CapSix Database

Renovate Davidson Hall, Phase II

project 1 of 1

Virginia Polytechnic Institute and State University (208)

General Information

Project Type: Improvements-Other Project Code: Start Year: 2011

Agy Priority: 8 Location: Southwest Facility:

Building #: 156 Building Name: Davidson Hall

Building Function: Higher Education - Academic

Is this an Umbrella Project? No OR a higher education blanket project? No

Projected time to submit working drawings: 21 months

Projected time to occupy facility or complete project: 43 months

Projected time to award construction contract: 23 months

Included in the existing Six Year Capital Plan No

Contact Information

Name: Robert Broyden

Email: rbroyden@vt.edu

Phone: (540) 231-8782

Agency Narrative

Description

This project has been on the Uuniversity's plan since 1993, formerly titled Renovation/Addition of Davidson Hall, and the University is proposing to include the project as priority item in the State's Six-Year Capital Outlay Plan update for 2010. The project originally envisioned renovation of the entire facility; however, the cost and construction issues of addressing the entire building as a single project was too large. Thus, the University has phased the project to two components that are more manageable. The Phase I project to raze and replace the center and rear sections of the building has detail planning authorized in Chapter 1 (2008) and design work is underway. This project requests the second component that will renovate and rehabilitate the historic front section of the building.

The requested project scope for Davidson Hall will renovate the existing approximately 36,500 gross square foot historic front section of the existing building. This includes the replacement and upgrade of electrical, plumbing, and mechanical ventilation systems, air-conditioning (connection to the central plant), and disposal of hazardous materials. These renovations will also renew the historic façade by cleaning and tuck pointing the masonry exterior and replacing any damaged masonry or coping. In addition, the windows, doors, and weather stripping will be replaced in order to realize increased energy savings. Accessibility and life safety code issues will also be addressed in the renovation of the building.

Justification

Program Description:
The chemistry program includes over 250 people including undergraduates, graduate students, postdoctoral fellows, research technicians, and faculty and delivers about 22,337 weighted-student-credit-hours annually - one of the highest volumes of service teaching in the University.

Chemistry instruction at Virginia Tech is of direct value to the Commonwealth of Virginia and a vital component of a comprehensive university. Many small and large companies that do business in Virginia have direct ties to the Chemistry Department, through short courses, the hiring of Virginia Tech chemistry graduates, intellectual property transfer, small business start up, and grants and contracts. Many recent discoveries in the areas of proton exchange membranes for hydrogen fuel cells, drug discovery, medical diagnostics, homeland security, and composites for structural applications can be traced to activities in chemistry at Virginia Tech. Graduate students were involved in each of these advances and undergraduates were involved in many of them, and the projects provided invaluable laboratory training to the students.

The proposed renovation will complete the facility improvements initiated by the phase I project and will mitigate two negative impacts on chemistry instruction caused by the ill suited conditions of Davidson Hall. This project will restore the level of space needed for the program and will enable students to be optimally trained to move into today's industrial, governmental, and academic laboratories that specialize in nanotechnology, chemical biology, computational chemistry, environmental chemistry, drug discovery, and macromolecular chemistry.

The mission statement of Virginia Tech as a public land-grant university serving the Commonwealth of Virginia, the nation, and the world community includes discovery and dissemination of new knowledge central to its mission. Through its focus on teaching and learning, research and discovery, and outreach and engagement, the University creates, conveys, and applies knowledge to expand personal growth and opportunity, advance social and community development, foster economic competitiveness, and improve the quality of life.

The University's strategic plan includes three scholarship domains: Learning, Discovery, and Engagement; and three Foundational Strategies: Development of the Organization, Investment in the Campus Infrastructure, and Effective Resource Development, Allocation, and Management. This project supports several key domains and strategies of the strategic plan, and the specific goals of each area addressed by this project are listed below.

Learning: (1) Increase student involvement in discovery and engagement by creating more opportunities for undergraduates to be involved in research capstone experiences, education abroad, and experiential learning; (2) Invest in departmental and university-level support for undergraduate education; (3) Enhance quality graduate and professional education; (4) Establish a graduate education portfolio reflective of a 21st century university; (5) Contribute to the holistic and transformative educational experiences of Virginia Tech undergraduate and graduate students; and (6) Improve the capital assets that underpin student learning and support programs.

Discovery: (1) Strengthen research activities with a focus on energy; (2) Strengthen research activities with a focus on materials; (3) Strengthen research activities with a focus on the environment; and (4) Achieve research strength in the areas of innovative technologies and complex systems through the strategic integration and support of critical research areas.

Engagement: (1) Connect the University's discovery, learning, and engagement assets through partnerships with both the public and private sectors to advance the economic vitality of the commonwealth and the quality of life of its citizens; and (2) Engage students, at the undergraduate and graduate levels, in opportunities for service learning and experiential education that prepare them to serve a diverse and complex marketplace and society while building the capacity of communities.

Foundational Strategies: (1) Effectively manage the University's space and land resources for learning, living, and work; and (2) Enhance health, safety, and security operations to support the University's discovery, learning, and engagement endeavors.

In summary, the reconstruction of the historic front section of Davidson Hall is essential to the growth and health of the chemistry program at Virginia Tech. A more modern physical plant for chemical training will facilitate undergraduate, graduate, and faculty recruiting and enable the chemistry department to strengthen its programs in chemical biology, computational chemistry, nonmaterial's chemistry, and macromolecular chemistry.

Existing Facilities:
The University is confronted with an aging inventory of science laboratory space, much of it built in the 1970's and before, that is inadequate even with significant renovation to support the new protocols and instrumentation the latest micro- and nano-scale work require. This demolition and replacement project is needed to provide the sophisticated, state-of-the-art classroom and laboratory space that is required by the technologies utilized in modern science fields, such as those for chemistry.

The chemistry department operates in three buildings on campus: the New Chemistry/Physics Building is used for undergraduate classroom instruction, Hahn Hall is used for sponsored research, and Davidson Hall is used for

undergraduate and graduate laboratory instruction.

Davidson Hall was constructed in 1928 with additions in 1933 and 1938, and with renovations in 1965 and 1981. The building originally housed undergraduate and graduate chemistry classrooms and laboratories. The undergraduate classrooms and a portion of the laboratories moved to the New Chemistry/Physics building in 2004. The relocation of the undergraduate program to the new building has made room to update Davidson Hall - one of the most outdated and seriously deteriorated facilities on campus.

Davidson Hall is included in the Facility Inventory Condition and Assessment System with a Facility Condition Index of 70 percent for the overall building. Conditions in the center and rear areas of the building are approaching unsafe levels because of age and incompatibility with modern scientific teaching methods. For example, the center and rear sections now show rainwater leakage; missing stonework at exterior walls; inadequate climate and dust control; and outdated electrical power, water, nitrogen gas plumbing, and air handling that hamper training and challenge proper safety. The center and rear sections are so deteriorated that nearly half of the teaching laboratories have been shuttered. The building deterioration in the center and rear section is severe and will require razing and replacement - renovation of these areas is not an option. The front section is structurally sound and may be renovated for modern, low-intensity instructional use.

Funding Plan:
The program for the project is 100 percent educational and general instructional support for the chemistry undergraduate and graduate programs with modern instructional classrooms and laboratories. Thus, the funding plan calls for full state support, estimated at $25.258 million. This project will not impact student fees.

Options Considered

Delaying the project to a future biennium is not a desired option because the center and north sections are on track for replacement in the 2010-2012 biennium. Until the front section can be renovated, the area will be partially shuttered and not fully operational with the rehabilitated portion of the building. The front section needs to be renovated to provide a normal functioning and operational building; thus, it is a high priority for implementation when the Phase I effort to replace the center and rear sections is complete.

Costing Methodology

The costs are based on internal estimates developed by University staff based on historical comparables of on-campus work performed through an internal project costing analysis. 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.

Project Costs

1. Aquisition of Property:	$0
2. Acquisition of Plant	$0
3. Building and Built-in Equipment	$18,288,000
4. Sitework and Utilities	$915,000
5. Architectural and Engineering Fee	$2,348,000
6. Loose Furnishings and Equipment	$763,000
7. Contigencies	$768,000
8. Project Inspection	$400,000
9. Other Costs	$1,776,000
Total Cost	**$25,258,000**

The following items (10, 11, 12) are included in above costs

10. Estimated Total Planning Costs:	$2,505,000
11. Estimated New Construction Costs:	$0
12. Estimated Improvements Costs:	$19,841,000

Itemized "9. Other Costs"

1. Project Management In Capital Project Budget:	$383,000
2. Special Consultants (if not included in A & E fees):	A. Scheduling Consultant $34,000
B. HVAC Commissioning	$182,000
C. Furniture Design	$38,000
3. Asbestos and lead based paint survey and design:	
4. Asbestos abatement:	$55,000
5. Independent Cost Estimates:	$43,000
6. Value engineering	$85,000
7. Subsoil investigations:	$2,000
8. Construction testing services:	$84,000
9. Printing	$6,000
10. Advertisements	$3,000
11. Work by owner	$625,000
12. Signage	$13,000
13. Miscellaneous utility charges	
14. Moving expenses	$0
15. Miscellaneous other costs (itemize):	
A. Native Stone	$0
B. Review Process	$19,000
C. Other	$204,000
D. _____	$0

Operating and Maintenance Costs

	1st Year	2nd Year
1. Personal Services	$49,292	$118,302
2. Nonpersonal Services	$26,642	$63,942
3. Equipment	$0	$0
Total O and M	**$75,934**	**$182,244**
4. FTE Employees:	2.00	2.00
5. One Time Costs:	$0	$0
6. Cost Savings	$0	$0
7. FTE Savings	$0	$0

8. Planned start date of new O and M costs (if different than the beginning of the fiscal year) 2014-02-01 00:00:00.0

Funding Requests

F Year	GF	NGF	Tax Debt	9c Debt	9d Debt	Total Request
2011	$304,000	$0	$0	$0	$0	$304,000

					Funding Phase: Pre-Planning	
2012	$728,000	$0	$0	$0	$0	$728,000
					Funding Phase: Detail Planning	
2013	$24,226,000	$0	$0	$0	$0	$24,226,000
					Funding Phase: Construction	

Prior Funding

no prior funding entered

Project Scope

1. Acquisition - Property	0	Sq. Ft. / Acres	Cost per Sq. Ft. or Acre	n/a
2. Acquisition - Plant	0	Sq. Ft.	Cost per Sq. Ft.	n/a
3. New Construction	0	Sq. Ft.	Cost per Sq. Ft.	n/a
4. Improvements	36,538	Sq. Ft.	Cost per Sq. Ft.	$543
5. Capacity	0	Beds/Units	Cost per bed/unit	n/a

Capital Lease

Name of Lessor:

Space Requirements:

Need for Leased Space:

Time Period

Proposed Effective Date of Lease: Proposed Duration: months

Include Periodic Renewal: No Renewal at option of: Renewal Extension Period: months

Lease payments that would be made during the six year capital planning period

Fund	Year1	Year2	Year3	Year4	Year5	Year6
subtotals	$0	$0	$0	$0	$0	$0

Total lease payments for six year period: $0

Total payments for the duration/terms of the lease:

Energy Component

Energy Component Description

Annual Energy Operating Costs by Energy Type and Fund Source

Energy Type	Fund Source	Cost
	Total	$0

Cost Estimate for Energy Component

Subcomponent	Cost
Materials Cost	$0
Labor Cost	$0
Engineering & Design Cost	$0
Total	$0

Annual Cost Savings for Energy Component

Fund	Savings
	$0
Total	$0

PID: 5561