



**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 2017 capital budget request. We greatly appreciate the General Assembly's ongoing support of our capital requests, and it is having a transformative impact on our campus and the state's economy.

Each of the four ongoing construction 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. Careful design has maximized their efficiency. The donors are quite eager to see these projects concluded on schedule. Student and faculty anticipation is high, as well.

As in previous construction 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 under construction will have a similar magnetic effect in fields such as virtual reality and medical device development.

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

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

Space Renewal. Last year we completed a facilities audit and updated our estimated deferred maintenance backlog. Our deferred maintenance backlog is \$907M. This includes \$738M for our state-supported buildings and \$169M for our exterior infrastructure such as roads, sidewalks,

exterior lighting and underground utilities. One-sixth of the space in our major state-supported buildings is in poor condition, one-half is in fair condition and one-third is in good condition. We are addressing the space in poor condition through our ten-year CIP and institutional facilities renewal plans. Cole Field House, a building in poor condition, is in our FY 2017 CIP request. Of our state-supported space (5.4M NASF), one-half (2.7M NASF) has not had major renovation for more than 40 years. Additionally, we have almost two-thirds (2.1M NASF) of the USM state-supported space that was originally built more than 50 years ago. This is more than the total amount of state-supported space of all ages at every other USM institution except UMB which has a total of 2.2M NASF of state-supported space.

Space Shortages. Based on State formulas, we currently have a shortage of 1.6M NASF of state-supported space. This is almost the size of the entire UMBC campus (2.2M NASF). Looking at it another way, we are about 23 buildings short of state-supported space. A large portion of this shortfall is in research space. We are currently 983 research labs (0.9M NASF) short of space. With an existing inventory of about 5.4M NASF of state-supported space, these space shortages are very significant. Detail regarding our space shortages is 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.

## **Edward St. John Learning and Teaching Center (\$5.1M for Final Construction and Equipment)**

This building will provide high-impact improvements to our instructional facilities and enhance our ability to help meet the State's 55 percent college completion goal and the State's strategic goals for the economy and workforce. The Edward St. John Learning and Teaching Center will provide nine technology-enabled general purpose classrooms, seven small seminar rooms and support space. In addition, it will provide nine general chemistry class labs, four classrooms and support space for the Department of Chemistry and Biochemistry. This building will provide state-of-the-art improvements that will benefit almost every one of our 25,000 undergraduate students, who we expect will take more than one class in this new facility during their stay at UMD.

Many of our existing classrooms are woefully sub-standard. For example, we are still teaching classes in a 60-year old former rifle range which has low ceilings that prevent the installation of modern computer and A/V equipment, and columns in the seating area that block the view of the chalkboard. The nine general chemistry class labs will replace six general chemistry class labs in the Chemistry Building that are woefully inadequate. Maryland high schools have better labs than many of ours in the Chemistry Building. It will also provide additional class labs and classrooms to accommodate projected student growth in this vital STEM field. The chemistry class labs and classrooms will not only serve students majoring in Chemistry or Biochemistry, but also students in many other majors across campus such as Engineering and Animal Sciences that require introductory chemistry courses. Over 80 percent of the credit hours taught by the Department of Chemistry and Biochemistry are to students in other majors.

Construction began on this project in June 2014, and we are on schedule to complete the building by December 2016. We urge you to fully fund our FY 2017 request so that we complete this vitally important project as scheduled.

## **A. James Clark Hall (\$69.95M for Construction)**

Clark Hall will focus on the booming fields of bioengineering and biomedical device development. 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 dramatically expand with the construction of this building.

Clark Hall will house labs, classrooms and meeting and maker spaces that will bring together students, faculty, medical practitioners, entrepreneurs and regulators to design and build the next generation of health-care technologies, then get them into the marketplace. It will unite the many disciplines on campus involved in human health innovation, including biology, information technology and electrical and mechanical engineering. The building will feature flexible classrooms and labs to spur an organic flow of ideas between disciplines. 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 making more room for the rapidly growing bioengineering program. Since its 2006 founding, the undergraduate program has grown 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. Engineer and construction executive A. James Clark has given \$15M towards the construction. His previous support includes a \$15M gift to the engineering school in 1994 that bears his name and \$30M in 2003 for undergraduate scholarships. Clark Hall will be the 27<sup>th</sup> structure built by Clark Construction on the UMD campus. 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.

Mr. Clark's estate and Dr. Fischell are anxious to see this building completed as quickly as possible. We began construction in June 2015 and are scheduled to complete the building in June 2017. The annual funding amounts from FY 2017 to FY 2019 in the Governor's CIP support our construction schedule. We urge you to fund the project as requested so that we may complete the project on schedule and meet the expectations of two of our greatest and most generous supporters.

## **New Cole Field House (\$3M for Planning and Construction)**

This project will convert and expand Cole Field House to create a hub for innovation and a national model for integrating research, academics and athletics. The building will house a new Center for Sports Medicine, Health and Human Performance, a new venue for the Academy for Innovation and Entrepreneurship and a Terrapin Performance Center which will include a full size indoor football field and new training facilities. The New Cole Field House will be a signature project for the entire institution where students from across campus will have opportunities to take new courses, explore their boldest ideas and create new companies.

The creation of the Center for Sports Medicine, Health and Human Performance will bring together experts from UMD's A. James Clark School of Engineering, School of Public Health, College of Agriculture and Natural Resources, Department of Intercollegiate Athletics and the University of Maryland Baltimore's School of Medicine to push the boundaries of human physiology and potentially redefine how we move. The Center will explore questions such as: does an ROTC student have a running gait that makes him susceptible to injury; how can a robotic glove improve hand rehabilitation for stroke victims; and how do changes in nutrition affect a "weekend warrior's" performance. The Center will include clinical space to treat people in the Washington D.C region, and research space dedicated to studying areas such as concussion and traumatic brain injury, muscle-brain physiology and biochemistry, and exoskeleton-robotic treatments.

The Academy is focused on nurturing innovation and entrepreneurship creativity among all our 37,000 students and will be located in the new St. John Center and in Cole Field House. The Academy at Cole Field House will expand the more than 100 innovation and entrepreneurship courses already offered each year at UMD, will serve as a clearinghouse for experiential learning opportunities, and will house an Innovation Shell which is a hybrid incubator-classroom space where students can bring their ventures to life.

The Terrapin Performance Center will be the premier athletic training facility in Division I sports. It will include an indoor, all-season, regulation-size practice field under Cole's iconic domed roof, an adjacent strength and conditioning facility, two outdoor practice fields, team meeting space, coaches' offices and locker facilities. These world-class practice, training and strength and conditioning facilities as well as expansive meeting space will provide UMD's student-athletes with a competitive advantage as new members of the Big Ten Conference.

This \$155M project will be funded from \$25M of State funds, \$25M of Big Ten revenues, and \$105M from a combination of 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. We have received \$44.75M in donor pledges so far and are working hard to secure more. We began construction of a portion of this project, the indoor practice field, in December 2015 and are scheduled to complete it by April 2017.

**Request for Comment in the Capital Budget Analysis:** The Analysis states the following. UMCP plans to raise \$90 million in private donations; however, given the nature of donations in which it can take three to five years before the institution actually receives the funds, UMCP will receive a bridge loan from the University System of Maryland starting in fiscal 2017, which could total \$90M. To date, UMCP has raised approximately \$45 million. **The President should comment on what funds will be used to pay back the bridge loan if they fall short of raising \$90 million in private donations.**

**Response:** This is a historic effort for the University of Maryland. The total fundraising goal for this project exceeds any in the University's history by far. We are pleased that the amount raised to date for the New Cole Field House has already surpassed the dollars raised in private support for any prior capital project. We are half way to the goal and progressing on pace. In the unlikely event we do not reach \$90 million in private support, we have planned to use athletic department earnings primarily derived from the Big Ten agreement.

## **Brendan Iribe Center for Computer Science and Innovation (\$27M for Construction)**

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

STEM fields are relying more heavily on big data analysis and computer science expertise. Fields such as cybersecurity and bioinformatics need highly educated computer science talent more than ever before. The National Capital Region, including Maryland, has become a hub for technology companies with a growing need for employees. Undergraduate computer science majors have more than doubled in the past five years to over 2,000, and more than 200 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.

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, which is the largest single gift for a building in the history of UMD. Currently, UMD has a total of almost \$37M in pledges for the building, and is confident that it can raise the additional \$1M to reach the \$38M targeted.

We began design in January 2015 and are on schedule to begin construction in June 2016 with completion by June 2018. The funding schedule in the Governor's CIP supports our construction schedule. Our donors expect this building to be completed as quickly as possible, and we urge you to fund this project as requested.

## STATE-SUPPORTED SPACE DEFICIENCY FACTS

Below are the current and projected space deficits on campus for state-supported space based on Fall 2014 data.

<u>MAJOR ROOM USES</u>	<u>Current FALL 2014 Deficit (NASF)</u>	<u>Projected FALL 2024 Deficit (NASF)</u>
Classrooms	(89,112)	(23,637)
Class Laboratories	(44,460)	7,803
Research Laboratories	(884,673)	(1,272,839)
Office	(129,569) (1)	(126,563) (1)
<i>Subtotal</i>	(1,147,814)	(1,415,236)
Study Spaces	(369,545)	(412,406)
Other Room Uses (2)	(118,693) (1)	(82,771) (1)
<b>TOTAL</b>	<b>(1,636,052)</b>	<b>(1,910,413)</b>

(1) Applied 62% 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 2014 and beyond. In addition, the projections take into account the projects in the last Governor's CIP.

**The total current inventory of state-supported space is 5,441,246 NASF (excludes leased space). This includes 4,725,526 NASF on the main campus and 715,720 NASF off-campus.**

**The current state-supported space deficit (1.6M NASF) is almost the size of the UMBC campus (2.2M NASF).**

**Looking at it another way, we are currently about 23 buildings short of state-supported space and this shortfall is projected to grow to 27 buildings by 2024 (based on building size of 70,000 NASF, about the size of the Bioscience Research Building).**

**We are currently 983 research labs short of space, and this shortfall is projected to grow to 1,414 research labs by 2024 (based on average lab size of 900 NASF).**

## EDWARD ST. JOHN LEARNING AND TEACHING CENTER



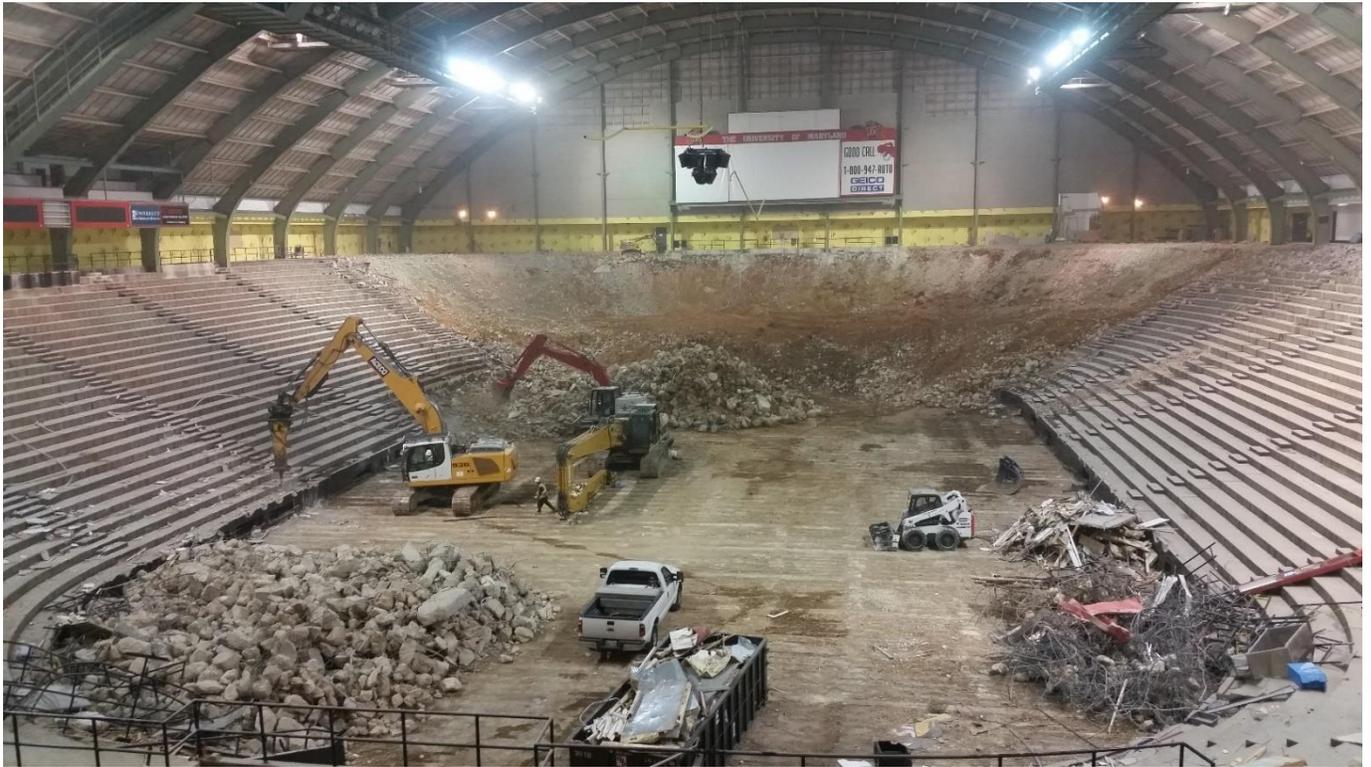
Construction began in June 2014 and is well underway, scheduled to be completed in December 2016.

## A. JAMES CLARK HALL



Construction began in June 2015 and is about 25 percent complete, scheduled to be completed in June 2017.

## NEW COLE FIELD HOUSE



The seating has been removed and demolition is underway to convert the former basketball arena into an Indoor Practice Facility. Construction of the Indoor Practice Facility began in December 2015 and is scheduled to be completed in April 2017.

## **BRENDAN IRIBE CENTER FOR COMPUTER SCIENCE AND INNOVATION**



Rendering showing view from Baltimore Boulevard at campus entrance. Design is well underway and construction is scheduled to begin in June 2016 with completion in June 2018.