

RB34A
University of Maryland Center for Environmental Science
University System of Maryland

***New Environmental Sustainability Research Laboratory
(Calvert County)***

General Obligation Bonds **\$1,150,000**

Summary of Recommended Bond Actions

1. New Environmental Sustainability Research Laboratory
 Approve.

2. UMCES Oyster Production Facility
 Approve. De-authorizes unexpended equipment funding.

Bill Text: Provide funds to begin design of the New Environmental Sustainability Research Laboratory.

Project Description: Construct the Environmental Sustainability Research Laboratory (ESRL) to replace the R.V. Truitt Laboratory that was constructed in 1973 and closed in March 2008 due to multiple structural and mechanical issues. The project includes the relocating of multi-building shared mechanical systems into a separate support building and the demolition of the current Truitt building. The new facility will provide 11,080 net assignable square feet (NASF)/14,828 gross square feet (GSF) of space for seawater laboratories, individual research laboratories, offices, and shared equipment rooms.

Project Summary Information

Total Project Cost:	\$14,644,999	Cost Per Square Foot – Base:	\$301
Budget Estimate Stage:	Budget	With Escalation and Contingencies:	\$397
Program Plan Status:	Approved	Gross Square Footage:	16,382
Green Building:	Yes	Net Usable Square Footage:	12,580
Est. Completion Date:	May 2016	Building Efficiency:	76.8%
Project Design Cost %:	9.6%		

Project Analysis

The fiscal 2013 budget provides \$1.2 million to design the ESRL which will replace the 7,771 NASF R.V. Truitt Laboratory. Truitt was constructed in 1973 to provide researchers at the Chesapeake Biological Laboratory (CBL) with the services needed for the experimental study of marine organisms, including providing filtered seawater and walk-in temperature controlled rooms. Intended to be a running seawater facility, the design did not fully take into account the corrosive nature of seawater flowing throughout the facility. This poor design led to the deterioration of the building which became unusable. In December 2007, an in-depth study was conducted which concluded that the mechanical systems had deteriorated beyond repair, and the cost to repair the facility exceeded 80% of the replacement value. Due to the significant structural and mechanical issues, Truitt Laboratory was closed in March 2008.

The project will construct an 11,080 NASF/14,828 GSF research facility and includes the relocation of mechanical systems that are shared among multiple facilities to a support building and the demolition of Truitt laboratory. Design of the facility will take into account the corrosive nature of seawater. The advent of new materials and technologies will greatly enhance the ability of building systems to withstand the constant flow of seawater. In addition, other projects on campus such as the new research pier, which includes the installation of new pumps and an improve seawater filtration system, all contribute to diminishing the affects of seawater on systems. Construction is delayed from fiscal 2014 to 2015 due to other budgetary priorities and is projected to start in September 2014 and be completed by May 2016, with an estimated total cost of \$14.7 million. Since design should be completed by November 2013, if funding is available, construction should be accelerated to start in fiscal 2014.

Structural and mechanical system issues with Truitt include the inability of the heating, ventilation, and air conditioning system to reduce the high levels of humidity produced by the seawater resulting in the growth of mold and mildew. This contributed to the loss of research and health problems among personnel. The presence of the mold and mildew caused the University's Institutional Animal Care and Use Committee to cite the CBL on several occasions for deficiencies in

vertebrate care and in February 2008, required the removal of all vertebrates to other on campus facilities.

Leaking seawater corroded many of the valves on the water lines and the electrical panel and resulted in not being able to open the emergency panel. In addition, failure of the building envelope led to buckling in several places where the metal ties that hold the brick façade to the structure rusted and pushed out the mortar between the exterior bricks. In addition, a significant crack emerged at the top of the south side of the building.

The closure of Truitt Laboratory impacted CBL’s capability and capacity to conduct research. Truitt housed 21% of CBL’s research space and provided 45% of the space capable of handling salt water research. Researchers were reassigned to one of three facilities – Bernie Fowler Laboratory, Truitt Extension, or Corey Hall – in which personnel share space and equipment in laboratories, and an educational laboratory used by undergraduate and graduate students was converted into research space. Since all space at the CBL is fully allocated, it limits the ability to pursue research opportunities and attract new faculty and graduate students. A detailed analysis determined that the loss of funding opportunities directly attributable to the closure of Truitt is approximately \$1 million per year.

The ESRL will provide the necessary laboratories, offices, and modular wet laboratories needed to expand research in areas such as landscape and watershed ecology and conservation biology and restoration ecology. The University of Maryland Center for Environmental Sciences estimates with the construction of the facility, it will be able to bring in annually approximately \$2 million in additional research funding.

Prior Authorization and Capital Improvement Program

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

<i>Fund Uses</i>	<i>Prior Authorization</i>	<i>2013 Request</i>	<i>2014 Estimate</i>	<i>2015 Estimate</i>	<i>2016 Estimate</i>	<i>2017 Estimate</i>
Acquisition	\$0.000	\$0.000	\$0.000	\$0.000	\$0.000	\$0.000
Planning	0.000	1.150	0.000	0.250	0.000	0.000
Construction	0.000	0.000	0.000	5.900	5.850	0.000
Equipment	0.000	0.000	0.000	0.000	1.500	0.000
Total	\$0.000	\$1.150	\$0.000	\$6.150	\$7.350	\$0.000

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

<i>Fund Sources</i>	<i>Prior Authorization</i>	<i>2013 Request</i>	<i>2014 Estimate</i>	<i>2015 Estimate</i>	<i>2016 Estimate</i>	<i>2017 Estimate</i>
GO Bond	\$0.000	\$1.500	\$0.000	\$6.150	\$7.350	\$0.000
Total	\$0.000	\$1.500	\$0.000	\$6.150	\$7.350	\$0.000

Executive’s Operating Budget Impact Statement

(\$ in Millions)

	<i>FY 2013</i>	<i>FY 2014</i>	<i>FY 2015</i>	<i>FY 2016</i>	<i>FY 2017</i>
Estimated Operating Cost	\$0.000	\$0.000	\$0.000	\$0.096	\$0.293
Estimated Staffing	0	0	0	1	1

According to the 2013 *Capital Improvement Program*, the ESRL will impact the operating budget in fiscal 2016 requiring \$0.1 million to support 1 new position and for amortized equipment expenses. In fiscal 2017, the facility’s operating impact is expected to increase to \$0.3 million, which include utilities, supplies and materials, and equipment amortization.

GO Bond Recommended Actions

1. Approve \$1.2 million in general obligation bond funding to support design of the New Environmental Sustainability Research Laboratory.
2. Approve de-authorization of funds remaining from the unexpended equipment authorization for the Oyster Production Facility.

Capital Project Cost Estimate Worksheet

Department: University of Maryland Center for Environmental Science
Project Number: RB34A
Project Title: New Environmental Sustainability Research Laboratory
Analyst: Sara J. Baker

Structure

New Construction: New Trutt	14,828 Sq. Ft. X	\$301.00 Sq. Ft. =	\$4,463,228
New Construction: Chiller Encl	1,554 Sq. Ft. X	\$102.00 Sq. Ft. =	158,508
Renovation:	0 Sq. Ft. X	\$0.00 Sq. Ft. =	0
Renovation:	0 Sq. Ft. X	\$0.00 Sq. Ft. =	0
Built-in Equipment:			750,000
Demolition:			25,000
Information Technology:	16,382 GSF X	\$0.00 GSF =	5,000
Telecommunications:			0
Miscellaneous – Other:	Asbestos Removal		50,000
Miscellaneous – Other:			0
Miscellaneous – Other:			0
Subtotal			\$5,451,736
Regional Factor:	100.0%		0
Subtotal			\$5,451,736
Escalation to Mid-point:	4.50 Yrs. X	3.9% =	17.50% 954,054
Total Cost of Structure (Bid Cost)			\$6,405,790

Site Work and Utilities

Site Improvements:	1,272,587 + regional factor + mid-point escalation	\$1,495,290
Utilities:	1,372,587 + regional factor + mid-point escalation	1,612,790
Project Subtotal (Bid Cost)		\$9,513,869

Fees and Miscellaneous Costs

Green Building Premium:	2.0%	\$190,277
Total Construction Contingency:	10.0%	951,387
Inspection Cost:	2.2%	209,305
Miscellaneous:	CM Cost Construction Share	379,889
Miscellaneous:	CM Pre-Construction Fees	151,271
Miscellaneous:	Equipment Commissioning	500,000
Miscellaneous:	Building Equipment Commissioning	69,823
Miscellaneous:	Reimbursables	28,000
Miscellaneous:	Movable Equipment	1,400,000
Miscellaneous:	Information Technology Equipment	100,000
A/E Fee through Construction Phase @	10.6%	1,151,178
Total Cost of Project		\$14,644,999

Base Cost Per New Square Foot	\$301
Adjusted Cost Per New Square Foot (incl. escalation, contingencies, and Green Bldg.)	\$397
Base Cost Per Renovated Square Foot	\$0
Adjusted Cost Per Renovated Square Foot (incl. escalation, conting., and Green Bldg.)	\$0