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ConserveVirginia: Building Flood Resilience through State Land Conservation

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Georgetown Climate Center's Adaptation Policy in Practice series spotlights the nation's most effective state-level climate adaptation initiatives, presenting practical analysis for leaders building comprehensive adaptation programs. Each brief examines not just what works, but how it works: the legislative foundations, funding mechanisms, community engagement strategies, and replication frameworks that transform successful state innovations into actionable blueprints.

Overview

Few states have attempted to design a policy system to identify the unprotected lands that matter most for reducing climate impacts to people and communities, and then direct conservation dollars there. The opportunity is real and largely untapped. Instead, most state land conservation programs are organized around a narrow set of traditional values: farmland, wildlife habitat, scenic landscapes, and cultural heritage. Each of these priorities is reflected in separate land acquisition or protection programs, each with their own institutional champions. The result is a conservation infrastructure that is well developed but not specifically designed to address flood risk.

Virginia's ConserveVirginia is one example of a holistic system that combines data-driven mapping, integrated planning processes, and clear funding priorities to address flood risk along with other more familiar land conservation challenges. Launched in 2019 and codified into state law in 2021, ConserveVirginia encompasses both a GIS-based priority mapping tool and a statutory framework that requires state agencies to incorporate the map into land conservation and flood resilience grant decisions. The map identifies approximately 7.8 million acres of high-value conservation lands across seven categories, one of which is explicitly dedicated to Floodplains and Flooding Resilience. Drawing on historic flooding records, sea level rise projections, and wetland mapping, it identifies 537,995 acres of unprotected Virginia land whose conservation would reduce flood risk across the state.

The program's strength is in how Virginia couples comprehensive geographic data with resilience policy and funding decisions. State law requires that the map is incorporated into the review criteria for grants, connects it institutionally to the state's Chief Resilience Officer, and mandates that funded conservation projects incorporate category-specific standards to protect the conservation values the map identifies. The result is a complete implementation chain: the map identifies the priority, grants fund the acquisition, and deed restrictions lock in the conservation protections.

For other states looking to build conservation programs that deliver measurable climate resilience improvements alongside traditional conservation values, ConserveVirginia offers a replicable template built on an integrated approach to existing maps and data.

Background

Flooding is Virginia's most persistent and damaging natural hazard. About 2.3 million acres of the state, roughly 9 percent of Virginia's total land area, fall within federally mapped Special Flood Hazard Areas, and 292 of Virginia's 323 communities participate in the National Flood Insurance Program.¹ The state faces flooding from various sources: riverine flooding, recurrent tidal flooding driven by sea level rise, and increasingly severe rainfall events in every part of the state.

Over the past decade alone, Virginia has absorbed repeated hurricane-driven flood disasters across every region of the state. Hurricane Helene devastated Southwest Virginia in 2024. Hurricane Michael caused roughly \$12.9 million in damages in 2018. Hurricane Matthew flooded more than 2,000 homes in 2016, many of them outside the mapped floodplain.²

These disasters are unfolding against a backdrop of sustained population growth that is pushing development deeper into flood-prone areas. For the second consecutive year, more people

Connecting mapping tools & policy solutions

ConserveVirginia mapping tools determine which land parcels are best suited for conservation



Grant programs incorporate ConserveVirginia into competitive scoring that helps prioritize funding for these parcels



Deed restrictions ensure the land stays under conservation protections now and in the future

¹ *Floodplains*, VA Dep't of Conservation and Recreation, <https://www.dcr.virginia.gov/dam-safety-and-floodplains/floodplain-index>.

² *Virginia Flood Awareness*, VA Dep't of Conservation and Recreation, <https://www.dcr.virginia.gov/dam-safety-and-floodplains/floodawareness>.

moved into Virginia than left, and the gap between arrivals and departures more than doubled between 2024 and 2025.³ The Richmond Metro Area, which is characterized by major river corridors and expanding suburban and exurban development, recorded its greatest influx of new residents in history, and the four fastest-growing counties in the state this decade are all in or adjacent to the Richmond region.⁴

Virginia's Coastal Resilience Master Plan projects that the number of residents living in homes exposed to major coastal flooding will grow from approximately 360,000 to 943,000, an increase of 160 percent, as sea levels rise and development continues in vulnerable coastal areas.⁵ Each new building built in a flood-prone area converts permeable land to impervious surface, adds to the state's risk exposure, and puts more people and more property in danger of storms and floods.

By contrast, undeveloped floodplains and wetlands absorb and store floodwater, slow runoff, and reduce damage to developed areas downstream. One acre of wetland can store roughly one million gallons of water during a flood event.⁶ A 2024 synthesis of more than 300 peer-reviewed studies, developed by the Institute for Defense Analyses for the White House Office of Science and Technology Policy, found strong to very strong evidence that wetland and floodplain conservation reduces flood risk, and concluded that conserving existing natural ecosystems is among the most cost-effective methods for achieving immediate and long-lasting flood resilience.⁷ When that land is converted to impervious surfaces, the community loses that protection permanently and inherits new risk.

Virginia has permanently protected more than 4.33 million acres, about 17 percent of its total land area.⁸ That is a substantial conservation achievement built over decades through the Land Preservation Tax Credit, the Virginia Land Conservation Foundation, and partnerships with land trusts and federal programs.

³ Dwayne Yancey, *New census stats show number of people moving into Virginia now 2.5 times the number moving out*, Cardinal News (Jan. 28, 2026)

<https://cardinalnews.org/2026/01/28/new-census-stats-show-number-of-people-moving-into-virginia-now-2-5-times-the-number-moving-out/>.

⁴ Hamilton Lombard, *Amid slow population growth, Virginia's demographic landscape is being transformed*, Weldon Cooper Ctr. for Public Service, U. of VA (Jan. 29, 2024)

<https://www.coopercenter.org/research/amid-slow-population-growth-virginias-demographic-landscape-being-transformed>.

⁵ *Virginia Coastal Resilience Master Plan*, VA Dep't of Conservation and Recreation (Dec. 2021)

<https://www.dcr.virginia.gov/crmp/plan>.

⁶ *ConserveVirginia: Virginia's Land Conservation Strategy, Version 3.0*, VA Dep't of Conservation and Recreation (Oct. 2021) (revised Apr. 2022)

<https://www.dcr.virginia.gov/conservevirginia/conservevirginia-official-v3.pdf>.

⁷ Douglas J. Mason et al., *Nature-Based Solutions: Evidence for Hazard Risk Reduction and Ecosystem Services*, Institute for Defense Analyses, Science and Technology Policy Institute,

<https://www.ida.org/-/media/feature/publications/n/na/nature-based-solutions-evidence-for-hazard-risk-reduction-and-ecosystem-services/3003750.ashx>.

⁸ *Department of Conservation and Recreation's Virginia Conservation Lands Database*, VA Dep't of Conservation and Recreation, (data as of June 2025) <https://www.dcr.virginia.gov/natural-heritage/clinfo>.

However, Virginia's conservation investments, like their counterparts at the federal level, have historically been organized around preservation of farmland, wildlife habitat, and historic sites. Prior to 2018, land conservation was not a significant part of Virginia's flood-risk management strategy.

Smart growth advocates have long argued that managing where development happens is as important as managing how it happens. Smart Growth America has documented ways that sprawl pushes development into wetlands, forests, and floodplains, where more people are placed in harm's way as communities spread further into hazard zones. Keeping flood-prone land undeveloped is not just a conservation goal, it is a smart growth goal.⁹

Land conservation and development restriction are two sides of the same decision. By implementing a system for identifying which lands matter most for flood protection, a state can increase the likelihood that conservation dollars will reach the parcels where they would do the most to keep communities safe and slow development in risky areas. In Virginia, the same system that identifies which lands most warrant protection also identifies where future development would generate significant new flood risk. That information can work in both directions. Steering development away from high-risk floodplains toward safer areas with existing infrastructure is not just a resilience strategy. It is also a more efficient and sustainable approach to accommodating growth, concentrating new development where roads, utilities, and services already exist rather than extending them into areas that will require repeated flood recovery.

Federal conservation programs and their limitations

Federal programs provide significant funding for land conservation, but none were designed primarily to help states target conservation for flood resilience or climate adaptation.

The Land and Water Conservation Fund (LWCF), established by Congress in 1964, is the largest federal investment in conservation. LWCF channels revenues from offshore oil and gas leases into land acquisition for parks, recreation areas, and open space at every level of government. The Great American Outdoors Act of 2020 permanently funded LWCF at \$900 million annually.¹⁰ LWCF has been an important land conservation tool for Virginia and every other state, but by statute, its focus is on protecting natural areas for recreation and the conservation of natural resources, not on reducing flood risk to communities.

⁹ Joseph Mendonca, *An expanding bull's-eye: How sprawl puts people in natural hazard zones and how smart growth can help*, Smart Growth America (Oct. 2, 2025) <https://www.smartgrowthamerica.org/knowledge-hub/news/an-expanding-bulls-eye-how-sprawl-puts-people-in-natural-hazard-zones-and-how-smart-growth-can-help/>.

¹⁰ Great American Outdoors Act, Pub. L. No. 116-152 (2020).

Other federal conservation programs target various other conservation outcomes. The Forest Legacy Program protects working forests. The Agricultural Conservation Easement Program focuses on keeping farmland in production and restoring wetlands on agricultural land primarily for wildlife habitat.

Federal disaster programs can also fund flood-related land acquisition, but they operate differently than conservation programs. FEMA's Hazard Mitigation Grant Program and Flood Mitigation Assistance program can fund buyouts of flood-damaged or flood-prone developed properties. HUD's Community Development Block Grant Disaster Recovery program has funded large-scale buyouts following major flood disasters. These programs have moved significant money and protected real communities. But they acquire developed properties after damage has occurred, not undeveloped land before it is built. Communities must absorb damage before they can access funds, and the land acquired is typically already compromised by repeated flooding rather than conserved to prevent it.

The lands protected by federal programs are valuable. Farmland preservation keeps working landscapes in production. Forest Legacy protects timber resources and watershed function. Wetland easements on agricultural land support waterfowl and water quality. Disaster buyouts remove families from repeatedly flooded homes. Each of these purposes has measurable value to the environment, the economy, and communities. However, the lands targeted by these programs are not the same parcels that public agencies would prioritize if their goal were to reduce flood risk to communities. A farm enrolled in an agricultural easement program may or may not sit upstream of a flood-prone neighborhood. A forest protected under Legacy may or may not buffer a watershed with a history of damaging floods. The overlap exists, but it is incidental, not designed.

To use land conservation as a flood resilience strategy, state governments will have to take a different approach. That starts with mapping the specific lands whose conservation would reduce flood exposure to people and property, and then building a system that moves those lands up the priority list for acquisition and protection. Currently, no existing federal program fills that gap.

The opportunity for state leadership

States are positioned to mobilize land conservation as a climate resilience strategy in ways the federal government is not. First is flexibility. Because states, by and large, fund and administer their own land conservation programs, they can set the criteria that determine which projects and priorities receive funding.

States can also coordinate decision making across state agencies and programs that the federal government treats as separate: emergency management, environmental protection, land conservation, water resources, forestry, and coastal management.

Finally, states can link conservation decisions to their own resilience planning, including consultation with state resilience officers and integration with hazard mitigation and coastal master plans.

While states are increasingly recognizing the importance of conserving land for the express purpose of addressing flood risk, most of them treat flood risk strategy as separate and distinct from other land-conservation priorities.

A 2022 study by the Urban Institute, commissioned by the State Resilience Partnership, surveyed 148 state-level plans addressing flooding across all 50 states and found that most states lack a comprehensive or strategic approach to flood planning. Flood risk is typically addressed across multiple disconnected plan types rather than through an integrated strategy.¹¹

Several states have begun building this capacity. Washington State's Floodplains by Design program funds multi-benefit floodplain restoration projects that integrate flood hazard reduction with ecological preservation.¹² Iowa's Watershed Approach coordinated flood mitigation across watershed boundaries in nine watersheds across the state.¹³ Virginia's Community Flood Preparedness Fund, which has distributed more than \$200 million to over 218 projects across five funding rounds, awards its highest scores to land acquisition projects that create natural buffers and keep development out of high-risk areas.¹⁴ None of these programs start with a statewide map of which specific lands matter most for flood resilience. Without that prior step, even well-designed programs fund good projects when and where opportunities happen to arise rather than proactively prioritizing the places where they would do the most good.

Program design and implementation

Origins: From acreage goals to conservation outcomes

Virginia's approach to land conservation had been evolving in the 20 years before ConserveVirginia was created in 2019.

The Virginia Land Conservation Incentives Act of 1999 established the Land Preservation Tax Credit (LPTC), which became the primary engine of private land conservation in the state. The tax credit offered landowners a credit equal to 50 percent (later reduced to 40 percent) of the fair

¹¹ Eric Burnstein & Amy Rogin, *State Flood Resilience and Adaptation Planning: Challenges and Opportunities*, Urban Institute (Mar. 8, 2022)

<https://www.urban.org/research/publication/state-flood-resilience-and-adaptation-planning-challenges-and-opportunities>.

¹² *Floodplains by Design*, WA State Dep't of Ecology,

<https://ecology.wa.gov/water-shorelines/shoreline-coastal-management/hazards/floods-floodplain-planning/floodplains-by-design>.

¹³ *Iowa Watershed Approach*, IA Flood Ctr. Iowa Flood Center,

<https://iowafloodcenter.uiowa.edu/services/iowa-watershed-approach>.

¹⁴ Joshua Saks, *Virginia's Community Flood Preparedness Fund*, Georgetown Climate Center Issue Brief, (July 31, 2025)

<https://www.georgetownclimate.org/articles/issuebrief-virginia-community-flood-preparedness-fund.html>.

market value of land donated to state conservation agencies or placed under permanent conservation easements. Virginia was one of only five states to make these credits transferable, allowing landowners who cannot use the full value of their credit to sell the unused portion to other taxpayers.¹⁵ The uncommonly generous and flexible terms of the program measurably accelerated conservation in Virginia. Since 2000, the Land Preservation Tax Credit has led to the permanent protection of more than one million acres.¹⁶

In 2006, Governor Tim Kaine set a goal of conserving 400,000 acres during his term, ultimately protecting 424,000 acres using the LPTC and other existing initiatives.¹⁷ Governor Terry McAuliffe shifted away from acreage targets, launching Virginia Treasures in 2015. The Treasures initiative set a goal of identifying and protecting 1,000 conservation sites rather than tracking total acres conserved. Trails, wetlands, and small parcels with ecological value or that improved public access for outdoor opportunities, all counted toward the goal.¹⁸

When Governor Ralph Northam took office in 2018, the limitations of acreage-based goals had become clear. Hitting a number did not guarantee that the lands with the highest conservation value were being conserved. A push to accumulate acres could lead to protecting land that was easy to acquire instead of land that delivered the greatest conservation benefits. Rather than setting a number target, the Northam administration asked a different question: “How could the state ensure that its conservation investments produced the best conservation outcomes?”

Building ConserveVirginia

In April 2018, Governor Ralph Northam called for a new approach to Virginia's land conservation efforts. In an address to land advocates that month, he said, "I believe that we need a land conservation strategy that is focused and targeted toward making measurable progress on our natural resource goals...Through this data-driven process, we will prioritize the most important targeted lands and direct limited resources toward those conservation projects that provide the greatest benefit in the most cost-effective manner."¹⁹

The Department of Conservation and Recreation (DCR) quickly began the work of developing a methodology to implement the governor's directive to find a data-driven way to identify conservation lands across the Commonwealth. DCR started by connecting with 15 state and

¹⁵ Va. Code Ann. § 58.1-512 (1999) <https://law.lis.virginia.gov/vacode/title58.1/chapter3/section58.1-512/>.

¹⁶ Cindy Sabato, *Virginia's Land Preservation Tax Credit hits a milestone*, Piedmont Environmental Council, (June 16, 2023) <https://www.pecva.org/land-conservation/virginias-land-preservation-tax-credit-hits-a-milestone/>.

¹⁷ Va. State Sen. Emmett W. Hanger, Jr. *Announces 1 Million Acres Conserved Since Virginia's Land Preservation Tax Credit Went Into Effect*, Land Trust Alliance (Apr. 26, 2023) <https://landtrustalliance.org/newsroom/press-releases/sen-emmett-w-hanger-jr-announces-1-million-acres-conserved-since-virginia-s-land-preservation-tax-credit-went-into-effect>.

¹⁸ *Virginia Treasures*, VA Dep't of Conservation and Recreation, <https://www.dcr.virginia.gov/virginia-treasures>.

¹⁹ *ConserveVirginia: Virginia's Land Conservation Strategy, Version 3.0*, VA Dep't of Conservation and Recreation (Oct. 2021) (revised Apr. 2022), <https://www.dcr.virginia.gov/conservevirginia/conservevirginia-official-v3.pdf>.

federal agencies and organizations that administered existing mapping datasets. They also consulted with 25 private land trusts working in Virginia.

The Secretary of Natural Resources played a key role in the development. In addition to overseeing the DCR, the Secretary at that time also served as Chief Resilience Officer (CRO) of the Commonwealth under Executive Order 24,²⁰ issued in November 2018, and as chair of the Virginia Land Conservation Foundation Board of Trustees under Virginia Code.²¹ This meant the official tasked with developing ConserveVirginia was also responsible for coordinating the state's pre-disaster mitigation strategy and chaired the Commonwealth's Land Conservation Foundation, responsible for Land Conservation grants.²²

The process began by identifying what conservation values mattered most to Virginians, then finding or building the data to map them. For the Agriculture and Forestry

Natural Habitat, and Ecosystem Diversity categories, existing datasets were available and refined to identify the highest-priority lands. For others, including Floodplains and Flooding Resilience, Cultural and Historic Preservation, Scenic Preservation, Protected Landscapes Resilience, and Water Quality Improvement, DCR engaged with other state agencies and with stakeholders to develop new methodologies and datasets over the course of nearly a year.

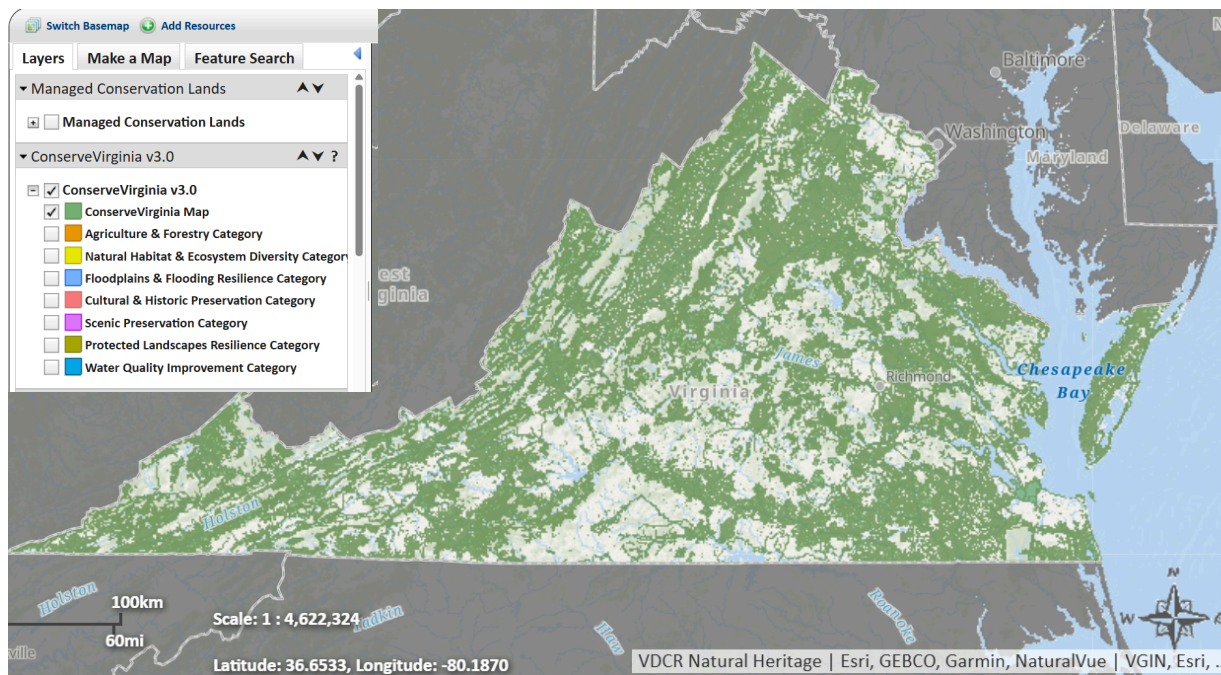
Those data-sets were then cross-referenced against priority maps provided by 14 land trusts and against regional conservation projects including the Department of Environmental Quality's Coastal Virginia Ecological Value Assessment and the Chesapeake Conservation Partnership's watershed-wide maps.²³

²⁰ Executive Order 24, issued November 2018, established the CRO as a function of the Secretary of Natural Resources. The position was subsequently codified in statute by HB 1313 (2020) at Va. Code Ann. § 2.2-220.5. In 2024, the General Assembly passed HB 1458/SB 733, elevating the CRO to a standalone position under the Governor and establishing the Office of Commonwealth Resilience; Va. Code Ann. § 2.2-435.13 (2024), <https://law.lis.virginia.gov/vacode/title2.2/chapter2/section2.2-220.5/>.

²¹ Va. Code Ann. § 10.1-1018(B).

²² Virginia Department of Conservation and Recreation, ConserveVirginia: Virginia's Land Conservation Strategy, Version 3.0, October 2021 (revised April 2022), <https://www.dcr.virginia.gov/conservevirginia/conservevirginia-official-v3.pdf>.

²³ *Ibid.*

Figure 1: ConserveVirginia Mapping Tool

The above image is a screenshot of the ConserveVirginia interactive map. Green areas indicate areas covered by ConserveVirginia. <https://vanhde.org/content/map>. April 2026.

Between the Governor's announcement in 2018 and codification in 2021, ConserveVirginia was already being put to use. The VLCF FY2020 grant manual, adopted in June 2019, incorporated the map into its scoring criteria. Land trusts, local governments, and state agencies began using it to identify and justify conservation priorities. DCR staff administered it across two full grant cycles. By the time the legislature acted, the tool had been tested against real projects across Virginia's varied landscapes.

That track record made codification straightforward. The General Assembly was not authorizing an experiment; it was putting into law a tested program that already worked. The 2021 legislation locked in what the administration had built, requiring DCR to maintain and regularly update the model, mandating consultation with the Chief Resilience Officer before each revision, and directing that ConserveVirginia be incorporated into acquisition and grant decisions. Those requirements gave the program long-term durability.

Legislative codification

ConserveVirginia was signed into Virginia law in 2021.²⁴ The legislation includes several provisions that lay the foundation for the ConserveVirginia map's role as an adaptation tool.

The Virginia Department of Conservation and Recreation (DCR), is required by statute, to keep and maintain the GIS model across all seven conservation value categories. Regular consultation with the Chief Resilience Officer of the Commonwealth and a set of designated natural resource and environmental agencies is required before each update, creating a direct link between the conservation mapping tool and the state's climate resilience infrastructure.

The law also requires biennial review and revision of the ConserveVirginia model incorporating best available science, new development and other considerations. The process incorporates public review and comment.

Most importantly, the law directs DCR to "incorporate ConserveVirginia into acquisition or grant decisions when appropriate." The phrase "when appropriate" leaves room for discretion, but the statute does not do work in isolation. The VLCF grant manual, for example, assigns specific point values to projects based on their overlap with ConserveVirginia layers. A project either scores those points or it does not. DCR staff then review every funded project's conservation deed against category-specific requirements before classifying it as a ConserveVirginia success. The scoring criteria and deed review are where the connection between the priorities embodied in the mapping tools and on-the-ground land conservation is made real.

ConserveVirginia was designed and implemented using existing legal authority. Virginia's existing land conservation and flood protection grant programs were created with enough flexibility for scoring criteria to be adjusted without legislative action. By establishing ConserveVirginia in state law, the program's permanence was assured and map updates, public engagement and other good-governance requirements were established in law.

The seven categories

ConserveVirginia's central feature is a "smart map" that identifies approximately 7.8 million acres of priority conservation lands. The map synthesizes 24 geospatial datasets from 15 state and federal agencies and organizations, including FEMA flood disaster records, coastal resilience models from the Virginia Institute of Marine Science, and wetland mapping from DCR.

²⁴ Va. Code Ann. § 10.1-104.6:1 (2021, amended 2024), <https://law.lis.virginia.gov/vacode/title10.1/chapter1/section10.1-104.6:1/>.

Those datasets divided into seven categories, each representing a distinct conservation value:²⁵

1. Agriculture and Forestry
2. Natural Habitat and Ecosystem Diversity
3. Floodplains and Flooding Resilience
4. Cultural and Historic Preservation
5. Scenic Preservation
6. Protected Landscapes Resilience
7. Water Quality Improvement

The categories span a range of conventional conservation priorities, from farmland preservation and scenic beauty to wildlife habitat and cultural heritage. Several categories carry some adaptation relevance. For example, the Natural Habitat and Ecosystem Diversity category incorporates the Nature Conservancy's Resilient and Connected Landscapes data on climate-resilient sites and species movement corridors.²⁶

However, the Floodplains and Flooding Resilience category, which is explicitly linked to addressing flood risk to people and communities, is the most direct expression of ConserveVirginia's adaptation value.

Floodplains and Flooding Resilience Category

The Floodplains and Flooding Resilience category identifies 537,995 acres of priority conservation lands whose protection could reduce flood risk to Virginia communities. The category is composed of three sub-models, each targeting a different source of flood hazard.²⁷

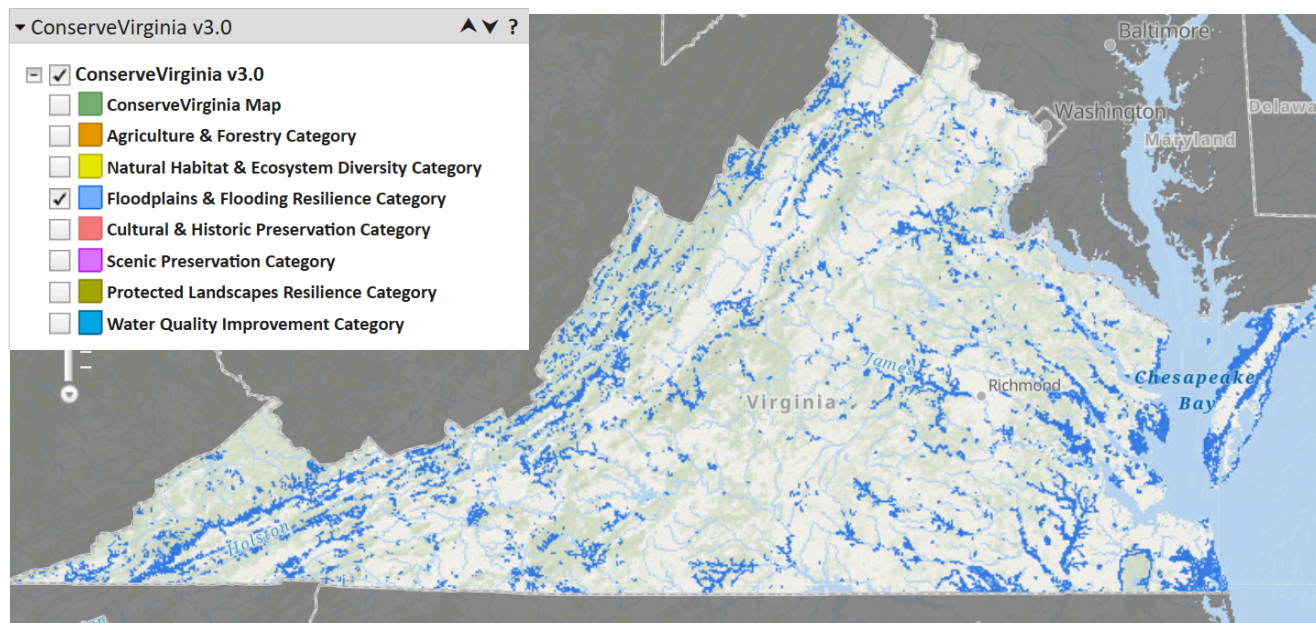
The Statewide Wetlands sub-model draws on DCR's ConservationVision Virginia Wetlands Catalog, which includes mapped and predicted wetlands, streams, and floodplains. These are prioritized by water quality, natural land networks, ecosystem services, and biodiversity, with the two highest priority classes included.

The Coastal Flooding sub-model uses Virginia Institute of Marine Science (VIMS) and Nature Conservancy coastal ecological resilience models to identify coastal wetlands with above-average and far-above-average resilience values based on a projected sea level rise of six feet. It also identifies the highest-class estuarine and freshwater areas with the greatest marsh migration potential to adjacent natural lands. This component targets upland areas adjacent to existing coastal wetlands where conservation would allow those wetlands to migrate inland as sea levels rise, preserving their long-term flood protection function.

²⁵ *ConserveVirginia: Virginia's Land Conservation Strategy, Version 3.0*, VA Dep't of Conservation and Recreation (Oct. 2021) (revised Apr. 2022)
<https://www.dcr.virginia.gov/conservevirginia/conservevirginia-official-v3.pdf>.

²⁶ *Ibid.*

²⁷ *ConserveVirginia: Virginia's Land Conservation Strategy, Version 3.0*, VA Dep't of Conservation and Recreation (Oct. 2021) (revised Apr. 2022)
<https://www.dcr.virginia.gov/conservevirginia/conservevirginia-official-v3.pdf>.

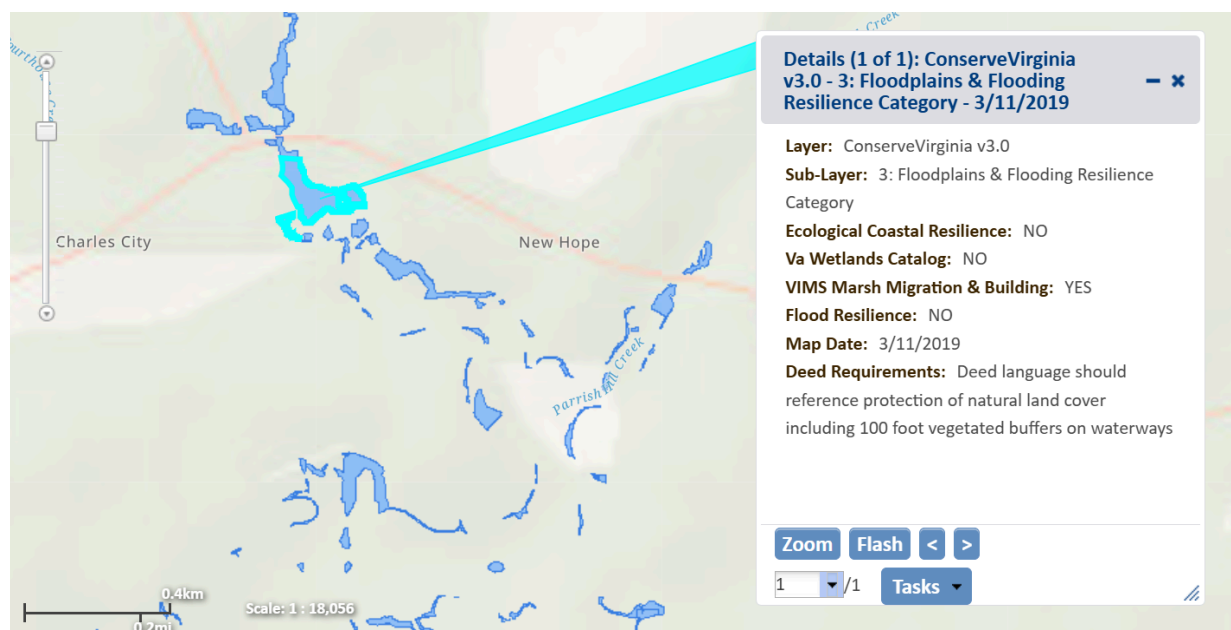
Figure 2: Floodplain Mapping with ConserveVirginia

The above image shows the ConserveVirginia map with the Floodplains & Flooding Resilience Category activated. <https://vanhde.org/content/map>. April 2026.

The Riverine Flooding sub-model maps undeveloped forest and agricultural lands upstream of the ten worst historical flooding disasters in Virginia, identified by jurisdictional risk, dollar losses, and federal disaster declarations using data from the Commonwealth of Virginia Hazard Mitigation Plan. This sub-model targets the lands that, if developed, would worsen flooding in communities with documented histories of severe flood damage.

Together, these create a comprehensive picture of where conservation could deliver the flood protection from Virginia's varied flood sources, from inland river corridors to coastal wetlands and marshes.

Figure 3: Exploring Floodplain & Flooding Resilience in more detail



Users can zoom in and select parcels to view data related to projects that may intersect the represented category. Blue highlighted areas represent ConserveVirginia lands in the Floodplains & Flooding Resilience Category. <https://vanhde.org/content/map>. April 2026.

How ConserveVirginia gets used: From map to money to legal protection

Identifying priority lands is only valuable if it informs how conservation decisions get made. ConserveVirginia's design connects the map to funding, and funding to enforceable legal protections. Virginia incorporates ConserveVirginia into at least three grant programs.

Virginia Land Conservation Foundation Grants

The Virginia Land Conservation Foundation grants, established in 1999 and administered by DCR, provide up to 50 percent of land conservation total project costs, and up to 100 percent for state agencies and Virginia Indian Tribes.²⁸

ConserveVirginia is integrated directly into VLCF scoring. In each grant category, projects receive 10 to 20 points out of 100 based on the percentage of the property that overlaps with the relevant ConserveVirginia layer. In addition, across all categories, projects receive 2 points for each additional ConserveVirginia category the property falls within, up to 12 points.²⁹ This

²⁸ *FY26 Grant Manual*, Virginia Land Conservation Foundation (June 3, 2025), <https://www.dcr.virginia.gov/land-conservation/document/fy2026-vlcf-grant-manual.pdf>.

²⁹ *Ibid.*

rewards properties that serve multiple conservation values simultaneously, including floodplain resilience.

The VLCF grant manual states that "the scoring criteria give precedence to projects that are within ConserveVirginia, as those lands are identified as conservation priorities by our state agency partners and other collaborators."³⁰

Community Flood Preparedness Fund

Virginia's Community Flood Preparedness Fund is a state grant and loan program administered by DCR that provides funding to local governments to reduce the impacts of flooding through land acquisition, nature-based solutions, planning, and community-scale infrastructure projects.

Established by the Clean Energy and Community Flood Preparedness Act in 2020, the fund has distributed more than \$200 million to over 218 projects over five funding rounds.³¹ The CFPF awards maximum points (30 out of 100) to land acquisition projects that create natural buffers and keep development out of high-risk areas. Nature-based solutions such as wetland restoration and living shorelines receive 25 points out of 100.³²

ConserveVirginia's Floodplains and Flooding Resilience layer identifies priority lands for exactly these kinds of acquisitions, functioning as a targeting tool that helps communities identify which lands to acquire or conserve with CFPF dollars.

Virginia Coastal Zone Management Program Land Acquisition Grants

The Virginia Coastal Zone Management Program, administered by the Virginia Department of Environmental Quality (DEQ), coordinates the Commonwealth's participation in the federal coastal zone management system and deploys annual grant funding from NOAA for coastal conservation, resilience, and planning activities. Under Section 306A of the Coastal Zone Management Act, those funds can be used for acquisition land, purchase of conservation easements, and habitat restoration projects, with a dollar-for-dollar non-federal match required. Virginia sets aside a portion of its annual Section 306A allocation for land acquisition.³³

³⁰ *FY26 Grant Manual*, Virginia Land Conservation Foundation (June 3, 2025), <https://www.dcr.virginia.gov/land-conservation/document/fy2026-vlcf-grant-manual.pdf>.

³¹ Joshua Saks, *Virginia's Community Flood Preparedness Fund*, Georgetown Climate Center Issue Brief (July 31, 2025), <https://www.georgetownclimate.org/articles/issuebrief-virginia-community-flood-preparedness-fund.html>.

³² *2024 Funding Manual for the Virginia Community Flood Preparedness Fund, Round 5*, VA Dep't of Conservation and Recreation, Appendix D (2024), <https://www.dcr.virginia.gov/dam-safety-and-floodplains/document/Round-5-CFPF-Manual.pdf>; *Land Acquisition*, VA Dep't of Environmental Quality, CZM <https://www.deq.virginia.gov/water/coastal-zone-management/coastal-conservation/land-acquisition>.

³³ *Virginia Coastal Management Program Assessment and Strategy: FY2026 to FY2030*, VA Coastal Zone Management Program (Feb. 10, 2026) at 50, 58, <https://www.deq.virginia.gov/home/showpublisheddocument/35551/639112491457200000>.

Virginia's Coastal Resilience Master Plan Phase One, published in December 2021, also identifies permanent conservation of undeveloped lands within ConserveVirginia's Floodplains and Flooding Resilience layer as a recognized project type.³⁴

Deed criteria

ConserveVirginia does not just identify priority lands and score grant applications. It ensures that when lands are conserved, the protections match the conservation values the map identified. The adaptation value is not aspirational. It is locked in through binding deed language that restricts future use in ways designed to maintain the land's flood protection function.

The final step in implementation is ensuring the conserved land achieves its intended conservation purposes after the purchase is complete or a conservation easement is in place. DCR staff review all VLCF-funded projects to assess whether deeds adequately protect the specific conservation values identified by ConserveVirginia. When newly protected lands intersect a ConserveVirginia category, DCR staff assess each deed against category-specific guidance. Projects that meet that guidance are classified as a ConserveVirginia “success” and the parcels involved are re-classified from potential conservation lands to as “conserved” lands on future maps.

The deed requirements for the Floodplains and Flooding Resilience category are amongst the most stringent of any category. For all VLCF-funded projects intersecting this layer, deeds must require 100-foot vegetated riparian (streamside) buffers (compared to a 35-foot minimum for most other categories), full exclusion of livestock from buffers, impervious surface limited to 1 percent of the property, no new buildings, structures, roads, or impervious surfaces within buffers or wetlands, existing structures maintained but not enlarged, prohibitions on dumping and soil disturbance in buffers and wetlands, and mowing limited to three times per calendar year. The Water Quality Improvement category carries the same requirements.³⁵

Governance

ConserveVirginia is administered by the Department of Conservation and Recreation. The law requires biennial review and revision of the ConserveVirginia model, with public hearings and public comment, and directs DCR to continue developing ways to incorporate environmental justice across all conservation values.³⁶ This mandated update cycle ensures the map evolves

³⁴ *Virginia Coastal Resilience Master Plan, Appendix G: Project and Capacity Building and Planning Needs Schema and Suitability Matrix*, VA Dep't of Conservation and Recreation (Dec. 2, 2021), <https://www.dcr.virginia.gov/crmp/document/Appendix-G-Project-and-Capacity-Building-and-Planning-Needs-Schema-Suitability-Matrix.pdf>.

³⁵ *ConserveVirginia Deed Review Criteria*, VA Dep't of Conservation and Recreation (last updated Nov. 16, 2021), <https://www.dcr.virginia.gov/land-conservation/document/conservevirginia-deed-review-criteria.pdf>; *FY26 Grant Manual*, VA Land Conservation Foundation (adopted June 3, 2025), <https://www.dcr.virginia.gov/land-conservation/document/fy2026-vlcf-grant-manual.pdf>.

³⁶ Va. Code Ann. § 10.1-104.6:1(C) (2024), <https://law.lis.virginia.gov/vacode/title10.1/chapter1/section10.1-104.6:1/>.

as new data becomes available, flood patterns change, and development pressures shift. Version 3.0 was released in October 2021 and revised in April 2022.³⁷

Program impact and outcomes

The ConserveVirginia map's Floodplains and Flooding Resilience layer shapes both how Virginia's conservation grant programs allocate funds and how the state's flood resilience programs identify which lands to protect. Three state grant programs have integrated ConserveVirginia into how they identify, fund, and protect land: the Community Flood Preparedness Fund, the Virginia Land Conservation Foundation, and the Virginia Coastal Zone Management Program.

Community Flood Preparedness Fund

Since the program's first funding round in 2021, the CFPF grant manual has explicitly listed "permanent conservation of undeveloped lands identified as having flood resilience value by ConserveVirginia Floodplain and Flooding Resilience layer" as a named eligible project category. Localities applying for land acquisition or conservation funding can earn competitive grant scoring points by demonstrating that the land they intend to protect falls within the ConserveVirginia priority map. Beginning in Round 4, it became a standalone 25-point line item in the grant scoring rubric, separately scored from other nature-based project categories.

In practice, however, few applicants have scored points against this criterion. DCR's review of application data from Rounds 4 and 5 found no projects other than Mayo Island that scored points for including ConserveVirginia, suggesting the criterion functions more as an available pathway than a commonly used one.

Yet while not widely used yet, this can be a powerful tool. The City of Richmond's acquisition of Mayo Island is an example of this. Mayo Island is a 14.5-acre privately owned island in the James River, located entirely within FEMA's Regulatory Floodway Zone AE. The island has been subject to repeated flooding dating to the 18th century.

In April 2022, Richmond applied to the CFPF for \$9.2 million to acquire the island, place it under a conservation easement held by the Capital Region Land Conservancy, remove impervious surfaces, restore riparian buffers, and incorporate the island into the James River Park System. The conservation of Mayo Island will ensure this high flood risk area is not developed.

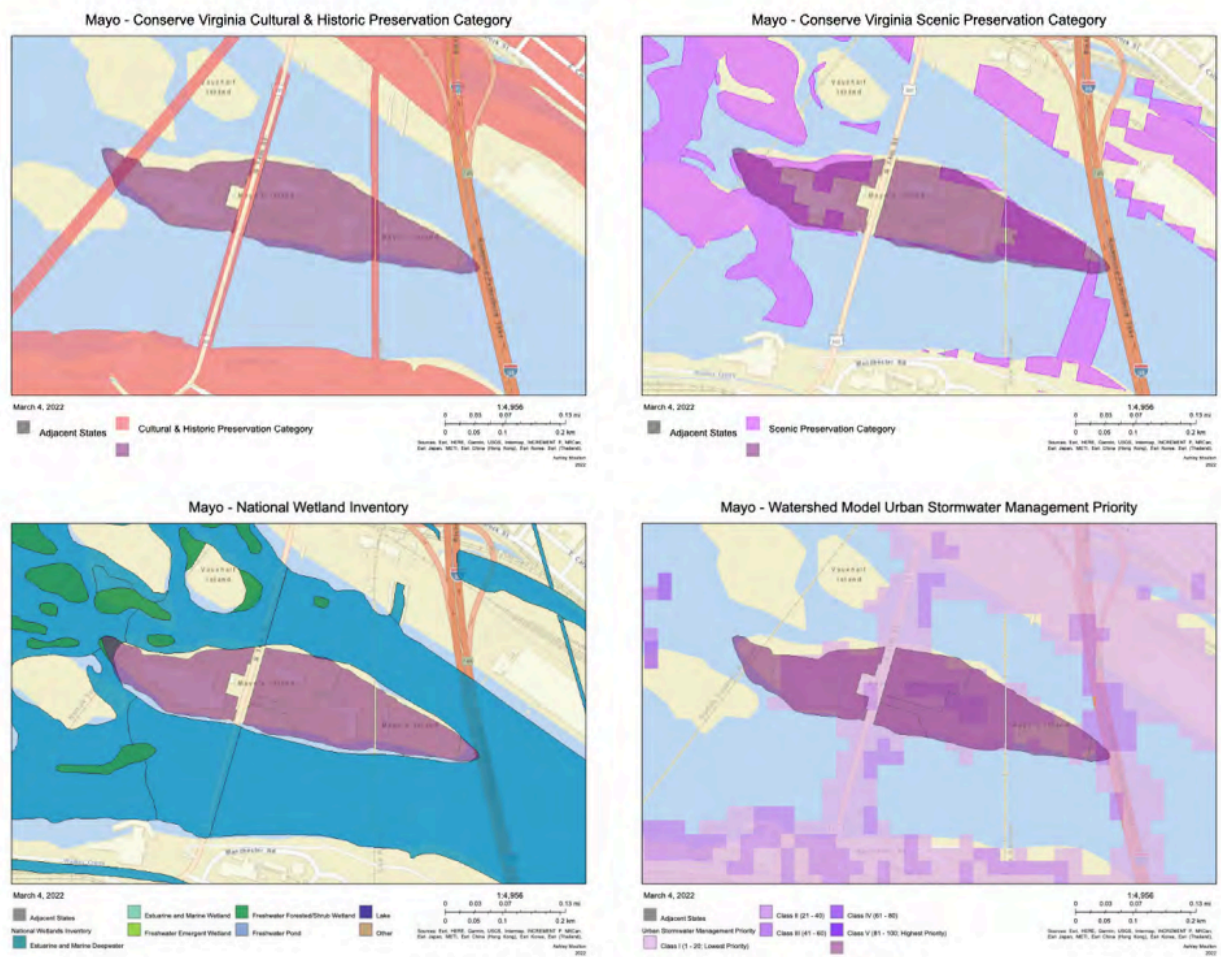
The application checked the ConserveVirginia Floodplains and Flooding Resilience layer as a qualifying criterion on the official DCR scoring form. Because the project is located in a low-income geographic area, it also scored as High Social Vulnerability on the AdaptVA Social Vulnerability Index, a Virginia-specific coastal adaptation tool developed through a partnership

³⁷ *ConserveVirginia: Virginia's Land Conservation Strategy, Version 3.0*, VA Dep't of Conservation and Recreation (Oct. 2021) (revised Apr. 2022)

<https://www.dcr.virginia.gov/conservevirginia/conservevirginia-official-v3.pdf>

led by the Virginia Institute of Marine Science.³⁸ DCR awarded \$7.5 million in Round 3, announced September 2022, out of a total project cost of \$11.5 million.³⁹

Figure 5: ConserveVirginia Category comparison maps for Mayo Island



Maps generated through the ConserveVirginia tool were used in an application by the City of Richmond for a Community Flood Preparedness Fund grant in 2022.⁴⁰

³⁸ *Adapt Virginia*, VA Inst. of Marine Sciences, Center for Coastal Resources Management, https://www.vims.edu/ccrm/research/climate_change/adaptation/adaptva/.

³⁹ *Virginia Land Conservation Foundation*, VA Dep't of Conservation and Recreation, <https://www.dcr.virginia.gov/virginia-land-conservation-foundation/>.

⁴⁰ City of Richmond Application to The Community Flood Preparedness Fund. <https://www.dcr.virginia.gov/dam-safety-and-floodplains/document/cfpf/App-MayoIslandacquisition.pdf>. April 2022.

Virginia Land Conservation Foundation Grants

Since ConserveVirginia launched in 2019, DCR has awarded 58 VLCF grants to projects intersecting the Floodplains and Flooding Resilience layer across six funding rounds. Those projects cover a combined 73,130 acres, of which 10,805 acres fall within the layer itself. Of the 58 projects, 49 agreed to the deed protection criteria that qualify them as ConserveVirginia successes, meaning their conservation restrictions are specifically designed to maintain flood protection function.⁴¹

Across all seven ConserveVirginia categories, 345,659 acres of VLCF-funded conservation have intersected the map since 2019, encompassing 1,479 easements and 333 fee-simple acquisitions. Of that total, 99,767 acres, about 29 percent, meet the full deed criteria to qualify as ConserveVirginia successes. DCR has identified closing that gap as a program priority.⁴²

The Round Hill Swamp at Doles Farm project in Southampton County illustrates how the Floodplains and Flooding Resilience layer shapes VLCF outcomes. The Virginia Department of Forestry received a \$225,000 VLCF grant to acquire an open-space easement over a 707-acre farm that includes more than 500 acres of forestland, 150 acres of farmland, and 137 acres of blackwater swamp containing Cypress-Tupelo forests. The easement requires 100-foot riparian buffers along 3.2 miles of streams draining directly into the Blackwater River. The project intersects the Agriculture, Natural Habitat and Ecosystem Diversity, Floodplains and Flooding Resilience, and Water Quality Improvement layers of ConserveVirginia.⁴³ It is exactly the kind of multi-value parcel the scoring system is designed to surface: land that serves water quality, habitat, flood resilience, and working forest values simultaneously.

Virginia Coastal Zone Management Program Land Acquisition Grants

Virginia's Coastal Zone Management Program uses a separate prioritization tool, the Coastal Virginia Ecological Value Assessment (VEVA), to score land acquisition proposals. VEVA draws on several of the same underlying geospatial datasets as ConserveVirginia, including DCR's Conservation Sites and Natural Landscape Assessment data, but the two tools operate

⁴¹ *VLCF Projects in ConserveVirginia Floodplains and Flooding Resilience Layer*, VA Dep't of Conservation and Recreation (data provided to Georgetown Climate Center by DCR staff, March 2025).

⁴² *Id.*, data on total ConserveVirginia acreage, deed review successes, and program priorities provided directly by DCR staff in response to written inquiry.

⁴³ *Board of Trustees Meeting*, VA Land Conservation Foundation (Nov. 13, 2023), <https://www.dcr.virginia.gov/land-conservation/document/vlcf-meeting-11-13-23.pdf>.

independently.⁴⁴ Virginia CZM has not to date formally incorporated ConserveVirginia into its grant scoring process.⁴⁵

The FY2026-2030 Coastal Needs Assessment, a federally required five-year planning document that Virginia must submit to NOAA under Section 309 of the Coastal Zone Management Act,⁴⁶ identified the Floodplains and Flooding Resilience and Water Quality Improvement categories as potentially relevant to future coastal conservation priorities. The reference reflects DCR's interest in exploring greater alignment between ConserveVirginia and Virginia's coastal land acquisition programs, rather than describing current practice. Virginia CZM staff have indicated that formal integration of ConserveVirginia into grant scoring decisions has not occurred, but that proposals regularly reference the map to demonstrate alignment with state conservation priorities.⁴⁷

What makes ConserveVirginia distinct

Most states that invest in land conservation do so through programs organized around a single value: farmland, wildlife habitat, open space, or scenic landscapes. A state might have a farmland preservation program, a wetlands program, and a historic preservation program, each with its own criteria, funding source, and responsible agency or department.

ConserveVirginia takes a fundamentally different approach. Rather than mapping a single conservation value, it connects the map to flood resilience programs and state planning in a single integrated system.

Accountability

The Conserve Virginia authorizing statute requires DCR to review and revise the methodology for each conservation value no less than once every two years, with public hearings and public comment, and directs DCR to consult regularly with the Chief Resilience Officer of the Commonwealth and a set of designated state agencies before each revision.⁴⁸ Environmental justice considerations must be incorporated into every update across all seven categories.

⁴⁴ VA Dep't of Environmental Quality, correspondence with Georgetown Climate Center (March 2025) (description of VEVA methodology and relationship to ConserveVirginia provided directly by Virginia CZM program staff in response to written inquiry).

⁴⁵ VA Dep't of Environmental Quality, correspondence with Georgetown Climate Center (March 2025) (characterization of current ConserveVirginia integration into CZM grant scoring provided directly by Virginia CZM program staff).

⁴⁶ 16 U.S.C. § 1456b; *Coastal Needs Assessment and Enhancement Strategies*, VA Dep't of Environmental Quality, <https://www.deq.virginia.gov/our-programs/coastal-zone-management/strategic-planning-and-funding/coastal-needs-assessment-and-strategies>.

⁴⁷ *Virginia Coastal Management Program Assessment and Strategy: FY2026 to FY2030*, VA Coastal Zone Management Program (Feb. 10, 2026) <https://www.deq.virginia.gov/home/showpublisheddocument/35551/639112491457200000>.

⁴⁸ Va. Code Ann. § 10.1-104.6:1 (2021), <https://law.lis.virginia.gov/vacode/title10.1/chapter1/section10.1-104.6:1/>.

This update mandate gives ConserveVirginia a built-in mechanism for incorporating new science, responding to changing flood patterns, and adjusting to new development pressures. Version 3.0 was released in October 2021 and revised in April 2022.⁴⁹ As sea level rise accelerates along Virginia's coast and riverine flood patterns shift inland, the map will shift with them.

Map implementation

Many states have conservation prioritization maps. Fewer have connected those maps to binding consequences for how conservation dollars are spent. ConserveVirginia does both.

The statute's mandate that DCR "shall incorporate ConserveVirginia into acquisition or grant decisions when appropriate" gave the map legal authority over the VLCF grant program.

For VLCF-funded projects, DCR staff review every conservation deed submitted for ConserveVirginia consideration against category-specific requirements. The map identifies the priority. The grant funds the acquisition. The deed locks in the protection. That chain, from data to dollars to legal restriction, is what distinguishes ConserveVirginia from a planning exercise.

State government connectivity

The statute's requirement that DCR consult with the Chief Resilience Officer of the Commonwealth before each update creates another link to the Virginia Coastal Resilience Master Plan. By mandating that ConserveVirginia be informed by that office, the statute ensures that the state's conservation priorities are aligned with its resilience planning.

The state's Coastal Resilience Master Plan also explicitly identifies conservation of lands within ConserveVirginia's Floodplains and Flooding Resilience layer as a grant-eligible project type within Virginia's statewide coastal resilience strategy. ConserveVirginia's Floodplains and Flooding Resilience layer functions as a tool that communities can use to identify which lands they might seek to conserve with CFPF dollars.

Lessons for other states

ConserveVirginia took years to build into its current form: from the Governor's announcement in 2018 through codification in 2021 to the ongoing work of Version 4.0. But its architecture is replicable. The following recommendations draw on Virginia's experience.

⁴⁹ *ConserveVirginia: Virginia's Land Conservation Strategy, Version 3.0*, VA Dep't of Conservation and Recreation (Oct. 2021) (revised Apr. 2022)
<https://www.dcr.virginia.gov/conservevirginia/conservevirginia-official-v3.pdf>.

1. Build conservation maps that explicitly include adaptation and resilience as mapped values

Most state conservation programs score projects against traditional conservation values: farmland, wildlife habitat, open space, scenic beauty. Flood resilience is rarely a scored criterion. States that want to use land conservation as an adaptation strategy need to make that value visible in their mapping and scoring systems. That means identifying which unprotected lands would reduce flood risk to communities, or stop development of flood-prone areas. The point is to make resilience a measurable, mappable criterion, not a consideration that gets weighed informally at the margins.

2. Build from existing data

A statewide conservation priority map does not require building new data infrastructure from the ground up. States building similar tools should begin with an inventory of existing agency data. FEMA Hazard Mitigation Plans contain flood disaster histories and loss data organized by community and dollar impact. NOAA and state coastal management programs hold coastal resilience and wetland mapping. State emergency management agencies track repetitive loss areas and flood insurance claim histories. Land trusts often maintain their own priority maps that can be cross-referenced against state priorities. Starting with existing data reduces cost, builds on validated science, and accelerates the path from concept to usable tool. It also creates institutional buy-in from the agencies whose data is incorporated, since those agencies become stakeholders in the map's credibility and continued use.

3. Codify the mapping tool in statute with mandated update cycles

A conservation priority map published by an agency and updated at the agency's discretion is subject to administrative turnover, budget pressure, and political interference. Codifying the tool in statute addresses all three. A statutory mandate survives changes in administration, as Virginia demonstrated when ConserveVirginia continued operating across gubernatorial transitions. Required public hearings and comment periods build legitimacy and create a durable constituency among land trusts, local governments, and conservation partners who have a formal stake in how priorities are set. And statutory requirements for agency consultation, like Virginia's requirement that DCR coordinate with the Chief Resilience Officer before each update, keep the map connected to broader resilience planning.

4. Connect the map to grant program scoring and require standards that enforce what the map identifies

The value of a land-use priority map as a strategic adaptation tool is directly proportional to its connection with real funding decisions. States can assign explicit score weights in conservation grant programs to projects that fall within mapped priority areas, and they should ensure that the conservation deeds for funded projects actually protect the values a map identifies.

Conclusion

Land conservation has always evolved in response to public needs. The conservation initiatives of the early twentieth century were focused on protecting wild places from industrial exploitation. The Endangered Species Act redefined conservation as a tool for protecting species from extinction. The Clean Water Act made riparian buffers and wetlands a strategy for managing water quality. Each new need or problem has added a new rationale to the conservation toolkit.

Climate adaptation is a newer addition. The recognition that undeveloped land absorbs floodwater, that coastal wetlands buffer communities from storm surge, that keeping development out of floodplains is cheaper than repeatedly recovering from flood damage. These are not new ideas, but they have not historically been integrated into how states decide which land to conserve. ConserveVirginia is a systematic attempt to make that integration. By mapping flood resilience alongside farmland, wildlife habitat, and scenic beauty, and by connecting that map to grant criteria and deed restrictions, Virginia created a mechanism for ensuring that conservation investment benefits adaptation goals.

No state has solved the problem of conserving the right lands at the scale climate change demands. Virginia is working on it. Since the program launched, 58 VLCF grants intersecting the Floodplains and Flooding Resilience layer have protected 73,130 acres, with the overwhelming majority of those projects committing to the deed restrictions that lock in flood protection function. That is meaningful progress. But it represents a fraction of the 537,995 acres the map identifies as priorities to improve flood resilience statewide. ConserveVirginia's long term impact will ultimately depend on how much land within that priority zone gets permanently protected.

About this series

This brief is part of the Georgetown Climate Center's *Adaptation Policy in Practice* series.

It was authored by Joshua Saks, Adaptation Program Director for the Georgetown Climate Center. Saks previously served as the Deputy Secretary of Natural Resources for Virginia, where he was instrumental in building Virginia's Community Flood Preparedness Fund.

As climate-driven disasters grow more frequent and severe, states are stepping up to protect their communities through innovative adaptation programs that deliver measurable results. This series spotlights some of the most effective state-level climate adaptation initiatives.

Each brief examines not just what works, but how it works: the legislative foundations, funding mechanisms, community engagement strategies, and replication frameworks that transform successful state innovations into actionable blueprints. Drawing on Georgetown Climate Center's 16 years of experience working directly with state governments on climate adaptation policy, the series delivers practical analysis for leaders building comprehensive adaptation programs.

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