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 2018 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 three 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 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 areas 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 with the General Assembly in constructing the state's future. The University deeply appreciates all that your support 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. In 2015, we completed a facilities audit and updated our estimated deferred maintenance backlog to be $907M. This included $738M for our state-supported buildings and $169M for exterior infrastructure such as roads, sidewalks, exterior lighting and underground utilities. One-sixth of the space in our major state-supported buildings was deemed in poor

condition, one-half in fair condition and one-third is 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 2018 CIP request. Of our state-supported space (5.4M NASF), one-third (1.6M 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 1.7M NASF of state-supported space. A large portion of this shortfall (0.9M NASF) is in research space. With an existing inventory of about 5.4M NASF of state-supported space, these space shortages are very significant. 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 ($30.45M for 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 dramatically expand with the construction of this building.

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. The building will feature flexible classrooms and labs that spur an organic flow of ideas across 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 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. 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.

New Cole Field House ($8.77M for Planning, Construction and Equipment)

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. The building will house a new Center for Sports Medicine, Health and Human Performance, a new venue for the Academy for Innovation and Entrepreneurship (AIE) 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 research programs in biology, public health, engineering, psychology and other related areas with UMD's 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. Dedicated research space will permit study in areas such as concussion and traumatic brain injury, muscle-brain physiology and biochemistry, and exoskeleton-robotic treatments.

AIE is focused on nurturing creative innovation and entrepreneurship among all our 37,000 students and will be located in both the new St. John Center and 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, strength, and conditioning facilities, as well as needed 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. Since then additional commitments of more than $28M have been secured, bringing the fundraising total to over $53M. We are working hard to secure more and are in active discussions on gifts totaling more than $41M, plus $625K verbally confirmed. We began construction of a portion of this project, the indoor practice field, in December 2015 and are scheduled to complete it by May 2017.

Brendan Iribe Center for Computer Science and Innovation ($73.65M for Construction and Equipment)

The Brendan Iribe Center will keep UMD at the forefront of technology and innovation. It will provide a badly needed 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 2,500, 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. Since then, about $6M in additional gifts for the building have been secured bringing the fundraising total to nearly $37M. We are confident we will reach the $38M targeted for the building.

Construction began in June 2016 and is on track for completion it 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 facilities based on Fall 2015 data.

MAJOR ROOM USES	Current FALL 2015 Deficit (NASF)		Projected FALL 2025 Deficit (NASF)	
Classrooms	(106,420)		(32,058)	
Class Laboratories	(54,196)		(5,146)	
Research Laboratories	(924,768)		(1,317,320)	
Office	(136,669)	(1)	(125,204)	(1)
Subtotal	(1,222,053)		(1,479,728)	
Study Spaces	(351,726)		(413,067)	
Other Room Uses (2)	(168,616)	(1)	(178,158)	(1)
TOTAL	**(1,742,395)**		**(2,070,953)**	

(1) Applied 61.5% 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 2015 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 5,415,122 NASF (excludes leased space). This includes 4,693,093 NASF on the main campus and 722,030 NASF off-campus.

A. JAMES CLARK HALL

Architect's rendering showing view from across Paint Branch Drive.

Construction is approaching completion and is on schedule to be completed in June 2017.

NEW COLE FIELD HOUSE

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

View from across Field House Drive. Conversion of the former basketball arena into an Indoor Practice Facility is well underway and is scheduled to be ready for use by July 2017.

BRENDAN IRIBE CENTER FOR COMPUTER SCIENCE AND INNOVATION

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

Foundation work is well underway and the building is on schedule for completion by June 2018.