

Capital Budget Request

Construct Corps Leadership and Military Science Building

Overview

Agency	Virginia Polytechnic Institute and State University (208)
Project Code	none
Project Type	New Construction
Biennium	2016-2018
Budget Round	Initial Bill
Request Origin	Previously Submitted
Project Location	Roanoke Area
Facility/Campus	Blacksburg Main Campus
Source of Request	Agency Request
Infrastructure Element	Classroom / Office

Contains significant technology costs? No

Contains significant energy costs? No

Agency Narrative

Agency Description

Project Summary:

The Corps of Cadets and ROTC prepare students to serve as commissioned officers in the Army, Navy, and Air Force. Since 1872, the University's program has developed and graduated leaders with distinguished service in the military, business, and public service. The programs are part of the long standing history of the University and will be a vital part of the future. The Corps of Cadets and ROTC are currently located in various pocket spaces in five buildings on the north area of campus. The dispersed locations are not conducive to efficient operations and have a negative impact on program operations. Consolidating the programs to a single location is a high priority for the University.

There are 953 students who participate in ROTC. All ROTC students must also be members of the Corps of Cadets. The Fall 2013 membership in the Corp of Cadets was 1,110. Membership in both groups has grown significantly over the past several years. This increase has further limited opportunities to provide expanding programs in deficient existing space. A prime need in the new facility is classroom space to hold increasing number of classes and other programs offered within the Center for Leadership Studies.

In order to provide permanent space for the military programs, the university is requesting support for a 60,530 gross square foot building to meet the needs of the Corps of Cadets and ROTC programs for modern classroom, administrative, program and academic office space. The building is envisioned to be a four story structure, clad in a combination of Hokie stone, brick, precast concrete panels and trim, and a combination of curtain wall glazing and punched opening windows.

The proposed building is to be located in the northern portion of the existing Upper Quad near Lane Hall. The facility will provide a centralized and consolidated home to the wide range of Corps of Cadets and ROTC programs currently dispersed on the north area of campus. This project requests authorization to construct new space to accommodate the program needs of the military students and instructors and to provide a high-quality instructional environment.

Justification

Program description:

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The university's strategic plan includes the following principle strategies:

- Creating meaningful partnerships with businesses and government entities to address complex problems by co-locating researchers and practitioners in "living labs."

- Increasing undergraduate involvement in meaningful research experiences and experiential learning (hands on minds on).
- Continuing to investigate, develop, and utilize current and emerging technologies to enhance traditional classrooms, provide mobile access, and expand high-quality distance learning opportunities.
- Identifying opportunities during construction and renovation to create flexible classroom spaces that fully support e-learning components.
- Promoting life-long learning.
- Promoting mind/body wellness.

Existing facilities:

The Corps of Cadets and ROTC departmental spaces are currently located in Femoyer Hall, the Military Building, the Old Security Building, and within Brodie and Rashe Residence Halls. All five of these buildings rate near or at the top of Virginia Tech's most deficient, deteriorated occupied buildings. Corps of Cadets administrative, faculty and program support spaces, including the popular Corps of Cadets Museum are currently located in Rasche and Brodie Halls, which are planned for replacement shortly. The building is planned at the site of the Art and Design Learning Center (circa 1931) to be demolished as part of this project. The existing central boiler plant equipment underneath the Art and Design Learning Center will remain in service. The Corps Leadership and Military Science Building will be constructed over the boiler plant equipment and will require significant long-span structural systems to accommodate the University's boiler plant operations.

Funding Plan:

The program for this project is entirely Educational and General. While this program would normally call for 100 percent general fund support, the university has identified private support from alumni to help support the costs. The private fund raising campaign is for \$20 million dollars and approximately \$19 million has been committed to date. Thus, the proposed funding plan for the \$40 million project is \$20 million general fund and \$20 million private gifts. The private gift pledges may be carried over an average seven year payout, and a short term debt authorization is requested to carry the timing of the pledges.

Options considered:

Other options considered but not selected include renovating existing space, or delaying the project entirely. Constructing a new facility is the selected option because it is the most cost effective solution to the shortage of modern instructional and program space for the Corps of Cadets and the ROTC programs.

Renovating Lane Hall for these purposes would be cost prohibitive and would inevitably destroy the interior architecture of this early historically significant building.

Renovating other existing facilities in the immediate vicinity is also not a viable option because the University currently operates with a shortage of instructional and program space. Thus, no appropriate existing space is available to allocate for renovation to accommodate these expanding programs.

Delaying the project to a future biennium is not a viable option because of the financial, programmatic, and logistical difficulties presented by the continued use of deficient facilities.

Alternatives Considered

Costing Methodology

The method for estimating costs includes: 1) using unit costs in the Bureau of Capital Outlay Management's Construction Costs Database updated April 2015 with a regional market multiplier and a multiplies for softs costs; and 2) comparables as shown in the CR-3. Both methods are escalated to a construction midpoint of 2019 at three percent

On a total project cost basis, inclusive of design, construction, and equipment, the unit costs are \$661 per gross square foot. The unit construction costs of the project are \$515 per gross square foot, including self-performed construction work. The building types in this request are museum and classroom spaces in the Bureau of Capital Outlay Management's Construction Costs Database.

Virginia Tech's project cost estimate is derived from a database of on-campus construction costs of comparable project types. Virginia Tech building construction reflects the high level of quality, durability and tradition that makes Virginia Tech a distinctive and memorable place for students. Our estimates also include the cost of technology, specialized instruction, and energy efficiency goals of the institution.

The building envelope will be comprised primarily of 'Hokie Stone' with precast concrete accents consistent with university standards as affirmed by the Board of Visitors. The Virginia Tech Board of Visitors has directed that all new building projects and expansion projects built on the Blacksburg central campus must use Hokie stone as the predominate building material on all building facades. Brick, metal panels, and siding materials are not permitted as substitutions for Hokie stone. In maintaining the random ashlar stone pattern of our collegiate Gothic buildings, the university has explored a wide range of contemporary stone erection means, methods and systems. The most efficient system tested that meets erection, insulation and moisture protection requirements utilizes a four-inch thick nominal stone thickness with a two-inch nominal air barrier over moisture resistant sheathing. Stainless steel anchoring straps and load bearing shelf angles and stainless steel flashings comprise the structural support and flashings system, meeting our requirement for a 50-100 year enclosure life expectancy. Because the university owns the stone quarry, the quarrying and stocking of all the cut stone is carried as a project (soft) cost, and the construction budget carries all erection, final stone dressing, installation and intensive quality assurance inspection costs.

Mechanical equipment and building automation systems will be designed to maximize energy efficiency and minimize operations and

maintenance costs. Mechanical equipment will be located inside and screened from view to maximize student use of the campus landscape. Electrical systems will support current academic technologies and increased student use of individual technology equipment. Effective use of exterior and interior glazing will enhance energy efficiency lighting fixtures for an improved academic experience. Design priorities will include flexibility to maximize the long-term programmatic functionality of the building.

The building is planned at the site of the Art and Design Learning Center (circa 1931) to be demolished as part of this project. The existing central boiler plant equipment underneath the Art and Design Learning Center will remain in service. The Corps Leadership and Military Science Building will be constructed over the boiler plant equipment and will require significant long-span structural systems to accommodate the University's boiler plant operations.

Virginia Tech is one of seven senior military institutions in the nation. Classrooms and instructional laboratories that support technology enhanced instruction in military science must have high-capacity wireless networks to support multiple devices (laptop computer, tablet computer, smartphone) used simultaneously by students to retrieve information and to communicate within the classroom and to connect digitally with instructional sites around campus and around the world. The use of electronic equipment in the classroom by student participants also requires dedicated power outlets corresponding to the seat/station count and power outlets in common areas. Raised floor systems are needed to accommodate these and future developments in technology and classroom configuration.

The university operates its own communications network using primarily internet connectivity which requires accessible, climate controlled server rooms in lieu of the traditional phone closet. Because the communications infrastructure is installed by our own university operated auxiliary it is carried as a project (soft) cost outside of the normal construction budget.

The project is anticipated to have significant site conditions due to restricted site access in a dense and active part of campus will impact mobilization costs and accommodation of the existing boiler plant infrastructure require to remain in service. This project will use a C-M at risk construction delivery method appropriate for the size and complexity of this project. Project costs are estimated to the mid-point of construction using three percent escalation in accordance with the instructions for developing the Six-Year Capital Outlay Plan.

Summary of the Corps Leadership and Military Science Building Other Costs:

1. Hokie stone used as primary exterior building envelope material.
2. Building foundation deep caissons or piers to remediate unsound subsurface foundation conditions
3. Significant site conditions due to restricted site access in a dense and active part of campus will impact mobilization and staging costs.
4. Accommodation of the existing boiler plant infrastructure required to remain in service while the new construction is installed above.

Agency Funding Request

Phase	Year	Fund	Subject	Requested Amount
Construction	2019	0100 - General Fund	2322 - Construction, Buildings	\$20,000,000
Construction	2019	0815 - 9(D) Debt Service - Construction Costs	2322 - Construction, Buildings	\$14,000,000
Construction	2019	0302 - Foundation/Other Grants/Contracts	2322 - Construction, Buildings	\$6,000,000
Total				\$40,000,000

Project Costs

Cost Type	Total Project Costs	Requested Funding	DGS Rec
Acquisition Cost	\$0	\$0	
Building & Built-in Equipment	\$24,878,000	\$24,878,000	
Sitework & Utility Construction	\$3,805,000	\$3,805,000	
Construction Cost Total	\$28,683,000	\$28,683,000	
DESIGN & RELATED SERVICE ITEMS			
A/E Basic Services	\$2,985,000	\$2,985,000	
A/E Reimbursables	\$73,000	\$73,000	
Specialty Consultants (Food Service, Acoustics, etc.)	\$67,000	\$67,000	
CM Design Phase Services	\$429,000	\$429,000	
Subsurface Investigations (Geotech, Soil Borings)	\$59,000	\$59,000	
Land Survey	\$20,000	\$20,000	
Archeological Survey	\$0	\$0	
Hazmat Survey & Design	\$0	\$0	
Value Engineering Services	\$0	\$0	
Cost Estimating Services	\$22,000	\$22,000	

Other Design & Related Services	\$166,000	\$166,000
Design & Related Services Total	\$3,821,000	\$3,821,000
INSPECTION & TESTING SERVICE ITEMS		
Project Inspection Services (inhouse or consultant)	\$732,000	\$732,000
Project Testing Services (conc., steel, roofing, etc.)	\$215,000	\$215,000
Inspection & Testing Services Total	\$947,000	\$947,000
PROJECT MANAGEMENT & OTHER COST ITEMS		
Project Management (inhouse or consultant)	\$585,000	\$585,000
Work By Owner	\$39,000	\$39,000
BCOM Services	\$0	\$0
Advertisements	\$0	\$0
Printing & Reproduction	\$0	\$0
Moving & Relocation Expenses	\$49,000	\$49,000
Non Built-In Data and Voice Communications	\$488,000	\$488,000
Signage	\$24,000	\$24,000
Demolition	\$341,000	\$341,000
Hazardous Material Abatement	\$59,000	\$59,000
Utility Connection Fees	\$0	\$0
Utility Relocations	\$439,000	\$439,000
Commissioning	\$371,000	\$371,000
Miscellaneous Other Costs	\$1,239,000	\$1,239,000
Project Management & Other Costs Total	\$3,634,000	\$3,634,000
Furnishings & Movable Equipment	\$2,341,000	\$2,341,000
Construction Contingency	\$574,000	\$574,000
TOTAL PROJECT COST	\$40,000,000	\$40,000,000

Capacity

Cost Type	Unit of Measure	Units	Cost Per Unit
Acquisition Cost		0	\$0
Construction Cost	GSF	60,500	\$474
Total Project Cost	GSF	60,500	\$661

Operating and Maintenance Costs (Agency)

Cost Type	FY 2017	FY 2018	FY 2019	FY 2020	FY 2021	FY 2022
GF Dollars	\$0	\$0	\$720,563	\$742,179	\$764,445	\$787,378
NGF Dollars	\$0	\$0	\$0	\$0	\$0	\$0
GF Positions	0.00	0.00	4.77	4.77	4.77	4.77
NGF Positions	0.00	0.00	0.00	0.00	0.00	0.00
GF Transfer	\$0	\$0	\$0	\$0	\$0	\$0
GF Revenue	\$0	\$0	\$0	\$0	\$0	\$0
Layoffs	0	0	0	0	0	0

Planned start date of new O&M costs (if different than the beginning of the fiscal year):---

Supporting Documents

File Name	File Size	Uploaded By	Upload Date	Comment
08-CR-3 Corps Leadership and Military Science Building.xls	633,344	Rob Mann	6/13/2015	CR-3_Corps Leadership and Military Science Building

Workflow History

User Name	Claimed	Submitted	Step Name
Rob Mann	05/18/2015 11:11 PM	05/18/2015 11:11 PM	Enter Capital Budget Request
Rob Mann	05/18/2015 11:11 PM	05/18/2015 11:14 PM	Continue Drafting
Jennifer Hundley	06/12/2015 03:44 PM	06/12/2015 05:41 PM	Continue Drafting
Rob Mann	06/13/2015 09:51 AM	06/13/2015 09:54 AM	Continue Drafting
Rob Mann	06/13/2015 01:00 PM	06/13/2015 01:04 PM	Agency Review Step 1
Rob Mann	06/13/2015 07:27 PM	06/13/2015 07:31 PM	Agency Review Step 1
Bob Broyden	06/14/2015 02:18 PM	06/14/2015 02:18 PM	Ready for DPB Submission
Ruth Anderson	06/15/2015 03:46 PM	06/15/2015 03:48 PM	DPB Review
Ruth Anderson	06/18/2015 10:59 AM	06/18/2015 10:59 AM	DPB Review
Anne Smith	06/19/2015 03:35 PM	06/19/2015 03:35 PM	DPB Review
Rob Mann	06/19/2015 03:40 PM	06/19/2015 03:41 PM	Agency Review Step 1
Bob Broyden	06/19/2015 03:51 PM	06/19/2015 03:51 PM	Ready for DPB Submission
			DPB Review