

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	2018-2020
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	
Project will be used by other than a state or local governmental entity? No	

Agency Narrative

Agency Description
Executive Summary:

The Corps of Cadets and ROTC prepare students to serve as commissioned officers in the Army, Navy, Air Force, and Marine Corps, as well as the public and private sectors. 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 constitute one of only six Senior Military Colleges established under Federal Law, Title X.

The Corps of Cadets and ROTC programs have historically occupied several of the most outdated and deteriorated residential and academic facilities in the University's space inventory. The University recently completed a \$90 million nongeneral fund project to raze and replace four of its most outdated, deteriorated residence halls that serve the Corps of Cadets. The new residential facilities were designed and located as part of a facility system which anticipates this proposed facility for the academic components of the Corps of Cadets program.

The Corps of Cadets academic programs are located in dispersed locations that are not conducive to efficient operations, negatively impact program operations, and limit opportunities to meet expanding program needs. Two of the buildings are carrying facility condition index ratings of 32 percent and 63 percent and cannot be made fully serviceable with Maintenance Reserve, routine maintenance, or minor renovations. The academic programs of the Corps are severely constrained and impacted by the condition of their current spaces.

To meet the academic needs of the Corps of Cadets and ROTC programs for modern classroom, program, administrative, and academic office space, the University is requesting support for a 75,460 gross square foot building to provide permanent space for the military programs. This project will centralize their location adjacent to the recently completed residential facilities and provide a high-quality instructional environment.

The proposed funding plan for the \$49.9 million academic project is \$20 million of private gifts and \$29.9 million of General Fund support.

Project Description:

The Corps Leadership and Military Sciences building is envisioned to be a 75,460 gross square foot, three story structure, clad in a combination of Hokie Stone, precast concrete panels and trim, and a combination of curtain wall glazing and punched opening windows. The proposed location is in the northern portion of campus that has traditionally been the home of the Corps of Cadets. This location would be adjacent to the recently completed residential facilities for the Corps and would complete a complex that supports the Corps of Cadets and ROTC programs.

This building will be constructed on the existing site of the Art and Design Learning Center (circa 1931) which will be demolished as part of this project. The existing central boiler plant equipment underneath the Art and Design Learning Center will remain in service. To accommodate the University's boiler plant operations, significant long-span structural systems are needed for the new building.

The building will contain 9,100 assignable square feet (ASF) of office space, 1,800 ASF of testing areas, 8,000 ASF of classroom area, 1,800 ASF

of Corps Museum space, 500 ASF of library space, 1,100 ASF of study area, 2,560 ASF of meeting rooms, and 7,200 ASF of area required for tailor and uniform storage, and other storage. The existing basement will be partially renovated and augmented in areas which are not intended to remain intact as part of the University's ongoing central plant operations.

The project scope, site development, and building configuration shall be consistent with the 2017 master plan update and include universal accessibility design principles as appropriate.

Justification

Program description:

The Corps of Cadets and ROTC prepare students to serve as commissioned officers in the Army, Navy, Air Force, and Marine Corps, as well as the public and private sectors. 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 constitute one of only six Senior Military Colleges established under Federal Law, Title X. The Corps is and will continue to be a vital part of the future of Virginia Tech. In fall 2016 membership in the Corp of Cadets reached its highest level since 1968, 1,093 students. Of those, over 900 students were ROTC participants. All ROTC students must also be members of the Corps of Cadets. Membership in both groups has grown significantly over the past several years and are forecast to grow in the future.

The Corps of Cadets and ROTC are currently located in various, substandard pocket spaces in five buildings on the north area of campus. The dispersed locations are not conducive to efficient operations, negatively impact program operations, and limit opportunities to meet expanding program needs. Consolidating the programs to a single, modern building is a high priority for the University.

Virginia Tech is investing in five strategic destination areas that will connect existing research and instruction strengths across multiple disciplines in order to better prepare students and create public-private sector partnerships. The Corps Leadership and Military Sciences building and the Corps program are an integral component of the Integrated Security initiative which will have a major focus on cyber security. Additionally, classroom space in the northern portion of the existing Upper Quad area of campus is needed to hold the increasing number of classes and other programs offered within the Corps' Center for Leadership Studies.

The University's strategic plan includes the following principle strategies that will be supported by this project:

- 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 through 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 academic facilities that support the Corps of Cadets and ROTC include Femoyer Hall, the Military Building, the Old Security Building, Lane Hall. These facilities are among Virginia Tech's most deficient and deteriorated buildings in service. The three buildings below house classrooms and ROTC staff offices:

- Femoyer Hall built in 1949 with few improvements since its construction has a facility condition index of 32 percent in the FICAS system as of June 9, 2017.
- Military Building built in 1936 and renovated in 1998 has a facility condition index of 17 percent in the FICAS system as of June 9, 2017.
- Old Security Building built in 1890 and enlarged in 1929 has a facility condition index of 63 percent in the FICAS system as of June 9, 2017.
- Lane Hall was originally built in 1888 and was originally known as Barracks No. 1. It was renovated and converted into academic office use in 1967 and has a facility condition index of 58 percent in the FICAS system as of June 9, 2017.

The Corps Leadership & Military Science Building is planned at the site of the Art and Design Learning Center which is to be demolished as part of this project. The Art and Design Learning Center was built in 1931 has a facility condition index of 17 percent in the FICAS system as of June 9, 2017. The existing central boiler plant equipment underneath the Art and Design Learning Center will remain in service.

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 overall costs and to enhance the interior spaces.

The proposed funding plan for the \$49.9 million project is \$29.9 million General Fund and \$20 million private gifts. The private fund raising is complete with \$20 million of commitments and \$6.8 million of cash receipts. The private gift pledges may be carried over a seven year payout, and a nongeneral fund, 9d, debt authorization is requested to carry the timing of remaining pledge payments.

Options considered:

Options considered but not selected include renovating existing space or delaying the project. Constructing a new facility is the selected option because it is the most cost effective and practical solution to the shortage of instructional and program space required 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 Femoyer Hall, the Military Building, and the Old Security Building is not a financially viable option because of their deteriorated condition.

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

A. Methods Used to Estimate Costs:

The method for estimating costs for the Corps Leadership and Military Sciences project includes: 1) using unit costs in the Bureau of Capital Outlay Management's Construction Costs Database updated October 2016 with a regional market multiplier and a multiplier for softs costs; and 2) comparables as shown in the CR-3. Both methods are escalated to a construction midpoint of 2021 at three percent in accordance with the instructions for developing the Six-Year Capital Outlay Plan.

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 \$437 per gross square foot, including self-performed construction work. The building types in this request are classroom and office in the Bureau of Capital Outlay Management's Construction Costs Database.

The University's project cost estimates are 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.

Design, Bid, Build is the intended delivery method for this project.

B. The proposed costs include the following critical considerations to ensure the project fully meets the needs of the program and the University:

- 1) 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. Brick, metal panels, and siding materials are not permitted as substitutions for Hokie Stone. The stone is 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. The University owns the stone quarries and provisions the cut material to the building; thus, the material costs are carried in the Other Costs section of the proposed budget while the construction budget carries all erection, final stone dressing, installation and intensive quality assurance inspection costs.
- 2) Mechanical equipment and building automation systems are designed and selected to meet performance requirements and to optimize total costs of ownership inclusive of energy costs and operations and maintenance costs. System selections are justified based on a 30-year economic life cycle analysis. Mechanical equipment will be covered and secured to maximize equipment life and service.
- 3) Academic buildings include interior glazing for energy efficiency, lighting for academic work, and to enhance pedagogy.
- 4) Ceiling heights must be a minimum of 16 feet for sound attenuation in large lecture and assembly environments as required for effective pedagogy.
- 5) Building structural support systems will accommodate large open and unimpeded interior spaces to maximize long-term programmatic functionality and adaptation to new program space and technology arrangements. This includes raised floor systems for maximum adaptation.
- 6) High-capacity wireless networks to support multiple devices (laptop computer, tablet computer, smartphone, and other WIFI devices) used simultaneously by students and faculty to retrieve information and to communicate and to connect digitally with sites around campus and around the world.
- 7) Power outlets corresponding to the seat/station count and power outlets in common areas will exceed the minimum code requirements by approximately 30 percent.
- 8) Automated audiovisual and lighting controls are included for all classroom and class laboratory spaces.
- 9) Climate controlled technology server rooms, 10 feet by 10 feet, on each floor of the building.
- 10) Communications infrastructure, both wired and wireless, is installed by a University operated auxiliary; thus, these costs are shown in the

Other Costs section of the proposed budget.

11) Site development costs in this region are historically in the medium to high range and require generally significant subsurface rock excavation and removal and deep foundations. The Corps Leadership and Military Science Building will be constructed over boiler plant equipment and will require significant long-span structural systems to accommodate the University's boiler plant operations. 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.

12) Utilities (power, steam, chilled water, gas, sanitary sewer, and storm water infrastructure) do not terminate at the building site and their extension is included the proposed budget.

13) An existing building, Art and Design Learning Center (circa 1931), must be demolished as part of this project and the costs for this are included in the construction budget line item.

Agency Funding Request

Phase	Year	Fund	Subobject	Requested Amount
Construction	2019	01000 - General Fund	2322 - Construction, Buildings	\$29,900,000
Construction	2019	08150 - 9(D) Rev Bonds-Construction	2322 - Construction, Buildings	\$13,000,000
Construction	2019	03020 - Foundation/Othr Grants/Cntrcts	2322 - Construction, Buildings	\$7,000,000
Total				\$49,900,000

Project Costs

Cost Type	Total Project Costs	Requested Funding	DGS Rec
Acquisition Cost	\$0	\$0	
Building & Built-in Equipment	\$30,270,920	\$30,270,920	
Sitework & Utility Construction	\$2,699,190	\$2,699,190	
Construction Cost Total	\$32,970,110	\$32,970,110	
DESIGN & RELATED SERVICE ITEMS			
A/E Basic Services	\$3,161,800	\$3,161,800	
A/E Reimbursables	\$3,794	\$3,794	
Specialty Consultants (Food Service, Acoustics, etc.)	\$56,374	\$56,374	
CM Design Phase Services	\$69,605	\$69,605	
Subsurface Investigations (Geotech, Soil Borings)	\$22,444	\$22,444	
Land Survey	\$15,646	\$15,646	
Archeological Survey	\$0	\$0	
Hazmat Survey & Design	\$0	\$0	
Value Engineering Services	\$77,474	\$77,474	
Cost Estimating Services	\$28,825	\$28,825	
Other Design & Related Services	\$3,625	\$3,625	
Design & Related Services Total	\$3,439,587	\$3,439,587	
INSPECTION & TESTING SERVICE ITEMS			
Project Inspection Services (inhouse or consultant)	\$363,290	\$363,290	
Project Testing Services (conc., steel, roofing, etc.)	\$280,845	\$280,845	
Inspection & Testing Services Total	\$644,135	\$644,135	
PROJECT MANAGEMENT & OTHER COST ITEMS			
Project Management (inhouse or consultant)	\$666,035	\$666,035	
Work By Owner	\$275,083	\$275,083	
BCOM Services	\$56,451	\$56,451	
Advertisements	\$1,255	\$1,255	
Printing & Reproduction	\$3,138	\$3,138	
Moving & Relocation Expenses	\$828,546	\$828,546	
AV Cabling	\$0	\$0	

IT Cabling	\$0	\$0
Telephone Cabling	\$0	\$0
AV Equipment	\$0	\$0
IT Equipment	\$735,035	\$735,035
Telephone Equipment	\$0	\$0
Signage	\$181,416	\$181,416
Demolition	\$0	\$0
Hazardous Material Abatement	\$0	\$0
Utility Connection Fees	\$294,687	\$294,687
Utility Relocations	\$1,373,532	\$1,373,532
Commissioning	\$887,281	\$887,281
Miscellaneous Other Costs	\$1,312,380	\$1,312,380
Project Management & Other Costs Total	\$6,614,839	\$6,614,839
Furnishings & Movable Equipment	\$4,932,525	\$4,932,525
Construction Contingency	\$1,298,804	\$1,298,804
TOTAL PROJECT COST	\$49,900,000	\$49,900,000

Capacity

Cost Type	Unit of Measure	Units	Cost Per Unit
Acquisition Cost		0	\$0
Construction Cost	GSF	75,460	\$437
Total Project Cost	GSF	75,460	\$661

Operating and Maintenance Costs (Agency)

Cost Type	FY 2019	FY 2020	FY 2021	FY 2022	FY 2023	FY 2024
GF Dollars	\$0	\$0	\$1,033,471	\$1,064,475	\$1,096,409	\$1,129,301
NGF Dollars	\$0	\$0	\$0	\$0	\$0	\$0
GF Positions	0.00	0.00	5.95	5.95	5.95	5.95
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
CR-3 Project Planner-04 CORP Leadership.xlsx	419,921	Rob Mann	7/7/2017	CR-3_Corps Leadership & Military Science Building
04_CLAMS Program Chart.pdf	72,494	Rob Mann	7/7/2017	Corps Leadership & Military Science Building Program Chart
CLMS site plan.jpg	430,677	Rob Mann	7/7/2017	CLAMS Site Plan
CLMS.jpg	445,536	Rob Mann	7/7/2017	CLAMS Drawing

Workflow History

User Name	Claimed	Submitted	Step Name	Submit Action
Jennifer Hundley	06/06/2017 01:15 PM	06/06/2017 01:15 PM	Enter Capital Budget Request	Continue Working
Jennifer Hundley	06/06/2017 01:15 PM	06/06/2017 01:15 PM	Continue Drafting	Continue Working
Jennifer Hundley	06/09/2017 03:19 PM	06/09/2017 03:25 PM	Continue Drafting	Continue Working
Rob Mann	07/07/2017 01:45 AM	07/07/2017 02:03 AM	Continue Drafting	Submit for Agency Review

Rob Mann	07/07/2017 11:27 AM	07/07/2017 11:28 AM	Agency Review Step 1	Ready for DPB Bulk Submit
Bob Broyden	07/07/2017 03:32 PM	07/07/2017 03:33 PM	Ready for DPB Submission	Continue Review
Bob Broyden	07/07/2017 04:35 PM	07/07/2017 04:35 PM	Ready for DPB Submission	Submit to DPB
			DPB Review	