

December 2, 2020

**Memorandum #2020-152**

**TO: HRPDC Coastal Resilience Subcommittee**

**BY: Robert A. Crum, Jr., Executive Director**

**RE: HRPDC Coastal Resilience Subcommittee Meeting – December 8, 2020**

The next **HRPDC Coastal Resilience Subcommittee** meeting has been scheduled for **Tuesday, December 8, 2020, beginning at 10:30 AM**. During this meeting, Ann Phillips, the Special Assistant to the Governor for Coastal Adaptation and Protection, will provide an update regarding the Virginia Coastal Resilience Master Planning Framework. The agenda is attached.

Pursuant to the declared state of emergency in the Commonwealth of Virginia in response to the COVID-19 pandemic and to protect the public health and safety of the subcommittee members, staff, and the general public, the Coastal Resilience Subcommittee meeting will be held electronically via **Zoom**. Participants may join the meeting using the following information.

Join by computer:

<https://us02web.zoom.us/j/89649206541?pwd=WlcwamN1Ulg1VEliSjNKa0QxbHdxQT09>

-or-

Join by phone: +1-301-715-8592

Meeting ID: 896 4920 6541

Passcode: 737365

BC/cm

Attachments

**HRPDC Coastal Resilience Subcommittee:**

Andria McClellan, Norfolk  
Kelly Convirs-Fowler, Virginia House of Delegates  
Barbara Henley, Virginia Beach  
David Jenkins, Newport News  
McKinley Price, Newport News  
John Rowe, Portsmouth  
Donnie Tuck, Hampton  
Ella Ward, Chesapeake

Copy:

Keith Cannady, HRPDC  
Whitney Katchmark, HRPDC  
Ben McFarlane, HRPDC  
Ashley Gordon, HRPDC

**HRPDC  
Coastal Resilience Subcommittee  
Meeting Agenda**

**Tuesday, December 8, 2020  
10:30 AM**

Pursuant to the declared state of emergency in the Commonwealth of Virginia in response to the COVID-19 pandemic and to protect the public health and safety of the subcommittee members, staff, and the general public, the Coastal Resilience Subcommittee meeting will be held electronically.

- 1. Call to Order**
- 2. Introductions**
- 3. Public Comment Period**
- 4. Virginia Coastal Resilience Master Planning Framework**

Ann Phillips, Special Assistant to the Governor for Coastal Adaptation and Protection for the Commonwealth of Virginia, will brief the Coastal Resilience Subcommittee on the *Virginia Coastal Resilience Master Planning Framework*. Included as background information for Subcommittee members review is the the following information:

Attachment 4-A	Executive Summary
Attachment 4-B	Chapter 6: Initial Actions and Recommendations

Subcommittee members are asked to provide comments that should be considered as part of this planning process.

- 5. Other Business**
- 6. Next Meeting**
- 7. Adjournment**

# EXECUTIVE SUMMARY

## INTRODUCTION

The Commonwealth of Virginia is pleased to present the Virginia Coastal Master Planning Framework. This Framework lays out the core principles of our approach to coastal adaptation and protection, and the process by which the Commonwealth will develop and begin implementing Virginia's first Coastal Resilience Master Plan by the end of 2021.

Following the guidance of the U.S. Global Climate Change Research Program, we define resilience as the capability to anticipate, prepare for, respond to, and recover from significant multi-hazard threats with minimum damage to social well-being, health, the economy, and the environment.<sup>1</sup> Similarly, we define adaptation as adjustment in natural or human systems to a new or changing environment that exploits beneficial opportunities or moderates negative effects.<sup>2</sup>

The primary objective of the Virginia Coastal Resilience Master Plan will be to improve the Commonwealth's resilience and ability to adapt to rising seas, increased nuisance flooding, and more frequent and intense storms that result from climate change and threaten our coastal communities. This Framework promotes the roadmap for how we get there.

## WHAT'S AT STAKE

The Commonwealth of Virginia has much to lose should the impacts of sea level rise and climate change continue unaddressed. Virginia's coastal region covers 8,950 square miles, approximately one quarter of the state. More than 10,000 miles of tidally influenced shoreline only exacerbate the region's flood risk. Virginia's coastal region lacks the degree of resilience needed to ensure that coastal localities can minimize loss of life and damage to private property and public infrastructure.

Recent estimates show that 250,000 acres of land, 1,469 miles of roads, and property valued at \$17.4 billion lie less than five feet above the high tide line in Virginia.<sup>3</sup> This is a concern, as many components of coastal Virginia's economy are simultaneously both water dependent and exposed to coastal hazards. The Department of Defense and its contractors collectively employ 252,187 people; in 2017, they spent more than \$46.2 billion in Virginia.<sup>4</sup> The Hampton Roads region alone is home to 139,000 military personnel and contractors, and Department of Defense related spending, including shipbuilding and ship repair, is the primary driver of the region's economy.<sup>5</sup> Rural coastal communities face a separate set of challenges that includes flooded access roads, failure of septic systems, and an acute lack of resources for large-scale resilience initiatives.

Virginia's coastal ecosystems support fisheries, wildlife, aquaculture, navigation, carbon storage and tourism, and provide significant natural defenses against coastal storms. Further, troves of priceless cultural resources that tell the Commonwealth's rich history are still being discovered all along our coast, besides what we have found already at places like Jamestown, Fort Monroe, and sacred Virginia Indian sites. These natural and cultural resources are vulnerable to sea level rise, erosion, flooding, and other coastal hazards and must be protected before they are lost forever.

To protect and preserve Virginia’s way of life, its economy, and its diverse cultural and natural resources, it is imperative that the Commonwealth lead a coordinated initiative to ensure improved resilience and to protect our coasts.

## THE RISK

Coastal Virginia has some of the highest relative sea level rise rates in the United States due to the combined effects of climate-driven sea level rise and land subsidence.<sup>6</sup> Using the National Oceanic and Atmospheric Administration’s (NOAA) Sewell’s Point tide gauge in Norfolk as the primary tidal data reference, Virginia has experienced more than 18 inches of relative sea level rise in the past 100 years.<sup>7</sup>

Multiple studies, including those from the United Nations Intergovernmental Panel on Climate Change (IPCC), the National Climate Assessment, and NOAA Technical Report: Global and Regional Sea Level Rise Scenarios for the United States, report that sea level will continue to rise at an accelerating rate. The NOAA 2017 Relative Sea Level Change Scenarios for Sewell’s Point predict as much as 6.69 feet of relative sea level rise by 2100.

In addition to rising seas, the National Climate Assessment states that the Southeast United States has experienced an increase in frequency and intensity of extreme rainfall events, which often cause severe flooding, and this trend is expected to continue.<sup>8</sup> The combination of relative sea level rise, increases in frequency and duration of rainfall events, rising regional water tables, and storm surge from more frequent and severe weather systems will exacerbate flooding in coastal Virginia.

For example, recurrent flooding in Hampton Roads increased from 1.7 days of flooding per year in 1960 to 7.3 days per year in 2014.<sup>9</sup> Estimates project the influences of wind and coastal storms may increase this number to 200 per year by 2049.<sup>10</sup> Coastal Virginia is also vulnerable to flooding due to higher water tables as the sea level rises, and the degree to which this impacts current and future coastal flooding is not yet fully understood.<sup>11</sup>

The impacts of sea level rise and flooding are magnified by population density: Virginia’s coastal region is home to more than 70 percent of the Commonwealth’s population.<sup>12</sup> Coastal regions across the United States are seeing population increases, with the U.S. Department of Commerce estimating that 47 percent of the U.S. population lives along coastlines, putting a significant portion of the public at risk.<sup>13</sup> At the same time, the United States has seen an increase in both the number and frequency of billion-dollar disaster events, sustaining 254 weather and climate disasters since 1980 with a total cost exceeding \$1.7 trillion.<sup>14</sup> 2019 was the fifth consecutive year in which the United States suffered 10 or more weather and climate disasters, at an average of 12.6 events per year – more than twice the 40 year average. In 2018-2019, Virginia experienced impacts from nine such events with a total cost of approximately \$1.6 billion.<sup>15</sup>

## A FRAMEWORK FOR ACTION

As detailed in this summary, Virginia’s coastal region faces a serious threat to public safety and economic viability from the various impacts of climate change. Storm surge from tropical storms and hurricanes, sea level rise, nuisance flooding, altered hydrology, and their impacts on poorly planned development are just some of the issues we must address to ensure a resilient, thriving coast for generations to come.

From its first cities to its fishing and farming communities, coastal Virginia faces massive challenges in adapting to the new reality created by climate change and sea level rise. The enormity of this problem requires a whole of government approach, and that is the goal of the Coastal Master Planning Framework and subsequent Virginia Coastal Resilience Master Plan.

This Framework is premised on the stark realities we face, including the fact that current federal, state, regional, and local efforts are insufficient to achieve a resilient coast, and are not optimally aligned. It also accounts for the fact that in most cases, more work is necessary to identify the suite of possible solutions to specific problems posed by coastal hazards. Finally, we recognize that there is not, nor will there ever be, enough funding to protect all homes, businesses, infrastructure, and other coastal assets where they currently exist.

These realities illustrate the difficult task that we as a Commonwealth must undertake. They make it clear that Virginia needs a unified and comprehensive strategy to identify critical assets and areas of concern, and preferred approaches to improve resilience. Virginia needs to decide how to best integrate nature based or green infrastructure – including protection of floodways through strategic coastal relocation – with structural flood control, considering both the direct and indirect benefits. Virginia must decide which areas or projects are most deserving of limited resources, and Virginia must harmonize those projects to ensure that one region’s flood control project does not exacerbate flooding in adjacent areas. Finally, Virginia must create a plan to finance these projects.

These objectives will be accomplished in the Virginia Coastal Resilience Master Plan. A detailed plan, divided by region, will prioritize projects according to state guidelines and local and regional needs. This prioritization will drive state-administered flood preparedness and pre-disaster mitigation funding.

This Virginia Coastal Resilience Master Planning Framework lays out the values, policy objectives, and strategy for developing the Coastal Resilience Master Plan. The pages ahead identify the Goals and Guiding Principles that will inform Master Plan development. This Framework also details ongoing efforts that support the Plan, as well as the scientific, legal, and socioeconomic underpinnings of the planning process.

**Chapter One** outlines the Master Planning Goals and Guiding Principles, as well as action items to support the Master Planning Process.

*Master Planning Framework Primary Goals:*

1. Identify priority projects to increase the resilience of coastal communities, including both built and natural assets at risk due to sea level rise and flooding
2. Establish a financing strategy, informed by regional differences and equity considerations, to support execution of the plan
3. Effectively incorporate climate change projections into all of the Commonwealth’s programs addressing coastal zone built and natural infrastructure at risk due to sea level rise and flooding
4. Coordinate all state, federal, regional, and local coastal adaptation and protection efforts in accordance with the guiding principles of this Framework

*Master Planning Framework Guiding Principles:*

1. Acknowledge climate change and its consequences, and base decision-making on the best available science.
2. Identify and address socioeconomic inequities and work to enhance equity through coastal adaptation and protection efforts.
3. Recognize the importance of protecting and enhancing green infrastructure like natural coastal barriers and fish and wildlife habitat by prioritizing nature-based solutions.
4. Utilize community and regional scale planning to the maximum extent possible, seeking region-specific approaches tailored to the needs of individual communities.
5. Understand fiscal realities and focus on the most cost-effective solutions for protection and adaptation of our communities, businesses and critical infrastructure.

Central to this process will be the establishment of a Technical Advisory Committee. Utilizing its considerable expertise and the Goals and Guiding Principles above, that Committee will advise the Governor’s Chief Resilience Officer and Special Assistant for Coastal Adaptation and Protection in Master Plan development, including resilience project identification and prioritization.

**Chapters Two and Three** of this Framework include important background information that underpins the case for state-level action, and the need for the Master Plan. Chapter Two details the social and economic vulnerability of communities along the coast, and Chapter Three explains the science behind the problems we face, and identifies scientific efforts to support sound decision making.

**Chapter Four** explains the key units of organization for the Coastal Resilience Master Plan: four coastal regions, made up of localities within the coastal Planning District Commissions and Regional Commissions. Different areas along Virginia’s coast have both shared and unique challenges associated with sea level rise and other coastal hazards. Chapter Four examines these challenges and describes ongoing local and regional resilience efforts.

**Chapter Five** describes coastal adaptation and protection programs and projects already underway at the state and federal levels. This catalog includes many worthwhile initiatives, but makes clear the fact that coordination of activities through the Governor’s office is necessary to maximize their impact and ensure that the Commonwealth is able to increase coastal resilience in a cost-effective way that minimizes duplication of effort and unintended consequences.

**Chapter Six** provides a detailed framework for research, organization and planning actions that must be accomplished prior to the finalized Coastal Resilience Master Plan. It calls for three immediate actions: Elevating the Coastal Zone Management Program, establishing a Technical Advisory Committee, and engaging in community roundtables. These three activities are imperative to creating and implementing a Master Plan and must begin as soon as possible. Chapter Six continues by describing near-term actions necessary to increase resilience and finalize the Master Plan.

**Chapter Seven** closes the Planning Framework by discussing a number of potential funding options.

## SUMMARY

The Commonwealth is poised to assume the lead role in making Virginia's coast more resilient to the impacts of climate change. This leadership is key to addressing the economic, social, environmental, and public health and safety threats of coastal natural hazards. This Coastal Resilience Master Planning Framework provides a sound approach to developing and implementing solutions that will build resilience and maintain thriving coastal communities.

## INITIAL ACTIONS AND RECOMMENDATIONS



A home is raised in Wachapreague, VA in November 2018. Credit: Aileen Devlin | Virginia Sea Grant

Guided by this Framework, the initial iteration of the Coastal Resilience Master Plan will move the Commonwealth forward in accomplishing the four primary goals outlined in Chapter 1. It will begin a continuing effort that will evolve as our understanding of both the challenges and the response options increase through time and experience. Equally important at the outset is establishment of the defining characteristics of the master planning effort. We intend for this to be a collaborative effort, guided by some very clear principles.

Those principles embody a strong preference for long-term effectiveness in actions undertaken, and a prioritization of accommodation and avoidance strategies over defensive structural solutions. Other desired characteristics are a planning and implementation process that has clear objectives, time-bound tasks, assigned accountability, transparent progress monitoring, and actionable evaluation. With these priorities in mind, and the initial set of actions outlined in Chapter 1 of this document, this chapter provides additional detail on the necessary actions to create and implement a Virginia Coastal Resilience Master Plan.

## IMMEDIATE ACTIONS – SCALING UP TO CREATE A COASTAL MASTER PLAN

The challenges of sea level rise and coastal flooding are clearly bigger than any one state or federal agency, regional body, or locality can address alone. The ongoing coastal adaptation and protection efforts described in this document are beginning to achieve positive results in terms of making a subset of coastal Virginia communities more resilient. However, they have not generated substantive, coordinated action, or policy at the state level, which is necessary to ensure consideration of the critical principles and statewide goals described in Chapter 1. Further, many of them lack the funding necessary to be truly effective. The challenge for the Commonwealth is to add value in these areas while continuing to encourage the resilience work of coastal communities that have a head start on planning and implementation. To meet that challenge, the Commonwealth will take the following actions:

### ESTABLISH A TECHNICAL ADVISORY COMMITTEE

Getting from where we are now to where we want to be requires thoughtful coordination among the Commonwealth, local and regional leaders, scientist and engineers, and stakeholders. To facilitate such coordination, and develop recommendations for specific, place-based coastal adaptation and protection strategies, Governor Northam will create a Virginia Coastal Resilience Master Plan Technical Advisory Committee (TAC). The TAC will assist in the development of Master Plan updates, including a more robust and refined funding and financing strategy. Additionally, the TAC will track scientific developments, review proposed local and regional actions, and recommend additional risk assessment and scientific and engineering studies necessary to inform decision-making.

Ultimately, The TAC will work closely with the CRO and SACAP in creating a Master Plan and prioritized project list and financing model based on the guiding principles, goals, and actions identified here.

Importantly, the TAC will also make recommendations for strengthening partnerships with Department of Defense and other federal installations, aligning economic development initiatives with Master Planning Framework objectives, and coordinating multiple resilience, pre-disaster, urban development, and flooding adaptation grant programs. This includes those programs administered by DCR, VDEM, DHCD, FEMA, HUD, and USACE.

The Governor will appoint members of the TAC. The Chief Resilience Officer will serve as chair, and the Special Assistant for Coastal Adaptation and Protection will staff the Committee with assistance from the CZM Program. Membership shall include, but shall not be limited to the following individuals or their designees:

- The Executive Directors of each of the eight coastal PDCs/RCs
- The Director of the Virginia Department of Conservation and Recreation
- The Director of the Virginia Department of Emergency Management
- The Director of the Virginia Department of Housing and Community Development
- The Executive Director of the Virginia Resources Authority
- The Director of the Virginia Department of Environmental Quality

- The Director of the Virginia Transportation Research Council
- The Commissioner of the Virginia Marine Resources Commission
- The Coordinator of the Commonwealth Center for Recurrent Flooding Resiliency
- The VIMS Associate Dean for Research and Advisory Services
- The Director of the William and Mary Coastal Policy Center
- The Director of the Virginia Tech Center for Coastal Studies
- The Director of the Environmental Resilience Institute at the University of Virginia
- The Commander of the U.S. Army Corps of Engineers, Norfolk District
- The Director of Virginia Sea Grant
- The Governor’s Chief Diversity, Equity, and Inclusion Officer
- The Governor’s Chief Data Officer

### ELEVATE THE VIRGINIA COASTAL ZONE MANAGEMENT PROGRAM

The nature of the TAC’s work will require some significant administrative and technical support. This will include: decision option identification; stakeholder and advisor input management; data collection and synthesis; and performance monitoring. To meet these needs, we will utilize the CZM Program. The CZM Program is currently housed within DEQ, an appropriate arrangement given the conservation and restoration focus of much of the Program’s work. However, CZM also has professional coastal planning expertise that should be applied directly to the master planning process. Therefore, Governor Northam will instruct the Director of the CZM Program to report directly to the Secretary of Natural Resources on matters of coastal adaptation and protection, pursuant to the Secretary’s role as Chief Resilience Officer. This will allow for closer coordination between CZM, the CRO, and the SACAP, and facilitate important interagency discussions under the Master Planning Framework.

### HOLD COMMUNITY ENGAGEMENT ROUNDTABLES

Development of this Planning Framework included close coordination with coastal planning districts and regional commissions, conversations with individual localities, and significant input from scientists and an engaged group of stakeholders. A key element of our efforts going forward is direct outreach to individual communities across the Framework’s four coastal regions. In the coming months, the CRO and the SACAP, with assistance from state agencies, will hold a series of community roundtables to introduce the Virginia Coastal Resilience Master Planning Framework. The goal of the roundtables is to gather input on primary issues for citizens who live and work in vulnerable coastal areas. Combined with information gathered through continuing broader public comment, these events will support the development of more detailed coastal adaptation and protection prescriptions under the Framework.

## NEAR TERM ACTIONS - CREATING A MASTER PLAN

Once the initial actions described in this Chapter have been accomplished, the Commonwealth will have the resources to create and implement the master plan. The following goals, actions, and outcomes detail the complete set of actions and policies that will create Virginia's first Coastal Resilience Master Plan.

### Goal 1: Identification of priority projects for the Master Plan

**ACTION 1:** in collaboration with local and regional entities, identify critical built and natural infrastructure

- Outcome 1: a prioritized list of built infrastructure critical for national security, public health and safety, and/or the economy informs all coastal resilience planning and funding
- Outcome 2: a prioritized list of natural infrastructure critical for flood and storm protection, water quality management, and/or wildlife habitat services informs all coastal resilience planning and funding

In consultation with the TAC and stakeholders, the CRO and SACAP will lead development of the protocols for prioritization and initial prioritized lists of critical built and natural infrastructure. The first iteration of these lists will need to be available for use in drafting the initial Master Plan. This will be accomplished with the support of the CZM Program and DCR, in consultation with local and regional partners and stakeholders, and with input from state agencies and academic institutions. As noted in preceding chapters, much of the information and analysis necessary to meet this objective already exists. The primary tasks will be to synthesize that information, and develop a prioritization protocol that reflects the guiding principles of the Master Plan. This will allow us to plan our work and to screen projects proposed for implementation and funding.

**ACTION 2:** identify projects to protect and sustain the functions of critical built and natural infrastructure

- Outcome 1: adaptation strategies for sustaining benefits from existing infrastructure wherever practical
- Outcome 2: where adaptation is impractical, structural solutions for infrastructure risk reduction over the next 20, 40, and 60 years that consider social and economic equity, ecological impacts, and financial realities
- Outcome 3: relocation strategies for built and natural infrastructure for which adaptation and/or protection is not practical

Working with the TAC and stakeholders, the CRO and SACAP will compile a list of potential resilience projects designed to manage sea level rise and flooding risks to critical infrastructure in the coastal zone. The TAC will review project proposals and make recommendations for state engagement in project implementation. The prioritized lists of both built and natural infrastructure developed under Action 1 above, will serve as one element in the TAC evaluation process. A second important consideration will be the Commonwealth's preference for

accommodation and/or strategic relocation over structural solutions for risk management wherever practical.

## **Goal 2. Establishment of a financing strategy**

**ACTION 1:** develop a detailed needs assessment and list of recommended funding sources to support implementation of the Master Plan

- Outcome 1: funding and financing sources for priority projects
- Outcome 2: authorizations for use of new and innovative funding mechanisms

The financial resources needed to build resilience in Virginia’s coastal zone are enormous, far exceeding those currently available. Meaningful efforts to improve current conditions will require purposeful attention to development of new or improved funding mechanisms. A number of useful tools are described in Chapter 7 of this document. The CRO and SACAP will work through the CZM Program to convene a panel of experts to recommend financing strategies to the TAC for priority resilience projects. As part of this assessment, the panel will also recommend priorities for development of new and innovative funding mechanisms to meet the implementation needs of projects identified for the Master Plan. The CRO and the Governor will work to identify the resources necessary to support this effort.

**ACTION 2:** establish guidelines for administering the Community Flood Preparedness Fund (described in Chapter 7)

- Outcome 1: evaluation and prioritization of projects based on their effectiveness in reducing current and future risk, meaningful incorporation of equity and natural resource principles, and financial realities
- Outcome 2: monitoring, evaluation, and adaptive management to ensure desired results are achieved

The Clean Energy and Community Flood Preparedness Act tasks DCR with developing guidance for issuing grants and loans from the Community Flood Preparedness Fund (CFPF). This guidance needs to be developed and disseminated to potential applicants in advance of the Fund being capitalized with the proceeds of Virginia’s first RGGI auction, likely in March of 2021. Though the CFPF is designed to address inland flooding as well, guidance for coastal areas will be based largely on the guiding principles of the Master Planning Framework. To support development of specific eligibility criteria and a process for prioritization of applications, DCR will convene a stakeholder working group to provide input on the guidance. They will also solicit public comment.

Of critical importance, the 25 percent CFPF set-aside for low-income communities – communities we know are often in some of the most vulnerable areas, typically fail to meet cost-benefit analysis targets due to low property values, and have fewer resources – will yield significant results in the areas of equity and environmental justice. DCR will also develop a

monitoring and evaluation protocol to measure success of funded projects, and employ adaptive management to improve outcomes.

### **Goal 3: Effective incorporation of climate change projections in state programs**

#### **ACTION 1:** fully implement Executive Order 45 (Appendix 3)

- Outcome 1: state agency compliance with the new freeboard and sea level rise planning standards
- Outcome 2: all state-sponsored development activities in flood-prone areas meet National Flood Insurance Program (NFIP)-compliant requirements and standards

The Virginia Flood Risk Management Standard established by EO-45 gives clear direction to state agencies regarding the necessity of minimizing new development in flood-prone areas. The standard will become fully effective on January 1, 2021, but to ensure consistent adoption and compliance, the Commonwealth must take the following actions:

- DCR, after consulting with DGS, shall develop a guidance document to provide state agencies the methodology for complying with the new freeboard and sea level rise planning standards.
- The CRO shall convene a Cabinet-level workgroup to develop and approve NFIP-compliant requirements and standards for all state-sponsored development activities in flood-prone areas.

Both of these processes are underway, but must be completed to ensure the Commonwealth is setting the right example to limit taxpayer exposure to sea level rise and other coastal hazards.

#### **ACTION 2:** amend the Chesapeake Bay Preservation Act (CBPA) guidance to address the anticipated inland migration of regulated areas as sea level rises

- Outcome 1: local implementation of the CBPA addresses pressure to protect developed property from encroaching sea level while avoiding, or minimizing and mitigating, the environmental consequences
- Outcome 2: coordination of the CBPA implementation with the Tidal Wetlands Act implementation to integrate project reviews and compensatory mitigation of unavoidable impacts

Rising sea level is resulting in increasingly frequent flooding of low-lying residential properties. Adding fill material to riparian areas to raise elevations and reduce flooding is a temporary strategy that has some potential negative environmental consequences if not properly managed. Pursuant to HB504, DEQ and the State Water Control Board will update its Chesapeake Bay Preservation Act regulations to promote coastal resilience and adaptation to sea level rise and climate change. This will align water quality and coastal resilience in cooperative state-local partnerships to manage natural buffers adjacent to the Chesapeake Bay's tributaries.

Because filling riparian areas impacts the sustainability of tidal wetlands, DEQ shall coordinate development of amended guidance with VMRC. The guidance will ensure both programs operate in a manner that is consistent and provides clear guidance for property owners and local officials. The Secretary of Natural Resources shall ensure that guidance from DEQ and VMRC is compatible and issued contemporaneously.

**ACTION 3:** amend the Tidal Wetlands Act guidance to accommodate inland migration of tidal wetlands as sea level rises

- Outcome 1: local and VMRC decisions make no net loss of wetland resources possible by requiring riparian buffers and/or effective compensatory mitigation of probable future impacts
- Outcome 2: coordination of the Tidal Wetlands Act implementation with CBPA implementation

Maintaining the Commonwealth's tidal wetland resources is becoming increasingly difficult due to sea level rise. The long-standing process of compensatory mitigation for regulated losses under the tidal wetlands management program needs revision. It needs to reflect appropriately the anticipated changes in the location of intertidal lands. To accomplish this, VMRC will undertake an analysis of the potential losses of tidal wetlands due to sea level rise and shoreline management practices, and identify options for compensatory mitigation that can be effective for at least 40 years. VMRC will then develop and promulgate new guidance directing use of one or more of those options in local and state regulatory decisions.

VIMS shall assist VMRC in these analyses, and the VIMS Tidal Wetlands Inventory shall provide reports to the CRO on the compensatory mitigation outcomes as an element in its recurring tidal wetland change analysis.

**ACTION 4:** incorporate coastal resilience considerations into water management programs

- Outcome 1: management of stormwater, wastewater, groundwater, and surface water that accounts for projected sea level rise in a manner that avoids or minimizes and mitigates current and future risks to built and natural infrastructure
- Outcome 2: incorporation of resilience criteria in to water quality grant programs

While not unique to coastal areas, management of stormwater, wastewater, groundwater, and surface water that does not account for climate change can exacerbate flooding problems and harm water quality. Through permits and grant programs such as the Stormwater Local Assistance Fund and the Water Quality Improvement Fund, DEQ serves as Virginia's lead agency for water management. DEQ will incorporate climate change, sea level rise and other coastal hazards into evaluations and decision making within these programs, as well as into criteria for associated water infrastructure grant programs.

#### Goal 4. Coordination of state, federal, regional and local coastal efforts

**ACTION 1:** ensure that state and federal hazard mitigation and community development grant programs administered by the Commonwealth and localities are aligned under the Master Plan

- Outcome 1: Virginia Department of Emergency Management (VDEM)-administered hazard mitigation grants in the coastal zone align with Master Planning Framework guiding principles and support projects and strategies identified in the Master Plan
- Outcome 2: Department of Housing and Community Development (DHCD)-administered grants in the coastal zone align with Master Planning Framework guiding principles, and support projects and strategies identified in the Master Plan

The various hazard mitigation and resilience grant programs administered by VDEM, and the community development grants administered by DHCD, are significant sources of funding. They must be utilized in a way that is compatible with the Commonwealth’s coastal adaptation and protection efforts under the Master Plan. While these agencies will continue to manage the grants, the Governor will take action to ensure that funds are expended in accordance with the guiding principles of this Framework and, whenever possible, to support resilience projects and strategies identified in the Master Plan.

**ACTION 2:** empower localities and individuals to make informed decisions

- Outcome 1: localities have access to sea level rise and freeboard guidance

EO-24 required an analysis of state-level flood protection policies, leading to the issuance of EO-45 and creation of the Virginia Flood Risk Management Standard. While the Standard currently applies only to state-owned buildings and construction on state lands, the best available science shows that it is appropriate to use more broadly. Therefore, in accordance with the requirements of Section 2D and 2E of EO-24, the Chief Resilience Officer shall issue guidance to assist localities in adopting the sea level rise and freeboard requirements of the Virginia Flood Risk Management Standard for use in local applications.

- Outcome 2: a strategic coastal relocation handbook is available to inform local planning

We know that eventually, many coastal areas will be inundated permanently by sea level rise, or subject to such intensity and frequency of flooding or other coastal hazards that continuing to utilize them for their current purpose will not be feasible. Being honest and proactive about where and when private and public assets must be moved to higher ground to avoid destruction is a necessary component of any coastal resilience effort. Building on existing models and applying Virginia-specific science and local information, the Commonwealth will develop a handbook to help with strategic relocation planning in areas for which other alternatives are not feasible.

Working through the CZM Program, the Commonwealth will engage the expertise within its academic institutions to develop the Handbook. The CZM Program will also engage the coastal PDCs/RCs as advisors in this process with the goal of producing a first iteration of the Handbook

by December 2021. The CRO and the Governor will work to identify the resources necessary to support this effort.

- Outcome 3: localities have the legal tools necessary to prevent irresponsible land development

During the 2020 General Assembly Session, Governor Northam proposed and legislators approved a bill clarifying local authority to adopt federal and state floodplain management standards by ordinance. That was an important start. Some localities, including the Cities of Virginia Beach and Norfolk, have started using their zoning ordinances to deny development projects in flood-prone areas. As part of the Master Planning Framework, the Northam Administration will support localities in their efforts to prevent irresponsible land development.

- Outcome 4: sellers of real estate are required to disclose if a property is located in a special flood hazard area, has sustained flood damage, or contains a dam

Enabling informed decision-making, particularly when it comes to flooding risks associated with real estate is widely recognized as an important part of the process of increasing resilience in coastal localities. Ideas for requiring disclosure of this information have been developed and proposed many times. The CRO and the Governor will work with the General Assembly to develop and implement requirements for sellers of real estate to disclose the presence of flood hazard areas and dams to any potential buyers.

- Outcome 5: all coastal localities have engaged in the Resilience Adaptation and Feasibility Tool (RAFT) process (described in Appendix B)

The CRO and SACAP will work through the PDCs/RCs to encourage all coastal localities to participate in the RAFT process. The process helps localities become proactive in developing their resilience to coastal hazards. The CRO and SACAP will work through the Virginia CZM program to develop and provide the resources to support these activities.

**ACTION 3:** implement 2019 DCR Dam Safety and Floodplain Management Report recommendations

- Outcome 1: all coastal localities act to protect the natural functions of floodplains and to ensure all essential structures are located outside of known floodways
- Outcome 2: all coastal localities fully participate in NFIP Community Rating System (CRS).

As noted in Chapter 5, EO-24 required the DCR Dam & Floodplain Safety program to review existing authorities and make recommendations for how to ensure continued NFIP compliance and protect the natural functions of floodplains. The 2019 DCR Dam Safety and Floodplain Management Report contained more than three dozen specific recommendations across a wide array of topics. The Commonwealth intends to address all of the recommendations in time, but initially is focused on actions that will have a clear and immediate impact on resilience. As noted previously, Virginia issued freeboard standard and siting guidelines for all state-owned property

within the floodplain. Virginia has also convened an interagency workgroup to update Virginia's state-level compliance with NFIP standards. In addition to these ongoing efforts, we will work in the coming year to achieve two more of the key recommendations in the DCR report.

The Governor, the CRO, and DCR will create minimum floodplain management requirements that meet standards set in the Code of Virginia, with oversight administered by DCR. The Commonwealth will also work to provide the necessary resources to sustain and upgrade the online Dam Safety Inventory System so the database is as comprehensive as possible. Upgrades will make the information in the system readily accessible and useful for a wide variety of users including state and local officials as well as private citizens. Finally, the Commonwealth will seek to increase local engagement in CRS, and use of CRS-eligible actions, especially those that enhance flood resilience.

**ACTION 4:** protect and enhance natural coastal defenses

- Outcome 1: state, federal, regional, and local authorities all fully incorporate the *ConserveVirginia* assessments (described in Chapter 5) in planning and implementation
- Outcome 2: state, federal, regional, and local authorities utilize restoration and protection of natural shorelines and coastal landscapes as a resilience strategy whenever possible

Under this Planning Framework, the CRO and the TAC will incorporate Governor Northam's *ConserveVirginia* initiative to support assessment of adaptation and protection strategies. *ConserveVirginia* has identified the undeveloped coastal lands that are essential to coastal resilience. The Commonwealth will use that information to encourage conservation and discourage development of these lands. Virginia will continue to prioritize the acquisition or protection of lands identified by the *ConserveVirginia* Flooding and Floodplain layer. This tool should also be used in the development of green infrastructure and natural floodplains approaches.

As part of this effort, we will identify lands adjacent to already identified Coastal Barrier Resource System Units. We will submit a request to USFWS to have the *ConserveVirginia* lands designated as Otherwise Protected Areas under the CBRA statute. The Commonwealth will also consider legislation to codify *ConserveVirginia*, fully integrating it into coastal resilience efforts. Legislation will also seek to ensure that other government authorities are maximizing restoration and protection of coastal barriers as a resilience solution.

## SUMMARY

The guiding principles and major action items described above form the foundation of the Virginia Coastal Resilience Master Planning Framework. We will also work through the TAC to develop a better understanding of specific community vulnerabilities and needs. TAC will provide input on cost effective, sustainable, and equitable strategies to address those vulnerabilities and needs, and funding and financing mechanisms to execute those strategies.