

**RB22A**  
**University of Maryland, College Park**  
**University System of Maryland**

***Physical Sciences Complex (Prince George's County)***

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**General Obligation Bonds**      **\$41,100,000**      **Recommendation: Approve**  
**Nonbudgeted**                      **\$10,141,000**

**Bill Text:** Provide funds to complete design and construct Phase I of a new physical sciences complex to provide modern laboratory and office space for the Department of Physics, the Department of Astronomy, and the Institute for Physical Sciences and Technology, provided that notwithstanding Section 6 of this Act, work may commence on this project prior to appropriation of all the funds necessary to complete this project.

**Project Description:** Construct Phase I of the new physical sciences complex to provide modern laboratory and office space for the Department of Physics, the Department of Astronomy, and the Institute for Physical Sciences and Technology (IPST). The departments which will occupy the new building currently reside in three aged, poorly conditioned, and obsolete buildings. The three buildings are the Physics Building built in 1950 in which the electrical system is obsolete; the IPST Building that opened in 1955; and the Computer and Space Sciences Building built in 1963. The complex will be completed in three phases and once completed will provide an additional 195,052 net assignable square feet (NASF)/368,410 gross square feet (GSF) in three interconnected buildings. The fiscal 2011 allowance includes \$1.9 million for planning and \$49.3 million to begin construction.

***Prior Authorization and Capital Improvement Program***

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**Authorization Uses**  
**(\$ in Millions)**

<i>Fund Uses</i>	<i>Prior Authorization</i>	<i>2011 Allowance</i>	<i>2012 Estimate</i>	<i>2013 Estimate</i>	<i>2014 Estimate</i>	<i>2015 Estimate</i>
Planning	\$10.233	\$1.909	\$0.000	\$0.000	\$0.000	\$0.000
Construction	0.000	49.332	44.100	10.600	0.000	0.000
Equipment	0.000	0.000	3.250	7.050	0.000	0.000
<b>Total</b>	<b>\$10.233</b>	<b>\$51.241</b>	<b>\$47.350</b>	<b>\$17.650</b>	<b>\$0.000</b>	<b>\$0.000</b>

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**Authorization Sources  
(\$ in Millions)**

<i>Fund Sources</i>	<i>Prior Authorization</i>	<i>2011 Allowance</i>	<i>2012 Estimate</i>	<i>2013 Estimate</i>	<i>2014 Estimate</i>	<i>2015 Estimate</i>
GO Bond	\$9.618	\$41.100	\$47.350	\$17.650	\$0.000	\$0.000
Nonbudgeted Funds	0.615	10.141	0.000	0.000	0.000	0.000
<b>Total</b>	<b>\$10.233</b>	<b>\$51.241</b>	<b>\$47.350</b>	<b>\$17.650</b>	<b>\$0.000</b>	<b>\$0.000</b>

***Project Summary Information***

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*Phase I*

<b>Total Project Cost:</b>	\$126,385,573	<b>Cost Per Square Foot – Base:</b>	\$509
<b>Budget Estimate Stage:</b>	100% Construction Documents	<b>With Escalation and Contingencies:</b>	\$584
<b>Program Plan Status:</b>	Approved	<b>Gross Square Footage:</b>	152,298
<b>Green Building:</b>	Yes	<b>Net Usable Square Footage:</b>	81,417
<b>Est. Completion Date:</b>	January 2013	<b>Building Efficiency:</b>	53.5%
<b>Project Design Cost %:</b>	9.6%		

***Project Analysis***

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In fiscal 2007, the General Assembly accelerated this project by authorizing \$1.0 million for the initial design. The fiscal 2009 authorization provided \$4.0 million to continue with the design of Phase I. Total project cost estimates for this large facility that includes a great deal of expensive laboratory space have changed in each of the past two *Capital Improvement Programs* (CIP). Such cost estimate revisions are expected as a project moves from the initial program plan estimates' stage and through the various architectural/engineering cost estimate stages which provide more informative cost estimates. For instance, the 2010 CIP increased the total project cost estimate by \$13.8 million, from \$107.6 million to \$121.4 million. This increase was attributed to higher than estimated design fees and an increase in the cost per square foot in the conceptual design. Additionally, in order to meet stringent laboratory requirements for low vibration and electromagnetic/radio frequency interference, approximately one-third of the building needs to be placed below ground, adding to the GSF cost.

In a letter dated January 28, 2010, the University of Maryland, College Park (UMCP) informed the budget committee chairs of the Department of Budget and Management approval of a program modification to add 16 research laboratories originally planned to be constructed in Phase II to the scope of Phase I. In January 2010, UMCP was awarded a \$10.1 million federal stimulus grant from the National Institute of Standards and Technology (NIST) that required a 50% State match and is included in the fiscal 2011 CIP. The NIST grant and the State match will fund 25 laboratories initially included in the scope of Phase I and the additional 16 laboratories that were originally in the scope of Phase II. This will allow for the construction of 41 laboratories in Phase I. In the fiscal 2011 CIP, the total budget for the project increases \$5.0 million to \$126.5 million due to the addition of the 16 laboratories.

In the fiscal 2011-2015 CIP, funding for construction of Phase I totals \$104 million. As introduced, the capital budget split funds for the construction authorization between fiscal 2011 through 2013 which is consistent with the anticipated 30-month construction schedule. A preauthorization for the programmed fiscal 2012 and 2013 construction authorization is included in the 2010 Maryland Consolidated Capital Bond Loan allowing for the bidding and awarding of the construction contract and for construction to commence during fiscal 2011.

The physical sciences complex is scheduled to be constructed in three phases with Phase I designed to provide laboratory and office space for the Department of Physics, the Department of Astronomy, and IPST. Each of these departments currently occupies space in three buildings which have outlived their useful life as laboratory and research facilities. The buildings were built in the 1950s and 1960s and are in poor condition and unable to support the requirements and needs of researchers and faculty.

Phase I will address the issues of inadequate and poor laboratory facilities which constrains the ability for the departments to grow and attract high quality/caliber researchers and faculty. This in turn affects the ability of the departments to compete and win research grants and awards. The total annual sponsored research awards of the three departments increased from \$23.6 million in fiscal 2000 to \$34.4 million in fiscal 2007. In fiscal 2009, annual sponsored research increased to \$62.3 million and is expected to increase with the new facility. Currently, all research space is in use, eliminating the possibility of future growth in sponsored research. As some projects close out, extensive renovations are needed to accommodate new projects, compromising the budgets for those projects and disrupting activities in nearby spaces.

Phase I of the physical sciences complex will help UMCP address its shortfall of research space. According to the Maryland Higher Education Commission, UMCP's fiscal 2008 campuswide shortfall of research space totaled 739,818 NASF. The three departments – Physics, Astronomy, and IPST – currently have 89,351 NASF of research space. The State guidelines' allowance for these units is 162,500 NASF; therefore, these departments have a deficit of 73,149 NASF. Phase I will add approximately 43,000 NASF in research space for the three departments.

When completed the new complex will provide an additional 195,052 NASF/368,410 GSF. Phase I is sized at 153,710 GSF/81,988 NASF; Phase II is 112,300 GSF/59,164 NASF; and Phase III is 102,400 GSF/53,900 NASF. More than half of the NASF in Phases I and II will be dedicated to

research laboratories. Phase III will be dedicated to new teaching laboratories and general purpose classrooms which will primarily be used for physical science classes.

Plans for the existing buildings currently housing the three departments include renovation of the Physics Building and the East Wing of the Computer and Space Science Building. While these projects are included in UMCP's facilities master plan, they are not in the five-year CIP. Until they are funded for renovation, the buildings will be maintained with urgent problems being corrected through UMCP's facility renewal efforts. The IPST building will be demolished during Phase II.

## ***Recommended Actions***

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Approve.

## ***Executive’s Operating Budget Impact Statement***

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(\$ in Millions)

	<i>FY 2011</i>	<i>FY 2012</i>	<i>FY 2013</i>	<i>FY 2014</i>	<i>FY 2015</i>
Estimated Operating Cost	\$0.000	\$0.000	\$2.499	\$4.127	\$4.125
Estimated Staffing	0	0	24	24	24

The estimated operating cost of \$2.5 million in 2013 includes funding of 24 new regular positions to staff the building, utility costs, and equipment.

**Capital Project Cost Estimate Worksheet**

**Department:** University of Maryland, College Park  
**Project Number:** RB22A  
**Project Title:** Physical Sciences Complex I  
**Analyst:** Sara J. Baker

**Structure**

New Construction:	152,298 Sq. Ft. X	\$509.00 Sq. Ft. =	\$77,519,682
New Construction:	0 Sq. Ft. X	\$0.00 Sq. Ft. =	0
Renovation:	0 Sq. Ft. X	\$0.00 Sq. Ft. =	0
Renovation:	0 Sq. Ft. X	\$0.00 Sq. Ft. =	0
Connection to CSS SBUB:			1,257,013
Demolition:			0
Information Technology:	152,298 GSF X	\$0.00 GSF =	0
Telecommunications:			0
Miscellaneous – Other:			0
Miscellaneous – Other:			0
Miscellaneous – Other:			0
<b>Subtotal</b>			<b>\$78,776,695</b>
Regional Factor:	100.0%		0
<b>Subtotal</b>			<b>\$78,776,695</b>
Escalation to Mid-point:	2.75 Yrs. X	2.6% =	7.13% 5,616,399
<b>Total Cost of Structure (Bid Cost)</b>			<b>\$84,393,094</b>

**Site Work and Utilities**

Site Improvements:	2,409,085 + regional factor + mid-point escalation	\$2,580,841
Utilities:	2,884,855 + regional factor + mid-point escalation	3,090,531
<b>Project Subtotal (Bid Cost)</b>		<b>\$90,064,466</b>

**Fees and Miscellaneous Costs**

Green Building Premium:	2.0%	\$1,801,200
Total Construction Contingency:	5.0%	4,502,999
Inspection Cost:	2.2%	1,981,319
Miscellaneous:	CM Construction Cost Share	2,836,889
Miscellaneous:	Equipment Commissioning - CM Share	2,531,700
Miscellaneous:	WSSC Fees	180,000
Miscellaneous:	CPM	45,000
Miscellaneous:	Moveable Equipment	10,300,000
Miscellaneous:		0
A/E Fee through Construction Phase @	12.3%	12,142,000
<b>Total Cost of Project</b>		<b>\$126,385,573</b>

<b>Base Cost Per New Square Foot</b>	<b>\$509</b>
<b>Adjusted Cost Per New Square Foot (incl. escalation, contingencies, and Green Bldg.)</b>	<b>\$584</b>
<b>Base Cost Per Renovated Square Foot</b>	<b>\$0</b>
<b>Adjusted Cost Per Renovated Square Foot (incl. escalation, conting., and Green Bldg.)</b>	<b>\$0</b>