RB22
University of Maryland, College Park Campus – Capital
University System of Maryland

Capital Budget Summary

State-owned *Capital Improvement Program*
($ in Millions)

Projects	Prior Auth.	2021 Request	2022 Est.	2023 Est.	2024 Est.	2025 Est.	Beyond CIP
Chemistry Building Wing 1 Replacement	$23.863	$5.000	$45.190	$38.483	$6.863	$0.000	$0.000
School of Public Policy Building	17.500	27.340	13.240	1.190	0.000	0.000	0.000
Interdisciplinary Engineering Building	0.000	0.000	0.000	10.000	45.000	55.000	90.000
Maryland Fire and Rescue Institute Western Regional Training Center Upgrades	0.150	8.615	0.000	0.000	0.000	0.000	0.000
Total	**$41.513**	**$40.955**	**$58.430**	**$49.673**	**$51.863**	**$55.000**	**$90.000**

Fund Source	Prior Auth.	2021 Request	2022 Est.	2023 Est.	2024 Est.	2025 Est.	Beyond CIP
GO Bonds	$25.013	$7.500	$45.190	$35.983	$16.863	$45.000	$90.000
Revenue Bonds	0.000	0.000	0.000	2.500	0.000	0.000	0.000
Nonbudgeted Funds	16.500	33.455	13.240	11.190	35.00	10.000	0.000
Total	**$41.513**	**$40.955**	**$58.430**	**$49.673**	**$51.863**	**$55.000**	**$90.000**

CIP: *Capital Improvement Program*
GO: general obligation

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Program	2021 Request	2022 Est	2023 Est	2024 Est	2025 Est
Campuswide Building Systems and Infrastructure Improvements	$10.000	$10.000	$2.500	$12.500	$5.000
Total	**$10.000**	**$10.000**	**$2.500**	**$12.500**	**$5.000**

Fund Source	2021 Request	2022 Est	2023 Est	2024 Est	2025 Est
GO Bond	$5.000	$5.000	$0.000	$7.500	$0.000
Revenue Bonds	5.000	5.000	2.500	5.000	5.000
Total	**$10.000**	**$10.000**	**$2.500**	**$12.500**	**$5.000**

GO: general obligation

Key Observations

- The fiscal 2021 budget maintains the State's total contribution to the School of Public Policy (SPP) building at $20.0 million despite a $14.3 million increase in the total project cost. The project originally leveraged $15.0 million in institutional funds but will now require $29.3 million, which raises some concern about the University of Maryland, College Park Campus' (UMCP) capacity to dedicate additional institutional funds while also providing bridge loans for other projects.

- The Maryland Fire and Rescue Institute (MFRI) western regional training center was added to the 2020 *Capital Improvement Program* (CIP) to be funded with nonbudgeted funds, specifically the University System of Maryland's (USM) Academic Revenue Bond (ARB) debt service account. Previous upgrades to other MFRI centers were funded with general obligation (GO) bonds.

Summary of Recommended Bond Actions

1. Campuswide Building Systems and Infrastructure Improvements

   Approve funding for campuswide building systems and infrastructure projects.

2. Chemistry Building Wing 1 Replacement

   Approve funding to continue design and begin construction of the replacement of Wing 1 of the Chemistry Building.

3. School of Public Policy

   Approve funding for the School of Public Policy building.

4. SECTION 13 – University of Maryland, College Park Campus – Chemistry Building Wing 1 Replacement

   Approve a fiscal 2022 preauthorization for the replacement of Wing 1 of the Chemistry Building.

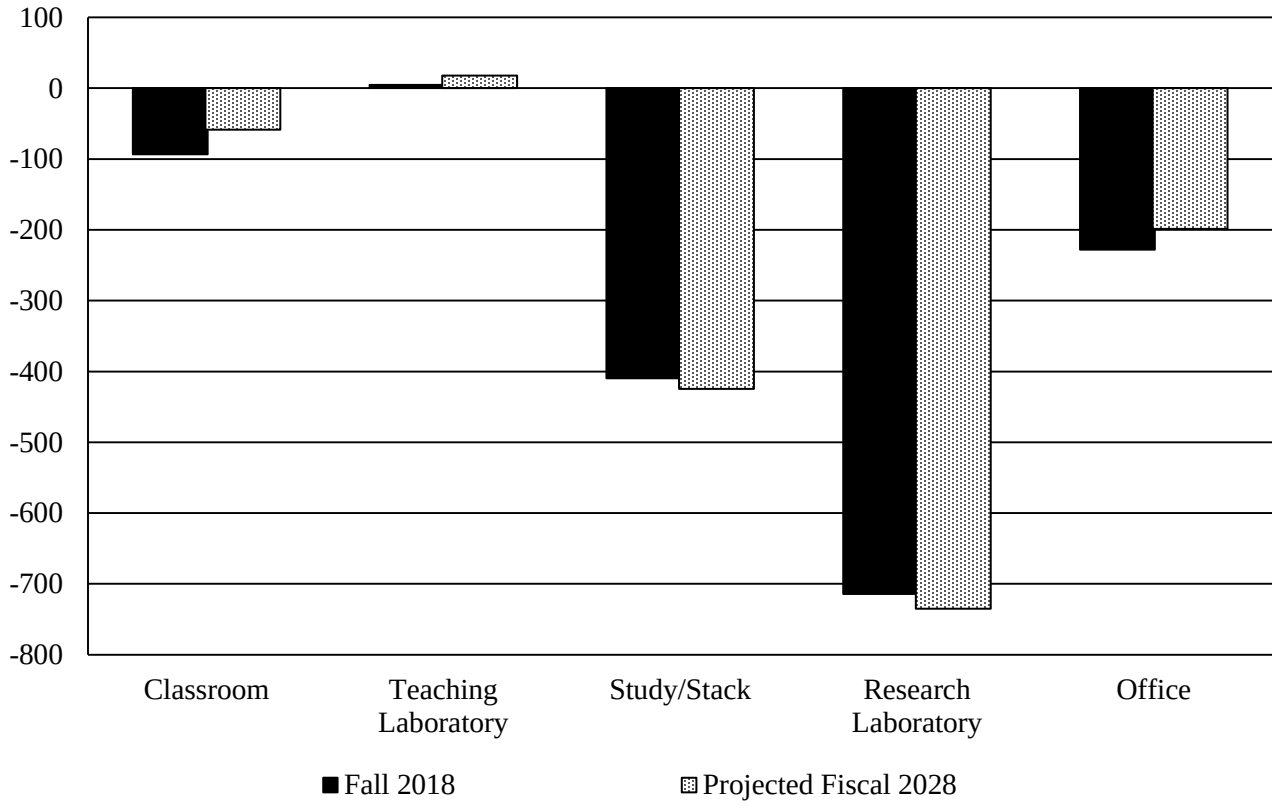
5. SECTION 14 – University of Maryland, College Park Campus – Chemistry Wing I Replacement

   Approve a fiscal 2023 preauthorization for the replacement of Wing 1 of the Chemistry Building.

Performance Measures and Outputs

The fall 2018 Space Guidelines Application Program (SGAP) report provides an estimate on the 10-year space needs of UMCP. The SGAP report calculates the space needed to accommodate the projected growth in faculty, staff, and students when including all the estimated space inventory, including planned new facilities, renovations, and eliminated space over the next 10 years. UMCP projects a decrease of 1.3% in full-time equivalent student enrollment by fiscal 2028. As shown in **Exhibit 1**, this will contribute to the classroom space deficit lessening by 34,770 net assignable square feet (NASF), while teaching laboratory space will slightly increase to 17,661 NASF. While the office space deficit is projected to decrease by 29,581 NASF, the research laboratory deficit will increase by 20,379 NASF to 734,825 NASF partly due to a projected 7.6% increase in faculty and staff.

Exhibit 1
Academic Space Deficit
Fall 2018 and Projected Fiscal 2028
Net Assignable Square Feet
(in Thousands)



Source: University System of Maryland

Budget Overview

Campuswide Building Systems and Infrastructure Improvements

This is a stand-alone facility renewal initiative to address critical deferred maintenance projects that, if left unaddressed, pose serious health, life, and safety issues. Infrastructure failures have caused disruptions in electricity and HVAC services and cause water damage to buildings, resulting in classes being canceled or relocated to another building and suspended or lost research. UMCP estimates that its facilities renewal backlog totals $749.0 million as of fall 2018.

When the program was initiated in fiscal 2013, it was anticipated that it would be annually funded. From fiscal 2013 through 2016, the State has provided $25 million of GO bonds with another $20 million coming from USM ARB debt. The program, however, was put on hold to facilitate the funding of other priority UMCP projects. The fund summary chart illustrates the 2020 CIP funding plan, which would use both GO bond and ARB funds similar to how the program was funded in previous budgets. It should be noted that UMCP plans to spend $40.1 million from its operating budget on facilities renewal in fiscal 2021 in addition to $8.7 million in ARBs as part of USM's facilities renewal program.

The program addresses a variety of renewal projects that can be categorized into two general categories – building systems and infrastructure. Building systems include replacing electrical gear; upgrading fire alarm systems, automatic fire sprinkler systems, and fire pump controls; replacing HVAC equipment; and replacing equipment in utility buildings. Infrastructure improvements include replacing underground heating and cooling piping, replacing underground domestic water pipes, repairing building foundations, replacing underground foundation drain and sanitary piping, replacing exterior security lighting, replacing exterior security cameras and telephones, repairing and/or repaving roads, and repairing storm drain outfall and ponds.

The projects funded in fiscal 2021 include:

- ***Replacing Failing Street Lighting:*** Installing approximately 64 street lights and the associated underground conduit improving safety and security. Total cost is $1.6 million of which $0.9 million is funded with institutional funds, and the remaining $0.7 million for this program is funded with GO bonds.

- ***Replacing Failing Hot Water Piping:*** Installing approximately 2,600 linear feet of underground hot water piping that provides heat and humidity control to multiple buildings. Total cost is $3.1 million with preliminary design funded from institutional funds.

- ***Replacing Failing Storm Drain Piping:*** Installing approximately 1,500 liner feet of underground storm drain piping that cannot adequately drain storm water resulting in flooding when it rains. Total cost is $3.3 million with preliminary design funded from institutional funds.

- ***Replacing Failing Steam Piping:*** Installing approximately 1,500 linear feet of underground steam and condensate return piping that provides heat and domestic hot water to multiple buildings. Total cost is $3.1 million with preliminary design funded from institutional funds.

Chemistry Building Wing 1 Replacement

The 2019 CIP programmed $0.3 million in fiscal 2021 for abatement and deferred construction to fiscal 2022 and 2023. The General Assembly included a preauthorization of $5.0 million for fiscal 2021 in the Maryland Consolidated Capital Bond Loan of 2019 to facilitate a late fiscal 2021 construction start, which is provided in the fiscal 2021 budget as introduced. Preauthorizations of

$45.2 million and $38.1 million for fiscal 2022 and 2023, respectively, are provided to allow the construction contract to be bid and awarded in fiscal 2021. The estimated total cost of phase III is $102.9 million. However, this estimate does not reflect the application of higher cost escalation rates that the Department of Budget and Management (DBM) has applied to other projects. DBM intends to update the project cost information with the submission of the 2021 CIP.

The replacement of space for the chemistry department was originally planned as a multiphase project to be completed in small phases due to the lack of permanent relocation and/or surge space. The project was subsequently modified to be completed in three phases. Phase I was expanding the scope of the St. John Center to include six teaching chemistry laboratories that were housed in Wing 1 into the project. Phase II, funded with $16.5 million of institutional funds, includes minor updates to selected spaces and upgrading the HVAC in the second and third floors of Wing 2. Current occupants in Wing 1 will be relocated to the renovated portion of the building. In addition, the nuclear magnetic resonance will be relocated to renovated space in Wing 2.

Phase III of the project will demolish and replace Wing 1, which was constructed in 1968 and has not had significant renovation since the original construction and, as such, has numerous deficiencies, including:

- lack of central air conditioning and a poorly functioning heating system, resulting in extreme temperature conditions that are not conducive to teaching and research;
- outmoded laboratory configurations;
- antiquated casework;
- inadequate fume hood exhaust systems;
- obsolete and deficient electrical systems; and
- insufficient environmental controls.

The new facility will provide:

- 24,563 NASF of research laboratories;
- 19,274 NASF of office space; and
- 10,527 NASF of instruction laboratory space.

School of Public Policy Building

This project proposes to construct a new facility for SPP to consolidate operations into a single location. When completed, space occupied by SPP in Van Munching Hall will be vacated, allowing the School of Business to expand. The facility enables SPP to meet its strategic plan goals for growth, including expanding program offerings and the Do Good Institute and becoming a nationwide top 10 public policy program.

The estimate total cost of the project is $59.3 million, an increase of $14.3 million from last year's estimate. The increase in cost is attributed to:

- $6.9 million related to the size of the facility increasing from 38,480 NASF/69,700 gross square feet (GSF) to 40,111 NASF/77,556 GSF in order to accommodate additional faculty and staff needed to support greater than expected enrollment in the undergraduate program. In two years, undergraduate enrollment increased 180.8% from 78 students in fall 2017 to 219 in fall 2019;

- $5.0 million related to the conditions in the construction market and a six-month delay in the project due to the schematic design taking more time than anticipated in order to consider multiple building footprints, traffic circulation, and parking options; and

- $2.4 million due to higher than expected site and utility costs.

The fiscal 2021 budget provides $2.5 million for the project maintaining the State's total contribution to the project at $20.0 million. The project originally leveraged $15.0 million in institutional funds and a $10.0 million private donation. In order to cover the cost increase, UMCP will need to increase the use of institutional funds to a total of $29.3 million.

The President should comment on the ability to cover the increase in costs considering the use of plant funds to bridge the cost of other capital projects until receipt of private donations or other revenues.

The project will address the following issues:

- ***Lack of Space to Expand and Grow, Which Was Previously Discussed***;

- ***Located in Several Buildings:*** SPP occupies 16,639 NASF in Van Munching Hall, 5,564 NASF in Preinkert Hall, and 2,378 NASF in Taliaferro Hall. Being housed in separate buildings impedes opportunities for collaboration and interaction among faculty, staff, and students; and

- ***Campuswide Space Shortages:*** SPP shares space with the Robert H. Smith School of Business in Van Munching Hall, which was originally constructed for both schools in 1992. Additions were built in 2002, 2008, and 2011 to accommodate growth in the School of Business. Due to limited resources, including space, and in order to maintain quality, the business program is a

limited enrollment program in which undergraduate enrollment is capped at 2,000 to 2,200. Once the space occupied by SPP is vacated, it will allow the business program to expand and increase enrollment above the current cap.

As shown in **Exhibit 2**, 55.8% of the total NASF will be office space, while classroom space will comprise 14.5% of the total space that includes five classrooms ranging in size from 25 to 150 seats. While classroom space is below the State guidelines of 26,313 NASF, SPP will use classrooms in other buildings and, when possible, the conference rooms in the new facility will be used for seminar classes.

Exhibit 2

Space by Classification Provided in the School of Public Policy Building

Space	Net Assignable Square Feet
Office	22,354
Classroom	5,797
Lounge	3,209
Conference	2,686
Public Meeting/Event	2,049
Other	1,612
Open Stack Study	1,300
Shop	1,025
Total	**40,032**

Source: University of Maryland, College Park Campus

Operating Budget Impact Statement

Executive's Operating Budget Impact Statement – State-owned Projects
Fiscal 2021-2025
($ in Millions)

	2021	2022	2023	2024	2025
School of Public Policy Building					
Estimated Operating Cost	$0.627	$0.933	$1.205	$0.597	$0.617
Estimated Staffing	0.00	2.00	3.00	3.00	3.00
Chemistry Building Wing 1 Replacement					
Estimated Operating Cost	$0.303	$0.303	$0.303	$1.644	$1.644
Estimated Staffing	0.00	0.00	0.00	0.00	0.00
Total Operating Impact					
Estimated Operating Cost	**$0.930**	**$1.236**	**$1.508**	**$2.241**	**$2.261**
Estimated Staffing	**0.00**	**2.00**	**3.00**	**3.00**	**3.00**

The estimated operating costs of $0.6 million for SPP in fiscal 2021 reflects equipment debt service before the building is occupied. In fiscal 2022, the costs increase to $0.9 million, reflecting the expenses related to the building being opened for a partial year, which include utilities, supplies, equipment, and the cost of personnel to maintain the facility. Fiscal 2023 reflects the final year of equipment debt service, resulting in lower costs in fiscal 2024 and 2025.

The estimated operating costs for the Chemistry Building Wing 1 replacement reflect those costs for operating the facility, including fuel, utilities, and supplies. Since this project replaces an existing building, additional personnel are not needed to maintain the facility.

Summary of Other Projects in the Capital Improvement Program

Maryland Fire and Rescue Institute Western Regional Training Center Upgrades

The project will renovate the administration and classroom building at the MFRI western regional training center, construct an addition to the center, and upgrade the training area. This project will provide space to accommodate a growing student population, update teaching technology, renovate dilapidated building systems, and address code compliance issues.

This project was added to the 2020 CIP after the General Assembly included a $150,000 miscellaneous grant in fiscal 2020 to start design. The estimated total cost of the project is $8.8 million with the 2020 CIP programming $8.6 million in nonbudgeted funds to construct and equip the facility in fiscal 2021. The project will be funded from USM's ARB debt service account within its plant funds that will be further discussed in the University System of Maryland Office capital analysis. However, it should be noted that previous upgrades to other MFRI centers were funded with GO bonds for that, even though MFRI falls under the umbrella of UMCP, it provides training and education that benefits emergency services throughout the State. In addition, there are concerns over parity in using the ARB debt service account to fund the project. Institutions contributed differing amounts to the account and, while USM states that it wants the allocation of funds to be fair to all institutions, there are issues on the impact that this project will have on UMCP's allocation of funds.

The project will address the following issues:

- inadequately sized classroom space. The two classrooms cannot meet current demand resulting in MFRI providing training at an off-site location. Changes in national standards for first responders require more frequent training resulting in enrollment increasing from 1,988 in fiscal 2019 to 2,850 in fiscal 2029. This projected increase will result in students being placed on a waitlist;
- lack of office space;
- lack of a break area for students and instructors;
- failing mechanical and electrical systems;
- inadequate storage facility that does not offer adequate protection from the elements;
- outmoded live-fire training props;
- deteriorating flammable liquids training prop that is not in compliance with regulations;
- deteriorating structural firefighting prop; and
- unsafe training prop pads.

Interdisciplinary Engineering Building

In October 2017, UMCP announced its largest donation of $219.5 million from the A. James & Alice B. Clark Foundation. The gift included provisions to provide 30% or $55 million (the lesser of the two), to support the construction of a new building for the A. James Clark School of Engineering, which is to be leveraged with State and institutional funds. Ballinger and Associates completed an Academic Facilities Report that outlined a 20-year academic and architectural strategic vision for the Clark School of Engineering and provided an analysis of the school's existing facilities and academic metrics, comparing them to peer institutions.

The report projected that undergraduate and graduate enrollment will increase by 16% and 26%, respectively, in the next 20 years and that faculty and staff will grow 13% and 20%, respectively. To be competitive with peer engineering programs, the study recommended that the departments of chemical and biomolecular engineering, civil and environmental engineering, electrical and computer engineering, materials science engineering, and mechanical engineering need to increase their research NASF per principle investigator and graduate students by, on average, 550 NASF and 85 NASF, respectively. Currently, the Clark School of Engineering occupies 616,000 NASF. In order to accommodate the projected growth, the Clark School of Engineering will need an additional 223,000 NASF over the next 20 years.

A consultant is working with the Clark School of Engineering to prepare a facility program, and the school is in the process of determining which specific departments and functions will be housed in the building, which is preliminarily sized at about 160,000 GSF/88,000 NASF.

GO Bond Recommended Actions

1. Approve $5.0 million in general obligation bond funds to design, construct, and equip the campuswide building systems and infrastructure improvements.

2. Approve $5.0 million in general obligation bond funds to continue design and begin construction of the Chemistry Building Wing 1 Replacement.

3. Approve $2.5 million in general obligation bond funds to continue construction on the School of Public Policy Building.

4. Approve the preauthorization of $45.2 million in general obligation bonds for fiscal 2022 to continue construction of the Chemistry Building Wing 1 Replacement.

5. Approve the preauthorization of $38.12 million in general obligation bonds for fiscal 2023 to continue construction of the Chemistry Building Wing 1 Replacement.