WASHINGTON STATE UNIVERSITY
Global Animal Health Building, Phase II

2019-21 Request:	**$36,400,000**	**Project Type:**	**Program (Research)**
		Project Phase:	**Construction**
Institutional Priority:	**#1**	**Gross Square Ft:**	**63,265**

Washington State University requests $36.4 million in the 2019-21 capital budget to finish Phase II of the Global Animal Health Building to serve as the new home of the Washington Animal Disease Diagnostic lab, known as WADDL. The facility will adjoin the Phase I building completed in 2013 aided by $51 million in private fundraising.

WADDL is on the front line of the nation's defense against foreign animal diseases, human diseases transmitted from animals, and food-borne illness. It is the only accredited veterinary diagnostic laboratory in Washington. WADDL testing is vital for early disease detection, protecting public health and food security, and protecting Washington's $1.5 billion animal agriculture industry.

In 2014-2015 WADDL detected the initial case of bird flu in the U.S. and helped prevent devastating losses to the poultry industry. WADDL also provides the "proof of disease negative" testing for terrestrial and aquatic animal agriculture products that is required for international trade.

Lastly, WADDL is a critical resource for other state and federal agencies, including the state departments of Agriculture and Health, USDA-Animal and Plant Health Inspection Service, U.S. Department of Health and Human Services – Centers for Disease Control and Prevention, and U.S. Food and Drug Administration. WADDL plays a critical role in homeland security against biological threat agents and is a founding member of the National Animal Health Laboratory Network, one of only nine veterinary diagnostic laboratories in the Laboratory Response Network for Bioterrorism.

The WADDL program leverages the mission of the Allen School to integrate research, education and disease control at the animal-human interface. Phase II will include contemporary diagnostic laboratories, research and development laboratories, and an instructional laboratory for educating veterinary (DVM) students, post-DVM and other health professionals, graduate students, and undergraduates. The instructional laboratory will provide a unique opportunity for students to learn modern diagnostic techniques and biosafety/biosecurity practices in an active diagnostic laboratory.

The project will replace 40-year-old WADDL facilities in Bustad Hall, which are repeatedly cited as accreditation deficiencies. A report following a comprehensive laboratory accreditation site visit in 2010 stated that "it is essential that the university pursue funding for the design and construction of a new laboratory at Pullman in order to assure biosecurity as well as operational efficiencies." Another site visit in 2015 stated "it is essential that Phase II of the construction be completed, not only to provide much needed BSL-2 laboratory space, but to also consolidate laboratory space into one area and to address biosecurity and biosafety concerns." Existing facilities are not conducive to modern diagnostic and educational methods and does not meet modern biosafety and biosecurity standards. Federal and state animal and zoonotic disease surveillance programs are dependent on maintaining accreditation.

WSU's efforts to self-fund $1.9 million for initial design in the 2015-17 biennium and to obtain $23 million in state funding in the 2017-19 biennium to complete design and begin partial construction in 2018 have demonstrated sufficient progress to maintain accreditation to date. Current funding will build the structure, construct the building envelope, underground utilities, elevators, MEP mainline rough-ins and site work with completion by end of 2019. This schedule will allow a seamless transition to continue with the interior buildout should this requested $36.4 million appropriation be made available in 2019-21 to complete fully functional, mission critical WADDL testing and necropsy laboratories by early 2021.

Institution
Washington State University
Project Title
GLOBAL ANIMAL HEALTH BUILDING PHASE II (2019-21)
Project Location (City)
Pullman, WA

1. Problem Statement (short description of the project – the needs and the benefits)

The Allen Center, located in the College of Veterinary Medicine (CVM) precinct at Washington State University, is home to the Paul G. Allen School for Global Animal Health (Allen School). Phase I of the Allen Center, built primarily with donor funding, houses the basic research programs of the Allen School. The Global Animal Health Building Phase II (GAHBII) will house the global disease detection and surveillance programs of the Allen School and, most notably, the Washington Animal Disease Diagnostic Laboratory (WADDL). Global health security, the protection from threats to health, is one of the most important non-traditional security threats. The partnering of the Allen School and WADDL is a strategic priority because health security applies to both human health and animal health. Animals not only provide direct economic and nutritional sustenance for humans, but they also serve as reservoirs for zoonotic (diseases that are transmitted from animals to humans) and emerging diseases. Global interconnectedness, together with constantly emerging diseases, requires a dramatic increase in health systems' abilities to prevent, detect, and respond to infectious disease threats throughout the world. A health threat anywhere can easily turn into a health threat everywhere. Reducing these health security risks and maximizing competitiveness for funding opportunities to address those needs while maintaining maximum biosafety and biosecurity of laboratory activities, requires modern, state-of-the-art laboratory facilities.

WADDL is a state, regional, and national reference laboratory that provides animal disease detection in all species, promotes international trade through "proof of negative" testing for animal industries, identifies diseases transmissible from animals to humans as a "first alert", and keeps foods safe for human consumption. WADDL is a disease surveillance laboratory on the front line of our region's and nation's defense against emerging and foreign diseases and food-borne illness. In other states such labs are usually hosted within the state departments of agriculture. In Washington it is housed at WSU, where its related disease detection and surveillance programs are integral to the success of the Allen School and the CVM. Phase II will contain disease detection, research, and development laboratories and will serve as a teaching laboratory for educating veterinary (DVM), post-DVM and other health professionals, undergraduate and graduate students, and international trainees as a part of the Allen School and the Department of Veterinary Microbiology and Pathology education programs.

WADDL is the only animal health diagnostic laboratory in Washington state officially sanctioned and funded to provide comprehensive animal, food, and environmental surveillance for diseases such as influenza, tuberculosis, West Nile encephalitis, BSE (Mad Cow Disease), and foot-and-mouth disease. As such, WADDL is a critical resource for other state and federal agencies, including the Washington state departments of Agriculture and Health.

These programs are integral to achieving the Results Washington goal[1] of "Healthy and Safe Communities" by protecting citizens from disease threats. They also support the Results Washington goal for a "Prosperous Economy" by ensuring the security of the products of Washington's animal agriculture industry. Without an accredited lab, Washington producers would have to send samples to other states, creating delays in obtaining test results to verify food security that could threaten access to foreign markets. Also, this project will help educate more students in STEM and high employment demand fields and will ensure continued accreditation essential for maintaining programs that support disease surveillance, global health, and global agricultural trade[2].

[1] https://www.results.wa.gov/goals-progress/goals/healthy-safe-communities/goal-map

[2] https://www.results.wa.gov/goals-progress/goals/world-class-education/goal-map
https://www.results.wa.gov/goals-progress/goals/prosperous-economy/goal-map

A new disease detection and surveillance facility is necessary to fulfill the original mission of the Allen School, also to allow WADDL to increase for capacity for testing volume, to meet the needs for complexity of modern testing platforms, and to fulfill quality assurance compliance required for global disease surveillance. In order to maintain the laboratory accreditation required for laboratory testing at the state, national, and international level, WADDL must correct facility deficiencies identified by external accreditors. Since occupying the Bustad Hall laboratories in 1978, WADDL has grown into one of the premier animal disease diagnostic laboratories in the nation. But WADDL's participation in national surveillance networks for foreign animal diseases and biological threat agents is at risk. Laboratory operations greatly exceed the functional and safe operating capacity of the 40-year-old Bustad Hall. Facilities are overcrowded and are not designed for modern laboratory practices, including sample security and workflow, biosafety (occupational health), and biosecurity (animal, public, and environmental health). As a result, the body that accredits the laboratory recommended a new facility during review periods in 2005, 2010, and 2015 and requires regular updates regarding full compliance.

WSU's efforts to self-fund $1.9 million for initial design in the 2015-17 biennium, which reduced the size and cost of the project, and to obtain $23 million in state funding in the 2017-19 biennium to begin partial construction in 2018 have demonstrated sufficient progress to maintain accreditation to date. Construction will begin summer 2018 with the structure, building envelope, underground utilities, elevators, MEP mainline rough-ins and site work with completion by end of 2019 with the expectation to continue with the interior buildout when the next state appropriation cycle (2019-21) is available.

Construction funding is requested in the 2019-21 biennial budget in the amount of $36.4 million to complete fully functional, mission critical WADDL testing and necropsy laboratories by early 2021. Not only would this construction make strides to address ongoing accreditation concerns, the expansion would help to open up valuable instructional space in the existing facilities vacated by WADDL that are closer to the core of campus.

2. History of the project or facility

The original Global Animal Health Building project was developed as a combined research and disease diagnostics facility supporting rapidly expanding CVM infectious disease research and disease surveillance programs. The project has been part of the capital request for WSU's CVM since 2003-2005 (project ID 2008-3-046 and 10-2-107) and already has drawn significant private investment.

Phase I (now known as the Paul G. Allen Center for Global Animal Health; or the Allen Center), which houses fundamental research programs of the Allen School, was constructed through a $25 million Bill and Melinda Gates Foundation grant to WSU and a $26 million gift to WSU from the Paul G. Allen Family Foundation. The facility is named the Paul G. Allen Center for Global Animal Health. State funding was limited to $6.2 million bonds authorized for repayment with WSU building fees and land grant revenues. The $51 million in external funding - $37 million of which were direct construction funds - would not have been possible without the vision of the Allen School mission and programs of global disease research, detection, and surveillance. The remaining diagnostics, disease surveillance, translational research, and educational components of WADDL and the Allen School will be housed in this Phase II building, which was reduced in scope, and thus reduced in costs, compared to original plans because of the construction of the Allen Center, largely through private funding.

In 2015, WSU re-evaluated program activities within Phase II and developed an optimized construction strategy. This strategic redefinition of scope resulted in:

1. Program reduction: Project scope was reduced from 75,445 GSF to 63,265 GSF.
2. Cost reduction: Estimated project cost was reduced from $72.3 million to $61.3 million.
3. Optimization of GAH Phase I alignment: Reduction in project scope did not negatively affect partnering of GAH and WADDL programs.
4. Staging strategy that reduces construction disruption and maintains business operations: Strategy to construct Phase II over two biennia without sacrificing academic or accreditation-maintaining functions. The strategy allows for completion of a fully occupied and operational laboratory facility with minimized

disruptions to WADDL operations and income and Phase I research and teaching programs.

After self-funding design activities in late 2015 and early 2016, maintaining the goals of the strategic redefinition, the Washington State University Board of Regents approved full design of GAH-2 in November 2017. In 2018, the Washington Legislature approved $23 million for the 2017-2019 biennium to begin construction of GAH2. Groundbreaking is scheduled for summer 2018. The remaining $36.4 million of legislative funding for the $61.3 million facility is requested for the 2019-2021 biennium.

3. University programs addressed or encompassed by the project

The primary university programs addressed are the Allen School and WADDL. WADDL was established by legislative mandate in 1974 as an integral part of the WSU CVM. This new facility will house programs vital to the Allen School that also support the activities of WSU's infectious disease research, the Animal Health Research Center, Safe Food Initiative, Unified Agriculture Initiative, and the USDA-ARS Animal Disease Research Unit.

In addition, the building will support instruction in the CVM through laboratory training of undergraduate, DVM, and post-DVM graduate students, as well as other U.S. and international graduate students and trainees in the School for Global Animal Health. It will also expand space for the diagnostic needs of the Veterinary Teaching Hospital.

4. Integral to Achieving Statewide Policy Goals:

A conservative estimate of the increased number of degrees produced is 15. This includes four undergraduate and 11 advanced/professional degrees. Please see **Appendix A** (includes dashboard figures and institutional targets). These undergraduate and advanced degree (MS and Ph.D.) students are in high demand fields focused on the health science. .

Although the project was scored in the research category, the facility and the programs housed there directly impact DVM and graduate student experiences in the teaching laboratory and training of post-DVM students as part of the Allen School and Department of Veterinary Microbiology and Pathology's graduate education programs. The facility will serve as an active learning laboratory for undergraduate students who are mentored in research experiences consistent with the WSU Strategic Plan for a Transformative Student Experience, and for ~130 DVM students annually who complete a rotation in diagnostic medicine.

An average of eight to 10 post-DVM students enrolled in either MS or PhD degree programs annually receive their disciplinary training in pathology or microbiology in the lab. They participate as active health professionals under the guidance of mentors throughout the course of their program.

Increased and improved laboratories will accommodate growth of the CVM's graduate programs, including the new Integrated Program in Biomedical Sciences. We plan a future joint DVM/MS option in global animal health, which should enroll two to three students per DVM class, totaling eight to 12 annually, will be enrolled in such a program. These students complete coursework in disease surveillance and diagnosis of emerging diseases with experiential learning in the WADDL, both in the active laboratory and classroom laboratory. Laboratory activities will also be offered as a distance component for educating international graduate students, with on-site workshops in the teaching laboratory. Finally, this facility will serve as an experiential learning laboratory for undergraduate students with interest in the life sciences, microbiology, and health sciences.

a. Indicate the number of bachelor's degrees awarded at the close of the 2015-16 academic year.

WSU bachelor's degrees (dashboard) at close of 2015-16 academic year: **5,517**

b. Indicate number of bachelor's degrees awarded in high-demand fields at the close of the 2015-16 academic year.

WSU bachelor's degrees (dashboard) in high demand fields at close of 2015-16 academic year: **1,976**

c. Indicate the number of advanced degrees awarded at the close of the 2015-16 academic year.

WSU advanced degrees (dashboard) at close of 2015-16 academic year: **1,480** (805 were high demand)

5. Integral to Campus/Facilities Master Plan:

a. Describe the proposed project's relationship and relative importance to the institution's most recent Campus/Facilities Master Plan or other applicable strategic plan.

This project fills a critical need for space to support growing disease diagnostic, surveillance, and research program strength – building on existing strengths – in the area of infectious diseases of livestock and of both wild and farmed fish that are important for the health of economies and peoples both domestically and globally. The project fits within the overall campus master plan[3], approved by the WSU Board of Regents, which envisions zones of research facilities in support of WSU's growing prominence as a land-grant, research-intensive university. This construction project is the university's top priority in the 2019-21 state capital budget request.

b. Does the project follow the sequencing laid out in the Master Plan (if applicable)? If not, explain why it is being requested now.

Yes. This project has been part of a series of projects outlined initially in a WSU CVM/College of Pharmacy area master plan in 2003-2004. The plan fits within the overall WSU Pullman campus master plan[4] and development plan[5]. This fit is also reflected in the past three biennial capital budget requests for this priority project.

6. Integral to institution's Academic Programs Plan: Describe the proposed project's relationship and relative importance to the institution's most recent Academic Programs Plan.

This facility supports the goals of the WSU strategic plan[6] to (1) achieve national and international preeminence in exceptional research, innovation, and creativity (Theme 1); (2) provide a transformative student experience that prepares students to excel in a global society (Theme 2); (3) promote faculty, staff, and student outreach and engagement through service on regional, national, and international study and advisory groups, as well as their service to Washington state and the Pacific Northwest in animal health, diagnostics, and disease surveillance (Theme 3); and (4) promote institutional effectiveness, integrity, diversity, and openness to support significant research and education program growth (Theme 4).

The proposed project contributes to three of the five WSU Grand Challenges[7] that convey WSU's strategic research priorities: Sustaining Health, Sustainable Resources (food and water safety and food security), and National Security (global health security). These contributions build on our success and expertise in infectious diseases at the animal/human interface. It is out of this focus that WSU launched the new Allen School for Global Animal Health, with its missions of disease surveillance and diagnostics (delivered by WADDL), research, and education. WSU is also increasing its research capacity in immunology and infectious disease in two other excellent academic units in the CVM, the Department of Veterinary Microbiology and Pathology and the School of Molecular Biosciences. We will do so in continued coordination with collaborators and strategic partners in the USDA-ARS Animal Disease Research Unit. This will result in greater research funding, undergraduate STEM and DVM student research placements, and expanded graduate programs, all supporting WSU strategic goals.

Must the project be initiated soon in order to:

a. Meet academic certification requirements?

Yes. On their previous three visits, the accrediting body has cited the limited space and inadequacy of biosecurity in the existing WADDL as serious problems. Expansion of programs and increased responsibilities to WSU's agriculture stakeholders — including state departments of Agriculture and Health —

[3] http://facilitiesservices.wsu.edu/resources/pdf/masterplan/pullman_MasterPlan.pdf
[4] http://facilitiesservices.wsu.edu/resources/pdf/masterplan/pullman_MasterPlan.pdf
[5] http://couggis.wsu.edu/DevelopmentProgram/
[6] https://strategicplan.wsu.edu/
[7] https://research.wsu.edu/research-initiatives/grand-challenges/

and the public have exceeded the size, design, and quality of current facilities that are now almost 40-years-old and are substandard to meet accreditation requirements. A report following a comprehensive WADDL laboratory accreditation site visit in September 2010 stated *"it is essential that the university pursue funding for the design and construction of a new laboratory at Pullman in order to assure biosecurity as well as operational efficiencies."* A similar report in April 2015 following a site visit stated *"it is essential that Phase 2 of the construction be completed, not only to provide much needed BSL-2 laboratory space, but to also consolidate laboratory space into one area and to address biosecurity and biosafety concerns"*. The decision to internally fund design for this facility showed enough institutional commitment and progress to allow full accreditation renewal in 2015. Funding the initial design activities in the 2015-17 biennium, which reduced the size and cost of the project, and obtaining $23 million in state funding in 2017-19 to begin partial construction in 2018 demonstrate sufficient progress to maintain accreditation to date. However, the accrediting body continues to require regular updates regarding full compliance. Thus, final funding for the second construction phase of this facility is requested in the FY19-21 capital budget in advance of the next site visit in 2020. Full accreditation is required for continued participation in federal and state disease surveillance programs, acceptance of test results by trading partners in global markets for Washington state animal agriculture, and to meet the needs of regulatory agencies such as the Centers for Disease Control and Prevention, USDA, and Washington state departments of Agriculture and Health.

b. Permit enrollment growth and/or specific quality improvements in current programs?

Yes. See section 4, which addresses expected growth in undergraduate and graduate enrollment, strategic research program growth, and parallel growth in diagnostic services and outreach. WADDL provides a working laboratory setting for training and education of DVM and post- graduate students, but the current facilities are not conducive to modern educational methods and do not meet optimal biosafety or biosecurity standards.

c. Permit initiation of new programs?

Yes. The Allen School for Global Animal Health is distinctive among North American universities in taking such a bold step to address significant health issues of humans worldwide through intervention at the animal/human interface. The Global Animal Health Building Phase II will adjoin Phase I and provide expansion of disease surveillance and diagnostic programs that will be integrated with the fundamental research housed in Phase I, permitting initiation of expanded disease surveillance (including antimicrobial resistance), pathogen discovery, research, and educational components of both the Allen School and WADDL.

7. Impact on Economic Development:

a. Identify any specific state, regional, or local economic development plans associated with the project, and describe how it would support them.

The research and education to be conducted in this facility addresses numerous statewide policies and economic development strategies. The proposed research and disease surveillance facility will positively impact the *Results Washington* state goal of increasing the number of STEM degrees[8], although it particularly addresses two primary strategic state priorities "Healthy and Safe Communities"[9], and economic impacts of diseases of animals "Prosperous Economy"[10]. Other statewide policy documents highlight the strategy of increased support for the research and education needed to drive a technology-based economy for the future of Washington (see, for example the Bio 21 report of the WA Technology Alliance and the resulting Life Science Discovery Fund[11], *Life Sciences and Global Health Development in Washington State: Future at Risk* prepared by the Washington Life Science & Global Health Advisory Council[12], *Critical Crossroads: A Call for Action prepared by the Washington Achievement Council*[13], , and *Vision 2021: Investing in a Future Ready Washington prepared*

[8] https://www.results.wa.gov/goals-progress/goals/world-class-education/goal-map
[9] https://www.results.wa.gov/goals-progress/goals/healthy-safe-communities/goal-map
[10] https://www.results.wa.gov/goals-progress/goals/prosperous-economy/goal-map
[11] http://www.technology-alliance.com/s/bio21reportp2.pdf
[12] http://www.commerce.wa.gov/wp-content/uploads/2017/02/Live-Science-WA-Report-Future-at-Risk.pdf
[13] http://www.wsac.wa.gov/sites/default/files/Critical_Crossroads-Revised4-13.pdf

by the Washington STEM Education Innovation Alliance[14]). Specifically, the research programs to be located in this building will contribute to Washington's pre-eminence in global health and disease surveillance. Finally, note that global health alone, as detailed in the *Economic Impact of Global Health on Washington's Economy*[15] is a $5.8 billion segment of Washington's economy.

b. Demonstrate that federal or private funding is likely to be available to support the research that would be conducted in the facility.

More than $55 million in private funds have been received to develop the Allen School and Center. This success makes it clear that WSU's strategic priorities in the infectious diseases of livestock, particularly as they relate to global health, disease surveillance, and economic security will continue to align with program priorities for the Bill and Melinda Gates Foundation, the Paul G. Allen Family Foundation, the Welcome Trust, the U.S. Agency for International Development, the U.S. Department of Defense, and others. In FY2018 the Allen School received Centers for Disease Control and Prevention Global Health Security Agenda funding of $7.1 million for enhancing zoonotic disease surveillance in Kenya. Construction of the Global Animal Health Building Phase II will allow WSU to more fully leverage large research grant and contract opportunities. For example, a $21 million proposal was recently submitted to support WSU work in collaboration with the Centers for Disease Control in both human and animal disease surveillance in Kenya. Completion of this project significantly increases the chances of securing funding opportunities such as this.

In addition to the above, the Allen School faculty have generated nearly $27 million in other extramural research funding since the Allen Center opened in 2012, and overall the programs are on pace to exceed $10 million annually going forward. To promote stability during peacetime operations, the Department of Defense will play a key role in establishing global health equity programs as part of Global Health Security, a key federal priority.

In the past 10 years WADDL has generated over $9 million in extramural funding for emerging disease surveillance and detection. This was bolstered by its status as a founding member and Level 1 laboratory of the U.S. Department of Agriculture's National Animal Health Laboratory Network, one of only nine veterinary diagnostic laboratories in the Center for Disease Control's Laboratory Response Network for Bioterrorism and a founding member of the Food and Drug Administration Veterinary Laboratory Investigation and Response Network. In addition, WADDL recently received a new $3.5 million contract to conduct wild fish testing and research for the U.S. Department of Interior's Fish and Wildlife Service, as the Olympic Fish Health Center. The completion of this project will secure WSU's continued prominence in these national laboratory networks and their associated funding while expanding opportunities for global disease detection and surveillance to additional funding sources. Furthermore, the project would secure WADDL's standing as a preeminent regional reference laboratory.

c. Summarize and quantify the expected economic benefits of the project and provide selected supporting documentation in a clearly referenced appendix.

Direct, positive economic impact is expected through new private and federal research funding. The Paul G. Allen School for Global Animal Health and WADDL are key partners in global health in Washington. The economic impact of global health in the state of Washington estimated by the Office of Global Affairs at the University of Washington is nearly 14,000 direct jobs (mean annual wage of $55,937) and a 3.2 total job/direct job multiplier resulting in greater than 43,000 total jobs. This leads to $4.1 billion in total business activity and tax revenue to the state of $141 million. Total business activity generated by global health research and teaching at WSU and UW alone exceeds $130 million, with a total expenditure/state expenditure multiplier of approximately 4:1.

Emerging diseases had a global impact of $235 billion over the past decade. Foot-and-mouth disease alone cost the United Kingdom $14 billion in 2001, and each hour of delay in diagnosis costs $10 million. Additional benefits are generated by protecting and expanding national and international markets for Washington agricultural products, which is a $1.5 billion industry. Agricultural markets, including aquaculture, depend on maintaining or verifying

[14] https://www.wsac.wa.gov/sites/default/files/2017.01.03.STEM.Vision.2021.pdf
[15] https://www.wghalliance.org/resource/economic-impact-global-health-washingtons-economy-infographic

disease-free status in animals or their live products. Early detection is vital to protect agricultural markets, and surveillance is the key. As experienced with Mad Cow Disease, such diseases can seriously affect the economy. U.S. export markets have not yet fully recovered from the case of BSE in the state of Washington in 2003, which caused 62 countries to stop imports of U.S. beef within hours of its detection. WADDL disease surveillance has been critical in restoring these U.S. export markets. In 2014-2015 the WADDL detected the initial case of bird flu in the U.S. and this helped prevent devastating economic losses to the Washington poultry industry. This bird flu outbreak was the largest foreign animal disease outbreak in U.S. history, incurring an estimated $3.3 billion in losses nationally. A recent economic analysis of veterinary diagnostic laboratories found they play a significant role to prevent and mitigate endemic disease, a vital role in surveillance and response to outbreaks of foreign animal disease, and they allow for business continuity in livestock operations, providing a return on investment of 795% in normal years, and 3,104% during an animal health emergency (Schulez LL et al Economic Impact of university veterinary diagnostic laboratories: a case study. *Preventive Veterinary Medicine* 151:5-12, 2018).

8. **Impact on Innovation:** Explain how the research activities proposed for the project will advance areas of existing preeminence, or position the institution for preeminence in a field or area. Evidence of existing or potential research preeminence could include, but is not limited to, funding history, faculty qualifications, publications, patents, business spin-offs, etc.

WSU has identified several areas of preeminent research that are now encapsulated in the Grand Challenges[16]. In particular, the first of these – "Sustaining Health" – encompasses the programs of the Allen School, the WADDL, the Department of Veterinary Clinical Sciences, the Department of Veterinary Microbiology and Pathology. The fifth of these – "National Security" – will receive important contributions from Allen School and WADDL programs with respect to important animal and human disease surveillance activities here and around the world.

The Allen School, with disease surveillance conducted in the WADDL as an integral part of its mission, has garnered more than $55 million in private funding since its inception in 2007 and $36 million in competitive extramural funding (mostly federal) since the Allen Center opened in 2012. The WADDL faculty, over the past five years, has produced 150 publications in peer-reviewed journals, 176 scientific presentations, and $6 million in external funding and contracts. The primary focus of this scholarly activity is emerging diseases, test development and validation, and disease surveillance from the laboratory discipline areas of microbiology (infectious diseases), molecular diagnostics, immunodiagnostics, toxicology, avian health, aquatic health, and food safety. State of the art facilities catalyze and enhance these research and surveillance activities.

The university's success is also shown by the induction of its faculty into the prestigious Institute of Medicine of the National Academy of Sciences and the Washington State Academy of Sciences, including the founding director of the Allen School, Dr. Guy Palmer, and previous WADDL executive director, Dr. Terry McElwain, and Allen School faculty member M. Kariuki Njenga.

9. **Availability of Research Space:** Describe the extent to which there is sufficient space (square footage) in existing campus facilities to conduct the proposed research.

See Section 10 below - this project addresses both the availability and adequacy of space.

10. **Adequacy of Research Space:** Describe how and the extent to which existing campus facilities are inadequate to meet existing and future research standards and needs.

There are problems with both availability and adequacy of space. WADDL has been housed in a portion of Bustad Hall since the completion of the building in 1978. Since then, case accessions have grown nearly fivefold, and laboratory examinations have increased from ~70,000 in 1978 to ~300,000 in FY17. To meet the demands of this growth, staff has tripled. No research overflow or surge space exists on campus that will accommodate the work planned for the Global Animal Health Building Phase II.

The growth in laboratory tests, the complexity of testing, and WADDL's participation in national surveillance networks

[16] https://research.wsu.edu/research-initiatives/grand-challenges/

for foreign animal diseases and biological threat infectious agents have greatly exceeded the functional and safe operating capacity of the 40-year-old Bustad Hall. Facilities are overcrowded and not designed for the best modern laboratory practices including sample security and workflow, biosafety (occupational health) and biosecurity (animal, public and environmental health). As a result, the body that accredits the laboratory recommended a new facility during review periods in 2005, 2010, and 2015.

WADDL also provides a working laboratory setting for the education of DVM and post-graduate students, but current facilities are not conducive to modern educational methods and do not meet optimal biosafety standards. Comprehensive diagnostic capability for animal diseases and capacity for health emergencies, including bioterrorism, requires uniquely designed and dedicated space. No other space on campus has space that meets the unique biocontainment and security requirements for the work that is performed in WADDL.

11. **Availability of Instructional Space/Utilization on Campus:** Describe the institution's plan for improving space utilization and how the project will impact the following:

See **Appendix B** for utilization statistics and information about targets. This project will provide modern and safe instructional laboratory space for graduate programs and DVM student training. The facility will serve as a working laboratory for both DVM and post-DVM graduate student training and will be occupied by these students 40–50 hours/week. It will include a teaching laboratory for instructional activities associated with practicums on laboratory assays, biosafety, and related laboratory based activities.

a. The utilization of classroom space

University scheduling is done in a way that matches the course sections with the size of classrooms and auditoria. Progress toward the state target for classroom usage has been steady and the campus has met the state target for classroom usage for several biennia. This project, however, does not add new classroom space.

b. The utilization of class laboratory space

Based on the raw calculation **(Appendix B)**, teaching laboratory use at the Pullman campus appears slightly under the state target. But if all the labs scheduled after hours are counted, overall usage of those spaces is above the target; the HECB formula counts usage within a block of time from 9:00 a.m. to 6:00 p.m. Although the majority (83%) of teaching lab use on the Pullman campus occurs in this range, 17% of the teaching lab use is outside this range. Counting that additional scheduled time puts the lab usage above the standard. Construction of Global Animal Health Building Phase II will significantly increase updated, safe, modern laboratory space on the Pullman campus, and continue to contribute to meet the state's target space utilization goals for research and student (undergraduate and graduate) training as well as office and administrative space.

12. **Reasonableness of Cost:** Provide as much detailed cost information as possible, including baseline comparison of costs per square foot (SF) with the cost data provided in Chapter 5.0 of the Higher Education Capital Project Scoring Process Instructions and a completed OFM C-100 form. Also, describe the construction methodology that will be used for the proposed project. If applicable, provide Life Cycle Cost Analysis results demonstrating significant projected savings for selected system alternates (Uniform at Level II) over 50 years, in terms of net present savings.

The university employed the cost planning firm of JMB Consulting to evaluate construction costs. This effort used data from similar research facility projects, both at WSU and elsewhere, to confirm assumptions and assure accuracy. Using their understanding of the complexities of this program and costs of comparable projects, JMB developed a cost plan to establish revised construction and total project costs.

The cost per square foot is currently estimated at a construction (MACC) cost of $569 per square foot. Total project costs are estimated at $968 per square foot. The benchmarks per chapter five of the project evaluation guidelines are $567 per square foot for MACC and $803 per square foot for total project cost with a July 1, 2019 construction midpoint. Although the cost for this project is higher than the benchmark expected cost range for research facilities, this project is far more complex than typical research buildings due to the facility's heavily specialized laboratory program and the unique combination of biocontainment and large animal necropsy. The building has very high equipment loads which are driving the cooling load in many of the labs. This increases the airflow on the dedicated outside air unit above the already high air change

rates. To reduce energy required to treat additional outside air we are installing active chilled beams in the high cooling load spaces. This reduces the building energy use and provides better thermal comfort compared to a forced air system. It also reduces the maintenance required compared to the other discussed alternative which was fan coil units. Also contributing to the increased amount of airflow in the building is the unique design constraints for the necropsy lab. This is a large volume space designed to accommodate large animals. The chemicals used in the necropsy lab require high air change rates for the room. The combination of a large room volume and high air change rates drives up the airflow requirement.

A construction cost comparison of similar biocontainment facilities is included below; the data has been adjusted to a July 1, 2019 midpoint of construction. Due to the size and complexity of this project, WSU will use the design-build method of project delivery.

Comparable Facility Name	Location	Gross SF	Total Construction Cost	Cost per SF	Construction Completion Date	Adjusted Cost per SF
Paul G. Allen Center for Global Animal Health (GAHBI)	Washington State University, Pullman WA	61,942	$41,250,000	$665	May 2012	$805
Texas A&M Vet Med Diagnostic Lab	Texas A&M University College Station, TX	93,004	$46,556,502	$500	April 2017	$530
Nebraska Diagnostic Lab	University of Nebraska, Lincoln, NE	68,000	$32,400,00	$476	May 2017	$505
UW Life Sciences	Seattle, WA	202,556	$135,679,405	$670	July 2018	$690

13. **Contribution of Other Funding Sources:** Identify the source and amount of capital planning and construction costs that will be covered by sources other than the State Building Construction Account or the State Taxable Building Construction Account.

Phase I of the Global Animal Health Building was funded through a $25 million grant from the Bill and Melinda Gates Foundation, $12 million of a total $26 million gift from the Paul G. Allen Family Foundation ($37 million direct construction funds combined) and a $10 million match provided by a combination of state-approved WSU building fund bonds (~$6.2 million), and additional donor funds (~$4 million). In total, non-state funds for design and construction of Phase I will have contributed over 40% of the total cost of the completed building (combined Phases I and II). Funding for Phase I also covered the predesign funding for Phase II. The two projects will result in adjoined building space with some infrastructure for this Phase II facility already completed and included in Phase 1. There will also be shared use of conference rooms, the atrium entry, and staff break areas, and circulation corridors. In addition, as noted above, the university self-funded $1.9 million in design costs for the 15-17 biennium, with the majority of it coming from College of Veterinary Medicine local funds.

14. **Integral to Achieving Statewide Policy Goals:** Describe how the project will increase economic development through theoretical or applied research.

a. Is the proposed project necessary to conduct the proposed research?

Yes. The current space is outdated and does not meet current standards, as identified by the accreditation site visit team in 2005, 2010, and 2015. In addition, we simply do not have enough space to accommodate dramatic past and expected future growth of diagnostic, surveillance, and research programs and their specific biosafety/biocontainment requirements.

b. Is there clear and compelling evidence that the proposed research is likely to create or retain high-paying jobs?

Yes. The proposed facility is critical for the continued success of research and surveillance programs and the realization of continued growth both from existing program faculty and the additional growth expected to result from new faculty recruitment over the next five years (at least 10 new faculty members are expected to be added, five of them in the new Allen School, with some sharing an appointment in the WADDL). Increased research funding yields increased employment (both faculty and life science research technicians have high mean wages), which in turn generates additional jobs through the above multiplier of 3.2 total jobs per direct job. Thus, $1 million in new annual research funding translates into approximately 12-14 direct jobs locally, or 38-46 total jobs.

c. Is there clear and compelling evidence that the proposed research is likely to contribute to the solution of significant regional, national, or global challenges?

Yes. Protecting and expanding national and international markets for Washington agricultural products depends on disease diagnostics conducted in an accredited laboratory and on fundamental and applied research regarding infectious diseases of livestock and fish. Animal agriculture is a $1.5 billion industry in Washington. The state's agricultural markets, including aquaculture production, are dependent on maintaining or verifying disease-free status in animals or their live products. Early recognition of a disease that can shut off exports is vital to limiting the impact on agricultural markets and surveillance is the key. Increasing the capacity to identify, develop, and implement control solutions to both emergent pathogens and long-standing disease problems (i.e. *Salmonella*) will meet the dual goals of protecting human health and agricultural markets. The WADDL is the state's most vital early warning tool for diseases that threaten the aquaculture industry. For example, the WADDL recently joined with the industry to establish surveillance for Infectious Salmon Anemia (ISA), an infectious disease of Atlantic farmed salmon that was diagnosed in western Canada and has seriously compromised aquaculture production in the eastern United States and Canada. Current ISA surveillance relies on the WADDL as a vital local laboratory that links the efforts of state, tribal, federal, and aquaculture industry partners to prevent introduction of this catastrophic disease into salmon farms in the state of Washington. In addition, it is expected that additional products such as vaccines for use in animals and novel diagnostic assays will provide a direct market return for the Washington state biotechnology industry. A recent National Academy of Sciences study noted that the impact of six emerging diseases alone in the last decade resulted in an economic impact totaling over $250 billion.

Research regarding immunology and infectious disease of livestock underpins WSU's ability to improve the health and economic security of the world's poorest peoples. This is the fundamental mission of the Allen School, which in turn grew out of longstanding expertise and interest in such diseases at WSU since the 1960s. WSU cannot conduct the disease surveillance and research needed to address these challenges without this proposed facility.

d. Is there clear and compelling evidence that the proposed research is likely to increase the stability or competitiveness of the local or regional economy through the creation or retention of high-growth, high-paying companies?

Yes. Diagnostics, disease surveillance, immunology, and infectious disease research in the college is inherently solution oriented with development of new diagnostic tests, vaccines, or therapeutics as the goal. Past program success in the CVM resulted in the development of a local company, Veterinary Medical Research and Development, Inc., that markets many of the research generated reagents and diagnostic tests developed in the college's research programs. The company has now grown into an international company that provides diagnostic tests and reagents globally including products that are approved for official regulatory testing to control the trade and import/export market in animals and animal products. It is expected that the research supported by the new facility will similarly result in products that could be marketed by the company. On a broader scale, the biotechnology industry is growing statewide, with clear interest in new laboratory and point-of-care diagnostic tests, telediagnostics from mobile applications, disease surveillance bioinformatics and modeling, medical devices and therapeutics. Growth in these areas are particularly acute in Eastern Washington where anticipated growth of the health care industry would be greatly catalyzed by the biotechnology developments growing out of research supported by the new facility.

APPENDIX A

Global Animal Health Bldg Phase II	Anticipated Growth in Bachelor's Degrees	Anticipated Growth in High Demand Bachelor's Degrees	Anticipated Growth in Advanced Degrees	Anticipated Growth in High Demand Advanced Degrees
2015-16 Actual	5,517	1,976	1,480	805
Additional Degrees Generated by Project	4	4	11	11
Projected Degrees with Building Project	5,521	1,980	1,491	816
Projected Growth Above 2015-16 Actual Degrees	0.1%	0.2%	0.7%	1.4%
Current 2018-19 Target	5,946	2,203	1,481	895
Percent of 2015-16 Actual over 2018-19 Target	92.8%	89.7%	99.9%	89.9%
Projected Degrees as a % of 2018-19 Target	92.9%	89.9%	100.7%	91.2%

Comments: Expect an additional 15 degrees, all in high demand degrees. This includes 4 new bachelor's degrees and an additional 11 advanced degrees, **Refer to project proposal Section 4. for more details.** A conservative estimate of the increased number of degrees produced is 15. This includes four undergraduate and 11 advanced/professional degrees. Please see Appendix A. These undergraduate and advanced degree (MS and Ph.D.) students are in high demand fields focused on health issues

APPENDIX B

AVAILABILITY OF SPACE

Project Name: Global Animal Health Bldg Ph II

Campus location: WSU Pullman Campus

REQUIRED FOR ALL CATEOGRIES EXCEPT ACQUISITION AND INFRASTRUCTURE

Identify the average number of hours per week each (a) classroom seat and (b) classroom lab is expected to be utilized in Fall 2018 on the proposed project's campus. Please fill in the gold shaded cells for the **campus** where the project is located.

(a) General University Classroom Utilization	
Fall 2017 Weekly Contact Hours	213,271
Multiply by % FTE Increase Budgeted	0%
Expected Fall 2018 Contact Hours	213,271
Expected Fall 2018 Contact Seats	10,566
Expected Hours per week Utilization	**20.2**
HECB GUC Utilization Standard	22
Difference in Utilization Standard	-8%

(b) General University Lab Utilization	
Fall 2017 Weekly Contact Hours	42,569
Multiply by % FTE Increase Budgeted	0%
Expected Fall 2018 Contact Hours	42,569
Expected Fall 2018 Class Lab Seats	3,003
Expected Hours per Week Utilization	**14.2**
HECB GUL Utilization Standard	16
Difference in Utilization Standard	-11%

If the campus does not meet the 22 hours jper classroom seat and/or the 16 hours per class lab HECB utilization standards, describe any institutional plans for achieving that level of utilization.

As reflected above, usage of campus classrooms and labs are close to HECB standards. In fact, if all the classes and labs scheduled after hours were counted, overall usage of those spaces is above the HECB standard. The HECB formula counts usage within a nine-hour contiguous block of time. While the majority (93%) of scheduled classroom use occurs between 8:00 a.m. and 5:00 p.m., (the hour block used for this calculation), 7% of classroom time is scheduled outside this timeframe. If counted, those additional contact hours of usage put the classroom space use above the current standard. While the majority (87%) of scheduled lab use occurs between 9:00 a.m and 6:00 p.m (the block used for this calculation), 13% of the teaching lab use is outside this time range. If counted, those additional contact hours of usage put the lab space use above the current standard. This building will add specialized instructional laboratory space for graduate programs and Doctor of Veterinary Medicine students.

OFM

365 - Washington State University
Capital Project Request
2019-21 Biennium

Version: 10 2019-21 WSU Capital Budget Request

Report Number: CBS002
Date Run: 7/30/2018 1:41PM

Project Number: 30001322
Project Title: Global Animal Health Building

Description

Starting Fiscal Year: 2016
Project Class: Program
Agency Priority: 1

Project Summary

Washington State University requests $36.4 million to build Phase II of the Global Animal Health Building which will directly adjoin the Phase I building completed in 2013. Known as the Allen Center, Phase I was built with the help of $51 million in private fundraising; $37 million of which was dedicated to construction. Phase II construction will house the Washington Animal Disease Diagnostic Laboratory (WADDL) and the Paul G. Allen School for Global Animal Health disease detection and surveillance program. WADDL is on the front line of the nation's defense against foreign animal diseases, human diseases transmitted from animals (zoonotic diseases), and food-borne illness; it is the only accredited veterinary diagnostic laboratory in Washington. WADDL testing is vital for early disease detection, protecting public health and food security, and protecting Washington's $1.5 billion animal agriculture industry. The project will replace 40-year-old WADDL facilities in Bustad Hall, which are repeatedly cited as accreditation deficiencies by the Association of American Veterinary Laboratory Diagnosticians (AAVLD). WSU's efforts to self-fund $1.9M for initial design in the 2015-17 biennium, which reduced the size and cost of the project, and to obtain $23M in state funding in the 2017-19 biennium to complete design and begin partial construction in 2018 have demonstrated sufficient progress to maintain accreditation to date. Construction began in summer 2018 with the structure, building envelope, underground utilities, elevators, MEP mainline rough-ins and site work with completion by end of 2019 with the expectation to continue with the interior buildout when the next state appropriation is available in 2019-21. Thus, construction funding is requested in the 2019-21 biennial budget in the amount of $36.4 million to complete fully functional, mission critical WADDL testing and necropsy laboratories by early 2021.

Project Description

Identify the problem or opportunity addressed. Why is the request a priority? (Provide numbers of people or communities not served, students without classroom space, operating budget savings, public safety improvements, history, or other backup necessary to understand the need for the request.) Be prepared to provide detailed cost backup.

The project will replace 39-year-old Washington Animal Disease Diagnostic Laboratory (WADDL) facilities in Bustad Hall, facilities that are repeatedly cited as accreditation deficiencies by the Association of American Veterinary Laboratory Diagnosticians (AAVLD). A report following a comprehensive laboratory accreditation site visit in 2010 stated "it is essential that the university pursue funding for the design and construction of a new laboratory at Pullman in order to assure biosecurity as well as operational efficiencies." Another site visit in 2015 stated "it is essential that Phase II of the construction be completed, not only to provide much needed BSL-2 laboratory space, but to also consolidate laboratory space into one area and to address biosecurity and biosafety concerns." The current building is not conducive to modern diagnostic and educational methods, and does not meet modern biosafety and biosecurity standards. Federal and state animal and zoonotic disease surveillance programs and their related funding are dependent on maintaining accreditation. WSU self-funded $1.9 million for design activities in the 2015-17 biennium in order to show progress for the reaccreditation site visit in 2015, which was successful. The 2017-19 legislature provided $23 million to complete design and begin partial construction in 2018. This funding begins the structure, building envelope, underground utilities, elevators, MEP mainline rough-ins and site work. The expectation is to continue with the interior buildout when the 2019-21 state appropriation is available, a $36.4 million request to finish the facility. It will produce fully functional, mission critical WADDL testing and necropsy laboratories.

The Allen Center, located in the College of Veterinary Medicine precinct at Washington State University, is home to the Paul G. Allen School for Global Animal Health. Phase I of the Allen Center, built primarily with donor funding, houses the basic research programs of the Allen School. This construction request for the Global Animal Health Building Phase II (GAHBII) will house the global disease detection and surveillance programs of the Allen School and, most notably, the Washington Animal Disease Diagnostic Laboratory (WADDL).

WADDL is a state, regional, and national reference laboratory that provides animal disease detection in all species, that promotes regional and international trade through "proof of negative" testing for animal industries, that identifies diseases transmissible from animals to humans as a "first alert", and that keeps foods safe to eat for humans by providing food safety testing. At comparable facilities in other states the lab is hosted within the state departments of agriculture. In Washington, it is housed at WSU, where its related disease detection and surveillance programs are integral to the success of the Allen School and the College of Veterinary Medicine.

WADDL is the only animal health diagnostic laboratory in Washington State officially sanctioned, and funded to provide

OFM

365 - Washington State University
Capital Project Request
2019-21 Biennium

Version: 10 2019-21 WSU Capital Budget Request

Report Number: CBS002
Date Run: 7/30/2018 1:41PM

Project Number: 30001322
Project Title: Global Animal Health Building

Description

comprehensive animal, food, and environmental surveillance for diseases such as: influenza, tuberculosis, West Nile encephalitis, BSE (Mad Cow Disease), and foot-and-mouth disease. As such, WADDL is a critical resource for other state and federal agencies, including the Washington state departments of Agriculture and Health.
In order to maintain the laboratory accreditation required for laboratory testing at the state, national, and international level, WADDL must correct facility deficiencies identified by external laboratory accrediting bodies. A new disease detection and surveillance facility is necessary not only to fulfill the originally intended mission of the Allen School, but also for WADDL to increase capacity for testing volume, to meet the needs for complexity of modern testing platforms, and to fulfill quality assurance compliance required for global disease surveillance. Since occupying the Bustad Hall laboratories in 1978, WADDL has grown into one of the premier animal disease diagnostic laboratories in the nation. WADDL participation in national surveillance networks for foreign animal diseases and biological threat agents is at risk. Laboratory operations greatly exceed the functional and safe operating capacity of the current 39-year-old Bustad Hall. Facilities are overcrowded and are not designed for modern laboratory practices, including sample security and workflow, biosafety (occupational health), and biosecurity (animal, public, and environmental health). As a result, the body that accredits the laboratory recommended a new facility during review periods in 2005, 2010, and 2015.

What will the request produce or construct (i.e. design of a building, construction of additional space, etc.)? When will the project start and be completed? Identify whether the project can be phased, and if so, what phase is included in this request.

Washington State University's budget request is for funds to finish construction of Phase II of the Global Animal Health Building, which will directly adjoin the Phase I building completed in 2013. Phase II construction will house the Washington Animal Disease Diagnostic Laboratory (WADDL) and the Paul G. Allen School for Global Animal Health disease detection and surveillance program. A staging strategy that reduces construction disruption and maintains business operations has been developed. The strategy is to construct Phase II over two biennia without sacrificing academic or accreditation-maintaining functions. In the first phase, the legislature funded $23 million in 2017-19 and $36.4 million is requested in 2019-21 to complete construction. The strategy allows for completion of a fully occupied and operational laboratory facility in early 2021 with minimized disruptions to WADDL operations and Phase I research and teaching programs. Existing Bustad Hall space vacated by WADDL upon completion of the project will be used to help meet instructional space needs for the College of Veterinary Medicine (CVM).

How would the request address the problem or opportunity identified in question #1? What would be the result of not taking action?

The project will replace 39-year-old WADDL facilities in Bustad Hall, which are repeatedly cited as accreditation deficiencies by the Association of American Veterinary Laboratory Diagnosticians (AAVLD). The current facilities are not conducive to modern diagnostic and educational methods, and does not meet modern biosafety and biosecurity standards. Federal and state animal and zoonotic disease surveillance programs and their related funding are dependent on maintaining accreditation. As mentioned in an earlier section, WADDL is the only animal health diagnostic laboratory in Washington State officially sanctioned, and funded to provide comprehensive animal, food, and environmental surveillance for diseases such as: influenza, tuberculosis, West Nile encephalitis, BSE (Mad Cow Disease), and foot-and-mouth disease. As such, WADDL is a critical resource for other state and federal agencies, including the Washington state departments of Agriculture and Health.
WSU's efforts to secure predesign funding and seek design funding have demonstrated sufficient progress to maintain accreditation to date. The university was unable to secure state funds for design timely enough to demonstrate sufficient progress for maintaining accreditation. As a result, WSU self-funded $1.9 million for design activities in the 2015-17 biennium in order to show progress for the reaccreditation site visit in 2015, which was successful. The legislature then funded $23 million to start construction in 2017-19 with completion dependent on a 2019-21 legislative appropriation. Without securing the second biennium appropriation, the structure will remain unfinished and continued accreditation of the disease surveillance programs at great risk. The 2017-19 funds covered building the structure, the building envelope, underground utilities, elevators, MEP mainline rough-ins and site work. The second biennium (2019-21) funding is necessary to finish the facility. Construction funding is requested in the 2019-21 biennial budget for completion of fully functional, mission critical WADDL testing laboratories, a modern, bio-secure autopsy facility and functional integration with the Allen Center.
The University already reduced the size and cost of the project and adopted a construction strategy to demonstrate meaningful progress by the next accreditation review cycle in 2020. Construction is occurring in two stages as mentioned above. Not only would this construction make strides to address ongoing accreditation concerns, the expansion would help to open up valuable instructional space in the existing facilities vacated by WADDL that are closer to the core of campus.

Which clientele would be impacted by the budget request? Where and how many units would be added, people or

Version: 10 2019-21 WSU Capital Budget Request

Report Number: CBS002
Date Run: 7/30/2018 1:41PM

Project Number: 30001322
Project Title: Global Animal Health Building

Description

communities served, etc. Be prepared to provide detailed cost backup.

Protecting and expanding national and international markets for Washington agricultural products depends on disease diagnostics conducted in an accredited laboratory and on fundamental and applied research regarding infectious diseases of livestock and fish. This new facility will house programs that are vital components of the Allen School and that support the activities of WSU's infectious disease research, the Animal Health Research Center, Safe Food Initiative, Unified Agriculture Initiative, and the USDA-ARS Animal Disease Research Unit. Testing in the diagnostic laboratory facility is vital for early disease detection, helping protect public health and Washington's $1.5 billion animal agriculture industry. The facility also provides "proof of disease negative" tests for terrestrial and aquatic animal agriculture products required for international trade.

The facility is one of only nine veterinary diagnostic laboratories in the Laboratory Response Network for Bioterrorism, and WADDL is a founding member of the Food and Drug Administration Veterinary Laboratory Investigation and Response Network. It plays a critical role in homeland security and national defense against biological threat agents. Construction of the facility will ensure continued accreditation essential for maintaining programs that support disease surveillance, global health, and global agricultural markets.

The building will also support instructional activities in the College of Veterinary Medicine through laboratory training of undergraduate students, DVM students, post-DVM graduate students, and other U.S. and international graduate students and trainees affiliated with the School for Global Animal Health. A conservative estimate of the increased number of degrees produced is 15 per year. This includes four undergraduate and 11 advanced/professional degrees. These undergraduate and advanced degree (MS and Ph.D.) students are in high demand fields focused on health issues.

The project and the programs housed there directly impact Doctor of Veterinary Medicine (DVM) and graduate student experiences in the teaching laboratory and training of post-DVM students as part of the Allen School and Department of Veterinary Microbiology and Pathology's graduate education programs. The facility will serve as an active learning laboratory for undergraduate students, and for 130-135 DVM students annually who complete a rotation in diagnostic medicine in groups of four to six students. An average of eight to 10 post-DVM students enrolled in either MS or Ph.D. degree programs annually receive their disciplinary training in pathology or microbiology in the lab. They participate as active health professionals under the guidance of mentors throughout the course of their program.

Increased and improved laboratory facilities will also accommodate projected growth of the school's graduate programs, including the newly developing Integrated Program in Biomedical Sciences. A Global Animal Health Pathway program will include a joint DVM/MS option in global animal health. It is anticipated that an average of two to three students per DVM class, or a total of eight to 12 annually, will be enrolled in this program. These students complete coursework in disease surveillance and diagnosis of emerging diseases with experiential learning in the WADDL, both in the active laboratory and classroom laboratory. Laboratory activities will be offered as a distance component for training of international graduate students as well, with on-site workshops in the teaching laboratory. Finally, this facility will serve as an experiential learning laboratory for undergraduate students with interest in STEM and high demand fields like life sciences, microbiology and health sciences.

Does this request include funding for any IT-related costs (See the IT Appendix for guidance on what is considered an IT-related cost?)

This request does not include funding for any IT-related costs.

Will non-state funds be used to complete the project? How much, what fund source, and could the request result in matching federal, state, local or private funds?

Non-state funds will not be used to complete the project. None have been identified.

Phase I of the Global Animal Health Building was funded through a $25 million grant from the Bill and Melinda Gates Foundation, a $26 million gift from the Paul G. Allen Family Foundation ($37 million direct construction funds combined) and a $10 million match provided by a combination of state-approved WSU building fund bonds (~$6.2 million), university funds and additional donor funds (~$4 million). In total, non-state funds for design and construction of Phase I will have contributed over 40% of the total cost of the completed building (Phases I and II). Funding for Phase I also covered the predesign funding for Phase II. The two projects will result in adjoined building space with some infrastructure for this Phase II facility already completed and included in Phase 1. There will also be shared use of conference rooms, the atrium entry, and staff break areas, and circulation corridors. Although the university self-funded $1.9 million in design costs for this project, no additional non-state funds have been identified.

Describe how this project supports the agency's strategic master plan, contributes to statewide goals, or would enable the agency to perform better. Reference feasibility studies, master plans, space programming, and other analyses as appropriate.

The project fits within the overall campus master plan reflected in the past three biennial capital budget requests that have

OFM

365 - Washington State University
Capital Project Request
2019-21 Biennium
*

Version: 10 2019-21 WSU Capital Budget Request

Report Number: CBS002
Date Run: 7/30/2018 1:41PM

Project Number: 30001322
Project Title: Global Animal Health Building

Description

advanced this project. Construction of this facility is the university's second highest priority in the 2017-19 state capital request. This project fills a critical need for space to support growing disease diagnostic, surveillance, and research program strength – building on existing strengths – in the area of infectious diseases of livestock and of both wild and farmed fish that are important for the health of economies and peoples both domestically and globally.

The research and education to be conducted in this facility is responsive to numerous statewide policies and economic development strategies. The proposed research and disease surveillance facility will positively impact the Results Washington state goal of increasing the number of STEM degrees, although it particularly addresses two primary strategic state priorities "Healthy and Safe Communities" by protecting state citizens against disease threats. They also support the Results Washington goal for a "Prosperous Economy" by ensuring the security of the products of Washington's animal agriculture industry. Without an accredited lab, Washington producers would have to send samples to other states, creating delays in obtaining test results to verify food security that could threaten access to foreign markets.

The project contributes significantly to two of WSU's strategic research priorities: Sustaining Health and Sustainable Resources (in terms of food and water safety and food security). One of these major research foci is to build on our longstanding success and expertise in infectious diseases at the animal/human interface. It is out of this focus that WSU launched the new Allen School for Global Animal Health, with its mission of disease surveillance and diagnostics (delivered by WADDL), research and related teaching activities. WSU is also increasing its research capacity in immunology and infectious disease in the Department of Veterinary Microbiology and Pathology and the School of Molecular Biosciences. As we enhance these research programs, we will continue coordination with our major collaborators and strategic partner in the USDA-ARS Animal Disease Research Unit. This will result in greater research funding, undergraduate STEM and DVM student research placements, and expanded graduate programs. All these are consistent with overall WSU goals.

This facility will directly support the goals of the Washington State University strategic plan to (1) achieve national and international preeminence in exceptional research, innovation, and creativity; (2) provide a transformative student experience that prepares students to excel in a global society; (3) promote faculty, staff, and student outreach and engagement through service on regional, national, and international study and advisory groups, as well as their service to Washington state and the Pacific Northwest in animal health, diagnostics, and disease surveillance and (4) promote institutional effectiveness, integrity, diversity, and openness as we seek significant research and education program growth.

If the project is linked to the Puget Sound Action Agenda, describe the impacts on the Action Agenda, including expenditure and FTE detail. See Chapter 14.4 (Puget Sound recover) in the 2017-2019 Operating Budget Instruction.

This project is not linked to the Puget Sound Action Agenda.

Is there additional information you would like decision makers to know when evaluating this request?

Completing this building to replace deficient facilities that do not meet modern biosafety and biosecurity standards will mean continued accreditation for the associated federal and state animal and zoonotic disease surveillance programs. The programs are also depend on extramural funding for operations and are part of national and state networks. In the past 10 years WADDL has generated over $10 million in extramural funding for emerging disease surveillance and detection. This was bolstered by its status as a founding member and Level 1 laboratory of the U.S. Department of Agriculture's National Animal Health Laboratory Network, one of only nine veterinary diagnostic laboratories in the Center for Disease Control's Laboratory Response Network for Bioterrorism and a founding member of the Food and Drug Administration Veterinary Laboratory Investigation and Response Network. The completion of this building will secure WSU's continued prominence in these national laboratory networks and their associated funding while expanding opportunities for global disease detection and surveillance. Our strategic priorities in the infectious diseases of livestock, particularly as they relate to global health, disease surveillance, and economic security will continue to align with program priorities for the U.S. Agency for International Development, the U.S. Department of Defense, the Bill and Melinda Gates Foundation, the Paul G. Allen Family Foundation, the Wellcome Trust and others. The Allen School recently received the Centers for Disease Control and Prevention Global Health Security Agenda funding of $5.1 million for enhancing zoonotic disease surveillance in Kenya. Completion of the construction of the Global Animal Health Building Phase II will allow WSU to more fully leverage large research grant and contract opportunities to remain on the front line of the nation's defense against foreign animal diseases, human diseased transmitted from animals (zoonotic diseases) and food-borne illnesses. * Refer also to the full capital project proposal document and supporting appendices.

Location
City: Pullman **County:** Whitman **Legislative District:** 009

OFM

365 - Washington State University
Capital Project Request
2019-21 Biennium

Version: 10 2019-21 WSU Capital Budget Request

Report Number: CBS002
Date Run: 7/30/2018 1:41PM

Project Number: 30001322
Project Title: Global Animal Health Building

Description

Project Type

New Facilities/Additions (Major Projects)

Growth Management impacts

WSU Pullman's physical planning policies are coordinated with many agencies and government units. The Growth Management Act and its companion Traffic Demand Management legislation and the State Environmental Policy Act, however, are applicable to WSU's physical facilities and programs. Growth Management Act (GMA)-WSU will coordinate with Counties and Municipalities throughout the State to ensure compliance with GMA. WSU will avoid construction or activities which would permanently impair "critical" areas on its campuses as they are defined in the GMA. Transportation Demand Management-A companion piece of legislation sets forth a policy for Transportation Demand Management in which the State of Washington will provide leadership. The Director of the State of Washington Department of General Administration (DGA) is required to develop a commute trip reduction plan for state agencies which are Phase I major employers WSU will conform to the plans developed by DGA. State Environmental Policy Act (SEPA)-WSU has adopted procedures set forth in the State Environmental Policy Act Handbook December 1988 and the State Environmental Policy Act Rules Chapter 197-11 Washington Administrative Code Effective April 4, 1984. Adherence to these procedures will be one of the principal means by which WSU coordinates its compliance with Growth Management requirements.

New Facility: Yes

How does this fit in master plan

Please See http://facilitiesservices.wsu.edu/resources/pdf/masterplan/pullman_masterplan.pdf

Funding

Acct Code	Account Title	Estimated Total	Expenditures Prior Biennium	Current Biennium	2019-21 Fiscal Period Reapprops	2019-21 Fiscal Period New Approps
057-1	State Bldg Constr-State	59,400,000		18,000,000	5,000,000	36,400,000
252-7	HI Ed N-Prop Lcl Cap-Private/Loca					
	Total	**59,400,000**	**0**	**18,000,000**	**5,000,000**	**36,400,000**

		Future Fiscal Periods 2021-23	2023-25	2025-27	2027-29
057-1	State Bldg Constr-State				
252-7	HI Ed N-Prop Lcl Cap-Private/Loca				
	Total	**0**	**0**	**0**	**0**

Schedule and Statistics

Start Date	End Date

OFM

365 - Washington State University
Capital Project Request
2019-21 Biennium

Version: 10 2019-21 WSU Capital Budget Request

Report Number: CBS002
Date Run: 7/30/2018 1:41PM

Project Number: 30001322
Project Title: Global Animal Health Building

Schedule and Statistics

	Start Date	End Date
Predesign		
Design	4/1/2017	7/1/2018
Construction	8/1/2018	2/1/2021

	Total
Gross Square Feet:	63,265
Usable Square Feet:	57,352
Efficiency:	90.7%
Escalated MACC Cost per Sq. Ft.:	569
Construction Type:	Research Facilities
Is this a remodel?	No
A/E Fee Class:	A
A/E Fee Percentage:	7.63%

Cost Summary

		Escalated Cost	% of Project
Acquisition Costs Total		**0**	**0.0%**
Consultant Services			
Pre-Schematic Design Services		950,000	1.6%
Construction Documents		2,774,387	4.5%
Extra Services		484,610	0.8%
Other Services		1,260,117	2.1%
Design Services Contingency		543,992	0.9%
Consultant Services Total		**6,013,106**	**9.8%**
Maximum Allowable Construction Cost(MACC)	**36,027,909**		
Site work		891,465	1.5%
Related Project Costs		0	0.0%
Facility Construction		35,136,444	57.3%
GCCM Risk Contingency		1,617,095	2.6%
GCCM or Design Build Costs		1,309,252	2.1%
Construction Contingencies		2,417,409	3.9%
Non Taxable Items		0	0.0%
Sales Tax		3,226,989	5.3%
Construction Contracts Total		**44,598,650**	**72.8%**
Equipment			
Equipment		6,086,906	9.9%
Non Taxable Items		0	0.0%
Sales Tax		474,779	0.8%

OFM

365 - Washington State University
Capital Project Request
2019-21 Biennium

Version: 10 2019-21 WSU Capital Budget Request

Report Number: CBS002
Date Run: 7/30/2018 1:41PM

Project Number: 30001322
Project Title: Global Animal Health Building

Cost Summary

	Escalated Cost	% of Project
Equipment Total	**6,561,684**	**10.7%**
Art Work Total	**180,140**	**0.3%**
Other Costs Total	**1,968,488**	**3.2%**
Project Management Total	**1,978,233**	**3.2%**
Grand Total Escalated Costs	**61,300,301**	
Rounded Grand Total Escalated Costs	**61,300,000**	

Operating Impacts

Total one time start up and ongoing operating costs

Acct Code	Account Title	FY 2021	FY 2022	FY 2023	FY 2024	FY 2025
FTE	Full Time Employee	5.5	5.7	5.7	5.7	5.7
001-1	General Fund-State	859,000	886,000	886,000	886,000	886,000
	Total	**859,000**	**886,000**	**886,000**	**886,000**	**886,000**

Narrative

Costs are based on calculated M & O rates by building type.

OFM

Capital Project Request

2019-21 Biennium

*

Parameter	Entered As	Interpreted As
Biennium	2019-21	2019-21
Agency	365	365
Version	10-A	10-A
Project Classification	*	All Project Classifications
Capital Project Number	30001322	30001322
Sort Order	Project Priority	Priority
Include Page Numbers	Y	Yes
For Word or Excel	N	N
User Group	Agency Budget	Agency Budget
User Id	*	All User Ids

STATE OF WASHINGTON

AGENCY / INSTITUTION PROJECT COST SUMMARY

Agency	Washington State University
Project Name	Global Animal Health Building
OFM Project Number	30001322

Contact Information	
Name	Louise Sweeney
Phone Number	509-335-4437
Email	lasweeney@wsu.edu

Statistics			
Gross Square Feet	63,265	MACC per Square Foot	$546
Usable Square Feet	57,352	Escalated MACC per Square Foot	$569
Space Efficiency	90.7%	A/E Fee Class	A
Construction Type	Laboratories (Research)	A/E Fee Percentage	7.63%
Remodel	No	Projected Life of Asset (Years)	50
Additional Project Details			
Alternative Public Works Project	Yes	Art Requirement Applies	Yes
Inflation Rate	3.12%	Higher Ed Institution	Yes
Sales Tax Rate %	7.80%	Location Used for Tax Rate	3812
Contingency Rate	5%		
Base Month	June-18		
Project Administered By	Agency		

Schedule			
Predesign Start		Predesign End	
Design Start	April-17	Design End	July-18
Construction Start	August-18	Construction End	February-21
Construction Duration	30 Months		

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Project Cost Estimate

Total Project	$58,980,649	Total Project Escalated	$61,300,310
		Rounded Escalated Total	$61,300,000

STATE OF WASHINGTON
AGENCY / INSTITUTION PROJECT COST SUMMARY

Agency	Washington State University
Project Name	Global Animal Health Building
OFM Project Number	30001322

Cost Estimate Summary

Acquisition			
Acquisition Subtotal	**$0**	**Acquisition Subtotal Escalated**	**$0**

Consultant Services			
Predesign Services	$950,000		
A/E Basic Design Services	$2,774,387		
Extra Services	$484,610		
Other Services	$1,206,315		
Design Services Contingency	$520,766		
Consultant Services Subtotal	**$5,936,077**	**Consultant Services Subtotal Escalated**	**$6,013,106**

Construction			
GC/CM Risk Contingency	$1,548,051		
GC/CM or D/B Costs	$1,253,352		
Construction Contingencies	$2,314,196	Construction Contingencies Escalated	$2,417,410
Maximum Allowable Construction Cost (MACC)	$34,523,207	Maximum Allowable Construction Cost (MACC) Escalated	$36,027,909
Sales Tax	$3,091,827	Sales Tax Escalated	$3,226,990
Construction Subtotal	**$42,730,633**	**Construction Subtotal Escalated**	**$44,598,656**

Equipment			
Equipment	$5,827,020		
Sales Tax	$454,508		
Non-Taxable Items	$0		
Equipment Subtotal	**$6,281,528**	**Equipment Subtotal Escalated**	**$6,561,685**

Artwork			
Artwork Subtotal	**$180,140**	**Artwork Subtotal Escalated**	**$180,140**

Agency Project Administration			
Agency Project Administration Subtotal	$1,623,771		
DES Additional Services Subtotal	$0		
Other Project Admin Costs	$0		
Project Administration Subtotal	**$1,893,771**	**Project Administation Subtotal Escalated**	**$1,978,234**

Other Costs			
Other Costs Subtotal	**$1,958,500**	**Other Costs Subtotal Escalated**	**$1,968,489**

Project Cost Estimate

Total Project	**$58,980,649**	Total Project Escalated	**$61,300,310**
		Rounded Escalated Total	**$61,300,000**

Cost Estimate Details

Acquisition Costs				
Item	Base Amount	Escalation Factor	Escalated Cost	Notes
Purchase/Lease	$0			
Appraisal and Closing				
Right of Way				
Demolition				
Pre-Site Development				
Other				
Insert Row Here				
ACQUISITION TOTAL	**$0**	**NA**	**$0**	

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Cost Estimate Details

Consultant Services				
Item	Base Amount	Escalation Factor	Escalated Cost	Notes
1) Pre-Schematic Design Services				
Programming/Site Analysis	$300,000			
Environmental Analysis				
Predesign Study				
PreConstruction	$650,000			
Insert Row Here				
Sub TOTAL	**$950,000**	**1.0000**	**$950,000**	Escalated to Design Start
2) Construction Documents				
A/E Basic Design Services	$1,939,379			69% of A/E Basic Services
Other	$835,008			
Insert Row Here				
Sub TOTAL	**$2,774,387**	**1.0000**	**$2,774,387**	Escalated to Mid-Design
3) Extra Services				
Civil Design (Above Basic Svcs)				
Geotechnical Investigation	$15,000			
Commissioning	$272,040			
Site Survey	$27,570			
Testing	$120,000			
LEED Services				
Voice/Data Consultant				
Value Engineering				
Constructability Review				
Environmental Mitigation (EIS)				
Landscape Consultant				
Interior Design	$50,000			
Insert Row Here				
Sub TOTAL	**$484,610**	**1.0000**	**$484,610**	Escalated to Mid-Design
4) Other Services				
Bid/Construction/Closeout	$871,315			31% of A/E Basic Services
HVAC Balancing				
Staffing	$240,000			
TSO 2 year	$75,000			
EHS	$20,000			
Sub TOTAL	**$1,206,315**	**1.0446**	**$1,260,117**	Escalated to Mid-Const.
5) Design Services Contingency				
Design Services Contingency	$270,766			
Consultant Contingency	$250,000			
Insert Row Here				
Sub TOTAL	**$520,766**	**1.0446**	**$543,992**	Escalated to Mid-Const.
CONSULTANT SERVICES TOTAL	**$5,936,077**		**$6,013,106**	

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Cost Estimate Details

Construction Contracts				
Item	**Base Amount**	**Escalation Factor**	**Escalated Cost**	**Notes**
1) Site Work				
G10 - Site Preparation	$341,017			
G20 - Site Improvements	$402,564			
G30 - Site Mechanical Utilities	$143,360			
G40 - Site Electrical Utilities				
G60 - Other Site Construction				
Other				
Insert Row Here				
Sub TOTAL	**$886,941**	**1.0051**	**$891,465**	
2) Related Project Costs				
Offsite Improvements				
City Utilities Relocation				
Parking Mitigation				
Stormwater Retention/Detention				
Other				
Insert Row Here				
Sub TOTAL	**$0**	**1.0051**	**$0**	
3) Facility Construction				
A10 - Foundations	$184,500			
A20 - Basement Construction				
B10 - Superstructure	$3,921,469			
B20 - Exterior Closure	$2,692,633			
B30 - Roofing	$627,963			
C10 - Interior Construction	$3,596,440			
C20 - Stairs				
C30 - Interior Finishes	$3,133,573			
D10 - Conveying	$365,000			
D20 - Plumbing Systems	$4,474,113			
D30 - HVAC Systems	$3,947,156			
D40 - Fire Protection Systems	$250,000			
D50 - Electrical Systems	$4,055,853			
F10 - Special Construction	$732,000			
F20 - Selective Demolition	$39,000			
General Conditions	$3,804,966			
Lab Equipment	$1,484,000			
Other Equipment	$327,600			
Sub TOTAL	**$33,636,266**	**1.0446**	**$35,136,444**	
4) Maximum Allowable Construction Cost				
MACC Sub TOTAL	**$34,523,207**		**$36,027,909**	

5) GCCM Risk Contingency				
GCCM Risk Contingency	$824,375			
Other	$723,676			
Insert Row Here				
Sub TOTAL	**$1,548,051**	**1.0446**	**$1,617,095**	
6) GCCM or Design Build Costs				
GCCM Fee	$857,350			
Bid General Conditions				
GCCM Preconstruction Services				
B&O, Bonds, Insurance	$396,002			
Insert Row Here				
Sub TOTAL	**$1,253,352**	**1.0446**	**$1,309,252**	
7) Construction Contingency				
Allowance for Change Orders	$1,726,160			
Other	$588,036			
Insert Row Here				
Sub TOTAL	**$2,314,196**	**1.0446**	**$2,417,410**	
8) Non-Taxable Items				
Other				
Insert Row Here				
Sub TOTAL	**$0**	**1.0446**	**$0**	
Sales Tax				
Sub TOTAL	**$3,091,827**		**$3,226,990**	
CONSTRUCTION CONTRACTS TOTAL	**$42,730,633**		**$44,598,656**	

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Cost Estimate Details

Equipment				
Item	Base Amount	Escalation Factor	Escalated Cost	Notes
E10 - Equipment	$3,480,000			
E20 - Furnishings	$1,500,000			
F10 - Special Construction	$500,000			
Lab Equipment	$97,020			
A/V	$250,000			
Sub TOTAL	**$5,827,020**	**1.0446**	**$6,086,906**	
1) Non Taxable Items				
Other				
Insert Row Here				
Sub TOTAL	**$0**	**1.0446**	**$0**	
Sales Tax				
Sub TOTAL	**$454,508**		**$474,779**	
EQUIPMENT TOTAL	**$6,281,528**		**$6,561,685**	

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Cost Estimate Details

Artwork				
Item	Base Amount	Escalation Factor	Escalated Cost	Notes
Project Artwork	$0			0.5% of Escalated MACC for new construction
Higher Ed Artwork	$180,140			0.5% of Escalated MACC for new and renewal construction
Other				
Insert Row Here				
ARTWORK TOTAL	**$180,140**	**NA**	**$180,140**	

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Cost Estimate Details

Project Management				
Item	Base Amount	Escalation Factor	Escalated Cost	Notes
Agency Project Management	$1,623,771			
Additional Services				
Onsite Supervision	$270,000			
Insert Row Here				
PROJECT MANAGEMENT TOTAL	**$1,893,771**	**1.0446**	**$1,978,234**	

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Cost Estimate Details

Other Costs				
Item	**Base Amount**	**Escalation Factor**	**Escalated Cost**	**Notes**
Mitigation Costs				
Hazardous Material Remediation/Removal				
Historic and Archeological Mitigation				
Facilities Support	$983,500			
Chiller tax	$300,000			
Avista utilities	$200,000			
Permitting	$475,000			
OTHER COSTS TOTAL	**$1,958,500**	**1.0051**	**$1,968,489**	

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C-100(2018)
Additional Notes

Tab A. Acquisition
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Tab B. Consultant Services
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Tab C. Construction Contracts
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Tab D. Equipment
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Tab E. Artwork
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Tab F. Project Management
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Tab G. Other Costs
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