

2. In approved Master Site Plan: Yes No
If not, explain:

3. In current Strategic Plan: Yes No
If not, explain:

C. Project Justification

1. Programmatic:

The frontier of agriculture research exists at the molecular scale. Increasingly, research in genomics, microbiology, bacteriology, and immunology are driving the development of new approaches to solving problems that impact human and animal health, agricultural production, and the environment. The availability of state-of-the-art research facilities that can support interdisciplinary teams will enhance the quality and quantity of research in the medical, biomedical, and public health sciences at Virginia Tech. This strategy is congruent with National Institutes of Health intentions to provide future funding to interdisciplinary research teams rather than single investigators examining a limited area of a problem. Virginia Tech has a unique capability to connect laboratory based research with practical applications through the Experiment Station. In this way, "test-tube" technologies can be developed, implemented, refined and then distributed with significant impact on the lives of citizens.

Five biomedical research areas in which Virginia Tech has existing strengths have been identified as the focus of future Experiment Station research: (1) Molecular and cellular regulation, including cell cycle, cell structure and biochemistry, and cell signaling; (2) genomics science, including functional genomics and proteomics, computational genomics and comparative genomics; (3) infectious disease and immunology, including biology of the microbe, host responses, vaccines, therapeutics and diagnostics; (4) neuroscience, including central nervous system neurotoxicology and neurodegeneration, environmental neurotoxicology, molecular neuroscience, and cognitive, affective, behavioral neurosciences; and (5) public health sciences, including food, nutrition and health, chronic disease prevention, and environmental health. Significant research and discovery in these five focus areas will lead to advances in medical treatments, pharmaceuticals and control of infectious diseases across the globe and impact the quality of life for people in developed and developing nations.

Further, the Food, Nutrition, and Health initiative has been under development through the Experiment Station since 1997. The Food, Nutrition, and Health (FNH) faculty advisory committee has promulgated a vision and mission of the FNH initiative: "promote and protect the public's health through scientific discovery and information dissemination". The mission will be accomplished using advanced technologies from the development of new foods, improved nutrition, food safety, and the adoption of health-promoting behaviors to prevent illness and reduce health costs. A focus within this mission relates to prevention and management of obesity. Obesity is widely considered one of the most pressing global public health problems. Virginia Tech has significant strength in this area, and there are substantial and expanding opportunities for research and external funding related to this

health problem. New faculty, attracted by Virginia Tech's strategic combination of food, nutrition and health programs, hired within the last year have already begun to establish a solid research foundation with significant established research programs in obesity issues. Laboratory based research, conducted by nationally renowned biosciences researchers will connect advances at the microbiological level with food production, food delivery and consumption, and improved human health and well-being.

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:

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.

Enhance quality graduate and professional education.

Develop and integrate advanced technology and information systems applications that assist collaboration, reflection, assessment, and sharing among faculty members, students, and staff members.

Contribute to the holistic and transformative educational experiences of Virginia Tech undergraduate and graduate students.

Improve the capital assets that underpin student learning and support programs.

Discovery:

Establish research strengths in the study of infectious disease.

Establish research strengths in the study of health, food, and nutrition.

Strengthen research activities with a focus on energy.

Strengthen research activities with a focus on materials.

Strengthen research activities with a focus on the environment.

Achieve research strength in the areas of innovative technologies and complex systems through the strategic integration and support of critical research areas.

Engagement:

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.

Enhance PK-12 education and its continuity with undergraduate and graduate education, especially in the key disciplines of science, technology, engineering, and mathematics (STEM).

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:

Effectively manage the University's space and land resources for learning, living, and work.

Enhance health, safety, and security operations to support the University's discovery, learning, and engagement endeavors.

Promote robust and integrated information technology strategies that advance Virginia Tech's excellence.

2. Existing facilities:

Virginia Tech's existing laboratory spaces for biosciences research around the Agriculture Quad include the following buildings: Agnew Hall (1940), Hutcheson Hall (1940), Price Hall (1907), Saunders Hall (1931), Seitz Hall (1940) and Smyth Hall (1939.) These buildings were all constructed prior to World War II, are obsolete for advanced research activity, and are too costly to renovate or upfit to support modern biosciences laboratory work.

The task of bringing the structures listed above up to 21st century building codes would be very expensive and would not contribute to recruitment, retention, and research productivity. Although safe for current occupancy and low intensity functions, these buildings require extensive asbestos and lead-based paint abatement before other major issues of inadequate electrical capacity, lack of central HVAC, and purified water systems can be addressed. Upgrading the basic physical plant of these structures would have to be followed by complete renovation of the interior, including removal of many non-load bearing walls and construction of individual laboratories to support modern research activities. The costs of building upgrades, utility enhancements, and installation of research equipment such as chemical hoods, will exceed the cost of a new facility and, because of size limitations, would still not provide a facility adequate for the needs of future research in the biosciences.

Three other biosciences facilities located outside the Agriculture Quad, including Engel Hall (1961), the Food Science and Technology complex (1952, 1965, 1968), and Wallace Hall (1969), share many of the same concerns with the buildings in the nearby Agriculture Quad. Although these facilities may require less structural renovations, their overall design reflects the research needs from 40 years ago and, like the Agriculture Quad buildings, replacement is likely to cost less than extensive renovation for modern research activity.

The university believes razing at least one of the existing buildings described above and replacing it with the proposed project is the best, most economical solution for addressing the need for modern laboratory space in the biosciences.

D. Options Considered (include as an option delaying this project until future biennia)

Other options considered but not selected include leasing, renovating existing space, or delaying the project entirely. Constructing a new facility is the selected option because of the significant and unique facility demands required to support the agricultural and life sciences programs slated to occupy the facility. Delaying the project to a future biennium is not a viable option for the Experiment Station because, without the near term availability of modern research facilities, the college will miss the opportunity to participate in new, ground-breaking interdisciplinary research in the life sciences, agriculture, and public health. Each year of delay adds about five percent to the project costs, or about \$5.6 million to delay one biennium.

E. Project Scope Changes:

None.

F. Project Cost Changes:

None.

Instructions for DPB Form CNJ Project Request Justification

This form is to be prepared only for projects authorized for detailed budget development during the 2008-2010 biennium.

The project request justification (DPB Form CNJ) details the project's scope and justifies its need. The need must be demonstrated from several perspectives, including the agency's programs and activities and the condition of the existing facilities, in order to show why it is important to fund your request. The narrative should be as thorough and complete as necessary. The quality of your submission is extremely important. Remember who your audience is for this submission and **do not** use technical engineering terms and jargon. Decision-makers may only have your narrative as the basis for considering the merits of your request.

The justification for additional funding due to anticipated cost overruns on a currently approved and funded project must include the scope adjustments (i.e., reduction in scope) that would be needed to finish the project with existing funding.

Section A. General Information

- Item 1. **Agency Name.** Enter your agency's name.
- Item 2. **Agency Code.** Enter the three-digit agency code for your agency.
- Item 3. **Project Title.** Give the new project a clear descriptive title.
- Item 4. **Agency Priority.** Number from the DPB Form H-1.
- Item 5. **Name of Person to Contact about this Form.** Enter the name of the person to contact who can answer specific questions concerning the information provided on this form.
- Item 6. **Contact Person's Telephone Number.** Enter the telephone number of the contact person.
- Item 7. **Contact Person's E-mail Address.** Enter the e-mail address of the contact person.

Section B. Proposed Project

Item 1. Description. The project description should be of sufficient detail to clearly define the scope of the project. This description should address the project's size and capacity. It should also describe how the project would meet specific needs. Below is some of the information that should be presented in this section, as applicable:

- The scope of the project, including type of space proposed, the square footage, and any unique or unusual features.
- Life expectancy of the new facility.
- Methods or sources used to determine the proposed scope.

Item 2. In approved Master Site Plan. An explanation should be provided if not in master site plan.

Item 3. In current Strategic Plan. An explanation should be provided if not in the current strategic plan

Section C. Project justification

Item 1. Programmatic information. The justification for a project is based on how it supports your agency's strategic plan. Specifically, this section should address the following:

- Description of the current use of the facility(ies).
- Description of the relevant programmatic activities, both current and projected, that would be affected by the project. Indicate any services, operations, or activities that will be initiated, expanded, or improved because of this project.
- How the project will support your agency's mission and your current and planned program goals and objectives. How does the proposed project relate to the agency's strategic plan?
- The necessity of the project in terms of objectives, services, and customers. Be sure to indicate the number and type of clients or staff who will benefit from the proposed project. Provide numerical estimates of current and future users of the facility using quantitative data such as number of positions (FTE), average prisoner days, or full-time equivalent students. Highlight any population characteristics important to the project. Indicate and discuss projection methodologies used.
- Address whether the project is required to continue current services, to handle a workload increase, or to provide for new or better quality services.
- For institutions of higher education, be sure to include a summary of the impact of student fee increases

Item 2. Existing Facility(ies). To determine the need for a project, you must describe your present facilities. Include in this description information on the adequacy of existing facilities to meet current and projected program demands. To support the need, provide the following information, as appropriate:

- Why the existing facility is inappropriate or inadequate, such as overcrowding or the need to accommodate new programs.
- Age and condition of current facility, analysis of man-hours and expenses invested annually in repairs, interruptions of services or backlogs of services, safety hazards to customers, and health and safety code violations. (Specify which code edition.) Indicate if the request is a result of legislative (federal or state) or judicial mandate or from standards or certification requirements. Be as specific as possible. Use quantitative measures when available and applicable to demonstrate why the capital project is needed.
- Interim accommodations being used to compensate for facility deficiencies or the lack of facilities, including currently leased space.
- Information on the future use of the existing facility(ies) that could impact upon the proposed capital project, such as any future expansion or conversion of the facility.

- How the proposed project fits into the approved Master Site Plan for your agency.

Section D. Options Considered

This section should identify and discuss any alternatives to the proposed project that were considered and the rationale for selecting the requested project. Provide the estimated cost for each of the alternatives considered. **One option that must be addressed is the impact of deferring the project until a future biennium.**

Section E. Project Scope Changes

This section should identify and explain any differences between the scope on the DPB Form C-1_S-1 in this submission and those provided on the previously submitted DPB Form H-1.

Section F. Project Cost Changes

This section should identify and explain any differences between the cost estimates on the DPB Form C-1_S-1 in this submission and those provided on the previously submitted DPB Form H-1.