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VIRGINIA COASTAL POLICY CENTER

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CHESAPEAKE LEGAL ALLIANCE

TO: Chesapeake Bay Commission Members

FROM: Elizabeth Andrews, Virginia Coastal Policy Center
Evan Isaacson, Chesapeake Legal Alliance
Chesapeake Bay Commission Staff

DATE: November 4, 2021

RE: Gaps Analysis & Recommendations for Climate Resilient Policies in Maryland, Pennsylvania, and Virginia

This Gaps Analysis builds upon the climate resilience work that the Chesapeake Bay Commission has been considering throughout 2021. A matrix of state programs was considered at our May meeting, as well as an analysis of national programs at our September meeting. This gaps analysis provides recommendations for each member state to consider in adopting a robust suite of policies to address climate resilience within their jurisdiction. Because federal land holdings exist in each state, and potential federal funding sources are significant, opportunities for federal partnerships in the advancement of state resiliency efforts are also noted. This is particularly true on DoD lands, given the magnitude of land involved and its adjacency to coastal waters.

The first part of this analysis includes the top-tier and second-tier recommendations for every jurisdiction. These recommendations will help to ensure the proper implementation of climate resilient policies in any jurisdiction. Within each, there are specific climate resilience policy recommendations for the Chesapeake Bay Commission's member states of Maryland, Pennsylvania, and Virginia.

The second part of this analysis includes additional policies that warrant consideration by Commissioners in each jurisdiction. These include improvements on existing policies, or new policies that may or may not be based on a similar policy in the other states.

PART I: Filling Gaps: Replication or Adaptation of Other State Programs

TOP-TIER RECOMMENDATIONS

❖ Define State Leadership Role

EXAMPLES
Chief Resilience Officer / Special Assistant to the Governor for Coastal Adaptation and Protection [From VA]

BACKGROUND & PROPOSAL
Climate resilience needs can have wide reaching implications for many different policy areas. Thus, it is vital to establish through legislation a centralized role in the Governor's office to coordinate with all the state and federal agencies implicated in the development and implementation of resilience plans, policies, and programs. Crucially, any new position should not be understood as merely a figure head, but rather should be established with an appropriately bold charge, sufficient staff and adequate funding, including identifying priority legislative, regulatory, or programmatic needs, filling analytical gaps in the state's understanding of climate change effects, coordinating with local, federal, academic, and private sector partners, and providing input on permitting and agency decisions, as necessary, to make sure these decisions are consistent with resiliency laws and needs.

GAPS IDENTIFIED & RECOMMENDATIONS

- **Maryland**: State-wide resiliency efforts in Maryland are currently coordinated by the State's Commission on Climate Change - Adaptation and Resiliency Working Group. The Working Group is charged with developing and implementing a comprehensive strategy for reducing Maryland climate change vulnerability and providing state and local governments with tools to plan for and adapt to climate impacts such as extreme weather and sea level rise. Multiple state and federal agencies are also involved in this effort, particularly the Department of Emergency Management, through the implementation of the state's Hazard Mitigation Plan. However, Maryland lacks a high-level focal position for these efforts, as exists in Virginia. Legislation has been introduced twice to create a Chief Resilience Officer (S.B. 721 and S.B. 62), Senators Hester and Elfreth in 2020 and 2021, respectively). Creating such a position could help Maryland continue to adapt its laws, policies, and agencies to climate change. The position would elevate discourse and policy discussion and maintain a constant vigilance over the threats posed by changing climate conditions.

- **Pennsylvania**: Pennsylvania currently lacks such a position. Executive Order 2019-01 created the GreenGov Council, co-chaired by the Secretaries of DGS, DEP and DCNR, but the scope of the Council and the goals enumerated in the EO are limited to GHG emissions and do not include resiliency. The creation of a Chief Resilience Officer within the Governor's Office would elevate the importance of this work, expand efforts to include the necessary aspects of climate adaptation and resiliency,

and integrate resiliency efforts across the full spectrum of Commonwealth agencies as well as federal partners.

- **Virginia**: With both the Chief Resilience Officer and the Special Assistant to the Governor for Coastal Adaptation and Protection existing in the Code of Virginia, clarity between the roles should be established. The Chief Resilience Officer's role covers the entirety of the Commonwealth whereas the Special Assistant's role is focused on the coastal region. With the increasing threats of climate change, regular flooding events are becoming a statewide issue beyond the scope of the Special Assistant, and the role of a Chief Resilience Officer should include resilience from all disasters, not simply flooding. With additional clarification in Code for the current roles and responsibilities, the Commonwealth would have a clear, stable, long-term program. Adequate staffing for the Chief Resilience Officer, which would include the Special Assistant to the Governor for Coastal Adaptation and Protection, and funding are necessary parts of this.

❖ **Establish State Advisory Group**

EXAMPLES
Commission on Climate Change [From MD] / Climate Advisory Committee [From PA] / Governor Northam's Coastal Resilience Master Plan Technical Advisory Committee [From VA]

BACKGROUND & PROPOSAL
In addition to having a dedicated staffer for climate resilience, as well as a plan dedicated to identifying the most critical natural and built infrastructure needs, an oversight entity that ensures long-term, meaningful input of a variety of stakeholders is critical to ensure success. Stakeholders should include local governments, the private sector, nonprofits, academia and federal partners.

GAPS IDENTIFIED & RECOMMENDATIONS

- **Maryland**: The Maryland Commission on Climate Change was created by an Executive Order in 2007 and codified into State law in 2015. Supported by the Department of the Environment and other state agencies, its diverse membership provides a critical role in advising the Governor and General Assembly "on ways to mitigate the causes of, prepare for, and adapt to the consequences of climate change". In addition to the significant value the Commission provides, its impact could be strengthened by giving it a required consultation role in certain matters before the Maryland Department of the Environment (e.g., regulation promulgation or adopting general permit conditions) and possibly other agencies. Additionally, MDE and other state agencies could be more explicitly required to consider climate impacts in decision-making, as was just done with the Maryland Public Service Commission in their regulatory and decision-making role.

- **Pennsylvania**: While Pennsylvania established their Climate Advisory Committee in 2008 in Code, the Committee is focused on greenhouse gas emissions and carbon sequestration and resides within the Department of Environmental Protection. For the Committee to maximize effectiveness, the Committee structure should be expanded

to include adaptation and resiliency.

- **Virginia**: There have been a number of efforts by Governors to create a comprehensive approach to climate resilience in the Commonwealth (Governor Kaine's Commission on Climate Change; Governor McAuliffe's Climate Change and Resilient Update Commission; Governor Northam's Coastal Resilience Master Plan Technical Advisory Committee), but none have permanently established a Commonwealth-wide entity with broad stakeholder engagement. An example of how this was achieved previously is the Council on Virginia's Future which existed as an executive branch Council with legislators and Governor's appointees, as well as impacted citizens/stakeholders. The Commonwealth Transportation Board, with members appointed by the Governor and subject to confirmation by the General Assembly, is an additional example of how this could be accomplished.

❖ **Require A State-Level Plan**

EXAMPLES
Climate Action Plan [From PA] / Coastal Resilience Master Plan [From VA]

BACKGROUND & PROPOSAL
A state master plan that acknowledges the science of climate change, the complexity of the challenges facing a jurisdiction, and the limits of available fiscal resources while prioritizing resilience projects in accordance with state guidelines and local and regional needs is critical to progress. It is also vital that states incorporate the funding, programs, and projects of federal partners within their plans.

GAPS IDENTIFIED & RECOMMENDATIONS

- **Maryland:** Several state-level planning processes work to address climate resiliency. MEMA's Hazard Mitigation Plan provides analysis and risk assessment for flooding, storms and severe weather events exacerbated by climate change. Additionally, the Climate Change Commission's Adaptation and Resiliency Working Group has adopted the "Comprehensive Strategy for Reducing Maryland's Vulnerability to Climate Change". The Work Group is currently working to evaluate and update the State's Adaption Strategy. To focus attention on communities at risk due to flooding, including those vulnerable to climate-induced flash floods, the State should continue to refine and update these planning documents. Equally important, the findings and risk assessments must be transparent to the public. Funding programs should use these plans to focus funds, much like the state codified Priority Funding Areas to anchor smart growth policies.

- **Pennsylvania:** Similar to the Climate Advisory Committee, the Climate Action Plan is focused on greenhouse gas emissions and resides within the Department of Environmental Protection. The most recent triennial plan, released in September 2021, includes a section on climate adaptation across several sectors. However, recommendations for strategic action are limited to general examples and a few case

studies. For the plan to maximize effectiveness, future plans should incorporate additional details and specific actions related to adaptation and resiliency based on robust stakeholder involvement.

- **Virginia:** While Virginia's Coastal Resilience Master Plan is referenced in the Code of Virginia, the requirement for its development exists only within an Executive Order. The plan should be completed prior to the end of the current Administration, but regular updates will be necessary in order for the information to remain relevant. The requirement for the plan and regular updates should be included within the Code of Virginia. Adequate funding and staffing for updates and implementation are vital moving forward.

❖ **Dedicate Funding for State Resilience Projects**

EXAMPLES
Community Flood Preparedness Fund [From VA] / Resilient Revolving Loan Fund [From MD] / Regional Resilience Authorities [From MD]

BACKGROUND & PROPOSAL
The multiple ways for jurisdictions to fund and finance resilience projects include federal programs, grants from nonprofit foundations and community development finance institutions, bonds, and various forms of revenue streams funded by special tax, fee, flood control, or improvement districts. However, the states need to supplement these efforts with meaningful and sustained state funding and be prepared to receive or leverage federal funding in a variety of ways.

Virginia's Community Flood Preparedness Fund is funded with proceeds from the sale of carbon credits under the Regional Greenhouse Gas Initiative. The Fund provides grants (and loans starting in 2022) for projects, studies and planning for the purposes of enhancing flood prevention or protection and coastal resilience. The Fund can also accept federal monies, as well as additional public and private monies, and can serve as match for federal grants. The Fund is administered by the Virginia Department of Conservation and Recreation.

The recently created Resilient Maryland Revolving Loan Fund is administered by the Maryland Emergency Management Agency to provide loans for local resilience projects that address mitigation of all hazards, including natural disasters, and can be supported by up to $25 million in general obligation bonds as authorized by legislation in 2022. Maryland's Regional Resilience Authorities legislation also provides for local governments (individually or regionally) to create entities to work in partnership with local governments to accelerate infrastructure financing, reduce the cost of implementation, and mitigate and manage the risks of climate change.

GAPS IDENTIFIED & RECOMMENDATIONS

- **Maryland:** Maryland has several funds to hold and distribute state and federal money for climate resilience purposes. Thus, the larger priority is expansion of the overall state funding support, particularly for capital projects dedicated to protecting

Maryland from perhaps the greatest projected climate threat – flooding.

- **Pennsylvania:** The Pennsylvania Infrastructure Investment Authority (PENNVEST) includes stormwater within the scope of its funding, but eligible costs are limited to collection systems, and in-stream work has limited eligibility. DCED also administers the Flood Mitigation Program and the H2O PA Flood Control Projects Program, with funding coming from the Act 13 Marcellus Legacy Fund and the H2O PA Act, respectively. The H2O program evaluates applications based on the number of municipalities that will benefit, among other criteria, and PENNVEST gives priority to stormwater projects that are "sponsored by more than one municipality" and located at "strategic locations." However, none of the programs require or otherwise incentivize multi-municipal projects or integrated water resources planning.

- **Virginia:** In order to create an additional perpetual funding source for resilience projects in Virginia (versus the funding that currently relies upon Regional Greenhouse Gas Initiative proceeds that will dwindle through time), the Commonwealth should consider establishing a resiliency revolving loan fund (RLF) to finance projects that fall outside of the scope of the Community Flood Preparedness Fund or, due to capacity constraints, cannot be funded from the Community Flood Preparedness Fund at a given time. The resiliency RLF could be modeled after the Virginia Airports Revolving Fund, which offers maximum application and loan flexibility to borrowers. The RLF could also be modeled after the Maryland legislation. The resiliency RLF could be established with a direct appropriation from the General Assembly or from another identified funding source to include federal funds; other funding mechanisms could include special purpose taxes administered and/or delivered through an entity similar to a Transportation District. Loans made from the resiliency RLF could be used to meet matching requirements of other funding sources, to provide 'gap financing' needs for projects that have not identified 100% of the needed project costs from other sources, or to provide more flexibility in funding resilient elements of projects that are not otherwise resiliency projects. It also could establish an alternative fund in the event that proceeds derived from RGGI auctions significantly decline in the future. Additionally, Regional Resilience Authorities modeled after Maryland's or the existing regional transportation districts should be adopted.

❖ **Enhance Research, Data Collection, and Information**

Gateways EXAMPLE
ADAPTVA [From VA]

BACKGROUND & PROPOSAL
Research, data collection and information sharing are vital to the success of a state climate resilience program. Without these items, the critical decision making that is necessary to adapt cannot be made. ADAPTVA - short for Adapt Virginia - is an information gateway on climate

change adaptation for individuals, local governments, and state agencies. ADAPTVA integrates best available science, law and policy guidance, and planning strategies. Visitors will find short and long-term sea level predictive curves and maps, flood mapping and decision-support tools, legal and policy resources, and stories that explain adaption through maps and pictures. The ADAPTVA tool is viewed as a pillar in the climate resilience sector and every jurisdiction should strive to ensure such a tool is available to decision makers as well as the public. It is developed via a partnership between the Center for Coastal Resources Management at the Virginia Institute of Marine Science, William & Mary Public Policy Program, Wetlands Watch and the Virginia Coastal Policy Center at William & Mary Law School.

GAPS IDENTIFIED & RECOMMENDATIONS

- **Maryland:** Marylanders would benefit from a comprehensive web-based tool to explain the impacts of flooding and other risks associated with climate change. Such tools should be made relevant to individual Marylanders and going well beyond generalized information about certain aspects of climate change (e.g., sea level rise). Merely compiling sea level rise or flood zone maps into a single web page is not adequate to help the public or local officials prepare for impacts that are already occurring and will worsen in the coming years and decades.

- **Pennsylvania:** The Susquehanna River Basin Commission includes the following objectives in its latest Comprehensive Plan:
    - Expand use of climate project information;
    - Improve community flood warning and response; and
    - Enhance local flood risk assessment.

  However, the plan lacks additional detail, including how this information would be publicized.

- **Virginia:** Consistent funding is necessary for research and data collection concerning climate change impacts. Some funding is provided to the Commonwealth Center for Recurrent Flooding Resiliency, but more is needed. Additionally, while ADAPTVA is viewed as a successful tool, it is not funded by the state and lacks a secured funding source for long-term updates. Annual updates to the data and mapping tool are necessary. This is estimated to cost $100,000 per year.

SECOND-TIER RECOMMENDATIONS

❖ **Apply C-PACE to Resiliency**

BACKGROUND & PROPOSAL

The Commercial Property Assessed Clean Energy (C-PACE) model is an innovative mechanism for financing energy efficiency and renewable energy improvements on private property. C-PACE programs allow a property owner to finance the up-front cost of energy or other eligible improvements on a property and then pay the costs back over time through a voluntary assessment. The unique characteristic of C-PACE assessments is that the assessment is attached to the property rather than an individual. Having seen success in energy efficiency and

renewable energy projects, in 2019 Virginia expanded C-PACE eligibility to resiliency projects and stormwater management projects, and in 2020 the General Assembly authorized a statewide C-PACE Program. The recent extension of this financing model to resiliency allows a property owner to implement improvements without a large up-front cash payment.

GAPS IDENTIFIED & RECOMMENDATIONS

- **Maryland:** Maryland has an active C-PACE program, but not one applicable to resilience projects. The General Assembly should consider starting with legislation that would require state agencies and local governments (e.g., DGS, MDE, DNR, MEA, MEMA, MACO, MML) to form a work group to investigate policy options and report back to the MGA. In particular, the work group needs to develop recommendations regarding how to incentivize participation, including ways to monetize the savings associated with a project's reduced flood risk.

- **Pennsylvania:** SB 635 (Yudichak) would expand the program to include "resiliency improvement." The bill has been reported from the Senate Community, Economic and Recreational Development Committee and is on First Consideration in the Senate.

- **Virginia:** Virginia has adopted a C-PACER program. A workgroup convened by the Virginia PACE Authority is currently developing the 'definition' for resiliency for the program. Legislative changes may be necessary as a part of this process.

❖ **Maintain Riparian Buffers in Developed Areas**

BACKGROUND & PROPOSAL

The Chesapeake Bay Partnership must turn the tide in the long-failed effort to ensure a greater amount of streamside and coastal waterfront areas that can support tree canopy. All member states have programs that ensure riparian buffers are maintained, but via a patchwork of programs. As part of its stormwater permit requirement for construction activities, Pennsylvania requires the use of a riparian buffer, or BMPs that provide benefits equivalent to a riparian buffer (temperature, nutrient retention, etc.), for activities within 100 feet of a special protection body of water. No waivers are allowed.

GAPS IDENTIFIED & RECOMMENDATIONS

- **Maryland:** Like Pennsylvania, Maryland's Clean Water Act Construction Stormwater General Permit has a "Stream Protection Zone" (SPZ) concept that could be strengthened where forested buffers are present. Specifically, the General Assembly could prohibit the waiver of the SPZ or restrict the ability to waive it and select the alternative compliance options. This would help mitigate the water quality risks of developing near waterways while also protecting private property from future damage. In addition, University of Maryland School of Law reported in 2016 that the Critical Area Law was failing due to too much discretion to local governments in granting variances and the failure of local jurisdictions to enforce the law. An update

could require identification of areas most susceptible to flooding within the Critical Areas and strengthening of protections in those areas, including potentially reducing the discretion to grant waivers or variances that would allow more development and, consequently, cause more potential for flooding of other properties and runoff pollution in those particularly sensitive areas.

- **Virginia:** Virginia could adopt the "Stream Protection Zone" concept that Pennsylvania and Maryland have implemented in order to mitigate the water quality risks of developing near waterways. The Commonwealth's only requirements for riparian buffer protection are currently limited to 100' along perennial water bodies in the coastal zone imposed via the Chesapeake Bay Preservation Act, unless a locality voluntarily adopts such a program or elects to adopt a wider buffer. Adopting a 'Streamside Protection Zone" requirement as a part of the Construction General permit process would implement such measures statewide on development sites over an acre.

❖ **Plan for Sea Level Rise, Recurrent Flooding and Marsh Migration**

BACKGROUND & PROPOSAL

Virginia currently requires localities in Tidewater Virginia to incorporate guidance from the Virginia Institute of Marine Science to foster the sustainability of shoreline resources and that localities in the Hampton Roads Planning District Commission incorporate strategies to combat sea-level rise and recurrent flooding into their comprehensive plans. This allows the most vulnerable communities to prepare in a long-term manner for the impacts of climate change.

GAPS IDENTIFIED & RECOMMENDATIONS

- **Maryland:** Maryland requires jurisdictions develop and implement long-term comprehensive land-use plans with certain state-defined requirements. These requirements should be reviewed to ensure the planning process and implementation adequately address climate resiliency concerns.

- **Pennsylvania:** The Flood Plain Management Act (Act 166 of 1978) requires all municipalities with federally-designated areas subject to flooding to participate in the National Flood Insurance Program and have a floodplain management plan. This requirement is in addition to other municipal planning requirements for stormwater (Act 167 of 1978) and wastewater (Act 537 of 1966). While integrated plans that combine these requirements are not prohibited, there are no formal provisions to facilitate them, either. The Municipal Assistance Program provides funding for floodplain management planning, in addition to other community planning, with an emphasis on inter-governmental approaches. However, other water-related planning is not included in the scope of the program. Planning assistance programs should be expanded or coordinated to support "one water" planning efforts and formal legislation, regulations or other guidance should be provided to facilitate these efforts at the local level and improve coordination among the state agencies with jurisdiction over these activities, such as DEP, PEMA and DCED. Legislation to provide for

integrated water resources planning was last introduced in 2013 as SB 287 (Erickson).

- **Virginia:** Virginia's current law only requires localities within the Hampton Roads Planning District Commission to include strategies to address sea-level rise within their Comprehensive Plans. This should be expanded to require all localities within the coastal zone to adopt strategies for all sources of flooding within their comprehensive plans. This provision could be drafted to optionally allow localities Commonwealth-wide to adopt such strategies.

❖ Disclose Flood Risk in Real Estate Transactions

BACKGROUND

In the United States, there is no federal requirement for home sellers to disclose information about a property's flood risk or previous flood damage to prospective home buyers. As a result, it can be very difficult for homebuyers to learn about a property's flood history. As climate change fuels sea level rise and more extreme weather, the need for greater transparency of flood risks will become only more imperative. States should adopt comprehensive flood hazard disclosure requirements for real estate transactions that provide home buyers the right to know whether a home has ever flooded, and if so, how many times and National Flood Insurance Program/Federal Emergency Management Agency payments; whether the home is located within a designated floodplain; and whether flood insurance is required on the property.

GAPS IDENTIFIED & RECOMMENDATIONS

- **Maryland:** Maryland law does not require disclosure of flood risk or history, only location within a designated flood zone. Continued efforts to increase transparency of flooding history and insurance claims should be undertaken.

- **Pennsylvania:** Pennsylvania requires the seller to disclose any past or present flooding or "water leakage" that they are "aware of." However, there is no database to capture a history that a seller might not be aware of. Continued efforts to increase transparency should be undertaken.

- **Virginia:** Virginia has made significant progress, but has not achieved complete transparency in this realm, despite numerous efforts. Effective January 1, 2022, Virginia will require the owner of residential real property who has actual knowledge that the dwelling unit is a repetitive risk loss structure to disclose these facts to the purchaser. For purposes of this section, "repetitive risk loss" means that two or more claims of more than $1,000 were paid by the National Flood Insurance Program within any rolling 10-year period, since 1978. Continued efforts to increase transparency should be undertaken.

PART II: Additional Recommendations for New or Strengthened Laws or Programs

HIGHER VALUE ACTIONS

❖ **Proactive Incorporation of Precipitation Data into Stormwater Management Regulation**

- The federal National Oceanic and Atmospheric Administration's "Atlas 14" database of precipitation intensity, duration, and frequency (IDF) that is relied upon in most regulatory contexts is rarely updated, uses historic data, and is based on the principle of ***stationarity*** – that the climate does not change. While a four-state partnership between Delaware, Maryland, North Carolina and Virginia has been formed to fund the process of updating the region's Atlas 14 data, this data will not be ready until 2023. To address this lag, jurisdictions could:

- (1) evaluate whether actual intensity-duration-frequency data has exceeded projected amounts from the latest update to the Atlas 14 database at most or all weather stations in the region and, if so, recommend an adjustment factor for permitting/regulatory purposes (the City of Virginia Beach has recently done this and the Chesapeake Bay Program-commissioned report on future climate-focused IDF projects recommends this); and

- (2) if no current plans exist to update Atlas 14, then the responsible state agency could be required to submit a plan for funding another update, to ensure that the State never goes more than a decade without new data being incorporated into stormwater regulations.

❖ **Saltwater Intrusion / Marsh Protection and Expansion**

- Maryland's Department of Planning has developed a state plan to address saltwater intrusion, but no policy exists to implement the plan. Virginia has not developed such a plan, but has provided for the creation of public access authorities to receive donations of vulnerable properties, which could include both flood prone properties and farm properties subject to saltwater intrusion. Legislation could be introduced that establishes a program for buyouts of farmland afflicted by saltwater intrusion in order to convert those to saltwater marshes that buffer against storm surge and sea level rise. Farms are being abandoned, creating an opportunity not only to help these farmers get ahead of the problem, but to turn landscapes that leach substantial amounts of nutrients directly into the Bay into nutrient sinks (wetlands).

❖ **Nontidal Wetlands and Floodplain Protection**

- The Chesapeake Bay partnership is far behind in our commitment to restore wetlands. While some states have no net loss goals or policies, there is not a standard across the

watershed that ensures long-term enhancements as the result of development impacts. The loss of natural wetlands, especially higher value ones, could, and should, result in the creation of more than what is lost from a particular development activity to account for the fact that the most valuable wetland is often the natural one that is well adapted to the local environment. A study could be conducted to determine the proper net improvement offsets or other protections to make sure the significant risks and costs incurred from natural wetland loss are mitigated by our state policies.

❖ **State Resiliency Guidelines for Capital Projects**

- Maryland has adopted the Coast Smart Construction Program and Virginia has an Executive Order detailing how state building construction projects must meet standards to protect public investments. In Pennsylvania, PennDOT is currently reviewing the impact of changing weather patterns and rainfall intensities on existing structures and design standards. DCNR has also developed a plan for adaptation and mitigation on its state park and state forest lands, but there is no overarching plan or guidance across Commonwealth agencies. Ultimately, such requirements need to be expanded to private, and not just public, development projects in vulnerable areas. The Commission could develop a common ground solution for the jurisdictions.

❖ **Impervious Surface Restoration requirements in MS4 Permits**

- Maryland Municipal Separate Storm Sewer System (MS4) permits required under the Clean Water Act currently contain a requirement to reduce the impacts of impervious surfaces. These impervious surfaces are a growing contributor to flooding due to climate change and increased rainfall amounts and intensity. Legislation could accelerate this mitigation by requiring that a specified percentage of developed lands without modern stormwater Best Management Practices be restored via quantity-control for flood mitigation over a 5-year (or some defined) time-period. Legislative options for providing funding for these efforts could also be explored. By slowly increasing the infiltration capacity of urban landscapes over the next several decades, the states can prepare their cities for the future climate.

MODERATE VALUE ACTIONS

❖ **Continued strengthening of Tree Conservation requirements**

- **Maryland:** The Maryland General Assembly plans to take up the Forest Conservation Act ("FCA") in 2022 or 2023, potentially pending the findings of ongoing studies, but conserving forests is important to ensure our urban and suburban landscapes are adapted to all the effects of climate change. The FCA has failed to stem forest loss, as recently confirmed by CBP/USGS land cover imagery analysis. Legislation could strengthen the FCA, mirroring the state's nontidal wetlands no-

net-loss policy, and place even more strict requirements on clearing of forests that are of particular high hydrological value.

- **Pennsylvania:** The most recent version of the PA Forest Action Plan, released by DCNR in 2020, identifies increased urbanization and parcelization of private forests as a threat, but recognizes that a network of Commonwealth agencies, Penn State Extension, industry groups and non-profits industry groups are providing financial and technical assistance resources to landowners to prevent and mitigate forest loss, and that emerging carbon markets might provide additional support. The report acknowledges that a regulatory approach is needed if land use trends continue.

- **Virginia:** A tree conservation workgroup is currently developing proposals to enhance our existing tree canopy and tree conservation sections in the Code of Virginia that would allow more flexibility for localities throughout the Commonwealth.

❖ **Alignment of Federal funding mechanisms**

- There are a variety of federal initiatives that can be aligned with state efforts for resilience. For example, Maryland's Coast Smart Communities Program combines federal Coastal Zone Management Act ("CZMA") and Clean Water Act § 319 nonpoint source program grants, and state grant funds to produce more holistic, community-level, and scaled- up investments that combine coastal with inland resilience projects to maximize protection against the four types of flooding associated with future climate conditions. This idea has the potential to be replicated in the Commission's member states and scaled up with more state funds and some additional financial leverage. Legislation could direct the Coastal Zone Management programs to make recommendations about how these communities and areas could be designated and how the state could then leverage funds to maximize synergies in project implementation. Additional programs with funds that could be leveraged include Readiness and Environmental Protection Integration (including Sentinel Landscapes), Building Resilient Infrastructure and Communities, and Hazard Mitigation Assistance.

❖ **Healthy Soils**

- Healthy soils not only sequester carbon, but retain large amounts of rainfall before it can result in stormwater, flooding, and soil erosion. While Virginia has a Soil Health Coalition and a Carbon Sequestration Taskforce, Maryland has adopted a Healthy Soils Program into Code with the purpose of improving the health, yield, and profitability of the soils of the state; increasing biological activity and carbon sequestration; and promoting widespread use of healthy soils practices. The program is to provide incentives including research, education, technical assistance and financial assistance. A $1 million grant was made by the Maryland Department of Agriculture in 2020, but there is no ongoing state funding. Legislation in all states could increase both awareness and funding.

❖ **Study on flash flood trends**

- While the public has access to considerable data on storm surge, hurricane exposure, sea level rise, nuisance flooding, and FEMA flood zones for riverine and coastal flooding, the data on flash flooding risk and damage is mostly in private sector hands and based on proprietary methodology. The states have a knowledge gap on this issue at the moment as the flash flooding in all member states have shown. The creation of a work group to study flash flood risks and develop a database or tool could greatly benefit the public and local governments facing these challenges. The work group could report on historic and projected flash flood events, and describe what those events mean for human health, property damage, and pollutant loading. The report should identify priority areas where harms are disproportionately likely to occur and identify solutions, including legislative recommendations. Funding for a private consultant may be necessary in conjunction with such a study. For example, Pew Research Center commissioned a report by the consultancy ICF that documented the large number of Maryland State Highway Administration reported road closures due to flooding that occurred outside of designated flood zones. Similar analyses could broaden the understanding of flash flood risks statewide.

LOWER VALUE ACTIONS

❖ **Duty to consider climate change when making Clean Water Act permitting decisions**

- A court in Washington State recently interpreted the state's permitting authority to include the duty to consider climate change when making water permitting decisions. Affirmatively declaring this duty in state statutes could provide clarity to permittees and provide the opportunity to make any such climate language more protective. Virginia has taken a first step by requiring local governments subject to the Chesapeake Bay Preservation Act to consider climate change impacts on Resource Protection Areas over time.

❖ **Bay Acidification Task Force, Study, and Action Plan**

- Maryland has convened a taskforce to focus on coastal aquatic vegetative plantings, which helps neutralize the impact of acidification locally. A broader study could be requested legislatively to study the broader saltwater intrusion / marsh protection and expansion concept. At a smaller scale, legislation could provide funds for pilot-scale SAV plantings in localized areas, in consultation with the experts that produced the Task Force Action Plan.

❖ **State Wildlife Action Plans**

- These plans are supposed to be re-written every ten years in each state (if the state

wants to remain eligible for certain federal funds). Clearly, the public has another decade of data and knowledge about the impacts of climate change on the natural environment each time the plan is re-written. The requirements for the plan could compel the authors to present legislative recommendations based on recent climatic changes and the latest projections for the coming decade. Separately, key recommendations could be codified including compelling implementation of key activities that will make ecosystems more resilient.

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