RB21
University of Maryland, Baltimore
University System of Maryland

Capital Budget Summary

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

Projects	Prior Auth.	2018 Request	2019 Est.	2020 Est.	2021 Est.	2022 Est.	Beyond CIP
Health Sciences Facility III	$291.992	$13.400	$0.000	$0.000	$0.000	$0.000	$0.000
Central Electric Substation	4.000	2.890	10.500	12.000	12.000	11.100	26.461
Total	**$295.992**	**$16.290**	**$10.500**	**$12.000**	**$12.000**	**$11.100**	**$26.461**

Fund Source	Prior Auth.	2018 Request	2019 Est.	2020 Est.	2021 Est.	2022 Est.	Beyond CIP
GO Bonds	$240.792	$6.490	$5.500	$12.000	$12.000	$8.100	$26.461
Revenue Bonds	0.000	0.000	5.000	0.000	0.000	0.000	0.000
Nonbudgeted Funds	55.200	9.800	0.000	0.000	0.000	3.000	0.000
Total	**$295.992**	**$16.290**	**$10.500**	**$12.000**	**$12.000**	**$11.100**	**$26.461**

CIP: *Capital Improvement Program*
GO: general obligation

For further information contact: Garret T. Halbach Phone (410) 946-5530

Summary of Recommended Bond Actions

1. Central Electric Substation and Electrical Infrastructure Upgrade

   Approve funding to complete design of the Central Electric Substation and Electrical Infrastructure Upgrades.

2. Health Sciences Research Facility III and Surge Building

   Approve funding to complete construction of the Health Sciences Research Facility III.

3. SECTION 2 – University of Maryland, Baltimore – Central Electric Substation and Electrical Infrastructure Upgrades

   Approve the modification of allowable uses of general obligation bonds.

Budget Overview

The University of Maryland, Baltimore (UMB) has two capital projects funded in fiscal 2018.

The fiscal 2018 budget programs $13.4 million for constructing and equipping of the new Health Sciences Facility (HSF) III at the UMB campus. Fiscal 2018 State support is $0.2 million more than what was pre-authorized in the Maryland Consolidated Capital Bond Loan (MCCBL) of 2016, because it includes the final, approved equipment list. Nonbudgeted funds total $65.0 million for this project, which include at least $10.0 million from the University of Maryland Medical Center (UMMC). UMB reports the total nonbudgeted funds have been secured.

The construction completion date remains September 2017. When completed, the building will provide approximately 225,000 net assignable square feet (NASF). While this makes it the largest academic facility ever built with State support, the total project design, cost, and schedule have not changed over the past two years. Previously, two shell floors were added to the top of the building that UMB will complete at a later date using non-State funding.

Health Sciences Facility III Project Funding Status

Authorization Uses and Sources
($ in Millions)

Fund Use	Prior Authorization	2018 Request	2019 Estimate	2020 Estimate	2021 Estimate	2022 Estimate
Planning	$26.242	$0.000	$0.000	$0.000	$0.000	$0.000
Construction	245.250	3.400	0.000	0.000	0.000	0.000
Equipment	20.500	10.000	0.000	0.000	0.000	0.000
Total	**$291.992**	**$13.400**	**$0.000**	**$0.000**	**$0.000**	**$0.000**

Fund Source	Prior Authorization	2018 Request	2019 Estimate	2020 Estimate	2021 Estimate	2022 Estimate
GO Bond	$236.792	$3.600	$0.000	$0.000	$0.000	$0.000
Nonbudgeted	55.200	9.800	0.000	0.000	0.000	0.000
Total	**$291.992**	**$13.400**	**$0.000**	**$0.000**	**$0.000**	**$0.000**

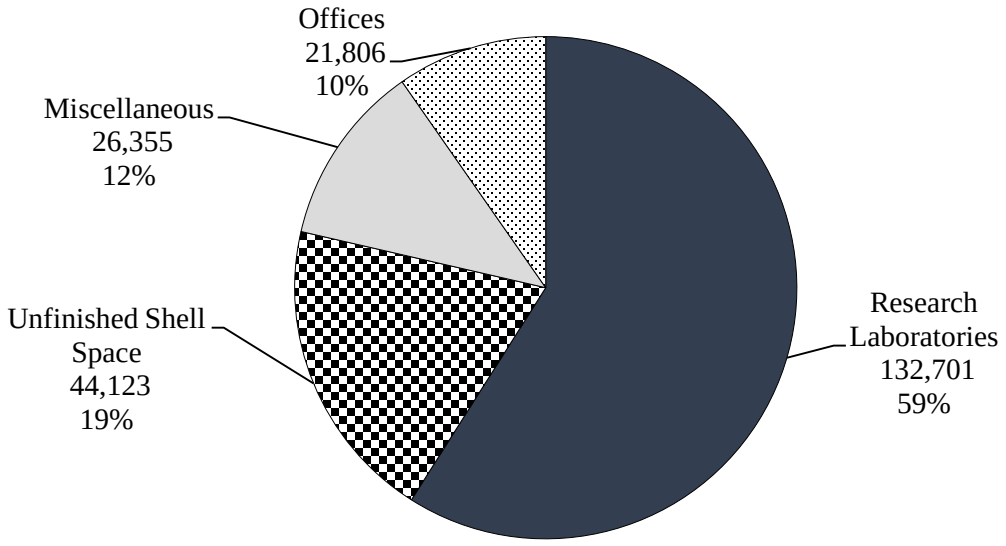
GO: general obligation

New Facility Allows for More Medical Research

Unlike many other higher education capital projects, HSF III includes no classroom space. Instead, HSF III will augment UMB's medical research programs by adding a large amount of new research laboratory and office space. While the current science facilities were built with prior best practices of offering about half the laboratory support space in relation to laboratory space, current guidelines suggest that there needs to be a one-to-one match of laboratory space to laboratory support space, which includes cold rooms, tissue culture rooms, and freezers.

As shown in **Exhibit 1**, the nearly 225,000 NASF of HSF III is nearly 60% research space and 10% office space for researchers. The miscellaneous category includes other finished spaces for animal facilities, meeting rooms, and central building services. The two unfinished shell floors will total about 44,000 NASF, or almost 20% of the building's NASF. The current plan is to complete the shell space by 2020 by using research grants and federal contracts, which allow for equipping and space finishing. UMB has used this process in the past for facilities belonging to the School of Medicine.

Exhibit 1
Net Assignable Square Feet by Function in Health Sciences Facility III



Source: Department of Budget and Management

Central Electric Substation and Electrical Infrastructure Upgrades

The fiscal 2018 budget also programs $2.9 million in State support to complete the design of a new electrical substation for UMB and related, supporting subprojects. As shown in the following table, the total estimated cost in the five-year *Capital Improvement Program* (CIP) is $48.5 million, but the project is currently planned to extend until fiscal 2026 and cost approximately $79.0 million. This final project cost remains uninformed by completed design work, and the USM cost center does not have nearly as much experience dealing with planning large-scale utility infrastructure in a dense urban setting as it does with the academic buildings frequently included in the CIP. Additionally, there are several subprojects and phases, and UMB does not yet have a firm grasp on how much electrical work is actually necessary. Because of the long project schedule and multiple parts, the scope of this project is vaguer than other higher education projects and, therefore, more likely to change. **The President should comment on the level of confidence in the current total project cost estimate of $79.0 million.**

Authorization Uses and Sources
($ in Millions)

Fund Use	Prior Authorization	2018 Request	2019 Estimate	2020 Estimate	2021 Estimate	2022 Estimate
Planning	$3.000	$2.890	$0.000	$0.000	$0.000	$0.000
Construction	1.000	0.000	10.500	11.900	12.000	11.100
Equipment	0.000	0.000	0.000	0.100	0.000	0.000
Total	**$4.000**	**$2.890**	**$10.500**	**$12.000**	**$12.000**	**$11.100**

Fund Source	Prior Authorization	2018 Request	2019 Estimate	2020 Estimate	2021 Estimate	2022 Estimate
GO Bond	$4.000	$2.890	$5.500	$12.000	$12.000	$8.100
Revenue Bonds	0.000	0.000	5.000	0.000	0.000	0.000
Nonbudgeted Funds	0.000	0.000	0.000	0.000	0.000	3.000
Total	**$4.000**	**$2.890**	**$10.500**	**$12.000**	**$12.000**	**$11.100**

GO: general obligation

The construction completion date remains January 2026. When completed, the new electrical substation will provide UMB with a reliable and redundant power supply for the entire campus. This will also include upgrades to the existing electrical substation and improve the connections between UMB's buildings and the two substations.

With respect to higher education in the capital budget, the State's primary focus should be in providing funds to support projects that expand or enhance facilities that support student access to degrees and research opportunities. To the extent that this project focuses on physical plant and facilities renewal, while important, it crowds out projects that support programs and research, and perhaps consideration should be given to limiting direct State support to this project. Facilities renewal projects should normally be secondary in priority and considered and evaluated under cost-sharing options in order for the State to focus funding to support new or renovated academic space.

Project Status

One year ago, UMB had planned to acquire land to relocate an existing recycling facility, as the recycling facility occupied the ideal site for the new substation. However, the desired parcel of land that was needed to relocate the recycling facility, turned out to be prohibitively expensive, so the project plans have changed. This has pushed the design back from September 2016 to March 2017, and construction has slipped from July 2017 to July 2018. Because of this program change, there is a requested modification of the authorizing language in the MCCBL of 2016 for this project to allow $1 million in acquisition funds to be used for the design and construction of a combined electric substation and recycling center and related electrical infrastructure upgrades.

Now the total project will consist of:

- designing a new recycling station and electrical substation within a single two-story building;
- demolishing the old recycling station to create space for the new, larger building;
- constructing the new multipurpose building;
- repairing or replacing existing electrical conduits to UMB's facilities from both the new and existing substations; and
- replacing the switchgear of the existing electrical substation.

UMB was able to provide significant nonbudgeted support for HSF III, and there are several major stakeholders in Baltimore City who would benefit from a stable and modernized electrical grid in the urban core. In February 2017, UMB and UMMC signed a Memorandum of Understanding (MOU) to fund a proportional share of the cost relating to the benefit that will be realized by UMMC as a result of the new installation. The MOU states that costs will be proportionally shared for items including infrastructure, utility costs, construction cost of the duct bank for the utility's use, new switching station costs, and shared sections of the duct bank. The cost of duct bank sections for the exclusive use of one party, feeder cables, and building modifications will be borne completely by the responsible party (*i.e.*, the party benefitting from the item). Once the design has been completed, the MOU will be amended to include costs to be paid by UMMC. **The President should comment on whether this MOU will change the project cost estimate shown in the 2017 CIP.**

Current Problems Leading to Need for this Project

UMB considers this project to be a life and safety issue, as the existing electrical substation, located 40 feet below ground on Greene Street, is approximately 50 years old and is unfortunately located over a high water table, so it is susceptible to water penetration. This has led to issues endangering the campus which include:

- The station has failed twice recently, once in November 2011 due to a part failure that knocked out power for 12 hours, and again in January 2016 due to a water leak. The latter outage cut power to 20 buildings for 2 hours. Fortunately, this was during an academic break, so fewer students and faculty were on campus, and it was during the winter when electrical demand is significantly lower than in the summer. If such an event happened in the summer months, UMB would be forced to switch entirely to backup generators that are extremely expensive and only viable for short amounts of time.

- Replacement parts for this substation can only be found with difficulty on the secondary market. In the event of an outright failure, the entire UMB campus may be forced to shut down, jeopardizing the safety of students, faculty, and patients, as well as tens of millions of dollars in scientific research.

- The electrical duct bank, which contains the cables from the existing substation to UMB's facilities, is many decades old. When UMB makes any upgrades to the cabling, it has to access electrical duct banks, which increasingly fail or collapse, requiring on-the-spot replacement. Part of this project would be a thorough inventory of the integrity of the electrical duct banks and replacing what is in poor condition.

- Finally, UMB's electrical demand is increasing every year, and UMB is on a trajectory to exceed electrical capacity no later than fiscal 2024. Outside of this project, UMB does not have a realistic way to satisfy its own electrical needs. All of these improvements are informed by a UMB *Infrastructure Investment Plan* finished in April 2015.

The President should comment on why this capital project was not identified and requested earlier given that UMB believes this project is a life and safety issue.

Operating Budget Impact Statement

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

	FY 2018	FY 2019	FY 2020	FY 2021	FY 2022
Health Science Facility III					
Estimated Operating Cost	$4.123	$11.577	$11.692	$11.836	$11.984
Estimated Staffing	8.94	10.72	10.72	10.72	10.72
Central Electric Substation					
Estimated Operating Cost	$0.000	$0.000	$0.000	$0.000	$0.000
Estimated Staffing	0.00	0.00	0.00	0.00	0.00
Total Operating Impact					
Estimated Operating Cost	**$4.123**	**$11.577**	**$11.692**	**$11.836**	**$11.984**
Estimated Staffing	**8.94**	**10.72**	**10.72**	**10.72**	**10.72**

According to the 2017 CIP, HSF III will impact the fiscal 2018 operating budget by about $4.1 million due to general costs for fuel and utilities, supplies and materials, and amortized equipment. Full operating costs are estimated to be between $11.6 million and $12.0 million once the building is fully occupied. Costs also include 11 new regular positions to maintain the facility, similar to the prior CIP. The institution reports a need for more staffing than is indicated in the 2017 CIP but also reports that ongoing operating costs will be lower.

GO Bond Recommended Actions

1. Approve the $2.9 million in general obligation bonds to complete design of the Central Electric Substation and Electrical Infrastructure Upgrades on the University of Maryland, Baltimore campus.

2. Approve the $3.6 million in general obligation bonds to complete construction and equipping of the Health Sciences Research Facility III on the University of Maryland, Baltimore campus.

3. Approve the modification of general obligation bond uses for the University of Maryland, Baltimore campus to include design and construction of an electric substation, a recycling center, and electrical infrastructure upgrades. This action does not change the total amount of State support for this project.