

Capital Budget Request

Improve Academic Efficiency and Renewal Package

Overview

Agency	Virginia Polytechnic Institute and State University (208)
Project Code	none
Project Type	Improvements-Infrastructure Repairs
Biennium	2020-2022
Budget Round	Initial Bill
Request Type	New Project
Project Location	Roanoke Area
Facility/Campus	Blacksburg Main Campus
Source of Request	Agency Request
Infrastructure Element	Classroom / Multi-Purpose
Contains O & M costs? Yes	
Contains significant technology costs? No	
Contains significant energy costs? No	
Possible that project will be used by other than a state or local governmental entity, or for research under sponsored programs (higher education)? No	

Agency Narrative

Agency Description

Executive Summary:

This project packages together five small and medium sized high priority facility renewal items to refurbish facilities critical to programs that serve the entire student population and advance the university. Each component of the project is vital to the core academic mission of Virginia Tech and will contribute greatly toward maximizing the efficiency of program delivery by improving and revitalizing the existing building inventory. The five subprojects of this package are described in the next section and together will renovate approximately 86,000 gross square feet and construct approximately 120,300 gross square feet to improve and replace a total of approximately 206,300 gross square feet of instructional space.

- **Renovate the Media Building:** This component will renovate the entire 13,200 GSF Media Building to provide updated and appropriate spaces for art programs.
- **Student Advising and Academic Services Center:** This subproject will convert an entire 24,550 GSF student center to repurpose it for the consolidation of undergraduate academic advising and support services.
- **Classroom Renovations:** This subproject will renovate approximately 56,250 GSF of outdated and underutilized general assignment classroom space to increase utilization of these spaces to address existing classroom space demand and to support planned enrollment growth.
- **Music/Theater Program Space:** this subproject will relocate the music and theater instruction programs from an outdated student center to a new 85,800 GSF facility. This is a critical action to vacating the student center, which the university plans to demolish in the future.
- **Lane Hall Renovation:** Originally known as Barracks No. 1, Lane Hall was built in 1888 and converted to office use in 1967. This subproject is for the renovation and preservation of the 26,500 GSF historic building to house academic programs.

The five small to medium sized subprojects will be wrapped into one contract for efficient delivery. The five subprojects include renovate the Media Building to provide updated spaces for art programs, renovate a student center to repurpose it into the Student Advising and Academic Services Center, renovate general assignment classrooms to meet the existing space demand and to support planned enrollment growth, relocate important music and theater program space into a permanent home, and renovate and preserve Lane Hall to house academic programs.

Project Description:

The five subprojects are described below.

1) Media Building Renovation:

This subproject will renovate the approximately 13,200 gross square foot (GSF), two and a half story Media Building, located in the Creativity and Innovation District, to provide updated spaces for art programs. This building was erected in 1934 as the Blacksburg Elementary School and was acquired by the university in 1965. No major renovations other than minimal routine maintenance have occurred. The building has begun deteriorating and currently has a facility condition index of 39 percent. The building has no air conditioning and is almost unusable in the summer months.

In 2018, a feasibility study outlined a plan to renovate all three stories of the Media Building to create a code compliant, habitable facility that would showcase the arts programs at Virginia Tech.

A renovated basement level will contain a media classroom, studio, and lab. The main level will be devoted to a community hub, a gallery, meeting rooms, and renovated toilets. The upper level will contain offices for the Institute for Creativity, Arts and Technology, a design studio, and an active learning classroom. An elevator would also be added within the building to allow accessible access to all levels.

Extensive site work will include the creation of a new public facing plaza and sun shade structure that address Draper Road and the Blacksburg farmers' market plaza.

2) Student Advising and Academic Services Center:

This subproject will renovate the entire 24,500 square foot G. Burke Johnston Student Center to repurpose it for the consolidation of Undergraduate Academic Affairs and Degree and Enrollment Management functions. The G. Burke Johnston Student Center currently has a facility condition index of 22 percent. This renovation will serve students who need assistance or have questions, and include at-risk populations including first generation college students, veterans, PELL eligible students, students who are at risk of failing to graduate, and anyone otherwise in need of counseling, advice, or referral. The program will include elements required to develop a student-centered model for delivering access to services that is efficient, integrated, personal, confidential, easy to use, and easily accessible (conveniently located along pedestrian routes).

The size, current configuration, and location of the G. Burke Johnson Student Center are ideal for this purpose. The renovation required to accommodate the program does not require extensive modifications to the existing structure or interior configuration. The lower level currently contains classrooms and the redesign calls for a 72 person meeting room and a café with seating for up to 34 persons. The second level, will include information kiosks for students, a large lounge area where roaming advisers can interact with students, and three group study rooms of differing sizes. The third level, a mezzanine level, is a repetition of the second floor. The existing stairs, toilets, and elevator will be preserved.

3) General Assignment Classroom Renovations:

This subproject will renovate approximately 56,250 GSF of outdated general assignment classroom space to meet the existing space demand and to support planned enrollment growth. General assignment classrooms in the following buildings are outdated and in need of renovation: Hutcheson, Litton-Reaves, McBryde, Pamplin, Patton, Saunders, Seitz, Smyth, and Wallace. Classrooms in off-campus locations including Roanoke, Richmond, and the National Capital Region may also benefit from renovation. These renovations will provide upgraded technology, flexible furnishings, and improved learning environment conditions. The buildings specifically require new seating, shades, painting, LED lighting with dimming capacity, AV system upgrades (including lecture capture and distance learning), whiteboard replacement, and additional power outlets for recharging devices. Classrooms in these buildings account for over 4,000 stations. Improved classroom conditions will support meeting course schedule requirements, timely degree completion, and the ability of faculty to teach and students to learn.

4) Music / Theater Program Space:

This subproject relocates the music and theater programs from Squires Student Center to a new approximately 86,000 GSF facility and their permanent home in the Creativity and Innovation District. This is a critical precursor to vacating Squires Student Center to move forward other major projects in the Creativity and Innovation District. The music and theater programs currently occupy approximately 44,000 GSF of leased space within Squires Student Center (the Student Affairs auxiliary controls Squires) and often requires use of the approximately 11,500 GSF Haymarket Theater performance hall in Squires. In addition, the Digital Audio Recording and Production Studio leases another 3,500 GSF in downtown Blacksburg.

This subproject would replicate and consolidate these program spaces within the first phase of a new performing arts complex to be constructed in the Creativity and Innovation District as shown on the university's 2018 master plan. Primary program spaces will include multiple performance/rehearsal venues, individual and group practice rooms, recording studios, faculty offices, storage, and lobby areas.

5) Lane Hall Renovation:

One of the oldest buildings on the Blacksburg campus, Lane Hall was built in 1888, converted to office use in 1967, and added to the National Register of Historic Places in 2014. It currently has a facility conditions index of 63 percent in the FICAS system. Originally known as Barracks No. 1, it is a three-story structure composed of five vertical bays, each having its own stairwell. The bays, arranged like row houses,

do not interconnect except on the ground floor, where the sole toilet facilities are located. This subproject is for the renovation and preservation of the approximately 26,500 square foot historic building to house academic programs.

Since the individual bays do not connect to one another on the second and third level, elevator access should be paired with a connecting corridor along the rear of the building. This modification could also house additional and accessible toilets to bring the building up to current standards. The building is composed of individual offices with select meeting and storage rooms. Following renovation, it will continue to be occupied by faculty within the College of Liberal Arts and Human Sciences.

The renovation and restoration would include window refurbishment, the installation of air conditioning, additional electric power capacity, LED lighting fixtures, accessible toilets and door hardware, signage, finish improvements, life safety enhancements, and means of egress upgrades.

Justification

Program Description:

1) Media Building Renovation:

A renovated Media Building will provide updated space for the university's art programs, the Institute for Creativity, Arts and Technology, and a community hub. The goals for this subproject are as follows:

- a) Establish a vanguard for the interdisciplinary research and collaboration that will characterize the Creativity and Innovation District (CID).
- b) Develop the core of a vibrant CID community, creating fertile ground for cross-disciplinary research and collaboration interests.
- c) Building a community with meaningful connections within the CID, Virginia Tech, Blacksburg, and beyond.
- d) Showcase collaboration and innovation internally (within the building) and externally.
- e) Create the model for open-use, shared space for the CID aligned with Virginia Tech's Beyond Boundaries vision.

2) Student Advising and Academic Services Center:

Student advising and academic planning are essential support services for students to successfully navigate degree completion in a timely fashion. Virginia Tech, like other institutions, is aggregating core student academic support services to consolidate services for efficient and effective delivery. The university has identified nine pivotal services that students access on a regular basis and stay in high demand. These nine services are being consolidated into a program called "Academic Support and Student Success Center." This subproject will convert the existing G. Burke Johnston Student Center to a convenient, centralized, one-stop location where students will receive advice and referral to other locations, where more extensive and longer term services will be provided.

The Academic Support and Student Success Center will provide students with the knowledge, skills, and self-awareness necessary to achieve success in college and in life. As well-rounded, global citizens prepared to enter the workforce, Virginia Tech's students enhance the economic development of the state. The Center will also measure undergraduate's post-graduation achievement. This provides a feedback loop to inform decisions affecting the university's recruitment strategies, while ensuring curriculum development and delivery meet students and employer's needs, thus further enhancing economic development through a prepared workforce.

3) General Assignment Classroom Renovations:

Each year, the university invests a small amount of funds to upgrade the worst performing classrooms as defined by the colleges and the Student Perception of Teaching survey. This frequently involves the replacement of grade school type, tablet-arm desks with tables and chairs, or replacing chalkboards with whiteboards. More costly improvements such as providing additional power outlets, new lighting fixtures, and air conditioning are outside of the scope of these minor improvements. This effort has benefited students, but the overall general assignment classroom inventory, especially in most main campus older buildings, is in need of a broader scale renovation and upgrade.

This subproject will renovate approximately 56,250 GSF of outdated general assignment classroom space to meet the existing space demand and to support planned enrollment growth. General assignment classrooms in the following buildings are outdated and in need of renovation: Hutcheson, Litton-Reaves, McBryde, Pamplin, Patton, Saunders, Seitz, Smyth, and Wallace. The 83 outdated classrooms in these nine buildings contain approximately 4,100 stations. Their renovation will allow faculty and students to benefit from changes in pedagogy and advances in AV/IT systems, including lecture capture and distance learning. Classrooms in off-campus locations including Roanoke, Richmond, and the National Capital Region may also benefit from renovation.

4) Music / Theater Program Space:

This subproject would replicate and consolidate music and theater program spaces, currently located in Squires Student Center and leased space in Blacksburg's downtown area, within the first phase of a new performing arts complex to be constructed in the Creativity and Innovation District as shown on the university's 2018 master plan. Primary program spaces will include multiple performance/rehearsal venues, individual and group practice rooms, recording studios, faculty offices, storage, and lobby areas.

These new spaces will replace outdated rooms that are not suitable for the use currently assigned to them. For example, the group music rooms in Squires Student Center lack sufficient height and volume for the number of musicians who must use them. Because of this lack of

volume, they will never be suitable for their intended use. In addition, some group practice rooms lack adequate HVAC, and because of prior moisture infiltration, have a damp and musty odor. There is also insufficient storage for valuable instruments. Existing facilities are not all accessible and do not comply with current building code requirements.

5) Lane Hall Renovation:

Lane Hall occupies an important place on the Upper Quad, both physically and historically. Constructed in 1888 and known as Barracks Number 1, it housed 130 Corps of Cadet students until it was converted to academic office use in 1967. The building was formed from five townhouses that were not originally connected but are now the five bays within Lane Hall. The building was added to the National Register of Historic Places in 2014. It is situated at the heart of the Upper Quad area, which is the home of the Corps of Cadets. The Corps has grown recently with the addition of Pearson and New Cadet Hall which replaced Rasche and Brodie Hall.

Lane Hall is bounded to the North by Major Williams Hall and Shanks Hall which are occupied by departments within the College of Liberal Arts and Life Sciences. Faculty within that college currently occupy four of the five bays. When the Corps of Cadets administration moves to their permanent home north of Lane Hall, in the soon to be constructed Corps Leadership and Military Science Building, the vacated offices will revert to the College of Liberal Arts and Life Sciences.

The entire building, with the exception of a recently replaced roof, is in need of renovation to provide faculty offices that are comfortable, productive, and meet current code requirements for life safety and accessibility, while preserving the buildings historic character. Improvements will help to advance the university's strategic plan by allowing for greater inclusivity and enhancing faculty productivity and well-being. In addition, a more energy efficient building will help reduce operating costs.

Existing Facilities:

Refer to the Project Description section of this submission for a description of the existing Media Building, buildings requiring significant classroom renovations, and Lane Hall. The renovation of G. Burke Johnston Student Center into the Student Advising and Academic Services Center is described below.

Student Advising and Academic Services Center:

At present, seven of the nine programs for the Academic Support and Student Success Center are located in Femoyer Hall, which was built in 1949 as a residence hall and has been occupied by these academic support units since 1985. This 35,500 square foot building has a facility condition index of 46 percent in the FICAS system as of April 2019. The 70 year old building has extensive egress and ADA deficiencies, deteriorated building systems that cannot support the programs or meet the expectations of undergraduate students, and has reached the end of its serviceable life. Because of its age and deferred maintenance backlog, the building cannot be restored to full service with normal maintenance reserve and routine maintenance.

Many of the advising and service oriented functions currently housed in Femoyer will be represented strategically in a renovated G. Burke Johnston Center. The larger portions of these services will be relocated to another building that does not require the same proximity to a major student pedestrian route.

Funding Plan:

The program of Academic Efficiency and Renewal project is entirely Educational and General instructional and academic support programs; thus, the funding plan calls for 100 percent General Fund support for this \$79.1 million package project.

Options Considered:

Options considered but rejected include new construction of additional space, additional leasing of off-campus space, and project deferral. New construction for each need would cost more than the proposed renovations, would unnecessarily increase the university's space inventory, and would leave significant assets not serviceable. Leasing space is costly due to the unique programmatic needs and no existing adequate inventory of leasable spaces. Leasing also reduces program cohesiveness by distributing students, faculty, and staff across several buildings and areas adjacent to campus. New construction and leased space disperses instructional and research programs across multiple buildings and negatively impacts students and faculty. Deferral of these renovations to a future biennium will impact the programs' ability to efficiently provide instruction.

Methodology

Cost Explanation and Methodology:

A. Methods Used to Estimate Costs:

The method for estimating costs for the Academic Efficiency and Renewal Package project includes: 1) using unit costs in the Division of Engineering and Building's Construction Costs Database updated March 2018 with a regional market multiplier and a multiplier for soft costs; and 2) comparables as shown in the CR-1. Both methods are escalated to a construction midpoint of 2023 at four and a half percent escalation 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 \$383 per gross square foot. The unit construction costs of the project are \$296 per gross square foot, including self-performed construction work. The building types in this request are wet laboratory, dry laboratory, and classroom spaces in the Division of Engineering and Building's Virginia 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. The estimates also include the cost of technology, specialized instruction, and energy efficiency goals of the institution.

Multiple delivery methods will be utilized on these projects.

B. This capital project is comprised of five subprojects. The subprojects are comprised of new construction, historic renovations, renovations and occupied renovations. The proposed costs include the following critical considerations to ensure the project fully meets the needs of the program and the university:

Media Building Renovation:

- 1) Renovation of the Media Building will require the full inspection and repairs to the building envelope to extend the life of the facility. Extensive repointing of exterior masonry, installation of new windows, and replacement of the roofing system. The costs for this are included in the construction budget line item. Envelope commission and related inspection costs are carried in the Other Costs as they are performed by a third party.
- 2) Renovation will involve complete replacement of mechanical, plumbing, electrical systems and building automation systems that have exceeded their useful life. New systems shall meet current code and energy requirements. It will also require installation of sprinkler, fire alarm systems, distributed antenna systems and accessibility improvements.
- 3) Building structural support systems will be evaluated once exposed and potentially modified to accommodate and support programmatic changes to the existing building. Raised floor systems will be evaluated for spaces that are prone to future changes allowing for maximum adaptation.
- 4) 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. Testing and instruction can utilize online applications requiring the capacity for an entire classroom to be connected simultaneously.
- 5) Power outlets corresponding to the seat/station count and power outlets in common areas will exceed the minimum code requirements by approximately 30 percent.
- 6) Automated audiovisual and lighting controls are included in all classroom and laboratory spaces.
- 7) Climate controlled technology server rooms, 10 feet by 10 feet, on each floor of the building or as required to provide efficient distribution of services.
- 8) Communications infrastructure, wired and wireless, is installed by a university operated auxiliary; thus, these costs are shown in the Other Costs section of the proposed budget.
- 9) Chilled water is not available in this vicinity of campus. A mechanical yard will need to be constructed to house local cooling equipment.
- 10) Code and regulation are updated over time. Following are some changes that have occurred that were not in place on the comparable projects that were used to provide the parametric estimate for this project:
 - DEQ increased the storm water management requirements in 2014. Extensive BMP's and off-set credits are required to be installed and/ or purchased to comply with this Federal regulation.
 - ASHRE 90.1 energy code stipulates that buildings use less energy with each successive issuance of the code. The most recent change requires 18.5 percent decrease in energy usage. This translates into increase Capital costs.
 - The state mandated High Performance Building Act provides three options for compliance. Virginia Tech utilized LEED V4 which mandates energy savings beyond the requirements of energy code, ASHRE 90.1. This increases the capital construction costs.
 - LEED additionally requires the commissioning of the energy savings components. The costs are on the order of 0.75-1.3 percent of the construction costs. The services are provided by a third party and are captured in the Other Costs section.
- 11) Hazardous materials were utilized during the era in which this building was constructed. This will increase both the time and cost of making the building safe for the planned scope of work.

Student Advising and Academic Services Center:

1) Renovation of the G. Burke Johnston Student Center will require the full inspection and repairs to the building envelope to extend the life of the facility. Extensive repointing of exterior masonry, installation of new windows, and replacement of the roofing system. The costs for this are included in the construction budget line item. Envelope commission and related inspection costs are carried in the Other Costs as they are performed by a third party.

2) Renovation will involve complete replacement of mechanical, plumbing, electrical systems and building automation systems that have exceeded their useful life. New systems shall meet current code and energy requirements. It will also require installation of sprinkler, fire alarm systems, distributed antenna systems and accessibility improvements.

3) Building structural support systems will be evaluated once exposed and potentially modified to accommodate and support programmatic changes to the existing building.

4) 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.

5) Power outlets corresponding to the seat/station count and power outlets in common areas will exceed the minimum code requirements by approximately 30 percent.

6) Automated audiovisual and lighting controls are included for all classrooms.

7) Climate controlled technology server rooms, 10 feet by 10 feet, on each floor of the building or as required to provide efficient distribution of services.

8) Communications infrastructure, wired and wireless, is installed by a university operated auxiliary; thus, these costs are shown in the Other Costs section of the proposed budget.

9) Code and regulation are updated over time. Following are some changes that have occurred that were not in place on the comparable projects that were used to provide the parametric estimate for this project:

- DEQ increased the storm water management requirements in 2014. Extensive BMP's and off-set credits are required to be installed and/ or purchased to comply with this Federal regulation.
- ASHRE 90.1 energy code stipulates that buildings use less energy with each successive issuance of the code. The most recent change requires 18.5 percent decrease in energy usage. This translates into increase capital costs.
- The state mandated High Performance Building Act provides three options for compliance. Virginia Tech utilized LEED V4 which mandates energy savings beyond the requirements of energy code, ASHRE 90.1. This increases the capital construction costs.
- LEED additionally requires the commissioning of the energy savings components. The costs are on the order of 0.75-1.3 percent of the construction costs. The services are provided by a third party and are captured in the Other Costs section.

10) Hazardous materials were utilized during the era in which this building was constructed. This will increase both the time and cost of making the building safe for the planned scope of work.

General Assignment Classroom Renovations:

1) These classrooms are housed within occupied buildings that are in continuous use. In order to maintain continuity of operations in the occupied portion of the building certain construction activities will need to be performed at off-hours, increasing the cost and duration of construction and increasing the associated soft costs related to inspections. The contractor will own the risk of problems associated with the interruption of services which translates into increased construction costs.

2) These classrooms are housed in many buildings around campus. Geographically separated project sites increase the cost of construction and associated soft costs.

3) Hazardous materials were utilized during the era in which this building was constructed. This will increase both the time and cost of making the building safe for the planned scope of work.

Music / Theater Program Space:

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 provides the cut materials to the building; thus, the material costs along with intensive quality insurance inspection costs are carried in the Other Costs section of the proposed budget, while the construction budget carries all erection, final stone dressing, and

installation 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) Music / Theater spaces will require the acoustic design requirements which typically require heavy interior mass walls, equipment selected with acoustic requirements, specialty/theatrical lighting, acoustic curtain systems and other such requirements that are more expensive than standard construction.
- 4) Building structural support systems will accommodate large open and unimpeded interior spaces needed to provide the proper acoustic volumes.
- 5) Music and Theater spaces do not perform well in multi-story structures reducing the potential building efficiency.
- 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 will be required for these spaces.
- 9) Climate controlled technology server rooms, 10 feet by 10 feet, on each floor of the building.
- 10) Communications infrastructure, 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 rock removal and deep foundations. Building foundation deep caissons or piers are expected to remediate unsound subsurface foundation conditions.
- 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) Instrument and Theater storage spaces will require archive quality environmental controls to ensure the safe storage of equipment.
- 14) Restricted site access in a dense and active part of campus will increase mobilization costs.

Lane Hall Renovation:

- 1) Renovation of the DHR registered Historic Lane Hall will require the full inspection and repairs to the building envelope to extend the life of the facility. Extensive repointing of exterior masonry, installation of new windows, and replacement of the roofing system. The costs for this are included in the construction budget line item. Envelope commission and related inspection costs are carried in the Other Costs as they are performed by a third party.
- 2) Renovation will involve complete replacement of mechanical, plumbing, electrical systems and building automation systems that have exceeded their useful life. New systems shall meet current code and energy requirements. It will also require installation of sprinkler, fire alarm systems, distributed antenna systems and accessibility improvements.
- 3) Building structural support systems will be evaluated once exposed and potentially modified to accommodate and support programmatic changes to the existing building. Raised floor systems will be evaluated for spaces that are prone to future changes allowing for maximum adaptation.
- 4) 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. Testing and instruction can utilize online applications requiring the capacity for an entire classroom to be connected simultaneously.
- 5) Power outlets corresponding to the seat/station count and power outlets in common areas will exceed the minimum code requirements by approximately 30 percent.
- 6) Automated audiovisual and lighting controls are included for all classroom and class laboratory spaces.

7) Climate controlled technology server rooms, 10 feet by 10 feet, on each floor of the building or as required to provide efficient distribution of services.

8) Communications infrastructure, wired and wireless, is installed by a university operated auxiliary; thus, these costs are shown in the Other Costs section of the proposed budget.

9) Code and regulation are updated over time. Following are some changes that have occurred that were not in place on the comparable projects that were used to provide the parametric estimate for this project:

- DEQ increased the storm water management requirements in 2014. Extensive BMP's and off-set credits are required to be installed and/ or purchased to comply with this Federal regulation.
- ASHRE 90.1 energy code stipulates that buildings use less energy with each successive issuance of the code. The most recent change requires 18.5 percent decrease in energy usage. This translates into increase capital costs.
- The state mandated High Performance Building Act provides three options for compliance. Virginia Tech utilized LEED V4 which mandates energy savings beyond the requirements of energy code, ASHRE 90.1. This increases the capital construction costs.
- LEED additionally requires the Commissioning of the energy savings components. The costs are on the order of 0.75-1.3 percent of the construction costs. The services are provided by a third party and are captured in the Other Costs section.

10) Hazardous materials were utilized during the era in which this building was constructed. This will increase both the time and cost of making the building safe for the planned scope of work.

Funding Request

Phase	Year	Subobject	Fund	Amount
Full Funding	2021	2322 - Construction, Buildings	01000 - General Fund	\$79,100,000
Total				\$79,100,000

Project Costs

Cost Type	Requested Funding
Acquisition Cost	\$0
Building & Built-in Equipment	\$60,983,685
Sitework & Utility Construction	\$0
Construction Cost Total	\$60,983,685
DESIGN & RELATED SERVICE ITEMS	
A/E Basic Services	\$6,525,254
A/E Reimbursables	\$85,377
Specialty Consultants (Food Service, Acoustics, etc.)	\$0
CM Design Phase Services	\$146,361
Subsurface Investigations (Geotech, Soil Borings)	\$30,492
Land Survey	\$0
Archeological Survey	\$0
Hazmat Survey & Design	\$18,295
Value Engineering Services	\$0
Cost Estimating Services	\$0
Other Design & Related Services	\$396,394
Design & Related Services Total	\$7,202,173
INSPECTION & TESTING SERVICE ITEMS	
Project Inspection Services (inhouse or consultant)	\$432,985
Project Testing Services (conc., steel, roofing, etc.)	\$256,131
Inspection & Testing Services Total	\$689,116
PROJECT MANAGEMENT & OTHER COST ITEMS	
Project Management (inhouse or consultant)	\$795,861
Work By Owner	\$36,590
BCOM Services	\$97,574
Advertisements	\$6,098

Printing & Reproduction	\$6,098
Moving & Relocation Expenses	\$91,476
A/V Cabling	\$0
IT Cabling	\$0
Telephone Cabling	\$0
A/V Equipment	\$0
IT Equipment	\$1,719,740
Telephone Equipment	\$0
Signage	\$42,689
Demolition	\$0
Hazardous Material Abatement	\$36,590
Utility Connection Fees	\$0
Utility Relocations	\$475,673
Commissioning	\$615,935
Miscellaneous Other Costs	\$994,034
Project Management & Other Costs Total	\$4,918,358
Furnishings & Movable Equipment	\$4,086,994
Construction Contingency	\$1,219,674
TOTAL PROJECT COST	\$79,100,000

Size and Scope

Cost Type	Unit of Measure	Units	Cost Per Unit
Acquisition Cost		0	\$0
Construction Cost	GSF	206,280	\$296
Total Project Cost	GSF	206,280	\$383

Operating and Maintenance Costs

Cost Type	FY 2021	FY 2022	FY 2023	FY 2024	FY 2025	FY 2026
GF Dollars	\$0	\$0	\$0	\$1,117,539	\$1,151,065	\$1,185,597
NGF Dollars	\$0	\$0	\$0	\$0	\$0	\$0
GF Positions	0.00	0.00	0.00	6.77	6.77	6.77
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
2018-10-30 Media Building Feasibility Study (FINAL).pdf	20,144,106	Cassidy Limer	7/23/2019	
04- Academic Efficiency Package Program Chart.pdf	87,231	Cassidy Limer	7/25/2019	
04 - CR-1e Academic Efficiency-VIRGINIA TECH-State Version.xlsx	617,067	Cassidy Limer	7/29/2019	

Workflow History

User Name	Claimed	Submitted	Step Name	Submit Action
Cassidy Limer	07/16/2019 03:53 PM	07/16/2019 03:53 PM	Enter Capital Budget Request	Continue Working
Cassidy Limer	07/16/2019 03:53 PM	07/26/2019 01:42 PM	Continue Drafting	Submit for Agency Review

Rob Mann	07/26/2019 02:03 PM	07/26/2019 02:12 PM	Agency Review Step 1	Ready for DPB Bulk Submit
Rob Mann	07/26/2019 02:16 PM	07/26/2019 02:16 PM	Ready for DPB Submission	Submit to DPB
Anne Smith	07/26/2019 03:46 PM	07/26/2019 03:46 PM	DPB Review	Return to Previous Submitter
Rob Mann	07/29/2019 10:06 AM	07/29/2019 10:07 AM	Agency Review Step 1	Return for Further Data Entry
Cassidy Limer	07/29/2019 01:41 PM	07/29/2019 02:07 PM	Continue Drafting	Continue Working
Jennifer Hundley	07/29/2019 04:56 PM	07/29/2019 04:58 PM	Continue Drafting	Continue Working
Jennifer Hundley	07/30/2019 10:35 AM	07/30/2019 10:39 AM	Continue Drafting	Continue Working
Jennifer Hundley	07/30/2019 10:41 AM	07/30/2019 10:42 AM	Continue Drafting	Submit for Agency Review
Rob Mann	07/30/2019 12:31 PM	07/30/2019 12:32 PM	Agency Review Step 1	Return for Further Data Entry
Cassidy Limer	07/30/2019 04:44 PM	07/30/2019 04:44 PM	Continue Drafting	Submit for Agency Review
Rob Mann	07/31/2019 10:38 AM	07/31/2019 10:41 AM	Agency Review Step 1	Ready for DPB Bulk Submit
Rob Mann	07/31/2019 03:44 PM	07/31/2019 03:44 PM	Ready for DPB Submission	Submit to DPB
Anne Smith	07/31/2019 05:28 PM	07/31/2019 05:29 PM	DPB Review	Continue Review
			DPB Review	