

INSTRUCTIONS FOR SUBMITTING 2021 INSTITUTIONAL SIX-

Due Date: July 1, 2021

PLEASE READ INSTRUCTIONS CAREFULLY

Six-year Plan Requirement

The Higher Education Opportunity Act of 2011 (HJOA) requires Virginia's public institutions of higher education to prepare and submit six-year plans. (See below for complete code reference.) During the 2015 General Assembly session, joint resolutions approved by the House (HJR 555) and Senate (SJ 228) also require that the mission, vision, goals, and strategies expressed in the Virginia Plan, the statewide strategic plan, guide the development of the strategic plan and six-year plan at each public institution of higher education, as well as the agency plan for SCHEV, and that SCHEV report annually on the Commonwealth's progress toward achieving these goals and targets to the Governor. General

2021 Six-year Plan Format

The 2021 Six-Year Plan consists of a workbook and an accompanying narrative. The workbook has an Instructions page, Institution ID page and five parts/worksheets: In-state undergraduate Tuition and Fee Increase Rate, Tuition and Other Nongeneral Fund Revenue, Academic-Financial, General Fund (GF) Request, and Financial Aid. **Note: Shaded cells contain formulas.** Instructions for the narrative are provided in a separate attachment. The Enrollment/Degree Projections are being developed in a separate process, but will be incorporated into the six-year plan review. The 2021 Six-Year Plans are due July 1, 2021. The review group (referred to as Up Six) as outlined in § 23.1-306 - see Legislative Reference section below - will meet with each institution during the months of July and August to review the institution's plan and provide comments. If changes to the plans are recommended, revised institutional submissions are due no later than October 1 or immediately following an institution's Board of Visitors' meeting, if it is later than October 1.

INSTRUCTIONS FOR SECTIONS

1. In-state Undergraduate Tuition and Fee Increase Rate Plan

Provide annual planned increases in in-state undergraduate tuition and mandatory E&G fees and mandatory non-E&G fees in 2022-24 biennium. The tuition and fee charges for in-state undergraduate students should reflect the institution's estimate of reasonable and necessary charges to students based on the mission, market capacity and other factors with the assumption of no new state general fund support.

2. Tuition and Other Nongeneral Fund Revenue

Based on assumptions of no new general fund, enrollment changes and other institution-specific conditions, **provide total collected or projected to collect revenues (after discounts and waivers)** by student level and domicile (including tuition revenue used for financial aid), and other NGF revenue for educational and general (E&G) programs; and mandatory non-E&G fee revenues from in-state undergraduates and other students as well as the total auxiliary revenue. **DO NOT INCLUDE**

3. Academic-Financial Plan

The Academic Plan, (3A), of this worksheet should contain academic, finance, and support service strategies the institution intends to employ in meeting state needs/goals as found in the Virginia Plan. Information related to the Virginia Plan and more specific state priorities is provided below. Provide a short title for each strategy. Indicate the total amount for the strategy, any internal reallocation to support the strategy and the amount of tuition revenue that will be used to support the strategy. Provide a short description of the strategy, including a specific reference as to where more detailed information about the strategy can be found in the Narrative document, in column J. Provide any pertinent information for consideration in 2024 through 2028 in column K. **All salary information must be provided in 3B. No salary information should be included in 3A. Strategies for student financial aid, other than those that are provided through tuition revenue, should not be included on this table; they should be included in Part 4 of the plan, General Fund Request.** Funding amounts in the first year should be incremental. However, if the costs continue into the second year, they should

Pathways to Opportunity: The Virginia Plan for Higher Education. In the column labeled "VP Goal," identify the goal of the The Virginia Plan (VP) that applies to each institutional strategy using the appropriate number (i.e., 1, 2, or 3). The three VP goals are listed below. In the Narrative document

The Virginia Plan has three major goals (please refer to the Plan at <https://www.schev.edu/index/statewide-strategic-plan/virginia-plan-overview> for more information about the strategies under each goal):

GOAL 1 EQUITABLE: CLOSE ACCESS AND COMPLETION GAPS.

GOAL 2 AFFORDABLE: LOWER COSTS TO STUDENTS.

GOAL 3 TRANSFORMATIVE: EXPAND PROSPERITY.

The Financial Plan, 3B, of this worksheet pertains to the 2022-24 biennium. Complete the lines appropriate to your institution. **As completely as possible, the items in the academic plan and financial plan should represent a complete picture of the institution's anticipated use of projected tuition revenues. For every strategy in 3A and every item in 3B of the plan, the total amount and the sum of the reallocation and tuition revenue should equal one another.** Two additional rows, "Anticipated Nongeneral Fund Carryover" and "Nongeneral Fund for Current Operations" are available for an institution's use, if an institution cannot allocate all of its tuition revenue to specific strategies in the plan. Given the long standing practice that agencies should not assume general fund support for operation and maintenance (O&M) of new facilities, O&M strategies should not

4. General Fund (GF) Request

Indicate items for which you anticipate making a request for state general fund support in the 2022-24 biennium. The item can be a supplement to a strategy or item from the academic and financial plan or it can be a free-standing request for which no tuition revenue would be used. If it is a supplement to a strategy or item from the academic and financial plan, use the same title used in Part 3 and place it in bold print to draw attention to its connection to Part 3. Also, describe in the Notes column how

5. Financial Aid

Provide a breakdown of the projected source and distribution of tuition and fee revenue redirected to financial aid. To ensure compliance with the state prohibition that in-state students not subsidize out-of-state students and to provide the review group with a scope of the strategy, projections must be made for each of the indicated categories. Please be aware that this data will be compared with similar data provided by other institutional offices in order to ensure overall consistency. (Please do not alter shaded cells that contain formulas.) **"Other Discounts and Waiver"** means the totals of any unfunded full or partial tuition waiver reducing the students' charges, including Virginia Military Survivors and Dependent

Special Notes:

Enrollment/Degree Projections: Detailed six-year enrollment/degree projections are being collected through a separate process. These projections will be incorporated in the Six-Year Plan as part of the July and August institutional meetings with the Op Six.

BOV Approval: Final board approval of the Six-Year Plan should be done at the earliest possible fall meeting. HB 897 (2018) specified that initial plans do not get posted on the General Assembly's website and that final plans should be submitted to DLAS no later than December 1. However, we are requesting that institutions submit final plans with their responses to Op Six Comments on October 1 (or as soon after fall board meetings as possible) as has been done in the past. We post the responses

Accessibility: All files need to be checked for accessibility prior to submitting them. Information on accessibility is provided at this link on SCHEV's website: <http://schev.edu/index/accessibility/creating-accessible-content>. The first link, "How to Make Your MS Office Documents Accessible" can be used to learn how to check documents. Only errors, not warnings, must be addressed.

Contacts for Questions:

General Questions - Jean Huskey (jeanhuskey@schev.edu)

Academic - Beverly Rebar (beverlyrebar@schev.edu)

Finance - Yan Zheng (yanzheng@schev.edu)

Financial Aid - Lee Andes (leeandes@schev.edu)

Enrollment/Degree Projections - Tod Massa (todmassa@schev.edu)

Legislative Reference:

§ 23.1 - 306. Institutional Six-Year Plans.

A. The governing board of each public institution of higher education shall (i) develop and adopt biennially and amend or affirm annually a six-year plan for the institution;
(ii) submit such plan to the Council, the General Assembly, the Governor, and the Chairmen of the House Committee on Appropriations, the House Committee on Education, the Senate Committee on Education and Health, and the Senate Committee on Finance no later than July 1 of each odd-numbered year; and (iii) submit amendments to or an affirmation of that plan no later than July 1 of each even-numbered year or at any other time permitted by the Governor or General Assembly to the Council, the General Assembly, the Governor, and the Chairmen of the House Committee on Appropriations, the House Committee on Education, the Senate Committee on Education and Health, and the Senate Committee on Finance. Each such plan and amendment to or affirmation of such plan shall include a report of the institution's active contributions to efforts to stimulate the economy in the
Budget, Executive Director of the Council, Staff Director of the House Committee on Appropriations, and Staff Director of the Senate Committee on Finance, or their designees, shall review each institution's plan or amendments and provide comments to the institution on that plan by September 1 of the relevant year. Each institution shall respond to any such comments by October 1 of that year.
C. Each plan shall be structured in accordance with, and be consistent with, the objective and purposes of this chapter set forth in § 23.1-301 and the criteria developed pursuant to § 23.1-309 and shall be in a form and manner prescribed by the Council, in consultation with the Secretary of Finance, the Secretary of Education, the Director of the Department of Planning and Budget, the Director of the Council, the Staff Director of the House Committee on Appropriations, and the Staff Director of the
D. Each six-year plan shall (i) address the institution's academic, financial, and enrollment plans, including the number of Virginia and non-Virginia students, for the six-year period; (ii) indicate the planned use of any projected increase in general fund, tuition, or other nongeneral fund revenues; (iii) be based upon any assumptions provided by the Council, following consultation with the Department of Planning and Budget and the staffs of the House Committee on Appropriations and the Senate Committee on Finance, for funding relating to state general fund support pursuant to §§ 23.1-303, 23.1-304, and 23.1-305 and subdivision 9: (iv) be aligned with the institution's six-year enrollment
1. Financial planning reflecting the institution's anticipated level of general fund, tuition, and other nongeneral fund support for each year of the next biennium;
2. The institution's anticipated annual tuition and educational and general fee charges required by (i) degree level and (ii) domiciliary status, as provided in § 23.1-307;

3. Plans for providing financial aid to help mitigate the impact of tuition and fee increases on low-income and middle-income students and their families as described in subdivision 9, including the projected mix of grants and loans:
 4. Degree conferral targets for undergraduate Virginia students;
 5. Plans for optimal year-round use of the institution's facilities and instructional resources;
 6. Plans for the development of an instructional resource-sharing program with other public institutions of higher education and private institutions of higher education;
 7. Plans with regard to any other incentives set forth in § 23.1-305 or any other matters the institution deems appropriate;
 8. The identification of (i) new programs or initiatives including quality improvements and (ii) institution-specific funding based on particular state policies or institution-specific programs, or both, as provided in subsection C of § 23.1-307; and
 9. All institutional student financial aid commitment that, in conjunction with general funds appropriated for that purpose, provides assistance to students from both low-income and middle-income families and takes into account the information and recommendations resulting from the review of federal and state financial aid programs and institutional practices conducted pursuant to subdivisions B 2 and C 1 of § 23.1-300.
- E.* In developing such plans, each public institution of higher education shall consider potential future impacts of tuition increases on the Virginia College Savings Plan and ABLE Savings Trust Accounts (§ 23.1-700 et seq.) and shall discuss such potential impacts with the Virginia College Savings Plan. The chief executive officer of the Virginia College Savings Plan shall provide to each institution the Plan's assumptions underlying the contract pricing of the program.
- F.* 1. In conjunction with the plans included in the six-year plan as set forth in subsection D, each public institution of higher education, Richard Bland College, and the Virginia Community College System may submit one innovative proposal with clearly defined performance measures, including any request for necessary authority or support from the Commonwealth, for a performance pilot. If the General Assembly approves the proposed performance pilot, it shall include approval language in the general appropriation act. A performance pilot shall advance the objectives of this chapter by addressing innovative requests related to college access, affordability, cost predictability, enrollment management subject to specified commitments regarding undergraduate in-state student enrollment, alternative tuition and fee structures and affordable pathways to degree attainment, internships and work study.
2. A performance pilot may include or constitute an institutional partnership performance agreement, which shall be set forth in a memorandum of understanding that includes mutually dependent commitments by the institution, the Commonwealth, and identified partners, if any, related to one or more of the priorities set forth in subdivision 1 or set forth in a general appropriation act. No such institutional partnership performance agreement shall create a legally enforceable obligation of the
3. No more than six performance pilots shall be approved in a single session of the General Assembly.
4. Development and approval of any performance pilot proposal shall proceed in tandem with consideration of the institution's six-year plan, as follows:
- a. An institution that intends to propose a performance pilot shall communicate that intention as early as practicable, but not later than April 1 of the year in which the performance pilot will be proposed, to the reviewers listed in subsection B, the co-chairmen of the Joint Subcommittee on the Future Competitiveness of Virginia Higher Education, and the Governor. In developing a proposed performance pilot, the institution shall consider the Commonwealth's educational and economic policies and priorities, including those reflected in the Virginia Plan for Higher Education issued by the Council, the economic development policy developed pursuant to § 23.2-205, the strategic plan developed
 - b. An institution that submits a performance pilot shall include the one innovative proposal with clearly defined performance measures, and any corresponding authority and support requested from the Commonwealth, with its submission of the preliminary version of its six-year plan pursuant to clause (ii) of subsection A or with its preliminary amendment or affirmation submission pursuant to clause (iii) of

c. The reviewers listed in subsection B, or their designees, shall review and comment on any proposed performance pilot in accordance with the six-year plan review and comment process established in subsection B and may expedite such review and comment process to facilitate the executive and legislative budget process or for other reasons. No later than October 15 of the relevant year, the reviewers shall communicate to the Governor and the Chairmen of the House Committee on Appropriations and the Senate Committee on Finance their recommendations regarding each performance pilot proposal. Such recommendations shall include the reviewers' comments regarding

d. Each performance pilot proposal shall include evidence of its approval by the institution's governing board and, if accepted, shall be referenced in the general appropriation act.

Six-Year Plans - Part I (2021): 2022-23 through 2027-28

Due: July 1, 2021

Institution:

Virginia Institute of Marine Science

Institution UNITID:

VIMS

Individual responsible for plan

Name:

DaNika Neblett Robinson/Betty L. Barrack
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Part 1: In-State Undergraduate Tuition and Mandatory Fee Increase Plans in 2022-24 Biennium
Virginia Institute of Marine Science

Instructions: Provide annual planned increases in in-state undergraduate tuition and mandatory E&G fees and mandatory non-E&G fees in 2022-24 biennium. The tuition and fee charges for in-state undergraduate students should reflect the institution's estimate of reasonable and necessary charges to students based on the mission, market capacity and other factors with the assumption of no new state general fund support.

In-State Undergraduate Tuition and Mandatory E&G Fees

2021-22	2022-23		2023-24	
Charge (BOV approved)	Planned Charge	% Increase	Planned Charge	% Increase
		%		%

In-State Undergraduate Mandatory Non-E&G Fees

2021-22	2022-23		2023-24	
Charge (BOV approved)	Planned Charge	% Increase	Planned Charge	% Increase
		%		%

Part 2: Tuition and Other Nongeneral Fund (NGF) Revenue Virginia Institute of Marine Science

Instructions: Based on assumptions of no new general fund, enrollment changes and other institution-specific conditions, **provide total collected or projected to collect revenues (after discounts and waivers)** by student level and domicile (including tuition revenue used for financial aid), and other NGF revenue for educational and general (E&G) programs; and mandatory non-E&G fee revenues from in-state undergraduates and other students as well as the total auxiliary revenue. DO NOT INCLUDE STIMULUS FUNDS.

Items	2020-2021 (Actual)	2021-2022 (Estimated)	2022-2023 (Planned)	2023-2024 (Planned)
	Total Collected Tuition Revenue	Total Collected Tuition Revenue	Total Projected Tuition Revenue	Total Projected Tuition Revenue
E&G Programs				
Undergraduate, In-State	\$0	\$0	\$0	\$0
Undergraduate, Out-of-State	\$0	\$0	\$0	\$0
Graduate, In-State	\$0	\$0	\$0	\$0
Graduate, Out-of-State	\$0	\$0	\$0	\$0
Law, In-State	\$0	\$0	\$0	\$0
Law, Out-of-State	\$0	\$0	\$0	\$0
Medicine, In-State	\$0	\$0	\$0	\$0
Medicine, Out-of-State	\$0	\$0	\$0	\$0
Dentistry, In-State	\$0	\$0	\$0	\$0
Dentistry, Out-of-State	\$0	\$0	\$0	\$0
PharmD, In-State	\$0	\$0	\$0	\$0
PharmD, Out-of-State	\$0	\$0	\$0	\$0
Veterinary Medicine, In-State	\$0	\$0	\$0	\$0
Veterinary Medicine, Out-of-State	\$0	\$0	\$0	\$0
Other NGF	\$0	\$0	\$0	\$0
Total E&G Revenue	\$0	\$0	\$0	\$0

	2020-2021 (Actual)	2021-2022 (Estimated)	2022-2023 (Planned)	2023-2024 (Planned)
Non-E&G Fee Revenue	Total Tuition Revenue	Total Tuition Revenue	Total Tuition Revenue	Total Tuition Revenue
In-State undergraduates	\$0	\$0	\$0	\$0
All Other students	\$0	\$0	\$0	\$0
Total non-E&G fee revenue	\$0	\$0	\$0	\$0
Total Auxiliary Revenue	\$0	\$0	\$0	\$0

Part 3: ACADEMIC-FINANCIAL PLAN
Virginia Institute of Marine Science

3A: Six-Year Plan for Academic and Support Service Strategies for Six-year Period (2022-2028)

Instructions for 3A: The Academic Plan should contain academic, finance, and support service strategies the institution intends to employ in meeting state needs/goals as found in the Virginia Plan. (Please see the main instructions sheet in this workbook for more detailed information about The Virginia Plan. Please provide short titles to identify institutional strategies. Provide a concise description of the strategy in the Description of Strategy column (column J). Within this column, provide a specific reference as to where more detailed information can be found in the Narrative document. Note the goal(s) with which the strategy is aligned with the Virginia Plan (in particular, the related priority areas) in the VP Goal column and give it a Priority Ranking in column A. Additional information for 2024-2028 should be provided in column K (Two Additional Biennia). Strategies for student financial aid, other than those that are provided through tuition revenue, should not be included on this table; they should be included in Part 4, General Fund Request, of the plan. **All salary information must be provided in section 3B. No salary information should be included in 3A.** Funding amounts in the first year should be incremental. **However, if the costs continue into the second year, they should be reflected cumulatively.** Please update total cost formulas if necessary. **Institutions should assume no general fund (GF) support in this worksheet. A separate worksheet (Part 4) is provided for institutions to request GF support. IF ANY STRATEGIES WILL BE FUNDED WITH STIMULUS FUNDS, PLEASE INCLUDE THOSE FUNDS IN THE REALLOCATION COLUMNS.**

Priority Ranking	ACADEMIC AND SUPPORT SERVICE STRATEGIES FOR SIX-YEAR PERIOD (2022-2028)								Description of Strategy	Two Additional Biennia		
	Strategies (Short Title)	VP Goal	Biennium 2022-2024 (7/1/22-6/30/24)								Concise Information for Each Strategy	Information for 2024- 2028
			2022-2023			2023-2024						
			Total Amount	Reallocation	Amount From Tuition Revenue	Total Amount	Reallocation	Amount From Tuition Revenue				
		\$0	\$0	\$0	\$0	\$0	\$0					
		\$0	\$0	\$0	\$0	\$0	\$0					
		\$0	\$0	\$0	\$0	\$0	\$0					
		\$0	\$0	\$0	\$0	\$0	\$0					
		\$0	\$0	\$0	\$0	\$0	\$0					
		\$0	\$0	\$0	\$0	\$0	\$0					
		\$0	\$0	\$0	\$0	\$0	\$0					
		\$0	\$0	\$0	\$0	\$0	\$0					
		\$0	\$0	\$0	\$0	\$0	\$0					
		\$0	\$0	\$0	\$0	\$0	\$0					
		\$0	\$0	\$0	\$0	\$0	\$0					
		\$0	\$0	\$0	\$0	\$0	\$0					
		\$0	\$0	\$0	\$0	\$0	\$0					
		\$0	\$0	\$0	\$0	\$0	\$0					
Total 2022-2024 Costs (Included in Financial Plan *Total Additional Funding Need)		\$0	\$0	\$0	\$0	\$0	\$0	\$0				

3B: Six-Year Financial Plan for Educational and General Programs, Incremental Operating Budget Need 2022-2024 Biennium

Instructions for 3B: Complete the lines appropriate to your institution. As completely as possible, the items in the Academic Plan (3A) and Financial Plan (3B) should represent a complete picture of the institution's anticipated use of projected tuition revenues. For every strategy in 3A and every item in 3B of the plan, the total amount and the sum of the reallocation and tuition revenue should equal one another. Two additional rows, "Anticipated Nongeneral Fund Carryover" and "Nongeneral Fund Revenue for Current Operations" are available for an institution's use, if an institution cannot allocated all of its tuition revenue to specific strategies in the plan. Also, given the long standing practice that agencies should not assume general fund support for operation and maintenance (O&M) of new facilities, O&M strategies should not be included in an institution's plan, unless they are completely supported by tuition revenue. Please do not add additional rows to 3B without first contacting Jean Huskey. **All salary information should be included in this section. No salary information should be included in 3A.**

Assuming No Additional General Fund	2022-2023			2023-2024		
	Total Amount	Reallocation	Amount From Tuition Revenue	Total Amount	Reallocation	Amount From Tuition Revenue
Items						
Total Incremental Cost from Academic Plan¹	\$0	\$0	\$0	\$0	\$0	\$0
Increase T&R Faculty Salaries (\$)	\$0	\$0	\$0	\$266,805	\$0	\$0
T&R Faculty Salary Increase Rate(%) ²	0.00%		0.00%	3.00%		0.00%
Increase Admin. Faculty Salaries (\$)	\$0	\$0	\$0	\$280,689	\$0	\$0
Admin. Faculty Salary Increase Rate (%) ²	0.00%		0.00%	3.00%		0.00%
Increase Classified Staff Salaries (\$)	\$0	\$0	\$0	\$90,772	\$0	\$0
Classified Salary Increase Rate (%) ²	0.00%		0.00%	3.00%		0.00%
Increase University Staff Salaries (\$)	\$0	\$0	\$0	\$243,352	\$0	\$0
University Staff Salary Increase Rate (%) ²	0.00%		0.00%	3.00%		0.00%
Increase Number of Full-Time T&R Faculty(\$) ³	\$0	\$0	\$0	\$0	\$0	\$0
O&M for New Facilities	\$0	\$0	\$0	\$0	\$0	\$0
Add'l In-State Student Financial Aid from Tuition Rev	\$0	\$0	\$0	\$0	\$0	\$0
Add'l Out-of-State Student Financial Aid from Tuition Rev	\$0	\$0	\$0	\$0	\$0	\$0
Anticipated Nongeneral Fund Carryover	\$0	\$0	\$0	\$0	\$0	\$0
Nongeneral Fund for Current Operations (Salary & Security, Fringe)	\$0	\$0	\$0	\$0	\$0	\$0
Library Enhancement	\$0	\$0	\$0	\$0	\$0	\$0
Utility Cost Increase	\$89,866	\$0	\$0	\$107,839	\$0	\$0
Total Additional Funding Need	\$89,866	\$0	\$0	\$989,457	\$0	\$0

Notes:
(1) Please ensure that these items are not double counted if they are already included in the incremental cost of the academic plan.
(2) If planned, enter the cost of any institution-wide increase.
(3) If planned, enter the cost of additional FTE faculty.

Auto Check (Match = \$0)			
Match Incremental Tuition Revenue in Part 2		If not matched, please provide explanation in these fields.	
2022-2023	2023-2024	2022-2023	2023-2024
\$0	\$0		

**Part 4: General Fund (GF) Request
Virginia Institute of Marine Science**

Instructions: Indicate items for which you anticipate making a request for state general fund in the 2022-24 biennium. The item can be a supplement to a strategy or item from the academic and financial plan or it can be a free-standing request for which no tuition revenue would be used. If it is a supplement to a strategy or item from the academic and financial plan, use the same title used in Part 3 and place it in bold print to draw attention to its connection to Part 3. Also, describe in the Notes column how additional general fund will enhance or expand the strategy. Requests for need-based financial aid appropriated in program 108 should be included here. If additional rows are added, please update the total costs formulas.

Priority Ranking	Initiatives Requiring General Fund Support						Notes
	Biennium 2022-2024 (7/1/22-6/30/24)						
	Strategies (Match Academic-Financial Worksheet Short Title)	VP Goal	2022-2023		2023-2024		
			Total Amount	GF Support	Total Amount	GF Support	
1			Operating costs for new facilities coming online in FY 2023.		\$617,461	\$617,461	\$630,140
2	Support the Commonwealth Fisheries Collection	2,3,4	\$209,106	\$209,106	\$225,022	\$225,022	The Nunnally Ichthyology Collection at VIMS is a library of preserved fishes from Virginia, the Chesapeake Bay, the North Atlantic, and the world beyond. It is the only state collection for marine and freshwater fishes, and serves as the state repository for fishes collected in the Commonwealth. VIMS bears the responsibility of ensuring that this valuable resource is maintained on behalf of the Commonwealth. As the size and value of this collection has grown, we lack the resources to ensure that the collection is adequately maintained and that it is available for use by state agencies and academic institutions. More information is provided in Section B of Narrative document (p. 1).
3	Support the Virginia Department of Health (VDH) and Virginia Marine Resources Commission (VMRC) needs in shellfish aquaculture management.	3,4	\$425,000	\$425,000	\$325,000	\$325,000	Shellfish aquaculture in one of the fastest growing economic drivers in coastal Virginia, especially in rural areas. With this growth has come the need for new monitoring and assessment programs to support the work that VDH does in protecting human health and that VMRC does in managing the use of the state's aquatic resources. VIMS has the technical skills to conduct these new programs, but lacks the state-supported personnel to conduct the monitoring and some of the needed field sensors. Federal grant funding, which we employ with great success in supporting our research programs, is typically not available to support such monitoring programs. State support, in three separate monitoring programs, will allow us to meet the needs that have been expressed to us directly by VDH and VMRC. More information is provided in Section A of Narrative document (pp. 2-3).
4	Support the Implementation of the Virginia Coastal Resiliency Master Plan	2,3	\$425,000	\$425,000	\$425,000	\$425,000	Under the leadership of the Virginia's Chief Resilience Officer and the Special Assistant to the Governor for Coastal Adaptation and Protection, the Commonwealth is in the process of producing the Virginia Coastal Resiliency Master Plan (hereafter, the Plan) set for release in fall 2021. Through discussions with the leadership of this effort, we have preliminary indications of the some of the tasks that VIMS will likely be requested to support in implementing the Plan's recommendations. The following presents our best estimates of the additional resources required for VIMS to meet these needs. We anticipate that all or a subset of these tasks would be submitted as a budget initiative depending upon the final outcome of the Plan. Deploy and integrate data from more tidal gauge and water level sensors throughout Tidewater Virginia. Identify overlapping vulnerabilities and mitigative measures related to sea-level rise/flooding/storm surge, including impacts on ecosystem and community resilience throughout rural coastal Virginia. Develop shoreline management plans for areas identified in the Plan as being particularly susceptible to high erosion rates. Expand and maintain AdaptVA. More information is provided in Section B of Narrative document (pp. 3-4).

**Part 4: General Fund (GF) Request
Virginia Institute of Marine Science**

Instructions: Indicate items for which you anticipate making a request for state general fund in the 2022-24 biennium. The item can be a supplement to a strategy or item from the academic and financial plan or it can be a free-standing request for which no tuition revenue would be used. If it is a supplement to a strategy or item from the academic and financial plan, use the same title used in Part 3 and place it in bold print to draw attention to its connection to Part 3. Also, describe in the Notes column how additional general fund will enhance or expand the strategy. Requests for need-based financial aid appropriated in program 108 should be included here. If additional rows are added, please update the total costs formulas.

Priority Ranking	Initiatives Requiring General Fund Support						Notes
	Biennium 2022-2024 (7/1/22-6/30/24)						
	Strategies (Match Academic-Financial Worksheet Short Title)	VP Goal	2022-2023		2023-2024		
			Total Amount	GF Support	Total Amount	GF Support	
5			Establish an Underrepresented Minority Postdoctoral Research Associate Program	2,3,4	\$450,000	\$450,000	\$450,000
6	Monitor Zooplankton and Larval Fish	3,4	\$400,000	\$400,000	\$400,000	\$400,000	Zooplankton (small marine organisms) serve both as trophic links between primary producers and higher trophic levels—such as commercially important fish and invertebrates. Furthermore, most commercially important fish and all shellfish in Chesapeake Bay have a pelagic, larval stage in the plankton—the survival of which exerts key control on the fisheries stock. However, for the past two decades there has been no systematic sampling of spatial and temporal variability in zooplankton or fish larval abundance in Virginia waters. The Commonwealth’s current water quality monitoring programs and fisheries stock assessments completely exclude this key link in the estuarine and coastal food web. This initiative will complete our fisheries monitoring program. More information is provided in Section B of Narrative document (p. 5).
7	Establish Virginia Harmful Algal Bloom (HAB) Monitoring Consortium	3,4	\$200,000	\$200,000	\$200,000	\$200,000	Harmful algal blooms pose a significant threat to human and animal health, as well as to aquaculture, commercial fisheries, aquatic food webs and safe recreational water use. Recent increases in the frequency, severity and distribution of algal blooms have occurred worldwide and the threats posed by emerging HAB species are predicted to increase. Specifically, in Virginia’s waters there are emerging HABs, as well as increases in the severity and distribution of several harmful species. Additional coordinated and intensive monitoring efforts are needed to gain a better understanding of the conditions that lead to blooms of HAB organisms and to more accurately predict the potential human health effects and impacts on aquatic life. This consortium would coordinate a larger-scale HAB monitoring program in Virginia waters, engage in public education, and develop appropriate response and notification protocols for future HAB events. More information is provided in Section B of Narrative document (p. 4).
8	Expand Tetraploid Technology for Improved Yields of Oyster Aquaculture in Chesapeake Bay	3,4	\$300,000	\$300,000	\$300,000	\$300,000	Virginia leads the east coast in aquaculture production of clams and oysters. These developments have been rooted in scientific advances and transfer of contemporary technologies to the industry by VIMS. In fact, VIMS has become a world leader in shellfish aquaculture technologies. One of those technologies has been a force in driving oyster aquaculture to the forefront: tetraploid technology. We have now produced thousands of tetraploid oysters and are prepared to make even greater advances by beginning to do selective breeding to improve the tetraploids. This will increase the operational cost of the breeding program, but we expect it will lead to major advances in Virginia’s oyster aquaculture industry. The initiative will allow us to expand the development of tetraploid strains by developing new genetic material for release to industry, all with the goal to ensure that Virginia maintains its world-leading role in research and development in support of oyster aquaculture. More information is provided in Section B of Narrative document (pp. 5-6).

**Part 4: General Fund (GF) Request
Virginia Institute of Marine Science**

Instructions: Indicate items for which you anticipate making a request for state general fund in the 2022-24 biennium. The item can be a supplement to a strategy or item from the academic and financial plan or it can be a free-standing request for which no tuition revenue would be used. If it is a supplement to a strategy or item from the academic and financial plan, use the same title used in Part 3 and place it in bold print to draw attention to its connection to Part 3. Also, describe in the Notes column how additional general fund will enhance or expand the strategy. Requests for need-based financial aid appropriated in program 108 should be included here. If additional rows are added, please update the total costs formulas.

Priority Ranking	Initiatives Requiring General Fund Support						Notes
	Biennium 2022-2024 (7/1/22-6/30/24)						
	Strategies (Match Academic-Financial Worksheet Short Title)	VP Goal	2022-2023		2023-2024		
			Total Amount	GF Support	Total Amount	GF Support	
9			Establish a Molecular Core Lab	2,3,4	\$1,100,000	\$1,100,000	\$450,000
10	Increase Base Operating Support	2,3	\$350,000	\$350,000	\$350,000	\$350,000	The normal formulas the state uses to assess and supply base operating support to higher education institutions does not readily apply to VIMS and, thus, disadvantages the Institute. Specifically, this request includes vital support for 1) service contracts for high tech scientific equipment purchased through the Equipment Trust Fund, 2) inflationary increases in general operating expenses, and 3) support for personnel services in support units.
10	Continue to Operate as a Year-round Facility	1,2,4	\$0	\$0	\$0	\$0	As an independent state agency that is heavily involved in research and graduate education, VIMS also provides advisory service to the Commonwealth in the form of expert scientific advice on marine-related issues throughout Chesapeake Bay and the coastal ocean. All three of our missions, the graduate program, research and advisory programs, are heavily operational for the entire 12-month calendar year, and in fact, all of our faculty hold 12-month appointments. Field research is most active between April and October, but most other activities occur equally throughout the year. VIMS always has been, and will continue to be, a year-round operation.
			\$4,476,567	\$4,476,567	\$3,755,162	\$3,755,162	

Part 5: Financial Aid Plan
Virginia Institute of Marine Science

Instructions: Provide a breakdown of the projected source and distribution of tuition and fee revenue redirected to financial aid. To ensure compliance with the state prohibition that in-state students not subsidize out-of-state students and to provide the review group with a scope of the strategy, projections must be made for each of the indicated categories. Please be aware that this data will be compared with similar data provided by other institutional offices in order to ensure overall consistency. (Please do not alter shaded cells that contain formulas.)

"Other Discounts and Waiver" means the totals of any unfunded full or partial tuition waiver reducing the students' charges, including Virginia Military Survivors and Dependent Education Program and the Senior Citizens Tuition Waiver. Do not include the tuition differential for the tuition exceptions.

Note: If you do not have actual amounts for *Tuition Revenue for Financial Aid* by student category, please provide an estimate. If values are not distributed for *Tuition Revenue for Financial Aid*, a distribution may be calculated for your institution.

Allocation of Tuition Revenue Used for Student Financial Aid

*2020-21 (Actual) Please see footnote below							
T&F Used for Financial Aid	Total Tuition Revenue	Tuition Revenue for Financial Aid (Program 108)	% Revenue for Financial Aid	Distribution of Financial Aid	Unfunded Scholarships	Other Tuition Discounts and Waivers	Gross Tuition Revenue (Cols. B+F+G)
Undergraduate, In-State	\$0	\$0	%	\$0	\$0	\$0	\$0
Undergraduate, Out-of-State	\$0	\$0	%	\$0	\$0	\$0	\$0
Graduate, In-State	\$0	\$0	%	\$0	\$0	\$0	\$0
Graduate, Out-of-State	\$0	\$0	%	\$0	\$0	\$0	\$0
First Professional, In-State	\$0	\$0	%	\$0	\$0	\$0	\$0
First Professional, Out-of-State	\$0	\$0	%	\$0	\$0	\$0	\$0
Total	\$0	\$0	%	\$0	\$0	\$0	\$0

Compliance with § 4-5.1.a.i

\$0 Compliant

2021-22 (Estimated)							
T&F Used for Financial Aid	Total Tuition Revenue	Tuition Revenue for Financial Aid (Program 108)	% Revenue for Financial Aid	Distribution of Financial Aid	Unfunded Scholarships	Other Tuition Discounts and Waivers	Gross Tuition Revenue (Cols. B+F+G)
Undergraduate, In-State	\$0	\$0	%	\$0	\$0	\$0	\$0
Undergraduate, Out-of-State	\$0	\$0	%	\$0	\$0	\$0	\$0
Graduate, In-State	\$0	\$0	%	\$0	\$0	\$0	\$0
Graduate, Out-of-State	\$0	\$0	%	\$0	\$0	\$0	\$0
First Professional, In-State	\$0	\$0	%	\$0	\$0	\$0	\$0
First Professional, Out-of-State	\$0	\$0	%	\$0	\$0	\$0	\$0
Total	\$0	\$0	%	\$0	\$0	\$0	\$0

Compliance with § 4-5.1.a.i

\$0 Compliant

2022-23 (Planned)							
T&F Used for Financial Aid	Total Tuition Revenue	Tuition Revenue for Financial Aid (Program 108)	% Revenue for Financial Aid	Distribution of Financial Aid	Unfunded Scholarships	Other Tuition Discounts and Waivers	Gross Tuition Revenue (Cols. B+F+G)
Undergraduate, In-State	\$0	\$0	%	\$0	\$0	\$0	\$0
Undergraduate, Out-of-State	\$0	\$0	%	\$0	\$0	\$0	\$0
Graduate, In-State	\$0	\$0	%	\$0	\$0	\$0	\$0
Graduate, Out-of-State	\$0	\$0	%	\$0	\$0	\$0	\$0
First Professional, In-State	\$0	\$0	%	\$0	\$0	\$0	\$0
First Professional, Out-of-State	\$0	\$0	%	\$0	\$0	\$0	\$0
Total	\$0	\$0	%	\$0	\$0	\$0	\$0

Compliance with § 4-5.1.a.i

\$0 Compliant

2023-24 (Planned)								
T&F Used for Financial Aid	Total Tuition Revenue	Tuition Revenue for Financial Aid (Program 108)	% Revenue for Financial Aid	Distribution of Financial Aid	Unfunded Scholarships	Other Tuition Discounts and Waivers	Gross Tuition Revenue (Cols. B+F+G)	Compliance with § 4-5.1.a.i
Undergraduate, In-State	\$0	\$0	%	\$0	\$0	\$0	\$0	\$0 Compliant
Undergraduate, Out-of-State	\$0	\$0	%	\$0	\$0	\$0	\$0	
Graduate, In-State	\$0	\$0	%	\$0	\$0	\$0	\$0	
Graduate, Out-of-State	\$0	\$0	%	\$0	\$0	\$0	\$0	
First Professional, In-State	\$0	\$0	%	\$0	\$0	\$0	\$0	
First Professional, Out-of-State	\$0	\$0	%	\$0	\$0	\$0	\$0	
Total	\$0	\$0	%	\$0	\$0	\$0	\$0	

* Please note that the totals reported here will be compared with those reported by the financial aid office on the institution's annual S1/S2 report. Since the six-year plan is estimated and the S1/S2 is "actual," the numbers do not have to match perfectly but these totals should reconcile to within a reasonable tolerance level. Please be sure that all institutional offices reporting tuition/fee revenue used for aid have the same understanding of what is to be reported for this category of aid.

2021 SIX-YEAR PLAN NARRATIVE (Part II)

INSTITUTION: Virginia Institute of Marine Science

OVERVIEW

The totality of the six-year plan should describe the institution's goals as they relate to state goals found in the *Pathways to Opportunity: The Virginia Plan for Higher Education*; the Higher Education Opportunity Act of 2011 (TJ21); and the Restructured Higher Education Financial and Administrative Operations Act of 2005.

The instructions under institutional mission and alignment to state goals, below, ask for specific strategies, in particular related to equity, affordability and transformative outcomes. Other sections will offer institutions the opportunity to describe additional strategies to advance institutional goals and state needs. ***Please be as concise as possible with responses and save this narrative document with your institution's name added to the file name.***

SECTIONS

Section A. Pandemic Impact: Briefly discuss, in one to two paragraphs, how the pandemic has impacted your institution. What things did your institution already have in place that proved helpful? What lessons were learned? What short-term changes have been made? What long-term changes will be made? What are the concerns moving forward?

RESPONSE:

The Virginia Institute of Marine Science has a non-residential campus with no dorms, dining halls, sports facilities or visitor centers. Impacts from the pandemic were therefore not tied to undergraduate education, but rather to graduate education (~90 students) and most notably to the field and laboratory research that underpins all three parts of the VIMS mission. The primary challenges were (1) moving quickly with little warning to teleworking, ensuring insofar as possible that students were able to continue to meet milestones, (2) developing protocols for conducting research in both laboratory and field settings while maintaining social distancing requirements, (3) meeting deliverables on federal and state grants because of research restrictions and uncertainty regarding opportunities for grant renewals and new grant submissions and, most recently, (4) implementing a plan for returning primarily to an in-person institution given that some employees have been working remotely for nearly 16 months. There are no anticipated long-term institutional changes as a result of the pandemic, and the most important lesson was the need for and great benefit from consistent, timely, and accurate COVID-related messaging to the VIMS community.

Section B. Institutional Mission, Vision, Goals, Strategies, and Alignment to State Goals: Provide a statement of institutional mission and indicate if there are plans to change the mission over the six-year period.

Provide a brief description of your institutional vision and goals over the next six years, including numeric targets where appropriate. Include specific strategies (from Part 3 – Academic-Financial Plan and Part 4 – General Fund Request) related to the following state themes and goals:

- **Equitable:** Close access and completion gaps. Remove barriers to access and attainment especially for Black, Hispanic, Native American and rural students; students learning English as a second language; students from economically disadvantaged backgrounds; and students with disabilities.
- **Affordable:** Lower costs to students. Invest in and support the development of initiatives that provide cost savings to students while maintaining the effectiveness of instruction.
- **Transformative:** Expand prosperity. Increase the social, cultural and economic well-being of individuals and communities within the Commonwealth and its regions. This goal includes efforts to diversify staff and faculty pools.

Strategies also can cross several state goals, notably those related to improved two-year and four-year transfer, and should be included here. If applicable, include a short summary of strategies related to research. The description of any strategy should be one-half page or less in length. Be sure to use the same short title as used in the Part 3 and Part 4 worksheets. If federal stimulus funds will fund activities and are included in Part 3 as reallocations, please note how they will be used.

RESPONSE:

The Mission of the Virginia Institute of Marine Science is to seek and broadly communicate knowledge in marine and coastal science to the Commonwealth of Virginia, the nation, and the world through research, education, and advisory service.

As a nationally and internationally recognized premier marine science institute, our overarching goals in the VIMS Vision are to (1) make seminal advances in understanding marine and coastal systems through research and discovery, (2) translate research findings into practical solutions to complex issues of societal importance, and (3) provide new generations of researchers, educators, problem solvers, and managers with a marine-science education of unsurpassed quality.

Support the Commonwealth Fisheries Collection. The Nunnally Ichthyology Collection at VIMS is a library of preserved fishes from Virginia, the Chesapeake Bay, the North Atlantic, and the world beyond. The collection supports VIMS' institutional mission of research, education, and advisory service by engaging a broad community of scientists worldwide, providing the foundation for graduate education and research, and inspiring the public by sharing the biodiversity of fishes and the research that is being done to gain a better understanding of the natural world. The collection also serves as the only active, cataloged repository in the Commonwealth for voucher specimens of fishes collected by biologists at VIMS, numerous state (VDGIF, VMRC and DEQ) and federal agencies (NOAA and USFWS), Virginia Parks and Recreation (various counties), and the Virginia Aquarium.

The Nunnally Ichthyology Collection at VIMS also houses approximately 54,000 individual fish from institutions of higher education in Virginia that have divested their collections, including: Virginia Commonwealth University, University of Richmond, College of William & Mary, and George Mason University, and another approximately 52,000 fish formerly from the Chesapeake Biological Laboratory collection in Maryland. It is the only state collection for marine and freshwater fishes, and serves as the state repository for fishes collected in the Commonwealth. VIMS bears the responsibility of ensuring that this valuable resource is maintained on behalf of the Commonwealth. To date we have managed this through some allocation of our existing funds, federal grants and philanthropic gifts. As the size and value of this collection has grown, we lack the resources to ensure that the collection is adequately maintained and that it is available for use by state agencies and academic institutions.

Support the Virginia Department of Health (VDH) and Virginia Marine Resources Commission (VMRC) needs in shellfish aquaculture management. Shellfish aquaculture is one of the fastest growing economic drivers in coastal Virginia, especially in rural areas. With this growth has come the need for new monitoring and assessment programs to support the work that VDH does in protecting human health and that VMRC does in managing the availability and use of the state's aquatic resources. VIMS has the technical skills necessary to conduct these new programs, but lacks the state-supported personnel to conduct the monitoring as well as some of the needed field sensors. Federal grant funding that we employ with great success in supporting our research programs is typically not available to support such monitoring programs. We seek support to conduct three separate monitoring programs to meet VDH and VMRC needs that have been expressed to us directly by the agencies.

1. Improved risk management of Vibriosis - A key threat to the growth and sustainability of shellfish aquaculture is the association of human-pathogenic *Vibrio* bacteria with product marketed for raw consumption, in particular oysters. Infections by the two *Vibrio* species of concern, *Vibrio vulnificus* and *Vibrio parahaemolyticus* (or vibriosis) are responsible for an estimated 80,000 illnesses and 100 deaths U.S. annually, with most of these infections associated with consumption of raw or undercooked shellfish. These bacteria can also have significant repercussions for the shellfish industry through product recall, closure of

harvest beds and reduced opportunity for sales associated with negative publicity. With the rise in shellfish production and in consumption of shellfish, particularly oysters, as a raw product, as well as the likelihood for *Vibrio* species abundance to increase with warming seawater, favorable conditions are in place for an increase in vibriosis cases. Because these bacteria occur naturally in shellfish and their surrounding environment, preventing illnesses relies on a robust monitoring program. Within this context, we propose to increase the monitoring of our local waters and shellfish to enhance our understanding of the factors driving the distribution and abundance of these bacteria in the environment and in shellfish, and work in collaboration with Virginia Department of Health to foster science-based risk management strategies. Specific tasks will include: Expand our collaboration with VDH by enhancing data sharing between the two agencies; Optimize and/or develop, monitoring tools allowing the detection of *Vibrio* strains of concern, i.e., the strains known to cause vibriosis in humans; Monitor the presence and abundance of human-pathogenic *Vibrio* bacteria (and strains) in shellfish produced in Virginia waters; Identify environmental factors associated with higher risk of vibriosis to develop predictive models; and Provide training of undergraduate and graduate student in the field of microbiology, molecular biology and ecology.

2. Characterizing food quality and carrying capacity for shellfish production - Sustaining Virginia's shellfish aquaculture industry and enabling future expansion are dependent on an adequate and high-quality food supply for the shellfish; this supply comes from primary production by phytoplankton which sets the amount of shellfish that can be grown in an area (carrying capacity). Increasingly, VMRC is seeking VIMS' guidance on the carrying capacity of shellfish growing areas throughout Virginia's coastal waters. In addition to high phytoplankton production rates, the quality of phytoplankton can impact a shellfish growing region. To accomplish this we need accurate, up-to-date measurements of local rates of phytoplankton production rates and phytoplankton community composition, quantities that change as nutrient inputs and temperature vary. We propose to conduct monthly surveys in shellfish growing waters throughout Tidewater Virginia to build and maintain a spatially-explicit database that can be used to identify phytoplankton species that constitute an 'ideal' diet for oysters and develop carrying capacity estimates for oyster and clam production in these waters. In conjunction with this we will develop user-friendly decision support modeling tools that can be directly used by VMRC and the shellfish aquaculture industry to assess carrying capacity and make informed decisions about the production capacity of a given water body.
3. Assessment of coastal acidification and its impact on shellfish aquaculture - Coastal acidification, caused by increased atmospheric CO₂, presents a serious and credible threat to the marine resources of the Commonwealth, including the shellfish aquaculture industry, fisheries stocks, and health of Chesapeake Bay and the Eastern Shore ecosystems. In September 2018, the Northam administration joined the International Alliance to Combat Ocean Acidification, demonstrating its commitment to ensuring that Virginia is a leader in addressing coastal acidification issues. To meet this commitment, we need to assess the severity of coastal acidification, develop an early warning system for stakeholders, and predict acidification impacts on living resources. In recent years, VIMS has developed observational capacity, advanced modeling tools, and sophisticated experimental facilities that are capable of supporting the Commonwealth's commitment. With additional state support, we will: 1) expand our network of sensors to detect acidification in the lower Chesapeake Bay and the seaside of the Eastern Shore, with a particular emphasis on shellfish growing areas; 2) identify threshold levels of acidification for critical species and life-stages, such as larval and juvenile oysters; 3) predict the results of acidification on living resources in Chesapeake Bay and Virginia's coastal bays; and 4) develop an early warning system that predicts when and where acidification approaches critical thresholds for shellfish and other economically- and ecologically-important species.

Support the Implementation of the Virginia Coastal Resiliency Master Plan. Under the leadership of the Virginia's Chief Resilience Officer and the Special Assistant to the Governor for Coastal Adaptation and Protection, the Commonwealth is in the process of producing the Virginia Coastal

Resilience Master Plan (hereafter, the Plan) set for release in fall 2021. Through discussions with the leadership of this effort, we have preliminary indications of the some of the tasks that VIMS will likely be requested to support in implementing the Plan's recommendations. The following presents our best estimates of the additional resources required for VIMS to meet these needs. We anticipate that all or a subset of these tasks would be submitted as a budget initiative depending upon the final outcome of the Plan.

1. Deploy and integrate data from more tidal gauge and water level sensors throughout Tidewater Virginia. Working with federal and state agencies and local governments, VIMS will leverage state dollars to secure additional resources to place water level gauges in critical areas identified in the Plan and prioritized for underserved at risk communities. These gauges will be linked into our existing Tidewatch network and predictive model system, and the results served openly on the web in a user-friendly, map-based platform.
2. Identify overlapping vulnerabilities and mitigative measures related to sea-level rise/flooding/storm surge, including impacts on ecosystem and community resilience (e.g., septic system failures and saltwater intrusion into shallow drinking wells) throughout rural coastal Virginia. Link these vulnerabilities with others related to transportation, utilities and other infrastructure to develop high resolution adaptation guidance that considers socio-ecological co-benefits and impacts to underserved communities.
3. Develop shoreline management plans for areas identified in the Plan as being particularly susceptible to high erosion rates. Work with state agencies and local governments to identify vulnerable areas consistent with the Plan's priorities and develop site-specific shoreline management plans that incorporate shore protection, coastal resiliency, and monitoring. With these plans in place, the project cost can be estimated and habitats impacted/created can be determined so that agencies, local governments and property owners can obtain permits and financing thereby removing the perceived barriers to living shoreline construction.
4. Expand and maintain AdaptVA. Maintain currency of data and software and expand to the rest of the Commonwealth. Develop and serve new content to include precipitation and temperature-based analyses, guidance for prioritizing underserved communities, cross reference adaptation strategies, and other priorities identified in the Plan. Explore accessibility under Americans with Disabilities Act and multi-lingual additions.

Establish an Underrepresented Minority Postdoctoral Research Associate Program. Despite the pioneering of African American marine scientists like Roger Arliner Young and Ernest Everett Just, the marine science field has a woeful history of producing PhDs and attracting postdoctoral researchers that come from minority groups. The average number of PhDs awarded nationally to underrepresented minorities in the ocean and marine sciences is six every year. Postdoctoral researchers work alongside faculty to assist with expanding our knowledge of fish in the Chesapeake Bay, managing aquatic diseases that impact shellfish, exploring the benefits of submerged aquatic vegetation, and understanding the effects of harmful algal blooms on people and marine life. This newly created postdoctoral program is essential to VIMS meeting its objective of advancing social mobility in a field that has a global impact on the prosperity of coastal communities. VIMS recognizes that the key to improving diversity in the marine sciences lies with focused investments in underrepresented minority faculty, more specifically with postdoctoral researchers. As we continue to provide cutting-edge research and high-quality advisory services to the Commonwealth in these and other key areas, we plan to do so by developing underrepresented minority postdoctoral researchers who have the potential to become faculty within three to four years.

- Prosperous coastal communities in Virginia depend on VIMS to provide cutting-edge research, high quality advisory service and graduate education. Faculty diversity increases innovation on campus, promotes dynamic problem solving and fosters an atmosphere that enhances VIMS' mission and overall excellence.
- VIMS is very well positioned to narrow the diversity gap in the marine science field globally. A key component to increasing faculty diversity in marine science involves

creation of a more robust pipeline of underrepresented minority students earning doctorate degrees who then make the career choice to stay in academia.

- A strategic focus will be placed on recruitment for those recent underrepresented doctoral graduates with training and research interests in fields closely related to marine science who may be enthusiastic about the opportunity to change the course of their career.
- Each postdoctoral research associate will be mentored by one or more faculty members who have demonstrated a commitment to enhancing core competencies and professional skills to further solidify the choice to move into the faculty realm.
- Funding for a postdoctoral research associate program will not only add diversity to VIMS but will increase institutional capacity to sustain and protect the environment, bolster the marine-based economy, and help protect human health.

Monitor Zooplankton and Larval Fish. Zooplankton (small marine organisms) serve both as trophic links between primary producers and higher trophic levels—such as commercially important fish and invertebrates. Furthermore, most commercially important fish and all shellfish in Chesapeake Bay have a pelagic, larval stage in the plankton—the survival of which exerts key control on the fisheries stock. However, for the past two decades there has been no systematic sampling of spatial and temporal variability in zooplankton or fish larval abundance in Virginia waters. The Commonwealth’s current water quality monitoring programs and fisheries stock assessments completely exclude this key link in the estuarine and coastal food web. Indeed, predictive models of Bay water quality and fisheries stocks—if they include mid-trophic levels at all—are based on obsolete zooplankton data. Rising temperatures and changing salinity distributions in the Chesapeake Bay are certain to alter this important link in the food web.

With the Commonwealth’s significant investment in the new R/V *Virginia*, recent upgrades and digitization of the Nunnally Ichthyology larval fish collection, and the wide expertise of faculty members including plankton and benthic ecology, ichthyology, and ecosystem modeling, VIMS is now uniquely poised to address this critical gap in our understanding of Bay and coastal food web dynamics. Recent advances in remote observation technology using an Underwater Vision Profiler and machine learning have also increased efficiency of zooplankton sampling, identification, and enumeration. This initiative will complete our fisheries monitoring program.

Establish Virginia Harmful Algal Bloom (HAB) Monitoring Consortium. Harmful algal blooms pose a significant threat to human and animal health, as well as to aquaculture, commercial fisheries, aquatic food webs and safe recreational water use. Recent increases in the frequency, severity and distribution of algal blooms have occurred worldwide and the threats posed by emerging HAB species are predicted to increase. Specifically, in Virginia’s waters there are emerging HABs, as well as increases in the severity and distribution of several harmful species. Additional coordinated and intensive monitoring efforts are needed to gain a better understanding of the conditions that lead to blooms of HAB organisms and to more accurately predict the potential human health effects and impacts on aquatic life.

Virginia citizens would be best served by a HAB monitoring consortium where VIMS personnel would work cooperatively with other Virginia state agencies, particularly the Virginia Department of Environmental Quality (DEQ), Virginia Marine Resources Commission (VMRC) and the Virginia Department of Health (VDH). This consortium would coordinate a larger-scale HAB monitoring program in Virginia waters, engage in public education, and develop appropriate response and notification protocols for future HAB events. Currently the stations in VA estuarine and marine waters are typically monitored only monthly and more frequent monitoring is necessary, particularly during the peak bloom season of summer and early fall. More frequent monitoring is particularly important for shellfish growing areas where there is a risk to human and shellfish health. The role of VIMS scientists in this consortium would be species and toxin identification and quantification.

Expand Tetraploid Technology for Improved Yields of Oyster Aquaculture in Chesapeake Bay. Virginia leads the east coast in aquaculture production of clams and oysters. These developments have

been rooted in scientific advances and transfer of contemporary technologies to the industry by VIMS. In fact, VIMS has become a world leader in shellfish aquaculture technologies. One of those technologies has been a force in driving oyster aquaculture to the forefront: tetraploid technology.

Tetraploid oysters (which have 4 sets of chromosomes as opposed to normal diploid oysters with 2 sets) are used by commercial hatcheries to mate which then produce sterile (spawnless) triploid oysters (3 sets of chromosomes), which comprises >90% of farmed oysters in Virginia, and increasingly, east coast states. This technology is part of the Intellectual Property portfolio of the Aquaculture Genetics and Breeding Technology Center at VIMS. To date we have used tetraploids largely for the purpose of mating them with diploids producing sterile oysters, while normal diploids have been the focus of our breeding efforts to produce faster-growing, disease resistant oysters.

That means that the remarkable progress that we have made to date in breeding an improved oyster has been accomplished through genetic selection on only one-third of the genetic material that makes up a triploid oyster. We have now produced thousands of tetraploid oysters and are prepared to make even greater advances by beginning to do selective breeding to improve the tetraploids.

This will increase the operational cost of the breeding program, but we expect it will lead to major advances in Virginia's oyster aquaculture industry. The initiative will allow us to expand the development of tetraploid strains by developing new genetic material for release to industry, all with the goal to ensure that Virginia maintains its world-leading role in research and development in support of oyster aquaculture.

Establish a Molecular Core Lab. Rapidly advancing technology has led to a revolution in the realm of molecular biology and genomics, giving scientists much greater power to address complex problems in marine and estuarine systems. This revolution offers the opportunity for VIMS to improve its capabilities in fulfilling its advisory mission to the Commonwealth in the areas of fisheries and aquaculture, environmental health, and coastal ecology. Extremely large amounts of data can be generated in a relatively short period of time using this technology, offering unparalleled opportunities to create more sustainable environments, bolster regional economies, and protect human health.

Currently, VIMS researchers within three different departments use molecular approaches to address important research questions related to resource management and public health issues in Virginia, including fisheries and aquaculture management, harmful algae blooms, and shellfish health and safety. Key pieces of heavily used shared equipment are scattered across campus and are rapidly becoming outdated. VIMS' ability to accommodate this research, which requires massively high-throughput sequencing, digital PCR, transcriptomics and single cell genomics, is limited by the absence of a centralized facility with support.

We are seeking to upgrade critical instruments and to add technical expertise in advanced bioinformatics analyses, and dedicated technical staff to operate and coordinate the use of specialized equipment, and to advise researchers on appropriate strategies and approaches to answer their research questions. Almost all top-tier marine research institutions, including Woods Hole Oceanographic Institute, Scripps Institution of Oceanography, Rosenstiel School at University of Miami, University of Rhode Island, University of Washington, and others, support these types of core facilities with state-of-the-art equipment and technical expertise. As VIMS is in the process of designing and building a new science laboratory building, it is an excellent opportunity to acquire the needed equipment and additional staff to develop the molecular capabilities to remain competitive in the 21st Century and to provide the Commonwealth with state-of-the-art, science-based advice. VIMS has leveraged its existing molecular genetics capabilities for over \$5M in extramural research funds. Enhancing our capabilities further would expand our capacity to leverage even more extramural money in support of our research, education and advisory missions.

Increase Base Operating Support. The normal formulas the state uses to assess and supply base operating support to higher education institutions does not readily apply to VIMS and, thus, disadvantages the Institute. Specifically, this request includes vital support for 1) service contracts for

high tech scientific equipment purchased through the Equipment Trust Fund, 2) inflationary increases in general operating expenses, and 3) support for personnel services in support units. Also, see **Section E** below for needed operating support associated with new capital projects that will come on line in FY 2023.

Continue to Operate as a Year-round Facility. As an independent state agency that is heavily involved in research and graduate education, VIMS also provides advisory service to the Commonwealth in the form of expert scientific advice on marine-related issues throughout Chesapeake Bay and the coastal ocean. All three of our missions, the graduate program, research and advisory programs, are heavily operational for the entire 12-month calendar year, and in fact, all of our faculty hold 12-month appointments. Field research is most active between April and October, but most other activities occur equally throughout the year. VIMS always has been, and will continue to be, a year-round operation.

Section C. In-state Undergraduate Tuition and Fee Increase Plans: Provide information about the assumptions used to develop tuition and fee information the institution provided in the Excel workbook Part 1. **The tuition and fee charges for in-state undergraduate students should reflect the institution's estimate of reasonable and necessary charges to students based on the institution's mission, market capacity and other factors.**

RESPONSE:

Not Applicable

Section D. Tuition and Other Nongeneral Fund (NGF) Revenue: Provide information about factors that went into the calculations of projected revenue, including how stimulus funds may mitigate tuition increases.

RESPONSE:

Not Applicable

Section E. Other Budget Items:

Operating costs for new facilities coming online in CY 2022.

1. **Acuff Center for Aquaculture.** Construction will be completed on this project early CY 2022. The Center will support numerous programs that benefit Virginia's shellfish aquaculture industry, including our Aquaculture Genetics and Breeding Program, research into improved oyster culture techniques, development of techniques for culturing other species, education and outreach. Operating costs for personnel and M&O in the amount of \$406,714 is required for FY 2023 and \$413,758 for FY 2024.
2. **Eastern Shore Lab Complex.** A total of six new and replacement buildings, including administration, education, research, visiting scientists lodging, and maintenance facilities, will be completed in CY 2022. These facilities will transform the Eastern Shore Laboratory, support its education, research and advisory missions, and contribute to the local economy. Operating costs for personnel and M&O for these facilities will require \$210,747 in FY 2023 and \$216,390 in FY 2024.

RESPONSE:

Not Applicable

Section F. Enrollment Projections: Include in this section information about how your institution developed its enrollment projections, whether your institution is concerned about future enrollment trends, and, if so, what planning is underway to address this concern. How have enrollment plans been impacted by the pandemic? For example, does your institution plan on enrolling more online students?

RESPONSE:

Not Applicable

Section G. Programs and Instructional Sites: Provide information on any new academic programs, including credentials and certificates, new instructional sites, new schools, or mergers supported by all types of funding, that the institutions will be undertaking during the six-year period. Note that as part of the revised SCHEV program approval process, institutions will be asked to indicate if a proposed new program was included in its six-year plan. Also, provide information on plans to discontinue any programs.

RESPONSE:

Not Applicable

Section H. Financial Aid: Discuss plans for providing financial aid, not including stimulus funds, to help mitigate the impact of tuition and fee increases on low-income and middle-income students and their families, including the projected mix of grants and loans. Virginia's definitions of low-income and middle-income are based on HHS Poverty Guidelines. A table that outlines the HHS guidelines and the definitions is attached.

RESPONSE:

Not Applicable

Section I. Capital Outlay: Discuss the impact, if any, that the pandemic has had on capital planning, such as decreasing the need for space or other aspects. Provide information on your institution's main Education and General Programs capital outlay projects, including new construction as well as renovations that might be proposed over the Six-Year Plan period that could have a significant impact on strategies, funding, student charges, or current square footage. Do not include projects for which construction (not planning) funding has been appropriated. *Special Note: The requested information is for discussion purposes only and inclusion of this information in the plans does not signify approval of the projects.*

RESPONSE:

Construct New Fisheries Science Building. This request supports the construction of a new 38,000 square-foot state-of-the-art research laboratory building to replace the 31-year-old Nunnally/Fisheries Science Laboratory. It will include a fish processing laboratory, climate-controlled storage and faculty research offices and laboratories supporting the Department of Fisheries Science. The new building will consolidate the Fisheries Science Department into one location, improving the colloquy between faculty, staff and students of the department. Additionally, space for the Nunnally Ichthyology Collection (Fish Collection Museum) will serve as the largest repository for freshwater, Chesapeake Bay and coastal fishes of Virginia. The building will be required to meet LEED Silver design standards, at a minimum. The total cost for this project is estimated at \$35M.

Construct Marine Operations Administration Complex. This request supports the construction of a new 10,000 square-foot marine operations facility to replace several existing structures. The facility will be constructed with a raised elevation that will take into consideration sea level rise and will consist of offices for the department's administrative staff, a training/instruction classroom, a workshop to support the dive equipment program, a maintenance repair shop to support the marine operations equipment repair program, and field and equipment storage. This project also includes the expansion and modifications to the boat basin to allow to berth the R/V *Virginia*. The new Marine Operations Administration Complex will require a feasibility study to analyze the current program needs and will be designed to meet LEED Silver standards, at a minimum. The total cost for this project is estimated at \$11.9M.

Section J. Restructuring: Provide information about any plans your institution has to seek an increased level of authority, relief from administrative or operational requirements, or renegotiation of existing management agreements.

RESPONSE:

Not Applicable

Section K. Evaluation of Previous Six-Year Plan: Briefly summarize progress made in strategies identified in your institution's previous six-year plan. Note how additional general fund support and reallocations were used to further the strategies.

RESPONSE:

Restore Saltwater Fisheries Survey – Funds Appropriated in 2021 General Assembly Session.

Long-standing fisheries surveys by VIMS provide the scientific data on which saltwater fisheries in the Commonwealth of Virginia are managed. These surveys have been supported by a combination of state dollars and federal grants. Recent reductions in the state and federal funds resulted in five of our most important surveys being dramatically cut. Beginning in 2018, federal funding from the US Fish and Wildlife Service that flows through the Virginia Marine Resources Commission (VMRC) was reduced from \$1.8M to \$1.13M, largely as a result of a federal decision to alter the percentage split between freshwater and saltwater fish survey support provided to Virginia. At the same time, VMRC's source for providing their share of a 33% state match requirement (historically VMRC provided \$300K and VIMS provided \$300K of the required \$600K match for \$1.8M of federal funds) was reduced by the General Assembly so that most of those dollars could be used to support the Saltwater Fishing Tournament.

Secretary Strickler and the Commissioner Bowman managed to negotiate a slightly more favorable split in federal funds that resulted in a federal funding of \$1.4 M going to saltwater fisheries surveys, but the total loss between the state and federal sources was approximately \$700K. VIMS implemented austere cuts to these surveys, reduced personnel, and combined surveys to gain efficiency, but still fell \$250K short of having funding needed to sustain the surveys at a level to meet the needs of the Commonwealth. We are seeking to recover this lost support to maintain these surveys that are critical to wise management and economic viability of Virginia's saltwater fisheries.

Manage Aquatic Diseases – Funds Appropriated in 2021 General Assembly Session.

Recent outbreaks of disease have damaged economically important and ecologically sensitive marine resources in the Commonwealth and nation. Examples include mycobacterial infections in striped bass, dermo and MSX in oysters, *Hematodinium* in blue crabs, morbillivirus in dolphins, wasting disease in seastars, bacterial infections in scallops, and parasitic infections in eels, to name a few. The pathogens responsible for these outbreaks are not well known, their risks to marine life and potential to spread remain understudied, and their ecological impacts have been difficult to assess with existing resources. To meet the challenge of diseases in marine systems, this initiative will provide science-based guidance on the management of existing and emerging disease threats to critical fishery and aquaculture resources in the Commonwealth and Chesapeake Bay region. VIMS scientists have considerable expertise working with diseases of marine animals; however, we aim to leverage this expertise by establishing state and regional response protocols, identifying and liaising with key groups such as state and federal resource managers and public health officials, as well as the fishing and aquaculture industries, serving as a clearinghouse for information to policy makers, and developing modeling tools to mitigate the effects of disease outbreaks. The health of marine resources such as fish and shellfish is fundamental to the growth of industries and the revitalization of coastal communities dependent upon them. This initiative will provide expert guidance on the management and mitigation of existing and emerging disease threats to vital fishery and aquaculture resources in the Commonwealth and Chesapeake Bay region. It will significantly enhance our responses to known pathogens and provide a clear framework, based on state-of-the-art science, for addressing the dangers of emerging diseases.

Construct New Research Facility (Chesapeake Bay Hall) – Supplemental Funds Appropriated in 2021 General Assembly Session.

The Virginia Institute of Marine Science (VIMS) is requested supplemental funding in the amount of \$28.25M to support the construction of a new 68,250 sq. ft. state-of-the-art research facility that would replace Chesapeake Bay Hall (CBH). The project was authorized during the 2018 General Assembly Special Session. The increase in construction cost could have been attributed to the strong economy, impacts from the pandemic, and present building code requirements; however, the primary driver for the cost increase was that the proposed new building is more "dense" with lab equipment and specialized research space that is required for today's cutting-edge research. The cost is directly comparable to the Division of Engineering and Buildings (DEB)

construction cost database for research labs. VIMS and DEB have reconciled and are thus in agreement with the project's scope and budget. DEB continued to recommend replacement over renovation of the existing building. During schematic design, VIMS value engineered over \$4M in projected savings as an effort to reduce and align scope and budget. As one of two primary research buildings on the VIMS campus, research conducted by faculty in CBH generates approximately \$5M in research grants and contracts annually which is now jeopardized by the condition of CBH. The research is instrumental in sustaining and protecting the environment, bolstering the marine-based economy, and helping protect human health.

Section L. Diversity, Equity and Inclusion (DEI) Strategic Plan: Provide an update on the completion status of your institution's plan that is being coordinated with the Governor's Director of Diversity, Equity and Inclusion. If a copy of the plan is available, please include it when your institution submits its initial plan. If a copy of the plan is not available for July 1 or if changes are made, please provide a copy with your institution's final plan submission on October 1.

RESPONSE:

Although William & Mary will be submitting the University's DEI Strategic Plan that includes VIMS, below are highlights of VIMS-specific initiatives:

- Engaged with Norfolk State University (NSU) to set up a collaboration around the ecological health and restoration of the Elizabeth River. This collaboration includes establishing student internships for NSU students, formalizing research partnerships in the Elizabeth River, and evaluating environmental justice issues associated with risks from contaminants in the river and its watershed.
- Helped the Pamunkey Indian Tribe to submit a grant proposal to the Bureau of Indian Affairs for a comprehensive review of the surface and groundwater resources on and in the vicinity of their reservation. If funded, VIMS will work with tribal members to conduct the study by developing a comprehensive tidal wetland management plan. VIMS has also worked with the Pamunkey Indian Tribe in the past to submit a proposal to the Environmental Protection Agency.
- Along with Old Dominion University, planned the 24th annual Blue Crab Bowl that was held virtually in February 2021 where 16 teams from Virginia high schools displayed their mastery of oceanic knowledge. The virtual platform provided expanded access to schools who may not have been able to participate in the past due to costs, particularly transportation and lodging.

Section M. Economic Development Annual Report: Provide a copy of any report your institution has produced about its economic development contributions.

RESPONSE:

In June 2018, Gloucester County produced a video promoting economic development that featured, in one segment, its relationship with VIMS under the heading "where inquiring minds come to learn." VIMS is one of the county's economic drivers and maintains a strong relationship with the Director of Economic Development, always with an eye towards mutually-beneficial partnerships.

VIMS is located in GO Virginia Region 6, and the VIMS Dean and Director is a voting member of the Region's Council. Virginia Sea Grant (VASG), which is headquartered at VIMS and composed of six Virginia R1 universities, was awarded a \$2.9M GO Virginia state grant (Region 6 in partnership with Region 5 – Hampton Roads) to launch a coastal resilience and adaptation economy. Requiring collaboration with the private sector and enhanced university public-private partnership R&D capacity, this effort aids in positioning Virginia to be a global leader in coastal adaptation products, technologies, designs and services. This 2021-23 project is estimated to spur \$95.7M in economic activity and return \$2.48 tax dollars to the Commonwealth per grant dollar by Year 5. In addition, working with multiple universities, VASG produced \$7.5M in economic benefits in 2020, including over \$1.3M from a VIMS-W&M-ODU-VT collaboration to support aquaculture companies' expansion of direct marketing and sales strategies after COVID-

19 shut down their restaurant markets, as well as over \$880K for a VIMS and VT effort to expand catfish electrofishing technologies and processing capacity in Virginia.

State industries to which the institution's research efforts have direct relevance

There are several industries in which VIMS' research efforts have had a direct impact. Examples include:

- *Oyster and Clam Aquaculture Industry.* In 2017, the farm gate value for Virginia's shellfish aquaculture industry was \$56.6 million, of which \$38.1M was attributed to Hard Clams and \$18.5M to Oysters. This is an all-time high for the shellfish aquaculture industry. The research conducted at VIMS by our faculty and staff over the last 50 years has led to this economic success. Specifically, VIMS researchers provide genetically superior oyster brood stock to industry without charge, and provide guidance to industry on the leading diseases that impact shellfish to provide guidance to industry.
- *East Coast Off Shore Scallop Industry.* In the early 1990s, the scallop fishery along the U.S. Atlantic seaboard was on a sharp downward slide. Commercial fishermen were having to spend more and more time at sea, up to 240 days per year, but were catching fewer and smaller scallops. Today, that fishery is the second most valuable commercial fishery on the East Coast, with more than \$400 million in scallops landed in 2014. Virginia alone unloaded \$33.6M in scallops in that year, generating an additional \$21M in economic activity in the Commonwealth for a total impact of over \$50M. A large part of the recovery and growth of the East Coast scallop fishery is due to a long-term collaboration between scallopers, fishery managers, and scientists at VIMS. Our scientists have spent thousands of days on commercial scallop boats and research vessels during the last decades, testing and refining dredge equipment to maximize sustainable scallop harvests while minimizing bycatch of yellowtail flounder and sea turtles.
- *Agriculture Industry.* The Eastern Shore of Virginia is home to tomato farms and, increasingly, chicken farms. VIMS' researchers work with the state and local municipalities to understand the potential impacts of these industries on water quality, and assist in developing mitigation strategies to reduce the impacts.
- *Environmental Industry.* VIMS researchers developed state-of-the-art biosensors that have early detection functionality for oil spills, rapid quantification in real-time of polycyclic aromatic hydrocarbons (PAHs) concentration (EPA considers PAHs highly toxic and lists 17 as suspected carcinogens), and other contaminants. Data from these biosensors have been used guide sediment remediation in the Elizabeth River in real-time, thus avoiding additional unintended environmental damage.

High-impact programs designed to meet the needs of local families, community partners, and businesses

- *Oyster Aquaculture Training Program.* The Oyster Aquaculture Training program is a popular five-month hands-on program that focuses on the principles of oyster aquaculture. Participants learn and work alongside researchers during our oyster hatchery season from April to August. They receive a stipend for the duration of their involvement. To ensure a one-on-one experience, we accept a maximum of only 3-5 participants. During the five-month program, participants rotate through various stages of oyster aquaculture, from our hatchery and field grow-out operations, to our laboratory. Working through these rotations provides a sound understanding of all phases of the oyster life-cycle. Participants also work in the field, learning the importance of seawater flow rates, sieve and bag sizes, and oyster seed sizes and densities. They learn various field grow-out methods, such as suspended culture and rack and bag techniques. By the end of the program, participants have a clear understanding of all areas of oyster aquaculture and are highly qualified and confident in their ability to perform tasks in both oyster hatchery and field operations. Although there are only a small number of participants in any given year, the impact of the program is high and community and industry relations are enhanced.
- *Community Outreach.* VIMS and its federal partners offer a wide variety of free public programs both on VIMS' campuses in Gloucester Point and Wachapreague, as well as throughout Hampton Roads and the lower Chesapeake Bay region. VIMS has offered more than 280

outreach programs that reached more than 21,000 citizens. Our programs include After Hours Lecture Series, Discovery Labs, Annual Open Houses at Gloucester Point and Wachapreague, Public Tours, Seafood Symposia, Speakers Bureau, Technical Training and Workshops, Summer Camps for K-8th graders, Field and Classroom Experiences, and booths at local Fairs and Festivals.

Business management/consulting assistance

As the state's mandated advisor on a wide range of natural resources management and use issues, VIMS plays a truly unique role as an institution of higher education. In fact, VIMS is a model for the nation in this regard because our advisory services mission is so significantly different from traditional university service to the community, and it shapes VIMS in a most fundamental way. VIMS is identified in 40 sections of the *Code of Virginia*, and as such we are on call and expected to provide advice based on the highest quality science when requested by the Governor, the General Assembly, state agencies, marine industries, and citizens. The charge put forth to us in the *Code of Virginia* is an asset, an advantage, and a vibrant part of our institutional culture. Advisory service is in many ways the public face of VIMS.

Currently, there are over a dozen major projects ranging from municipal surface water intakes, to the Chesapeake Bay Bridge Tunnel and Hampton Roads Bridge Tunnel expansions, to Dominion Energy's Offshore Commercial Wind Energy project on which VIMS is providing science-based advice to industry and permitting agencies. Expectations from stakeholders are high and we have a long history of furnishing advice of unsurpassed quality. Many of these projects require multiple permits and are complicated, time-consuming and often controversial. VIMS brings, at no charge, an objective voice that ultimately results in better policy and management decisions, and that help sustain the environment and protect public health.

The Commonwealth Center for Recurrent Flooding Resiliency (CCRFR), a partnership between Old Dominion University, W&M Law School's Virginia Coastal Policy Center (VCPC) and VIMS, was established in 2016 to bring university-based expertise to the growing challenge of recurrent flooding. The CCRFR conducts studies, provides training and offers a variety of services in the area of recurrent flooding resiliency, and is currently working with local governments and state and federal agencies throughout Tidewater Virginia to enhance the region's resiliency to flooding. Examples include: 1) working with the City of Virginia Beach to assess resiliency in the tourism industry and assemble policy recommendations; 2) collaborating with Newport News, Hampton and Norfolk to install low cost-water level-monitors to enhance prediction and visualization tools; 3) assisting the City of Portsmouth in incorporating resiliency to future storms in their comprehensive plan; 4) evaluating the effectiveness of various risk communication methods; 5) mapping local land subsidence rates; 6) contributing to the development of easy-to-use data portal, *Adapt Virginia*, that provides a wide range of technical and policy decision support for building resiliency; 7) providing leadership in addressing storm water concerns in rural Tidewater, and; 8) developing an improved version of *TideWatch*, which currently predicts water levels at selected tide gauge stations 36 hours in advance, and will soon provide flood inundation predictions up to 48 hours in advance.