# CapitalBudgetRequest

Expand Virginia Tech-Carilion School of Medicine and Fralin Biomedical Research Institute						
	Overview					
Agency	Virginia Polytechnic Institute and State University (208)					
Project Code	none					
Project Type	New Construction/Improvement					
Biennium	2022-2024					
Budget Round	Initial Bill					
Bill Version	Regular Session					
Request Type	New Project					
Project Location	Roanoke Area					
Facility/Campus	us Other					
Source of Request	Agency Request					
Infrastructure Element	Classroom / Laboratory					
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 capital budget request includes facility improvements for two programs: i) the Virginia Tech Carilion School of Medicine and ii) the Fralin Biomedical Research Institute. Both programs are located in Roanoke, Virginia on property shared with Virginia Tech's strategic partner in healthcare programs, Carilion Clinic.

Virginia Tech and Carilion have built a high-quality partnership around these programs. This partnership has benefited the state and community with a combined economic impact of \$756 million from 2011 to 2017 and a projected impact of over \$1.5 billion from 2018 to 2027 while generating highly trained physicians and the next generation of biomedical scientists to meet the healthcare needs of the Commonwealth.

The school of medicine has established a unique niche among medical schools with an extraordinary demand by students seeking a medical education providing the skill sets of physicians trained as scientists. The school receives approximately 6,400 qualified applicants per year and could readily grow if it had larger facilities. Meanwhile, the school is presently one of the smallest medical schools in the country with a class size of 49 students, or 196 total enrollment. The average size of the 155 medical schools in the U.S. is 608 students. The scale of the school at this small size produces financial and operational challenges that could be mitigated by scaling the school to an enrollment of 400 hundred students, which is still less than the average size in the U.S. and would still be the smallest medical school in the Commonwealth. Nonetheless, shifting to a student body of 400 provides an improved operational scale.

The Fralin Biomedical Research Institute has generated unprecedented growth, including doubling its enterprise and lab facilities in Roanoke in a single decade. The research institute currently employs over 400 faculty, staff and students including 37 faculty-led research teams focusing their innovations on preventing and providing new diagnostics and therapeutics for the conditions of most significant health impact including brain disorders, heart disease and cancer. The institute's steady pace of growth is projected to fill its current facilities by 2028. Funding for biomedical research is expected to grow substantially over the coming decade and thus, it is important that VT be strategically positioned to continue to compete at its high level of success for those outside dollars. This project will ensure the research institute is positioned to grow at a steady pace and continue an upward trajectory. Without additional capacity, the potential growth of the research enterprise would be stunted.

The proposed project will provide new space to accommodate the high demand for enrollment of the medical school program and renovate

space to expand the capacity for leading edge research at the research institute.

#### Project Description:

The medical school and research institute share a 151,000 gross square foot (GSF) facility located in Roanoke, Virginia. The campus encompasses the medical school, research institute, a Carilion Clinic outpatient building, the Translational Biology, Medicine and Health (TBMH) graduate program and the Carilion Roanoke Memorial Hospital. The facility was constructed in 2010. The medical school occupies approximately 51,000 GSF of the building and the research institute occupies approximately 100,000 GSF.

This project request combines two components. The first, an educational component, would construct a new approximately 100,000 GSF expansion building for the school of medicine. The new free-standing academic facility will include patient clinical exam rooms and support space, a wet anatomy laboratory with cadaver cooler, medical instruction laboratories, team instruction rooms, large and medium-sized lecture halls, a testing center, academic support space, and administration spaces. The scope of this facility will create capacity to accommodate the enrollment of 400 students.

The second component, a research component, is an approximately 51,000 GSF backfill renovation of the vacated medical school space to create research laboratory and computation/data analytics capacity for the Fralin Biomedical Research Institute. Renovations will create additional dry research space, wet research space, and office and administrative space, including customized spaces for the research institute's growing programs in human subjects and patient research. This renovation will allow the institute to grow its research portfolio, compete for additional research grants and contracts, and increase the externally sponsored research in the Commonwealth.

The project phasing calls for planning funds in fiscal year 2023, construction of the medical school during fiscal years 2025 through 2026, and renovations for the research institute during fiscal years 2027 through 2028.

Virginia Tech has successfully completed two buildings in Roanoke using Public-Private Partnership delivery methods, both of which were completed on time and on budget. The university desires to use the same delivery method to complete the approximately 100,000 GSF of new construction and approximately 51,000 GSF of renovations for this project.

The new school of medicine facility will be located on land provided by Virginia Tech's partner, Carilion Clinic, in proximity to the existing Virginia Tech Carilion Medical School and the Fralin Biomedical Research Institute building. Virginia Tech and Carilion Clinic have been conjointly developing this area in Roanoke to become an academic health campus and innovation district.

#### Justification

Program Description:

#### School of Medicine:

The Virginia Tech Carilion School of Medicine was established in 2008 as a Public-Private Partnership between Carilion Clinic and Virginia Tech. The school matriculated its first class in 2010 and, in July 2018, became the 9th college at Virginia Tech. Since its inception, the school has enrolled 12 classes and graduated eight classes, with a 99 percent matching rate into top-tier residencies across the country.

The school uses small group learning methods, community engagement, inter-professional teams, top shelf research training, mentored research projects, and health systems science in the curriculum to prepare students with skills that exceed the basic accreditation requirements for the medical degree. The benefits of the intensive research training exceed the mentored research projects themselves. The immersion in scientific reasoning prepares graduates to practice medicine as critical thinkers who are informed by the very latest research. They are better prepared to manage uncertainties like the current pandemic and to wade through new and conflicting scientific publications and guidelines.

The health systems science and inter-professional practice training is equally robust. It prepares students to understand the forces and factors influencing health and healthcare. Students learn topics commonly found in public health, health administration and healthcare improvement curricula. They emerge seeing the world of patient care differently and are more capable of improving the quality and efficiency of care. The curriculum makes patients the central focus and includes real-life cases analyzed in facilitator-guided, small-group discussions.

Feedback from residency program directors' documents that the school of medicine graduates are better prepared than their peers to think critically about the patients they care for and the systems in which they work, interact skillfully with colleagues from other disciplines, and understand that health begins in the community. These distinguishing skill sets prepare them to become experts and leaders in their communities of practice.

The school attracts outstanding students with MCAT scores and GPAs rivaling those at the top medical schools in the mid-Atlantic region. The school has established a unique niche among the Virginia medical schools, improves the diversity of options for students seeking a medical education in the Commonwealth, and fills a gap in the skill sets of physicians trained and working in Virginia. The school now has demand from over 6,400 qualified applicants each year and attracts out-of-state students who make Virginia their home after completing their medical education. The medical school program also provides a gateway for the graduates who train in Virginia residency programs to practice in Virginia. According to the Virginia Hospital and Healthcare Association, the probability of retaining physicians who attend both medical school and residency training in Virginia is 64.3 percent.

The June 2021 Association of American Medical College's study of the needs of the physician workforce for the United States predicts that by 2034 the nation will face a shortage of up to 124,000 physicians. The comprehensive AAMC national study takes into account demographics, and recent changes to care delivery, payment methods, and the projects shortages in both primary and specialty care. The Virginia Healthcare Workforce Advisory Council's 2020 report identified the need for 16.3 percent more physicians in the Commonwealth by 2026, using 2016 as a baseline. The Virginia workforce grew only 1.6 percent from 2016 to 2018, translating into a projected deficit of approximately 2,000 physicians by 2026. Earlier retirements associated with the COVID-19 pandemic are likely increase the deficit further.

The school began with an enrollment of 42 per class in 2008 and has increased slightly, to 49 per class for the current class, by squeezing in an extra student with each instruction group. Further growth is constrained by the facility size. This caps the total student body at 196, making the school one of the smallest medical schools in the U.S. The school desires to increase the class size to 100 students per class and the total student body to 400 students. An expansion of the school will improve the health of Virginians by increasing the physician workforce and contributing to the health system's improvement.

In summary, the school's current facility was purpose-built for 42 students per class. Redesign of the current space has allowed only modest expansion, to 49 students per class. The current space limits enrollment to 196 students, cannot accommodate the strong demand for additional degrees, and limits the number of successful graduates and professionals the school is able to contribute to the Commonwealth's healthcare industry.

#### Research Institute:

The research institute currently has a \$140 million research grant portfolio and has cumulatively published over 1,000 discoveries in leading scientific journals. As one of the nation's fastest-growing biomedical research enterprises, the institute is a destination for world-class researchers and is a highly inter-disciplinary environment that eschews traditional siloed academic dividers.

The institute's scientists focus on diseases that are the leading causes of death and suffering in the U.S., including brain disease, heart disease, and cancer. In just 10 years, the institute has experienced unprecedented growth, including doubling its enterprise and laboratory facilities in Roanoke while also securing laboratory space on the new Children's National Research and Innovation Campus in Washington, D.C., to expand Virginia Tech's Cancer Research Alliance and study pediatric brain cancers. Top research areas include addiction and substance abuse, health behaviors, brain tumors, breast cancer, sudden cardiac death, traumatic brain injury, neuropsychiatric disorders and mental health, neuro-rehabilitation, developmental disorders, and tissue repair and regeneration.

The Commonwealth's and university's investment in research has paid off, resulting in impactful, self-sustaining laboratories. In the most recent years, the institute's faculty have been awarded more than 30 percent of the competitive grants they have applied for, primarily from the National Institutes of Health (NIH). This far surpasses the national average. In addition, the research institute has developed new leading assays for COVID-19, established a sophisticated COVID-19 testing laboratory, and provided over 160,000 highly accurate reliable and fast COVID-19 tests for Virginia Tech faculty, students, and staff as well as multiple health districts across southwest Virginia.

This timing of this proposed renovation, complete in fiscal year 2028, will provide space to ensure the research program may continue a steady pace of growth to compete for additional research grants and contracts and increase the Commonwealth's and university's externally-sponsored research activity.

Synergies of the Medical School and Research Institute:

Together, the school of medicine and the research institute generate powerful synergies that are greater than the sum of their parts. A few illustrations include:

- i) Fralin Biomedical Research Institute faculty provide time to train students enrolled in Virginia Tech undergraduate and graduate programs including in the nationally recognized TBMH Ph.D. program with many of the doctoral students training at the research institute landing major national awards including NIH predoctoral awards before they graduate;
- ii) Fralin Biomedical Research Institute faculty serve as principal and co-principal investigators on significant external research grants;
- iii) the medical school and research institute have bolstered Carilion Clinic's competitiveness attracting medical talent, including specialists, to the Roanoke Valley;
- iv) the research institute attracts extraordinary medical school talent from other universities;.
- v) research institute faculty have spun out multiple biotechnology companies based on the intellectual property they have developed at Virginia Tech, often with participation of graduate students, undergraduates, and medical students;
- vi) the medical school and TBMH graduate program have created a path for students to pursue combined medical degree and PhD degrees to become physician scientists who are in demand nationally.

The Commonwealth, Roanoke Valley, Carilion Clinic, and Virginia Tech have worked together to create an extraordinary opportunity to enhance and expand healthcare delivery, services, and economic development in the Commonwealth. This opportunity may be fully achieved only with advanced space planning to create a new medical school building in close coordination with Carilion Clinic along with the follow on for renovating their vacated space to accommodate the growth of the research institute.

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

- Increase extramural research expenditures.
- Increase graduate student enrollment.
- Increase and sustain excellence in research, discovery, and creativity.
- Increase teaching and learning excellence for a holistic education.
- · Increase institutional impact and visibility.
- · Achieve top U.S. public land-grant ranking.
- Increase representational diversity, cultural competency, and address critical societal issues impacting humanity and equity.
- Attract, retain, and develop the talents of students, faculty and staff prepared to serve both the local and global communities while also supporting lifelong engagement and learning.
- Double the number of Startup Companies created from Virginia Tech Research by FY2025
- Continue to develop the physical campus and technology infrastructure.
- Increasing the number of programs recognized as among the best internationally.
- Ensure 50% of academic degrees have a required experiential learning component.
- Increase the number of post-doctoral positions in STEM-H research areas.
- Increase student involvement in meaningful research experiences and experiential learning through hands on minds on.
- Continue to investigate, develop, and utilize current and emerging technologies to enhance traditional classrooms, provide mobile access, and expand high-quality distance-learning opportunities.
- · Identify opportunities during construction and renovation to create flexible classroom spaces that fully support e-learning components.
- Implement the Climate Action Commitment and Sustainability Plan as appropriate.

#### **Existing Facilities:**

The Virginia Tech Carilion School of Medicine is currently housed in the 151,000 GSF Virginia Tech Carilion Medical School and the Fralin Biomedical Research Institute building on the Health Sciences and Technology campus in Roanoke, Virginia. The building was constructed in 2010, and the school of medicine occupies approximately 51,000 GSF of the building. The current space limits enrollment capacity to 196 students and limits the instructional and research faculty and staff available to support students. The current space cannot accommodate the strong demand for additional degrees, and limits the number of successful graduates and professionals the school can contribute to the Commonwealth's healthcare industry. The school and research institute also lease approximately 16,000 square feet in a nearby building owned by Carilion Clinic. This leased space would be vacated with the expanded facilities.

#### Funding Plan:

The creation of the health sciences instruction and research programs in Roanoke are the result of a funding partnership between the state, Virginia Tech, and Carilion Clinic. The state has shouldered the bulk of the facilities costs while Virginia Tech and Carilion Clinic have covered the operating costs. To take these programs to the next stage of development, state funding is necessary to provide approximately 100,000 GSF of new construction and approximately 51,000 GSF of renovations, delivered in accordance with the Public-Private Education Facilities and Infrastructure Act, with a total project cost of \$133.4 million.

The programs for this project are 100 percent Educational and General; thus, the funding plan calls for 100 percent General Fund support for this \$133.4 million project.

#### Options Considered:

Options considered but rejected include construction of a new building for the research institute and backfill renovation for the VTCSOM or deferral of the project to a future biennium.

Construction of a new building for the research institute and backfill renovation for the school of medicine would be a more cost intensive solution in terms of capital expenditure and on-going operations. The cost of this alternative would be approximately \$173 million.

Forgoing or deferring this project to a future biennium will postpone significant benefits of economic development, healthcare delivery service, and research progress for the Commonwealth.

### Methodology

Cost Explanation and Methodology:

#### A. Methods Used to Estimate Costs:

The method for estimating costs for the Expansion of the Virginia Tech-Carilion School of Medicine and Fralin Biomedical Research Institute

project includes: 1) using unit costs in the Division of Engineering and Building's Construction Costs Database updated May 2020 with a regional market multiplier and a multiplier for softs costs (via an in-house cost estimating system); and 2) comparables as shown in the CR-1. The project costs are escalated to a construction midpoint of 2025 at 4.25 percent escalation in accordance with the instructions for developing the Six-Year Capital Outlay Plan and the rate utilized in the most recent CR-1 Project Planning form (as of July 2021). The backfill renovation for the expansion of the research program will begin after the medical school vacates their existing space and relocates to the new building. The midpoint of construction for this renovation work is escalated to 2026.

On a total project cost basis, inclusive of design, construction, and equipment, the unit costs are \$883 per gross square foot. The unit construction costs of the project are \$586 per gross square foot, including self-performed construction work. The building types in this request reflect a combination of wet laboratory, dry laboratory, classrooms, student center, and office 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.

A Public-Private Partnership is the intended delivery method for this project. Virginia Tech will serve at the agency in charge of the Public-Private Education Facilities and Infrastructure Act (PPEA) agreement, thus, ensuring state-level accountability for the funds and process.

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

The location of the proposed facility is the Riverside area of downtown Roanoke, Virginia adjacent to the existing Virginia Tech Carilion Medical School and the Fralin Biomedical Research Institute building. The proposed building size is 100,000 GSF and is envisioned as a three-level structure with an approximately 35,000 square foot footprint. The building is envisioned to match the existing facilities in the Riverside complex with primarily brick veneer, precast concrete accents, and glazing.

The planned project delivery method is a Public-Private Partnership similar to the delivery of the original facility (208-17659). The university and Carilion Clinic consider the PPEA delivery of the original facility to be of exceptional value, and this pricing estimate is based on a similar PPEA delivery for the proposed project.

The building types in this request are classroom/laboratory, wet lab, dry lab, and offices. The actual costs may be driven above the averages in the Division of Engineering and Building's Construction Costs Database because of intensive foundation and site requirements to compensate for industrial and rail traffic.

- 1) 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.
- 2) Academic buildings include interior glazing for energy efficiency, lighting for academic work, and to enhance pedagogy, while also creating a secure envelope.
- 3) Ceiling heights will be appropriate for proper sound attenuation in large lecture and assembly environments as required for effective pedagogy.
- 4) 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 adaptability.
- 5) 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 that require the capacity for an entire classroom to be connected simultaneously.
- 6) Power outlets corresponding to the seat/station count and power outlets in common areas will exceed the minimum code requirements by approximately 30 percent.
- 7) Automated audiovisual and lighting controls are included for all classroom and class laboratory spaces.
- 8) 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.
- 9) 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.

- 10) Site development costs in this region are historically in the medium to high range and require generally significant rock removal and deep foundations
- 11) Utilities (power, domestic water, gas, sanitary sewer, technology, and storm water infrastructure) do not terminate at the building site and their extension is included the proposed budget.
- 12) Specialized degrees in engineering and physical sciences require specialized equipment specific to those fields. This building requires shielded and vibration protected areas in which to operate this equipment.
- 13) 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 increased 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.
- Electric vehicle charging stations are now required per the CPSM and VT is developing a similar policy. Due to the large rapid power demand the addition of EV charging stations will increase the sizing of the buildings electrical service and equipment. Demand response control strategies may be utilized to help limit peak power demand on the grid.
- 14) The Board of Visitors recently approved an expanded Climate Action Commitment. Capital projects will maintain high performance building characteristics, strive to integrate educational green initiatives into the built environment, and study the buildings performance in an effort to achieve carbon neutrality by 2030. Executive Order 43 (EO43) sets goals of carbon neutrality by 2050 and acknowledges the need to invest in K-12 education to create an educated work force to support the Commonwealth's goals. EO43 specifically states that "for newly-constructed buildings, all executive branch agencies and institutions shall evaluate the use of distributed solar resources during the design and engineering process." Virginia Tech plans to have buildings that lead by example, integrate climate initiatives into the academic mission, and add to these mutual goals.

# Funding Request Phase Year Subobject Fund Amount Full Funding 2023 2322 - Construction, Buildings 01000 - General Fund \$133,400,000 Total \$133,400,000

Building & Built-in Equipment \$88,538,942 Sitework & Utility Construction \$1  Construction Cost Total \$88,538,942  DESIGN & RELATED SERVICE ITEMS  A/E Basic Services \$9,677,302  A/E Reimbursables \$53,122  Specialty Consultants (Food Service, Acoustics, etc.) \$88,538  CM Design Phase Services \$159,370  Subsurface Investigations (Geotech, Soil Borings) \$35,416  Land Survey Archeological Survey  Hazmat Survey & Design \$88,538	Project Costs					
Building & Built-in Equipment         \$88,538,947           Sitework & Utility Construction         \$88,538,947           Construction Cost Total         \$88,538,947           DESIGN & RELATED SERVICE ITEMS         \$9,677,307           A/E Basic Services         \$9,677,307           A/E Reimbursables         \$53,122           Specialty Consultants (Food Service, Acoustics, etc.)         \$88,538           CM Design Phase Services         \$159,377           Subsurface Investigations (Geotech, Soil Borings)         \$35,416           Land Survey         \$177,707           Archeological Survey         \$8,855           Hazmat Survey & Design         \$8,855           Value Engineering Services         \$70,837           Cost Estimating Services         \$8,855	Cost Type	Requested Funding				
Sitework & Utility Construction         \$88,538,947           Construction Cost Total         \$88,538,947           DESIGN & RELATED SERVICE ITEMS         \$9,677,307           A/E Basic Services         \$9,677,307           A/E Reimbursables         \$53,122           Specialty Consultants (Food Service, Acoustics, etc.)         \$88,538           CM Design Phase Services         \$159,370           Subsurface Investigations (Geotech, Soil Borings)         \$35,410           Land Survey         \$177,701           Archeological Survey         \$8,852           Hazmat Survey & Design         \$8,852           Value Engineering Services         \$70,833           Cost Estimating Services         \$8,852	Acquisition Cost	\$3,000,000				
Construction Cost Total \$88,538,942  DESIGN & RELATED SERVICE ITEMS  A/E Basic Services \$9,677,307  A/E Reimbursables \$53,122  Specialty Consultants (Food Service, Acoustics, etc.) \$88,538  CM Design Phase Services \$159,376  Subsurface Investigations (Geotech, Soil Borings) \$35,416  Land Survey \$17,708  Archeological Survey \$17,708  Hazmat Survey & Design \$38,855  Value Engineering Services \$70,838  Cost Estimating Services \$88,858	Building & Built-in Equipment	\$88,538,942				
DESIGN & RELATED SERVICE ITEMS  A/E Basic Services \$9,677,301  A/E Reimbursables \$53,122  Specialty Consultants (Food Service, Acoustics, etc.) \$88,531  CM Design Phase Services \$159,370  Subsurface Investigations (Geotech, Soil Borings) \$35,410  Land Survey \$17,700  Archeological Survey \$17,700  Archeological Survey Design \$8,855  Value Engineering Services \$70,833  Cost Estimating Services \$8,855	Sitework & Utility Construction	\$0				
A/E Basic Services \$9,677,307 A/E Reimbursables \$53,127 Specialty Consultants (Food Service, Acoustics, etc.) \$88,538 CM Design Phase Services \$159,370 Subsurface Investigations (Geotech, Soil Borings) \$35,416 Land Survey Archeological Survey \$17,700 Archeological Survey & Design \$88,857 Value Engineering Services \$70,837 Cost Estimating Services \$88,858	Construction Cost Total	\$88,538,942				
A/E Reimbursables \$53,123 Specialty Consultants (Food Service, Acoustics, etc.) \$88,538 CM Design Phase Services \$159,370 Subsurface Investigations (Geotech, Soil Borings) \$35,416 Land Survey \$17,700 Archeological Survey \$17,700 Hazmat Survey & Design \$8,853 Value Engineering Services \$70,833 Cost Estimating Services \$8,850	DESIGN & RELATED SERVICE ITEMS					
Specialty Consultants (Food Service, Acoustics, etc.)  CM Design Phase Services  Subsurface Investigations (Geotech, Soil Borings)  Land Survey  Archeological Survey  Hazmat Survey & Design  Value Engineering Services  Services  \$88,538  \$159,370  \$35,410  \$17,700  \$17,700  \$1,700  \$2,700  \$3,700  \$3,700  \$4,700  \$4,700  \$5,700  \$6,700  \$6,700  \$6,700  \$6,700  \$6,700  \$6,850  \$6,850  \$6,850  \$6,850  \$6,850  \$6,850  \$6,850  \$6,850  \$6,850	A/E Basic Services	\$9,677,307				
CM Design Phase Services \$159,370 Subsurface Investigations (Geotech, Soil Borings) \$35,410 Land Survey \$17,700 Archeological Survey \$187,700 Hazmat Survey & Design \$8,850 Value Engineering Services \$70,83	A/E Reimbursables	\$53,123				
Subsurface Investigations (Geotech, Soil Borings)  Land Survey  Archeological Survey  Archeological Survey & Design  Value Engineering Services  Cost Estimating Services  \$35,416  \$35,416  \$35,416  \$35,416  \$47,706  \$47,706  \$47,706  \$48,856  \$48,856	Specialty Consultants (Food Service, Acoustics, etc.)	\$88,539				
Land Survey \$17,700 Archeological Survey \$17,	CM Design Phase Services	\$159,370				
Archeological Survey  Hazmat Survey & Design  Value Engineering Services  \$8,850  Cost Estimating Services  \$8,850	Subsurface Investigations (Geotech, Soil Borings)	\$35,416				
Hazmat Survey & Design \$8,850 Value Engineering Services \$70,831 Cost Estimating Services \$8,850	Land Survey	\$17,708				
Value Engineering Services \$70,83° Cost Estimating Services \$8,85°	Archeological Survey	\$0				
Cost Estimating Services \$8,854	Hazmat Survey & Design	\$8,853				
	Value Engineering Services	\$70,831				
Other Design & Related Services \$6	Cost Estimating Services					
	Other Design & Related Services					

Design & Related Services Total	\$10,120,001
INSPECTION & TESTING SERVICE ITEMS	
Project Inspection Services (inhouse or consultant)	\$920,805
Project Testing Services (conc., steel, roofing, etc.)	\$867,682
Inspection & Testing Services Total	\$1,788,487
PROJECT MANAGEMENT & OTHER COST ITEMS	
Project Management (inhouse or consultant)	\$1,213,142
Work By Owner	\$398,425
BCOM Services	\$97,393
Advertisements	\$4,427
Printing & Reproduction	\$4,427
Moving & Relocation Expenses	\$0
AV Cabling	\$0
IT Cabling	\$0
Telephone Cabling	\$0
A/V Equipment	\$0
IT Equipment	\$1,974,418
Telephone Equipment	\$0
Signage	\$150,516
Demolition	\$0
Hazardous Material Abatement	\$885
Utility Connection Fees	\$0
Utility Relocations	\$1,142,154
Commissioning	\$814,558
Miscellaneous Other Costs	\$12,225,999
Project Management & Other Costs Total	\$18,026,344
Furnishings & Movable Equipment	\$10,155,447
Construction Contingency	\$1,770,779
TOTAL PROJECT COST	\$133,400,000

## Size and Scope

Cost Type	Cost	Unit of Measure	Units	Cost Per Unit
Acquisition Cost			0	\$0
Construction Cost	\$88,538,942	GSF	151,000	\$586
New Construction Cost	\$90,700,000	GSF	100,000	\$907
Improvement Cost	\$42,700,000	GSF	51,000	\$837

# **Operating and Maintenance Costs**

Cost Type	FY 2023	FY 2024	FY 2025	FY 2026	FY 2027	FY 2028
GF Dollars	\$0	\$0	\$0	\$1,482,131	\$1,526,595	\$1,572,393
NGF Dollars	\$0	\$0	\$0	\$0	\$0	\$0
GF Positions	0.00	0.00	0.00	7.89	7.89	7.89
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-1 SOM and FBRI COMBINED 10.1.21.xlsx	579,926	Cassidy Limer	10/19/2021			
Expand SOM and FBRI Program Chart 10.18.2021.pdf	16,546	Cassidy Limer	10/19/2021			

Workflow History						
User Name	Claimed	Submitted	Step Name	Submit Action		
Rob Mann	10/02/2021 10:27 AM	10/02/2021 10:27 AM	Enter Capital Budget Request	Continue Working		
Rob Mann	10/02/2021 10:27 AM	10/02/2021 10:44 AM	Continue Drafting	Continue Working		
Cassidy Limer	10/04/2021 08:56 AM	10/18/2021 04:04 PM	Continue Drafting	Submit for Agency Review		
Rob Mann	10/19/2021 08:43 AM	10/19/2021 08:43 AM	Agency Review Step 1	Return for Further Data Entry		
Cassidy Limer	10/19/2021 08:49 AM	10/19/2021 08:56 AM	Continue Drafting	Submit for Agency Review		
Rob Mann	10/19/2021 09:06 AM	10/19/2021 09:06 AM	Agency Review Step 1	Return for Further Data Entry		
Cassidy Limer	10/19/2021 09:09 AM	10/19/2021 06:39 PM	Continue Drafting	Submit for Agency Review		
Rob Mann	10/20/2021 08:41 AM	10/20/2021 08:42 AM	Agency Review Step 1	Ready for DPB Bulk Submit		
Rob Mann	10/20/2021 09:04 AM	10/20/2021 09:09 AM	Ready for DPB Submission	Submit to DPB		
			DPB Review			