

**RB36**  
**University System of Maryland Office**  
**University System of Maryland**

***Capital Budget Summary***

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

<b>Projects</b>	<b>Prior Auth.</b>	<b>2018 Request</b>	<b>2019 Est.</b>	<b>2020 Est.</b>	<b>2021 Est.</b>	<b>2022 Est.</b>	<b>Beyond CIP</b>
Biomedical Sciences and Engineering Education Facility	\$50.716	\$88.651	\$23.114	\$0.000	\$0.000	\$0.000	\$0.000
Southern Maryland Regional Higher Education Center	7.261	0.000	27.865	46.835	0.000	0.000	0.000
<b>Total</b>	<b>\$57.977</b>	<b>\$88.651</b>	<b>\$50.979</b>	<b>\$46.835</b>	<b>\$0.000</b>	<b>\$0.000</b>	<b>\$0.000</b>

<b>Fund Source</b>	<b>Prior Auth.</b>	<b>2018 Request</b>	<b>2019 Est.</b>	<b>2020 Est.</b>	<b>2021 Est.</b>	<b>2022 Est.</b>	<b>Beyond CIP</b>
GO Bonds	\$56.977	\$88.651	\$50.979	\$46.835	\$0.000	\$0.000	\$0.000
Nonbudgeted Funds	1.000	0.000	0.000	0.000	0.000	0.000	0.000
<b>Total</b>	<b>\$57.977</b>	<b>\$88.651</b>	<b>\$50.979</b>	<b>\$46.835</b>	<b>\$0.000</b>	<b>\$0.000</b>	<b>\$0.000</b>

CIP: *Capital Improvement Program*  
GO: general obligation

**Capital Improvement Programs**  
(\$ in Millions)

<b>Program</b>	<b>2016 Approp.</b>	<b>2017 Approp.</b>	<b>2018 Request</b>	<b>2019 Est.</b>	<b>2020 Est.</b>	<b>2021 Est.</b>	<b>2022 Est.</b>
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Capital Facilities Renewal	\$17.000	\$17.000	\$17.000	\$17.000	\$22.000	\$32.000	\$35.000
<b>Total</b>	<b>\$17.000</b>	<b>\$17.000</b>	<b>\$17.000</b>	<b>\$17.000</b>	<b>\$22.000</b>	<b>\$32.000</b>	<b>\$35.000</b>

<b>Fund Source</b>	<b>2016 Approp.</b>	<b>2017 Approp.</b>	<b>2018 Request</b>	<b>2019 Est.</b>	<b>2020 Est.</b>	<b>2021 Est.</b>	<b>2022 Est.</b>
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GO Bonds	\$0.000	\$0.000	\$0.000	\$0.000	\$0.000	\$10.000	\$10.000
Revenue Bonds	17.000	17.000	17.000	17.000	22.000	22.000	25.000
<b>Total</b>	<b>\$17.000</b>	<b>\$17.000</b>	<b>\$17.000</b>	<b>\$17.000</b>	<b>\$22.000</b>	<b>\$32.000</b>	<b>\$35.000</b>

GO: general obligation

## ***Summary of Updates***

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Language in the 2016 *Joint Chairmen's Report* (JCR) required the University System of Maryland (USM), Morgan State University (MSU), the Department of Budget and Management (DBM), and the Maryland Higher Education Commission (MHEC) to develop and recommend research space guidelines that accurately reflect the research space needs of the institutions. A workgroup comprised of representatives from the agencies conducted research and analysis and met with stakeholders in developing the new research space guidelines.

## ***Summary of Recommended Bond Actions***

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1. Shady Grove Educational Center – Biomedical Sciences and Engineering Education Building  
  
Approve continued funding for the construction of the Shady Grove Educational Center – Biomedical Sciences and Engineering Education Building.
2. SECTION 2 – Bowie State University – New Fine and Performing Arts Building  
  
Approve the de-authorization.
3. SECTION 2 – Salisbury University – Delmarva Public Radio  
  
Approve the de-authorization.
4. SECTION 12 – University System of Maryland Office – Shady Grove Educational Center  
  
Approve pre-authorization of \$14.8 million to complete construction.

## ***Budget Overview***

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### **Biomedical Sciences and Engineering Education Facility**

**Exhibit 1** illustrates the changing funding plan for the Biomedical Sciences and Engineering Education Facility in the three most recent *Capital Improvement Programs* (CIP). The 2015 CIP programmed \$6.2 million to complete design and construction funding was programmed in fiscal 2017 to 2019. However, the 2016 CIP deferred construction by three years, programming construction funding starting in fiscal 2020. In order to put the project back on the 2015 CIP schedule, the General Assembly authorized \$36.7 million in fiscal 2017 to begin construction of the project. Language was added to pre-authorize \$88.0 million in fiscal 2018 to continue construction. The University System of Maryland Office (USMO) agreed to provide a bridge loan, if necessary, to ensure a fall 2018 completion. Site work commenced in June 2016, and construction of the facility was scheduled to start in October 2016 and be completed in January 2019.

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**Exhibit 1**  
**Funding History for Biomedical Sciences and Engineering Facility**  
**Fiscal 2016-2021**

	<b>Prior Authorization</b>	<b>2016</b>	<b>2017</b>	<b>2018</b>	<b>2019</b>	<b>2020</b>	<b>2021</b>	<b>Out-year</b>
2015 CIP	\$9.300	\$6.216	\$72.000	\$61.050	\$14.000			
2016 CIP	14.016					\$16.000	\$122.500	\$30.484
2017 CIP	50.716			88.651	23.114			

Source: 2015-2017 Capital Improvement Program

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The 2018 capital budget provides \$88.7 million to continue construction and equip the Biomedical Sciences and Engineering Education Facility at the Universities of Shady Grove (USG), as shown in **Exhibit 2**. Funds to complete construction are programmed in fiscal 2019. Overall, the total cost of the facility increased \$10.0 million from \$152.5 million to \$162.5 million, primarily due to equipment costs increasing by \$11.5 million.

**Exhibit 2**  
**Authorization Uses**  
**Fiscal 2018-2019**

	<u>Prior Authorizations</u>	<u>2018</u>	<u>2019</u>	<u>Total Cost</u>
Planning	\$11.300	\$2.500	\$0.000	\$13.800
Construction	39.416	75.500	14.765	129.681
Equipment	0.000	10.651	8.349	19.000
<b>Total</b>	<b>\$50.716</b>	<b>\$88.651</b>	<b>\$23.114</b>	<b>\$162.481</b>

Source:

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### **Inadequacies of Existing Facilities**

The facility will provide specialized laboratory space for new and existing programs and provide additional classroom space to support future enrollment growth. Existing programs such as nursing, bioscience, and pharmacy share existing laboratories, and there is only one dedicated laboratory for pharmacy. It should be noted that the respiratory therapy program was originally included in the Part I program as one of the existing programs that lack adequate class laboratory space and would be provided space in the new facility. However, with the graduation of the fall 2015 cohort in spring 2017, the program will no longer be offered at USG.

In order for the University of Maryland, College Park (UMCP) and the University of Maryland Baltimore County (UMBC) to offer engineering and biosciences programs, specialized laboratory space will be needed. It should be noted that USMO is currently in the process of developing and negotiating Memoranda of Understanding (MOU) between USG and institutions that will offer programs at USG. The MOUs include institutional and USG goals for the program and how it should respond to workforce needs of the region, enrollment and other measures such as degree output, projected cost of offering or expanding a program, tuition and other revenues that the program is expected to generate, and responsibility and process for covering any funding gaps.

Currently, the existing laboratory space at USG is not appropriately sized, and there is an insufficient number of laboratories to accommodate the existing health-related programs. National and State standards for health-related disciplines such as biological sciences are 65 to 85 square feet (sq. ft.) per student. Current laboratories are below this standard and, therefore, do not have the space to accommodate a typical section of 20 to 30 students. One of the two biological science laboratories is 895 sq. ft. compared to the recommended size of 1,300 sq. ft. The pharmacy and nursing programs need additional space in order to meet enrollment demand. Nursing has only two laboratories that it shares with other health care programs, thereby limiting the number of courses that may be offered. In

addition, the current pharmacy laboratory space was not specifically designed for the program but was a library that was converted to provide laboratory space for the program.

There is also insufficient space for faculty, which grew from 298 to 456 between fiscal 2008 and 2012. Offices are crowded, congested, and lack privacy. Offices in the USG III building are 142 sq. ft., less than the State standard for office work stations, and there is not enough space for temporary storage of reference materials and supplies. The total amount of office space can only adequately accommodate less than half of the existing faculty and staff. There is a 34,328 net assignable square feet (NASF) of office space, but it is projected that USG will have a deficit of 58,273 NASF by 2019.

## **Proposed Space**

As shown in **Exhibit 3**, the new facility will provide 47,809 NASF of laboratory space that will address inadequate size of current laboratories and allow more specialized programs to be offered at USG.

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### **Exhibit 3 Proposed Space by Category (Net Assignable Square Feet)**

Class and open laboratory	47,809
Classroom	32,420
Office	27,167
Clinical	13,042
Research	2,892
Lounge	3,424
Study	2,676
Conference	1,834
Other	5,208
<b>Total</b>	<b>136,472</b>

Source: Department of Budget and Management

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## **Capital Facilities Renewal**

This annual facilities renewal program provides funding for infrastructure improvements at various facilities at USM institutions. Capital facilities renewal funds are allocated among institutions on a pro rata share of self-reported replacement costs for all State-funded academic facilities. Funding for fiscal 2018 includes \$17 million in revenue bonds that will enable USM to undertake 32 projects at 11 institutions and USM Office. The 2017 CIP programs an additional \$5.0 million in Academic Revenue Bonds (ARB) in fiscal 2020 and another \$3.0 million in fiscal 2022, bringing the total to \$25.0 million. In addition, \$10.0 million in general obligation bonds are programmed for fiscal 2021 and 2022. This would provide USM \$35.0 million to fund facilities renewal projects. However, as will be discussed later, these are not the only funds available to institutions to address its backlog of deferred maintenance.

In order to get more accurate data on the replacement costs of its facilities, UMCP and the University of Maryland, Baltimore (UMB) hired consultants to look at the true cost of replacing its facilities. The costs were higher than what institutions were previously reporting, because they were applying small increases to their self-reported numbers, which was not sufficient to keep up with the actual replacement costs, as shown in **Exhibit 4**. When USM compared the gross square feet costs used to update UMCP and UMB's replacement costs, it became apparent that similar adjustments needed to be made to the self-reported numbers of the other institutions. USM applied the costs determined by the consultants to the other institutions in order to have consistent values across USM. The result is the replacement values of the State-supported facilities increased from \$7.5 billion to \$11.1 billion.

The increase in replacement costs led to an increase in the estimated backlog of deferred maintenance, as shown in **Exhibit 5**. The total cost of the backlog increased \$623.1 million to \$2.4 billion with UMCP accounting for 39.5% of the backlog. Overall, UMCP's estimated backlog increased \$757.0 million. While the backlog increased 35.0%, the ratio of renovation to replacement value, which is used to assess the relative size of the deferred maintenance backlog, has improved from 30.0% 10 years ago to 22.0% in fall 2015. Part of this is due to consistent funding of facilities renewal in the capital budget and the priority that USM has placed on maintaining an adequate annual investment in the maintenance and renewal of its capital through its policies intended to reduce the existing backlog of deferred maintenance. To this end, the USM Board of Regents (BOR) adopted a policy of annually increasing operating expenditures on facilities by 0.2% until the amount equals 2.0% of the replacement value of State facilities unless there are "systemwide funding constraints." After declining for 2 years, spending on facilities renewal increased 13.4%, or \$9.5 million in fiscal 2013, as shown in **Exhibit 6**. This was due to an additional \$10.0 million in ARBs, which was partly offset by a \$0.5 million decline in operating expenditures. In fiscal 2014, total expenditures dropped to a low of \$62.3 million, but by fiscal 2016, the amount spent on facilities renewal reached a high of \$98.7 million, of which \$81.2 million was operating expenditures, a 58.5% increase over fiscal 2015. This reflects renewal as a priority of BOR and the Chancellor, in which Presidents will be held accountable for meeting the BOR target of annually increasing expenditures on renewal until the 2.0% target is reached. However, spending in the fiscal 2017 working budget decreases \$25.2 million. **The Chancellor should comment on the decline in spending on facilities renewal projects despite holding Presidents more accountable for meeting the 2.0% target.**

**Exhibit 4**  
**Comparison of Estimated Replacement Value of State-supported Buildings**  
**Fall 2013-2015**

	<u>Fall 2013</u>	<u>Adjusted</u> <u>Fall 2015</u>
University of Maryland, Baltimore	\$1,866,833	\$2,061,728
University of Maryland, College Park	2,190,248	3,975,078
Bowie State University	356,590	429,335
Towson University	802,043	1,050,966
University of Maryland Eastern Shore	401,348	528,099
Frostburg State University	197,271	406,870
Coppin State University	261,426	407,455
University of Baltimore	170,166	512,031
Salisbury University	320,377	406,525
University of Maryland Baltimore County	639,394	1,008,692
University of Maryland Center for Environmental Science	158,330	164,560
University System of Maryland Office	164,069	183,750
<b>Total</b>	<b>\$7,528,096</b>	<b>\$11,135,089</b>

Source: University System of Maryland

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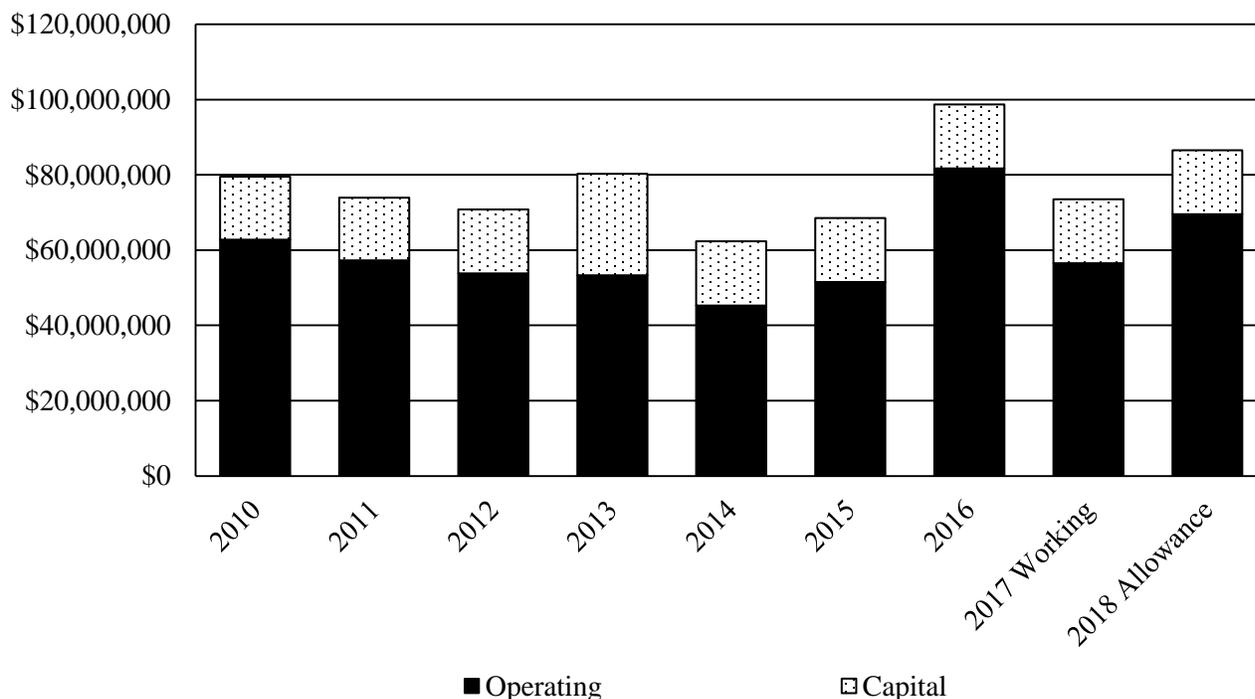
**Exhibit 5**  
**Comparison of Building-related Deferred Maintenance Backlog**  
**Based on Fall 2013 and 2015 Replacement Values**  
**(\$ in Thousands)**

	<u>Fall 2013</u>	<u>Fall 2015</u>
University of Maryland, Baltimore	\$670,947	\$675,230
University of Maryland, College Park	189,355	946,354
Bowie State University	182,275	58,590
Towson University	220,387	163,729
University of Maryland Eastern Shore	119,133	73,347
Frostburg State University	100,343	49,729
Coppin State University	85,183	64,713
University of Baltimore	60,267	83,003
Salisbury University	55,886	64,566
University of Maryland Baltimore County	45,208	197,783
University of Maryland Center for Environmental Science	43,023	18,055
<b>Total Backlog</b>	<b>\$1,772,007</b>	<b>\$2,395,099</b>

Source: University System of Maryland

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**Exhibit 6**  
**Operating and Capital Spending on Facility Renewal**  
**Fiscal 2010-2018 Allowance**

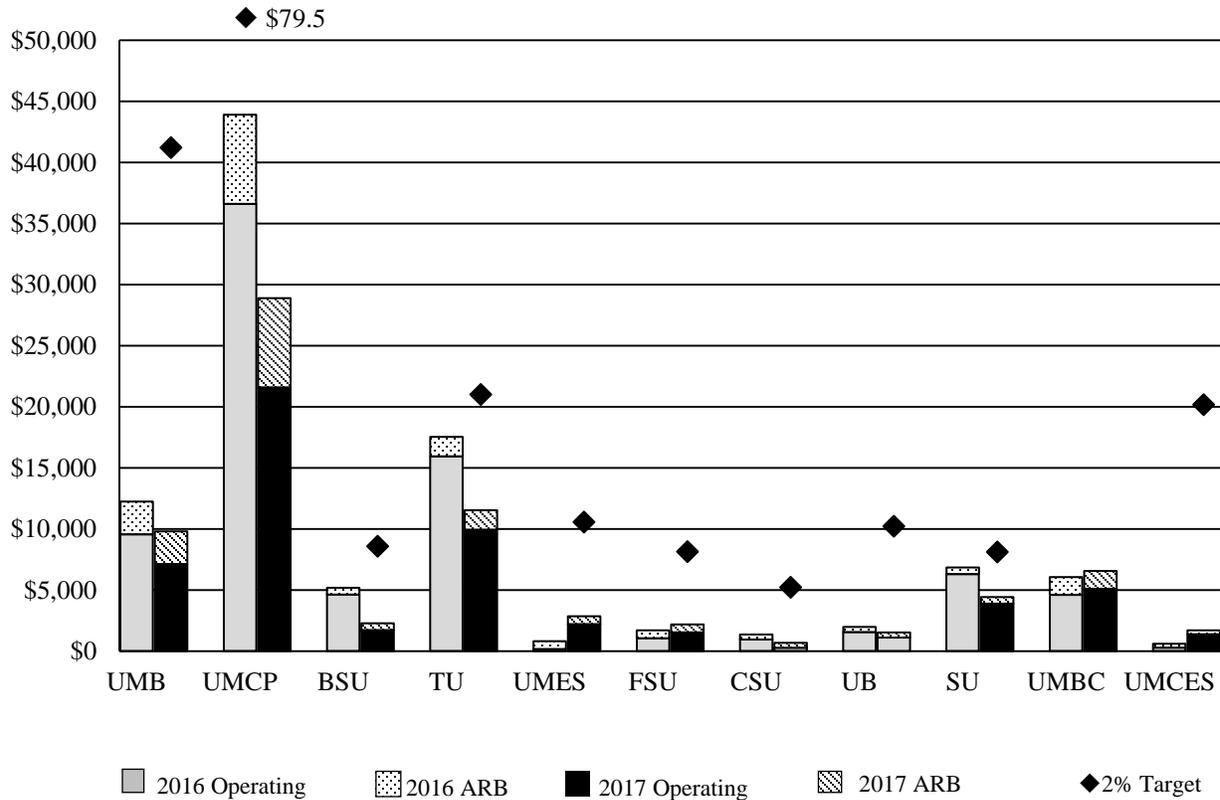


Note: Fiscal 2013 includes a one-time \$10 million in general obligation bond funding to fund renewal projects at institutions.

Source: University System of Maryland

**Exhibit 7** shows the allocation of the fiscal 2016 and 2017 operating expenditures and ARBs for facilities renewal and the 2.0% target. In order for USM to meet the 2.0% target, institutions would need to spend a total of \$222.7 million on deferred maintenance. In fiscal 2017, expenditures are estimated to total \$73.5 million, equivalent to 0.7% of the replacement value of State-supported assets. UMCP and Towson University (TU) accounted for 62.3% of the facility renewal expenditures in fiscal 2016 and 55.0% in fiscal 2017. UMBC’s spending on renewal exceeds the 2.0% target with expenditures equivalent to 3.7% and 4.0% of the replacement value of State-supported space in fiscal 2016 and 2017, respectively.

**Exhibit 7**  
**University System of Maryland**  
**Operating and Capital Facility Renewal Expenditures**  
**Fiscal 2016-2017**  
**(\$ in Thousands)**



ARB: Academic Revenue Bonds  
 BSU: Bowie State University  
 CSU: Coppin State University  
 FSU: Frostburg State University  
 SU: Salisbury University  
 TU: Towson University

UB: University of Baltimore  
 UMB: University of Maryland, Baltimore  
 UMBC: University of Maryland Baltimore County  
 UMCES: University of Maryland Center for Environmental Sciences  
 UMCP: University of Maryland, College Park  
 UMES: University of Maryland Eastern Shore

Note: UMCP includes \$5 million in general obligation bonds and \$5 million in ARBs to fund campuswide building system and infrastructure improvements; the University of Maryland University College does not have a spending target due to the unique nature of its facilities profile, which includes leased buildings and buildings that are off-campus or outside of the State.

Source: University System of Maryland

Institutions also transfer operating funds to the plant fund to be used on deferred maintenance projects that will address the \$2.4 billion backlog. Plant funds are a group of accounts similar to a savings account, in which institutions can set aside funds from the operating budget to be used for anticipated capital expenditures. As shown in **Exhibit 8**, the total State-supported plant fund balance for deferred maintenance totals \$179.6 million in fiscal 2017 with UMCP and TU accounting for 63.9%, or \$114.7 million, with \$80.8 million and \$33.9 million, respectively, in plant funds. These funds are designated for specific renewal projects such as infrastructure upgrades; window replacements; and replacement of heating, ventilation, and air conditioning systems.

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**Exhibit 8**  
**State-supported Plant Fund for Deferred Maintenance**  
**Fiscal 2017**  
**(\$ in Thousands)**

University of Maryland, Baltimore	\$26,043
University of Maryland, College Park	80,828
Bowie State University	21,446
Towson University	33,902
University of Maryland Eastern Shore	3,030
Frostburg State University	776
Coppin State University	3,032
University of Baltimore	1,301
Salisbury University	2,373
University of Maryland University College	0
University of Maryland Baltimore County	6,886
University of Maryland Center for Environmental Science	0
<b>Total</b>	<b>\$179,617</b>

Source: University System of Maryland

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## *Updates*

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### **1. Research Space Guidelines for Maryland Public Institutions**

Language in the 2016 JCR required USM, MSU, DBM, and MHEC to develop and recommend research space guidelines that accurately reflect the research space needs of the institutions. A workgroup comprised of representatives from the institutions and agencies conducted research and analysis, and met with stakeholders in developing the new research space guidelines.

The workgroup compared Maryland’s current guidelines to that used in seven states and one institution: California, Minnesota, North Carolina, Ohio, Pennsylvania, Utah, Virginia, and Johns Hopkins University (JHU). It should be noted that Ohio and JHU do not have guidelines for research space. It was found that Maryland’s current research module size was consistent with or lower than those used in other states. The workgroup did find inconsistencies in how institutions applied the guidelines such as excluding some faculty titles from faculty headcount and varying definitions of full-time faculty. The workgroup recommended process improvements, which when employed by institutions, resulted in significant increases and decreases in research space needs, but the overall change in total need was negligible. The workgroup also recommended adding a new health sciences module to the current guidelines. When UMB applied this new module, its research space deficit decreased 46%.

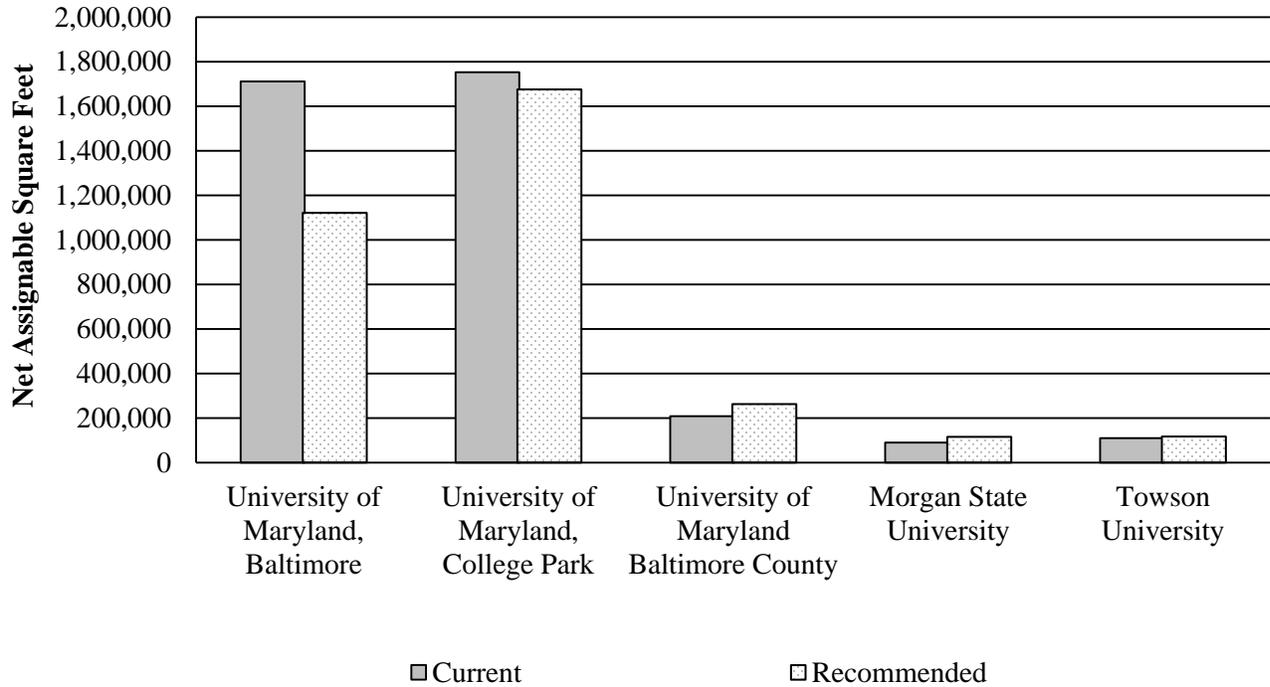
The workgroup’s recommended model includes:

- consistent definition of faculty engaged in research to be used in the applications of the guidelines;
- 700 NASF health sciences research module;
- 1,000 NASF and 650 NASF modules for other disciplines;
- realignment of discipline for each research module;
- prorated application of modules based upon highest offered degree; and
- inclusion of ad-hoc research laboratory space for oversized equipment

When the recommended guidelines are applied to institutions, the overall projected research space needs decreased 24%. As shown in **Exhibit 9**, the recommended guidelines have a significant impact on UMB, with its projected space needs decreasing 34.5% from 1,712,188 NASF to 1,122,100 NASF, while MSU’s projected needs increase 28.6% from 89,455 NASF to 114,999 NASF. In addition, the use of the new guidelines impacts an institution’s deficit or surplus in research space. As shown in **Exhibit 10**, the recommended guidelines have the greatest impact on UMB, in which its

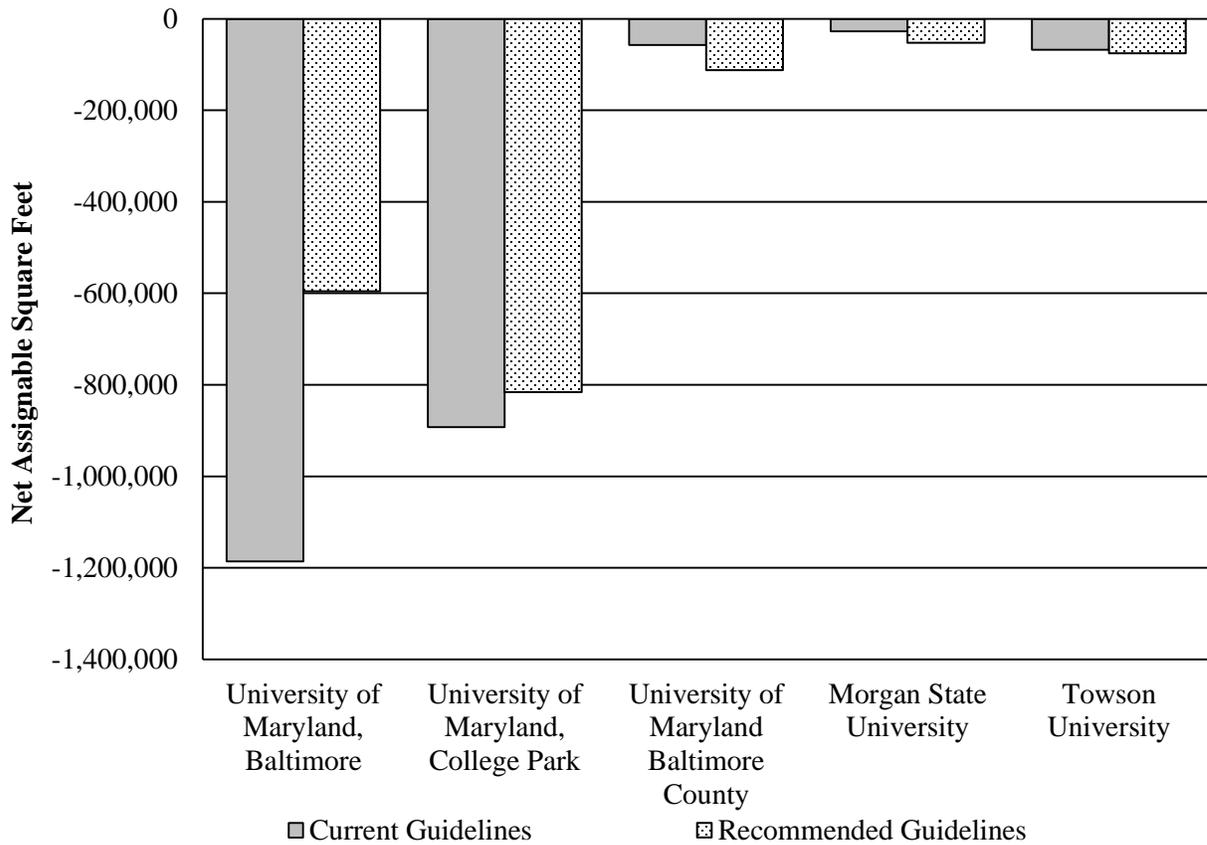
space deficits decreases 49.8% from 1,185,843 NASF to 595,755 NASF due to the inclusion of a health science module. The space deficit almost doubles at UMBC and MSU.

**Exhibit 9**  
**Comparison Research Space Needs under Current and Recommended Guidelines**



Source: *Research Space Guidelines for Maryland Public Universities*

**Exhibit 10**  
**Comparison of Projected Research Space Deficits**  
**Using Current and Recommended Guidelines**  
**Fall 2014 Inventory**



Source: *Research Space Guidelines for Maryland Public Universities*

Institutions are currently using the recommended guidelines in calculating the current and projected academic and research space needs in the fall 2016 Space Guidelines Application Program, or SGAP, for fall 2016. Based on feedback from the institutions, the guidelines will be revised, and then MHEC will adopt the guidelines as the State guidelines.

## ***Operating Budget Impact Statement***

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### **Executive’s Operating Budget Impact Statement – State-owned Projects (\$ in Millions)**

	FY 2018	FY 2019	FY 2020	FY 2021	FY 2022
<b>Biomedical Sciences Education Facility</b>					
Estimated Operating Cost	\$0.000	\$1.607	\$4.632	\$4.708	\$4.787
Estimated Staffing	0.00	3.34	5.73	5.73	5.73
<b>Total Operating Impact</b>					
<b>Estimated Operating Cost</b>	<b>\$0.000</b>	<b>\$1.607</b>	<b>\$4.632</b>	<b>\$4.708</b>	<b>\$4.787</b>
<b>Estimated Staffing</b>	<b>0.00</b>	<b>3.34</b>	<b>5.73</b>	<b>5.73</b>	<b>5.73</b>

Given that USMO is currently implementing an MOU-based funding model for new programs that will be offered in the Biomedical Sciences Education Facility, it is not known if the costs for operating the facility will be borne by USG or if each institution using the facility will be charged based on its usage of the facility. **The Chancellor should comment if the MOUs will include provisions in which institutions will be charged for usage of the facility.**

## ***Summary of Other Projects in the Capital Improvement Program***

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### **Southern Maryland Regional Higher Education Center**

This project will provide a third academic facility on the Southern Maryland Higher Education Center campus to support new education, research, and professional training programs. Language in the 2013 capital budget provided \$1.5 million to USMO and \$250,000 grant to the Southern Maryland Navy Alliance and Board of Commissioners of St. Mary’s County to design the facility. Restrictive language was placed on the \$1.5 million appropriation requiring a formal agreement between the Southern Maryland Education Council and the Southern Maryland Navy Alliance on the roles and responsibilities of each in the construction and operations of the facility. In addition, a report was required assessing the education needs in Southern Maryland, in which it was recommended to change the scope of the project to include more engineering teaching and research laboratories. This resulted in the cost of the project increasing from \$13.4 million to \$78.3 million, as programmed in the

2015 CIP. The cost subsequently increased to \$82.0 million in the 2016 CIP due to the inclusion of an auditorium, which will be funded with a \$1.0 million contribution from St. Mary’s County and an increase in equipment costs. The 2016 CIP programmed construction funding for fiscal 2019 and 2020. This schedule is maintained in the 2017 CIP.

## ***Pre-authorizations***

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**Exhibit 11** shows the pre-authorization for Biomedical Sciences and Engineering Education Facility, as previously discussed.

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### **Exhibit 11 Pre-authorizations**

<b><u>Project</u></b>	<b><u>FY 19</u></b>	<b><u>FY 20</u></b>	<b><u>FY 21</u></b>	<b><u>FY 22</u></b>	<b><u>Reason</u></b>
Biomedical Sciences and Engineering Education Facility	\$14.8	\$0.0	\$0.0	\$0.0	Allows completion of construction.

Source: Department of Budget and Management, 2017 *Capital Improvement Program*

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## ***GO Bond Recommended Actions***

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1. Approve \$88.7 million in general obligation bonds to continue construction and equipping the Shady Grove Education Center – Biomedical Sciences and Engineering Education Building.
2. Approve the de-authorization of \$0.2 million in general obligation bonds for the construction of the New Fine and Performing Arts Building due to the funds not being needed.
3. Approve the de-authorization of \$0.1 million for the relocation of Delmarva Public Radio due to the funds not being needed.
4. Approve pre-authorization of \$14.8 million in general obligation bonds for fiscal 2019 to complete construction of the Shady Grove Educational Center – Biomedical Sciences and Engineering Building.