss of SLFRF funding would have been a far greater loss of value to educational programming than a VE process could generate. NGF contribution is \$4M. At bidding, we had a bid additive to provide and install all of the AV equipment, this would have instead been done by the college in the case that the bids were too high. The cost from the Contractor valued was \$90,058 which was accepted since project had sufficient NGF dollars infused. We also moved to have the diesel lab generators Owner furnished Contractor installed which saved \$215,400 based on the list price of the approved generators. Before the construction started, we also discussed the under slab PVC substitution in lieu of cast iron was an additional \$28,795.11 savings. The Preliminary Construction Budget for this project is \$16,293,058.	(c)

Notes:

- (a) Waiver granted by Higher Education Institution based upon their stated Tier III Authority under the Restructured Higher Education Financial and Administrative Operations Act.
- (b) Waiver granted by the Director of the Virginia Department of General Services.
- (c) Waiver not submitted by agency or approved by authority to waive formal VE Study.