



**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 2022 capital budget request. We greatly appreciate the General Assembly's ongoing support of our capital requests, which is transforming our campus and the state's economy. Together, we are constructing the state's future. The University deeply appreciates all that your support makes possible.

We have two projects in our capital request this year. One project, Chemistry Building Wing 1 Replacement, will provide new and improved space that significantly enhances the University's research, education, and innovation capabilities. Much of the work in this space will contribute to the state's skilled workforce and its knowledge economy. The second project, Campuswide Building System and Infrastructure Improvements, will replace failing infrastructure and help prevent major service interruptions, improve safety and reduce ongoing maintenance costs.

As in previous projects, the cutting-edge research and education the chemistry space supports may translate into new private sector and federal partnerships. For example, the University is now a major innovation hub in fields such as quantum computing and artificial intelligence—greatly enhanced by the General Assembly's previous capital support. These facilities will have a similar magnetic effect attracting talent and investment to spur innovation in the fields of energy, sustainability and health.

Facilities renewal needs and space shortages remain our greatest long-term programmatic and fiscal challenges.

Facilities Renewal Needs. We have an estimated facilities renewal need of over \$1 billion on our main campus: \$0.8 billion for the 8.3 million GSF of state-supported buildings and \$0.3 billion for the exterior infrastructure such as roads, sidewalks and underground utilities. We are addressing the most critical needs through ten-year CIP and institutional facilities renewal plans. Both of our CIP projects this year address facilities renewal. One project seeks to renovate and replace portions of the Chemistry Building, a facility in very poor condition. The other project requests \$10M to renew failing infrastructure. 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 1.5M NASF of state-supported space which is 26 percent of our existing inventory of about 5.7M NASF. Roughly one half of this shortfall (0.7M NASF) is in research space. These space shortages are very significant and of great concern. The proposed new Interdisciplinary Engineering Building, which is in the out-years of the five-year CIP, will help address these shortages. Details regarding our space shortages are attached.

The two projects recommended for funding this year are critically needed to help address our space renewal problems, and the out-year project is critically needed to help address our space shortage problems. These projects will also help advance the state's strategic goals for the economy and workforce, as well as the 55 percent college completion goal.

## **Chemistry Building Wing 1 Replacement (\$45.2M for Construction)**

This project will renovate and upgrade parts of the 69-year-old Chemistry Building to provide modern research and office space and to demolish and replace Wing 1 with a new structure outfitted with state-of-the-art research laboratories. It will enhance the ability of the Department of Chemistry and Biochemistry to partner with government and industry in pursuit of new technologies in the fields of energy, sustainability and health.

Among the most promising discoveries and technologies this new facility will support: safer *batteries* with much greater capacity yet smaller size, for use in health care, defense, and the alternative energy industry; better and cheaper *water purification devices* for parts of the world where potable water is becoming scarce; *smart textiles* and fabrics that can monitor the health of the wearer; and *new nanomaterials* that deliver and concentrate drugs directly at the disease targets, for increased effectiveness in treating cancer, arthritis and other diseases.

The upgraded and new facilities will also transform chemistry teaching from the traditional lecture/lab to a research-based approach. Students will investigate real world problems guided by faculty and industry partners (who will also conduct translational research in the same building as the instructional labs). This will increase learning and help produce better trained graduates for Maryland's workforce.

The existing research and teaching facilities are woefully outmoded, with very inadequate humidity and temperature control, limited control of chemical fumes, and inefficient design. This has resulted in faculty either foregoing certain explorations or seeking off-campus labs willing to support their research. These conditions create obstacles to discovery, and top faculty are leaving UMD for better-equipped universities. This project is needed to expand the types of research that can be conducted in the building and recruit and retain top faculty and students.

Renovation of portions of the existing building are nearing completion. Design of the replacement wing is also nearing completion and we anticipate beginning construction late spring/early summer of this year. The \$45.2M requested in FY 2022 is needed to continue construction.

## **Campuswide Building Systems and Infrastructure Improvements** **(\$10M for Planning and Construction)**

This program provides UMD annual capital funds to help address a portion of our tremendous facilities renewal need, which is estimated at over \$1 billion. \$5M of state funds was provided in 2011 and \$10M (\$5M of State funds and \$5M of USM Academic Revenue Bonds) was provided from 2012 to 2015. In order to accommodate other priorities in the CIP, no funds were provided from 2016 to 2019. Funding resumed in 2020. We are extremely grateful to the General Assembly and USM for their past support of this critical need and urge the General Assembly to continue annual funding this year.

This multi-phased project addresses needs in two general categories, buildings and exterior infrastructure. The building category includes systems such as electrical gear, fire protection systems, HVAC equipment and elevators. Infrastructure includes work outside buildings such as underground utilities, roads, bridges, stormwater management ponds and exterior security lighting. This work is critically needed to improve safety and protect lives, prevent major service interruptions and reduce on-going maintenance and repair costs.

Aging and inadequate HVAC and electrical systems limit the type of research that can be conducted, interfere with instruction, and hinder our ability to meet our strategic goals. Failing exterior lighting can compromise the safety of pedestrians and vehicles. Failing storm drain lines can result in exterior flooding, disrupting university operations. Failing roofs can result in interior flooding which can damage parts of buildings and equipment and disrupt university operations, as well as pose safety issues for building occupants. Failing elevators can trap passengers and compromise their safety.

Last year this program focused on critical exterior infrastructure needs. This year we plan to address a combination of building infrastructure and exterior infrastructure needs. Building infrastructure work will include upgrading HVAC systems to improve indoor air quality, temperature and humidity control and energy efficiency and replacing a failing laboratory water purifying system to enhance the ability of researchers to conduct experiments. Exterior infrastructure work will include replacing failing street lighting to enhance safety and security, repairing failed stormwater management infrastructure to avoid flooding during heavy rains, and upgrading domestic water infrastructure to take leaking pipes out of service and improve reliability.

## STATE-SUPPORTED SPACE DEFICIENCY FACTS

Below are the current and projected space deficits on campus for state-supported facilities based on Fall 2019 data.

<b><u>MAJOR ROOM USES</u></b>	<b><u>Current FALL 2019 Deficit (NASF)</u></b>	<b><u>Projected FALL 2029 Deficit (NASF)</u></b>
Classrooms	(57,930)	(55,108)
Class Laboratories	16,799	13,230
Research Laboratories	(739,174)	(722,199)
Office	(122,016) (1)	(166,737) (1)
<i>Subtotal</i>	(902,321)	(930,814)
Study Spaces	(375,941)	(301,497)
Other Room Uses (2)	(183,342) (1)	(250,468) (1)
<b>TOTAL</b>	<b>(1,461,604)</b>	<b>(1,482,779)</b>

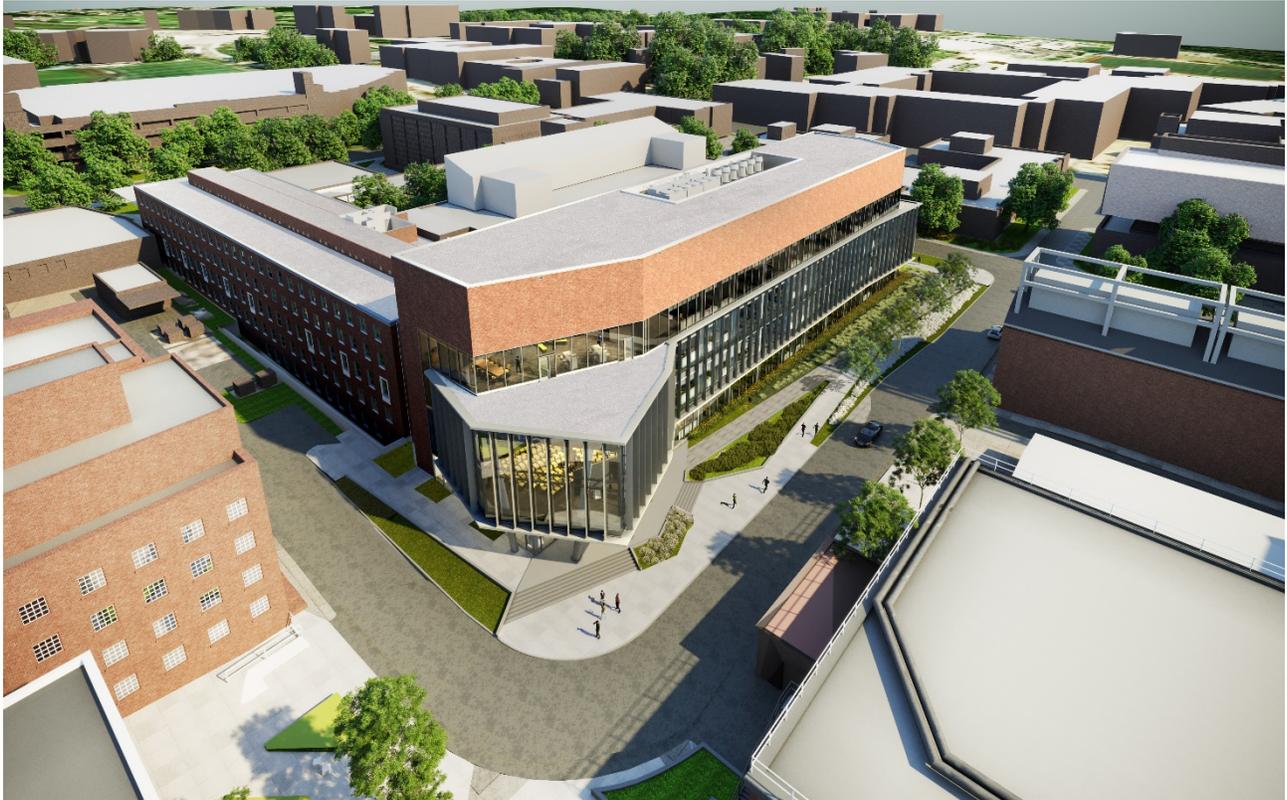
(1) Applied 62.7% to the total deficit which reflects the proportion of state-supported space on the main campus.

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

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

**The total current inventory of state-supported space is 5,678,333 NASF (excludes leased space). This includes 4,929,795 NASF on the main campus and 748,538 NASF off-campus.**

## CHEMISTRY BUILDING WING 1 REPLACEMENT



Architect's rendering of the replacement wing.