

Capital Budget Request

Address Library Code Compliance

Overview

| | |
|---|---|
| Agency | Virginia Polytechnic Institute and State University (208) |
| Project Code | none |
| Project Type | Improvements-Life Safety Code |
| Biennium | 2018-2020 |
| Budget Round | Initial Bill |
| Request Origin | New Project |
| Project Location | Roanoke Area |
| Facility/Campus | Newman Library |
| Source of Request | Agency Request |
| Infrastructure Element | Library / Resource Center |
| 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

Virginia Tech's library, Newman Hall, is a 227,000 gross square foot facility located in the heart of the campus and is one of the University's most heavy used buildings on a daily basis with approximately 4,000 visits per day and 24 hours of operation. The building is a mix of collections storage and student study spaces with capacity and infrastructure to accommodate 1,600 occupants at any one time.

The University has an increasing demand for convenient, 24-hour student study space located within the main campus. After exploring several alternatives, including constructing new space, the University has identified a cost effective and timely solution to accommodate the unmet demand for student study space.

The solution involves shifting collections out of the library to an offsite storage and then renovating floors of the library for student study space. The University has identified low cost, offsite storage solutions for collections and has developed a low cost program for converting and furnishing the vacated space to meet student study space needs. This solution would effectively quadruple the capacity to 6,400 occupants at any one time.

To fully implement this solution, four central infrastructure systems must be enlarged to meet code requirements. The upgrades are necessary because the human occupancy load of the library would increase four fold from its original design capacity, which was intended to hold mostly materials. The code requirement upgrades include water closets and lavatories; heating, ventilation and air conditioning; electrical system; and egress and safety.

The Library requires extensive improvements for a comprehensive update of the four systems. The University has developed a phased plan for the improvements that may be implemented over time. This request is for the first phase, which focuses on code compliance and life safety items. The items are described in this request, and the University is requesting \$6 million to complete the first phase of work. Items that may exceed the capacity of the requested budget may be deferred and requested in a future phase.

Project Description:

This project request is to complete code compliance upgrades to the University's central campus library, Newman Hall, to increase its human occupancy load from 1,600 to 6,400. While increased usage of the library is needed, increased occupancy would exceed the building's restrooms, HVAC, power capacity, egress, and fire suppression systems. Modernization of the library supports new pedagogy, problem based learning, collaboration, and the sharing of instructional and research content. This project is needed to bring the building's systems up to current code to ensure the health and safety of the building's occupants to ensure the library may continue to meet student needs. The Library requires extensive improvements for a comprehensive update. The University has developed a phased plan for the improvements which may be implemented over time. This request is for the first phase, which focuses on code compliance and life safety items. The items are listed below in priority order and would be implemented in this order to the extent the requested budget supports. Items that may exceed the capacity of the

requested budget may be deferred and requested in a future phase. Brief descriptions of each system improvements is provided below:

1) Water Closets and Lavatories:

The demand for occupant load increase is approximately 1,600 people to 6,400 people with usage varying from assembly, classroom, reading rooms, and offices. To meet the increased occupant load approximately 60 water closets and 31 lavatories are needed. Accommodating the required additional plumbing fixtures will essentially double the existing restrooms on all floors. Additionally, upgrades to the sanitary sewer system and domestic water lines will also be necessary.

2) Egress and Safety:

Without proper egress, higher occupancy levels presents a safety hazard during an emergency. Studies have shown that the required width of corridors, stairs, and doors must be enlarged and redesigned to accommodate the required width necessary for safe egress. Several floors are currently either deficient in stair width, door width, or both. A stair tower addition may be required to meet this code requirement and provide safe egress from the building. Depending on location of stair tower, it may be necessary to upgrade and expand the sprinkler system in the 1980 section of the building to meet new code requirements and to provide fire suppression for the entire facility. This could lead to a need to replace and relocate the emergency generator, should a fire pump be required. Updating and expanding the sprinkler system in the building will make a significant contribution to the life safety of the occupants.

3) Heating, Ventilation, and Air conditioning:

Based on the changing use and additional occupant load, the building's mechanical system needs to be upgraded to provide an estimated 650 tons for cooling. Currently, Newman Hall's mechanical system can provide about 460 tons for cooling. The piping distribution systems may also need to be upgraded with regard to line sizes and location to handle the additional cooling requirement.

4) Electrical System:

Power requirements in the library have increased significantly since the buildings construction in 1955. Many rooms now contain audio-visual equipment, multiple computers, and students charging devices utilized for classwork. Additionally, electrical systems would need to be upgraded to meet the new load of the updated mechanical and plumbing systems.

Justification

Program Description:

The Virginia Tech library, Newman Hall, is a 227,000 gross square foot facility located in the heart of the campus and serves all 33,000 Virginia Tech students. The facility is one of the University's most heavy used buildings on a daily basis with approximately 4,000 visits per day and 24 hours of operation. All library operations are managed from this location, and the building provides a mix of functions including collections management and services for students, faculty, staff, and visitors with a capacity to accommodate 1,600 occupants at any one time.

Existing Facilities:

Newman Library was constructed in 1955, with an addition in 1980 with a current size of approximately 227,000 gross square feet. The building services include student support, book storage, and all other common library functions. The building has received no major improvements or renovations since its original construction. The mechanical, electrical, and sanitary systems all exceed 35 years; and all code elements are sized for a building that would hold mostly materials.

Funding Plan:

The program for this project is entirely Educational and General Library space; thus, the funding plan calls for 100 percent general fund support.

Options considered:

Options considered, but not selected, include delaying the project to another biennium or constructing a new addition to the library. Delaying the project is not possible because without this project, bringing the library up to code, the library cannot continue to be modernized.

The facility's plumbing, electrical, and egress capabilities have reached their critical maximum allowance based on occupancy. Any further renovations are on hold until these systems have been brought up to date. Construction of a new library was not selected due to cost and the current library's location, at the intersection of the central campus Drillfield and Alumni Mall, is the desired location for this type of asset.

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 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 2020 at three percent in accordance with the Capital Outlay Budget instructions. The building types in this request are Library addition/renovation 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 energy efficiency goals of the institution.

The project is anticipated to utilize a Design, Bid, Build construction delivery method and the 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.

Agency Funding Request

| Phase | Year | Fund | Subsubject | Requested Amount |
|--------------|------|----------------------|--------------------------------|------------------|
| Full Funding | 2019 | 01000 - General Fund | 2322 - Construction, Buildings | \$5,500,000 |
| Total | | | | \$5,500,000 |

Project Costs

| Cost Type | Total Project Costs | Requested Funding | DGS Rec |
|--|---------------------|--------------------|---------|
| Acquisition Cost | \$0 | \$0 | |
| Building & Built-in Equipment | \$3,881,281 | \$3,881,281 | |
| Sitework & Utility Construction | \$0 | \$0 | |
| Construction Cost Total | \$3,881,281 | \$3,881,281 | |
| DESIGN & RELATED SERVICE ITEMS | | | |
| A/E Basic Services | \$425,315 | \$425,315 | |
| A/E Reimbursables | \$3,381 | \$3,381 | |
| Specialty Consultants (Food Service, Acoustics, etc.) | \$0 | \$0 | |
| CM Design Phase Services | \$10,252 | \$10,252 | |
| Subsurface Investigations (Geotech, Soil Borings) | \$2,083 | \$2,083 | |
| Land Survey | \$0 | \$0 | |
| Archeological Survey | \$0 | \$0 | |
| Hazmat Survey & Design | \$337 | \$337 | |
| Value Engineering Services | \$0 | \$0 | |
| Cost Estimating Services | \$3,694 | \$3,694 | |
| Other Design & Related Services | \$495 | \$495 | |
| Design & Related Services Total | \$445,557 | \$445,557 | |
| INSPECTION & TESTING SERVICE ITEMS | | | |
| Project Inspection Services (inhouse or consultant) | \$169,320 | \$169,320 | |
| Project Testing Services (conc., steel, roofing, etc.) | \$9,941 | \$9,941 | |
| Inspection & Testing Services Total | \$179,261 | \$179,261 | |
| PROJECT MANAGEMENT & OTHER COST ITEMS | | | |
| Project Management (inhouse or consultant) | \$160,151 | \$160,151 | |
| Work By Owner | \$26,942 | \$26,942 | |
| BCOM Services | \$0 | \$0 | |
| Advertisements | \$1,947 | \$1,947 | |
| Printing & Reproduction | \$0 | \$0 | |
| Moving & Relocation Expenses | \$24,252 | \$24,252 | |
| AV Cabling | \$0 | \$0 | |
| IT Cabling | \$0 | \$0 | |
| Telephone Cabling | \$0 | \$0 | |
| AV Equipment | \$0 | \$0 | |
| IT Equipment | \$115,843 | \$115,843 | |
| Telephone Equipment | \$0 | \$0 | |
| Signage | \$4,118 | \$4,118 | |
| Demolition | \$0 | \$0 | |
| Hazardous Material Abatement | \$10,126 | \$10,126 | |
| Utility Connection Fees | \$0 | \$0 | |

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|---|--------------------|--------------------|
| Utility Relocations | \$0 | \$0 |
| Commissioning | \$12,658 | \$12,658 |
| Miscellaneous Other Costs | \$433,586 | \$433,586 |
| Project Management & Other Costs Total | \$789,623 | \$789,623 |
| Furnishings & Movable Equipment | | |
| Construction Contingency | \$204,278 | \$204,278 |
| TOTAL PROJECT COST | \$5,500,000 | \$5,500,000 |

Capacity

| Cost Type | Unit of Measure | Units | Cost Per Unit |
|--------------------|-----------------|-------|---------------|
| Acquisition Cost | | 0 | \$0 |
| Construction Cost | N/A | 0 | \$0 |
| Total Project Cost | N/A | 0 | \$0 |

Operating and Maintenance Costs (Agency)

| Cost Type | FY 2019 | FY 2020 | FY 2021 | FY 2022 | FY 2023 | FY 2024 |
|---------------|-----------|-----------|-----------|-----------|-----------|-----------|
| GF Dollars | \$220,710 | \$227,331 | \$234,151 | \$241,176 | \$248,411 | \$255,863 |
| NGF Dollars | \$0 | \$0 | \$0 | \$0 | \$0 | \$0 |
| GF Positions | 1.82 | 1.82 | 1.82 | 1.82 | 1.82 | 1.82 |
| 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-08 Library Code Compliance.xlsx | 419,918 | Rob Mann | 7/7/2017 | CR-3 Form_Library Code Compliance |

Workflow History

| User Name | Claimed | Submitted | Step Name | Submit Action |
|------------------|---------------------|---------------------|------------------------------|---------------------------|
| Jennifer Hundley | 06/09/2017 05:09 PM | 06/09/2017 05:09 PM | Enter Capital Budget Request | Continue Working |
| Jennifer Hundley | 06/09/2017 05:09 PM | 06/09/2017 05:09 PM | Continue Drafting | Continue Working |
| Rob Mann | 07/07/2017 12:07 PM | 07/07/2017 12:21 PM | Continue Drafting | Submit for Agency Review |
| Rob Mann | 07/07/2017 12:21 PM | 07/07/2017 12:21 PM | Agency Review Step 1 | Ready for DPB Bulk Submit |
| Bob Broyden | 07/07/2017 04:35 PM | 07/07/2017 04:35 PM | Ready for DPB Submission | Submit to DPB |
| | | | DPB Review | |