



**Testimony to the Maryland General Assembly
Presented by
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I am pleased to provide testimony to the General Assembly for our FY 2019 capital budget request. We greatly appreciate the General Assembly's ongoing support of our capital requests, which is having a transformative impact on our campus and the state's economy.

Each of the four ongoing projects described in this testimony will significantly enhance the University's research, education, and innovation capabilities. Much of the work in these new facilities will contribute to the state's skilled workforce and its knowledge economy.

It is important to note that major gifts have leveraged each of these projects, significantly extending the value of the state's investment. Funding in the Governor's CIP for these four projects includes \$158 million in gifts and over \$107 million in institutional/Big Ten funds for ***a total of \$265 million of non-State funds which is 47 percent of the projects' costs.*** The State contribution is \$296 million which is 53 percent of the project cost. The donors are quite eager to see these projects concluded on schedule. Student and faculty anticipation is high, as well.

As in previous projects, the cutting-edge research and education these buildings support may translate into new private sector and federal partnerships. The University is now a major innovation hub in fields such as quantum computing—greatly enhanced by the General Assembly's previous capital support—and these new facilities will have a similar magnetic effect in areas such medical device development, traumatic brain injury, and virtual reality.

Thanks to your support, these projects continue to advance, their promise growing more evident with each passing day. We are partners with the General Assembly in constructing the state's future. The University deeply appreciates all that your support makes possible.

The ongoing projects are all the more critical because renovation needs and space shortages remain our greatest long-term programmatic and fiscal challenges.

Renovation Needs. In 2017, as follow up to deliberations of the State Capital Debt Affordability Committee regarding funding for facilities renewal, the State Treasurer requested an estimated cost

breakdown for overall renovation needs of state-supported facilities. We responded with an estimated need of \$2.1 billion to renovate the 7.7 million GSF of state-supported buildings and the exterior infrastructure on our main campus. This includes \$0.94 billion to address the facilities renewal needs of our buildings and exterior infrastructure and \$1.16 billion to address the programmatic and modernization needs of our buildings. Based on a facilities audit conducted in 2015, 18 percent of the space in our major state-supported buildings was deemed in poor condition, 52 percent in fair condition and 30 percent in good condition. We are addressing the spaces deemed in poor condition through a ten-year CIP and institutional facilities renewal plans. Improvements to Cole Field House, a building that was deemed to be in poor condition, are now underway and continued funding for this is in our FY 2019 CIP request. These improvements will repurpose the building and give it new significance and value. Of our state-supported space (5.4M NASF), one-third (1.8M NASF) has not had major renovation in more than 40 years. In some notable cases we have lost major faculty because of sub-par conditions.

Space Shortages. Based on State formulas, we currently have a shortage of 1.6M NASF of state-supported space which is 30 percent of our existing inventory of about 5.4M NASF. Roughly one half of this shortfall (0.8M NASF) is in research space. These space shortages are very significant and of great concern. Details regarding our space shortages are attached.

The projects recommended for funding this year are critically needed to help address both our space renewal and space shortage problems. The projects will also help advance the State's 55 percent college completion goal and the State's strategic goals for the economy and workforce, in particular in the STEM fields.

A. James Clark Hall (\$3.6M for Final Construction and Equipment)

Clark Hall will focus on the booming fields of bioengineering and biomedical device development, areas of critical importance to the state's economy. Research and innovations in lifesaving areas are already underway in the A. James Clark School of Engineering. Examples include biodegradable heart valves made from 3-D printers, surgical robots that can remove tough-to-reach brain tumors, and drug delivery systems that can prevent recurrence of malaria. This kind of research and innovation is expected to expand dramatically as a result of this building's construction. It is generating significant excitement among students and faculty.

Clark Hall will house labs, classrooms, meeting and maker spaces that will bring together students, faculty, medical practitioners, entrepreneurs and regulators to design and build the next generation of healthcare technologies, then deliver them to the marketplace. It will unite the many disciplines on campus involved in human health innovation, including biology, information technology and electrical and mechanical engineering. Designed with flexible classrooms and labs, the building will encourage interdisciplinary collaboration needed for success in these fields. Other features include optical and imaging labs focused on digital fabrication, rapid prototyping, 3-D printing, optics and bioinformatics. Clark Hall is expected to boost Maryland's economy through workforce training and creation of biomedical startups, while providing the space needed to rapidly grow the bioengineering program. Since its 2006 founding, the undergraduate program has swelled to 414 students. The building is also expected to facilitate increased opportunities for partnerships with federal agencies such as the Food and Drug Administration, and with the University of Maryland School of Medicine.

This building is made possible through gifts from two of Maryland's most prominent benefactors. The late engineer and construction executive A. James Clark has given \$15M towards the construction. His previous support includes a \$15M gift in 1994 to the engineering school that bears his name and \$30M in 2003 for undergraduate scholarships. Bioengineering pioneer Robert E. Fischell has committed \$6M, \$5M for the construction and \$1M for program support. His more than 200 medical patents include the first implantable insulin pump and the modern heart stent. Both the Fischell Department of Bioengineering and the Fischell Institute for Biomedical Devices, launched in 2005 by a \$31M gift from Fischell and his three sons, will move into Clark Hall.

Construction is substantially complete, and we are in the process of commissioning the building systems and equipping the facility. This final phase of funding is needed to complete the project and make it ready for occupancy. The Clark School is targeting occupancy by the fall 2018 semester.

New Cole Field House (\$7.3M for Planning and Construction)

This project will convert and expand Cole Field House to create a hub for innovation and a unique national model for integrating research, academics and athletics. It will repurpose an old, outdated building and give it vital currency. The New Cole Field House, home to the future Center for Sports Medicine, Health and Human Performance, will provide a real-world living laboratory where innovators, scientists, clinicians, athletes and trainers collaborate. Its interdisciplinary research will put leading experts in neuroscience, genomics, biomechanics, and other fields from UMD and UMB's School of Medicine onto the front lines of advanced study of the brain and nervous system. Its orthopedic clinic will bring leading-edge medical facilities to campus and the general community, allowing for the rapid translation of research into practice. The Terrapin Performance Center will provide a full-size indoor football field, two outdoor fields and advanced strength, conditioning and hydrotherapy centers, creating an athletic training facility unmatched in Division I sports. The building will also host programs of the Academy for Innovation and Entrepreneurship, preparing students for the competitive marketplace they will enter after graduation.

The programs in New Cole Field House will focus on traumatic brain injury (TBI). From the playing fields of the Big Ten to the battlefields of Iraq and Afghanistan, TBI has become a pressing medical issue. Yet those at risk aren't just athletes or soldiers – they are drivers navigating the highways, children turning cartwheels in the yard and the elderly navigating tricky stairs. The Center for Sports Medicine, Health and Human Performance will bring together the scientific expertise of UMD with the clinical faculties of the School of Medicine at UMB. It is the latest MPowering the State collaboration between UMD and UMB which is designed to leverage the strengths of the two institutions. Already, \$3 million has been invested to fund cross-university multidisciplinary studies in brain and behavior, and injury, recovery and enhancement. These studies will be significant and have potential for breakthrough discoveries. And research has shown that exercise, intermittent fasting and cognitive training have the capability to limit the consequences of brain injury and to facilitate recovery. Researchers at Cole, with its community of coaches, athletes, scientists and clinicians, will explore the details of these processes by creating enhanced diagnostic tools and using “big data” computing capabilities to map the brain's tangle of metabolic pathways and neuronal connections opening a window to a fuller understanding of the human brain.

This \$195.7M project will be funded from a combination of State funds, Big Ten revenues, private gifts, institutional funds and clinical revenues from the facility. Under Armour founder and CEO Kevin Plank helped launch the project with a \$25M gift and our fundraising target is \$90M. We completed and occupied the indoor practice field portion of this project last summer.

Brendan Iribe Center for Computer Science and Innovation (\$3.9M for Final Construction and Equipment)

The Brendan Iribe Center will keep UMD at the forefront of digital technology and innovation. It will provide a badly needed space for the highly-ranked Department of Computer Science and the University of Maryland Institute for Advanced Computer Studies (UMIACS) to teach, create, learn, and research. It will also host activities, programs, and workshops for the broader community.

STEM fields increasingly rely on big data analysis and computer science expertise. Fields such as cybersecurity and bioinformatics need highly educated advanced computer science talent more than ever before. Maryland and the National Capital Region has become a hot hub for technology companies with a growing need for employees. The number of undergraduate computer science majors has more than doubled in the past five years to about 3,000, and more than 250 students are pursuing a graduate degree in computer science. As a result, students are working in a maze of cubicles in four buildings spread across campus, and this is hurting our ability to recruit top faculty and graduate students. This project will bring our students, faculty and staff together in a world-class computer science facility and greatly improve our ability to help meet the increasing demand for a well-trained workforce in computer science and expand Maryland's economic development infrastructure. It will help fill the need for the highest-level expertise needed to spur innovation.

The Brendan Iribe Center will be located at the front gate of the university, highlighting Maryland's commitment to technology and education. This building will improve UMD's national profile and presence, mold future innovators and entrepreneurs, and spark economic vitality in Maryland and beyond. It will be a hub for cutting-edge computer science research and an incubator for technology and innovation. The building's design encourages collaboration, with an emphasis on state-of-the-art hacker/maker spaces and team breakout areas with access to new equipment and resources that enable students and faculty to bring their ideas to life in ways that were previously inaccessible. Specialized labs will support groundbreaking research in virtual reality, augmented reality, artificial intelligence, robotics, computer vision and human interaction. Students will have the opportunity to learn in classrooms designed specifically for interactive, collaborative and active learning. Hands-on training will successfully prepare them for the growing technology workforce.

Brendan Iribe pledged a lead gift of \$31M, \$30M for the building and \$1M for the academic programs. We are confident we will reach the \$38M targeted for the building.

Construction began in June 2016 and is on track for substantial completion by August 2018. This final funding is needed to complete construction, commission the systems and fully equip the building so it can be ready for occupancy. We are targeting occupancy by the spring 2019 semester.

New School of Public Policy Building (\$2M for Planning and Construction)

This new building will enable the School of Public Policy to meet its Strategic Plan goals for growth, which includes creating an undergraduate major in public policy, becoming a nationwide top-ten public policy program, increasing overall research and outreach activities and endowments, and infusing a culture of philanthropy across UMD through the Do Good Institute. This \$45M project leverages \$25M of private and institutional funds as well as additional private funds for operating support, and the State contribution is \$20M.

Since its creation in 1982, the School of Public Policy has become a superb professional school, fully integrating the teaching of professional practice with the best traditions of scholarly research and analysis. The School has graduated more than 2,200 Master's and Ph.D. students and has provided executive training to thousands more. Today, the School is ranked 31st among public policy/administration programs nationwide. It is distinguished by a stellar faculty, an integrated domestic and international affairs curriculum, and a program that emphasizes the confluence of the public, private and nonprofit sectors. With its Washington D.C. area location, at the intersection of media and public policy, and its unique comprehensive curriculum, the School of Public Policy has the potential to become one of the nation's top schools of public policy.

Over the past few years, UMD has created programs that engage all our 35,000 plus students in innovation and entrepreneurship experiences to prepare them to tackle the world's toughest problems. Much of these activities focus on bringing ideas and products to the marketplace. UMD now wants to engage all our students in social innovation and entrepreneurship. A key mission of the School of Public Policy is to infuse a culture of philanthropy across UMD to create the next generation of leaders and spur innovation in the field of philanthropy.

A donor has committed \$10M for the building as well as a significant endowment to support the School's programmatic needs and plans for growth. In addition, UMD will provide \$15M for the building from institutional funds.

Design is currently underway. The \$2M requested in FY 2019 is needed to continue design and begin construction.

STATE-SUPPORTED SPACE DEFICIENCY FACTS

Below are the current and projected space deficits on campus for state-supported facilities based on Fall 2016 data.

<u>MAJOR ROOM USES</u>	<u>Current</u> <u>FALL 2016</u> <u>Deficit (NASF)</u>	<u>Projected</u> <u>FALL 2026</u> <u>Deficit (NASF)</u>
Classrooms	(113,612)	(53,538)
Class Laboratories	(40,680)	(8,362)
Research Laboratories	(774,045)	(836,083)
Office	(112,966) (1)	(117,991) (1)
<i>Subtotal</i>	(1,041,303)	(1,015,974)
Study Spaces	(397,468)	(402,513)
Other Room Uses (2)	(175,262) (1)	(192,241) (1)
TOTAL	(1,614,033)	(1,610,728)

(1) Applied 61.4% to the total deficit which reflects the proportion of state-supported space on the main campus.

(2) Special Use, General Use and Support Facilities - e.g., lounge, storage

NOTE: Projections are predicated upon full funding of the USM Strategic Plan for fiscal years 2016 and beyond. In addition, the projections take into account the projects in the last Governor's 5-year CIP and the last USM 10-year CIP.

The total current inventory of state-supported space is 5,427,800 NASF (excludes leased space). This includes 4,700,529 NASF on the main campus and 727,271 NASF off-campus.

A. JAMES CLARK HALL



Construction substantially completed in December 2017, occupancy targeted for fall 2018.



Student innovation facility. The building is currently being commissioned and equipped.

NEW COLE FIELD HOUSE



Architect's rendering showing view from across Field House Drive.



Architect's rendering of Applied Biomechanics Lab.

BRENDAN IRIBE CENTER FOR COMPUTER SCIENCE AND INNOVATION



Architect's rendering showing view from Baltimore Boulevard at campus entrance.



Construction is well underway and on schedule for occupancy by the spring 2019 semester.

NEW SCHOOL OF PUBLIC POLICY BUILDING



Architect's rendering of lobby.

2018 Capital Budget Request
University of Maryland, College Park
Response to Department of Legislative Services Request for Information
Regarding the A. James and Alice B. Clark Foundation Investment

DLS Request for Information: While the donation offers an unprecedented opportunity to address campus facility goals, the impact on the State’s five-year planning process has yet to be recognized. It is very likely that the donation will result in requests for State support, and UMCP should be prepared to brief the committees on the anticipated amounts and timing of State support for projects incentivized by the donation.

Response: The A. James and Alice B. Clark Charitable Foundation's historic \$219 million investment in UMD includes funding for two capital construction projects. The benefits of these two projects to the A. James Clark School of Engineering, UMD and the State are well described in the DLS analysis, so our comments will focus on the question of State support.

The Innovate, Design and Engineer for America (IDEA) Building *will not require any State capital funds.* This \$50 million building will be funded by the University of Maryland, College Park through private donations consisting of \$25 million from the Clark Foundation investment and \$25 million from other donors. Another donor has signed a gift agreement of \$10 million and we have received additional smaller donations bringing us to a total of about \$40 million raised to date. We are extremely confident we will soon raise the balance needed and are moving forward on an aggressive timeline. We are targeting design start in July 2018 and substantial completion of construction by March 2021.

The New Engineering Facilities could include up to \$55 million from the Clark Foundation investment, which will be leveraged with State and institutional funds, to construct modern facilities for the Clark School. As noted in the analysis, we are currently developing long-term capital needs for the Clark School. *We hope to soon finalize the scope, cost and schedule for this project and look forward to working with the State to develop a funding plan which will include a State contribution.* We are very excited to take advantage of this historic investment in UMD and the State to address the pressing facilities needs of the Clark School through new capital construction.