

A scenic photograph of a river flowing through a forested area at sunset. The sun is low on the right side, casting a warm, golden glow over the water and trees. The foreground shows a rocky riverbank with several small, shallow pools of water. The sky is filled with soft, white clouds. The image is framed by large, curved, abstract shapes in shades of blue and green.

RESILIENCE COORDINATION WORKING GROUP

REPORT
and RECOMMENDATIONS



VCU

Center for Public Policy

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Resilience Coordination Working Group

Report & Recommendations

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Finally, we would like to thank Working Group members for their ongoing contributions and dedication to this process. A full list of Working Group members and representing organizations is available in Appendix A.

EXECUTIVE SUMMARY

Virginia faces challenges related to coordinating state-level resilience planning, programs, and funding efforts, which are dispersed across multiple agencies and secretariats. Additionally, many of Virginia's localities lack the capacity to address resilience in their communities. Finally, Virginia's current structure hampers the Commonwealth's ability to capture and coordinate funding opportunities at the federal and private sector level and does not provide localities with the support they need to address challenges at a local level.

Under the direction of Virginia Secretary of Natural and Historic Resources Travis A. Voyles and as the Governor's appointed Chief Resilience Officer (CRO), the Virginia Department of Conservation and Recreation (DCR) convened the Resilience Coordination Working Group (RCWG), an administrative working group. The CRO charged the RCWG to develop a set of recommendations on improving strategies for interagency and intergovernmental coordination and maximizing funding opportunities in planning for and implementing flood resilience throughout the Commonwealth.

The Center for Public Policy (CPP) within the Virginia Commonwealth University (VCU) L. Douglas Wilder School of Government and Public Affairs facilitated monthly working group sessions by guiding a collaborative and productive process. RCWG members represented state agencies, planning district commissions, academic research institutes, nonprofit organizations, agricultural sector organizations and partners, and private sector business partners. All meetings were open and available to the public, with opportunities for public comment.

While the group's discussions initially focused on flood resilience, interest quickly emerged in broadening the scope of the recommendations to encompass resilience to all hazards, consistent with the definition of resilience that appears in the Code of Virginia § 10.1-603.28. To address Virginia's resilience challenges, the Working Group made a series of recommendations around three key concepts:

- Improving Virginia's **resilience coordinating structure** by establishing a new Office of the Chief Resilience Officer (Office) serving as a single coordinating entity for all resilience planning and efforts across the Commonwealth using a "hub and spoke" model, where the Office serves as the "hub," facilitating coordination and communication between agencies ("spokes"). Programmatic, funding, and planning activities (and associated staff) will remain within the relevant agencies. The CRO and staff would be tasked with supporting interagency collaboration and locality resilience readiness, in part through the creation of an ongoing Interagency Resilience Working Group.

- Enhancing our **resilience funding efforts** by tasking the CRO and Office with maximizing federal funding opportunities and working to increase private sector investment in resilience across state, local, and regional levels.
- Supporting **locality readiness for resilience** by tasking the Office with providing knowledge-based support to local governments seeking to address resilience challenges within their communities.

RECOMMENDATIONS AND VOTING SUMMARY

This section presents a summary of both legislative and administrative recommendations proposed by the Resilience Coordination Working Group. The recommendations are listed in their entirety starting on page 15. The table below shows each recommendation and its justification, as well as the votes of “Support”, “Abstain”, and “Do Not Support” submitted by working group members in attendance at the final RCWG meeting on September 26, 2023. It should be noted that no recommendation received a “Do Not Support” vote from a working group member. Recommendations A.1, A.3, B.1, B.2, E.4, and H.1 received unanimous support with no abstaining votes. For the complete voting results, please see Appendix B.

Recommendations for Legislative Action

| Legislative Action Recommendation | Justification |
|---|--|
| A. Resilience Coordinating Structure | |
| <p>A.1: Adopt a “hub and spoke” model for resilience efforts in the Commonwealth, where the Chief Resilience Officer, reporting to the Governor and supported by a professionally staffed Office, serves as the “hub,” facilitating coordination and communication between agencies (“spokes”), who continue to administer their respective resilience-related programmatic, funding, and planning activities.</p> <p><i>29 Support, 0 Abstain, 0 Do Not Support</i></p> | <p>Establishment of a single coordinating structure to facilitate resilience coordination and communication between state agencies is consistent with peer states examined by the Working Group. The “hub and spoke” model has the benefit of leveraging existing agency structures and competencies, while improving lines of communication and coordination across agencies.</p> |
| <p>A.2: Create a new office (“Office”¹) of the Chief Resilience Officer as a dedicated, funded, and staffed Office established to support the CRO.</p> <p><i>27 Support, 2 Abstain, 0 Do Not Support</i></p> | <p>Provides coordinated approach to capturing federal resilience funding, aligning state agency resources, and providing necessary technical assistance that addresses gaps in local and regional needs and capacities.</p> |
| <p>A.3: Task the CRO with promoting communication, coordination, and cooperation between state agencies, the</p> | <p>Facilitates communication across agencies, helps maximize funding opportunities, and supports regional</p> |

¹ The new office will be named later. For purposes of this working group, the term “Office” served as a placeholder name.

| Legislative Action Recommendation | Justification |
|--|---|
| <p>federal government, local governments, other political subdivisions of the Commonwealth, and key stakeholders regarding resilience, as defined in § 10.1-603.28.</p> <p><i>29 Support, 0 Abstain, 0 Do Not Support</i></p> | <p>and local government resilience efforts.</p> |
| <p>A.4: Task the CRO with producing deliverables on a regular basis to facilitate monitoring of resilience progress, adaptively manage outcomes, and transfer knowledge throughout the Commonwealth.</p> <p><i>28 Support, 1 Abstain, 0 Do Not Support</i></p> | <p>Supports resilience planning efforts across state, regional, and local levels.</p> |
| <p>A.5: Establish an interagency resilience working group led by the CRO and consisting of Resilience Coordinators to support coordination and planning for resilience efforts, meeting not less than quarterly.</p> <p><i>27 Support, 2 Abstain, 0 Do Not Support</i></p> | <p>Supports interagency coordination and planning for resilience efforts.</p> |
| <p>A.6: Direct relevant agencies to each designate or create a Resilience Coordinator position/role, based on the resilience planning needs of the agency, to ensure continuity between administration turnover coordinated by the CRO.</p> <p><i>26 Support, 3 Abstain, 0 Do Not Support</i></p> | <p>Ensures durability of resilience efforts and creates focal point for cross-agency collaboration.</p> |
| <p>B. Supporting Resilience Funding Efforts</p> | |
| <p>B.1: The CRO should be directed to take steps to maximize the availability and use of federal, state, and private funding for resilience activities.</p> <p><i>29 Support, 0 Abstain, 0 Do Not Support</i></p> | <p>Maximizes use of funding from all levels for resilience while supporting localities in attaining resilience funding.</p> |
| <p>B.2: The CRO should be authorized to serve, at the request of and in coordination with, an eligible funding recipient, as Virginia’s non-federal sponsor or applicant for resilience related projects, depending on existing state agency activities and needs, USACE Civil</p> | <p>Provides additional infrastructure for state agencies to leverage and maximize federal funding opportunities.</p> |

| Legislative Action Recommendation | Justification |
|---|---|
| <p>Works Programs and other federal funding programs.</p> <p><i>29 Support, 0 Abstain, 0 Do Not Support</i></p> | |
| <p>B.3: State resilience funds, including the Community Flood Preparedness Fund and the Resilient Virginia Revolving Fund, should be administered with appropriate oversight and transparency, perhaps through establishment of a board.</p> <p><i>27 Support, 2 Abstain, 0 Do Not Support</i></p> | <p>Ensures transparency and oversight of state resilience funding awards and administration.</p> |
| <p>C. Locality Readiness for Resilience</p> | |
| <p>C.1: The state should provide capacity-building support to local governments seeking to address resilience challenges.</p> <p><i>27 Support, 2 Abstain, 0 Do Not Support</i></p> | <p>Addresses gaps in capacity and resources across localities and regions.</p> |
| <p>C.2: The state should consider funding resilience tools and processes that will help localities and state and federally recognized Tribes advance their resilience, such as the Resilience Adaptation Feasibility Tool (RAFT).</p> <p><i>24 Support, 5 Abstain, 0 Do Not Support</i></p> | <p>Targeted support to help localities advance their resilience.</p> |
| <p>D. Flood Resilience Planning</p> | |
| <p>D.1: Establish a new group (or re-scope the role of the Coastal Technical Advisory Committee) with appropriate statewide representation to support the development and implementation of the Virginia Flood Protection Master Plan.</p> <p><i>25 Support, 4 Abstain, 0 Do Not Support</i></p> | <p>Ensures aligned development and implementation of the Virginia Flood Protection Master Plan.</p> |

Recommendations for Administrative Action and Future Consideration

| Administrative Action Recommendation | Justification |
|---|---|
| E. Supporting Resilience Funding Efforts | |
| <p>E.1: The state should evaluate creating streamlined mechanism(s) to accept and enable the use of private funding, charitable funding and/or public-private partnerships by state agencies and localities seeking to address resilience challenges.</p> <p><i>27 Support, 2 Abstain, 0 Do Not Support</i></p> | <p>Creates a path to accept private funds (including donations) to assist regions and localities in diversifying resilience funding sources.</p> |
| <p>E.2: The state should develop and maintain a catalog of resilience projects that can be quickly matched against grants as they become available, similar to what is available for coastal flood resilience through the Coastal Resilience Web Explorer.</p> <p><i>26 Support, 2 Abstain, 0 Do Not Support</i></p> | <p>Ensures timely and effective federal grant application submissions from relevant state agencies.</p> |
| <p>E.3: The state should consider creating a “one stop shop” for business resilience to provide regulatory assistance, contractor connections, and other services to facilitate private sector resilience investments.</p> <p><i>24 Support, 5 Abstain, 0 Do Not Support</i></p> | <p>Accurate and effective resource sharing for private sector partners to help increase investment in resilience.</p> |
| <p>E.4: When providing support to local governments, the CRO should coordinate with other agencies where appropriate for existing grants to avoid duplication of efforts.</p> <p><i>29 Support, 0 Abstain, 0 Do Not Support</i></p> | <p>Streamlines resilience practices and improves accessibility for private businesses and other private sector partners, leading to increased investment.</p> |
| F. Locality Readiness for Resilience Planning | |
| <p>F.1: The state should establish state goals, metrics, and best practices to define what effective locality readiness for resilience should look like.</p> <p><i>23 Support, 6 Abstain, 0 Do Not Support</i></p> | <p>Enables statewide alignment around resilience planning and activities.</p> |

| Administrative Action Recommendation | Justification |
|---|---|
| <p>F.2: The state should ensure that state agencies have internal clarity/review of flood resilience opportunities and challenges that can inform technical assistance and grants programs.</p> <p><i>26 Support, 3 Abstain, 0 Do Not Support</i></p> | <p>Enables statewide alignment around resilience planning and activities.</p> |
| <p>F.3: State resilience funding programs should be structured in a manner that provides support for start-up and up-front costs borne by local governments implementing resilience projects.</p> <p><i>24 Support, 5 Abstain, 0 Do Not Support</i></p> | <p>Alleviates burden of 100% reimbursement for under-resourced localities.</p> |
| <p>F.4: State agencies administering resilience programs should consider structuring programs to enable localities to leverage federal dollars by subsidizing the required match.</p> <p><i>25 Support, 4 Abstain, 0 Do Not Support</i></p> | <p>Assists localities in maximizing federal funding opportunities.</p> |
| <p>G. Flood Resilience Planning</p> | |
| <p>G.1 DCR should continue to explore ways to align the regional flood resilience master plans and the Virginia Flood Protection Master Plan.</p> <p><i>27 Support, 2 Abstain, 0 Do Not Support</i></p> | <p>Ensures aligned development and implementation of regional and master plans.</p> |
| <p>H. Resilience Data and Resources</p> | |
| <p>H.1: The CRO should conduct a periodic survey of state agencies, regional entities, and localities to identify their coordination, planning, and funding needs as well as data needs including what data is required to be used and what data is available for use.</p> <p><i>29 Support, 0 Abstain, 0 Do Not Support</i></p> | <p>Identify state, local, and regional coordination, planning, funding, and data needs.</p> |
| <p>H.2: The state should establish a data mechanism for resilience planning and ensure that captured resilience data are coordinated</p> | <p>Leverage state agency, University, non-governmental organization,</p> |

| Administrative Action Recommendation | Justification |
|--|---|
| <p>and streamlined for ease of use by agencies and end users, perhaps by convening a data management working group. Consider opportunities to leverage the Virginia Office of Data Governance and Analytics for this purpose.</p> <p><i>28 Support, 1 Abstain, 0 Do Not Support</i></p> | <p>private sector partners, and end-user expertise.</p> |

INTRODUCTION

The Resilience Coordination Working Group (RCWG) was established by the Chief Resilience Officer (CRO) in furtherance of Governor Youngkin's goal of addressing challenges related to flooding and resilience, and in the spirit of engaging collaboratively with the General Assembly on this important issue. The RCWG charge was generally guided by the text of the amendment in the nature of a substitute to the House Bill 847² proposed by the Senate Committee on Agriculture, Conservation and Natural Resources on March 1, 2022. The RCWG was charged with the following tasks:

- Consider and assess strategies and policies for the Commonwealth to improve intergovernmental and interagency coordination; and
- Maximize the procurement of federal and private funding opportunities in planning for and implementing flood resilience throughout the Commonwealth.

The Working Group focused on improving the flood resilience of both human and natural systems and infrastructures. RCWG members represented state government agencies, planning district commissions, academic research institutes, nonprofit organizations, agricultural industry, and private sector business partners. For a complete member list, workplan, and schedule, see Appendices A-D.

To develop recommendations, the Virginia Department of Conservation and Recreation (DCR) hosted monthly RCWG working sessions to:

- Assess the impact of current flood resilience efforts
- Identify existing gaps and challenges
- Propose actionable recommendations to improve flood resilience coordination, planning, and funding.

All meetings were open to the public, with opportunities for public comment. During each meeting, the working group reviewed relevant background documents cited by members and resilience efforts in peer states selected by the working group steering committee. The Center for Public Policy (CPP) within Virginia Commonwealth University's (VCU) L. Douglas Wilder School of Government and Public Affairs partnered with the steering committee to develop discussion questions. CPP facilitated each meeting with the goal of identifying gaps and opportunities for resilience coordination in Virginia. Based on the findings presented in this report and the underlying themes that emerged from working group discussions, the RCWG proposes the following recommendations for improving intergovernmental and interagency

² <https://lis.virginia.gov/cgi-bin/legp604.exe?221+ful+HB847S1+pdf>

coordination, and maximizing the procurement of funding for flood resilience throughout the Commonwealth of Virginia.

RECOMMENDATIONS FOR LEGISLATIVE ACTION

A. Resilience Coordinating Structure

Recommendation A.1 Adopt a “hub and spoke” model for resilience efforts in the Commonwealth, where the Chief Resilience Officer, reporting to the Governor and supported by a professionally staffed Office, serves as the “hub,” facilitating coordination and communication between agencies (“spokes”), who continue to administer their respective resilience-related programmatic, funding, and planning activities.

- i. Re-establish Chief Resilience Officer as a distinct non-cabinet position responsible for managing and coordinating resilience efforts across the Commonwealth, appointed by, and reporting directly to the Governor, and supported by career staff.
- ii. Combine the Special Assistant to the Governor for Coastal Adaptation and Protection with the Chief Resilience Officer into one role as the Chief Resilience Officer and redistribute portions of the Special Assistant to the Governor for Coastal Adaptation and Protection’s duties to other roles within the Office.

Recommendation A.2: Create a new office (“Office”³) of the Chief Resilience Officer as a dedicated, funded, and staffed Office established to support the CRO.

- i. Ensure that the Office has adequate dedicated permanent staff with the requisite skill sets needed and defined roles and responsibilities to ensure the Office can meet statewide needs and maintain continuity of resilience knowledge between administrations.
- ii. Funding and staffing should be evaluated in year two to ensure adequate resources are provided to achieve core functions.

Recommendation A.3: Task the CRO with promoting communication, coordination, and cooperation between state agencies, the federal government, local governments, other political subdivisions of the Commonwealth, and key stakeholders regarding resilience, as defined in § 10.1-603.28, including:

- i. Facilitating communication and coordination across relevant state agencies to help organize efforts around a cohesive approach to resilience based on needs identified at the state, regional, and local levels.

³ The new office will be named later. For purposes of this working group, the term Office will serve as a placeholder name.

- ii. Working to maximize the availability and use of funding to address resilience challenges.
- iii. Supporting regional and local government resilience efforts by providing resilience knowledge and technical assistance that is responsive to the needs and resources of each municipality.

Recommendation A.4: Task the CRO with producing deliverables on a regular basis to facilitate monitoring of resilience progress, adaptively manage outcomes, and transfer knowledge throughout the Commonwealth. Deliverables of the Office could include:

- i. A State of Resilience Report (biennially), which may include summarizing and consolidating specific agency-led reporting efforts on their respective resilience activities.
- ii. A survey and report on CRO and agency actions regarding resilience coordination and planning and all funding received and distributed (annually)
- iii. Best practices for the state and local resilience assessments.
- iv. Acting as clearinghouse for local level resilience needs assessments.
- v. Maintaining a webpage for a repository of information for resiliency planning and assessments.

Recommendation A.5: Establish an interagency resilience working group led by the CRO and consisting of Resilience Coordinators to support coordination and planning for resilience efforts, meeting not less than quarterly. Responsibilities may include:

- i. Supporting the exchange of information and best practices related to resilience.
- ii. Advising the Office on strategies for enhancing resilience planning and funding coordination across agencies under a unified, statewide resilience approach.
- iii. Recommend metrics for measuring the progress of the Office of resilience efforts in the Commonwealth.

Recommendation A.6: Direct relevant agencies to each designate or create a Resilience Coordinator position/role, based on the resilience planning needs of the agency, to ensure continuity between administration turnover coordinated by the CRO.

- i. Relevant state agencies could include, but are not limited to:
 - a. Virginia Department of Agriculture and Consumer Services, Department of Conservation and Recreation, Department of Emergency Management, Department of Energy, Department of Environmental Quality, Department of Forestry, Department of General Services, Department of Health, Department of Historic Resources, Department of Housing and Community Development, Department of Transportation, and Department of Wildlife Resources
 - b. Governor may add agencies to this list
- ii. Responsibilities of Resilience Coordinators may include:

- a. Represent state agencies at the interagency working group.
- b. Build relationships with non-governmental organizations.
- c. Integrate common language and practices for resilience work across agencies.
- d. Assist state agencies with including resilience in their strategic and implementation plans.
- e. Monitor available funding opportunities.

B. Supporting Resilience Funding Efforts

Recommendation B.1: The CRO should be directed to take steps to maximize the availability and use of federal, state, and private funding for resilience activities. This could be accomplished by:

- i. Identifying a baseline of existing resilience-related funding opportunities and publish these opportunities regularly to all regional and local governments, similar to information provided by the Coastal Resilience Web Explorer regarding coastal flood resilience funding opportunities.
- ii. Connecting funding opportunities to programmatic needs, including making recommendations on how funding may be combined from multiple sources for resilience projects, and communicate these opportunities to relevant regional and local governments.
- iii. Supporting regional and local governments in attaining resilience funding by providing technical assistance and knowledge at a level that is commensurate with their needs.
- iv. Working with relevant stakeholders to better coordinate funding for resilience programs at the federal, state, regional, and local levels, in alignment with a unified direction and vision for resilience funding priorities.
- v. Supporting state agencies in their attempts to secure resilience funding, including partnering with state agencies to make applications for grants on the agency's behalf.
- vi. Submitting budgetary requests and recommendations to the Executive Branch for resilience programs.
- vii. Developing recommendations for financial incentives to support resilience efforts.
- viii. Engaging with the private sector to encourage their investment in resilience (for example, for privately-owned critical infrastructure).

Recommendation B.2: The CRO should be authorized to serve, at the request of and in coordination with, an eligible funding recipient, as Virginia's non-federal sponsor or applicant for resilience related projects, depending on existing state agency activities and needs, USACE Civil Works Programs and other federal funding programs. The CRO should be tasked with working across relevant agencies and localities to seek these funding opportunities and make applications on behalf of the Commonwealth. Where a specific agency or local government is required, or better suited, to be the applicant (such as the STORM program),

the CRO will be designated to support the application, and lead coordination between agencies and ensure alignment with the Commonwealth's overall resilience goals.

Recommendation B.3: State resilience funds, including the Community Flood Preparedness Fund and the Resilient Virginia Revolving Fund, should be administered with appropriate oversight and transparency.

- i. Current administrative steps taken to ensure transparency for these programs should be codified. This could be achieved through establishment of a board consisting of members with the appropriate resilience expertise and technical knowledge.

C. Locality Readiness for Resilience

Recommendation C.1: The state should provide capacity-building support to local governments seeking to address resilience challenges. To ensure success, the state should consider the following actions:

- i. Providing support to localities from the Office of Resilience by establishing local support positions within the Office.
- ii. Establishing "grant specialist/local support" positions outside of the Office to support localities and Planning District Commissions in procuring resilience funding, based on demonstrated need.

Recommendation C.2: The state should consider funding resilience tools and processes that will help localities and state and federally recognized Tribes advance their resilience such as the Resilience Adaptation Feasibility Tool (RAFT).

D. Flood Resilience Planning

Recommendation D.1: Establish a new group (or re-scope the role of the Coastal Technical Advisory Committee) with appropriate statewide representation to support the development and implementation of the Virginia Flood Protection Master Plan.

RECOMMENDATIONS FOR ADMINISTRATIVE ACTION AND FUTURE CONSIDERATION

E. Supporting Resilience Funding Efforts

Recommendation E.1: The state should evaluate creating streamlined mechanism(s) to accept and enable the use of private funding, charitable funding and/or public-private partnerships by state agencies and localities seeking to address resilience challenges.

Recommendation E.2: The state should develop and maintain a catalog of resilience projects that can be quickly matched against grants as they become available, similar to what is available for coastal flood resilience through the Coastal Resilience Web Explorer.

Recommendation E.3: The state should consider creating a “one stop shop” for business resilience to provide regulatory assistance, contractor connections, and other services to facilitate private sector resilience investments.

Recommendation E.4: When providing support to local governments, the CRO should coordinate with other agencies where appropriate for existing grants to avoid duplication of efforts.

F. Locality Readiness for Resilience

Recommendation F.1: The state should establish state goals, metrics, and best practices to define what effective locality readiness for resilience should look like.

Recommendation F.2: The state should ensure that state agencies have internal clarity/review of flood resilience opportunities and challenges that can inform technical assistance and grants programs.

Recommendation F.3: State resilience funding programs should be structured in a manner that provides support for start-up and up-front costs borne by local governments implementing resilience projects.

Recommendation F.4: State agencies administering resilience programs should consider structuring programs to enable localities to leverage federal dollars by subsidizing the required match.

G. Flood Resilience Planning

Recommendation G.1: DCR should continue to explore ways to align the regional flood resilience master plans and the Virginia Flood Protection Master Plan (VFPMP).

H. Resilience Data and Resources

Recommendation H.1: The CRO should conduct a periodic survey of state agencies, regional entities, and localities to identify their coordination, planning, and funding needs as well as data needs including what data is required to be used and what data is available for use.

Recommendation H.2: The state should establish a data mechanism for resilience planning and ensure that captured resilience data are coordinated and streamlined for ease of use by agencies and end users, perhaps by convening a data management working group. Consider opportunities to leverage the Virginia Office of Data Governance and Analytics for this purpose.

BACKGROUND

The scale, complexity, and need to coordinate efforts between communities and regions on resilience challenges necessitates state-level leadership. As risks accelerate, no single entity is capable of fully protecting communities from potential damage and loss caused by environmental hazards. The need to address these challenges is urgent, but resources are limited. State-level leadership could fill the gaps by expanding and better coordinating available resources to create comprehensive solutions that address social and physical vulnerabilities. The Commonwealth, as well as other states, have made attempts to fill unmet and emerging resilience needs. This section presents these efforts.

Legislative History in Virginia

In November 2018, Governor Ralph Northam signed Executive Order Number Twenty-Four: “Increasing Virginia’s Resilience to Sea Level Rise and Natural Hazards”⁴ in response to an unprecedented increase in federally declared hazards as well as climate reports projecting severe and exacerbated risk from natural hazards across the Commonwealth of Virginia. Two primary directives of this Executive Order include the 1) designation of the state’s Secretary of Natural Resources to dually serve as the Chief Resilience Officer (CRO) and 2) creation of the state’s first Coastal Resilience Master Plan. Both actions aimed to better align state efforts around flood planning. A Special Assistant to the Governor for Coastal Adaptation and Protection (SACAP) position was also created to assist the CRO in carrying out resilience duties. In calling for statewide enhancement of resilience to natural hazards and extreme weather, Executive Order 24 laid the foundation for formal resilience coordination and planning across state agencies and sectors. Additional directives issued by this order include ensuring more resilient holdings for the Commonwealth, conducting reviews of relevant programs and policies, establishing periodic resilience reports and planning documents, and developing standard guidance on select elements of flood resilience planning for local governments.

In 2018, the SACAP⁵ position was codified into law. The CRO⁶ position was codified shortly after in 2020. As part of the codification, the CRO is tasked with preparing a Biennial Status of Flood Resilience Report that is submitted to the Governor and General Assembly beginning July 1, 2023.

⁴ <https://www.dcr.virginia.gov/crmp/document/Appendix-N-Executive-Order-24-Increasing-Virginia's-Resilience-to-Sea-Level-Rise-and-Natural-Hazards.pdf>

⁵ Code of Va. § 2.2-435.11 <https://law.lis.virginia.gov/vacode/title2.2/chapter4.2:1/section2.2-435.11/>

⁶ Code of Va. § 2.2-220.5 <https://law.lis.virginia.gov/vacode/title2.2/chapter2/section2.2-220.5/>

Resilience Coordination Strategies from Selected Peer States

To support RCWG discussion and inform recommendations, a comparison of flood resilience activities and structures across four peer states was conducted to identify gaps and opportunities for flood resilience work in Virginia. The RCWG Steering Committee selected four states for analysis based on criteria that considered location, programming models, and the procurement of federal funding. North Carolina and Maryland were chosen due to their proximal location within the mid-Atlantic and similar climate and hazard threats impacting both inland and coastal communities. As a non-coastal state, Colorado provided a unique model for envisioning resilience approaches, challenges, and solutions. Finally, Louisiana was examined to help generate strategies for increasing Virginia's readiness for receiving federal grant monies in the future.

Each peer state was examined with a specific focus on the gaps and opportunities for Virginia's flood resilience identified by RCWG members during monthly meetings. Organized into three underlying themes, these focus areas included: 1) the coordinating structures that enable resilience efforts and planning, 2) support for increasing locality readiness for resilience planning, and 3) resilience data and resource sharing. This high-level analysis illuminated both gaps and opportunities for improvement within Virginia's existing coordinating structure as well as approaches to planning and funding for flood resilience. Findings found to be most relevant to the RCWG were distilled into the following themes:

- A single coordinating entity for resilience exists in all peer states as either a political subdivision or authority/board
- A single coordinating entity can increase data and resource sharing with municipal governments and the public
- Durable entities with representatives across state agencies and municipal governments can support resilience planning and implementation

A consolidated review of each peer state can be found in Appendix E.

Governance and Coordination

According to the National Conference of State Legislatures, at least 28 states have a state resilience office or similar structure, a state resiliency officer, and/or a resilience-related commission or task force⁷. Among the peer states examined, all four had either implemented, or were in the process of implementing a single coordinating entity for state-wide resilience planning and activities. With fully staffed and resourced political subdivisions, Colorado and

⁷ <https://www.ncsl.org/environment-and-natural-resources/state-resilience-offices>, figure "Resilience Offices and Bodies Across the States," 2023.

Louisiana provide the most robust and longest-standing examples of how to achieve state-wide alignment of resilience efforts through a single coordinating entity.

Colorado experienced significant wildfires in 2012 and floods in 2013, which led to establishing the Colorado Resiliency Office in 2015 to produce the Colorado Resiliency Framework. It was formalized in state statute in 2018 and housed within the Department of Local Affairs (DOLA). This office is responsible for strengthening communities, establishing a statewide resiliency framework, monitoring progress on statewide resiliency metrics, and coordinating local resilience efforts. While some resilience funding is administered through DOLA, federal and state grant programs are still administered through other agencies. Colorado's Resilience Office provides a centralized landing page⁸ where resilience information, funding opportunities, and resources can be shared. State agency coordination and outreach to local floodplain officials is supported by a professional association of stormwater and floodplain managers through a Flood Technical Assistance Partnership Committee. The Colorado Resiliency Office is led by a director with three program staff members.

In Louisiana, the Coastal Protection and Restoration Authority (CPRA) was created in 2005 to restructure the Louisiana Wetland Conservation and Restoration Authority following Hurricanes Katrina and Rita. Historically, Louisiana has received billions in disaster recovery funding to invest in resilience from those major hurricanes as well as the 2010 Deepwater Horizon oil spill. The CPRA serves as a single state entity that develops, prioritizes, and implements resiliency plans and efforts to achieve comprehensive coastal protection throughout the state. It is required to update the state's Comprehensive Master Plan for a Sustainable Coast every six years. Unlike Colorado's office, the CPRA has fiduciary duties in overseeing the Coastal Protection and Restoration Trust fund, and it oversees several of the state's Levee Districts. Guided by a board consisting of both state and local representation, the CPRA is staffed with nearly 200 employees.

North Carolina and Maryland are in the early stages of establishing resilience coordination entities. The North Carolina Office of Recovery and Resilience (NCORR), housed within the Department of Public Safety, was authorized under the 2018 Hurricane Flood Disaster Act. NCORR administers federal Community Block Development Grants for Disaster Recovery (CDBG-DR) funds and is responsible for developing one-time emergency funds and additional grant programs to assist local governments with disaster recovery capacity. While the majority of NCORR employees are hired to administer CDBG-DR and Community Block Development Grants for Mitigation (CDBG-MIT) funds, there is a dedicated Resilience Section within NCORR led by the state CRO and reporting to the NCORR Director. The CRO position and Resilience Section were initially established within NCORR by executive action, with those

⁸ <https://www.coresiliency.com/co-recovery-resources-wildfire>

positions made permanent by the legislature in 2021. Interagency coordination is achieved through the State Disaster Recovery Task Force, administered by NCORR, and North Carolina Climate Change Interagency Council, which is led by North Carolina's Department of Environmental Quality. While the task force consists of state and local agencies, nonprofits, and community organizations, the interagency council is represented by Secretaries from every cabinet agency and a representative from the Governor's Office. The Resilience Section within NCORR is currently staffed by four permanent employees and additional grant-funded positions.

In October 2022, the Maryland legislature authorized the establishment of the Office of Resilience within the Maryland Department of Emergency Management. At the time of this report, implementation remains in progress, including recruitment for Maryland's CRO. The Maryland Commission on Climate Change has been working since 2015 to develop comprehensive strategies for reducing the state's climate change vulnerability and providing tools to state and local governments for responding to challenges resulting from sea level rise.

Supporting Locality Readiness

All peer states examined rely on statewide plans to drive resilience strategies and align state-wide coordination and preparedness efforts. The development and implementation of resilience plans are guided by variations of technical advisory and working groups consisting of representatives across all levels of government and the private sector. In building the state's coastal master plan, Louisiana's CPRA established regional working groups to provide input on regional-specific challenges and targeted solutions. Yet ensuring localities have the knowledge and tools to implement state master plans remains a challenge. North Carolina's forthcoming Flood Resiliency Blueprint, led by North Carolina's Department of Environmental Quality's Division of Mitigation Services to take advantage of existing agency expertise and structure, will provide specific planning guidance to localities informed by their unique needs. Once implemented, this tool will guide state and municipal governments in identifying and selecting appropriate flood mitigation strategies.

When it comes to supporting locality readiness for implementing resilience activities, Colorado stood out for its customized tool kits and targeted resources informed by community-level needs assessments and surveys. Opportunities for collaboration among local governments are also available through peer exchanges and ongoing workshops. Similarly, Maryland provides specific leadership and training options for local leaders in government and businesses through the Maryland Climate Leadership Academy.

Data & Resource Sharing

A comparison of publicly-available databases and dashboards across the four peer states suggests that data and resource sharing remain an ongoing challenge due to competing and

evolving grant program requirements. Colorado appears to maintain the most comprehensive resilience dashboard, integrating both state and federal resilience data. Additionally, their website serves as a centralized landing page for all information and resources related to resilience throughout the state. As previously discussed, plans for North Carolina's Blueprint tool aim to address local gaps in integrating data into planning strategies.

Peer State Considerations

Maryland's recent authorization of a resilience office places Virginia in the minority along the East Coast in its lack of a single, coordinating entity for flood resilience—only Georgia, Pennsylvania, and New Hampshire lack a similar structure⁹. Yet comparisons between existing offices suggest allocating sufficient resources is key to ensuring long-term sustainability. Louisiana's more established CPRA is fully staffed when compared to Colorado and North Carolina's newer resilience offices.

While all peer states showed evidence of centralized coordination, additional entities are needed to support interagency collaboration. For example, regarding Colorado's Flood Technical Assistance Partnerships Committee, a recent analysis conducted by the Urban Institute revealed potential challenges in having a non-governmental entity support interagency coordination¹⁰. These challenges included lapses in communication and data sharing. By having both a multi-level governmental, cross-sector task force and a Secretariat council, North Carolina offers a strong model for increasing intergovernmental collaboration around resilience planning and coordination.

Examples from peer states highlight opportunities for Virginia to support locality readiness for resilience beyond providing technical assistance for grant applications. These include hosting workshops and trainings for regional leaders and providing tools for localities to integrate planning strategies that meet their unique needs.

The Colorado Resiliency Office's comprehensive and targeted resources demonstrate how a coordinating entity can offer the benefit of storing information in one centralized place. This has the potential to address challenges in building awareness of available resilience funding programs and mechanisms across municipal levels of government and private industries.

⁹ New York State does not have an office dedicated solely to flood resilience; however, it uses a similar hub-and-spoke model for the NY State Department of Environmental Conservation Office of Climate Change to address many similar needs in addition to energy resilience under climate change framing:
<https://www.dec.ny.gov/energy/100236.html>

¹⁰ <https://www.urban.org/sites/default/files/2022-06/state-flood-resilience-and-adaptation-planning-challenges-and-opportunities.pdf>

EXISTING LANDSCAPE

Since Executive Order 24 in 2018, several proposals to improve flood resilience coordination and planning, as well as locality readiness, have been considered by the Virginia General Assembly. Previous proposed legislation reflects a bipartisan interest in expanding upon the existing flood resilience coordinating structure to formulate a more durable intergovernmental and interagency approach to flood resilience that aligns all planning efforts around the common goal of building a more flood resilient Commonwealth. Appendix F of this report provides summaries and other information on previous flood resilience legislation from 2021 to 2023 General Assembly sessions.

More specifically, two pieces of legislation that proposed to provide additional coordination and oversight for flood resilience activities and efforts were considered in the 2022 General Assembly sessions—the Commonwealth Flood Board¹¹ and the Virginia Resilience Authority¹². Both House Bills proposed resilience entities consisting of combined representation from relevant secretariat offices and governor appointed Planning District Commission (PDC) members and elected officials. A comparison of these legislations conducted by the Hampton Roads Planning District Commission can be used to inform future proposals for a resilience coordinating entity and structure (see Appendix G).

The following sections of this report provide an overview of the various entities, programs, and legislation, both proposed and enacted, that drive Virginia’s flood resilience coordination, planning, and funding efforts.

Chief Resilience Officer

While the Chief Resilience Officer (CRO) is legislatively designated to serve as the primary contact for all issues related to resilience and pre-disaster hazard mitigation, flood resilience activities are dispersed across various state and municipal entities with leveraged support from nonprofit, academic, private sector and industry partners. Responsibilities of the CRO can be found in Appendix H and include identifying and monitoring areas of greatest risk around the Commonwealth, creating and overseeing the implementation of flood protection and coastal resilience master plans, and serving as the primary contact for all issues relating to pre-disaster hazard mitigation and resilience coordination and planning. In practice, implementing these responsibilities is challenging due to the lack of supporting and coordinating structure, as well as the lack of staff to support the CRO. Additionally, the CRO position is not currently funded. Under the current administration, the CRO has authorized the Director of DCR to

¹¹ House Bill 602 <https://lis.virginia.gov/cgi-bin/legp604.exe?221+sum+HB602>

¹² House Bill 847 <https://lis.virginia.gov/cgi-bin/legp604.exe?ses=221&typ=bil&val=hb847>

serve as his designee. However, there is currently no single entity leading and sustaining coordination efforts.

State Agencies and Interagency Coordination

Department of Conservation and Recreation (DCR)

In accordance with the Code of Virginia¹³ and in coordination with the CRO, DCR serves as the coordinator of all flood protection programs and activities in the Commonwealth. In practice, DCR has historically limited flood resilience coordination activities to those required to fulfill its specific flood resilience planning and floodplain management duties. Notably, the Department convenes the Coastal Resilience Technical Advisory Committee (TAC) quarterly to guide the development and implementation of the state's Coastal Resilience Master Plan. Additionally, DCR may also ask the TAC to provide feedback and input into the Virginia Flood Protection Master Plan.

More recently, the codified requirement for annual coordination around flood resilience activities has led DCR to establish an Annual Virginia Flood Preparedness Coordination Meeting. By convening representatives from all agencies, programs, and localities with a stake in flood related issues, these annual meetings aim to increase flood resilience and preparedness across the Commonwealth.

Virginia's flood resilience efforts are guided by three primary planning documents—the Virginia Flood Protection Master Plan (VFPMP), the Coastal Resilience Master Plan (CRMP), and the Commonwealth of Virginia Hazard Mitigation Plan (COVA HMP). The Virginia Department of Emergency Management (VDEM) develops the COVA HMP for all natural hazards, including flooding, and is described in more detail in the next section. DCR is tasked with developing and updating both the CRMP and the VFPMP.

The Virginia Flood Protection Plan was codified in 1989. Historically, the plan included a statewide inventory of flood-prone areas and flood protection studies, a record of flood damages, and identified strategies to prevent or mitigate flood damage. This plan was last updated in 2005. The 2022 General Assembly amended this section of code to rename the plan the Virginia Flood Protection Master Plan, incorporated resilience planning principles, and required the VFPMP be prepared no later than December 31, 2026, with continuous updates on a five-year cycle.

The first CRMP (Phase I) was published in 2021, following publication of the first Coastal Resilience Master Planning Framework in 2020. The 2022 General Assembly codified the

¹³ Code of Va. §10.1-659 <https://law.lis.virginia.gov/vacode/title10.1/chapter6/section10.1-659/>

CRMP and specified a Phase II update no later than December 31 2024 with continuous updates on a five-year planning cycle.

The Coastal Resilience Master Planning Framework established guiding principles, goals, and a roadmap for future planning efforts to further resilience across Virginia's eight coastal regions. The Framework goals are:

- 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.
- 3) Effectively incorporate climate change projects into all Commonwealth 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.

The CRMP Phase I included a comprehensive coastal flood hazard impact assessment to determine current and future exposure to flooding, and assessed the impacts of that exposure on social, natural, and built assets. The plan also presented an inventory of planned and in-progress flood resilience projects and initiatives across the region, as well as an inventory of grant and loan funding programs.

To accompany the CRMP Phase I report, DCR created the Coastal Resilience Web Explorer¹⁴. This free online tool allows users to map the hazards of social vulnerabilities of coastal areas over time. Also included is the database of proposed resilience projects throughout the state and the list of federal, state, and private funding opportunities for resilience projects. The tool allows municipalities to identify coastal flood hazards and vulnerabilities in their communities, and the relevant projects and funding streams addressing these needs. As of this report writing, DCR is updating the CRMP (Phase II) report and Web Explorer. The Phase II plan will include additional flood hazard and impact data, as well as new capabilities in the Web Explorer to permit regular maintenance and encourage increased uptake.

Virginia Department of Emergency Management (VDEM)

Emergency response coordination is led by VDEM. Additionally, VDEM is responsible for planning and grants with respect to disaster preparedness, hazard mitigation, and recovery. The agency is charged with developing and updating Virginia's Hazard Mitigation plan – a Stafford Act requirement for receiving certain types of non-disaster and post-disaster assistance from the Federal Emergency Management Agency (FEMA). The most recent March

¹⁴ <https://experience.arcgis.com/experience/9e32e928ed304fa98518b71905e43085>

2023 Commonwealth of Virginia Hazard Mitigation Plan ¹⁵ was developed by VDEM with assistance from private sector contractors and academic research partners from Old Dominion University and University of Virginia. As a statewide plan with a regional focus, the purpose of this plan is to provide guidance for hazard mitigation activities within the Commonwealth. The plan's goals and actions aim to reduce or prevent injury from natural hazards to residents, communities, state facilities, and critical facilities. Many other state agencies, including DCR and DHCD, assist with disaster mitigation planning, response, and recovery efforts. VDEM also coordinates, and provides funding to Planning District Commissions to fund regional hazard mitigation plan updates, which are required to be updated and locally adopted every 5 years for local governments to remain eligible to apply for certain FEMA grant programs.

Other State Agencies

Laws, regulations, and policies that protect Virginia's environmental resources are implemented and enforced by the Virginia Department of Environmental Quality (DEQ). DEQ also supports Virginia's coastal resilience efforts through the Virginia Coastal Zone Management Program¹⁶ (CZM) and the DEQ-staffed Coastal Policy Team (CPT) that is a network consisting of state agencies and coastal localities. This federally approved and federally funded CZM program is a model of effective intergovernmental partnership between coastal communities, state agencies, and the National Oceanic and Atmospheric Administration (NOAA).

In November 2022, the Virginia Department of Transportation (VDOT) released the agency's first Resilience Plan, providing a framework for incorporating resilience into all transportation planning, delivery, operations, and maintenance strategies. The purpose of this plan is to ensure a safe transportation network throughout the Commonwealth that can anticipate and prepare for mitigating resilience events. Under the federal Bipartisan Infrastructure Law¹⁷, states are encouraged to develop Resilience Improvement Plans to inform decision making and support non-federal match requirements for the Promoting Resilient Operations for Transformative, Efficient, and Cost-saving Transportation (PROTECT) Grant Program administered by the Federal Highway Administration (FHWA). As of June 2023, VDOT is working closely with VDEM and other partners to meet the risk-based assessments and long-range transportation requirements for this report.

In addition to the activities outlined above, several state agencies contribute to resilience coordination and planning efforts through representation in the TAC and Annual Flood

¹⁵ <https://www.vaemergency.gov/wp-content/uploads/2023/03/COVA-Hazard-Mitigation-Plan.pdf>

¹⁶ <https://www.deq.virginia.gov/our-programs/coastal-zone-management>

¹⁷ <https://www.transit.dot.gov/BIL>

Preparedness Meetings. For more information on state government agency resilience efforts in Virginia, refer to the table in Appendix I.

Regional and Local Governments and Inter-Governmental Coordination

The ability of regional and local governments to engage in flood resilience coordination efforts varies widely across Virginia depending on resource capacity—both human and financial—and perceptions of hazards and threats caused by coastal and inland flooding. In some regions, Planning District Commissions (PDCs) play a critical role in working collaboratively across all sectors and levels of government to solve flooding-related challenges for homeowners, businesses, and communities. For example, the Middle Peninsula Planning District Commission's (MPPDC) successful Flight the Flood¹⁸ initiative, highlighted in the Funding section of this report, demonstrates the potential for PDC-led collaborations to bring community flood resilience and preparedness to scale to address the needs of the region. CZM also plays a major role in coordinating the resilience efforts of the eight coastal PDCs through the Coastal Policy Team¹⁹. This team convenes representatives from state agencies and eight coastal PDCs to address coastal resource management issues impacting the tidewater areas of the Commonwealth of Virginia.

At the local level, municipalities are encouraged but not required to adopt resilience plans to increase alignment of resources, efforts, and planning for coastal and/or inland flooding. While state legislation mandating local resilience plans has been proposed in the past, these bills have not passed. For state grant programs distributing non-federal funds, priority is sometimes given to municipalities with adopted resilience plans. For example, the Community Flood Preparedness Fund requires that localities applying for project funding have developed a DCR-approved resilience plan. Since 2015, per the Code of Virginia²⁰, all localities included in the Hampton Roads Planning District Commission are required to incorporate "strategies to combat projected relative sea-level rise and recurrent flooding" in their reviews of their comprehensive plans.

Because of these mandates, numerous localities and PDCs, particularly in the coastal region, have invested significant time and resources into developing and implementing robust resilience plans and programs.

Federal Programs and Inter-Governmental Coordination

The Virginia Silver Jackets²¹ is an interagency flood risk management team that seeks to bring together multiple state and federal agencies to increase education and share resources to

¹⁸ <https://fightthefloodva.com/>

¹⁹ <https://www.deq.virginia.gov/our-programs/coastal-zone-management/about-czm/virginia-coastal-policy-team>

²⁰ §15.2-2223.3

²¹ <https://www.iwr.usace.army.mil/Silver-Jackets/State-Teams/Virginia/>

reduce flood risk throughout the Commonwealth. This government collaborative operates with partnership from USACE, DCR and VDEM. The USACE National Flood Risk Management program with combined funding from NOAA, FEMA, the United States Geological Survey, and the National Resources Conservation Service supports the Virginia Silver Jackets.

Academic Research Institutes

Virginia's public universities play a crucial role in supporting flood resilience coordination by operationalizing scientific research findings to help communities prepare for and respond to flooding challenges. Each university hosts traditional academic and research programs relevant to flood resilience, with most universities having one or more dedicated resilience centers or institutes. Each university has its strengths, making interinstitutional collaboration key to universities' abilities to support resilience coordination and governance.

While public universities often have such collaborations across institutions for individual projects and grants, there is no statewide overarching governance structure across these university resilience efforts. The only interinstitutional resilience-specific partnership designated by legislation is the Commonwealth Center for Recurrent Flood Resiliency (CCRFR)²² at Old Dominion University, the Virginia Institute of Marine Science, and William & Mary. CCRFR's purpose is to "(i) serve, advise, and support the Commonwealth by conducting interdisciplinary studies and investigations and (ii) provide training, technical and nontechnical services, and outreach in the area of recurrent flooding and resilience research to the Commonwealth and its political subdivisions."²³ CCRFR does not have a central director; rather, it is collaboratively managed by leads at each institution.

Resilience is also one focus area of Virginia Sea Grant,²⁴ a federal/state partnership between the NOAA and its partner institutions, who may be participating Virginia universities. Faculty participating in Virginia Sea Grant Partner programs²⁵ contribute to resilience coordination efforts in coastal regions up to the fall line by designing innovative research tools that assist communities threatened by coastal and inland flooding, often with funding from Virginia Sea Grant. Virginia Sea Grant also administers national and state fellowship programs to embed students in federal and state agencies, and many of these fellowship placements relate to resilience.

²² floodingresiliency.org

²³ <https://lis.virginia.gov/cgi-bin/legp604.exe?161+sum+HB903>

²⁴ <https://vaseagrant.org/>

²⁵ Virginia Sea Grant partnership institutions are: George Mason University, Norfolk State University, Old Dominion University, University of Virginia, Virginia Commonwealth University, Virginia Institute of Marine Science at William & Mary, Virginia Tech, and the College of William & Mary.

One tool available for localities to help develop community-driven strategies for resilience is the university-led Resilience Adaptation Feasibility Tool (RAFT)²⁶ program (which includes University of Virginia’s Institute for Environmental Negotiation, Old Dominion University’s Institute for Coastal Adaptation and Resilience, and the Virginia Tech Coastal Collaboratory). RAFT is funded through a combination of grants, private donors, university and CCRFR funding, and in-kind support.²⁷ RAFT provides a structured process for resilience planning facilitated by the core university partners in support of local level implementation teams. RAFT assessments are not limited to flood resilience; rather, RAFT takes a whole community approach to the social, economic, and environmental dimensions of resilience. Since launching in three pilot localities in 2015, RAFT has been used throughout 21 areas including towns, cities, and counties. A RAFT scorecard²⁸ has also been adapted for and piloted in one federally recognized Tribe and one state-recognized Tribe.

FUNDING

The challenges resulting from flooding are complex, requiring a diverse set of solutions adaptive to the needs and capacities of the most vulnerable communities and the evolving climate threats they face. Based on data gathered for the CRMP Phase I, from 2020 to 2080, the number of residential, public, and commercial buildings in the coastal region exposed to an extreme coastal flood is projected to increase by almost 150%, from 140,000 to 340,000. Furthermore, annualized flood damages are expected to increase by over 930% from \$550 million to \$5.7 billion in this same time period. Thus, without additional actions to enhance flood resilience, by 2080 the Commonwealth could expect to spend \$5.7 billion every year repairing damages to buildings in the coastal region of the state. For these reasons, Virginia must be better positioned to take advantage of opportunities to procure federal and state funding that helps address resilience challenges.

Funding and financing for flood resilience activities in Virginia is available through a variety of federal, state, and local programs and public-private mechanisms. While municipal and tribal governments, along with private property owners, are eligible for a variety of federal and state grants and loan programs, there is no single entity responsible for coordinating, aligning, or fostering communication between these programs in Virginia. Federal and state funds are administered independently by various state agencies, with VDEM and DHCD distributing most federal hazard mitigation funds, and DCR and DEQ responsible for state-funded flood

²⁶ <https://raft.ienvirginia.edu/>

²⁷ Grant funding sources for the RAFT have included: Virginia Sea Grant, Virginia Coastal Zone Management, and the Virginia Environmental Endowment

²⁸ <https://raft.ienvirginia.edu/raft-scorecard>

resilience and flood resilience-adjacent grants and loan programs. Other state agencies, such as VDOT, the Virginia Department of Agriculture and Consumer Services (VDACS), and DEQ/CZM, administer federal funding that can be directed to reduce flood risk to specific assets or services relevant to the programs' overall missions.

Recognizing substantial costs associated with the increasing impacts of flooding across the nation, the federal government continues to create or expand its resilience programs in federal agencies. Relevant state agencies have a role to play in pursuing federal dollars and facilitating access to funds for other entities in Virginia. This section outlines the administration and oversight of existing flood resilience funding programs and financing mechanisms.

Federal Funding

Federal flood resilience funding is administered through several state agencies to support key flood mitigation and resilience activities for property owners and across local levels of governments. VDEM, for example, administers FEMA funds in alignment with the state's Hazard Mitigation Plan. These funds are available to commercial and private property owners and municipal governments through programs known as Flood Mitigation Assistance (FMA)²⁹, Building Resilient Infrastructure and Communities (BRIC)³⁰, and Hazard Mitigation Grants (HMG)³¹. If a federally declared disaster in Virginia left significant unmet needs in low- and moderate-income communities after all other routine federal aid were exhausted, Congress may authorize Community Development Block Grants³² for Mitigation (CDBG-MIT) and Disaster Recovery (CDBG-DR) funds. If this occurred, the Virginia Department of Housing and Community Development (DHCD) would administer those funds if allocated to Virginia. These funds can be used to support mitigation activities such as increasing resilience to disasters and reducing or eliminating the long-term risk of loss of life, injury, damage to and loss of property, and hardship by lessening the impact of future disasters. Under the Coastal Zone Management Act of 1972³³, the Virginia CZM receives an annual non-competitive grant of approximately 3 million dollars from NOAA. A portion of that funding is used for CZM program administration, outreach, capacity building and technical facilitation. The majority is allocated through annual subawards to state agencies, regional planning districts, and other entities to support development, implementation and enforcement of Virginia's coastal laws and policies. Each year several additional subaward recipients are determined by the Coastal Policy Team based on the current Focal Areas and the results of the Virginia Coastal Needs Assessment, which is conducted every five years. NOAA is making available additional non-competitive

²⁹ https://www.vaemergency.gov/grant_opportunities/fy22-flood-mitigation-assistance-fma/

³⁰ https://www.vaemergency.gov/grant_opportunities/fy22-building-resilient-infrastructure-and-communities-bric/

³¹ <https://www.vaemergency.gov/divisions/finance/grants/hazard-mitigation-assistance-grant-programs/>

³² <https://www.dhcd.virginia.gov/cdbg>

³³ 16 U.S. Code §1451 <https://www.law.cornell.edu/uscode/text/16/1451>

capacity building funding for CZM programs through the Bipartisan Infrastructure Law and the Inflation Reduction Act. CZM periodically applies for additional competitive funding for “Projects of Special Merit” and competitive funding through the Bipartisan Infrastructure Law and Inflation Reduction Act.

State agencies can play a role in providing technical assistance to localities to apply for federal funding opportunities. For example, localities could benefit from consulting the Virginia Economic Development Partnership about technical support to partners in applying for federal funds related to economic development. Likewise, universities can play a role in securing funding for resilience-improving farm practices, as Virginia State University did as part of a \$4,999,999 multi-state partnership that competed for the United States Department of Agriculture (USDA) Partnerships for Climate-Smart Commodities funding opportunity and will provide incentives to commodity farmers to develop climate-smart, sustainable production systems.³⁴

In addition, localities and agencies in Virginia are now competing with other states to capture a share of the rapidly expanding federal funding available for resilience compared to historic programs. In 2021, the Infrastructure Investment and Jobs Act set targets for \$550 million in new spending and \$650 billion in expanded spending for existing infrastructure programs. Many of these new and expanded programs target improving infrastructure resilience. Similarly, in 2022 the Inflation Reduction Act and the CHIPS & Science Act provide billions more that can be used for resilience, including data and modeling, delivered through competitive new and one-time grants, block grants, loans, and loan guarantees.

These new and expanded programs range from watershed scale resilience, to protection of vulnerable drinking water systems, to transportation, to housing, to coastal resilience and workforce development (e.g., USDA Watershed and Flood Prevention Operations (WFPO) Program, EPA Clean Water Infrastructure Resiliency and Sustainability Program, DOT Promoting Resilient Operations for Transformative, Efficient, and Cost-saving Transportation (PROTECT) Program, HUD Green and Resilient Retrofit Program, NOAA Climate Resilience Regional Challenge, NOAA Sea Grant Climate-Ready Workforce).

However, many of these programs require matching funds, technical assistance, or the financial ability to execute the project via reimbursable costs for potential grantees to design and apply for nationally competitive projects. Given the competition and the number of programs, localities may find that they need to stack multiple sources of federal funds to achieve larger community or watershed scale projects. Lower resourced localities in particular may find it challenging to apply for multiple programs, or to administer stack funding in the absence of a large comprehensive one-time award, like Norfolk’s Ohio Creek Watershed

³⁴ <https://www.usda.gov/climate-solutions/climate-smart-commodities/projects>

Project, which was completed using \$112 million in one-time HUD National Disaster Resiliency Competition funds.

State Grants and Loans

DCR administers the state's principal dedicated flood preparedness and mitigation grant and loan programs: the Community Flood Preparedness Fund (CFPF) and Resilient Virginia Revolving Fund (RVRF)³⁵. CFPF funding is distributed to municipal governments for the purposes of supporting planning, capacity building, studies, and projects that mitigate flood risk in both inland and coastal communities. In the fourth offering of the CFPF in 2023, DCR set aside funds to provide start-up funding for grant activities to alleviate the burden of reimbursement for some under-resourced localities. Additionally, loans were made available for resilience projects exceeding grant caps.

Revolving loan funds are self-sustaining instruments that take the accrued interest and principal payments from former loans to issue new ones. In Virginia, such loan programs are administered by state agencies to municipal governments and underwritten by the Virginia Resource Authority (VRA). The RVRF makes loans and grants available to local governments for studies and implementation of resilience projects, including those that protect individual properties and buildings. Loans received by municipal governments may be used to support other persons as defined in §1-230 of the Code of Virginia.

Similar to the RVRF program, the Virginia Clean Water Revolving Loan Fund³⁶ is managed by DEQ as part of the Clean Water Financing and Assistance Program and provides low-interest loans to local governments for needed improvements at publicly-owned wastewater treatment facilities, stormwater BMP projects and living shorelines projects.

In addition to the CFPF, DCR administers several flood resilience-adjacent programs including the Dam Safety Program³⁷ that ensures the safe design, construction, operation, and maintenance of dams. Additional projects supporting flood resilience efforts are funded through DEQ's Clean Water Financing and Assistance Program³⁸. This program administers the point-source portion of the Water Quality Improvement Fund, focusing on infrastructure at publicly-owned wastewater treatment plants in the Chesapeake Bay watershed and the Stormwater Local Assistance Fund that supports management of and improvements to stormwater systems.

³⁵ Code of Va. § 10.1-603.25 <https://law.lis.virginia.gov/vacode/title10.1/chapter6/section10.1-603.25/>

³⁶ <https://www.deq.virginia.gov/our-programs/water/clean-water-financing-and-assistance/virginia-clean-water-revolving-loan-fund-vcwrlf>

³⁷ <https://www.dcr.virginia.gov/dam-safety-and-floodplains/dam-safety-index>

³⁸ <https://www.deq.virginia.gov/our-programs/water/clean-water-financing-and-assistance>

At the regional level, the Living Shoreline Incentive Program³⁹ is administered by the Middle Peninsula Planning District Commission (MPPDC) and enables property owners to install natural living shorelines.

There is currently no established coordination process for funding around resilience. While there are some exceptions, coordination of funding between agencies is generally unplanned. Additionally, different programs have different prioritization and evaluation criteria, data requirements, and processes which create barriers for localities interested in accessing funds. When a single source does not cover the full scope of the project, stacking funding becomes a challenge. Overall, resilience funding is not currently directly tied to implementation funding.

Alternative Funding Mechanisms

State-wide flood resilience cannot be achieved with federal and state funding alone; Virginia's broad challenges require creative solutions to also leverage local and private dollars. Various finance mechanisms exist to generate funds for flood resilience projects using bonds, special assessments, fees, taxes, loans, and other financial instruments. In addition to these mechanisms, some regional commissions have developed innovative tools and models to leverage funding at the local level across public and private sectors. Two examples of financing mechanisms, bonds and Commercial Property Assessed Clean Energy (C-PACE), are discussed below.

Bond Financing

Different variations on traditional government bond financing have been deployed with success in Virginia's localities. In 2020, the City of Hampton established a \$12 million environmental impact bond⁴⁰ with support from a DC-based financial consulting firm and the Chesapeake Bay Foundation. Proceeds from the bond, which will be repaid using revenue from the City's stormwater fee, will finance portions of the City's three flagship resilience projects to mitigate stormwater flooding and runoff pollution. Hampton is leveraging state and federal grant funding alongside the bond to finance each project. In 2021, residents of the City of Virginia Beach approved by referendum a traditional, but large Flood Prevention Bond. This \$568 million bond will be used in combination with other funding sources, such as federal grants, to finance the city-wide Flood Protection Program. At the individual level, property owners with living shorelines can receive a payout for a predetermined level of sea rise through a Catastrophe Bond. Resilience Bonds can also be used to support risk reduction projects by providing payouts to state agencies and utility companies in the event of flooding or coastal storms.

³⁹ <https://www.mppdc.com/index.php/service-centers/coastal/lis-program>

⁴⁰ <https://www.quantifiedventures.com/hampton-eib#:~:text=The%20%2412%20million%20bond%20closed,moderate%2Dincome%20communities%20in%20Hampton.>

Commercial Property Assessed Clean Energy (C-PACE)

In 2019, the Virginia General Assembly authorized localities to contract with Commercial Property Assessed Clean Energy (C-PACE), financing programs⁴¹ to help finance emergency efficiency updates, disaster resiliency improvements, renewable energy installations, and other necessary environmental upgrades to residential, commercial, and industrial properties. C-PACE finances up to 100% of eligible project costs up front through loans that are repaid directly by the borrower to the lender. They are guaranteed by a voluntary lien on the property. The statewide program launched in 2022 and is administered by Virginia PACE Authority on behalf of Virginia Department of Energy. To provide eligibility for C-PACE to properties in their jurisdictions, localities opt into the statewide C-PACE program by adopting a local ordinance. Loans are typically repaid directly by the borrower to a private lender (who are preapproved to issue C-PACE loans) on a fixed timeframe, and are guaranteed by a lien on the property, which will be used in case loans are not repaid. This financing is typically used to augment property owners' capital stacks.

Public-Private Partnerships

Leveraging private sector funding and support is critical for supporting resilience outcomes. However, private sector funding for resilience remains a challenge largely due to a lack of state and national information on how private dollars are being spent and invested in resilience. Despite these challenges, there are some examples of innovative public-private partnerships working to advance resilience at the local and regional levels.

Funded with support from DCR and CZM administered grants, MPPDC's Fight the Flood initiative⁴² connects property owners facing rising flood waters with a variety of funding mechanisms to contract with specialized businesses who can help evaluate, design, and build solutions to flooding.

Operating as a 501c3 nonprofit, RISE Resilience⁴³ located in Norfolk, VA represents an innovative cross-sector model for preparing for and responding to resilience challenges. Supported with combined federal and state funding, RISE works with local entrepreneurs, government stakeholders, and private industry partners to identify problems in coastal communities, test advanced solutions, and provide grant and revenue-backed loan funding to bring solutions to scale.

⁴¹ §15.2-958.3.

⁴² <https://fightthefloodva.com/>

⁴³ <https://www.riseresilience.org/>

GAPS & OPPORTUNITIES

Identified by the Working Group

Governance and Coordination

Virginia's approach to flood resilience work is challenged by a lack of a single, coordinating entity. While flood resilience funds are administered through state agencies, there is no single entity responsible for coordinating resilience efforts across state agencies, academia, municipal governments, nonprofit organizations, private sector partners, and communities. Further, there is no formal structure to support or drive collaboration between agencies. The existing governing structure presents a barrier for collaboration between state, regional, and local levels of government.

Furthermore, while the CRO nominally oversees coordination under the current structure, the lack of non-appointed (or "classified") employees to support an appointed CRO makes it difficult to accomplish the charge of the CRO. Additionally, the lack of non-appointed employees across administrations disrupts continuity and momentum of efforts given the regular changeover of appointed positions with new gubernatorial administrations. The SACAP position has not been filled since 2021.

Planning

With no requirement for local resilience plans, municipal governments lack external incentive to prioritize resilience planning and readiness. In order to be effective, statewide coastal and flood resilience master plans must be directly tied to funding.

There is currently no centralized access to, or coordination of, locality resilience plans, resources, and strategies. Unclear authoritative sources of flood resilience data can affect the value of analysis and impede the ability of regional and local governments to apply for grants.

Finally, expanding the scope of flood resilience to capture all environmental and social threats impacting communities across the Commonwealth could lead to a more comprehensive approach to planning.

Funding

While greater awareness of federal and state flood resilience programs is needed among eligible applicants, the grant procurement and award closeout phases remain challenging for under-resourced regional and local entities. In addition to grants, newly approved funding mechanisms could be better utilized by regional and local governments to generate sustainable funding for resilience projects. For example, in 2021, the Virginia General Assembly passed legislation (House Bill 1919) authorizing localities to establish Green Banks—financial institutions that attract private investment into environmental infrastructure.

Much like traditional banks, Green Banks leverage limited amounts of cash into larger capital investments. Regional and local entities are uniquely positioned to access diversified financing mechanisms.

CONCLUSION

While states agencies, academic research institutes, agricultural industries, and nonprofit and private sector business partners have made great progress towards building a more resilient Commonwealth, legislative and administrative changes are still needed to adequately address the complex economic and community challenges posed by inland and coastal flooding. This report presents 23 recommendations developed by the RCWG to improve strategies for interagency and intergovernmental coordination and maximize funding opportunities for flood resilience planning and implementation.

Among these recommendations, adoption of a “hub and spoke” model that places the CRO, supported by a newly staffed Office, at the center to facilitate coordination and communication between state agencies conducting resilience-related work remains key to success. Additionally, tasking the CRO and newly established Office with capturing federal funding opportunities, increasing private sector investment in resilience across all levels of government, and providing knowledge-based support to local governments addressing resilience challenges will further enhance existing efforts and lead to greater locality readiness for resilience.

All recommendations presented in this report received full support from the RCWG members. For additional information about the working group, please contact the Virginia Department of Conservation and Recreation.

APPENDICES

Appendix A: Resilience Coordination Working Group Members

| Organization | Workgroup Representative | Alternate |
|---|---------------------------------|-------------------------------------|
| Central Shenandoah PDC (CSPDC) | Rebecca Joyce | |
| Chesapeake Bay Commission (CBC) | Adrienne Kotula | |
| Chesapeake Bay Foundation (CBF) | Jay Ford | Peggy Sanner |
| City of Alexandria | Sarah Taylor | |
| Clark Nexsen | Chris Stone | |
| Cumberland Plateau PDC (CPPDC) | Scotty Wampler | Debbie Milton |
| Environmental Defense Foundation (EDF) | Emily Steinhilber | Grace Tucker |
| Hampton Roads PDC (HRPDC) | Whitney Katchmark | |
| Home Builders Association of Virginia (HBAV) | Andrew Clark | Speaker Pollard |
| Middle Peninsula PDC (MPPDC) | Lewis Lawrence | |
| Mount Rogers PDC (MRPDC) | Aaron Sizemore | |
| Old Dominion University - ICAR/CCRFR (ODU) | Jessica Whitehead | Carol Considine |
| Port of Virginia | Cathie Vick | Patrick Kinsman Scott Whitehurst |
| Secretary of Natural and Historic Resources (SNHR) | Secretary Travis Voyles | |
| Secretary of Veterans and Defense Affairs (VADA) | Deputy Secretary Jordan Stewart | Tom Crabbs |
| Soil and Water Conservation Board (SWCB) | Chuck Arnason | Dr. Stephen R. Hill |
| The Nature Conservancy (TNC) | Nikki Rovner | |
| University of Virginia - IEN (UVA) | Tanya Denckla Cobb | |
| Virginia Marine Resources Commission (VMRC) | Jamie Green | Rachael Peabody Zach Widgeon |
| Virginia Agribusiness Council (VAC) | Brad Copenhaver | |
| Virginia Association of Soil and Water Districts (VASWCD) | Robert Pickett | Kendall Tyree |
| Virginia Association of Counties | Joe Lerch | |
| Virginia Chamber of Commerce (VACHamber) | Kristin Burhop | Ethan Betterton |
| Virginia Department of Conservation and Recreation (DCR) | Matthew Wells | |
| Virginia Department of Emergency Management (VDEM) | Shawn Talmadge | Robbie Coates |
| Virginia Department of Environmental Quality (DEQ) | Sharon Baxter | Evan Branosky |

Resilience Coordination Working Group

Report & Recommendations

| Organization | Workgroup Representative | Alternate |
|---|--------------------------|----------------|
| Virginia Department of Housing and Community Development (DHCD) | Bill Curtis | Lee Hutchinson |
| Virginia Department of the Treasury (Treasury) | Brian Parker | |
| Virginia Department of Transportation (VDOT) | Angel Deem | Chris Swanson |
| Virginia Department of Energy (Energy) | David Hawkins | |
| Virginia Department of Wildlife Resources (DWR) | Becky Gwynn | |
| Virginia Economic Development Partnership (VEDP) | Lindsay Akers | |
| Virginia Farm Bureau (VFB) | Martha Moore | Katelyn Jordan |
| Virginia Institute of Marine Science (VIMS) | Mark Lukenbach | |
| Virginia Manufacturer's Association (VMA) | Brett Vassey | Paige Wernig |
| Virginia PACE Authority (VPA) | Abby Johnson | Ellen Dickson |
| Virginia Resources Authority (VRA) | Shawn Crumlish | Peter D'Alema |
| Virginia Tech - CCS (VT) | Wendy Stout | |
| Formerly William and Mary – Virginia Coastal Policy Center (VCPC) <i>VCPC has dissolved, now Citizen Member</i> | Elizabeth Andrews | |

Appendix B: Voting Results, September 26, 2023

Legislative Recommendations – Support (S), Abstain (A), Do Not Support (NS)

| Organization, Voting Member | A.1 | A.2 | A.3 | A.4 | A.5 | A.6 | B.1 | B.2 | B.3 | C.1 | C.2 | D.1 |
|---|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|
| Chesapeake Bay Commission, Adrienne Kotula | S | S | S | S | S | S | S | S | S | S | S | S |
| Chesapeake Bay Foundation, Jay Ford | S | S | S | S | S | S | S | S | S | S | S | S |
| Citizen Member, Elizabeth Andrews | S | S | S | S | S | S | S | S | S | S | A | S |
| Clark Nexsen, Chris Stone | S | S | S | S | S | S | S | S | S | S | S | S |
| Department of Conservation and Recreation, Matthew Wells | S | S | S | S | S | S | S | S | S | S | S | S |
| Department of Emergency Management, Robbie Coates | S | S | S | S | S | S | S | S | S | S | S | S |
| Department of Energy, David Hawkins | S | S | S | S | S | S | S | S | S | S | S | S |
| Department of Housing and Community Development, Bill Curtis | S | S | S | S | S | S | S | S | S | S | S | S |
| Department of Treasury, Bryan Chamberlain | S | S | S | S | S | S | S | S | S | S | S | S |
| Department of Environmental Quality, Sharon Baxter | S | S | S | S | S | S | S | S | S | S | S | S |
| Department of Transportation, Chris Swanson | S | A | S | S | S | S | S | S | A | A | A | S |
| Environmental Defense Fund, Emily Steinhilber | S | S | S | S | S | S | S | S | S | S | S | S |
| Hampton Roads Planning District Commission, Whitney Katchmark | S | S | S | S | S | S | S | S | S | S | S | S |

Resilience Coordination Working Group

Report & Recommendations

| Organization, Voting Member | A.1 | A.2 | A.3 | A.4 | A.5 | A.6 | B.1 | B.2 | B.3 | C.1 | C.2 | D.1 |
|---|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|
| Institute for Coastal Adaptation and Resilience, Old Dominion University, Dr. Jessica Whitehead | S | S | S | S | S | S | S | S | S | S | S | S |
| Institute for Engagement and Negotiation, University of Virginia, Tanya Denckla Cobb | S | S | S | S | S | S | S | S | S | S | S | S |
| Middle Peninsula Planning District Commission, Lewis Lawrence | S | S | S | S | S | S | S | S | S | S | S | S |
| Secretary of Veterans and Defense Affairs, Jordan Stewart | S | S | S | S | A | S | S | S | S | S | A | A |
| Soil and Water Conservation Board, Chuck Arnason | S | S | S | S | S | S | S | S | S | S | S | S |
| The Nature Conservancy, Nikki Rovner | S | S | S | S | S | S | S | S | S | S | S | S |
| Virginia Economic Development Partnership, Nicole Riley | S | A | S | S | S | A | S | S | S | S | S | S |
| Virginia Agribusiness Council, Brad Copenhaver | S | S | S | S | S | S | S | S | S | S | S | S |
| Virginia Association of Counties, Joe Lerch | S | S | S | S | S | S | S | S | S | S | S | S |
| Virginia Association of Soil and Water Conservation Districts, Robert Pickett | S | S | S | S | S | S | S | S | S | S | S | S |
| Virginia Chamber of Commerce, Kristen Burhop | S | S | S | A | A | A | S | S | A | A | A | A |
| Virginia Farm Bureau, Katelyn Jordan | S | S | S | S | S | S | S | S | S | S | S | S |

Resilience Coordination Working Group

Report & Recommendations

| Organization, Voting Member | A.1 | A.2 | A.3 | A.4 | A.5 | A.6 | B.1 | B.2 | B.3 | C.1 | C.2 | D.1 |
|---|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|
| Virginia Home Builders Association, Henry 'Speaker' Pollard | S | S | S | S | S | S | S | S | S | S | S | S |
| Virginia Manufacturers Association, Henry 'Speaker' Pollard | S | S | S | S | S | S | S | S | S | S | S | S |
| Virginia Marine Resources Commission, Rachael Peabody | S | S | S | S | S | A | S | S | S | S | S | S |
| Virginia Port Authority, Cathie Vick | S | S | S | S | S | S | S | S | S | S | S | S |
| Virginia Resources Authority, Shawn Crumlish | S | S | S | S | S | A | S | S | S | S | S | S |

Administrative Recommendations – Support (S), Abstain (A), Do Not Support (NS)

| Organization, Voting Member | E.1 | E.2 | E.3 | E.4 | F.1 | F.2 | F.3 | F.4 | G.1 | H.1 | H.2 |
|--|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|
| Chesapeake Bay Commission, Adrienne Kotula | S | S | S | S | S | S | S | S | S | S | S |
| Chesapeake Bay Foundation, Jay Ford | S | S | S | S | S | S | S | S | S | S | S |
| Citizen Member, Elizabeth Andrews | S | S | S | S | S | S | S | S | S | S | S |
| Clark Nexsen, Chris Stone | S | S | S | S | S | S | S | S | S | S | S |
| Department of Conservation and Recreation, Matthew Wells | S | S | S | S | S | S | S | S | S | S | S |
| Department of Emergency Management, Robbie Coates | S | S | S | S | S | S | S | S | S | S | S |
| Department of Energy, David Hawkins | A | S | A | S | S | S | S | S | S | S | S |
| Department of Housing and Community Development, Bill Curtis | S | S | S | S | S | S | S | S | S | S | S |

Resilience Coordination Working Group

Report & Recommendations

| Organization, Voting Member | E.1 | E.2 | E.3 | E.4 | F.1 | F.2 | F.3 | F.4 | G.1 | H.1 | H.2 |
|---|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|
| Department of Treasury, Bryan Chamberlain | S | S | S | S | S | S | S | S | S | S | S |
| Department of Environmental Quality, Sharon Baxter | S | S | S | S | S | S | S | S | S | S | S |
| Department of Transportation, Chris Swanson | A | A | A | S | A | S | A | A | S | S | A |
| Environmental Defense Fund, Emily Steinhilber | S | S | S | S | S | S | S | S | S | S | S |
| Hampton Roads Planning District Commission, Whitney Katchmark | S | S | S | S | S | S | S | S | S | S | S |
| Institute for Coastal Adaptation and Resilience, Old Dominion University, Dr. Jessica Whitehead | S | S | S | S | S | S | S | S | S | S | S |
| Institute for Engagement and Negotiation, University of Virginia, Tanya Denckla Cobb | S | S | S | S | S | S | S | S | S | S | S |
| Middle Peninsula Planning District Commission, Lewis Lawrence | S | S | S | S | S | S | S | S | S | S | S |
| Secretary of Veterans and Defense Affairs, Jordan Stewart | S | S | S | S | S | A | A | S | S | S | S |
| Soil and Water Conservation Board, Chuck Arnason | S | S | S | S | S | S | S | S | S | S | S |
| The Nature Conservancy, Nikki Rovner | S | S | A | S | S | A | S | S | S | S | S |
| Virginia Economic Development Partnership, Nicole Riley | S | S | A | S | A | S | A | A | A | S | S |
| Virginia Agribusiness Council, Brad Copenhaver | S | S | S | S | A | S | S | S | S | S | S |
| Virginia Association of Counties, Joe Lerch | S | S | S | S | S | S | S | A | A | S | S |
| Virginia Association of Soil and Water Conservation Districts, Robert Pickett | S | S | S | S | S | S | S | S | S | S | S |
| Virginia Chamber of Commerce, Kristen Burhop | S | A | S | S | A | A | A | A | S | S | S |

Resilience Coordination Working Group

Report & Recommendations

| Organization, Voting Member | E.1 | E.2 | E.3 | E.4 | F.1 | F.2 | F.3 | F.4 | G.1 | H.1 | H.2 |
|---|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|
| Virginia Farm Bureau, Katelyn Jordan | S | S | S | S | A | S | S | S | S | S | S |
| Virginia Home Builders Association, Henry 'Speaker' Pollard | S | S | S | S | S | S | S | S | S | S | S |
| Virginia Manufacturers Association, Henry 'Speaker' Pollard | S | S | S | S | S | S | S | S | S | S | S |
| Virginia Marine Resources Commission, Rachael Peabody | S | A | S | S | A | S | S | S | S | S | S |
| Virginia Port Authority, Cathie Vick | S | S | A | S | S | S | A | S | S | S | S |
| Virginia Resources Authority, Shawn Crumlish | S | S | S | S | S | A | S | S | S | S | S |

Submitted Comments from RCWG Members not present for voting:

Abby Johnson - Virginia PACE Authority

Supports all recommendations proposed by the working group.

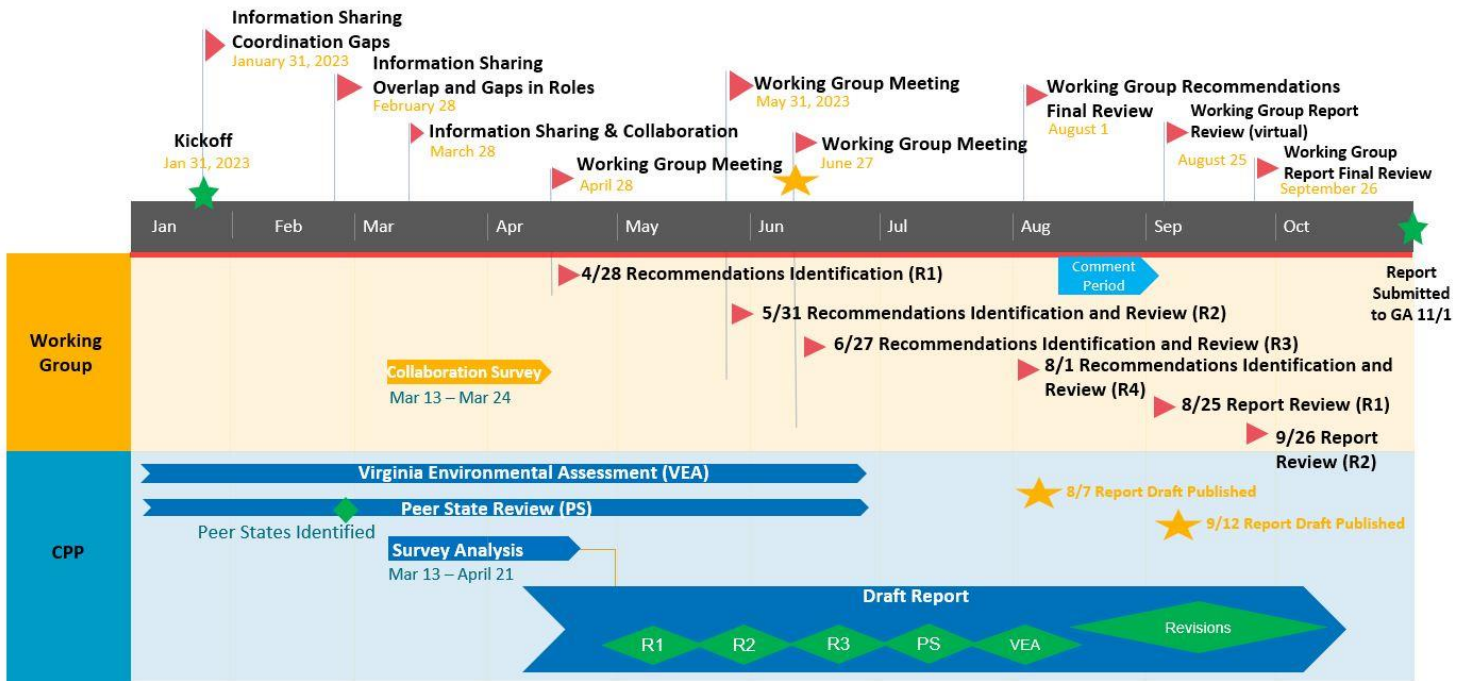
Rebecca Gwynn - Department of Wildlife Resources

Supports all recommendations proposed by the working group.

Dr. Mark Luckenbach - Virginia Institute of Marine Science

Supports all recommendations proposed by the working group.

Appendix C: Resilience Coordination Working Group Workplan & Timeline



Appendix D: Resilience Coordination Working Group Meeting Schedule

| # | Date/Time | Objective(s) + Topic(s) | Facilitators | Location |
|---|--|--|--------------|---|
| 1 | Tuesday, January 31 st , 2023 | Charge, Scope, State Agency Presentations, Schedule | CPP | Virtual |
| 2 | Tuesday, February 28 th , 2023 | Resilience Partnerships & Roles | CPP | Virtual |
| 3 | Tuesday, March 28 th , 2023 | Best Practices, Strategies for Interagency Coordination and Planning | CPP | Virginia Military Institute Lexington, VA |
| 4 | Friday, April 28 th , 2023 | Coordinating Structure, Locality Readiness, Data & Resource Sharing | CPP | Patrick Henry Building Richmond, VA |
| 5 | Wednesday, May 31 st , 2023 | Draft Recommendations for Coordination and Planning | CPP | Clark Nexsen Virginia Beach, VA |
| 6 | Tuesday, June 27 th , 2023 | Draft Recommendations for Funding | CPP | Patrick Henry Building Richmond, VA |
| 7 | Tuesday, August 1 st , 2023 | Report & Recommendations Review | CPP | University of Virginia Charlottesville, VA |
| 8 | Friday, August 25 th , 2023 | Report & Recommendations Review | CPP | Virtual |
| 9 | Tuesday, September 26 th , 2023 | Report & Recommendations Review, Voting | CPP | Patrick Henry Building Richmond, VA |

Appendix E: Peer State Comparison

Colorado

Resiliency Coordination & Planning

Colorado Resiliency Office

- Established in 2018 under the Department of Local Affairs (CDOLA) as part of the amendments to the Colorado Disaster Emergency Act ([State Statute § 24-32-122](#)).
- Responsible for strengthening communities, establishing statewide resiliency framework, and local resilience coordination efforts
- Directed by the state's Chief Resilience Officer (CRO)

Colorado Resiliency Framework 2020

- An integrated framework that identifies strategies for impact across six resiliency sectors—community, economic, health & social, housing, infrastructure, water & resources
- The CRO and the Resiliency Working Group serves as steering committee and implementing body for framework

Colorado Resiliency Playbook created by Office of Resilience for state agencies

Flood Technical Assistance Partnership Committee

- Committee within Colorado Association of Stormwater and Floodplain Managers—a professional association (non-profit)
- Supports state agency coordination and outreach to local floodplain officials during and after flood-related disasters

Resiliency Data & Resources

Colorado's Resiliency Dashboard (2020)

- Managed by Colorado Resiliency Office, data collection and analysis conducted by Colorado State Water and Soil Board
- Tracks and measures economic resiliency, housing cost burden, household tech availability, poverty, and social vulnerability by locality and incorporates these data into resilience planning and strategies aligned with the Colorado Resiliency Framework
- Links to NOAA's U.S. Drought Monitor dashboard to show drought intensity levels across the state

Locality Readiness

Federal and state funding programs supporting resiliency preparation and recovery are administered through various state agencies, including CDOLA, Colorado Department of Natural Resources, and Colorado Department of Public Safety

Local Government Survey on Resilience Planning – statewide survey conducted by CDOLA partnership with University of Colorado to assess 1) planning progress and priorities within local governments, 2) past experience with shocks and stresses, 3) risk perceptions, and 4) role of the Colorado Resiliency Office; survey findings were used to inform community workshops and training content and delivery

Community Readiness and Resilience Toolkit assists local government planners, officials, and/or staff in institutionalizing resilience into planning efforts and operations through a six-step process; includes guiding questions, checklists, work plan timelines, budgets, vulnerability assessments, and more. **Pre and Post-Disaster Recovery Toolkits** are also available

Recovery and Resiliency Roadmap Program convenes 16 regional community teams consisting of 150 rural jurisdictions and community partners to develop a plan for COVID recovery during a two-year implementation program

Peer Exchanges for Local Governments facilitated every-other-month by Resiliency Office to discuss best practices and lessons learned related to Watershed Protection/Post-Fire Flood Hazard Mitigation, Alert & Warning Systems, and other resiliency topics; includes a peer exchange portal with resources

Targeted Resources created by the Resiliency Office includes a series of pre-disaster and recovery tools for counties, tribes, municipalities, businesses, and individuals

Gaps & Opportunities for Virginia

- Robust resources and toolkits developed for local governments and tribes informed by needs Opportunities for collaboration among local governments exist through peer exchanges and “lessons learned” presentations, resources
- Centralized resiliency data dashboard identifies risks using social and climate vulnerability indicators but does not measure flood risk
- Flood Technical Assistance Partnership Committee presents challenges for interagency floodplain coordination as a non-governmental assessment

Louisiana

Resiliency Coordination & Planning

Coastal Protection and Restoration Authority (CPRA)

- Created in 2005 with the passing of **Senate Bill 71, Act No. 8**
- Single state entity that develops, prioritizes, and implements resiliency plans and efforts to achieve comprehensive coastal protection in Louisiana
- Tasked with developing, implementing, and enforcing comprehensive coastal protection and restoration Master Plan

Report & Recommendations

- Guided by its board which includes representatives from state agency heads, coastal parishes, and two additional members appointed by the legislature
- Oversees the Coastal Protection and Restoration Trust Fund as one of its duties
- Staffed agency with nearly 200 employees including engineers, researchers, project managers, technicians and scientists, attorneys, HR staff and accountants

Executive Order JBE 2020-19 (August 2020)

- 1) Established Chief Resilience Officer (CRO)
- 2) Required “Resilience Coordinators” within each state agency
- 3) Tasked agencies with conducting vulnerability assessment and identification of adaptation options
- 4) Tasked agencies with strategic plan update and recurring alignment with each [Coastal Master Plan](#) update

CPRA director implements the state coastal master plan and the CRO advances resilience priorities across state government agencies.

Adaptive Governance Initiative (AGI)

- Joint effort of the Office of the Governor and the Center for Planning Excellence (CPEX)
- Implemented with support from public/private foundations and CPRA
- Created to support agencies in implementing Executive Order JBE 2020-19 requirements such as assessing vulnerabilities, identifying actions, and institutionalizing adaptation
- Developed agency tools including [Vulnerability Assessment](#) and [agency report card](#)

Coastal Advisory Team (CAT)

- Convened by CPRA to provide input and recommendations to CPRA for the 2023 Coastal Master Plan
- Team members from federal, state, local government, non-governmental organizations, business and industry, and academia

Regional Workgroups (RW)

- CPRA created five RWs that provided regionally-informed perspectives on issues, priorities, and solutions included in 2023 Coastal Master Plan

Community Engagement Workgroup (CEW)

- Provided recommendations to CPRA on necessary communication strategies and outreach and engagement efforts of 2023 Coastal Master Plan

- Members represented housing, tribal, health, and social justice community interests

[Predictive Models Technical Advisory Committee \(PM-TAC\)](#)

- Team of scientists, engineers, and planners provided recommendations to improve modeling tools used for 2023 Coastal Master Plan analysis

Resiliency Data & Resources

[Coastal Master Plan Data Viewer 2023](#), developed and managed by CPRA as an interactive online companion to the 2023 Coastal Master Plan. Includes Land Change, Vegetation Type, Flood Depth, Damage, Flood Risk, and Social Vulnerability information by locality; also includes resources to reduce risk

Locality Readiness

CPRA administers all federal and non-federal resilience funding and grant programs

CPRA also supports non-state projects including parish, levee districts, and privately-funded projects

- Non-state project report is submitted annually by CPRA to the Louisiana Legislature

[Coastal Master Plan](#) developed with input from RWs and CEW and includes regional-specific challenges and targeted solutions

Gaps & Opportunities for Virginia

- Coordinating entity responsible for administration of resiliency funds, coordination, planning, and data
- AGI presents model of planning and assessment tools necessary to build agency capacity for carrying out resiliency plans and policies, made possible through Government partnership
- Resilience Coordinators within each agency in addition to CRO
- CAT, RWs, CEW, and PM-TAC provided input in development of Coastal Master Plan, but CPRA does not have recurring task force or committee supporting implementation

Maryland

Resiliency Coordination & Planning

[House Bill 706/Senate Bill 630](#) passed and signed into law in October 2022 to require:

- 1) Establishment of the Office of Resilience within the Maryland Department of Emergency Management*
- 2) the Secretary of Emergency Management to appoint a Chief Resilience Officer to direct the Office of Resilience

3) the Office of Resilience to coordinate with appropriate State agencies and State entities to carry out strategies and programs related to resilience

[Maryland Commission on Climate Change \(MCCC\)](#)

- Codified into law in 2015 by [Senate Bill 258](#)
- Meets quarterly, chaired by the Maryland Department of the Environment (MDE), staffed by MDE and the Maryland Department of Natural Resources (MDNR)
- Advises the Governor and General Assembly
- Includes standing members from many state agencies as well as appointed members from state, local, non-profit, business, and other communities
- Charge is supported by the [Adaptation and Resiliency Working Group \(ARWG\)](#):
 - Meets quarterly, chaired by Secretary of MDNR
 - Develops a comprehensive strategy for reducing Maryland's climate change vulnerability
 - Provides tools to state and local governments to adapt to sea level rise and other threats resulting from climate change

Resiliency Data & Resources

[Maryland Resiliency Partnership](#)

- Managed by Maryland Resiliency Partnership, a public-private partnership
- Compilation of GIS tools and other information to support local governments and community partners with resiliency planning, preparedness, mitigation, and outreach
- DNR provides [links](#) to NOAA and other federal governmental climate data

* As of May 2023, CRO position remains unfilled and creation of the Office of Resilience is still in progress.

Locality Readiness

[Maryland Coastal Adaptation Report Card \(2021\)](#)

- Developed collaboratively by the ARWG and University of Maryland Center for Environmental Science Integration and Application Network
- Provides a snapshot of current adaptation state in Maryland's coastal zone and framework for measuring coastal adaptation progress using socioeconomic, planning, ecosystem, and flooding indicators

[Coast Smart Council](#)

- Established in 2014 within DNR to adopt Coast Smart siting and design criteria to address impacts associated with sea level rise and coastal flooding on capital projects

Report & Recommendations

- Expanded duties in 2018 to support and assist local jurisdictions in collecting data to establish flooding baselines; all jurisdictions with nuisance flooding must develop flood plans
- Provides and annually reviews guidelines for state agencies in the planning and construction of proposed capital projects Coast Smart Construction Program

[Maryland Climate Leadership Academy](#)

- State-sponsored continuing education and executive training programs for local government officials, infrastructure executives, and business leaders
- Established in 2018 and administered by the state of Maryland to support MCC
- Carried out by the Association of Climate Change Officers, which delivers training statewide on integrating climate change risk into decision-making across sectors

Gaps & Opportunities for Virginia

- Implementation of CRO and centralized Office of Resilience appears slow
- MCCC takes an all-natural hazards approach to resiliency coordination and planning
- MCCC advises the Governor and General Assembly on climate issues across sectors—far broader charge than Virginia’s [Technical Advisory Committee](#) which is limited to the Coastal Resilience Master Plan
- Lacks single, centralized, and authoritative source for state-level climate data

North Carolina

Resiliency Coordination & Planning

North Carolina Office of Recovery and Resiliency (NCORR)

- Authorized under Section 5.7 of the [2018 Hurricane Flood Disaster Act](#)
- Housed within the North Carolina Department of Public Safety (NCDPS) and tasked with:
 - 1) Executing multi-year recovery and resiliency projects
 - 2) Administering federal funds from the [Community Development Block Grant Disaster Recovery Program](#) (CDBG-DR)
 - 3) Develop and administer grant program for financially distressed local governments to assist with recovery capacity
 - 4) Develop and administer, in consultation with the Local Government Commission, a one-time emergency fund for local governments in disaster-affected areas needing immediate cash flow assistance*
- Chief Resilience Officer appointed in 2019

[State Disaster Recovery Task Force](#)

Report & Recommendations

- Supports and advises state agencies in addressing long-term recovery and building resiliency
- Consists of state and local agencies, nonprofits, and community organizations broken into 12 subcommittees called Recovery Support Functions

[North Carolina Climate Change Interagency Council](#)

- Created in 2018 under [Executive Order No. 80](#)
- Consists of each Secretary or designee of every cabinet agency and a representative from the Governor's Office, chaired the Secretary or designee of North Carolina Department of Environmental Quality (NCDEQ)
- Duties of the Council include:
 - 1) Recommend new and updated goals and actions to meaningfully address climate change
 - 2) Develop, implement, and evaluate programs and activities that support statewide climate mitigation and adaptation practices
 - 3) Establish workgroups, as appropriate, to assist the Council in its duties
 - 4) Review, submit, schedule, monitor, and provide input on the preparation and development of plans required by the Executive Order No. 80
- Prepared the [NC Climate Risk Assessment and Resilience Plan](#) in 2020
 - Establishes the North Carolina Resilience strategy
 - Serves as framework to guide state action, engage policy-makers and stakeholders, facilitate collaboration across the state, and create alignment around climate resilience actions
 - Agencies are responsible for annual Climate Strategy Reports, which include both emissions reduction and resilience progress.

[Flood Resiliency Blueprint](#)

- Funded by allocation to NCDEQ, a statewide initiative that began in December 2022
- Online decision-making and planning tool that will visualize vulnerability for different flood risk situations aligned with mitigation strategies based on available data
- Currently in development phase with input from subject matter experts broken into six [Technical Advisory Groups \(TAG\)](#) that reflect federal, State, County, Municipal, and Tribal governments; non-governmental organizations; and universities

Resiliency Data & Resources

NCDEQ provides a [compilation of data sources and tools](#) for hazard/risk/vulnerability assessments, shoreline management, and other coastal adaptation and resiliency planning activities

NCORR hosted a data sharing event in 2021 and maintains a list of [updated resilience data sources](#)

Flood Resiliency Blue Print initiative will result in an online decision-making and planning tool to help communities address flooding

NC Emergency Management also runs the [NC FIMAN](#) and [NC FRIS](#) tools. Both were funded over time with both state and federal funding, and provide both real time and resilience planning support. Key to the tools' utility for resilience is the building footprint and finished first floor elevation dataset.

Locality Readiness

NCORR partners with local governments, state agencies, and community organizations to improve resiliency in social and financial systems, infrastructure, and natural habitats

Forthcoming [Flood Resiliency Blueprint](#) will seamlessly guide state, county, municipal, and other jurisdictions in identifying and selecting appropriate flood mitigation strategies

NCORR and NC Department of Environmental Quality's Division of Coastal Management (DCM) administer a 2-component program for communities that provides access to expertise, technical support and guidance for analysis and planning, and implementation funding:

- NCDCM [Resilient Coastal Communities Program](#): for NC's 20 coastal counties, funded through NFWF, NOAA, and state funds and state funds in partnership with NCORR, NC Sea Grant, and The Nature Conservancy of NC.
- NCORR [Regions Innovating for Strong Economies and Environment](#): region-based support for rural county partnerships in eastern NC, funded through U.S. Economic Development Administration, NCORR, the NC Rural Center, and the Duke Energy Foundation, in partnership with NC Rural Center and the NC Regional Councils of Government.

Gaps & Opportunities for Virginia

- Centralized office administers CDBG-DR and one-time emergency funds for localities
- Interagency collaboration around mitigation planning, goals, and implementation formalized through Council
- Flood mitigation decision-making and planning tool for localities (forthcoming)
- TAG presents model for integrating subject matter expertise into database/tool development
- Lacks single clearing house for data - developed and managed by NCDEQ, outside of NCORR and NCDPS

*one-time emergency funds can be used to meet local government debt service and/or payroll obligations, and vendor payments where non-payments would result in negative financial outcome.

Appendix F: Flood Resilience Legislation 2021-2023

| Locality Readiness and Planning | | | |
|--|---|-------------------------------------|---|
| Legislation | Summary | Chief Patron | Status |
| HB 1634 Comprehensive Plan; strategies to address resilience | Encourages localities to consider strategies to address resilience in their comprehensive plans. | Del. Bulova D-House District 37 | Signed by Governor March 2023; Effective July 1, 2023 |
| HB 1746 Regional planning; climate resilience | Requires planning district commissions to include climate resilience as part of their strategic plans. | Del. Willett D-House District 58 | Left in House Counties, Cities, and Towns |
| Interagency/Intergovernmental Coordination | | | |
| HB 2393 Coastal resilience policy; research university collaborative | Authorizes the Secretary of Natural and Historic Resources and all relevant agencies, when setting coastal resilience policies, to seek input and consultation from the Commonwealth's research university collaborative, including the Virginia Coastal Policy Center, Virginia Sea Grant, Virginia Cooperative Extension, and Institute for Coastal Adaptation and Resilience. The bill permits the Secretary and all relevant agencies to utilize such research university collaborative's expertise, research, and data analysis for the implementation of water management techniques and coastal resilience strategies. | Del. Hodges R- House District 98 | Approved by Governor-Chapter 807 (effective 7/1/23) |
| SB 1392 Floodplain management; state agency compliance with floodplain management regulations | Directs the Department of Conservation and Recreation, no later than September 30, 2023, and in cooperation with numerous Secretariats and the Special Assistant to the Governor for Coastal Adaptation and Protection, to establish standards for development in a flood plain for all state agencies and departments. Such standards shall require at least | Sen. Lewis D- Accomack | Governor: Acts of Assembly Chapter text (CHAP0762) (effective 7/1/23) |

| Locality Readiness and Planning | | | |
|--|--|--|---|
| | <p>compliance with the National Flood Insurance Program and shall require that any development undertaken by an agency or department on state-owned land located in a Special Flood Hazard Area be protected or flood-proofed against flooding and flood damage. The bill also requires any state agency or department, when developing a facility on state-owned property located in a flood plain, to either adhere to all local flood plain management regulations or receive Department approval of compliance with the applicable state standard for development in a flood plain, provided that such standard does not jeopardize a locality's participation in the National Flood Insurance Program.</p> | | |
| <p>HB 1970 Virginia Coastal Resilience Technical Advisory Committee; renames committee</p> | <p>This proposal requires the Virginia Flood Protection Master Plan to be developed and updated in coordination with the TAC. Currently, language in §10.1-659 only requires the TAC's participation in the development of the Virginia Flood Master Plan if the Department requests their involvement. This proposal expands the current membership of the Virginia Coastal Resilience Technical Advisory Committee (TAC) to include executive directors from all planning district commissions or regional commissions. Currently, only executive directors from coastal planning district commissions or regional commissions are required members of the TAC. The title of the TAC is amended to the Virginia Resilience Technical Advisory Committee.</p> | <p>Del. Bennett-Parker D-House District 45</p> | <p>Left in House Agriculture, Chesapeake and Natural Resources Committee; Opportunity for Resilience Coordination Working Group to consider</p> |

| Locality Readiness and Planning | | | |
|--|---|--|--|
| <p>HJ 516 Joint Subcommittee on Recurrent Flooding; membership increase</p> | <p>Increases the total membership of the Joint Subcommittee on Recurrent Flooding from 11 to 17 by increasing the number of non-legislative members from three to seven. The additional non-legislative members include representatives from the environmental, development, and business communities, a certified floodplain manager, and three local elected officials representing three of Virginia's flood-prone communities.</p> | <p>Del. Bennett-Parker D-House District 45</p> | <p>Joint Resolution Tabled in House</p> |
| <p>SB 508 Virginia Community Preparedness Fund; shifts administration to Water and Soil Conservation Board</p> | <p>Shifts the administration of the Virginia Community Flood Preparedness Fund from the Department of Conservation and Recreation to the Virginia Soil and Water Conservation Board (the Board). The bill expands from nine to 11 the membership of the Board with the addition of two non-legislative members, one of whom shall be appointed by the Speaker of the House of Delegates from a flood-prone community outside the Chesapeake Bay watershed and one of whom shall be appointed by the Senate Committee on Rules from a flood-prone community in the Chesapeake Bay watershed. The bill raises from five to six the number of Board members needed to constitute a quorum, at least four of whom shall be farmer or district director representatives.</p> | <p>Sen. Lewis D-Accomack</p> | <p>Passed House and Senate, Vetoed by Governor</p> |

Appendix G: Comparison of Proposed Commonwealth Flood Board & Virginia Resilience Authority Hampton Roads PDC

| | Commonwealth Flood Board | Virginia Resilience Authority |
|------------------------|--|--|
| Legislative Language | HB602 (Left in House Committee, 2022) | HB847 (Left in House Committee, 2022) |
| Board | <p>19 members including: Secretaries of Natural and Historic Resources, Commerce and Trade, HHR, Agriculture and Forestry, Public Safety and Homeland Security, Transportation, Veterans and Defense Affairs and 12 non-legislative members appointed by Governor from Planning District Commissions 2, 3, 4, or 5; 6 or 7; 8; 15; 17 or 18; 22; 23; At least 2 urban; At least 2 rural</p> | <p>17 members including: Secretary of Natural and Historic Resources or designee, Secretary of Transportation or designee, Chair of Senate ACNR or designee, Chair of House ACNR or designee, 1 Senator appointed by Rules Committee, 3 Delegates appointed by Rules Committee, 3 Delegates appointed by the Speaker, 6 PDC officers appointed by the Governor, 3 non-legislative citizen members from HRPDC, CPDC, PlanRVA, MPPDC, NNPDC, ANPDC appointed by Joint Rules Committee</p> |
| Board Chair | SNHR | Non-legislative member elected by Board |
| Vice Chair | Elected from members | SNHR |
| Quorum | 9 members | Majority |
| Board Terms | 5 years after initial staggering | 4 years after initial staggering of terms |
| Staff | <p>Staffed by newly created Department of Flood Control, under the SNHR, including a department Director</p> <p>Scientific and Technical Advisory Committee</p> <p>Stakeholder Advisory Committee</p> | Board appoints executive director |
| Political Subdivision? | No | Yes |

| | Commonwealth Flood Board | Virginia Resilience Authority |
|-----------------------------|---|--|
| Policy Board | Yes | No |
| Bonding Authority | No | Yes |
| USACE | Coordinate with USACE districts and serve as nonfederal sponsor for civil works projects | Serve as non-federal sponsor |
| State planning | <p>Direct comprehensive flood control program (replaces DCR)</p> <p>Oversees development, implementation, and updating of Commonwealth Flood Plan.</p> <p>Commonwealth Flood Plan replaces Coastal Resiliency Master Plan and Virginia Flood Protection Master Plan</p> <p>Coordinates flood protection with USACE, USDA, FEMA, USGS, Tennessee Valley Authority, and other federal agencies</p> <p>Evaluates alignment of other state programs</p> | <p>Coordinate with DCR Virginia Coastal Resilience Master Plan, Virginia Flood Protection Master Plan, and federal, state, and local flood prevention and water quality programs</p> |
| Local and Regional Planning | Oversees designation of regional flood planning regions and development of regional flood plans | Coordinates state and local planning |
| CFPF | Oversees management and disbursement of funds. Approves guidelines for funding and distribution of loans and grants. | Administer fund with DCR |

Appendix H: Virginia Code Establishing CRO

§ 2.2-220.5. Chief Resilience Officer.

A. The Governor shall designate a Chief Resilience Officer. The Chief Resilience Officer shall serve as the primary coordinator of resilience and adaptation initiatives in Virginia and as the primary point of contact regarding issues related to resilience, recurrent flooding, all flooding-related pre-disaster hazard mitigation, and adaptation. The Chief Resilience Officer shall be equally responsible for all urban, suburban, and rural areas of the Commonwealth.

B. The Chief Resilience Officer's duties, in consultation with the Special Assistant to the Governor for Coastal Adaptation and Protection, shall include but not be limited to the following:

1. Identify and monitor those areas of the Commonwealth that are at greatest risk from recurrent flooding and increased future flooding and recommend actions that both the private and public sectors should consider in order to increase the resilience of such areas.
2. Upon the request of any locality in the Commonwealth in which is located a substantial flood defense or catchment area, including a levee, reservoir, dam, catch basin, or wetland or lake improved or constructed for the purpose of flood control, review and comment on plans for the construction or substantial reinforcement of such flood defense or catchment area.
3. Serve as the primary point of contact on all issues relating to pre-disaster hazard mitigation and coordinate the planning of resilience initiatives across state government.
4. Create and oversee the implementation of a Virginia Flood Protection Master Plan and a Virginia Coastal Resilience Master Plan in accordance with § [10.1-602](#) 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.
5. Initiate and assist with the pursuit of funding opportunities for resilience initiatives at both the state and local levels and help to oversee and coordinate funding initiatives of all agencies of the Commonwealth.
6. Coordinate the dissemination of the best available science, legal guidance, and planning strategies to the public.
7. Beginning July 1, 2023, and every two years thereafter, report to the Governor and the General Assembly on the status of flood resilience in the Commonwealth. The report shall serve as an evaluation of flood protection for critical infrastructure, including human and natural infrastructure. The report shall identify risks to critical transportation, energy, communication, water and food supply, waste management, health, and emergency services infrastructure. The report shall also include the status of flood resilience planning. In preparing the report, the Chief Resilience Officer shall also coordinate with the Director of Diversity, Equity, and Inclusion and shall be assisted by all relevant Secretariats and agencies.

Appendix I: Virginia State Government Agency Flood Resilience Efforts

| Agency | Planning | Coordination | Funding |
|--------|--|---|---|
| DCR | <p>CRMP – development, implementation through TAC</p> <p>VFPMP – development, implementation through TAC</p> <p>Community Outreach and Engagement plan – development</p> | Annual Flood Preparedness Meetings | <p>FEDERAL</p> <ul style="list-style-type: none"> • STORM Act – PENDING <p>STATE</p> <ul style="list-style-type: none"> • CFPF – administers, technical assistance • Revolving Loan Fund – co-administer with VRA • Dam Safety Program – administers, technical assistance |
| VDEM | Hazard Mitigation Plan – development | <p>Emergency response coordination</p> <p>Mitigation efforts following Hurricane Isabel (DCR, DHCD)</p> <p>Annual Flood Preparedness Meetings</p> | <p>FEDERAL</p> <ul style="list-style-type: none"> • FEMA– administration, technical assistance <ul style="list-style-type: none"> • Flood Mitigation Assistance (FMA) • Building Resilient Infrastructure and Communities (BRIC) • Hazard Mitigation Grant (HMGP) <p>STATE</p> <ul style="list-style-type: none"> • Program Public Assistance (PA) • Emergency Shelter Upgrade Assistance Fund |
| DHCD | TAC Membership | Annual Flood Preparedness Meetings | <p>FEDERAL</p> <ul style="list-style-type: none"> • Community Development Block Grants <ul style="list-style-type: none"> • Mitigation Grants • Disaster Resilience Competition • Disaster Recovery Program |
| VRA | TAC Membership | Annual Flood Preparedness Membership | <p>Co-administers Revolving Loan Fund (underwriters)</p> <p>Sponsors C-PACE Financing for disaster resiliency improvements</p> |
| DEQ | TAC Membership | Leads CZM Network | <p>FEDERAL</p> <ul style="list-style-type: none"> • NOAA annual grant awards <p>STATE</p> |

Resilience Coordination Working Group

Report & Recommendations

| | | | |
|------|---|---|---|
| | Coastal Needs Assessment & Strategies—CZM | CZM Coastal Policy Team Annual Flood Preparedness Membership | <ul style="list-style-type: none"> Clean Water Financing and Assistance Programs – Administrators ACADEMIC <ul style="list-style-type: none"> Seaside Heritage Program |
| VDOT | VDOT Resilience Plan Resilience Improvement Plan TAC Membership | Annual Flood Preparedness Meetings | FEDERAL <ul style="list-style-type: none"> FHWA <ul style="list-style-type: none"> PROTECT Program |