University of Maryland
CENTER FOR ENVIRONMENTAL SCIENCE

FY 2024 Capital Budget Request

March 13, 2023
Senate Budget and Taxation Committee
Capital Budget Subcommittee
Chair: Craig Zucker; Vice Chair: Cory McCray

March 14, 2023
House Appropriations Committee
Capital Budget Subcommittee
Chair: Mark Chang; Vice Chair: Jazz Lewis

Testimony by
Peter Goodwin, President

I am pleased to present for the General Assembly's consideration the FY 2024 Capital Budget request for the University of Maryland Center for Environmental Science. UMCES has a rich tradition of research and innovation that has supported the citizens and agencies of the State of Maryland since its founding nearly 100 years ago. As trusted scientific advisors, our faculty provide unbiased scientific information and research to inform public policy and management actions on pressing environmental issues, both in Maryland and around the world. We have always been distinguished by our ability and willingness to engage policymakers and support science-based decision-making by managers. In a very real sense, this is part of our institutional DNA.

I want to express appreciation for the General Assembly's steadfast support for significant facility improvements at our laboratories across the state that sustains our national competitiveness. This has brought great returns to Maryland, not just in the external research funding we have been able to attract and the quality of our student experience, but, more importantly, in the knowledge that has been generated pertinent to the effective protection and restoration of the Chesapeake Bay and its watershed.

Chesapeake Analytics Collaborative Building *[A collaboratory]*
In order to alleviate a critical shortage of collaborative, learning and library space as well as modern infrastructure to support Information Technology, we are in the final planning phase of a cost-effective building at the Chesapeake Biological Laboratory in Solomons, MD.

This innovation facility will provide UMCES the space to convene the multiple partners and interested parties we regularly convene to tackle Maryland's environmental issues. In this age of big data, advances in computing and sensor technologies are producing vast amounts of information that is often difficult to assimilate and organize in a manner that is useful to agencies or the public. Community science, smartphones, and social media produce vast volumes of unstructured, collateral data on human behavior and responses to environmental change that remain virtually untapped. The challenges posed by synthesizing big data are particularly acute when working with stakeholders, who generally lack data science training, yet are aware of the value of effective and comprehensive data analysis and visualization in developing the evidence for planning action.

The collaboration building/laboratory, or *collaboratory,* is being designed to empower the discovery, interpretation and communication of meaningful patterns in data and information to support the restoration of Chesapeake Bay and similar ecosystems around the world. The collaboratory will also enable training of our students in emerging technologies related to data mining, synthesis of environmental knowledge and the use of technology to communicate complex scientific information to diverse audiences.

Features of the collaboratory will include:

- **Flexible and Adaptable Spaces.** It is envisioned that the space will be dedicated to specific environmental problems for discrete periods of time. It will allow clusters of scientists and engineers, students as well as experts from agencies, universities, non-profit organizations, the private sector and other stakeholders to interact and guide progress toward the questions posed by state and federal leadership.

- **Democratization of Environmental Data.** In this era of the deluge of data, making data accessible and understandable to communities, scientists, and stakeholders results in a common understanding of the 'best-available science' resulting in more inclusive and effective decision-making.

- **Enhancing Educational Programs and Diversity.** The collaboratory will leverage existing educational programs of research-based graduate programs, internship opportunities for undergraduates, outreach to K-12 students and teacher training, and informal offerings for the public. This initiative will develop innovative workforce development programs for working professionals through certificate and badging course offerings – particularly in the emerging area of environmental data scientists. Ultimately, UMCES and the entire environmental professional field must enhance diversity of its interns, graduate students, faculty, and staff while cultivating inclusivity through professional development and innovative mentoring. Diversifying the environmental science workforce will be a central tenet in recruiting the staff and participants in the collaboratory.

- **Large-scale Visualization and Virtualization Capabilities**. The collaboratory will provide scientists the IT infrastructure to predict alternative futures based upon decision scenarios. Understanding trajectories in ecosystem services and identifying nature-based solutions that reduce risks to infrastructure, communities, and the ecosystem are critically important. Clear and compelling communication using innovative visualization tools will be integrated into all aspects of the science and support to local government and agencies.

DLS recommendation
We are very pleased that the Regents and the Administration are supporting this request for approval of $11,033,000 in general obligation bond funding to continue construction of the Chesapeake Analytics Collaborative Building.

UMCES concurs with the recommendation of the Department of Legislative Services for this project and respectfully request the General Assembly's inclusion of the Chesapeake Analytics Collaborative Building in the FY2024 Capital Appropriation.

In addition, UMCES concurs with the Governor's inclusion of the Coastal Dynamics Laboratory in the Capital Improvement Plan with the start of the program in FY28.