



**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 2024 capital budget request. We 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.

We have three projects in our capital request this year. Two projects, Chemistry Building Wing 1 Replacement and the Interdisciplinary Engineering Building, will provide new and improved space that significantly enhances the University's research, education, and innovation capabilities. Much of the work in these spaces will contribute to the state's skilled workforce and its knowledge economy. The third 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 supported by the chemistry and engineering spaces will 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 on talent and investment, spurring advancements in fields including energy, sustainability, health, transportation and unmanned vehicle systems.

Facilities renewal needs and space shortages remain our greatest long-term programmatic and fiscal challenges. These projects are essential to advancing the state's strategic goals for the economy and workforce, as well as achieving the 55 percent college completion goal.

Facilities Renewal Needs

We have an estimated facilities renewal need of \$1.2 billion on our main campus: \$900 million for the 8.5 million GSF of state-supported buildings and \$300 million for 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.

Two 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 \$12.5M 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 1.35M NASF of state-supported space, 0.85M NASF of which is in research space. The proposed new Interdisciplinary Engineering Building will help address this. Further details regarding our space shortages are attached.

Chemistry Building Wing 1 Replacement (\$9.43M for Construction and Equipment)

This project will renovate and upgrade parts of the 70-year-old Chemistry Building to provide modern research and office space and 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 innovative 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 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 is completed, the existing Wing 1 has been demolished and construction of the replacement is well underway. The \$9.43M requested in FY 2024 is needed to complete construction and equipping of the replacement wing.

Campuswide Building Systems and Infrastructure Improvements **(\$12.5M for Planning and Construction)**

This program provides UMD with annual capital funds to help address a portion of our tremendous facilities renewal need, which is estimated at \$1.2 billion. In 2011, \$5M of state funds was provided and \$10M (\$5M of State funds and \$5M of USM Academic Revenue Bonds) was provided from 2012-15. In order to accommodate other priorities in the CIP, no funds were provided from 2016-19. 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 such as underground utilities, roads, bridges, storm water management ponds and exterior security lighting. This 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 that can damage parts of buildings and equipment and disrupt university operations, as well as pose safety issues for building occupants; and failing elevators can trap passengers and compromise their safety.

A total of \$12.5M is proposed for this program in FY 2024. We intend to use \$3.85M to continue an on-going effort to renew building systems in the three-floor south wing of Cole Student Activities Building, much of which remains unchanged since being built in the 1950's and is currently underutilized. Spaces have no air-conditioning, restrooms are the original locker room style, much of the mechanical and electrical systems date to the original construction, and there are no fire sprinklers or elevator. We will use \$4.2M to replace failing heating, cooling, domestic water and sanitary piping in parts of campus. And we will use \$4.45M to replace mechanical equipment in the AV Williams Building and Avrum Gudelsky Veterinary Center to provide adequate and reliable cooling to support important research and educational activities.

Interdisciplinary Engineering Building (\$31.21M for Planning and Construction)

This project leverages \$55M of donor funds, coupled with a State contribution of \$159.4M, to construct a \$214.4M state-of-the-art engineering building. The building will house the Department of Civil and Environmental Engineering and elements of other departments in the Clark School of Engineering. It will also include space for collaboration with institutional and industrial partners, including the Center for Advanced Transportation Technology, and spaces for identity-based student organizations including the Society of Hispanic Professional Engineers, Society of Women Engineers and Black Engineers Society. It will enhance the University's ability to meet its strategic goals for growth of its engineering programs, secure sponsored research opportunities and contribute to the economic growth of the State and region.

Last fall Stanley R. Zupnik, a 1959 alum of the Clark School who has been contributing to UMD for almost 40 years, made a \$25M pledge for this building. The majority will go toward long-term support for academic programs within the building and a portion will help fund its construction. The building has been named Stanley R. Zupnik Hall.

Zupnik Hall will enhance the University's ability to produce more well-qualified engineers for Maryland's workforce and help spur innovation in Maryland's defense, construction, manufacturing, and cybersecurity industries as well as the emerging fields of energy, transportation and unmanned vehicle systems. In the United States jobs for civil and environmental engineers are expected to increase 10% by 2026, and by 9% for mechanical engineers. With this building, the University expects to increase undergraduate majors in these fields by 15% and graduate majors by 29% by 2030 to help meet this demand. In addition, the building will support a projected 25% increase in the number of invention disclosures, patents, and licensing agreements as well as approximately 25 new start-up companies over the next decade.

The Clark School of Engineering's 2018 Academic Facilities Plan concluded that the Clark School needs an additional 223,000 NASF over the next 20 years in order to be competitive with its peers. The University overall has a space deficit of 1.35M NASF, with 0.7M NASF of that in research space, and cannot currently accommodate this growth.

Zupnik Hall will add almost 37,000 NASF of modern research space to the campus inventory, enhancing the ability of faculty to secure research grants. Total research expenditures of the programs associated with this project are projected to grow from \$56M in FY 2020 to \$86.8M in FY 2030.

We awarded a design/build contract in December 2021, awarded early site/utility work in December 2022, and expect to start construction of the building foundations and structure this fall. The \$31.2M requested in FY 2024 is needed to complete design and continue construction.

Department of Legislative Service Request for Comment

The Department of Legislative Services has asked for comment on whether the established budget is sufficient to complete the Interdisciplinary Engineering Building project.

This project is budgeted in the CIP at \$214.4M, with \$55M of donor funds and \$159.4M of state funds. The CIP includes state funds for this project from FY 2024 to FY 2027. The \$31.2M requested in FY 2024 is sufficient. However, we project needing additional state funds in future years.

The \$214.4M budget was based on the pre-design cost estimate. We have contracted with a design/build team and design is underway. The construction market continues to be volatile and unpredictable, with high costs, and it is difficult to predict the costs of projects in advance of receiving bid prices. Our design/build team is predicting that this project will be up to \$30M over budget, but this is only a preliminary estimate. We will have more confidence in updated cost estimates in the fall, after we receive bid prices for the building foundation and structural components. In order to mitigate the need for additional state funds we plan to value engineer \$4M from the project, explore if some building features could become out-of-budget alternates, and pursue additional donor funds. We are hopeful that our need for additional state funds will be less than \$30M.

STATE-SUPPORTED SPACE DEFICIENCY FACTS

Below are the current and projected space deficits on campus for state-supported facilities based on Fall 2021 data.

| <u>MAJOR ROOM USES</u> | <u>Current</u> <u>FALL 2021</u> <u>Deficit (NASF)</u> | <u>Projected</u> <u>FALL 2031</u> <u>Deficit (NASF)</u> |
|-------------------------------|--|--|
| Classrooms | (98,777) | (76,072) |
| Class Laboratories | 25,961 | 28,517 |
| Research Laboratories | (855,940) | (1,064,754) |
| Office | (50,377) (1) | (126,962) (1) |
| <i>Subtotal</i> | (979,133) | (1,239,271) |
| Study Spaces | (390,428) | (450,433) |
| Other Room Uses (2) | (110,997) (1) | (215,199) (1) |
| TOTAL | (1,351,895) | (1,904,903) |

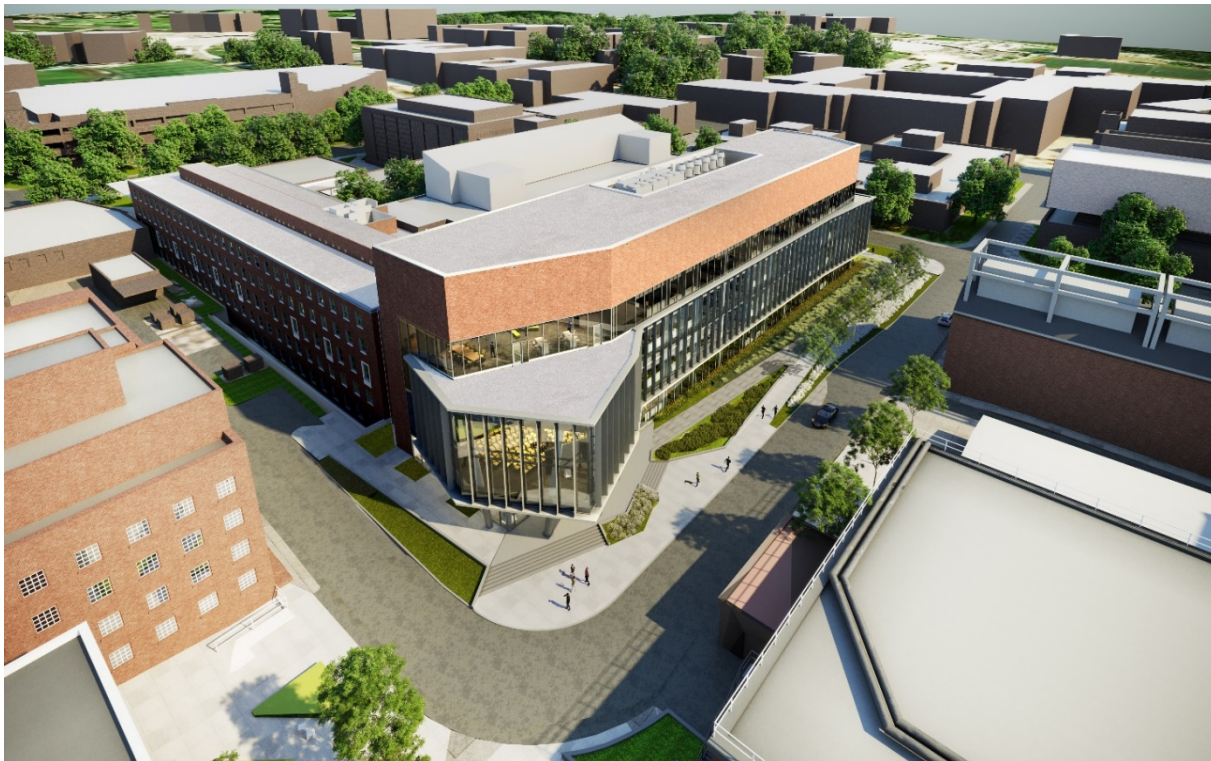
(1) Applied 62.9% to the total deficit which reflects the proportion of state-supported space on the main campus.

(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 include the projects in the last Governor's five-year CIP.

The total current inventory of state-supported space is 5,934,896 NASF (excludes leased space). This includes 5,140,271 NASF on the main campus and 794,625 NASF off-campus.

CHEMISTRY BUILDING WING 1 REPLACEMENT



Architect's rendering of the replacement wing



Construction activity (February 2023)

INTERDISCIPLINARY ENGINEERING BUILDING (ZUPNIK HALL)



Architect's rendering of the building