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Report to the Governor and the General Assembly of Virginia

Virginia's Agricultural Cost-Share Program to Improve Water Quality

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COMMISSION DRAFT

JLARC
JOINT LEGISLATIVE AUDIT AND REVIEW COMMISSION

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WHAT WE FOUND

VACS program has grown substantially, paying for producers to implement agricultural practices that reduce pollution

The General Assembly has substantially increased VACS funding for agricultural best management practice (BMP) implementation over the last few years. VACS funding has exceeded $200 million in each of the last three years, increasing to more than $300 million in FY27. When adjusted for inflation, VACS BMP funding has increased over 300 percent since FY17, around when Virginia's current Chesapeake Bay Phase III Plan to reduce pollution was implemented.

The increased funding has led to higher program participation. During the last five years, the number of producers (i.e., farmers) participating in VACS has grown by more than 30 percent to nearly 2,600 in FY26 (table).

These producers have implemented an increasing number of agricultural BMPs, which are scientifically shown to reduce agricultural pollution into the state's waters, including the Chesapeake Bay. In FY26, producers implemented nearly 53,000 BMPs (such as cover crops or stream exclusion fencing for livestock)—an 80 percent increase during the last five years. Scientific research shows that nearly all (62 of 64) VACS BMPs reduce pollution to some degree. Once verified as properly implemented, these practices are credited with reducing nitrogen, phosphorus, and/or sediment in the Chesapeake Bay Program model.

WHY WE DID THIS STUDY

In 2025, the Joint Legislative Audit and Review Commission (JLARC) directed staff to review the Virginia Agricultural Best Management Practices Cost-Share (VACS) Program.

ABOUT VACS

Created in 1984, VACS provides financial incentives for agricultural producers to implement best management practices to reduce nonpoint source pollution in Virginia bodies of water. Agricultural lands are a significant source of nonpoint pollution. Nearly 30 percent of Virginia's total land area (about 7.2 million acres) is agricultural, and the nitrogen, phosphorus, and sediment pollution from agriculture can be especially harmful to the Chesapeake Bay and other bodies of water.

Number of producers participating in VACS and BMPs implemented through the program have increased

	FY22	FY23	FY24	FY25	FY26	% change
Producers	1,963	2,202	2,369	2,505	2,589	+32%
BMPs	29,302	35,417	41,307	48,494	52,711	+80%

SOURCE: JLARC analysis of VACS BMP implementation data (FY22–FY26).

NOTE: Data is based on BMPs that have been approved, completed, or carried over, but does not include BMPs that were proposed but not approved or cancelled. FY26 data is undergoing verification; numbers may change slightly when finalized.

VACS fully or substantially exhibits most characteristics of an effective incentive program but can be further improved

Assessing VACS against the characteristics of an effective incentive program shows that VACS is largely an effective program. VACS seeks to incentivize producers to use evidence-based practices, establishes eligibility criteria that align with the program's purpose, and uses a performance-based payment structure so recipients are paid only after demonstrating they have properly implemented the required BMP(s).

Although the program is largely effective, certain aspects of the program can be improved. For example, program funding amounts could be more consistent with the program's actual capacity, and several aspects of the program's design, implementation, and oversight should be improved.

VACS fully or substantially exhibits most characteristics of an effective incentive program

	VACS assessment score
Purpose & outcomes	
Purpose is appropriate, clearly defined, & understood	●
Program seeks to incentivize evidence-based practices	●
Program's activities contribute to desired or intended state objective	●
Funding levels & allocation	
Level of program funding consistent with program capacity	◕
Funds allocated across districts in an appropriate and targeted manner	●
Program design characteristics	
Recipient eligibility criteria align with program purpose	●
Eligible individuals are willing to participate in the program	◑
Rate structure is adequate to incentivize desired actions	◕
State & local priorities are cohesively and appropriately reflected in selection process	◑
Selection criteria facilitate cost-effective use of taxpayer funds	◕
Program implementation & oversight	
Recipient payment is based on actual performance	●
Project implementation is verified appropriately to ensure anticipated taxpayer value	◑
State adequately oversees district implementation of program	◕

LEGEND: Fully exhibits characteristic = ● Substantially exhibits = ◕ Partially exhibits = ◑ Somewhat exhibits = ◔ Does not exhibit = ○

SOURCE: JLARC staff analysis of government incentive program design elements and interviews with subject matter experts.

If VACS funding declines, prioritizing cost-effective VACS BMPs for awards will become increasingly important

High VACS funding in recent years has made project award prioritization less important. High funding levels allowed many districts (especially in the Chesapeake Bay watershed) to approve nearly all eligible BMP applications without needing to prioritize the most cost-effective applications.

If VACS funding decreases, though, it will be increasingly important for the state to optimize VACS spending on the most cost-effective BMPs (sidebar). Although Virginia has mechanisms designed to encourage the cost-effective use of VACS funds, the state does not currently have a list of the most cost-effective VACS BMPs. Developing and using this information to help districts prioritize projects can help ensure the state maximizes pollution reductions achieved with available VACS funding.

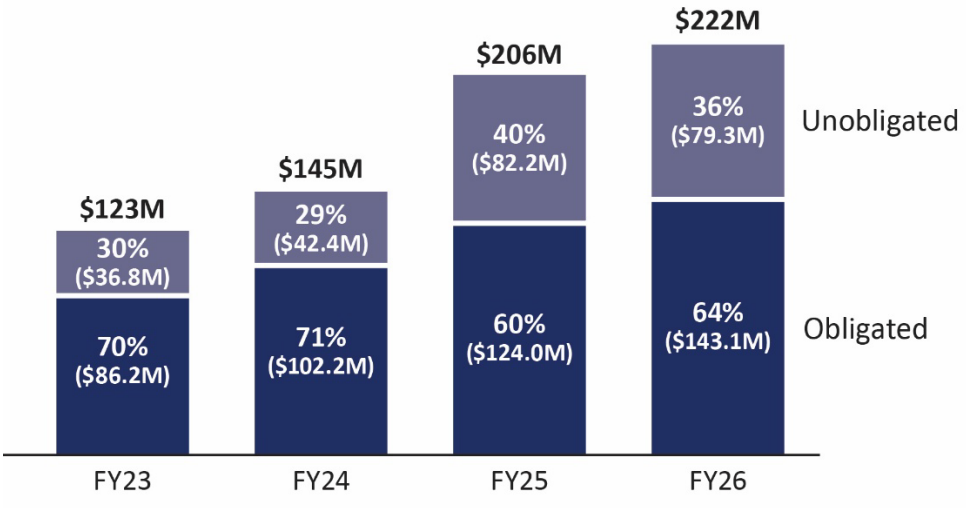
History has shown that pollution reduction goals and deadlines evolve over time. DCR estimates VACS may need less funding after Virginia meets its current Chesapeake Bay pollution reduction goals. At that point, the program will transition to maintaining annual BMPs and replacing multi-year BMPs as needed. However, VACS funding needs could change again because Virginia plans to set new Chesapeake Bay pollution reduction goals around 2030.

Funding needs assessments are largely appropriate, but implementation assumptions lead to unobligated funds

The state uses assessments to determine VACS funding needs, and both assessments rely on relevant and available data. The assessment to determine the distribution of funds across districts is especially useful because it is informed by a rigorous pollution evaluation that identifies parts of the state at "high," "medium," and "low" risk for nitrogen, phosphorus, and sediment pollution.

However, the assessment the state uses to estimate total VACS funding needs is optimistic about BMP implementation, which has led to a substantial amount of funds being appropriated but not obligated (figure).

Amount of unobligated VACS funding grew amid recent funding increase



SOURCE: JLARC staff analysis of DCR data on VACS funding allocations and obligations by district (FY23–FY26).

Actual producer implementation has been below the amount of BMPs the assessment assumes are needed by the end of FY27 to meet the state's 2028 Phase III Chesapeake Bay Watershed Implementation Plan deadline. These appropriated, but unobligated, funds could have been used for other state initiatives.

Districts and DCR conduct producer outreach, but analyzing local and state data could help reach nonparticipants

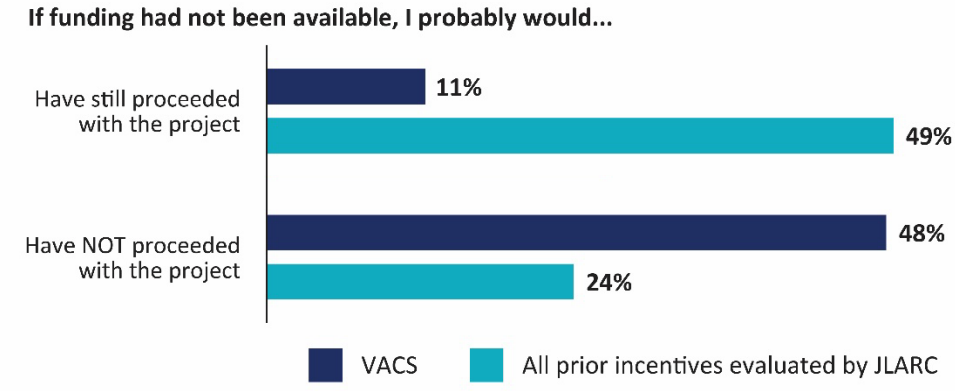
Outreach is essential to raising awareness of the VACS program and encouraging producer implementation. Without adequate producer participation, the state cannot meet its agricultural pollution reduction goals. Outreach efforts include marketing the program to producers, building rapport with them, and informing them of updates, such as changes in specifications and reimbursement rates.

A potentially substantial number of eligible Virginia producers do not participate in VACS, though the exact number and their willingness to participate are not known. Some stakeholders suggest that most interested producers already participate in the VACS program, but no systematic data analysis has been performed to validate this perception. Integrating local data with state environmental and agricultural datasets could help identify eligible nonparticipating producers and enable targeted outreach to expand program participation.

VACS program design is largely effective and reasonable

VACS aims to incentivize producers to implement BMPs by reimbursing them for a portion of the BMP implementation costs. VACS is relatively effective at incentivizing desired behavior compared with other incentive programs previously evaluated by JLARC (figure).

VACS influences behavior more than the average economic incentive



SOURCE: JLARC analysis of 2026 staff survey of Virginia producers and summary of prior evaluations of 16 economic incentives through JLARC ongoing economic development incentive oversight between 2023 and 2025.

The specific cost-share rates for each BMP seem to effectively incentivize producers to implement BMPs, with inadequate funding rarely cited as a reason for not participating. Furthermore, using higher cost-share rates for some BMPs seems to encourage producers to implement more desirable practices, such as longer-duration practices. This suggests that temporarily raising cost-share rates for the most cost-effective BMPs could further encourage producers to use these practices.

State priorities are too broad, and Whole Farm Approach seems effective but may be overly prioritized

Existing policies at the state level (five "priority considerations") and district level ("secondary considerations") do not result in a cohesive process that ensures the most cost-effective BMPs receive awards. In practice, the current process gives more weight to district priorities than state priorities and may not always prioritize the most cost-effective BMPs. Because state policies are too broad to effectively prioritize VACS applications, districts' secondary considerations become the main determinant of awards for districts that currently prioritize applications.

A relatively new VACS subprogram seems effective but may be overly prioritized by VACS's current funding allocation. Created in 2020, the Whole Farm Approach (WFA) VACS subprogram has expanded the number of producers and/or fields with cover crop and nutrient management BMPs, helping Virginia make progress toward its Chesapeake Bay Phase III goals. The majority (70 percent) of VACS BMPs implemented in FY26 were WFA BMPs which are funded from a separate allocation of VACS funds. This separate funding allocation has been helpful for some districts that expend all their non-WFA VACS funds. Because of this separate funding, though, WFA BMPs are not assessed against other BMPs to determine which are the most cost-effective at reducing pollution.

Process to verify producer compliance is generally effective, but inconsistent for cover crops

The process to verify producer compliance is generally effective. Before a producer can receive VACS funding, district staff must verify whether the BMP has been implemented according to relevant specifications. Many of these verifications require in-person inspections by district staff. A district may not authorize payment to a producer until staff have verified the implemented BMP meets all relevant specifications.

The cover crop BMP is one of the most common practices, but districts do not appear to consistently verify whether cover crops achieve sufficient soil coverage by early winter, as required. Cover crop BMPs are subject to three different verifications to ensure they meet state specifications and achieve their expected pollution reduction. However, districts use widely varying methods to verify cover crop coverage. Moreover, some cover crop BMPs that do not achieve 60 percent coverage are likely not being cancelled, according to multiple stakeholders. District staff may be reluctant to cancel awards when producers made a good faith effort to fulfill their obligations because the

producer would not be reimbursed for the materials and labor used to plant cover crops. If districts do not consistently and accurately identify whether cover crops reach adequate coverage, the pollution reductions recorded for those BMPs may be overestimated.

WHAT WE RECOMMEND

Legislative action

- Direct the development of a ranked list of the cost-effectiveness of agricultural BMPs, making the list available to districts to help inform award decisions.
- Direct the revision of the process to award funding to better ensure that the most cost-effective agricultural BMPs are consistently prioritized.

Executive action

- Implement a pilot program to identify potentially eligible producers, using the results to help recruit more producers to participate.
- Implement a pilot program to temporarily increase cost-share rates for the most cost-effective agricultural BMPs.
- Establish standardized methods and guidance for soil and water conservation district staff to verify cover crop soil coverage.
- Train district staff on acceptable methods for verifying cover crop soil coverage.

The complete list of recommendations is available on page vii.

Recommendations & Policy Options: Virginia's Agricultural Cost-Share Program to Improve Water Quality

JLARC staff typically make recommendations to address findings during reviews. Staff also sometimes propose policy options rather than recommendations. The three most common reasons staff propose policy options rather than recommendations are: (1) the action proposed is a policy judgment best made by the General Assembly or other elected officials, (2) the evidence indicates that addressing a report finding is not necessarily required, but doing so could be beneficial, or (3) there are multiple ways in which a report finding could be addressed and there is insufficient evidence of a single best way to address the finding.

Recommendations

RECOMMENDATION 1

The General Assembly may wish to consider including language in the Appropriation Act directing the secretary of natural and historic resources to oversee a joint effort by the Department of Conservation and Recreation and Department of Environmental Quality to develop a ranked list of the cost-effectiveness of agricultural best management practices for the Virginia Agricultural Best Management Practices Cost-Share Program and make the information available to Virginia soil and water conservation districts to help inform award decisions. (Chapter 2)

RECOMMENDATION 2

The Virginia Soil and Water Conservation Board should implement a pilot program through which selected soil and water conservation districts and the Department of Conservation and Recreation work together to (i) analyze local and state data to identify potentially eligible producers who are not currently participating in the Virginia Agricultural Best Management Practices Cost-Share Program, and (ii) facilitate the use of the results by districts to maximize their recruitment of eligible non-participants. (Chapter 4)

RECOMMENDATION 3

The Department of Conservation and Recreation should ensure that its conservation planner certification program (i) provides staff at soil and water conservation districts with sufficient knowledge in all areas needed to effectively administer the Virginia Agricultural Best Management Practices Cost-Share Program (VACS), including farming practices, conservation, and VACS administration and (ii) offers each course at least twice per year so that district staff can complete the training in a reasonable timeframe. (Chapter 4)

RECOMMENDATION 4

The Virginia Soil and Water Conservation Board should direct the Department of Conservation and Recreation to conduct a pilot program to temporarily increase cost-share rates for the most cost-effective best management practices in the Virginia Agricultural Best Management Practices Cost-Share Program and report to the board whether the higher rates (i) helped increase implementation and (ii) should be adopted statewide. (Chapter 5)

RECOMMENDATION 5

The General Assembly may wish to consider including language in the Appropriation Act directing the Department of Conservation and Recreation (DCR) to revise the process that districts use to select the applicants that receive Virginia Agricultural Best Management Practices Cost-Share Program funding awards to better ensure that the most cost-effective agricultural best management practices identified by DCR are consistently prioritized. (Chapter 6)

RECOMMENDATION 6

The Virginia Soil and Water Conservation Board should update the specifications for cover crop best management practices in the Virginia Agricultural Best Management Practices Cost-Share Program Manual to establish standardized methods and guidance for soil and water conservation district staff to verify cover crop soil coverage. (Chapter 7)

RECOMMENDATION 7

The Department of Conservation and Recreation should provide training to soil and water conservation district staff on acceptable methods for verifying cover crop soil coverage. (Chapter 7)

RECOMMENDATION 8

The Virginia Soil and Water Conservation Board should require that all structural agricultural best management practices in the Southern Rivers area receive end-of-lifespan reviews within the last two to three years of their lifespan. (Chapter 7)

RECOMMENDATION 9

The Virginia Soil and Water Conservation Board should direct the Department of Conservation and Recreation to evaluate and strengthen the administrative audits of soil and water conservation district staff files for the Virginia Agricultural Best Management Practices Cost-Share Program. (Chapter 7)

RECOMMENDATION 10

The Department of Conservation and Recreation should (i) ensure that information on the frequency, cause, and resolution of best management practice project noncompliance is tracked in the Virginia Agricultural Best Management Practices Cost-Share Program, (ii) review this information annually to identify noncompliance trends, and (iii) notify the Virginia Soil and Water Conservation Board of these trends so that it may make needed program adjustments and policy changes and resolve systemic problems. (Chapter 7)

Policy Options to Consider

POLICY OPTION 1

The General Assembly could adjust appropriation funding for the Virginia Agricultural Best Management Practices Cost-Share Program by accounting for recent differences between calculated needs and actual obligations. (Chapter 3)

POLICY OPTION 2

The General Assembly could include language in the Appropriation Act directing the Virginia Soil and Water Conservation Board to consolidate funding for the Whole Farm Approach agricultural best management practices (BMPs) with funding used for other BMPs in the Virginia Agricultural Best Management Practices Cost-Share Program. (Chapter 6)

POLICY OPTION 3

The General Assembly could include language in the Appropriation Act directing the Department of Conservation and Recreation to develop a plan to reduce the state's reliance on annual practices in the Virginia Agricultural Best Management Practices Cost-Share Program, while still maintaining progress toward the state's pollution reduction goals. (Chapter 6)

1 Introduction

In 2025, the Joint Legislative Audit and Review Commission (JLARC) directed staff to review the Virginia Agricultural Best Management Practices Cost-Share (VACS) Program. Specifically, staff were directed to evaluate the nonpoint source pollution assessment conducted by the Virginia Department of Conservation and Recreation (DCR); the process to allocate VACS funding to soil and water conservation districts (districts); districts' policies and processes for contracting with recipients and awarding VACS funds; VACS-related technical assistance; and efforts to verify compliance with VACS requirements.

To address the study resolution, JLARC staff analyzed data related to VACS funding, awards, and agricultural best management practices (BMPs); surveyed district staff, district board of directors members, and individuals who own and/or lease farmland (i.e., producers); interviewed DCR staff, district staff, environmental and agricultural stakeholder groups, and subject matter experts from the federal government and other states; and reviewed scientific research about agricultural best management practices and nonpoint source pollution reduction. (See Appendix B for a detailed description of research methods.)

VACS program seeks to incentivize producers to reduce pollution from agricultural land

Created in 1984, VACS provides financial incentives for agricultural producers to implement BMPs to reduce nonpoint source pollution in Virginia's bodies of water (e.g., streams, rivers, lakes) (sidebar). Nonpoint source pollution is a key source of contaminants that reduce water quality, including in the Chesapeake Bay. Agricultural lands are a significant source of nonpoint pollution. Nearly 30 percent of Virginia's total land area (about 7.2 million acres) is agricultural, and the nitrogen, phosphorus, and sediment pollution from agriculture can be especially harmful to the Chesapeake Bay and other state waters.

Most agricultural producers are eligible for the voluntary VACS program. To qualify, producers must farm five or more contiguous acres of agricultural land and have gross receipts of more than $1,000 annually for each of the past three years. Some BMPs also require the presence of "live water" on the property (sidebar). Local soil and water conservation districts award funding to producers through a competitive process and do not disburse funding until BMP implementation is verified. Producers cannot receive more than $300,000 per year for VACS BMPs unless they receive an exemption from the state.

Nonpoint source pollution is rain runoff from agricultural, suburban, and urban areas that enters bodies of water and comes from multiple sources instead of a single identifiable source (such as a sewage treatment plant or industrial discharge pipe).

Live water can consist of a creek, stream, river, or other water feature that has surface flow, or creates a surface flow, for a substantial portion of the year. District staff confirm the presence of live water when they are reviewing eligibility for certain VACS BMPs (e.g., stream exclusion fencing).

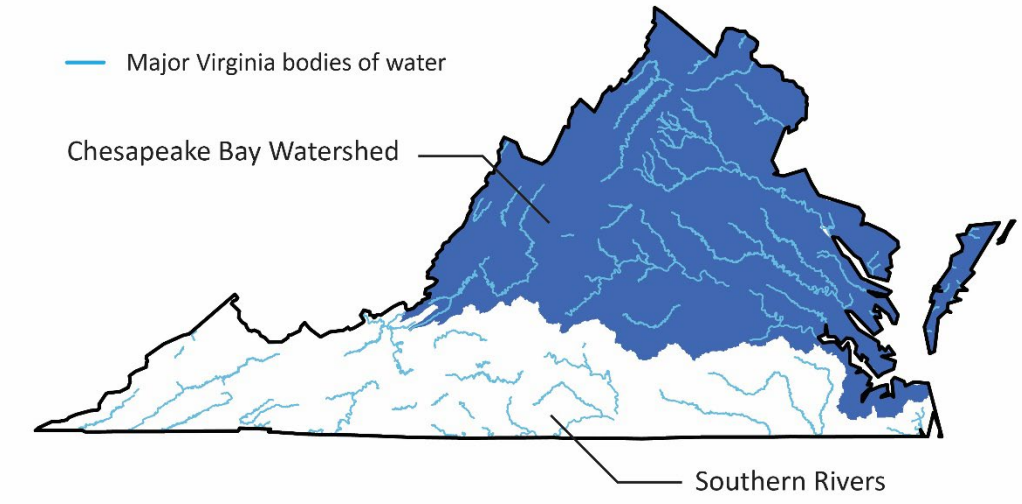
VACS is critical to Virginia's commitments to reduce nonpoint source pollution to Virginia's bodies of water

> *"Implementation of the [Chesapeake Bay Watershed Implementation Plan goals] will result in a healthier, more diverse economy, including but not limited to recreation, tourism, water-based industries, increased property values, more sustainable land uses and a Chesapeake Bay that future generations of Virginians will have the opportunity to enjoy."*
>
> **– Virginia Phase III Watershed Implementation Plan**

Maintaining high quality water is important for the state's environment, economy, and public health. Rain runoff from agricultural land can deposit harmful levels of nitrogen, phosphorus, and sediment into Virginia waters. Excessive amounts of nitrogen and phosphorus can cause algal blooms and reduce oxygen needed by aquatic life. Similarly, large sediment deposits can harm aquatic habitats by reducing water clarity and damaging organisms. Pollutants' harm to aquatic life such as oysters, mussels, crabs, and fish can negatively affect Virginia's seafood industry and water-based recreation industries (sidebar). Pollution from runoff can also increase bacteria to levels that are unsafe for swimming.

Virginia's major watershed is the Chesapeake Bay watershed, and the remaining smaller watersheds in Virginia are often referred to collectively as the Southern Rivers area. Rivers, streams, and other waters in the Chesapeake Bay watershed ultimately drain to the Chesapeake Bay, while waters in other areas of the state ultimately drain in the east to the Atlantic Ocean or the Albemarle-Pamlico sounds estuary system, or in the west to the Mississippi River Basin. The Chesapeake Bay watershed generally covers the northern and eastern parts of the state and comprises approximately 60 percent of Virginia (Figure 1-1). The Southern Rivers area covers the remaining 40 percent of the state.

FIGURE 1-1
Majority of state's bodies of water are in the Chesapeake Bay watershed



SOURCE: JLARC staff analysis of Virginia watershed map from the Virginia Department of Wildlife Resources and Virginia Department of Environmental Quality.

VACS is one of state's key water pollution reduction programs—especially related to agricultural pollution

VACS is one of the state's primary tools to improve water quality. Virginia has programs and initiatives to address both point and nonpoint source pollution across sectors such as agriculture, developed land, natural land, and wastewater. The agricultural sector is a significant contributor to nonpoint source water pollution. VACS is the largest among several incentives (including tax credits) Virginia offers to encourage the implementation of agricultural pollution reduction practices. These incentives complement the state's primary point source reduction program, the Virginia Pollution Discharge Elimination System, which uses permits to limit pollutants from wastewater and stormwater discharges.

Chesapeake Bay Watershed Implementation Plan goals

The federal government requires Virginia and the other states in the Chesapeake Bay watershed to reduce nitrogen, phosphorus, and sediment pollution to certain levels. States are required to develop Watershed Implementation Plans (WIPs, sidebar), which articulate how and when pollution reductions (point source and nonpoint source) will be achieved.

While Virginia has made substantial reductions in point source pollution over the past decade, it still must reduce nonpoint source pollution, especially from the agricultural sector (Table 1-1). Since 2017, the state has completed almost half of the nitrogen and phosphorus reductions needed, and about one-quarter of the sediment reductions needed, to achieve its Phase III Chesapeake Bay WIP goals.

WIPs have been developed by all Chesapeake Bay jurisdictions (DC, DE, MD, NY, PA, VA, and WV) to detail how nitrogen, phosphorus, and sediment will be reduced in the Chesapeake Bay. Goals were developed for nitrogen, phosphorus, and sediment levels, and the specific BMPs that need to be implemented. Virginia completed its Phase I WIP in 2010, its Phase II WIP in 2012, and is now implementing its Phase III WIP. A Phase IV WIP will likely be drafted by December 2030.

TABLE 1-1
Large portion of remaining pollution reductions for Virginia's Phase III Chesapeake Bay WIP goals are expected to come from the agricultural sector

Pollutant	Chesapeake Bay WIP III goal (million pounds per year)	Percentage of remaining reduction needed from agricultural sector
Nitrogen	49.57	73%
Phosphorus	5.23	91
Sediment	5,801.50	Unknown

SOURCE: Virginia Phase III Watershed Implementation Plan data from DCR (2018) and Chesapeake Bay and Virginia Waters Clean Up Plan (FY25).
NOTE: Percentage of remaining reduction needed from agricultural sector is as of FY24.

Though Virginia has committed to reducing pollution into the Chesapeake Bay, the deadlines to meet its Phase III WIP goals have changed, and the consequences for not achieving them are not clearly defined. The federal government initially established a 2025 deadline for states to meet their Phase III WIP goals, which was recently extended to 2030. States also agreed to establish Phase IV goals (separate from current

Phase III goals) by 2030 and meet them by 2040. In Virginia, the General Assembly passed legislation in 2023 directing policymakers to assess progress toward the Phase III WIP goals on or after mid-2028. Under this legislation, certain BMPs may become mandatory for producers if progress has been deemed insufficient, though sufficient progress is not clearly defined (sidebar). In addition, the state has not yet extended this deadline to align with the new Phase III WIP deadline of 2030.

SB 1129 & HB 1485 (2023) set a new deadline for the secretary of agriculture and forestry and the secretary of natural and historic resources to assess Virginia's progress toward its Chesapeake Bay Phase III WIP pollution reduction goals on or after July 1, 2028. If sufficient progress is not made, it will become mandatory no sooner than July 1, 2028, for (1) operators of 50+ acres of Chesapeake Bay cropland to complete nutrient management plans and (2) landowners in the Chesapeake Bay watershed with 20+ bovines to exclude bovines from streams.

Statewide DEQ Water Quality Goals (Chesapeake Bay & Southern Rivers)

Virginia's Department of Environmental Quality (DEQ) also monitors the quality of bodies of water across the state, including those in the Chesapeake Bay watershed and the Southern Rivers area. DEQ tracks the state waters by specific segment to determine whether they have allowable levels for various pollutants. Water segments exceeding allowable pollution levels for one or more pollutants are considered "impaired" because they cannot be used for at least one of their intended purposes such as fishing or recreation.

Though the majority of Virginia waters are meeting their water quality goals, a substantial number are not. As of 2026, 34 percent (1,923 of 5,660) of the bodies of water in the Chesapeake Bay watershed and 22 percent (725 of 3,277) in the Southern Rivers area with water quality goals did not meet them for at least one pollutant and are therefore deemed impaired. The leading causes of impairment were bacteria, toxins in fish tissue, and low dissolved oxygen levels, which can be caused by nitrogen, phosphorus, and/or sediment pollution. Implementation of BMPs through the VACS program helps to reduce the number of impaired waters by reducing nonpoint source pollution from agricultural lands.

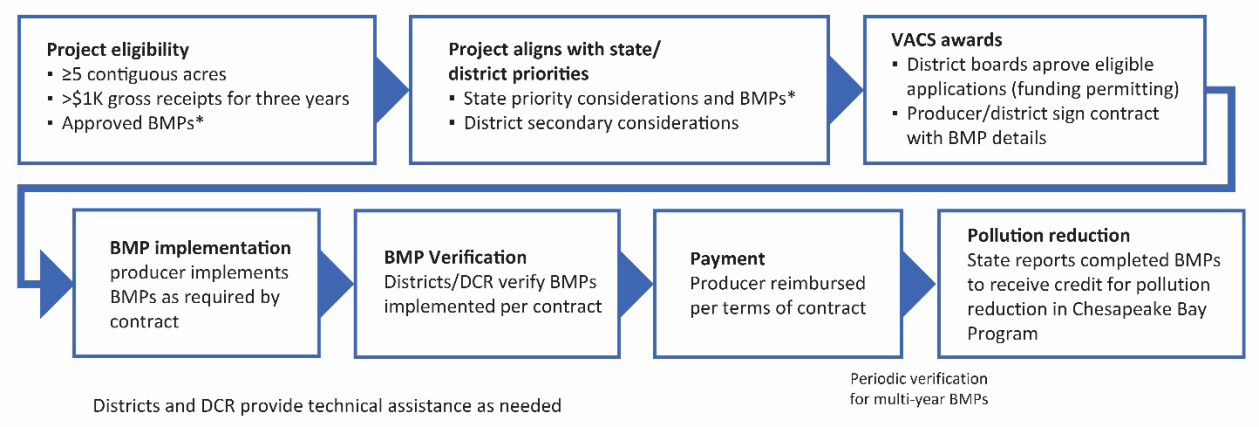
VACS seeks to reduce pollution by incentivizing producers to implement agricultural BMPs

VACS uses a multi-step process to award cost-share funding for agricultural producers to implement BMPs (Figure 1-2). The VACS program includes 64 approved BMPs, each with different cost-share amounts and BMP durations (called "lifespans") (Table 1-2). (See Appendix C for a full list of VACS-eligible BMPs.) Agricultural producers apply to their soil and water conservation districts to receive funding to implement BMPs. The state establishes cost-share rates for each BMP that reflect how much of the BMP implementation costs the state will subsidize or "share" with producers. Districts help determine the amount of funding producers can receive by identifying local labor and material costs and select which producers will receive VACS funding. Selected producers sign contracts with their local districts detailing the cost-share amount they will receive and BMP specifications.

BMP implementation typically takes between one and three years, and district staff are supposed to verify that implemented BMPs are consistent with contract specifications before paying producers the agreed upon cost-share amount. Some of the most frequently implemented BMPs are cover crops (e.g., planting small grain cover crops in

winter), nutrient management (e.g., splitting applications of nitrogen fertilizer), and tillage management (e.g., limiting soil disturbance prior to planting to reduce erosion). The state tracks the estimated pollution reduction for each BMP, and reductions for BMPs implemented in the Chesapeake Bay watershed are reported to the federal government to be counted toward Virginia's Chesapeake Bay WIP goals.

FIGURE 1-2
VACS funding is awarded to eligible producers who implement BMPs



SOURCE: JLARC staff analysis of VACS program manual.
*BMPs = agricultural best management practices.

TABLE 1-2
VACS-eligible BMPs have different cost-share amounts and lifespans

BMP Example	Description	Cost-share amount	Lifespan
Cover crops	Not-for-harvest crops planted to reduce erosion, runoff, & excess nitrogen while improving soil health.	$20-$100 per acre	1 year
Animal waste facilities	Storage facilities built to hold and process livestock waste.	75% of cost	10–15 years
Livestock stream exclusion	Construction of fences and watering systems to keep animals out of streams. VACS share based on setback (distance from stream) and lifespan.	60-100% of cost	10–15 years
Woodland buffer tree planting	Tree/shrub planting to reduce erosion & provide habitats. Per-acre reimbursement based on tree/shrub type and lifespan.	95% of cost + $100-$500/acre	10–15 years

SOURCE: JLARC staff review of VACS cost share manual and district fliers.
NOTE: See Appendix C for a full list of VACS-eligible BMPs.

VACS among the region's larger and more well-established voluntary programs to reduce agricultural water pollution

Seven jurisdictions—Delaware, Maryland, New York, Pennsylvania, Virginia, West Virginia, and the District of Columbia (D.C.)—are part of the Chesapeake Bay watershed. All of D.C., and large portions of Delaware, Maryland, Pennsylvania, and Virginia, are within the watershed, making Chesapeake Bay water quality a key concern in these areas. Several of the largest rivers that flow into the Chesapeake Bay watershed run through Virginia, including the Potomac, James, Rappahannock, and York rivers.

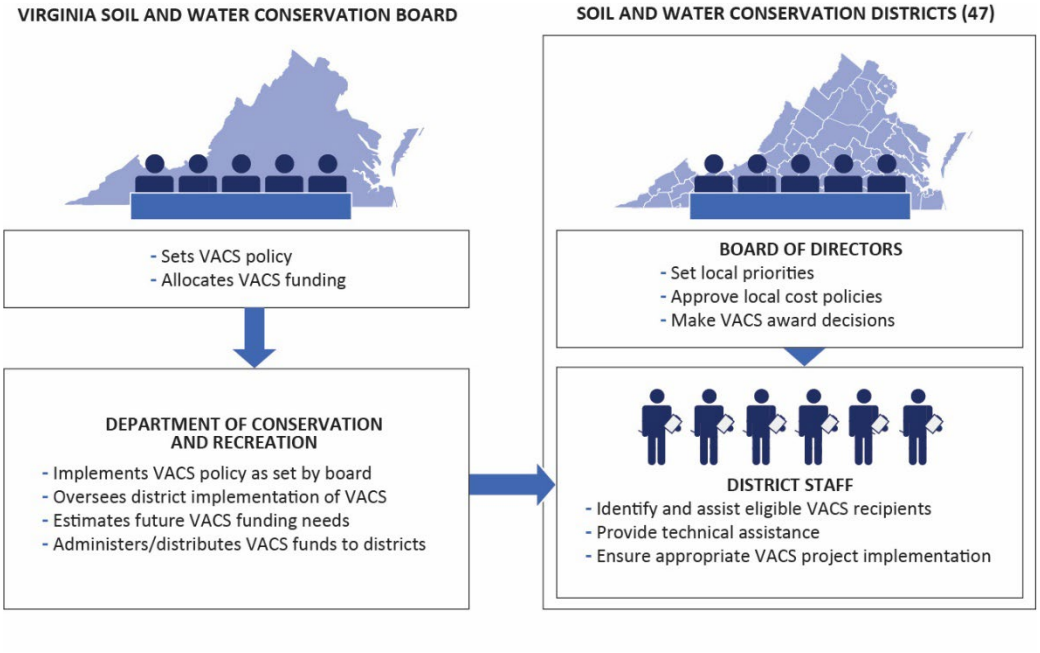
Chesapeake Bay watershed jurisdictions have various programs to help reduce pollution in the bay, but Virginia's VACS program appears to be comparably large and well established. VACS was established several decades ago and now receives hundreds of millions in state funding annually. Maryland has at least three separate, smaller programs that fund (1) structural BMPs (e.g., animal waste storage and stream exclusion fencing), (2) cover crops, and (3) poultry manure transport. Pennsylvania created an agricultural conservation assistance program in FY22 that funds agricultural BMPs.

Local and state entities work together to administer VACS program

VACS is a state-designed and funded program administered by 47 soil and water conservation districts, which are political subdivisions (Figure 1-3). These districts were created in the late 1930s and cover one or more Virginia counties/cities. (See Appendix D for a map of districts.) Each district has a board of directors with five or more elected and appointed members. District board members are responsible for setting local water quality priorities (called "secondary considerations") and approving cost policies (called "average cost lists") used to help determine VACS funding award amounts. District board members also decide which producers receive VACS funding awards to implement BMPs. Eligible board members can participate in VACS and receive funding awards, but they are required to recuse themselves from deliberations related to their application, and elected board members are also required to complete a state conflict-of-interest training.

District staff sizes vary, but most districts have two to four staff members with VACS-related responsibilities. Local staff are responsible for marketing VACS to producers, helping producers determine eligibility and complete and submit applications, reviewing applications to facilitate board funding award decisions, verifying BMP implementation, and paying producers. District staff may also provide other services outside of the VACS program, depending on local need. For example, staff may help maintain local dams, administer other pollution reduction programs, and facilitate or conduct environmental education programs.

FIGURE 1-3
State board, DCR, and district boards and staff implement VACS



SOURCE: JLARC analysis of DCR documentation and Code of Virginia.

DCR is responsible for state-level VACS administration and oversight. DCR has several Richmond-based staff who estimate VACS funding needs, calculate funding distributions across districts, and conduct engineering reviews needed to install certain BMPs (e.g., stream exclusion fencing and animal waste control facilities). The agency employs several regional staff who attend district BOD meetings and complete VACS BMP verifications and administrative audits. In addition, DCR maintains a central repository of VACS applicants and BMPs to track BMP implementation and the associated pollution reductions.

The Virginia Soil and Water Conservation Board (SWCB) sets various VACS-related policies and allocates funding to local soil and water conservation districts. The SWCB has nine nonlegislative citizen members—the majority of whom are producers and/or district BOD members—and DCR's director as a non-voting ex officio member. The SWCB determines VACS funding allocations by district each year and is responsible for establishing VACS eligibility criteria and other policies, as well as VACS BMPs and specifications.

In addition to the SWCB, Virginia also has an Agricultural BMP Technical Advisory Committee (TAC) that helps review and recommend changes to VACS BMPs and specifications. TAC has 30 members that represent numerous districts, state agencies (e.g., DCR, DEQ, Virginia Department of Agriculture and Consumer Services,

Virginia Cooperative Extension, etc.), federal agencies (e.g., Farm Service Agency, Natural Resources Conservation Service, etc.), and stakeholder groups (Virginia Farm Bureau, Chesapeake Bay Foundation, Virginia Poultry Federation, etc.). TAC meets annually to discuss potential VACS changes and recommends any potential changes to the SWCB.

VACS funding comes primarily from state general funds and has increased substantially

There are two main types of VACS funding: (1) VACS cost-share funding used for BMP implementation and (2) technical assistance (TA) funding used for district staff with VACS-related responsibilities (e.g., assisting producers, finance, data entry, etc.). Districts also receive administration and operations funding that indirectly supports VACS, but a portion of that funding is used for non-VACS activities, such as dam maintenance and repairs. (See Chapter 3 for more information on the state's process for determining VACS funding amounts and Chapter 4 for more information on TA funding and staffing.)

The vast majority of VACS funding comes from state sources—specifically general fund surpluses. Recently, most of VACS funding each year has come from general fund revenue surpluses that were deposited into the Virginia Natural Resources Commitment Fund. VACS also receives up to $10 million in recordation tax revenue each year and unobligated VACS funds from previous years. Some projects can also receive federal grant funds and/or state tax credits to help cover BMP implementation costs that are not already covered through VACS.

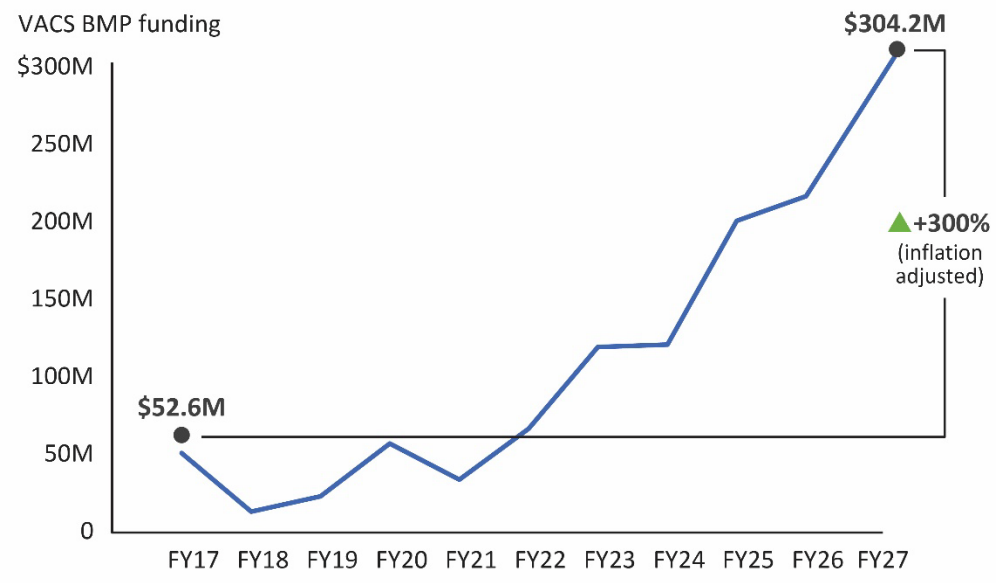
DCR regularly conducts a needs assessment to estimate funding required to meet the state's pollution reduction goals. Although these estimates have far exceeded dedicated recordation tax revenue in recent years, the governor and General Assembly have appropriated surplus general fund revenue to bridge the gap. Even if the state's pollution reduction goals are achieved, sustained funding will be required to maintain pollution reductions.

Driven by this surplus funding, VACS funding for BMP implementation has grown substantially over the last few years. Annual BMP implementation funding has exceeded $200 million in each of the last three years, increasing to more than $300 million in FY27 (Figure 1-4). When adjusted for inflation, VACS BMP funding has increased over 300 percent since FY17, around when Virginia's Phase III Chesapeake Bay plan was implemented. VACS TA funding has also increased in recent years, totaling more than $40 million in FY27, though TA funding has fluctuated historically.

DCR uses a second assessment of nonpoint source pollution risk to allocate these funds across Virginia's 47 districts. Funds are proportionally allocated to districts based on whether they are within the Chesapeake Bay watershed and their relative nonpoint source pollution risk. This allocation process leads to wide variation in how much VACS funding each district receives. For example, district VACS allocations for BMP

implementation in FY27 ranged from $35,000 in the Big Sandy district (located in southwestern Virginia) to more than $16 million in the Peanut district (located in southeastern Virginia).

FIGURE 1-4
VACS funding for BMPs has grown to more than $300 million annually



SOURCE: VACS cost-share policy documents (FY17–FY27).
NOTE: VACS allocation amounts are for BMPs; technical assistance and administrative and operations funding amounts are not included.

2 VACS Effectiveness

While subsequent chapters of this report address the specific items in the study resolution, this chapter addresses the VACS program holistically. The two primary ways to assess the overall effectiveness of the program are to examine whether (1) it has the characteristics of an effective incentive program and (2) it is adequately helping the state make progress toward its water quality improvement goals through the implementation of VACS-funded agricultural best management practices (BMPs).

VACS exhibits most characteristics of an effective incentive program, but could be further improved

Effective government incentive programs include certain key design elements. Effective incentive programs typically have a clear purpose, sufficient funding, targeted eligibility criteria, adequate participation, sufficient incentives to influence desired actions, a method for prioritizing applicants selected for awards, and sufficient verification and oversight of program effectiveness (Table 2-1). These characteristics help ensure that incentive programs achieve their intended objectives and are a beneficial use of public funds.

Assessing the program against these characteristics, VACS is largely an effective program, but it can be further improved by making certain changes. For example, the state and district priorities used to determine VACS awards do not always direct funding to the most cost-effective BMPs in high-priority areas of the state. The remaining chapters of this report explain the basis for this assessment and make recommendations to further enhance the effectiveness of VACS design and implementation.

TABLE 2-1
VACS fully or substantially exhibits most characteristics of an effective incentive program

	VACS assessment score
Purpose & outcomes	
Purpose is appropriate, clearly defined, & understood	●
Program seeks to incentivize evidence-based practices	●
Program's activities contribute to desired or intended state objective	●
Funding levels & allocation	
Level of program funding consistent with program capacity	◕
Funds allocated across districts in an appropriate and targeted manner	●
Program design characteristics	
Recipient eligibility criteria align with program purpose	●
Eligible individuals are willing to participate in the program	◑
Rate structure is adequate to incentivize desired actions	◕
State & local priorities are cohesively and appropriately reflected in selection process	◑
Selection criteria facilitate cost-effective use of taxpayer funds	◕
Program implementation & oversight	
Recipient payment is based on actual performance	●
Project implementation is verified appropriately to ensure anticipated taxpayer value	◑
State adequately oversees district implementation of program	◕

LEGEND: Fully exhibits characteristic = ● Substantially exhibits = ◕ Partially exhibits = ◑
Somewhat exhibits = ◔ Does not exhibit = ○
SOURCE: JLARC staff analysis of government incentive program design elements and interviews with subject matter experts.

VACS has reduced pollution, but emphasis on BMPs' cost-effectiveness needed if funding is reduced

In addition to assessing program design, VACS's overall effectiveness and cost-effectiveness were examined. VACS's effectiveness can be assessed by determining the number of BMPs implemented and their associated pollution reductions, while its cost-effectiveness can be determined by considering the pollution reductions achieved per state dollar spent. If less funding is allocated to the program in future years, ensuring that approved BMPs are cost effective will become more important.

VACS has helped fund an increasing number of implemented BMPs, which are shown to reduce pollution

During the last five fiscal years, VACS has obligated about $514 million to help fund more than 200,000 approved and implemented BMPs (FY22–FY26). During this time, the number of participating producers and total BMPs implemented increased annually (Table 2-2).

TABLE 2-2
Number of producers participating in VACS and BMPs implemented have increased (FY22–FY26)

	FY22	FY23	FY24	FY25	FY26	% change
Producers	1,963	2,202	2,369	2,505	2,589	+32%
BMPs	29,302	35,417	41,307	48,494	52,711	+80%

SOURCE: JLARC analysis of VACS BMP implementation data (FY22–FY26).
NOTE: Data is based on BMPs that have been approved, completed, or carried over, but does not include BMPs that were proposed but not approved or cancelled. FY26 data is undergoing verification; numbers may change slightly when finalized.

VACS cost-share awards vary widely depending on the volume and type of BMPs used. For example, in FY26, VACS awards ranged from less than $100 for a nutrient management plan to $2.4 million for a shoreline stabilization practice. VACS awards averaged $2,724 per BMP in FY26.

Though it is difficult to determine the specific amount of water quality improvement attributable to VACS, VACS BMPs are scientifically backed practices that help reduce pollution when properly implemented (see next section). While the Chesapeake Bay Program calculates the pollution reductions in nitrogen, phosphorus, and sediment achieved, this information reflects *all* pollution reduction efforts in Virginia (not just those related to VACS) and includes only reductions that occur in the Chesapeake Bay watershed. The Department of Conservation and Recreation (DCR) collects data on the pollution reductions in nitrogen, phosphorus, and sediment achieved specifically from VACS BMPs, but this data is not the best measure of water quality improvement because it measures pollution levels on the land instead of the pollution that reaches water. (See Appendix E for more information on pollution reduction metrics.)

Nearly all VACS BMPs have been validated by research to help reduce pollution

Extensive research has been conducted on the effectiveness of nearly all VACS BMPs in reducing pollution. Currently, all but two (sidebar) of the 64 VACS BMPs are credited with reducing nitrogen, phosphorus, and/or sediment in the federal government's Chesapeake Bay Program model. To receive credit in the model, scientific research conducted by government agencies and other experts must confirm that a BMP effectively reduces pollution in the Chesapeake Bay. In many cases, expert panels also

VACS BMPs ineligible for pollution reduction credit in the federal government's Chesapeake Bay model are (1) agricultural sinkhole protection and (2) resource management plan implementation. These BMPs are rarely implemented in Virginia through VACS.

review specific BMPs before they receive credit in the model. Once a VACS BMP is implemented, the model estimates the specific nitrogen, phosphorus, and/or sediment reductions that are assumed to have occurred in the Chesapeake Bay watershed. (VACS BMPs are also assumed to reduce pollution in the Southern Rivers area, though there is no dedicated federal model that regularly estimates or quantifies reductions outside of the Chesapeake Bay watershed.)

Potential pollution reduction from each BMP depends on several factors, and some BMPs are better at reducing specific pollutants than others. For instance, one acre of a VACS cover crop BMP is estimated to reduce about twice as much nitrogen as an acre of a grazing management BMP, but only about a tenth as much phosphorus. Individual BMP conditions also impact effectiveness. For example, cover crop BMP effectiveness depends on the crop type, coverage amount and duration, and local soil conditions and can vary widely. The highest estimated nitrogen reduction per cover crop acre could be more than 10 times greater than the lowest, according to 2026 data.

Virginia received pollution reduction credit for implementing about 122,000 BMPs in the Chesapeake Bay watershed during the past five years

Chesapeake Bay Watershed Implementation Plan (WIP) goals are the specific reductions in nitrogen, phosphorus, and sediment Virginia wants to achieve in the Chesapeake Bay by implementing certain BMPs. Virginia is currently working to achieve the goals outlined in the state's Phase III WIP. (See Chapter 1 for more information.)

Over the past five years, increased producer participation and BMP implementation have enabled Virginia to make significant progress toward its Chesapeake Bay Phase III WIP goals (sidebar). In the Chesapeake Bay watershed, about 122,000 VACS BMPs were verified as being implemented (FY22–FY26). This has helped Virginia complete:

- *More than 90 percent* of several key BMPs the state committed to implement (e.g., traditional cover crops, grass buffers streamside with exclusion fencing, precision intensive rotational/prescribed grazing, and mortality composters).
- *More than half* of many other BMPs the state committed to implement (e.g., commodity cover crops, manure injection, forest buffers, poultry animal waste systems, etc.).

If VACS funding declines, prioritizing cost-effective VACS BMPs for awards will become increasingly important

While Virginia has reduced nitrogen, phosphorus, and sediment pollution, these pollutants must be reduced further to meet the state's Chesapeake Bay Phase III WIP goals. As the result of *all* of Virginia's water pollution reduction efforts between FY17 and FY24 (not just VACS), nitrogen levels decreased 8 percent, and phosphorus and sediment levels each decreased 3 percent. As of FY25, Virginia still needed to reduce nitrogen pollution by another 9 percent, phosphorus pollution by 3 percent, and sediment pollution by 7 percent. History has shown these pollution reduction goals and their deadlines will likely continue to evolve (Chapter 1).

It is possible that VACS funding needs will decline in the future. Although VACS received more than $300 million in FY27, DCR estimates VACS will need less funding

after Virginia meets its current water quality goals and fewer new BMPs need to be implemented. At that point, program funding will transition to maintaining annual BMPs and replacing multi-year BMPs as their contractual lifespans expire. The reduction in VACS funding needs could occur as early as FY29, and funding needs could decrease to approximately $82 million, according to DCR estimates. VACS funding needs could change again because Virginia plans to set new water quality goals around 2030 (sidebar).

VACS funding may need to increase again after 2030 when Virginia begins working towards its new Phase IV WIP pollution reduction goals. The timing and extent of any related funding needs will depend on the pollution reduction goals established.

High VACS funding in recent years has made prioritization less important

In recent years, historically high funding levels allowed many districts to approve nearly all eligible BMP applications without needing to prioritize the most cost-effective applications. Over the past several years, VACS was appropriated more funding than could be spent on eligible BMPs, and unspent funds were reallocated across districts. (See Chapter 3 for more information.) Without funding constraints, many districts (especially in the Chesapeake Bay watershed) did not need to prioritize awarding VACS funding to the most cost-effective BMPs.

No reliable, comprehensive information exists about cost-effectiveness of VACS BMPs, but cost-effectiveness will be important if funding declines

If VACS funding decreases, it will be increasingly important for the state to optimize VACS spending on the most cost-effective BMPs (Chapter 6). This will help ensure the state maximizes the nonpoint source pollution reductions achieved with available VACS funding.

Virginia currently has several mechanisms to encourage the cost-effective use of VACS funds. VACS funding is allocated based on potential pollution risk, with the largest concentration of funding going to areas with the greatest potential pollution. In addition, districts are encouraged to use the Conservation Efficiency Factor to help determine VACS awards, which is a numeric score automatically generated by DCR's data system that estimates the relative pollution reduction of each VACS application.

Virginia does not, though, currently have a list of the most cost-effective VACS BMPs. Identifying the most cost-effective BMPs is complex and needs to account for regional geologic and agronomic variations. JLARC staff worked with DCR and DEQ to conduct a preliminary analysis to better understand the relative cost-effectiveness of the 64 approved BMPs (sidebar). This preliminary analysis has some limitations (Appendix E) but concluded that:

- Maintenance BMPs appear to be highly cost-effective because the state pays producers a small amount to maintain a practice that has already been implemented, leveraging previous capital investments.
- Continuous low-till and roof runoff management for livestock facilities also appear to be particularly cost effective for reducing nitrogen, phosphorus, and sediment.

JLARC staff analyzed the most cost-effective VACS BMPs by reviewing the nitrogen, phosphorus, and sediment reductions achieved for each VACS BMP implemented between FY23 and FY25, and the state funding spent to achieve these reductions. This analysis assessed *state* BMP implementation costs relative to pollution reductions and did not include non-state BMP implementation costs (e.g., producer, federal, etc.) (See Appendix E for more information.)

- Harvestable cover crops appear to be particularly cost effective for reducing nitrogen, while manure injections are highly cost effective for reducing phosphorus.
- Sod waterways appear to be relatively less cost-effective for reducing nitrogen, phosphorus, and sediment, though they still effectively reduce pollution.

Information about BMP cost-effectiveness should be developed to supplement and inform the VACS award process if funding declines

Measuring the cost-effectiveness of each VACS BMP requires closer coordination between state natural resource agencies. While DCR staff currently track pollution reductions achieved by VACS BMPs, they also need to analyze the nitrogen, phosphorus, and sediment reductions per state dollar spent to measure their cost-effectiveness. Ideally, the analysis should be based on DEQ's "edge-of-stream" pollution reduction data, which measures true water quality improvements better than DCR's "edge-of-field" metrics.

Once information about the cost effectiveness of each BMP is developed, it will then need to be tailored to the state's various regions. The differences across BMPs and varying agronomic and geologic conditions in each region and district should be accounted for in this analysis so it can be useful in each of the state's 47 districts.

Developing this information is a complex undertaking that may require one-time additional resources and periodic updating over time. DCR and DEQ may need the assistance of an expert consultant or academic expert to help plan and conduct this analysis. Though there appear to be substantial differences between the relative cost effectiveness of the BMPs, if the state invests more in higher cost-share amounts for the most cost-effective BMPs, their relative cost effectiveness will change. This will require the analysis to be periodically updated over time.

This cost-effectiveness information should be shared with districts so they can encourage producers to implement the most cost-effective VACS BMPs where possible. Cost-effectiveness information could also be published on DCR's website to be available to key stakeholder groups.

RECOMMENDATION 1

The General Assembly may wish to consider including language in the Appropriation Act directing the secretary of natural and historic resources to oversee a joint effort by the Department of Conservation and Recreation and Department of Environmental Quality to develop a ranked list of the cost-effectiveness of agricultural best management practices for the Virginia Agricultural Best Management Practices Cost-Share Program and make the information available to Virginia soil and water conservation districts to help inform award decisions.

After the most cost-effective VACS BMPs are identified, VACS policies and practices will need to be adjusted to emphasize and prioritize implementation of those BMPs. For example, districts could do more targeted outreach to producers who may be able to implement the most cost-effective BMPs (Chapter 4). The state could also increase cost-share rates for the most cost-effective VACS BMPs to encourage their implementation by producers (Chapter 5). Moreover, the state could update award prioritization policies to ensure the most cost-effective BMPs are prioritized for awards when VACS funding is limited (Chapter 6, sidebar).

Prioritizing cost-effective BMPs should not preclude support for less cost-effective practices that still deliver environmental benefits, including annual BMPs. The most cost-effective BMPs may not be suitable for all producer operations because of specific farming practices, local land characteristics, or producer preferences. Because VACS is voluntary, relatively less cost-effective BMPs may be the only practices a producer is willing to implement. Though emphasizing cost-effective VACS BMPs is fiscally prudent, maintaining flexibility may continue to be important to maximize progress toward meeting overall pollution reduction goals if there are not enough producers willing or able to implement the most cost-effective BMPs.

JLARC's preliminary analysis indicates **BMPs likely have a substantial difference in their relative cost-effectiveness.** This gives room for rates to be increased for the most cost-effective practices without substantially reducing their relative cost effectiveness. For example, on average, long-term continuous no-till BMPs can achieve the same nitrogen reduction as continuous high residue tillage BMPs (the next most cost-effective BMP) at nearly a third of the cost. Similarly, it would cost over 3,000 times more, on average, to reduce nitrogen through the least cost-effective BMP compared with the most cost-effective BMP. (See Appendix E for more information.)

3 Program Need and Funding

Virginia has invested significant funding in the VACS program in recent years for the implementation of best management practices (BMPs). The purposes of the funding are to incentivize the implementation of BMPs needed to achieve the state's Phase III Chesapeake Bay WIP pollution reduction goals (sidebar) and reduce pollution in bodies of water throughout the state. Two state assessments are conducted to determine (i) the total amount of VACS funding needed to incentivize implementation of the BMPs needed to achieve the pollution reduction goals and (ii) how best to distribute the allocated funds across the state's soil and water conservation districts (districts) to maximize pollution reduction, particularly in the Chesapeake Bay watershed (Figure 3-1). The two assessments the state conducts related to VACS funding are:

- An agricultural needs assessment that estimates the *total* state funding needed to implement the remaining BMPs (based on a list of the BMPs needed that DCR and districts developed in 2017) needed to address nonpoint source pollution from agricultural land and achieve the Phase III pollution reduction goals.
- A nonpoint source pollution assessment that determines how VACS funding should be distributed *across districts* based on their potential pollution risks and respective watersheds.

The Department of Conservation and Recreation (DCR) completes the agricultural needs assessment annually to help guide total VACS appropriations for each fiscal year. To conduct the needs assessment, DCR identifies the type, amount, and cost of BMPs needed to meet pollution reduction targets in the state's Chesapeake Bay WIP. DCR then factors in unobligated VACS funds from previous years to help calculate the total additional VACS funding needed.

DCR, the Department of Environmental Quality (DEQ), and Virginia Tech (VT) complete the nonpoint source pollution assessment every two years to help determine the VACS funding distribution among districts. The nonpoint source pollution assessment uses a well-established computer model (sidebar) to identify the areas of the state that have the greatest potential for water degradation because of potential nonpoint source pollution per hydrologic unit (sidebar, next page). The assessment separates the state into areas with a "high," "medium," or "low" risk of potential pollution. Using this information, VACS funding is then distributed across Virginia's 47 districts considering geographic location and environmental risk:

Chesapeake Bay Watershed Implementation Plan (WIP) goals are the specific reductions in nitrogen, phosphorus, and sediment Virginia wants to achieve in the Chesapeake Bay by implementing certain BMPs. Virginia is currently working to achieve the goals outlined in the state's Phase III WIP. (See Chapter 1 for more information.)

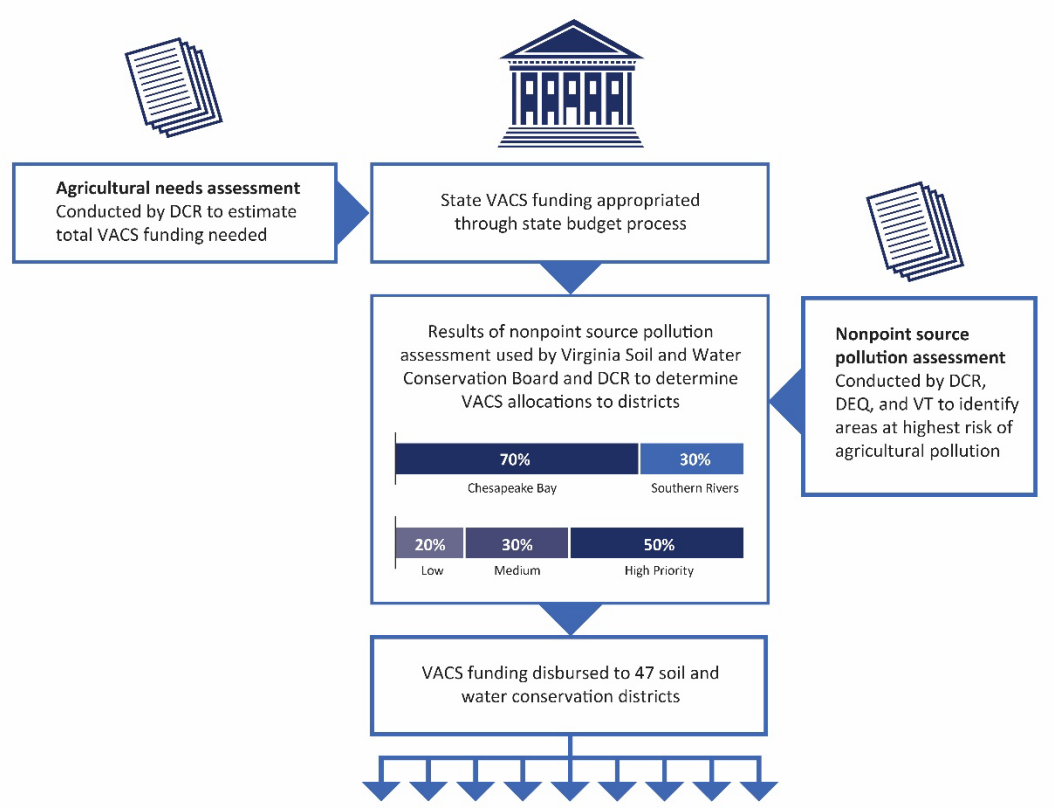
The **Generalized Watershed Loading Function model** was developed by Cornell University and adapted for Virginia with help from Virginia Tech to quantify pollution risks. The model accounts for items such as landcover, soil type, slopes, rainfall and evaporation, animal/manure application, groundwater conditions, and dominant crop type to estimate how water moves over land and collects nitrogen, phosphorus, and sediment pollution. Pennsylvania also uses the model.

Hydrologic units are drainage areas that are part of a multi-level hierarchical drainage system. Hydrologic units can collect surface waters within their boundaries, as well as water from points outside of their boundary. They can also include surface areas with drainage areas that do not connect.

- First, 70 percent of funding is allocated to areas within the Chesapeake Bay watershed, while 30 percent is allocated to other areas (called "Southern Rivers").
- Second, within these two areas, 50 percent of funding is allocated to districts with "high" risk areas, 30 percent to "medium" risk areas, and 20 percent to "low" risk areas.

Virginia's Soil and Water Conservation Board ultimately approves districts' funding amounts.

FIGURE 3-1
State conducts assessments to determine VACS funding needs and distribution



SOURCE: JLARC staff analysis of DCR's agricultural needs assessment, the nonpoint source pollution assessment, and the VACS cost-share policy.
NOTE: The Appropriation Act requires 70 percent of VACS funding to be used on land exclusively or partly within the Chesapeake Bay watershed. The Virginia Soil and Water Conservation Board and DCR ensure VACS allocations align with this policy.

Needs assessment is appropriately based on data but uses optimistic assumptions

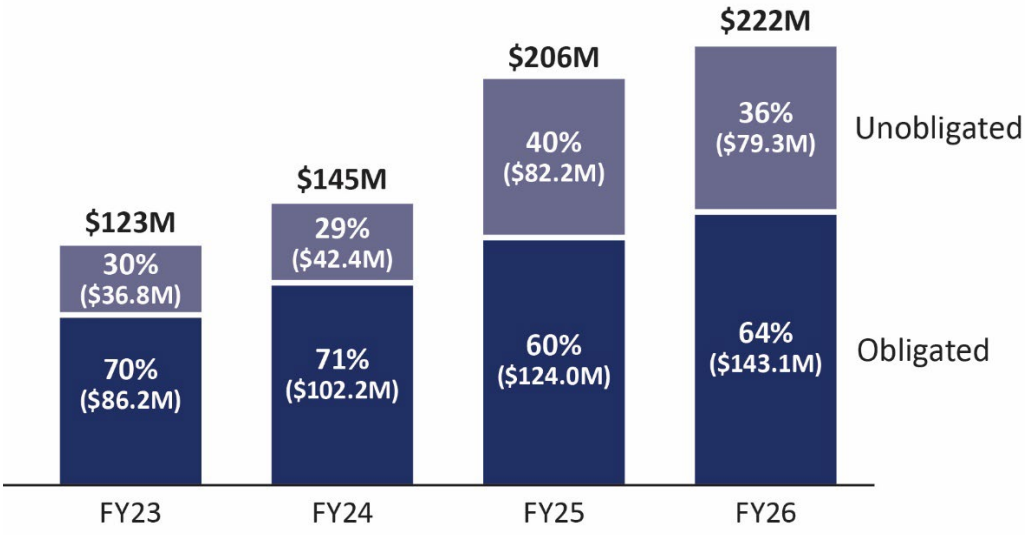
DCR's agricultural needs assessment uses relevant data to estimate the total VACS funding needed to implement the remaining BMPs to meet the state's Phase III

Chesapeake Bay WIP pollution reduction goals. These datapoints include the remaining BMPs from the 2017 list that have not yet been implemented, inflation-adjusted cost estimates by BMP type, and funding sources available for pollution reduction (such as unspent state VACS funds and federal funds for BMP implementation outside of VACS).

While appropriations over the last two years met the amount calculated by the needs assessment, districts were unable to fully use their allocations. For example, in FY25, districts obligated only 60 percent ($124 million) of BMP funding, leaving $82 million unobligated (Figure 3-2; sidebar). In FY26, districts obligated 64 percent of funding, leaving $79 million unobligated. DCR accounts for previously unobligated funding when determining how much funding to request.

Obligated VACS funds are funds that districts have committed to BMP implementation. Funds are considered obligated if (1) a producer agrees to implement a BMP, (2) the district's board of directors approves the BMP for VACS funding, and (3) the producer signs a contract with the district committing to implement the BMP. Some BMPs take multiple years to implement, so obligated funds are often not spent for months or years.

FIGURE 3-2
Amount of unobligated VACS funding grew amid recent funding increases



SOURCE: JLARC staff analysis of DCR data on VACS funding allocations and obligations by district (FY23–FY26).

Overoptimistic assumptions for BMP implementation have resulted in more funding than can be used each year

The gap between appropriated and obligated VACS funding is due in part to the aspirational assumptions originally used for the agricultural needs assessment in 2017. These assumptions include both the number and type of BMPs districts hoped producers would implement and the timeline in which they would implement them.

DCR will update the list of BMPs the state expects to implement around 2030 during development of its Phase IV WIP for achieving pollution reduction in the Chesapeake Bay.

Recent experience has shown that producers have been willing to implement fewer of certain BMPs than the original assumptions from 2017 (sidebar). These 2017 assumptions were based on information DCR collected from districts when the state developed the Phase III WIP to identify the specific counts of more than 30 different types

of BMPs that need to be implemented to help achieve Chesapeake Bay pollution reduction goals. District staff and other local stakeholders helped generate the list of BMPs, but the BMPs on the list have turned out to be more ambitious than the number and types of BMPs producers have been willing to implement. Some districts may also lack the capacity to implement all BMPs on the list each year.

The agricultural needs assessment also uses the state's current timeline for meeting the Phase III Chesapeake Bay WIP goals, which reflects state policy but has proven overly optimistic. Based on 2023 state legislation (sidebar), the assessment assumes that the BMPs will be completed by the end of FY27, allowing associated pollution reductions to be submitted and credited in the Chesapeake Bay Model before the state's 2028 deadline. However, stakeholders report that a key reason that such a large amount of the appropriated funding remains unobligated is because implementing these BMPs within the planned timeline has proven unrealistic (sidebar).

SB 1129 & HB 1485 (2023) extended the deadline by which the secretary of agriculture and forestry and the secretary of natural and historic resources will assess Virginia's progress toward its Phase III Chesapeake Bay WIP pollution reduction goals from July 1, 2026, to on or after July 1, 2028.

> *"[VACS BMPs] take time to implement and gain trust of the producers. Funding needs to be split over many more years so that a solid plan can be developed."*
>
> **– District staff**

VACS appropriations could more closely reflect demonstrated BMP implementation in recent years

While the needs assessment should continue to be based on the state's environmental commitments and pollution reduction timeframes there is an opportunity cost (e.g., other state programs could have used the funds) when funds are appropriated but not fully utilized. If the General Assembly is concerned with the opportunity cost of unobligated VACS funds going unused in a particular year, it could better align VACS appropriations with the cost of BMP implementation. Rather than solely basing VACS appropriations on the agricultural needs assessment's calculation of funding needs, the General Assembly could apply an adjustment factor that results in an appropriation amount closer to the amount that realistically can be spent.

One option would be to adjust the appropriation amount downward by at least some amount of unobligated funds in the prior year. For example, reducing the potential unobligated amount by half would still have resulted in appropriation amounts higher than actual obligations, but would have significantly reduced the amount of unobligated funds. (Table 3-1). (The exact amount of the adjustment is a policy tradeoff. Lower appropriations result in more funds for other programs but raises the risk of insufficient funding for producers who want to participate in VACS). While Virginia may not be able to achieve its Phase III Chesapeake Bay WIP goals as quickly if the appropriation amount is reduced, aligning state funding amounts with actual BMP implementation capacity would reduce the amount of accumulating unobligated VACS funds.

TABLE 3-1
More realistic VACS funding amount could reduce accumulation of unobligated funds

	Actual VACS funding amount	More realistic VACS funding amount	Amount that could have been appropriated to other program(s)
FY25	$206.2 M	$154.2 M	$52.0 M
FY26	$222.4 M	$173.2 M	$49.2 M

SOURCE: JLARC analysis based on VACS allocations and obligated funding amounts.
NOTE: Scenario shown adjusts appropriation amount downward by half the difference between the appropriation amount and obligated amount in the prior year.

POLICY OPTION 1
The General Assembly could adjust appropriation funding for the Virginia Agricultural Best Management Practices Cost-Share Program by accounting for recent differences between calculated needs and actual obligations.

As noted above, the implementation timeline is a key factor that determines how much VACS funding the needs assessment estimates is required. If the timeline were extended, the agricultural needs assessment would determine less near-term funding is needed and better align with actual obligations. However, this approach would slow down Virginia's achievement of its Phase III Chesapeake Bay WIP pollution reductions (through VACS and other state and federal pollution reduction programs).

Extending the timeline to, for example, 2031, would not appear to conflict with federal requirements. Although the federal government initially directed Chesapeake Bay jurisdictions (sidebar) to meet Phase III WIP pollution reduction goals by 2025, the jurisdictions (including Virginia) recently agreed to extend the deadline to 2030. If BMP implementation was complete by 2030, Virginia could receive credit in the federal Chesapeake Bay model for meeting its goals by July 1, 2031. However, state statute still requires Virginia to assess whether sufficient progress has been made toward the Phase III WIP goals on or after July 1, 2028. Extending the state's statutory timeline for BMP implementation to align with the new agreement deadline of July 1, 2031, would provide districts with a more realistic timeline to fully obligate VACS funds and implement the remaining BMPs.

Chesapeake Bay jurisdictions include D.C., Delaware, Maryland, New York, Pennsylvania, Virginia, and West Virginia.

Funding allocation across districts appropriately prioritizes Chesapeake Bay and higher risk areas

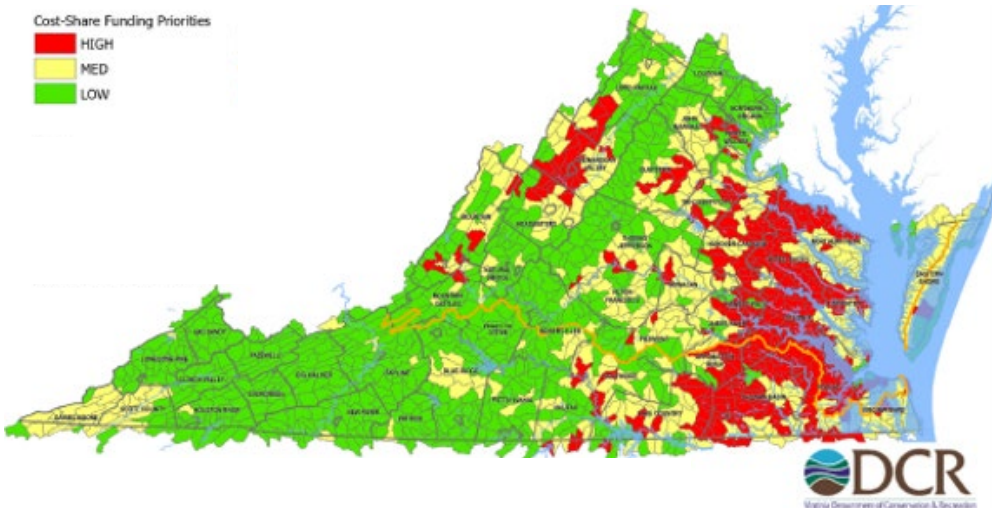
DCR appropriately allocates funding across the state's 47 districts according to their location and pollution risk. DCR first allocates district funding based on whether districts are located in the Chesapeake Bay watershed. Seventy percent of total VACS funds are reserved for districts within the Chesapeake Bay watershed, while the

remaining 30 percent of funds go to districts in the Southern Rivers, as required by the Appropriation Act.

DCR then uses the nonpoint source pollution assessment results to allocate VACS funding across the 47 districts. The nonpoint source pollution is a rigorous assessment that identifies agriculture as Virginia's most significant source of nonpoint source pollution and designates areas of the state as "high," "medium," or "low" risk using factors that affect the likelihood that nutrients from agriculture will reach water. These factors include soil erodibility, types of agriculture, types and numbers of farm animals, land cover, stream density, rainfall, seasonal variations in plant growth and nutrient applications, existence and type of agricultural BMPs, soil saturation, and slope.

The nonpoint source pollution assessment produces a geocoded map of the state that shows the location of the "high," "medium," and "low" risk areas for nitrogen, phosphorus, and sediment (Figure 3-3). When these pollutants are combined, many of the "high" risk areas are in the eastern part of the state, with an additional small concentration in the northwestern part of the state.

FIGURE 3-3
Nonpoint source pollution assessment map identifies agricultural pollution reduction priorities across the state



SOURCE: Virginia Nonpoint Source Pollution Assessment (2024–2026).
NOTE: Map shows potential risk for nitrogen, phosphorus, and sediment pollution combined per hydrologic unit.

DCR uses these pollution risk level designations to allocate funding to districts within and outside the Chesapeake Bay watershed, appropriately allocating higher percentages of funding to higher-risk areas. The assessment risk designations help DCR "focus its cost-share allocations where funds can produce the greatest reductions in surface and ground water contamination," according to VACS funding policy. This is accomplished by directing 50 percent of VACS funding to areas with a "high" risk of potential

pollution, 30 percent to areas with "medium" risk of potential pollution, and 20 percent to areas with "low" risk of potential pollution. (All parts of the state are included in these categories.) In effect, this distribution directs most VACS funding (80 percent) to areas with a "high" and "medium" pollution risk.

Stakeholders provided mostly positive feedback on the state's nonpoint source assessment of pollution risk across the state, but some criticized the proportion of VACS funding directed to the Chesapeake Bay watershed. Several stakeholders pointed out that the Chesapeake Bay watershed receives 70 percent of VACS funding even though it only comprises approximately 60 percent of the state.

There are two indicators of higher demand or willingness to implement BMPs—relative to the current funding allocation—in the Southern Rivers area:

- In FY26, districts in the Chesapeake Bay watershed left a larger share of allocated funding unobligated compared with the Southern Rivers (39 percent versus 31 percent).
- One-third of districts in the Southern Rivers area obligated 100 percent of their allocation in FY26, while no districts in the Chesapeake Bay fully obligated their funds.

VACS policy allows a portion of unobligated funds to be reallocated to Southern Rivers districts if they are not obligated by the end of the fiscal year. Because of this policy, several Southern Rivers districts ultimately obligated more than 100 percent of their allocation after receiving reallocated funds. However, this funding reallocation can sometimes take too long, and some Southern Rivers districts have had to delay or ultimately not implement a BMP (sidebar).

> *"The Chesapeake Bay/ outside of the Chesapeake Bay funding balance is not correct… we had to postpone a forested buffer [BMP] due to inadequate funds."*
>
> **– District staff**

The state has prioritized VACS funding for the Chesapeake Bay watershed to help the state achieve its Phase III Chesapeake Bay WIP pollution reduction goals as soon as possible. However, when the goals are achieved, the state could revert to its previous allocation of 60 percent of VACS funding to the Chesapeake Bay watershed and 40 percent to the Southern Rivers area to better reflect the size of the two drainage areas.

DCR's allocation process appropriately prioritizes VACS funds based on pollution risk, but higher risk areas may need to be prioritized further, especially if VACS funding declines. DCR could review the proportion of funds that are disbursed to districts with "high," "medium," and "low" risk areas to ensure the distribution remains reasonable for deploying VACS funds. DCR could also segment the "low" risk area and create a "very low" risk designation, which could allow DCR to reduce or eliminate funding for "very low" risk areas. DCR could also ensure that within each district, VACS applications for BMPs in "high" risk areas rank higher than those in "medium" and "low" risk areas when updating the process for prioritizing VACS application awards (Recommendation 5, Chapter 6).

Irrespective of allocation prioritization, certain districts will likely still be unable to obligate all of their funds. For example, allocating a higher percentage (e.g., 55 or 60

percent) of total funds to "high" risk areas may not necessarily increase the number of BMPs implemented in these areas (absent changes to the program to encourage more participation). Availability of more funds for "high" risk areas does not guarantee that there will be producers in these areas willing to implement BMPs. The current practice of directing portions of VACS funds to districts with "medium" risk and "low" risk areas increases the number of producers who are eligible to participate in the program and thus the likelihood that VACS funds will be more fully deployed, helping Virginia to continue to make progress toward its pollution reduction goals.

4 Outreach & Technical Assistance

The outreach and technical assistance that soil and water conservation district ("district") staff conduct in their local communities are critical to implementing agricultural best management practices (BMPs) through VACS. Outreach is an essential component of making producers aware of the VACS program and encouraging them to participate. Without adequate producer participation, the state cannot meet its agricultural pollution reduction goals. Outreach efforts include marketing the program to agricultural producers, building rapport with them, and keeping them informed of updates, such as changes in specifications and reimbursement rates (sidebar). Technical assistance entails helping producers choose, design, and implement the best BMPs for their land, which typically requires promoting the benefits of implementing BMPs, developing plans, managing contractors, conducting engineering reviews, and/or completing multiple site visits.

Various state and federal partners assist districts with VACS outreach. For instance, the Virginia Department of Agriculture and Consumer Services directs producers who need to fix water quality issues under the Agricultural Stewardship Act to the VACS program.

VACS-related outreach and technical assistance can differ among districts based on size and/or geography. For example, districts that do mostly annual agronomic BMPs (e.g., cover crops and nutrient management) can re-recruit the same participants each year, while districts with multi-year livestock practices (e.g., animal waste facilities) tend to look for new participants. All districts are required to conduct at least one outreach event per year according to their VACS grant agreements with the Department of Conservation and Recreation (DCR), and they have staff available to provide technical assistance to producers as needed. Most districts have between two and four full-time equivalent staff positions dedicated to VACS, though a few districts have as many as eight staff positions because of their larger size and/or funding allocation.

JLARC conducted surveys of producers, district staff, and district board of directors (BOD) members to ask about VACS funding, design, and implementation.

JLARC received survey responses from:

- 795 of ~8,100 notified producers (10 percent),
- 173 of 239 district staff (72 percent), and
- 138 of 248 BOD members (56 percent).

(See Appendix B for more information.)

Districts and DCR conduct producer outreach, but greater targeting could help reach nonparticipants

Surveys of VACS stakeholders indicate at least some degree of general awareness among producers about the program. About 80 percent of producers responding to a JLARC survey had at least some awareness of the VACS program (sidebar). In addition, only about 15 percent of district staff surveyed by JLARC indicated that a lack of awareness was one of the reasons eligible producers may not be participating in VACS.

District staff conduct a wide range of outreach to increase producer awareness of and participation in VACS. All 47 districts report doing at least two of seven types of VACS outreach, and two-thirds of districts report doing six or seven types of outreach (Figure 4-1). In general, in-person events tend to be the most effective type of outreach for districts, according to stakeholders. Districts are required through their VACS grant

agreements with DCR to host at least one VACS outreach event per year, and most also conduct outreach at community events. Districts' other outreach efforts may depend on local characteristics. For example, social media, mailers, or text messages may work better in larger districts or those that have many potentially eligible producers who do not participate in VACS.

FIGURE 4-1
Districts conduct multiple types of outreach to recruit VACS participants

SOURCE: JLARC staff analysis of district-provided information and stakeholder interviews.

To be eligible for VACS, farms must be 5+ acres and have gross receipts from the production or sale of agricultural products exceeding $1,000 for each of the past three years. Some of the 35,000 farms may not have receipts above $1,000 for each of the past three years and/or may not meet other criteria (e.g., have a confirmed water quality issue, if applicable). Additionally, USDA farm counts may differ from producer counts because producers may work on multiple farms, or farms may be worked by multiple producers. (See Appendix B for more information.)

DCR has also developed promotional materials for the VACS program that are available for district use. For instance, DCR has recorded a number of marketing videos that overview the VACS program, describe different types of eligible BMPs, and share successful participant experiences with the program. DCR has posted these videos and other program information on its website, and districts can use these materials as part of their outreach efforts.

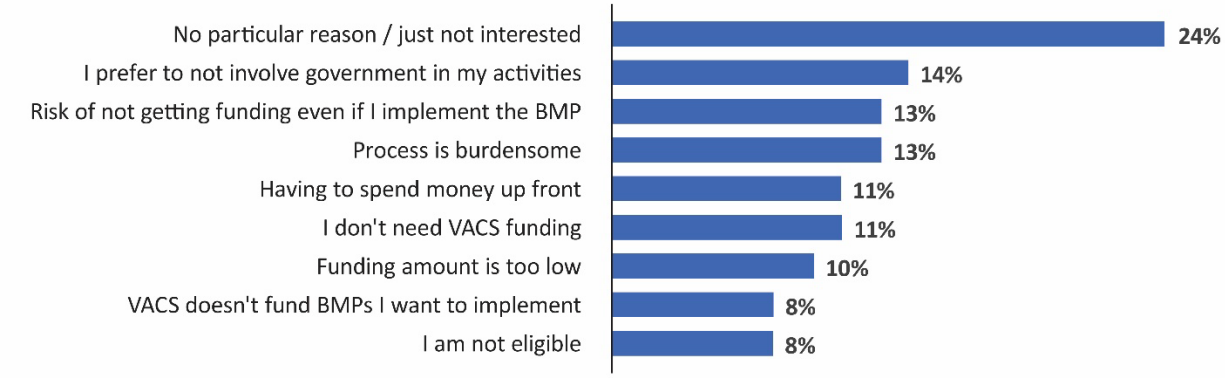
Many additional producers are likely eligible for VACS, but it is unclear how many would participate

There are likely a substantial number of agricultural producers in Virginia who are eligible for VACS but who do not participate, including those with a high pollution reduction potential. The exact number of these eligible nonparticipants is unknown. Approximately 35,000 farms in Virginia could potentially be eligible for VACS, according to U.S. Department of Agriculture (USDA) census data, because they include 10 or more acres and normally produce and sell at least $1,000 in agricultural products each year (sidebar). About 5,400 producers successfully implemented, or are contracted to implement, at least one BMP using VACS funding over the past five years (FY22–FY26). While producers may work on multiple farms, and some of these farms may not meet all VACS eligibility criteria, this gap suggests that there are likely many eligible producers not participating in VACS. District board of directors (BOD)

members and staff who responded to JLARC surveys indicated that they do not believe that all eligible producers are participating in VACS: only 65 percent of BOD members and 58 percent of district staff agreed that the producers in their district with the greatest potential to reduce pollution participate in VACS.

While a substantial number of eligible producers who are not currently participating *could* participate, some barriers to their participation may be difficult to overcome (Figure 4-2). Stakeholders report that if district staff have ongoing conversations with producers about VACS and build trust with them, producers who are reluctant to participate may be recruited over time, but many producers will still be unwilling.

FIGURE 4-2
Producers cite a wide range of reasons for not participating in VACS



SOURCE: JLARC survey of agricultural producers, summer 2026.
NOTE: Respondents could pick as many reasons as applicable. About one-fifth of respondents also answered "other;" review of these reasons did not yield additional themes.

Producers also may not want to participate because of other factors that increasingly make farming more challenging. For example, the cost of diesel fuel—needed to operate most farm equipment—has increased by about 50 percent over the last year. In addition, producers have faced supply chain and price disruptions because of the changing national tariff policy for agricultural imports and exports.

Data-driven outreach could help recruit at least some new producers who may be willing to participate

Increasing participation from even a small percentage of eligible nonparticipants could help make significantly more progress toward Virginia's water quality goals. As noted above, districts conduct a range of outreach to increase participation. However, it appears that only one district (Culpeper) uses tax records to identify potential new participants. Some districts do not have the staff resources or data capabilities to effectively use data to identify potential new participants.

The lack of reliable data on eligible nonparticipants makes systematically identifying potential new participants difficult. Understanding who these nonparticipants are,

whether they are potentially willing to participate, and the extent to which their participation will impact pollution reduction, are essential for a fully effective outreach effort.

Coordinated analysis of state and local data could help districts more systematically identify nonparticipants and then conduct targeted outreach. For example, DCR and districts could work together to "overlay" and integrate information from local government tax and land use data with VACS participation data and GIS data on environmental risks, farmland, and bodies of water. Using readily available information about farm size, income, water and soil features, and farming type (e.g., agronomic versus livestock) could help identify both farmland owners who are likely eligible for VACS as well as farmland owners with the greatest pollution reduction potential. Districts could then use that information to ensure all eligible producers are at least aware of the program and/or focus their outreach efforts on producers whose participation may most effectively reduce pollution.

As this data effort may be resource intensive, require refinement over time, and raise privacy concerns, the Soil and Water Conservation Board should implement a pilot program for a subset of districts to work with DCR to conduct this analysis. DCR may need the assistance of an expert consultant or academic expert to help plan and conduct this analysis. Accessing some of this information may be a challenge, particularly in multi-jurisdictional districts, and the administrative effort required for the data analysis may not yield information that is fully useful. Additionally, compiling this information may concern certain producers or local governments (though no new information would be collected).

However, given the need for additional participation to meet the state's water quality goals, attempting this data-driven approach to outreach is important. Districts that have recently been unable to obligate all their VACS funding would be best suited to participate initially, as these districts would have more funds available to incentivize producers to implement BMPs. If these efforts prove successful, the pilot program could be expanded to other districts.

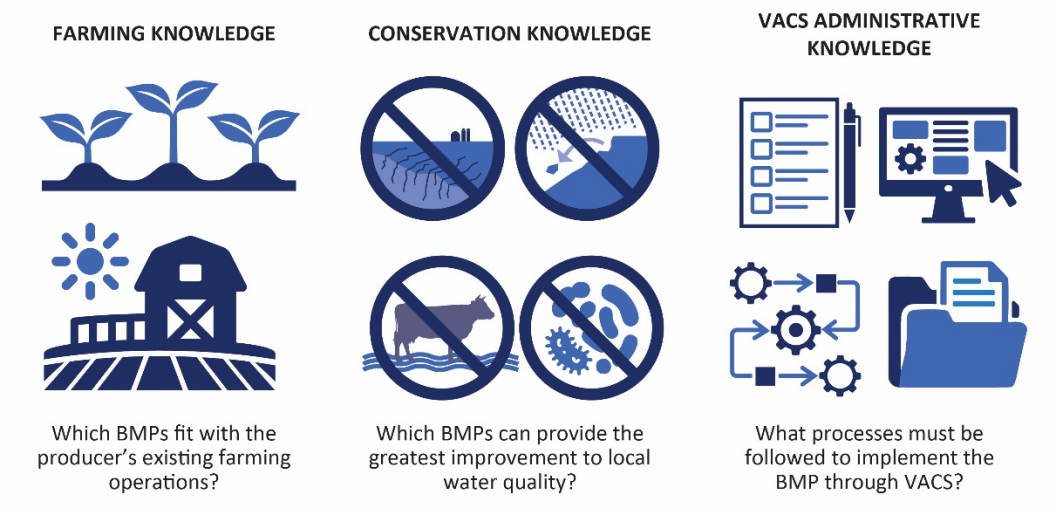
RECOMMENDATION 2

The Virginia Soil and Water Conservation Board should implement a pilot program through which selected soil and water conservation districts and the Department of Conservation and Recreation work together to (i) analyze local and state data to identify potentially eligible producers who are not currently participating in the Virginia Agricultural Best Management Practices Cost-Share Program, and (ii) facilitate the use of the results by districts to maximize their recruitment of eligible non-participants.

Stakeholders rate district staff's technical assistance highly, but staff training could be improved

To provide effective technical assistance to producers and perform other VACS-related duties, district staff need to be knowledgeable of several topics, including farming practices, water conservation, and VACS administration, which includes the specific processes required for implementing BMPs through VACS (Figure 4-3). This knowledge is essential for district staff to be able to understand producer needs, identify the most effective and applicable BMPs for specific operations, and encourage producer participation in VACS. Having this knowledge also helps district staff understand which BMPs maximize pollution reduction and better ensures district staff follow VACS-specific processes for consistency and accountability.

FIGURE 4-3
District staff must have knowledge of various topics to implement VACS



SOURCE: JLARC analysis of district staff interviews and survey responses.

District staff may enter their positions with some of the required knowledge but often still need training and on-the-job experience to fully perform their duties. In 2018, DCR began offering a conservation planner certification program to provide the needed training. (Virginia used to rely more on federal training.) The certification includes a series of conservation-related training courses developed by DCR and takes about two years to complete. Courses cover topics such as soil loss calculations, water quality resource assessments, and the VACS program. The courses are currently taught by DCR staff, other state and federal agencies, and private contractors, though fewer courses will be taught by federal agencies in the future. District staff also typically receive on-the-job training from more experienced colleagues in their district or region (sidebar).

> *"[T]he different skills that our staff need [to] obtain to be a successful planner are varied and complex. Teaching people how to listen and communicate with farmers, [...] the variety of VACS practices and which ones are relevant[,] [...] [and] how the finances function [...] is important. [...] [B]rand new employees very often feel very overwhelmed, especially if there are no senior employees available within the team to guide the way."*
>
> **– District staff member**

District staff generally appear to have the knowledge needed to provide VACS-related technical assistance, based on their credentials and stakeholder feedback. Approximately 80 percent of district staff have two or more years of relevant experience, indicating that most have gained on-the-job experience. Additionally, just over half of district staff have completed the conservation planner certification program offered by DCR, and another 25 percent are working on it. Most producers surveyed by JLARC, including those who serve on district boards, provided positive feedback on district staff's performance, and 85 percent of district staff agreed that their colleagues have adequate expertise to provide technical assistance.

> *"Conservation planning gives you general conservation related knowledge, but almost none of the trainings are actually job applicable. You have to entirely rely on district staff to train new hires on the [...] planning and BMP selection process (then you have to assume that every district is doing it the same and has staff knowledgeable to do so.)."*
>
> **– District staff member**

Although most district staff appear to have adequate VACS expertise, less than one-third of district staff were "satisfied" or "very satisfied" with DCR's conservation planner certification program. More than 40 percent of the district staff who responded to a JLARC survey were "dissatisfied" or "highly dissatisfied" with the training, and over one quarter were neutral. One common complaint was that the training did not cover *all* of the knowledge areas required for the job. For instance, the training focuses mainly on conservation; there are no specific courses on farming operations and only limited training on VACS-specific processes, such as how to best recruit producers or complete all required BMP implementation steps. To be effective at implementing the VACS program, staff need training on all these areas of knowledge. Sufficient training is particularly important for district staff who lack experienced colleagues to teach them (sidebar). As of spring 2026, two districts had no staff with a tenure of at least two years, and at least six districts lacked staff with a tenure of five or more years.

> *"[W]hen the courses are spread out over 18 months (and you don't know when they will be until a few months out) it is hard to plan for and even harder to make up a training that one had to miss."*
>
> **– District staff member**

District staff also expressed frustration that courses were not offered frequently enough to complete the certification program in a timely manner. Classes are currently offered about once a year. This makes it difficult for district staff to complete the requirements quickly, particularly if they must miss a training because of its timing or location (sidebar). While waiting to complete these courses, district staff may be required to perform certain job requirements, such as choosing and designing BMPs for a given farm, without proper training (or rely on a more experienced or better trained colleague).

DCR should ensure it provides district staff with training that covers all technical knowledge required and offers courses frequently enough so district staff can complete the training in a timely manner. Topics should include general farming knowledge and the specific administrative processes required to implement VACS BMPs. Additionally, DCR should ensure that these training courses are offered at least twice per year and provide districts with the schedule early enough to maximize staff's ability to participate in training.

DCR is already expanding the course topics covered in the conservation planner certification program, and the proposed courses appear to cover at least some of the requested knowledge areas. As part of this process, DCR should incorporate any additional training needs and more frequent course offerings. DCR has indicated that it does not currently have the funding needed to provide all conservation planner

certification courses at least twice per year. Developing the curriculums, materials, and videos for these additional courses would require $70,000 in one-time funding and about $30,000 in ongoing funding annually to pay for instructors and materials.

RECOMMENDATION 3

The Department of Conservation and Recreation should ensure that its conservation planner certification program (i) provides staff at soil and water conservation districts with sufficient knowledge in all areas needed to effectively administer the Virginia Agricultural Best Management Practices Cost-Share Program (VACS), including farming practices, conservation, and VACS administration and (ii) offers each course at least twice per year so that district staff can complete the training in a reasonable timeframe.

Districts express concern about unpredictability of funding to administer VACS

The state provides districts with two different types of technical assistance ("TA") funding—"regular" TA funding and "base" TA funding—to cover VACS-related staffing costs. Regular TA funding is allocated as a percentage of awarded VACS cost-share funding amounts and is released quarterly as districts approve awards (sidebar). Base TA funding is allocated across districts based on their budgetary needs and is released to districts at the beginning of the fiscal year. Districts can use both types of TA funding to administer the VACS program. (This VACS-specific TA funding is separate from the VACS cost-share funding that is awarded to producers for BMPs and from districts' general administration and operations funding.)

Districts do not receive regular TA funding for providing technical assistance for BMPs that are approved for VACS funding but then cancelled within the fiscal year or for BMPs that are implemented without VACS funds.

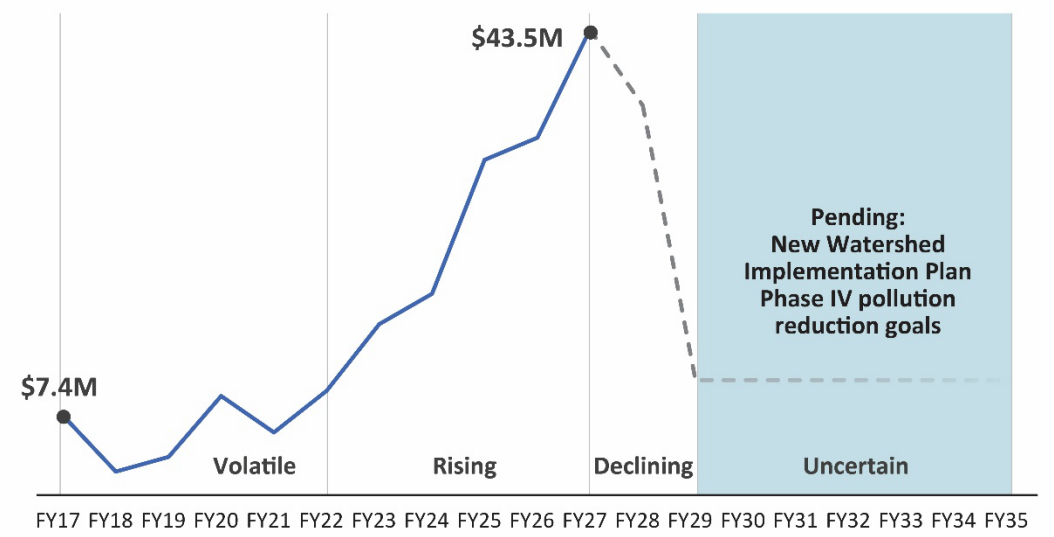
Current TA funding amounts appear sufficient for many districts. In JLARC's survey of district staff, 62 percent of respondents indicated that their district received "enough" or even "too much" TA funding, likely because of recent funding increases. Some district staff reported staffing capacity challenges, in some cases because of recent staffing turnover. Although these challenges were not widespread, DCR could consider ways to further support districts experiencing staffing challenges.

Because it is partly determined by total VACS program funding, district TA funding has fluctuated significantly and will likely continue to be difficult to predict. Between FY17 and FY22, VACS TA funding swung drastically, decreasing by more than one-third in two years and increasing by more than two-thirds in other years. Funding then grew over five years through FY27 (Figure 4-4). TA funding may continue to change significantly. For example, funding may decrease when Virginia achieves its Phase III Chesapeake Bay pollution reduction goals but increase after Virginia sets new Phase IV pollution reduction goals.

Although the majority of districts reported receiving enough VACS funding, the fluctuating TA funding and future uncertainty have made some districts reluctant to increase staff capacity to match their increased VACS-related workloads. According to multiple district staff and stakeholder groups, some districts are hesitant to hire new

staff despite recent funding increases because they do not know if or when funding will decrease again. They do not want to hire new staff only to lay them off in a year or two. Such staffing changes could damage the relationships and trust built between districts and producers, hindering districts' ability to increase BMP implementation.

FIGURE 4-4
Statewide TA funding has fluctuated, and funding is uncertain moving forward



SOURCE: JLARC analysis of VACS cost-share policy documents and the 2026 agricultural needs assessment.
NOTE: Amounts shown are historical and projected total TA funding, which includes regular and base VACS funding.

> *"All districts are different, but being able to have consistent funding for staffing would definitely make it easier for districts to have more staff. I think that having a strong relationship with the producers in your district is paramount [...]. Producers want someone they can trust, who won't try to burn them, who understands what they are talking about and how their operation works."*
>
> **– District staff member**

Making TA funding more predictable could help increase VACS participation, according to district staff. When asked how the state could encourage greater VACS participation, the most common response from over half of district staff who responded to a JLARC survey was "ensure consistent funding for district staffing" (sidebar). Staff emphasized the importance of funding stability to help maintain a trained and capable staff over time and implement BMPs.

The nature of the VACS program, though, makes providing a stable and predictable funding stream difficult because the program is designed to achieve pollution reduction goals that change over time. TA funding changes could potentially be "smoothed" over time by using a rolling, multi-year average. This would help smooth funding changes but could cause TA funding to increase more slowly than BMP funding. Any approach considered should ensure TA funding accurately reflects changing program needs over time. A state workgroup is currently reviewing Virginia's Water Quality Improvement Fund and has been directed to review and recommend changes related to VACS TA funding. The workgroup is scheduled to publish its findings and recommendations in fall 2026.

5 Program Eligibility and Design

Incentive programs' eligibility criteria and financial incentives are key elements of program design. For VACS, effective program design is important to ensure the program (1) incentivizes the appropriate agricultural producers to reduce nitrogen, phosphorus, and sediment pollution to improve water quality, and (2) provides a clear and sufficient framework for soil and water conservation districts (districts) to implement VACS as consistently as possible across the state.

Most of VACS's design elements are determined by the state. The Department of Conservation and Recreation (DCR) maintains the VACS program manual, which outlines all elements of the program, including the program's purpose, eligibility criteria and requirements, the approved best management practices (BMPs), and cost-share rates. The Agricultural BMP Technical Advisory Committee (TAC)—composed of DCR staff, district staff, and stakeholders—reviews and recommends changes to the VACS manual and BMPs annually. The Virginia Soil and Water Conservation Board (SWCB) approves any design changes for VACS, as well as the VACS manual and funding allocations each year.

VACS eligibility requirements seem appropriate for program's goal to improve water quality

VACS has several eligibility requirements to determine which producers are eligible to participate in the program. Producers can participate in VACS if they have five or more acres of agricultural land and gross receipts exceeding $1,000 annually for each of the past three years. Some BMPs also require the presence of "live water" on the property (sidebar). These eligibility requirements are included in the VACS manual and have largely remained the same since 2014 or earlier.

VACS's acreage and income eligibility requirements seem appropriately inclusive. Most farms in Virginia (90 percent) have at least 10 acres of land and $1,000 or more of income each year, according to data from the U.S. Department of Agriculture (sidebar). The remaining 10 percent of Virginia farms had fewer than 10 acres of land, but many of these may have had at least five acres and thus be eligible for VACS (data is not collected about farms with fewer than 10 acres).

While most farms have at least $1,000 of income each year, it is not known how many would be ineligible for VACS because they did not have this level of income for three consecutive years. The three-year requirement seems appropriate to ensure a producer has at least a short-term track record of farming viability. Especially for long-term or

Live water can consist of a creek, stream, river, or other water feature that has surface flow, or creates a surface flow, for a substantial portion of the year. District staff confirm the presence of live water when they review eligibility for certain VACS BMPs (e.g., stream exclusion fencing).

U.S. Department of Agriculture Census data was collected in 2022 and includes data on the number of farms, farm size and income, types of crops, etc. USDA defines a farm as any place from which $1,000 or more of agricultural products were produced and sold, or normally would have been sold, during the given census year.

structural practices, it seems prudent for the state to enter into a contract only with producers who have recently demonstrated viability.

VACS's requirement that producers must use only approved BMPs is appropriate and aligns with the program's goal to reduce agricultural water pollution. The Chesapeake Bay model gives Virginia reduction credit when a producer properly implements a BMP, irrespective of whether there is water adjacent to or near the agricultural activity. (This is based on the science of surface water flow and drainage within the Chesapeake Bay watershed.) Each BMP has certain implementation specifications that must be met, and district staff are required to ensure that certain BMPs directly address a water quality concern (e.g., stream exclusion fencing).

JLARC conducted surveys of producers, district staff, and district board of directors (BOD) members to ask about VACS funding, design, and implementation.

JLARC received survey responses from:

- 795 of ~8,100 notified producers (10 percent),
- 173 of 239 district staff (72 percent), and
- 138 of 248 BOD members (56 percent).

(See Appendix B for more information.)

Most stakeholders believe that VACS eligibility criteria are appropriate. Eighty-six percent of district board of directors (BOD) members and 77 percent of district staff who responded to JLARC surveys (sidebar) indicated that the current VACS eligibility requirements are appropriate. However, some district BOD members and staff noted that VACS's five-acre requirement prevents very small producers from participating, and VACS's requirement to have three years of agricultural income prevents new producers from participating. Though changing VACS eligibility requirements to include very small and/or new producers would increase the number of eligible producers in the state, this change could increase the administrative burden for district staff without a commensurate pollution reduction benefit. In addition, without considering a producer's viability, the state could enter into BMP contracts with producers who may not be in business for the duration of the BMP.

VACS program design is largely effective and reasonable

VACS aims to incentivize producers to implement BMPs by reimbursing them for a portion of the BMP implementation costs, and the amount producers can receive is primarily determined by the cost-share structure and rates. These cost-share rates can have a significant impact on producers' willingness to implement BMPs. If cost-share rates cover a substantial portion (or all) of a BMP's implementation cost and reduce the amount the producer must pay, they are more likely to incentivize producers to implement the BMP. If rates are too low and the producer must pay a substantial portion of the cost, producers may not be willing to implement the BMP.

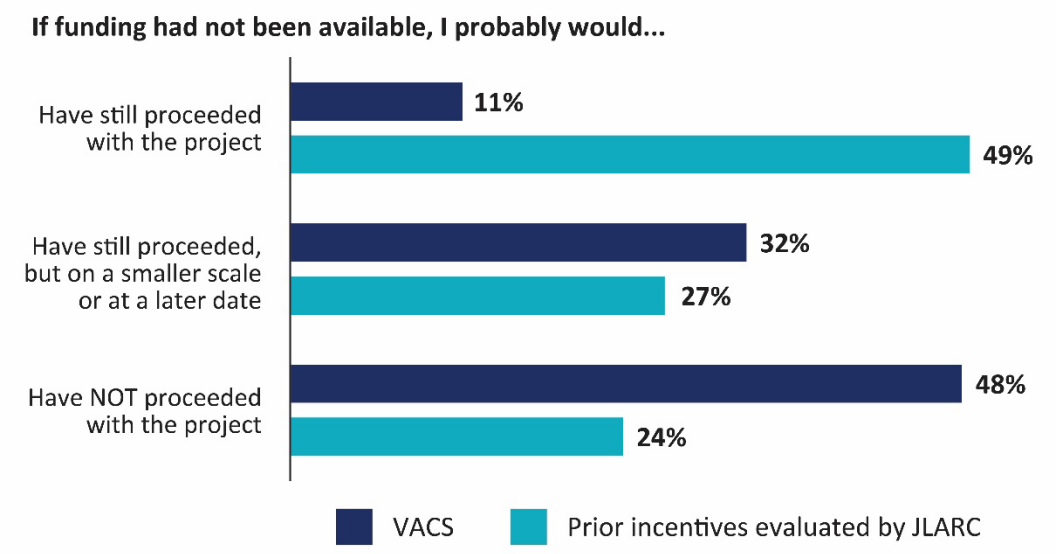
Other VACS payment policies—such as the producer payment cap and timing of VACS payments—can also affect a producer's willingness to implement BMPs. The producer payment cap limits the total VACS funding an individual producer can receive annually. In addition, producers must pay the cost of BMP implementation up front and then be reimbursed.

VACS appears to effectively incentivize producers compared with other state incentives

Asking economic incentive recipients to characterize the role an incentive played in their behavior is a commonly used methodology to assess an incentive's effectiveness. The methodology has limitations because it relies on self-reported information and requires a recipient to envision their behavior without the incentive. In addition, recipients may have reason to speak positively about the effect of an incentive so that it will be retained and available to them in the future. Because of these limitations, recipient input needs to be considered with other analyses to understand an incentive's effectiveness.

VACS is relatively effective at incentivizing behavior compared with other incentives previously evaluated by JLARC using this methodology (Figure 5-1). A lower proportion of prior VACS recipients reported they would have proceeded with their project without funding (11 percent versus 49 percent), and a higher percentage reported they would *not have* proceeded without funding (48 percent versus 24 percent). VACS compares even more favorably to another agricultural incentive program (the Governor's Agriculture and Forestry Industries Development Fund grant).

FIGURE 5-1
VACS recipients report the program had greater influence on their behavior than average for other economic incentives



Source: JLARC survey of Virginia agricultural producers (summer 2026) and summary of prior surveys conducted for JLARC reviews of Business Location and Expansion Incentives (2023), Custom Incentives (2024), and Workforce and Industry Incentives (2025).

VACS cost-share rates appear effective at incentivizing BMP implementation

Districts estimate the cost of a project using their district's average cost list, which has the average costs for the components (e.g., fence, pipeline) of commonly used BMPs within their district. Average cost lists are based on each district's local market costs. Average cost lists are typically used to estimate the costs of structural BMPs (many of which have percentage-based cost-share rates).

VACS cost-share rates are structured in one of three ways: a flat rate per unit (e.g., per acre or per foot), a percentage of implementation costs, or a combination of the two (Table 5-1). The total cost-share funding that producers receive is based on the cost-share rate, the size of the project (e.g., number of acres, length of fencing), and district "average cost lists" (sidebar). For example, if the statewide reimbursement rate for a BMP is 75 percent, and the district's average cost for the BMP components is $1,000, the maximum award amount is $750. VACS cost-share rates can be updated through recommendations from the TAC and approval by the SWCB as needed, though the rates for some of the longstanding BMPs have not changed much over time.

TABLE 5-1
VACS cost-share rates use a per-unit basis, percentage basis, or both

Example BMP	Cost-share rate
Cover crops	$20–$100 per acre
Animal waste control facilities	75% of cost
Livestock stream exclusion	60%–100% of cost
Woodland buffer filter area maintenance	95% of cost + $100–$500/acre

SOURCE: VACS cost-share manual.

Producers have received a wide range of cost-share funding awards under Virginia's current cost-share rates. For example, in FY25 producers received a median cost-share amount of $1,980 for one of the most popular cover crop BMPs, which provides $40 per acre for producers to establish vegetative cover on cropland to protect it from erosion and reduce nutrient losses. In contrast, producers received a median cost-share amount of $142,055 for the animal waste control facilities BMP, which provides 75 percent of the approved cost for producers to install a system to manage liquid or solid waste from areas where livestock or poultry are concentrated (e.g., feeding facilities). Cost-share funding awards vary widely because the cost of implementing different BMPs can vary substantially, and the size of producers' BMP projects varies.

While producers' BMP costs vary substantially, the goal of VACS's cost-share rates is to cover enough of the cost to encourage producers to participate. VACS cost-share rates typically seek to cover a large portion of BMP implementation costs. Nearly all BMPs that are reimbursed on a *percentage* basis cover at least 75 percent of producers' BMP implementation costs. Only four percentage-based BMPs have reimbursement rates below 75 percent. Producers reported that the goal of "shared" costs is generally being achieved. Most producers reported the program funding they received was either about the same or less than their actual cost.

Producers and districts suggest cost-share rates provide adequate incentive to participate

VACS's cost-share rates seem to incentivize producers to implement BMPs. Inadequate cost-share rates were not among the top reasons cited by producers who considered but ultimately chose not to participate in VACS. Furthermore, most district staff and district BOD members responding to JLARC surveys reported that VACS cost-share rates effectively incentivize producers to implement BMPs. Most district BOD members (86 percent) and district staff (75 percent) indicated that VACS cost-share rates are adequate to incentivize producers to implement BMPs.

The subset of BMPs that are reimbursed on a *flat-rate* basis also seem to adequately incentivize producers to implement BMPs. Flat-rate reimbursements are based on estimated implementation costs per unit. For example, VACS pays $5.00 per acre for nutrient management plan implementation and $350 per acre to maintain woodland buffer filter areas. Although it is difficult to reliably determine the proportion of costs that flat cost-share rates cover across producers, several district staff indicated that flat cost-share rates typically cover 75 to 80 percent of BMP costs. In addition, cover crop BMPs with flat cost-share rates are frequently implemented, which suggests the rates are adequate to incentivize producers to implement these BMPs.

Higher cost-share rates for some BMPs encourage producers to implement more effective or longer-lasting practices

The cost-share rates for certain types of VACS BMPs are also designed to incentivize producers to implement the most effective version of the BMP (i.e., a wider buffer) or to maintain a BMP for a longer time period. For example, producers can receive $40 per acre to maintain a protective cover crop for agricultural cropland for 120 days or more (after achieving 60 percent cover), which is double the $20 per acre to maintain it for only 60 to 89 days. In FY24 and FY25, 95 percent of producers who implemented this BMP chose the longer timeframe.

Similarly, producers can receive a 100 percent reimbursement for implementing a stream exclusion fence with more setback and for a longer timeframe (set back at least 50 feet from the stream and maintained for 15 years), as opposed to an 85 percent reimbursement with a smaller setback for a shorter timeframe (set back at least 35 feet and maintained for 10 years). In FY24 and FY25, 91 percent of producers who implemented the stream exclusion fence BMP with the wider setback chose a 15-year lifespan.

Pilot program should temporarily raise cost-share rates for most cost-effective BMPs to encourage adoption of these practices and increase VACS participation

Although VACS cost-share rates appear effective at incentivizing BMP implementation, increasing the rates for the most cost-effective BMPs that reduce pollution could help the state make more progress toward its water quality goals. Nearly all VACS

BMPs reduce nonpoint source pollution from agricultural land, according to scientific research. However, some BMPs achieve greater pollution reductions for each state dollar spent than others. If the state can identify the most cost-effective BMPs (Recommendation 1 in Chapter 2), their cost-share rates should be increased as part of a pilot program to test whether increased rates would further incentivize producers to implement the most cost-effective BMPs. Preliminary JLARC analysis indicates that the relative cost-effectiveness of BMPs varies substantially. Therefore, state cost-share rates for the most cost-effective practices could be increased without substantially reducing their relative cost effectiveness.

Increasing rates could also potentially encourage additional producers to participate in VACS. Although producers did not cite rates as a key reason for not participating in VACS (Chapter 4), higher rates could incentivize at least some producers who have not participated in VACS before. Increased participation could help the state make more progress toward its water quality goals.

DCR should administer a pilot program and determine whether to increase the rates for the most cost-effective BMPs (i.e., from 75 percent to 90 percent), pay 100 percent (sidebar), or even pay producers more than the implementation cost. The pilot would likely need to be targeted to a specific region or differentiated across regions because the most cost-effective BMPs and locally appropriate cost-share rates may vary across the state. DCR staff should evaluate the pilot after two years and report to the SWCB on whether (1) implementation of the most cost-effective BMPs increased, especially among new producers, and (2) the higher cost-share rates for the most cost-effective BMPs should be maintained long term. Given the magnitude of unobligated VACS funding, additional funding would not be needed to conduct this pilot.

Producers receive 100 percent of BMP implementation costs through some Virginia programs similar to VACS. The Department of Forestry's Riparian Forests for Landowners Program provides no-cost riparian forest buffer installation and one year of maintenance to landowners. The James River Association and Chesapeake Bay Foundation have a similar program that covers 100 percent of the cost to design, plant, and maintain forested land along the James River.

RECOMMENDATION 4

The Virginia Soil and Water Conservation Board should direct the Department of Conservation and Recreation to conduct a pilot program to temporarily increase cost-share rates for the most cost-effective best management practices in the Virginia Agricultural Best Management Practices Cost-Share Program and report to the board whether the higher rates (i) helped increase implementation and (ii) should be adopted statewide.

As part of the pilot, DCR should consider whether there might be unintended negative consequences and how they could be addressed. For example, increasing rates to 100 percent or more could lead to producers being less invested in multi-year BMPs and less motivated to maintain them over time. In addition, raising cost-share rates could lead to fairness concerns with newer producers receiving higher cost-share rates than producers who previously agreed to implement the same BMPs at lower rates.

While cost-share rates help incentivize producers, stakeholders indicated that cost is often not the deciding factor in whether to implement BMPs. Some producers may have a strong interest in improving water quality and may be willing to implement

BMPs even if they must bear a large proportion of the implementation cost. Other producers may not consider implementing BMPs even if they are reimbursed for 100 percent or more of the cost because they do not want to accept government funds.

Other VACS payment policies align with best practices and do not appear to hinder BMP implementation

There are two other key VACS payment policies that could affect a producer's willingness to implement BMPs: (1) the producer payment cap and (2) the reimbursement process. The cap limits the amount of cost-share funding each producer can receive annually to $300,000 unless they receive an exemption from DCR (sidebar). The reimbursement policy requires producers to pay for the cost of implementing BMPs with their own funds upfront, and then the VACS program reimburses them after the project has been verified as completed.

Producers can request a "variance" from the producer payment cap by submitting documentation to their district board that requests a higher payment for a BMP. The district board reviews the request, forwards it to DCR if approved, and then DCR convenes a committee to consider the request.

The VACS cap and reimbursement policy both align with best practices for an effective incentive program. Best practice is to cap the total funding a single participant can receive to ensure funding is not overly concentrated among a few participants. VACS's cap helps ensure that VACS funding is available to a large number of producers rather than a smaller number of big producers. It is also a best practice that funding should be performance based (i.e., not provided until performance is demonstrated). Reimbursing BMP costs after they are incurred by the producer and the project has been implemented, rather than providing payment upfront, ensures that BMPs are implemented appropriately before producers are paid—increasing the likelihood pollution is reduced.

The state has programs and processes to help ensure VACS payment policies do not prevent producers from implementing BMPs. The cap could be a barrier for producers who want to implement multiple BMPs or expensive structural BMPs with costs that greatly exceed the cap, but it does not appear to be a hindrance. Producers may seek an exemption from the cap, which is typically granted. DCR received 20 cap exemption requests between FY23 and FY25 (less than half a percent of total producers) and approved 19 of them. In addition, the cap has been raised several times over the past 10 years, most recently from $150,000 in FY22 to $300,000 in FY23. Finally, producers have the option of implementing whole farm approach BMPs, which are not subject to the cap.

Though it could potentially be a barrier, VACS's requirement that producers pay the costs of BMPs upfront also does not appear to hinder participation. In JLARC's survey, the requirement to pay for the BMP upfront was not among the top reasons for not participating cited by those producers who considered but ultimately chose not to participate in VACS. Moreover, to alleviate this potential impediment, the Department of Environmental Quality (DEQ) has an Agricultural Best Management Practices Loan program that provides no interest loans and the potential for principal forgiveness to help producers pay for BMPs. Less than 100 producers (about 4 percent of participating producers) have requested these loans each year since FY23, according

to DEQ data, and the majority who applied for loans received them (Table 5-2). Those who did not receive a loan typically had low creditworthiness, too many existing liens on their property, or were able to complete the project without funding from DEQ.

TABLE 5-2
Less than 100 producers applied for BMP implementation loans in recent years

	FY23	FY24	FY25	FY26 (to date)[a]
# individuals who applied for loans	83	89	99	87
# individuals who received loans (loans closed)	46	85	55	68
% of loans approved	55%	96%	56%	78%
Total amount of loans requested	$9,473,923	$11,050,383	$15,999,525	$15,918,956
Total amount of loans approved	$6,260,347	$11,994,602	$10,483,847	$13,321,088
Average loan amount	$136,094	$130,005	$290,900	$195,898

SOURCE: JLARC staff analysis of data provided by DEQ (FY23–FY26).
[a] FY26 data as of June 24, 2026.

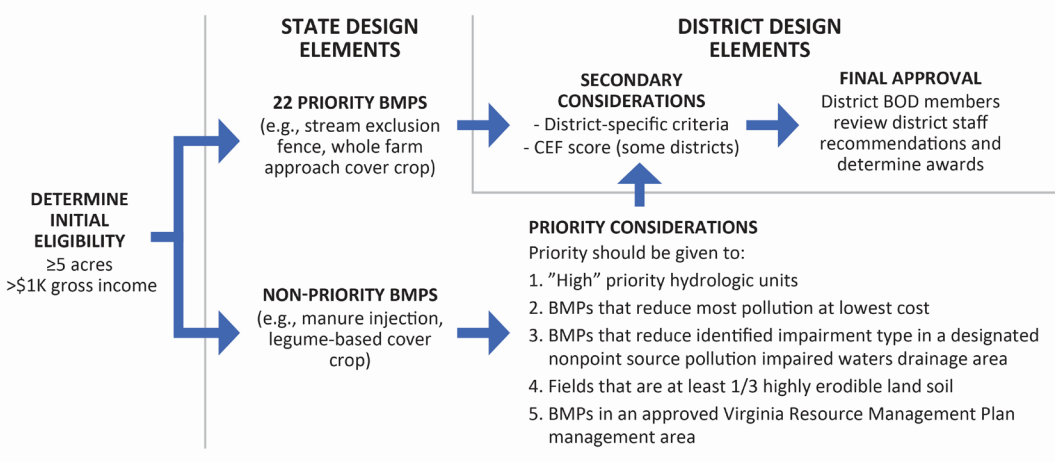
6 Awards

VACS awards should fund the most cost-effective agricultural best management practices (BMPs) possible in locations that achieve the greatest pollution reductions, according to current VACS policy. All parts of the state have water quality improvement needs; therefore, VACS funding is awarded in both the Chesapeake Bay watershed and the Southern Rivers area. In addition, areas around the state with more pollution reduction needs than others are "high" priority areas (sidebar) for VACS awards. While all properly implemented VACS BMPs reduce pollution, VACS funding award strategy has a significant impact on the extent of those reductions, ultimately affecting the state's ability to meet its Chesapeake Bay Watershed Implementation Plan (WIP) goals and improve water quality statewide.

Soil and water conservation districts (districts) make VACS funding awards based on state-level and district-level priorities (Figure 6-1). At the state level, the Department of Conservation and Recreation (DCR) has five "priority considerations" that are intended to target VACS funding to producers in areas that have the biggest impact on water quality. DCR also encourages districts to prioritize 22 specific BMPs for funding (e.g., woodland buffer filter areas, stream exclusion fencing and grazing land management, and several cover crops) even if they do not meet the state's priority considerations. At the local level, districts can establish "secondary considerations" that reflect local water quality needs. For example, some districts prioritize BMPs based on their location (e.g., BMPs in public water supply watersheds) or the type of pollution reduction (e.g., BMPs addressing bacterial contamination). Many districts also consider a numeric score that measures each application's relative benefits called the Conservation Efficiency Factor (CEF) when determining awards.

The **"high" priority areas of the state** are the hydrologic units with the greatest risk for agricultural pollution. Hydrologic units are classified as "high," "medium," or "low" using a model that estimates "edge of stream" loadings of nitrogen, phosphorus, and sediment per hydrologic unit. Classifications are updated every two years as part of Virginia's nonpoint source assessment. (See Chapter 3 for more information.)

FIGURE 6-1
VACS award process considerations include eligibility, state priorities, and local priorities



SOURCE: JLARC staff conceptual depiction of process after reviewing DCR's VACS manual and interviewing DCR staff. NOTE: CEF is a conservation efficiency factor score that is generated for each application by DCR's Conservation Application Suite system based on 11 different factors related to BMP efficiency.

Majority of districts have not recently used a prioritization process to make VACS awards

The majority of districts have not recently used DCR's prioritization process to determine VACS awards. In fact, 32 of the 47 districts reported they did not use a prioritization process to determine VACS awards in FY26. Only 12 districts reported using a prioritization process, though some still ranked applications for documentation purposes. This approach to determining VACS awards is not inherently problematic because all BMPs provide some pollution reduction.

However, not using a prioritization process can lead to inefficient spending when a district has more eligible projects than it can fund. Seventeen districts reported receiving funding requests that exceeded their allocation in the last three program years, but only seven appeared to prioritize their applications in FY25 (i.e., applied secondary considerations to prioritize). Without prioritization, these districts risked funding less cost-effective projects over more cost-effective projects because their funding had run out.

Effective prioritization will become more necessary if VACS funding is reduced in the future. If VACS funding declines, districts will need to be more selective about the BMPs that are awarded funding to ensure the most cost-effective BMPs are prioritized, and the state receives the largest pollution reduction possible for its investment.

VACS prioritization process does not always direct funding to most cost-effective BMPs in high-priority areas of state

VACS funding should be awarded to the most cost-effective BMPs with the highest potential to reduce pollution and improve water quality, but districts do not currently have the information necessary to accomplish this. According to the VACS manual, effective VACS awards should fund BMPs that "maximize nutrient and sediment reductions and also protect the taxpayer's interest, by implementing the most cost-effective BMPs possible in locations that achieve the greatest pollutant reductions on a field-by-field basis." However, the state does not currently provide districts with a ranked list of the most and least cost-effective BMPs, so districts must use their discretion to decide which practices are the most cost effective and should be prioritized. DCR and DEQ should begin regularly identifying and publishing information on the most cost-effective VACS BMPs for different types of agriculture (Recommendation 1, Chapter 2).

Existing policies at the state level (five "priority considerations") and district level ("secondary considerations") do not result in a cohesive process that ensures the most cost-effective BMPs receive awards. In practice, the current process gives more weight to district priorities than state priorities and may not always prioritize the most cost-effective BMPs. For example, state-level priority considerations are broad enough that nearly all eligible VACS applications qualify as priorities. Moreover, the 22 priority BMPs (which largely include BMPs the state agreed to implement as part of the Chesapeake Bay WIP, Appendix C) do not have to meet state-level priority considerations. Any one of the priority BMPs is qualified to receive funding regardless of whether it meets one of the five priority considerations. Because state policies are too broad to effectively prioritize VACS applications, districts' secondary considerations become the main determinant of awards for those districts that are currently prioritizing applications.

Districts' secondary considerations are generally appropriate, but do not always ensure the most cost-effective BMPs are prioritized for VACS awards. The majority of districts' secondary considerations appropriately address local water quality issues, such as prioritizing practices implemented on land affected by the Mountain Valley Pipeline or practices in areas that can have an impact on local drinking water. Some districts' secondary considerations are also designed to bring new producers into VACS by prioritizing applicants who have not previously participated in the cost-share program. However, some districts have secondary considerations that are not directly related to water quality, and some prioritize specific BMPs that may not be the most cost-effective BMPs (e.g., annual cover crops).

Districts are also supposed to use CEF scores to help prioritize potential VACS awards—a data-driven tool that helps identify which applications are going to reduce the most pollution effectively on a given property (sidebar)—but CEF scores are not used consistently or by all districts. Some districts, for example, use CEF scores

A CEF score is generated for each application by DCR's Conservation Application Suite system based on 11 different factors related to BMP efficiency. Factors considered by CEF include: hydrologic unit ranking, soil loss data, implementation cost, and whether the practice is a priority BMP. CEF is most effective when used to compare BMPs that reduce the same pollutant, according to DCR.

prominently in their VACS award decisions, while other districts give more weight to other secondary considerations. Districts that use CEF scores inconsistently, or do not use them at all, could be approving BMPs that are not the most cost-effective use of VACS funds.

The state should revise the prioritization process for VACS applications to better ensure that state funding is spent on the most cost-effective BMPs. Although this may not currently affect many districts because most are able to award VACS funds to all eligible applicants, a strong prioritization process will be important if VACS funding decreases, requiring the state to maximize its pollution reductions with less funding. DCR could revise the prioritization process to focus on the most cost-effective BMPs in several ways. For example, DCR could:

- Eliminate or reduce the state-level priority considerations or assign weights to clarify how the considerations rank relative to each other.
- Reduce the list of 22 priority BMPs to include only the most cost-effective BMPs.
- Require districts' secondary considerations to prioritize water quality and only include BMPs on the state's list of the most cost-effective practices.
- Require all districts to weight the CEF score as a primary factor in determining awards.

Revising the VACS prioritization process requires careful planning, as any changes will affect all districts statewide. The revised prioritization process should be standardized to ensure VACS funding is awarded for implementation of the most cost-effective BMPs, while still affording districts some flexibility to meet local priorities. Because districts have unique agricultural characteristics and priorities, local priorities should be supported if they align with state pollution reduction goals and water quality standards.

RECOMMENDATION 5

The General Assembly may wish to consider including language in the Appropriation Act directing the Department of Conservation and Recreation (DCR) to revise the process that districts use to select the applicants that receive Virginia Agricultural Best Management Practices Cost-Share Program funding awards to better ensure that the most cost-effective agricultural best management practices identified by DCR are consistently prioritized.

Developing a prioritization process for VACS funding awards that is entirely based on cost effectiveness is difficult. VACS is voluntary and therefore producers cannot be compelled to implement the most cost-effective BMPs. In addition, the most cost-effective BMPs may not be an option for every producer because of the type of farming they do, or their land's geologic characteristics. For example, stream exclusion fencing to keep cattle out of waterways is not an option on farms that exclusively grow crops. Similarly, some BMPs, such as animal waste control facilities, may not be feasible

for smaller producers, even if they are cost-effective. Therefore, while VACS awards should prioritize the most cost-effective BMPs, funding less cost-effective BMPs may still be acceptable if a producer is unwilling or unable to implement the most cost-effective BMPs, and the state still needs additional pollution reductions.

Districts' approaches to VACS award prioritization are not transparent

In recent years, many districts have not been required to prioritize applications because they had sufficient funding to approve all eligible practices. However, the VACS manual requires districts to "be prepared to verify and document that their cost-share allocations are being spent in accordance with the priority considerations, their approved secondary considerations, and [the VACS manual]." There are no specific requirements to document how approved applications were chosen. Some districts have developed worksheets that assign weights to the priority and secondary considerations and show how they ranked each application (as suggested by the VACS manual), but only five districts responding to JLARC staff's information request described using these worksheets as part of their ranking process (sidebar).

JLARC sent an information request to all districts requesting information on various topics, including their prioritization process. All 47 districts responded to this request. (See Appendix B for more information.)

Without adequate documentation, districts' prioritization of VACS funding applications is unclear. For example, districts are required to have a list of secondary considerations they use for VACS awards, but most lists do not show the relative order or weights of these considerations. This makes it difficult to understand how districts use their secondary considerations—in addition to state priority considerations—to help determine VACS awards. DCR reviews which secondary considerations districts include on their lists each year, but not *how* they are used. As a result, there is no check on whether districts are applying their secondary considerations appropriately and consistently. This lack of transparency into the decision-making process is also potentially unfair to producers who applied for but did not receive an award.

If VACS funding declines in the future and the award process becomes more selective, documenting districts' basis for awarding VACS funds will become even more important. DCR could require districts to use ranking worksheets that demonstrate how state priority considerations and district secondary conditions are weighted, and the order in which they are used, to rank applications. The VACS manual includes an example of a ranking worksheet that could be used. Districts could retain the ranking information in their files and ensure it is available, as needed, if questions arise related to VACS awards.

Whole Farm Approach has helped to implement more BMPs, but separate funding may prioritize them over more cost-effective BMPs

Created in 2020, the Whole Farm Approach (WFA) VACS subprogram encourages producers to implement two types of science-backed BMPs: cover crop BMPs to control soil erosion and reduce nutrient losses during the off-season, and nutrient management BMPs to optimize fertilization (such as nitrogen, phosphorus, and potassium) while minimizing pollution. WFA was designed to attract more producers to VACS by

WFA allows producers to make changes during the contract period. For example, if a producer decided to harvest a cover crop they were originally going to kill in early spring, they would be allowed to do this under the WFA cover crop BMP. This type of change is not permitted under a traditional VACS cover crop BMP.

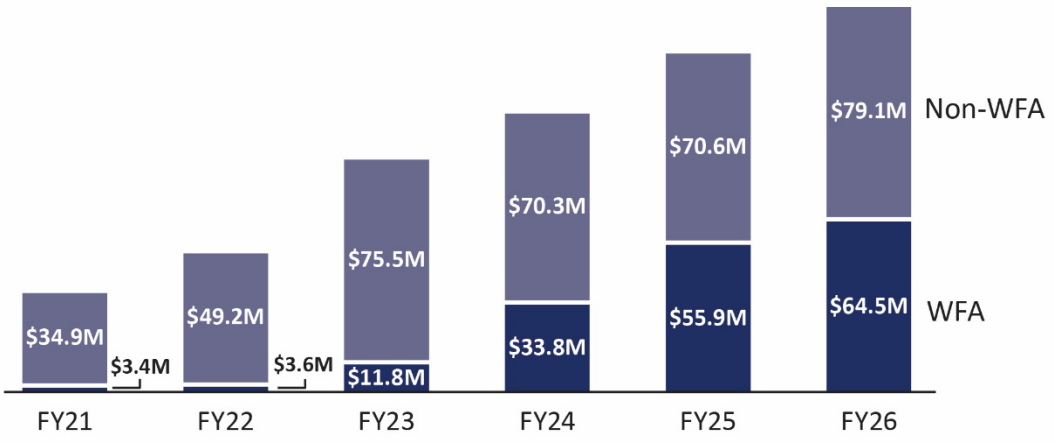
(1) streamlining the application process, (2) allowing producers to make mid-year adjustments to their practices (sidebar), and (3) enabling producers to receive VACS funding for successfully implemented BMPs even if some practices in their application fail. The WFA BMPs also have a slightly higher cost-share rate than their traditional BMP counterparts, and they are not subject to the $300,000 annual producer payment cap.

WFA has facilitated increased participation and represents a growing proportion of all implemented BMPs

District participation in WFA is voluntary, but now 45 percent of districts (21 of 47) offer the program. The number of districts participating in WFA is fairly evenly split between the Chesapeake Bay watershed and Southern Rivers area.

WFA has expanded the number of producers and/or fields with cover crop and nutrient management BMPs, helping Virginia make progress toward its Chesapeake Bay WIP goals. (Virginia receives pollution reduction credit in the Chesapeake Bay Program model for all successfully implemented WFA BMPs.) The majority (70 percent) of VACS BMPs implemented in FY26 were WFA BMPs, and this number may continue to grow as district participation in the program increases. WFA BMPs also made up a large portion (45 percent) of total VACS funding obligations in FY26, which has also grown in recent years (Figure 6-2).

FIGURE 6-2
Proportion of total VACS funding going to WFA BMPs has increased in recent years



SOURCE: JLARC analysis of VACS BMP implementation data (FY21–FY26).
NOTES: Figure shows proportion of total VACS funding obligated for WFA BMPs compared to other types of BMPs each year. The sum of WFA and non-WFA funding obligations may differ from total VACS funding obligations cited elsewhere in this report because of differences in data sources.
The number of districts participating in WFA has increased over this time period: FY21 – 2 districts; FY22 - 2 districts; FY23 - 7 districts; FY24 – 12 districts; FY25 – 18 districts; FY26 – 21 districts.

Separate WFA funding allocation prioritizes WFA practices over other BMPs

The VACS funding allocation currently prioritizes WFA BMPs over other BMPs. WFA BMPs are funded from a separate allocation of VACS funds, which the districts participating in WFA can access. Approximately $50 million of $207 million in total VACS funding was reserved for WFA in FY25. Because they receive a separate funding allocation, WFA BMPs are not assessed against other BMPs to determine which are the most cost-effective at reducing pollution. All eligible WFA BMPs are awarded VACS funding, according to DCR staff. This additional funding allocation has been helpful for some of the Southern Rivers districts that expend all their non-WFA VACS funds.

If funding declines in the future and districts need to prioritize projects, the separate allocation for WFA BMPs may not maximize the implementation of the most cost-effective projects if at least some WFA projects are not as cost effective as other BMPs that could be implemented. WFA BMPs may be relatively cost effective, but it is currently unclear how cost effective they are compared to other VACS BMPs. While funding WFA BMPs separately has not been a problem with current funding levels, it puts the state at risk of awarding too high a proportion of VACS funding to potentially less cost-effective BMPs.

DCR could combine funding for WFA and all VACS BMPs once information about BMPs' cost-effectiveness is developed (Recommendation 1, Chapter 2). This would help ensure that WFA BMPs are assessed against other BMPs and the most cost-effective BMPs are prioritized for funding. This may eventually occur anyway in a few years when the WFA pilot ends, and WFA is fully incorporated into the broader VACS program. This change should be implemented no earlier than the next biennium to enable districts to prepare for the funding change. Eliminating the separate allocation of funding for WFA BMPs would not prevent districts from encouraging producers to implement WFA BMPs; WFA BMPs would still be eligible to receive VACS funding.

POLICY OPTION 2

The General Assembly could include language in the Appropriation Act directing the Virginia Soil and Water Conservation Board to consolidate funding for the Whole Farm Approach agricultural best management practices (BMPs) with funding used for other BMPs in the Virginia Agricultural Best Management Practices Cost-Share Program.

State awards large portion of funding to annual BMPs each year, which has future fiscal implications

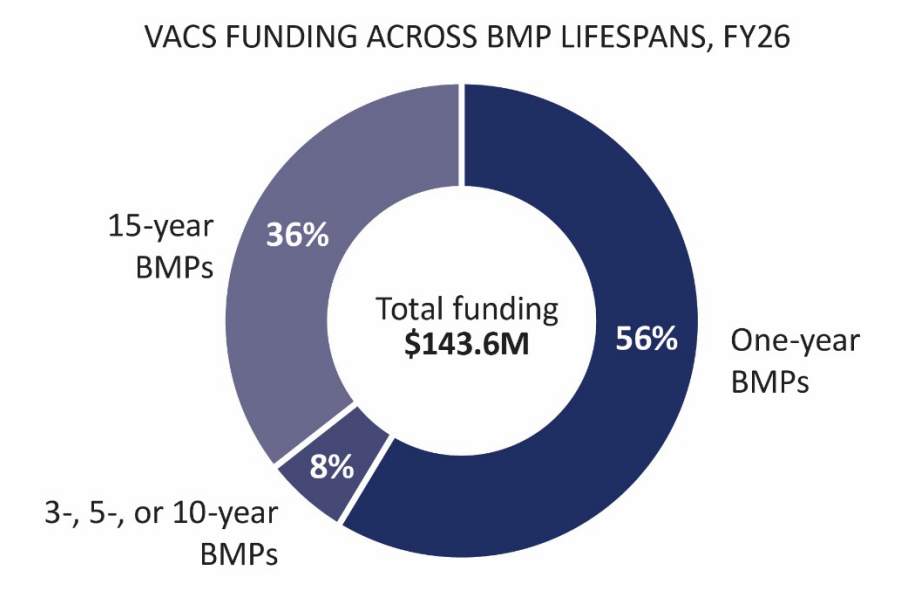
VACS BMPs include both annual BMPs (which have a lifespan of one year) and multi-year BMPs (which have lifespans ranging from three to 15 years). Annual BMPs tend to be less expensive to implement but have short-term benefits, while multi-year BMPs are often more expensive but have longer-term benefits and can often be more cost

effective. However, not all producers are willing or able to implement multi-year BMPs, so funding both annual and multi-year BMPs is important.

Since annual BMPs have a one-year lifespan, Virginia receives pollution reduction credit toward its Chesapeake Bay WIP goals for only one year unless the producer continues to apply and receive funding for the BMP in future years. Cover crop and nutrient management BMPs are the most common annual BMPs.

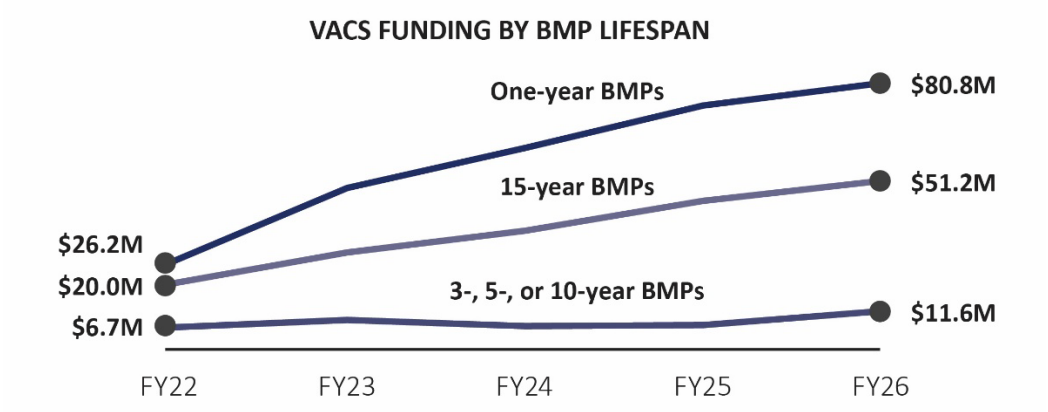
Annual BMPs have grown to make up a large portion of total VACS funding obligations. In FY26, 56 percent of VACS funding went to annual BMPs (Figure 6-3). Since FY23, more VACS funding has gone to annual BMPs than multi-year BMPs, and annual BMPs have been increasing at a faster rate (Figure 6-4). The average number of acres of cover crop BMPs planted per producer doubled from FY21 to FY26.

FIGURE 6-3
Majority of VACS BMP funding went to annual BMPs in FY26



SOURCE: JLARC analysis of VACS BMP implementation data (FY26).
NOTE: VACS funding amounts represent funding obligated for BMPs; technical assistance and base technical assistance amounts are not included.

FIGURE 6-4
VACS funding for annual BMPs has risen significantly



SOURCE: JLARC analysis of VACS BMP implementation data (FY22–FY26).
NOTE: VACS funding amounts represent funding obligated for BMPs; technical assistance and base technical assistance amounts are not included.

Implementation of annual BMPs has likely increased for several reasons. Districts' VACS award selection process prioritizes annual BMPs in three different ways: (1) several annual BMPs are on the state list of priority BMPs, (2) some annual BMPs are included in the WFA, and (3) annual BMPs are prioritized by some districts' secondary considerations. In addition, cover crop and nutrient management BMPs are relevant to more producers than some BMPs with longer lifespans, like stream exclusion fencing, because many producers in the state have viable land for annual BMPs. These annual BMPs benefit producers because they improve soil quality, require a shorter commitment (one year) than some other BMPs (e.g., 3+ years), and can be repeated every year, unlike some other BMPs. Finally, they currently have readily available funding through WFA in participating districts, which means most applications are approved.

Stakeholders indicate that one of the benefits of making annual BMPs like cover crops an option for VACS program participants is that it provides first-time participants with the opportunity to implement a relatively straightforward practice that yields tangible and observable benefits for the producer. Producers who have a positive experience through the implementation of an annual BMP are then more inclined to take the next step of implementing more cost-effective, multi-year BMPs. DCR's BMP data indicates that this is occurring for at least some producers; 29 percent of producers implemented additional BMPs after first growing cover crops, potentially because of their prior experience with cover crop BMPs. Of the 436 producers who implemented *only* a cover crop BMP in FY21, 128 producers implemented *another* type of BMP (other than nutrient management, which is required for many of the cover crop practices) between FY22 and FY25.

The growth in annual BMPs will require a substantial ongoing annual investment if the state wants to maintain its pollution reduction progress. Annual BMPs need to be

repeated each year or replaced by other BMPs to maintain current levels of pollution reductions. Otherwise, progress from BMPs' pollution reduction toward Chesapeake Bay WIP goals will be lost. Going forward, the state will need to spend at least $81 million each year to continue annual BMPs (not including technical assistance funding) to maintain the FY26 pollution reduction levels achieved by annual BMPs. This funding commitment may continue to grow if annual BMP implementation keeps increasing.

The Natural Resources Conservation Service's EQIP program, which is similar to VACS, has a cap on cover crops. A producer can receive EQIP funding for cover crops only for three years on the same field. The VACS program has no cap, and 75 percent of Virginia producers who received funding in FY21 for cover crops continued to receive VACS funding for cover crops every year through FY25.

In addition, the state has already exceeded its 2017 Phase III Chesapeake Bay WIP commitments for some annual BMPs. For example, the state has already surpassed its implementation goals for both traditional cover crops and tillage management. This gives the state some additional flexibility to shift toward multi-year practices, if it chooses to do so.

If the General Assembly is concerned about the ongoing long-term financial commitment associated with annual BMPs, the legislature could direct DCR to develop a plan for reducing the proportion of annual VACS BMPs that are implemented each year. The plan could consider (1) capping the number of years a producer can implement annual BMPs (sidebar), (2) implementing a system of progressively lower rates for each subsequent year an annual BMP is implemented by the same producer (but still paying a minimum amount), or (3) encouraging producers to pair annual BMPs with more cost-effective BMPs identified by DCR and DEQ (Recommendation 1, Chapter 2), if applicable.

POLICY OPTION 3

The General Assembly could include language in the Appropriation Act directing the Department of Conservation and Recreation to develop a plan to reduce the state's reliance on annual practices in the Virginia Agricultural Best Management Practices Cost-Share Program, while still maintaining progress toward the state's pollution reduction goals.

JLARC conducted surveys of producers, district staff, and district board of directors (BOD) members to ask about VACS funding, design, and implementation.

JLARC received survey responses from:

- 795 of ~8,100 notified producers (10 percent),
- 173 of 239 district staff (72 percent), and
- 138 of 248 BOD members (56 percent).

(See Appendix B for more information.)

It is possible that reducing reliance on VACS funding of annual BMPs may not result in a commensurate drop in actual pollution reduction. Sixty-eight percent of producers responding to a JLARC survey who were awarded VACS funding for cover crops said they would still implement BMPs if VACS funding was not provided, although some said they would implement fewer BMPs (sidebar). This means that some annual cover crops may continue to be planted, and the state would continue to benefit from their associated pollution reductions. However, the state would not be funding them through VACS, and it would be more difficult to receive credit toward its Chesapeake Bay WIP pollution reduction goals.

7 Verification & Oversight

The decentralized structure, technical complexity, and funding of VACS make effective verification and oversight important. VACS is administered by 47 individual soil and water conservation districts (districts), which have some flexibility to align VACS with local agricultural characteristics and priorities. District and DCR staff are ultimately responsible for ensuring that VACS agricultural best management practices (BMPs) are implemented according to state technical specifications, which is required for Virginia to make progress toward its Chesapeake Bay WIP pollution reduction goals. Though VACS funding has fluctuated during the last decade, it has grown in recent years to represent a substantial expenditure of state general funds, necessitating effective verification and oversight to ensure prudent use of taxpayer dollars.

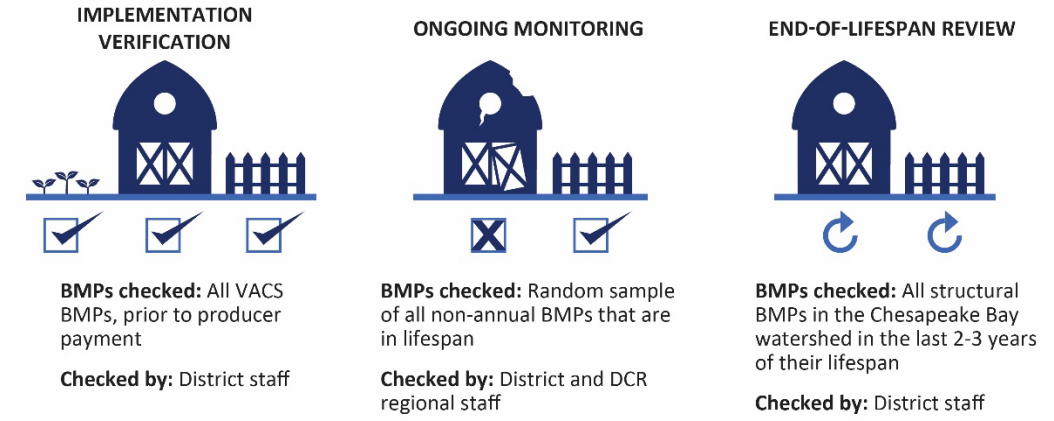
Verification of producer compliance is generally effective but inconsistent for cover crops

To ensure VACS funds are being used to achieve intended water pollution reductions, it is important to verify that producers are implementing and maintaining BMPs according to the state's scientific and technical specifications. VACS BMP specifications include research-backed parameters for each BMP's design to maximize pollution reduction throughout the BMP's lifespan. Depending on the project, BMPs can be subject to an implementation verification, potential ongoing monitoring, and an end-of-lifespan review. Annual BMPs, such as cover crops, are subject only to implementation verifications because of their short lifespan. In contrast, multi-year BMPs, such as stream exclusion fencing, can also be subject to ongoing monitoring and end-of-lifespan reviews (Figure 7-1).

District staff verify that each BMP has been properly implemented according to specifications before paying producers

Before a producer can receive VACS funding, district staff must verify whether the BMP has been implemented in accordance with relevant specifications. Depending on the specifications, these verifications may include multiple checks at different implementation stages (e.g., reviewing both a structural BMP's initial design plan as well as eventual construction). Many of these verifications require in-person inspections by district staff. A district may not authorize payment to a producer until staff have verified the implemented BMP meets all relevant specifications.

FIGURE 7-1
District and DCR staff perform various verifications to ensure BMPs meet required specifications



SOURCE: JLARC analysis of interviews with stakeholders and the VACS manual.
NOTE: "BMPs" = agricultural best management practices.

Concerns raised about consistency of implementation verifications of cover crop BMPs make it difficult to confirm pollution reduction

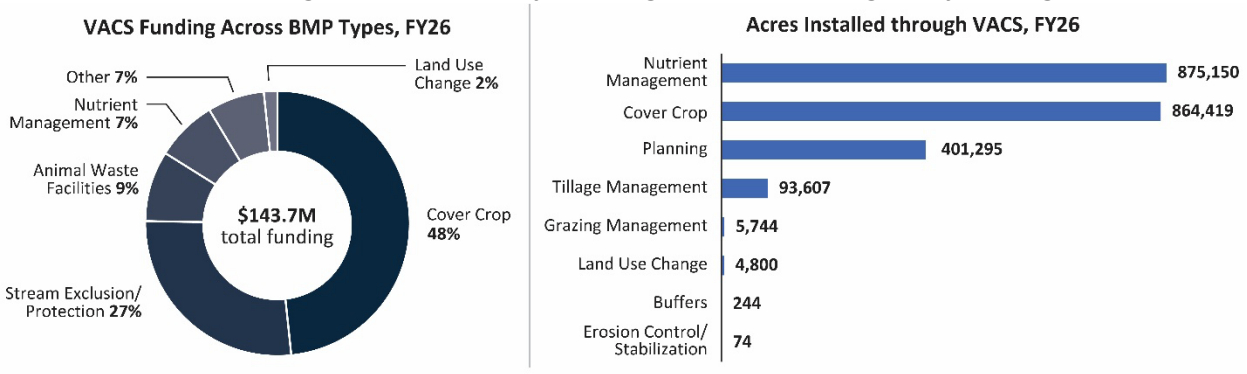
Cover crops are one of the most common VACS BMPs, and they have a large role in VACS's expected pollution reduction. Cover crop BMPs—where crops like rye, wheat, and legumes are planted after the fall harvest and before the spring planting—prevent soil erosion and nutrient loss, and pollution reductions are maximized by denser and longer-lasting soil coverage. Cover crops, which included more than 860,000 acres, accounted for 39 percent of VACS BMPs and nearly half of the VACS funding obligated in FY26 (Figure 7-2). Though the exact pollution reduction is unknown, cover crops are responsible for achieving a sizable portion of VACS's expected pollution reductions.

Cover crop BMPs are subject to three checks throughout their implementation to ensure they meet state specifications and achieve their expected pollution reduction (Figure 7-3). First, district staff are expected to ensure that producers met their planting deadline, used a VACS-approved planting method (e.g., aerial broadcast or drill), and applied seed and nutrients within allowed rates, because these factors affect how quickly and successfully pollution reduction may be achieved. Next, district staff verify the cover crop species and whether the cover crop grew to achieve at least 60 percent soil coverage by early winter (sidebar), as research indicates this has a large impact on soil erosion rates. Finally, district staff verify that producers maintain their cover crops for the full period and then "kill down" the cover crops between March 15 and June 1. Cover crop BMPs must pass all three checks for the producer to receive payment.

The 60 percent coverage deadline for cover crops has historically been December 15, but for FY27, the date was changed to January 1 by SWCB in recognition of later planting dates in recent years.

FIGURE 7-2

Cover crops are the largest VACS BMP by funding and second largest by acreage

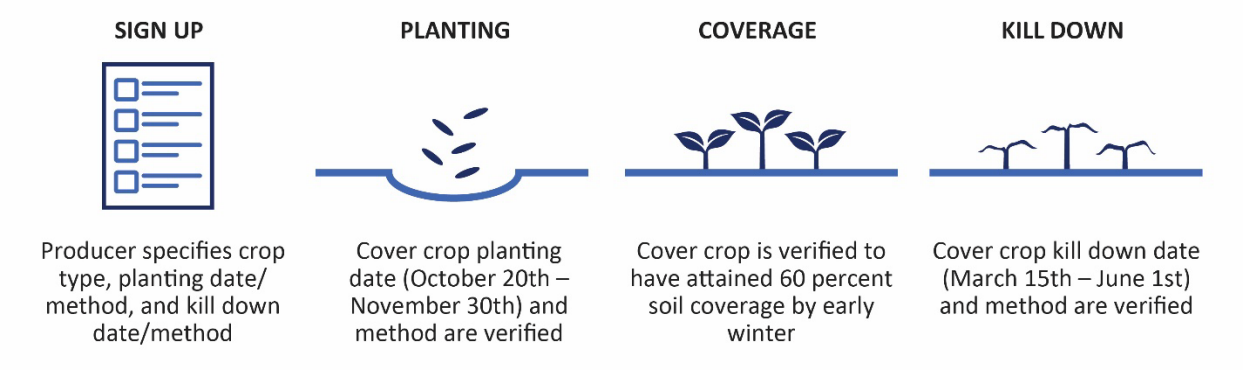


SOURCE: JLARC analysis of VACS BMP implementation data (FY26).

NOTE: "BMPs" = agricultural best management practices. "Acres installed" is not available for animal waste facilities and stream exclusion BMPs because these BMPs have different measurement units (e.g., animal count and linear feet, respectively). However, far fewer of these BMPs were implemented than cover crop BMPs. Additionally, differences in practice lifespans may account for some of the disparity. For instance, an acre under tillage management is renewed every five years, while acres under cover crop and/or nutrient management BMPs are renewed annually.

FIGURE 7-3

VACS manual requires several cover crop verifications to ensure proper implementation



SOURCE: JLARC analysis of interviews with stakeholders and the VACS manual.

NOTE: The Whole Farm Approach cover crop BMP allows producers to change between cover crop specifications (e.g., early planting to standard planting) throughout the season, but district staff still verify that any updated specifications are met, and producers are paid based on their actual BMP's specifications. The coverage deadline has historically been December 15, but for FY27, the deadline was changed to January 1.

Districts are likely not verifying cover crop soil coverage consistently

Districts do not appear to consistently verify whether cover crops achieve sufficient soil coverage by early winter. According to the VACS manual, if 60 percent or greater coverage is not achieved, the cover crop should not be approved for payment. However, districts are not verifying whether cover crops have achieved 60 percent coverage consistently or accurately. The methods districts use to verify cover crop coverage vary widely. Some districts report "eyeballing" the crop from the road, while others report using the "tape" method (sidebar, next page).

The tape method for measuring 60 percent soil coverage for cover crops involves using a 100-foot measuring tape and assessing at each full foot tick mark whether foliage covers the ground at that exact point. If foliage is present at 60 or more of those tick marks, the BMP is considered to have attained 60 percent coverage.

Moreover, some cover crop BMPs that do not achieve 60 percent coverage are likely not being cancelled, according to multiple stakeholders. Some BMPs with insufficient coverage may pass because of inaccurate or inadequate verification methods, and some districts may recheck a failed cover crop after the deadline to see if any additional growth has occurred before deciding whether the BMP should be approved for payment. Additionally, district staff may be reluctant to cancel awards when producers made a good faith effort to fulfill their obligations, as the producer would not be reimbursed for the materials and labor used to plant cover crops.

DCR's VACS BMP implementation data, where available, indicates that district staff had verified only 5 percent of cover crop BMPs' soil coverage levels by December 15 in FY26, the coverage deadline for that year. The deadline for districts to verify coverage was extended by Virginia's Soil and Water Conservation Board (SWCB) to February 28 in FY26.

DCR's data is consistent with stakeholder reports about varying crop cover verification across districts. While many stakeholders reported that drought hindered successful cover crop growth for the last two years, two-thirds of districts that had cover crop BMPs in FY26 approved 90 percent or more of their cover crop BMPs for payment. While geographical differences may affect approval rates across the state, even neighboring districts' rates sometimes varied widely. For example, in FY26, one district passed only 68 percent of its cover crop BMPs, but the district's eight neighboring districts passed between 84 and 100 percent of their cover crop BMPs. Similar differences in pass rates across districts occurred in other regions in FY26 and in the same region in prior years. If widespread drought affected cover crop growth in some districts, it likely affects others in the region as well.

If districts do not consistently and accurately identify whether cover crops reach 60 percent coverage, the pollution reductions recorded for those BMPs may be overestimated. Because of variation in performance and verification by district, the extent of this overestimation is unclear. However, because cover crops make up a significant portion of VACS funding, overestimating the impact of this BMP could skew assessments of the program's overall effectiveness. Verification inconsistencies could also create inequities for producers. More discerning district staff may fail a cover crop that would pass in another district (sidebar).

> *"It's one thing to grant us more time to check, but this is too much time and has caused many crop [producers] to be upset about the differences in what passes and fails for those that farm across multiple Districts. There are inconsistencies across Districts with how cover crops are verified and when, if at all."*
>
> **– District staff**

Additional guidance and training needed to facilitate greater consistency in cover crop verification across districts

Several district staff members and other stakeholders have indicated additional guidance and staff training about cover crop verifications are needed. These concerns were raised at the March and June 2026 SWCB meetings. While the VACS manual requires staff to verify cover crop coverage, it does not describe *how* to verify the coverage. As a result, some staff reported not receiving any formal guidance or training on how to verify coverage. More experienced district staff and DCR regional staff have indicated that they sometimes teach new staff how to verify coverage, but this training is

informal and occurs on a one-on-one basis if requested. DCR central office staff recently held a statewide training on cover crop verifications, but this training is not offered regularly.

To promote greater consistency in cover crop verifications, the SWCB and DCR should provide district staff with clear guidance and periodic training on verifying coverage. The VACS manual should be updated to identify acceptable method(s) for verifying cover crop coverage and require staff to use an acceptable method for verifications. DCR should make training on these acceptable methods available to all district staff at least once per year before the verifications occur in early winter. There are a variety of ways the training could be provided; for example, experienced district staff could be asked to provide regional trainings. DCR estimates the department would need an additional $60,000 in annual funding to provide this training.

RECOMMENDATION 6

The Virginia Soil and Water Conservation Board should update the specifications for cover crop best management practices in the Virginia Agricultural Best Management Practices Cost-Share Program Manual to establish standardized methods and guidance for soil and water conservation district staff to verify cover crop soil coverage.

RECOMMENDATION 7

The Department of Conservation and Recreation should provide training to soil and water conservation district staff on acceptable methods for verifying cover crop soil coverage.

More reliable and consistent cover crop verification could lead to producer concerns and reductions in cover crop participation

Improved coverage verification practices could lead to producer frustration and more cancellations of producer payments. Some stakeholders believe that if producers pay for seed, fuel, and labor to plant the cover crop, they should be able to recoup their investment through VACS, even if external factors prevented the crop from achieving its intended coverage and pollution reductions (sidebar). Additionally, some stakeholders were concerned that producers will not continue to participate in VACS if they think they will not recoup their investments.

> *"Producers should not be punished because of cover crop failure due to factors out of their control. It is the only VACS BMP that receives no funding if it is followed exactly to specs and fails due to environmental factors such as drought."*
>
> **– District staff**

If stricter verification and potentially higher cancellation rates lead to a significant decline in cover crop participation, the SWCB could change its payment structure for these BMPs to provide producers with an initial payment for planting to cover a portion of the cost and an additional payment if sufficient soil coverage is achieved. The change could help maintain producer buy-in to the program—ensuring water quality progress is maintained—and increase Virginia's pollution reduction credits in the Chesapeake Bay Program model (sidebar, next page).

However, such a change would result in state funding for BMPs that ultimately do not reduce pollution, potentially at the expense of not funding other BMPs that would. The extent of the funding impact may depend on the individual year's weather and the size of the initial payment, but even providing a quarter of the estimated cost-share payment for the 79,000 acres of cover crop cancelled in FY26 would have cost the state about $1.6 million. This policy change could also lead to additional workload for district staff to verify plantings more closely, track additional data, and manage additional payments.

The Chesapeake Bay Program does not require cover crops to achieve a certain level of soil coverage for credit in the Bay model. The model will count cover crop attempts that do not grow if they meet all established Chesapeake Bay Program and state standards. These attempts are not currently credited in Virginia because of failing to meet state standards.

VACS's ongoing monitoring process for multi-year BMPs helps ensure pollution reductions are maintained

BMPs whose lifespans cover multiple years, rather than just one, are potentially subject to ongoing verification. Multi-year BMPs can last from three years (e.g., grazing land management) to 15 years (e.g., stream exclusion fencing). Weather conditions, wear and tear, and incidents (e.g., a tree falls on a fence) can reduce or eliminate the effectiveness of a BMP over these longer timeframes. Periodic verifications over the lifespan of a BMP are important to ensure pollution reductions are ongoing.

The Chesapeake Bay Program requires that the VACS monitoring policy in the Chesapeake Bay watershed be reviewed and approved by the U.S. Environmental Protection Agency. The VACS monitoring policy for the Southern Rivers area was designed to cover a comparable proportion of BMPs.

Because of the high volume of multi-year BMPs, DCR's data system is programmed to select a random sample of multi-year projects annually for ongoing monitoring. Each year, between 2 and 5 percent of multi-year BMPs are selected for verification (which in 2026 was 431 BMPs selected for verification). The sample is stratified based on BMP type, location (Chesapeake Bay watershed versus Southern Rivers area), implementation year, and previous inspection history. The sampling approach is in accordance with the Chesapeake Bay Program requirements (sidebar) and consistent with best practices for verification and oversight. Though unannounced inspections are also typically a best practice, producers are given some notice before a verification visit occurs. This is partially for the convenience and safety of staff performing the verification because a producer may need to let staff onto their property or prepare the site for the visit (e.g., remove a bull from a field).

BMP noncompliance appears to occur relatively infrequently. Of the inspections conducted so far in 2026, the large majority (90 percent) of BMPs have passed their inspection, and only one quarter of districts reported receiving repayments in any of the last three fiscal years (FY24–FY26).

For each BMP selected in the random sample, district staff and DCR regional staff conduct a joint site visit to ensure the BMP still meets all required specifications (Figure 7-4). Involving both district and DCR regional staff increases state visibility of district verifications and provides districts additional support. If the BMP is damaged or otherwise no longer in compliance with the specifications because of the producer's fault or negligence, the producer is given up to six months to address the issue. If the BMP is not addressed in that time, the producer must repay the state a prorated amount of the VACS award reflecting the amount of time that the BMP was out of compliance, though this is relatively uncommon (sidebar).

FIGURE 7-4
District and DCR staff annually verify compliance of a random sample of BMPs

SOURCE: JLARC site visit with district and DCR staff to conduct ongoing monitoring.
NOTE: The picture shows a stream exclusion fencing BMP's water trough component, which becomes livestock's source of water once they are excluded from the stream by fencing.

End-of-lifespan reviews for structural BMPs occur in the Chesapeake Bay Watershed, but not in the Southern Rivers area

In addition to implementation verifications and ongoing monitoring during a BMP's lifespan, all structural BMPs (e.g., stream exclusion fencing and animal waste facilities) within the Chesapeake Bay watershed receive end-of-lifespan reviews. District staff visit BMPs within the last two to three years of their lifespans and verify they still meet all specifications. If they are not met, producers are given time to bring the BMP back into compliance, or they must repay a prorated amount of their VACS payment. End-of-lifespan reviews ensure that structural BMPs, which tend to be the most expensive to implement, effectively reduce pollution through the end of their lifespan and afterwards.

These end-of-lifespan reviews are a cost-effective way to maintain Virginia's progress toward the Chesapeake Bay WIP goals because they can double the credited lifespan of BMPs without requiring additional state investment. For example, a stream exclusion BMP in the Chesapeake Bay watershed with a 15-year lifespan that has undergone an end-of-life review (and had any deficiencies addressed) could enable Virginia to receive credit for an additional 15 years of pollution reduction in the model.

End-of-lifespan reviews are currently not conducted for structural BMPs in the Southern Rivers area. Because water quality is a priority throughout the state and there are

impaired waterways in the Southern Rivers area, it would be beneficial to also maximize the pollution reduction achieved by existing BMPs there.

The SWCB should update the VACS policy manual to require end-of-lifespan reviews for *all* structural BMPs within the last two to three years of their lifespan (not just the BMPs in the Chesapeake Bay watershed). End-of-lifespan reviews in the Southern Rivers area would not provide Virginia with additional credit toward its Chesapeake Bay WIP goals, but the state could still maximize pollution reduction by extending the lifespan of existing BMPs. Requiring end-of-lifespan reviews in the Southern Rivers area would increase districts' workload because they would be required to complete the reviews, but district staff would have a two-year window to conduct the reviews. For most districts, this additional workload would be relatively modest (sidebar). This requirement may also have a small fiscal impact on DCR if the agency pays districts a nominal sum to complete these reviews as it does for BMPs in the Chesapeake Bay watershed.

The number of structural practices implemented annually varies across the Southern Rivers area districts, as do their staffing levels. Based on their average implementation from FY21–FY25 and current staffing levels, nearly three-quarters of districts in the Southern Rivers areas would have five or fewer BMPs to check per VACS staff member every year, which could likely be done in a day or less. The remaining quarter would have 6–20 BMPs per staff member.

RECOMMENDATION 8

The Virginia Soil and Water Conservation Board should require that all structural agricultural best management practices in the Southern Rivers area receive end-of-lifespan reviews within the last two to three years of their lifespan.

State oversight is appropriate, but better auditing and central information needed

VACS is a state-funded program, necessitating effective state oversight. DCR and districts have a shared responsibility to effectively implement VACS within the parameters of the program established by the SWCB. Effective oversight is even more important because VACS is implemented by 47 individual districts administered by elected district boards.

DCR regularly reviews districts' BMP project information and use of VACS funds, though administrative audits could be strengthened

DCR oversees two types of biennial audits of districts' VACS implementation. To gain insight into how well district staff follow program requirements, DCR regional staff conduct an administrative audit of district staff's work related to BMP implementation (sidebar). For each district staff member who implements VACS, DCR staff randomly select at least two BMP project files from the last two program years for review. DCR staff use a standard checklist to review the files and assess whether (1) contracts with producers were completed correctly (e.g., all required signatures were collected), (2) approval processes were appropriately followed (e.g., approvals are documented in board minutes and required BMP-specific reviews were conducted by a qualified person), and (3) all required documentation is present (e.g., BMP invoices and conservation plans). The second type of audit is a financial audit of each district's use of VACS

Administrative audits were conducted annually for each district staff member prior to FY26, but the frequency was reduced because of the workload for DCR regional staff. Each file may take up to two hours to review.

funds. DCR hires third-party accountants to complete these audits, which review how districts received, processed, and disbursed VACS funds over the last two fiscal years.

District audit results are shared with the SWCB to ensure action is taken to address instances of noncompliance. For example, FY25 audits found 13 districts were out of compliance in at least one area. Common issues included missing required signatures on VACS contracts, payments, or invoices, and not following procedures on specific BMPs. The board sanctioned districts with financial penalties based on their identified issues to encourage greater compliance moving forward. Additionally, several districts are now subject to additional DCR monitoring (e.g., additional administrative or financial audits between the regularly scheduled biennial audit years) to ensure issues are addressed.

In addition to these biennial audits, DCR also more regularly oversees other aspects of districts' VACS implementation. For instance, DCR regional staff complete bimonthly quality checks on the BMP implementation data that districts enter in DCR's data system, attend district boards' monthly meetings, and review districts' quarterly funding requests. DCR regional staff also help district staff address any VACS-related shortcomings that are identified by providing guidance and additional training as needed.

DCR's administrative audits of district staff files provide valuable VACS program oversight but could be improved. Each district staff member who implements VACS is audited, which is more rigorous than auditing a subset of staff. In addition, audits are consistent because a standardized checklist is used for each one. However, the audit process needs to be strengthened. DCR needs to ensure that audit frequency is sufficient, the number of files audited per staff member is adequate, and that DCR uses an appropriate methodology in selecting files for review. Depending on how the audit process is strengthened, DCR may need a relatively minimal increase in its regional staffing to accomplish the additional work required.

DCR needs to develop an audit schedule that is strategic and ensures that audits are conducted with sufficient frequency. DCR's recent decision to audit staff biennially, rather than annually, means that the approximately 30 newly hired staff could be employed for more than a full VACS project cycle without being subject to an audit. New staff or staff with prior audit findings need to be audited more frequently.

In addition, DCR needs to ensure that a sufficient amount of each staff member's work is reviewed to effectively evaluate their performance. Reviewing two files per staff member is the standard practice and appears to be driven by staff resource constraints. District staff oversaw about 600 projects on average during the last two years and therefore substantially less than 1 percent of their work is currently being reviewed through the audit. The number of files reviewed per staff member should be determined more strategically. This could include setting review targets as a percentage of each staff member's total caseload, sampling more files for newer staff or those with

prior audit findings, and reviewing enough files across districts to draw statistically generalizable conclusions statewide.

Finally, DCR lacks a standardized methodology for selecting files to be audited, risking inconsistency in its approach. DCR should use a standardized and random or risk-based approach to file selection. For example, risk factors that could be considered in file selection include project cost, type, or complexity.

RECOMMENDATION 9

The Virginia Soil and Water Conservation Board should direct the Department of Conservation and Recreation to evaluate and strengthen the administrative audits of soil and water conservation district staff files for the Virginia Agricultural Best Management Practices Cost-Share Program.

Better tracking BMP noncompliance trends could ensure common issues are addressed

DCR manages a data system on VACS BMP implementation, the information for which is entered by district staff. The system tracks the type, status, state cost, location, verification dates, and other characteristics of each BMP. This data is then aggregated and sent to the Chesapeake Bay Program to log VACS BMPs in their model.

DCR's VACS BMP implementation data system tracks some information about noncompliant BMPs, but important information may be missing or unorganized (sidebar). For instance, multiple districts indicated that district staff sometimes notice issues with BMPs when driving by the property or visiting the property for another reason. While these issues appear to be addressed, staff are not required to log these into the system. Additionally, the cause of any noted noncompliance may be tracked in an open-ended comments or inspection notes field, but there is no standardized system or requirement for tracking this information.

Although the exact amount of money repaid for noncompliant BMPs each year is unknown, district reports suggest it is minimal (e.g., $10,000 to $30,000 per year).

When information about noncompliance is available in the data system, DCR may not be formally reviewing the data for noncompliance trends. For example, district staff are expected to log any repayments for noncompliant projects into the system, but central DCR staff did not have information on recent VACS repayment amounts or totals (sidebar).

Complete and accessible information on the frequency, cause, and resolution of any noncompliance would help to ensure that any common noncompliance issues are addressed. For instance, stream exclusion fencing projects accounted for 80 percent of the failures detected through ongoing monitoring so far in 2026, though they accounted for only a quarter of the projects checked. Identifying and addressing the common causes of stream exclusion fencing noncompliance could significantly reduce overall noncompliance rates, which would better ensure ongoing pollution reduction, lessen district staff workload to address noncompliant projects, and reduce conflict with participating producers.

DCR should ensure that information on noncompliant projects is complete and accessible in its data system and that the information is reviewed annually to identify any concerning trends and systemic concerns. This may include requiring information to be tracked, standardizing how the information is tracked, or adding fields, if needed,

to the VACS data system. DCR should then review this data annually and present key noncompliance findings to the SWCB so that they can be addressed through VACS policy when needed.

RECOMMENDATION 10

The Department of Conservation and Recreation should (i) ensure that information on the frequency, cause, and resolution of best management practice project noncompliance is tracked in the Virginia Agricultural Best Management Practices Cost-Share Program, (ii) review this information annually to identify noncompliance trends, and (iii) notify the Virginia Soil and Water Conservation Board of these trends so that it may make needed program adjustments and policy changes and resolve systemic problems.

DCR lacks information on VACS BMPs' impacts on reducing excessive bacteria, a common cause of water impairment in Virginia

According to the Virginia Department of Environmental Quality (DEQ), bacteria is a leading cause of water impairment in Virginia, particularly for rivers, and excessive amounts can be harmful to human health. While the Chesapeake Bay WIP goals do not include a bacteria reduction requirement, DEQ has set health standards for bacterial levels, and several bodies of water across the state, including within the Chesapeake Bay watershed, do not meet them.

Agricultural BMPs can help reduce bacterial loads to water sources, but the state does not currently collect data on the extent of any bacterial reductions that occur from VACS BMPs. Livestock is a common cause of bacteria, and BMPs that prevent animal waste from entering streams (such as stream exclusion fencing BMPs) may be effective measures to help reduce bacteria. Without information on the bacterial load reductions from individual BMP projects, the program's impact on reducing bacterial loads—and potential to provide greater reductions—is unknown. Since the VACS program's purpose is to improve water quality statewide, developing and collecting this information could be useful. (See Appendix F for more information on how BMP bacterial reduction data could be collected and used to improve the program's effectiveness.)

Appendix A: Study resolution

Agricultural Best Management Practices Cost-Share Program
Authorized by the Commission on December 16, 2025

WHEREAS, the Virginia Agricultural Best Management Practices Cost-Share Program (VACS) offers financial and technical assistance to incentivize agricultural landowners and operators to implement best management practices (BMPs) that reduce nutrient and sediment discharges to improve the water quality of streams, rivers, and the Chesapeake Bay; and

WHEREAS, the Department of Conservation and Recreation (DCR) is responsible for implementing VACS, in partnership with the state's 47 soil and water conservation districts (SWCDs); and

WHEREAS, VACS is primarily funded through the state's Water Quality Improvement Fund and Virginia Natural Resources Commitment Fund and received $223 million for FY26; and

WHEREAS, there are more than 70 BMPs—such as cover crops, nutrient management plans, livestock stream-exclusion systems, and rotation grazing—and individual agricultural landowners and operators can receive up to $300,000 in financial assistance to implement them; and

WHEREAS, DCR conducts a biennial nonpoint source assessment that identifies and prioritizes watersheds that are most vulnerable to water quality degradation from nonpoint source pollution; and

WHEREAS, DCR is responsible for allocating cost-share and technical assistance funds to SWCDs based on where BMPs can achieve the greatest reductions in surface and groundwater contamination; and

WHEREAS, SWCDs award cost-share funds to individual agricultural landowners and operators based on criteria established by each district that are required to maximize nutrient and sediment pollution reduction using the most cost-effective BMPs; now, therefore, be it

RESOLVED by the Joint Legislative Audit and Review Commission that staff be directed to review the VACS. In conducting its study, staff shall evaluate (i) the nonpoint source assessment biennially conducted by DCR; (ii) the criteria and process to allocate cost-share and technical assistance funds to SWCDs; (iii) the criteria and processes used by SWCDs to select agricultural landowners and operators to receive cost-share funds; (iv) the contract development process for specific cost-share awards, including the assignment of costs and determination of award amounts; (v) the quality of technical assistance provided; and (vi) DCR and SWCD efforts to verify compliance with program guidelines and requirements.

JLARC may make recommendations as necessary and may review other issues as warranted.

Appendix B: Research activities and methods

Key research activities performed by JLARC staff for this study included:

- interviews with staff from state agencies/entities, Virginia soil and water conservation districts (districts), groups representing stakeholders (districts, agricultural stakeholders, and environmental stakeholders), and federal agencies and other states;
- information collected from the Department of Conservation and Recreation (DCR) and 47 soil and water conservation districts;
- surveys of soil and water conservation district board of directors (BOD) members, district staff, and Virginia agricultural producers;
- analysis of data on implemented agricultural best management practices (BMPs), including VACS program financial data and data from DCR's BMP data system (called the "Conservation Application Suite");
- visits to several BMP implementation sites;
- observation of VACS-related meetings, including two regional meetings of the Virginia Association of Soil and Water Conservation Districts (VASWCD), two VASWCD board meetings, and one Soil and Water Conservation Board (SWCB) meeting; and
- a review of research related to the pollution reduction impacts of specific BMPs; and
- document reviews, including state laws and regulations, VACS policies, district audit reports, and national research related to water quality improvement.

Interviews

Interviews were a key research method for this report. JLARC staff conducted over 50 interviews. Key interviews included staff from:

- state agencies, including DCR, the Department of Environmental Quality (DEQ), Virginia Department of Agriculture and Consumer Services (VDACS), Virginia Cooperative Extension, Office of the Attorney General (OAG), Virginia Conflict of Interest and Ethics Advisory Council, Department of Planning and Budget (DPB), and House Appropriations Committee (HAC);
- selected soil and water conservation districts;
- stakeholder groups representing Virginia agricultural producers, environmental interests, and soil and water conservation districts; and
- federal government agencies and selected other states.

Virginia state agencies

JLARC staff conducted more than 20 interviews with DCR staff, including central office staff and regional staff (conservation district coordinators). Interviews with DCR central office staff focused on understanding how the VACS program is funded, designed, and overseen by the state. Specifically, interviews covered the assessments completed to estimate total VACS funding needs and funding

allocations across districts, VACS cost-share rates and eligibility criteria, the process for prioritizing VACS applications for awards, state and district verification and oversight of BMP implementation, and the whole farm approach VACS subprogram.

Staff interviewed all six DCR regional staff to learn about the districts they oversee, differences in how their districts implement VACS, and any challenges their districts face implementing VACS, including challenges related to staffing and funding.

Staff also interviewed two Soil and Water Conservation Board members, including the board chair. The purpose of these interviews was to obtain their perspectives on board operations, board membership, and the VACS program, including any challenges the board experiences related to VACS.

JLARC staff interviewed staff from multiple Virginia state entities that interact with the VACS program, including DEQ, VDACS, and the Virginia Cooperative Extension program. Topics included their roles in, or interaction with, the VACS program; positive aspects of the VACS program; and ways the program could be improved.

JLARC staff also interviewed staff at the OAG's office to learn more about recent changes to the VACS contract and contract enforcement; DPB to learn more about VACS appropriations; and, the Virginia Conflict of Interest and Ethics Advisory Council to learn about issues that may arise when district BOD members who are also agricultural producers (or their friends and family) apply to receive VACS funding.

Soil and water conservation districts

JLARC staff conducted interviews with six soil and water conservation districts that varied in size, geographic region, and type of agriculture. Initial interviews focused primarily on (1) the adequacy of their staffing and funding levels; (2) their perspectives on VACS's purpose and requirements; (3) how they implement VACS, including technical assistance and monitoring activities; and (4) how VACS is paired with other programs.

Stakeholder groups

JLARC staff conducted interviews with several stakeholder groups representing district staff, agricultural producers, and the environment.

JLARC staff conducted several interviews with two groups that represent soil and water conservation districts and their employees: the Virginia Association of Soil and Water Conservation Districts (VASWCD) and the Virginia Association of Conservation District Employees (VACDE). The purpose of these interviews was to learn about district operations and the challenges districts face related to funding levels, staffing, training, and guidance provided by the state.

JLARC staff also interviewed stakeholder groups representing agricultural producers and the environment, including the Virginia Farm Bureau, Chesapeake Bay Foundation, and the James River Association. The purpose of these interviews was to understand stakeholders' perspectives on the VACS program, learn more about the impact of the program on each group's members and the environment, and obtain ideas for improving VACS. Stakeholder groups also provided information on the history of the VACS program and how it has changed over time.

Federal government agencies and other states

JLARC staff interviewed staff from two government agencies: the Natural Resources Conservation Service (NRCS) and the Chesapeake Bay Program (CBP), which is part of the U.S. Environmental Protection Agency. NRCS staff were interviewed to learn about how NRCS's conservation programs interact with VACS, differences between the VACS and NRCS's programs, NRCS staff's perspectives on the VACS program, and the scientific basis for the VACS BMPs and specifications. Chesapeake Bay Program staff were interviewed to learn more about the scientific basis of VACS BMPs and the expert panel process that supports the BMPs.

JLARC staff interviewed representatives from Pennsylvania and Maryland. These states were selected because they are part of the Chesapeake Bay watershed. The purpose of these interviews was to learn about programs these states have that are similar to VACS, including aspects of program funding, design, and implementation that work well or could be improved.

Information collection

JLARC distributed requests to DCR and Virginia's 47 districts to collect information.

DCR information request

JLARC staff submitted a data request to DCR for multiple types of VACS-related information, including:

- financial data (e.g., VACS funding by district, funding "carried over" in recent years, etc.);
- agricultural needs assessment calculations;
- VACS funding that is spent, obligated, and unspent, statewide and by district;
- annual VACS district cost-share allocations by drainage basin;
- information submitted to DCR by districts, including average cost lists and secondary considerations; and
- detailed data on VACS BMP projects from DCR's BMP data system (the Conservation Application Suite), including successful, cancelled, and unapproved BMP projects.

District information request

A request was sent to all 47 districts to collect information that was not available centrally through DCR. The request had multiple sections that asked about VACS participation, applications, the whole farm approach VACS subprogram, district VACS policies, implementation challenges, staff capacity for VACS, and pairing programs with VACS. All 47 districts responded to the information request (100 percent response rate).

Surveys

JLARC staff conducted three online surveys for this study. The populations surveyed were: (1) district board of directors (BOD) members, (2) district staff, and (3) Virginia agricultural producers.

District BOD members

JLARC staff surveyed elected district BOD members through an online survey. The survey requested BOD members perspectives on VACS's purpose, design, and implementation, including producer awareness of the program, program processes, and program strengths and challenges. BOD members were asked about their role in the program as a board member and, if applicable, impression of the program as a producer. JLARC staff used VASWCD's directory to obtain BOD contact information and distribute the survey, and VASWCD helped to publicize the survey. In total, 138 out of 248 BOD members responded (56 percent response rate). The BOD members who responded represented 45 out of 47 districts.

District staff

JLARC staff sent an online survey to all staff at the 47 districts. The survey was designed to collect staff perspectives on the program's design, awards decision processes, and the whole farm approach subprogram. The survey also asked staff about producer outreach and awareness, technical assistance, and staff workloads.

JLARC received responses from 173 out of 239 staff members (72 percent response rate) representing at least 45 districts. JLARC staff used VASWCD's directory to obtain district staff contact information, and VASWCD and VACDE helped to publicize the survey through emails and meetings with district staff.

Producers

JLARC staff obtained feedback from agricultural producers in Virginia using two different surveys:

- JLARC staff developed an online survey that the Virginia Farm Bureau distributed to producers in the state.
- JLARC staff included questions in the JLARC survey of district BOD member survey that were meant for BOD members who are producers.

The surveys included similar questions, including questions about VACS awareness, their impressions of and experience with the program, the technical assistance they received from districts, and the BMPs they have implemented through and outside of VACS.

JLARC staff worked with the Virginia Farm Bureau to distribute the producer survey and help encourage participation. The Farm Bureau posted on social media and emailed a link to ~8,100 known producers. District staff and VASWCD also assisted in sharing the survey with producers. In total, 795 producers responded (~10 percent response rate) to the survey.

For the producer questions on JLARC's BOD member survey, JLARC received 48 responses.

Altogether, 843 producers responded to JLARC surveys for this study.

Data analysis

JLARC analyzed several types of data for this study, including pollution reduction data, VACS funding data, DCR's VACS BMP implementation data, and USDA 2022 Agricultural Census data. DCR's

VACS BMP implementation data is stored in the agency's Conservation Application Suite data system. The relevant agricultural BMPs were pulled from this data system when "VACS" and "Whole Farm" were mentioned as a funding source.

Analysis of Virginia's progress toward Chesapeake Bay WIP pollution reduction goals (Chapter 2)

JLARC obtained two types of data from DCR to understand the amount of pollution reduction the state has achieved relative to its Chesapeake Bay Phase III Watershed Implementation Plan goals.

JLARC staff reviews DCR's agricultural needs assessment spreadsheet, which provides a list of the specific BMPs the state has committed to implement through VACS to help meet its goals. The spreadsheet indicates the number and percentage of each type of BMP that must be implemented and the state's progress to date.

JLARC staff also reviewed data from DCR on the Chesapeake Bay WIP goals and pollution reductions. The data includes the Phase III WIP goals for nitrogen, phosphorus, and sediment reductions, the progress made toward them as of FY24 and FY25, and the amount of pollution reductions that still need to be achieved. Importantly, this data is not VACS-specific. The data reflects progress made because of all Virginia program efforts.

Analysis of trends in the VACS program participation, including BMP, producer, and funding summary statistics (Chapter 2, 4)

JLARC used DCR data on BMP implementation to identify general VACS trends over the past five fiscal years. Annual obligation amounts and individual award summary statistics were based on cost-share payment amounts, or payment estimates if final amounts were not available, for BMPs that were approved for FY22–FY26 funding and not cancelled. Annual BMP and producer counts, including those within the Chesapeake Bay watershed only, were similarly based on BMP projects that were approved for FY22–FY26 funding and not cancelled. Calculations on the relative effectiveness of VACS BMPs were based on available "edge of field" pollution reduction data for individual BMPs.

Analysis of VACS funding data (Chapters 3, 5, and 6)

JLARC staff reviewed data on the total amount of VACS funding that was estimated as needed, appropriated, obligated, and spent in recent years (FY17–FY26). Data on the estimated amount of total VACS funding needed came from DCR's agricultural needs assessment spreadsheet (FY26 & FY27). It is difficult to identify the total amount of VACS appropriations in the state budget; therefore, the amount of total VACS funding allocated was identified using data provided by DCR and the VACS cost-share and technical assistance policy documents approved by the SWCB each year (FY17–FY26). Data on the amount of VACS funding that was obligated and spent was also provided by DCR (FY17–FY26).

JLARC staff also reviewed how VACS funding was allocated to each district. VACS cost-share and technical assistance policy documents were used to obtain data on district-specific allocations, as well as whether districts were located in the Chesapeake Bay watershed or Southern Rivers area. JLARC staff also referenced data from the state's biennial nonpoint source pollution assessment to understand

how hydrologic units with "high," "medium," or "low" potential risk of agricultural pollution were factored into VACS funding allocations.

Analysis to identify cost-effective BMPs (Chapter 2, Appendix E)

JLARC received data on cost-share payments and estimated annual edge-of-field nitrogen, phosphorus, and sediment reductions for individual BMP instances that were implemented using FY23-FY25 funding, where pollution reduction data was available. Additionally, for practices that had been implemented but not yet paid, cost-share payment estimates were used if actual payment information was not yet available.

For each pollutant, JLARC then calculated the total amount of reduction that was estimated to occur over the BMP's lifespan and added up the total state cost and expected pollution reduction for each BMP type. The total cost was then divided by the total reduction amount to identify the average cost per pound of nitrogen, per pound of phosphorus, and per ton of sediment. Finally, the relative costs were standardized by dividing the cost of each practice by the cost of the cheapest practice. (See Appendix E for more information about these calculations and limitations.)

Analysis of potential number of Virginia producers eligible for VACS (Chapter 4)

JLARC used publicly available USDA 2022 Agricultural Census Table 9 data to identify the approximate number of farms in Virginia consisting of 10 or more acres. By definition, all farms tracked in USDA census data produce or sell, or normally would sell, $1,000 or more of agricultural products during the census year. More detailed information on the number of farms in Virginia that may be eligible for VACS was not available as the USDA census does not track the number of farms with 5–10 acres of land, farms' gross receipts for each of the last three years, or water quality concerns.

The number of producers in Virginia participating in VACS was calculated using DCR's BMP implementation data. JLARC staff included any producer who had implemented or was still signed up to implement at least one BMP with FY22-FY26 VACS funding in its analysis. This analysis did not include producers who may have applied for funding but who were denied or whose project was later cancelled.

There are some data limitations with comparing the number of farms identified in USDA census data with current VACS participation. DCR's data system tracks VACS participation by producer rather than farm. Only one producer is listed per BMP, and that producer may work at multiple farms across multiple districts. Conversely, the USDA collects information for up to four producers per farm as part of their census. This indicates that USDA producer counts could therefore greatly overcount potential VACS participants. To limit the extent of overestimating, JLARC used USDA census data farm estimates rather than producer estimates.

Analysis of districts' VACS staffing characteristics (Chapter 4)

JLARC collected information from each district on the number of full-time equivalent staff the district had devoted to the VACS program, the tenure of each staff member, and whether each staff member had completed, was participating in, or had not participated in the conservation planner

certification program. JLARC calculated counts and averages of this information to inform its descriptions of district staffing characteristics.

Analysis of technical assistance funding trends (Chapter 4)

JLARC used funding information that is publicly available in Virginia Soil and Water Conservation Board Policy and Procedures on Soil and Water Conservation District Cost-Share and Technical Assistance Funding Allocations documents from FY17-FY26 as well as information that was shared in a DCR-compiled spreadsheet on VACS funding streams and amounts from FY16-FY26 to calculate trends in technical assistance funding allocations. The three-year-average funding amounts also included analysis of the estimated FY27 cost-share funding amount in the 2025 agricultural needs assessment.

Analysis of VACS spending on annual and Whole Farm Approach practices (Chapter 6)

JLARC received DCR data on BMP implementation with type, lifespan, cost-share payment, and status data on BMPs that were approved and not cancelled for FY21-FY26 VACS funding. This data was used to identify VACS funding obligation amounts each year by lifespan and practice type.

Analysis of VACS cover crop trends (Chapters 6 and 7)

JLARC received DCR data on BMP implementation with the type, size, district, cost, status, and verification dates of VACS-funded BMPs in FY26. JLARC used this data to collect summary statistics on the total amount of cover crop implementation, relative extent of cover crop implementation compared to other BMPs, and extent to which cover crop appears to be a gateway BMP. Additionally, JLARC calculated cover crop verification dates, cancellation rates, and cancellation amounts as part of its analysis of cover crop verification trends. Cover crop verification dates and cancelation reasons were not available for all cover crop BMP practices; JLARC's analyses were based on available information.

Analysis of VACS oversight figures (Chapter 7)

JLARC received data on BMP implementation from DCR and data on district staffing from districts through an information request. DCR's data was used to identify the number of structural BMPs approved and not cancelled for FY22-FY26 funding in the Southern Rivers area and the number of overall BMPs approved and not cancelled for FY25-FY26 funding. The district staffing data was then used to calculate average BMP workload amounts for district staff using those BMP figures.

Site visit

JLARC staff participated in a site visit that was led by a district director and a regional DCR staff member. JLARC staff visited the district office and several BMP implementation sites, including a site with stream exclusion fencing and an off-stream watering facility, and a cover crop site. The purpose of the visit was to see the BMPs in person, learn about the issues district staff look for when conducting verification reviews, and gain a better understanding of issues district staff face when implementing VACS and interacting with producers.

Board and other meeting attendance

JLARC staff attended a SWCB meeting to observe the board's operations and learn more about the topics discussed at the meeting (e.g., district audit results). Staff also attended two regional VASWCD meetings and two VASWCD board meetings to observe and talk with attendees (DCR and district staff) about the VACS program. In addition, staff attended an agricultural needs assessment stakeholder meeting to listen to information on VACS funding needs and calculations.

Review of BMPs

JLARC staff reviewed the scientific basis for the VACS BMPs by reviewing information from the CBP and NRCS. For each VACS BMP, staff used CBP and NRCS reports and documents to identify:

- Whether each VACS BMP had corresponding CBP and NRCS BMPs;
- Whether each VACS BMP was supported by a CBP expert panel;
- Number of studies supporting the CBP expert panel, the date of the studies, and whether they were peer-reviewed; and
- Number of studies and other documents cited in the corresponding NRCS BMP.

Staff also reviewed CBP expert panel reports for several BMPs that are frequently implemented in Virginia and/or are priority BMPs (e.g., stream exclusion fencing, cover crops, animal waste facilities) to learn more about the specific scientific evidence supporting these BMPs. Staff also reviewed several other CBP documents including CBP BMP Expert Panel Protocol and the Quick Reference Guide for Best Management Practices.

Document and policy review

JLARC staff reviewed numerous VACS-related documents and literature, such as:

- Virginia laws, regulations, and policies related to the VACS program, SWCB, water quality funding, conflicts of interest;
- State water quality agreements, such as the Chesapeake Bay Watershed Agreement and Phase III Virginia's Chesapeake Bay Watershed Improvement Plan;
- Reports to the General Assembly on VACS, the Chesapeake Bay and Virginia Waters Clean Up Plan, and Chapters 725, 735, and 736 from 2022-2026;
- Biennial nonpoint source pollution assessments (2022-24 and 2024-26);
- Agricultural needs assessment spreadsheets (FY26 and FY27);
- SWCB policies, including the VACS Manual for FY26 and some prior years, and VACS policy documents for FY16-26;
- Meeting minutes and materials from SWCB meetings and TAC meetings, including summaries of FY26 district audits;
- DCR documents and reports on the conservation efficiency factor and conservation planner certification program;
- DEQ documents and reports, including Virginia's 2024 305(B)/303(D) Water Quality Assessment Integrated Report;

- Other states' agricultural cost-share documents and reports, including annual reports, manuals, policies, and outreach materials; and
- Federal government regulations and reports, including regulations on water quality and TMDL failures; EPA evaluations of Virginia and other states in the Chesapeake Bay Watershed agreement's progress toward the water quality goals; Chesapeake Bay Program expert panel reports and other documents; USDA 2022 Agricultural Census Data tables

Appendix C: VACS BMP list

In FY26, the VACS program had 64 eligible agricultural best management practices (BMPs). Each BMP must be maintained for a specific number of years (i.e., a lifespan) to receive full reimbursement.

TABLE C-1
BMPs eligible for VACS (FY26)

BMP code	BMP name	Description	Lifespan (in years)
CCI-CNT	Long Term Continuous No-Till Planting System	This BMP implements continuous no-till planting systems and nutrient management planning technologies. Continuous no-till is an agricultural practice where crops are grown year after year without disturbing the soil through ploughing or tilling, maintaining high surface residue cover.	5
CCI-FRB-1	Forested Riparian Buffer- Maintenance Practice	This BMP provides an incentive payment to maintain a forested riparian buffer, which is a permanent area of trees and other vegetation near a body of water. The buffer maintains the integrity of stream channels and shorelines and reduces the impact of upland sources of pollution.	5
CCI-HRB-1	Herbaceous Riparian Buffer- Maintenance Practice	This BMP provides an incentive payment to maintain herbaceous buffers, which are grass-like plants along the banks of water courses that filter runoff, anchor soil particles, and protect soils from scour and erosion.	5
CCI-RT	Long Term Continuous Reduced Tillage Planting System	This BMP implements a continuous conservation tillage planting system (which limits soil disturbance year after year) and nutrient management planning technologies that result in the reduction of nonpoint source pollution.	5
CCI-SE-1	Stream Exclusion - Maintenance Practice	This BMP provides an incentive payment to maintain fences along live streams or live water in a field that exclude livestock, maintain land use change, and/or improve management techniques to control soil erosion and nutrient loss from surface runoff to improve water quality.	5
CCI-SL-6N	Stream Exclusion with Narrow Width Buffer - Maintenance Practice	This BMP provides an incentive payment to maintain narrow-width exclusion fences, water systems, and associated components that together maintain land use change and/or improve management techniques to control soil erosion and nutrient loss from surface runoff to improve water quality.	5
CCI-SL-6W	Stream Exclusion with Wide Width Buffer - Maintenance Practice	This BMP provides an incentive payment to maintain wide-width exclusion fences, water systems and associated components that together maintain land use change and/or improve management techniques to control soil erosion and nutrient loss from surface runoff to improve water quality.	5
CCI-WP-2N	Stream Protection with Narrow Width Buffer - Maintenance Practice	This BMP provides an incentive payment to maintain narrow-width exclusion fences, livestock crossings, and hardened accesses that together maintain land use change and/or improve management techniques to control soil erosion and nutrient loss from surface runoff to improve water quality.	5
CCI-WP-2W	Stream Protection with Wide Width Buffer - Maintenance Practice	This BMP provides an incentive payment to maintain wide-width exclusion fences and livestock crossings and hardened accesses that together maintain land use change and/or improve management techniques to control soil erosion and nutrient loss from surface runoff to improve water quality.	5

CCI-WP-4	Animal Waste Control Facilities – Maintenance Practice	This BMP provides an incentive payment for the maintenance of existing animal waste control facilities, including WP-4SF, WP-4LC, WP-4LL, WP-4B, and WP-4 or equivalent facilities.	5
CCI-WP-4C	Composter Facilities - Maintenance Practice	This BMP provides an incentive payment for the maintenance of existing poultry and swine mortality composter facilities.	5
FR-1	Afforestation of Crop, Hay and Pasture Land	This BMP provides an incentive payment to plant trees (hardwoods and/or conifers) on land currently used as crop, hay, or pastureland to permanently convert it to forest. This changes the land use to one that better controls the soil and nutrient loss from surface runoff, and improves water quality.	10–15
FR-3[a]	Woodland Buffer Filter Area	This BMP creates a streamside strip of trees, shrubs, and groundcover to protect waterways. The purpose is to change land use and establish a forest buffer to protect stream banks and control soil erosion and nutrient loss from surface runoff to improve water quality.	10–15
FR-3M	Woodland Buffer Filter Area Maintenance	This BMP encourages the successful establishment of riparian forested buffers within their first three years by offering cost-share for management activities that help ensure tree survival.	1
FR-4	Woodland Erosion Stabilization	This BMP promotes land shaping and planting of permanent vegetation on critically eroding areas on forest harvesting sites. The purpose is to stabilize soil and reduce the movement of sediment and nutrients from the site.	5
NM-1A[a]	Nutrient Management Plan Writing and Revisions	This BMP offers financial assistance to farmers and private certified nutrient management planners to develop or revise nutrient management plans (which are site-specific guides that detail how a farm or land manager applies fertilizers, manure, and other plant nutrients).	1
NM-3C	Sidedress Application of Nitrogen on Corn, Grain, Sorghum, Cotton, and/or Tobacco	This BMP encourages the sidedress application of nitrogen on corn, grain, sorghum, cotton, and/or tobacco. Sidedress application applies fertilizer or soil amendments in a band between the rows of an already growing crop, which places nutrients directly into the active root zone when the plant's growth and nutrient demand peak.	1
NM-4	Late Winter Split Application of Nitrogen on Small Grains	This BMP encourages late winter split application of nitrogen on small grains, which consists of applying nitrogen during the late winter in two increments based on the progression of growth of the small grain crop. This minimizes the amount lost through leaching and runoff.	1
NM-5N[a]	Precision Nutrient Management on Cropland - Nitrogen Application	This BMP encourages the use of precision nutrient management practice components[b] that support a higher intensity of nitrogen management in the field than existing standard nutrient management practices. This practice is for row crops, small grains and highly managed hayland production systems.	1
NM-5P[a]	Precision Nutrient Management on Cropland - Phosphorus App.	This BMP encourages the use of precision nutrient management practice components[b] that support a higher intensity of phosphorus management in the field than existing standard nutrient management practices. This practice is for certain crops (e.g., row crops, small grains, specialty crops, turf/sod).	1
NM-6	Manure Injection	This BMP encourages manure injection, which is the placing of manure below the surface of the ground using direct manure injection equipment, on pasture and cropland. This reduces nutrient transport to waterways and other environmentally sensitive features.	1
NM-7	Cover Crop for Managing Liquid or Semi-Solid Manure	This BMP provides an incentive to keep cover on cropland receiving liquid or semisolid manure, which helps prevent the loss of nutrients.	1

RMP-1	Resource Management Plan Development	This BMP offers financial assistance to farmers and certified Resource Management Plan Developers to develop Resource Management Plans (RMPs).[c]	N/A
RMP-2	Resource Management Plan Implementation	This BMP offers financial assistance to farmers and certified Resource Management Plan Developers to implement RMPs.	N/A
SE-1	Vegetative Stabilization of Marsh Fringe Areas	This BMP establishes a fringe buffer of marsh grasses to provide toe stabilization on tidal waters and protect eroding tidal shoreline.	5
SE-2	Shoreline Stabilization	This BMP provides funding to design and implement structures and/or vegetative measures (riprap, etc.) to stabilize shoreline areas of tidally influenced waters. It improves water quality by stabilizing shoreline areas that are being eroded because of waves, boat wake, or overland flow.	15
SL-1	Long-Term Vegetative Cover on Cropland	This BMP provides funding to establish grass and/or legume vegetation on cropland with existing cover of less than 60%, converting it to pasture or hayland to reduce soil erosion and enhance water quality. This practice promotes conversion of cropland to fields with a healthy, well-maintained sod.	5–15
SL-10	Grazing Land Management	This BMP provides a grazing management system that provides adequate surface cover protection to minimize soil erosion. Grazing management systems are strategies for harvesting forage with livestock. They control how long plants are grazed to protect soil and improve animal performance.	3
SL-11[a]	Permanent Vegetative Cover on Critical Areas	This BMP promotes land shaping and planting permanent vegetative cover on critically eroding areas. It improves water quality by stabilizing soil, thus reducing the movement of sediment and nutrients from the site.	5
SL-15A	Continuous High Residue Minimal Soil Disturbance Tillage System	This BMP encourages the conversion of minimum and conventional tillage fields to a continuous high residue minimal soil disturbance tillage system and will maintain a minimum of 60% rain drop intercepting residue cover on the enrolled acres for the lifespan of the practice.	5
SL-15B	Continuous No-Till Forage Production System	This BMP is designed to expand implementation of continuous conservation tillage planting systems, continuous cover, and nutrient management technologies that will reduce nonpoint source pollution.	5
SL-3	Stripcropping Systems	This BMP promotes growing crops in a systematic arrangement of strips or bands across the general land slope to reduce water erosion and nutrient loss.	5
SL-3B	Buffer Stripcropping	This BMP promotes buffer stripcropping, which is a series of narrow permanent protective strips of sod alternating with wider strips of row or close-growing crops to reduce erosion and runoff and improve water quality.	5
SL-4	Terrace Systems	This BMP promotes terrace systems, which are earth embankments, channels, or a combination ridge and channel constructed across the slope designed to improve water quality by slowing the movement of sediment and nutrients from cropland.	10
SL-6F[a]	Stream Exclusion in Floodplains	This BMP is intended for use in areas prone to flooding where the producer wishes to retain usage of a portion of the floodplain and also protect exclusion fencing from destruction by flooding. This BMP enhances or protects vegetative cover to reduce runoff of sediment and nutrients from grazing livestock on existing pastureland through livestock exclusion.	10–15

SL-6N[a]	Stream Exclusion with Narrow Width Buffer and Grazing Land Management	This BMP enhances or protects vegetative cover to reduce runoff from grazing livestock on existing pastureland through livestock exclusion. Stream exclusion fencing and an off-stream watering facility are required components; rotational grazing is optional. The minimum fence setback is 10 feet.	10–15
SL-6W[a]	Stream Exclusion with Wide Width Buffer and Grazing Land Management	This BMP enhances or protects vegetative cover to reduce runoff from grazing livestock on existing pastureland through livestock exclusion. Stream exclusion fencing and an off-stream watering facility are required components; rotational grazing is optional. The minimum fence setback is 35 feet.	10–15
SL-7	Extension of Watering and Grazing Management Systems	This BMP improves the quantity, quality, and utilization of forage for livestock and reduces the risk of surface and groundwater contamination from nonpoint source pollution from pastures by ensuring that an adequate stand of forage is available to absorb runoff and reduce pollutants.	10–15
SL-8	Protective Cover for Specialty Crops	This BMP provides an incentive to keep a cover on crop land when it is not being used after harvest of a specialty crop. (Specialty crops for this practice include vegetables, tree crops, perennial vine crops, ornamentals, horticultural crops, tobacco, hemp, and turf).	1
SL-8A	Protective Cover for Agricultural Cropland	This BMP provides an incentive to keep a cover on agricultural cropland when it is not being used after harvest of a crop or in situations due to an unforeseen circumstance or natural disaster.	1
SL-8B[a]	Small Grain and Mixed Cover Crop for Nutrient Management and Residue Management	This BMP establishes vegetative cover on cropland used for production of row crops for harvest for protection from erosion and the reduction of nutrient losses to groundwater. Species that can be planted include cereal rye, winter triticale, winter barley, winter hardy oats, winter wheat, winter annual rye grass, daikon radish, winter hardy *brassica*, and small grain mixtures with legume, daikon radish, or canola/rape.	1
SL-8H	Harvestable Cover Crop	This BMP establishes vegetative cover on cropland used for production of row crops for harvest for protection from raindrop and wind erosion and the reduction of nutrient losses to groundwater. The cover crop may be harvested after the requirements of this specification have been met.	1
SL-8M[a]	Small Grain & Mixed Cover Crop for Nutrient Mgt. & Residue Mgt. with Fall Manure Application	This BMP establishes vegetative cover on cropland for protection from erosion and the reduction of nutrient losses to groundwater. Cropland includes land used for production of row crops for harvest. This type of cover crop is planted upon cropland where manure is applied following the harvest of a summer crop and prior to cover crop planting.	1
WFA-CC[a]	Whole Farm Approach – Cover Crop Bundle	This BMP bundles components of the following cover crop BMPs: SL-8, SL-8B, SL-8H, SL-8M, and WQ-4. This BMP will collect data and provide for the establishment of vegetative cover on agricultural land for protection from erosion and the reduction of nutrient losses to groundwater.	1
WFA-NM[a]	Whole Farm Approach - Nutrient Management Bundle	This BMP bundles components of the following nutrient management BMPs: NM-3C, NM-4, NM-5N, NM-5P, and NM-6. This BMP collects data and ensures that implemented Nutrient Management Plans are up to date.	1
WP-1[a]	Sediment Retention, Erosion or Water Control Structures	This BMP promotes structures that collect and store debris or control the grade of drainage ways (e.g., dams, desilting reservoirs, channel linings, drop spillways, etc.). The purpose is to reduce the movement of sediment and materials from agricultural land to receiving streams.	10

WP-2A	Streambank Stabilization	This BMP promotes protection methods along streams that reduce erosion and agricultural nonpoint pollution. This can include: vegetative work; grading and shaping of the bank to achieve proper slope and seeding conditions; and providing livestock access to water by installing livestock crossings.	15
WP-2N	Stream Protection (Fencing with Narrow Width Buffer)	This BMP provides stream protection by fencing along all live streams or live water in a field to reduce erosion and agricultural nonpoint source pollution. The purpose is to change land use or improve management techniques. Minimum fence setback (from the top of streambank) is 10 feet.	5–10
WP-2P	Portable Fencing for Stream Protection	This BMP provides protection by portable fencing along live streams or live water in a field to reduce erosion and agricultural nonpoint source pollution.	5
WP-2W	Stream Protection (Fencing with Wide Width Buffer)	This BMP provides stream protection by fencing along live streams or live water in a field to reduce erosion and agricultural nonpoint source pollution. The purpose is to change land use or improve management techniques. Minimum fence setback (from the top of streambank) is 35 feet.	5–10
WP-3[a]	Sod Waterway	This BMP creates a natural or constructed waterway shaped or graded and established in suitable vegetation to safely convey water across areas of concentrated flow. Its purpose is to improve water quality by reducing the movement of sediment and nutrients from agricultural nonpoint sources.	10
WP-4[a]	Animal Waste Control Facilities	This BMP creates a planned system to manage waste from areas where livestock and poultry are concentrated (e.g., feeding facilities, hardened pads). It provides facilities to store and handle livestock and poultry waste and control surface runoff to permit the recycling of animal waste onto the land.	15
WP-4B[a]	Dairy Loafing Lot Management System	This BMP encourages dairy operations to be divided into lots and rotating dairy cattle from lot to lot to maintain a vegetative cover. This reduces destruction of ground cover and helps prevent areas exposed to heavy livestock traffic from excessive manure and soil loss.	15
WP-4C[a]	Composter Facilities	This BMP creates a planned system to manage the treatment and disposal of poultry, small ruminant, and swine carcasses resulting from normal mortality and to improve water quality by composting those carcasses and spreading the composted material at the proper time, rate, and location.	15
WP-4F	Animal Mortality Incinerator Facilities	This BMP provides a planned mortality incineration system that will dispose of poultry and livestock carcasses resulting from normal mortality, and spreading or properly disposing of the residual material at the proper time, rate, and location.	15
WP-4FP[a]	Feeding Pad	This BMP provides a hardened gravel or concrete pad that provides a stable area for feeding livestock and allows for the capture of manure. This reduces destruction of ground cover and helps prevent areas exposed to heavy livestock traffic from excessive manure and soil loss.	15
WP-4LC[a]	Animal Waste Control Facility for Confined Livestock Operations	This BMP provides covered facilities that require 100% confinement of livestock, including a feeding area and a bedded or manure pack area. It prevents areas exposed to heavy livestock traffic from experiencing excessive manure and soil loss due to the destruction of ground cover and manages waste from areas where livestock are concentrated.	15
WP-4LL[a]	Loafing Lot Mgt. System with Manure Mgt. (Excl. Bovine Dairy)	This BMP provides a sacrifice lot or covered facility, including a feeding area and a bedded or manure pack area with a manure storage area if needed. It prevents areas exposed to heavy livestock traffic from experiencing excessive	15

		manure and soil loss due to the destruction of ground cover and manages waste from areas where livestock are concentrated.	
WP-4SF[a]	Seasonal Feeding Facility with Attached Manure Storage	This BMP provides a covered concrete facility, including a feeding area and manure storage area, that allows for the capture and storage of manure during inclement weather. It prevents areas exposed to heavy livestock traffic from experiencing excessive manure and soil losses due to the destruction of ground cover and manages waste in areas where livestock are concentrated.	15
WQ-1[a]	Grass Filter Strips	This BMP provides funding to install and maintain riparian grass filter strips that are located next to cropland or animal holding areas. Riparian grass filter strips are vegetative buffers located along the banks of water courses to filter runoff, anchor soil particles, and protect banks against erosion.	10–15
WQ-4	Legume Based Cover Crop	This BMP encourages use of legume cover crops and legume mulch residue as a natural source of nitrogen. It improves water quality by providing an adequate residue cover to prevent erosion, serves as desirable mulch for no-till cultivation, and reduces the need for applied nitrogen.	1
WQ-5	Water Table Control Structures	This BMP encourages the installation of a water control device within a drainage system that will regulate the water level for nutrient uptake by plants and allow for denitrification by natural factors. This helps improve water quality by trapping sediment and managing dissolved/suspended nutrients.	10
WQ-11	Agricultural Sinkhole Protection	This BMP improves water quality by removing sources of pollution from sinkholes and providing an adequate buffer to trap and filter sediments and nutrients from surface flows that enter the groundwater through sinkholes.	10
WQ-12	Roof Runoff Management System	This BMP establishes a planned system to manage roof runoff from agricultural structures in areas where concentrated runoff comes into contact with animal waste, such as barnyards and feeding areas. It is designed to collect, control, and convey precipitation runoff from a roof to an appropriate discharge area.	10

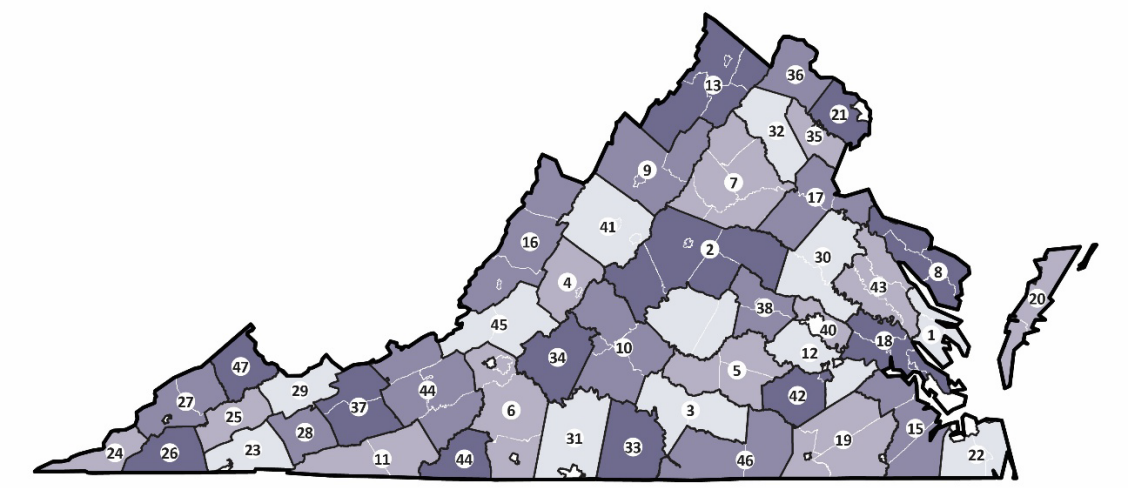
SOURCE: VACS cost-share manual and NRCS conservation standards.

NOTES: [a] Priority practice. WP-4C and WP-4FP may only be treated as priority practices if they are a part of a combined contract that also funds an SL-6N, SL-6W, or WP-4. [b] Precision management components can include aerial imagery or site map(s) and a soil survey map of the site; results of soil, water, manure, and/or organic by-product sample analysis; results of plant tissue analyses, when used for nutrient management; a complete nutrient budget design for nitrogen, phosphorus, and potassium for the crop rotation or sequence; adaptive nutrient management application rates, timing, form, and method of application and incorporation, and guidance for implementation, operation, maintenance, and recordkeeping. [c] A Virginia Resource Management Plan (RMP) is a comprehensive conservation plan that includes proven agricultural BMPs to ensure the farm is meeting a conservation farming standard. The RMP provides a list of agricultural BMPs for the farmer to implement and addresses onsite erosion and nutrient management issues. Once all required BMPs are implemented, the RMP can be certified, which means "certainty" that the farmer is considered environmentally compliant. If newer, more stringent state regulations related to the Chesapeake Bay or local stream TMDLs are adopted, the certified RMP farm operation is considered already to comply with nutrient, sediment, and water quality standards.

Appendix D: Virginia soil and water conservation districts

Virginia has 47 soil and water conservation districts (districts) across the state. Districts were created in the 1930s and are political subdivisions with responsibilities related to resource conservation (including the VACS program). Districts can include one or multiple counties and therefore vary widely in size.

FIGURE D-1
Map of Virginia's soil and water conservation districts



1. **Tidewater:** Gloucester, Mathews, Middlesex
2. **Thomas Jefferson:** Albemarle, Fluvanna, Louisa, Nelson, Charlottesville (City)
3. **Southside:** Charlotte, Lunenburg
4. **Natural Bridge:** Buena Vista (City), Lexington (City), Rockbridge
5. **Piedmont:** Amelia, Nottoway, Prince Edward
6. **Blue Ridge:** Franklin, Henry, Roanoke, Roanoke (City)
7. **Culpeper:** Culpeper, Greene, Madison, Orange, Rappahannock
8. **Northern Neck:** Lancaster, Northumberland, Richmond, Westmoreland
09. **Shenandoah Valley:** Harrisonburg (City), Page, Rockingham
10. **Robert E. Lee:** Amherst, Appomattox, Campbell, Lynchburg (City)
11. **New River:** Carroll, Galax (City), Grayson
12. **James River:** Chesterfield, Prince George
13. **Lord Fairfax:** Clarke, Frederick, Shenandoah, Warren, Winchester (City)
14. **Skyline:** Floyd, Giles, Montgomery, Pulaski
15. **Peanut:** Isle of Wight, Suffolk (City), Surry
16. **Mountain:** Alleghany, Bath, Covington (City), Highland
17. **Tri-County/City:** Fredericksburg (City), King George, Spotsylvania, Stafford
18. **Colonial:** Charles City, James City, New Kent, Williamsburg (City), York
19. **Chowan Basin:** Greensville, Southampton, Sussex
20. **Eastern Shore:** Accomack, Northampton
21. **Northern Virginia:** Fairfax
22. **Virginia Dare:** Chesapeake (City), Virginia Beach (City)
23. **Holston River:** Washington
24. **Daniel Boone:** Lee
25. **Clinch Valley:** Russell
26. **Scott County:** Scott
27. **Lonesome Pine:** Dickenson, Wise
28. **Evergreen:** Smyth
29. **Tazewell:** Tazewell
30. **Hanover-Caroline:** Caroline, Hanover
31. **Pittsylvania:** Pittsylvania
32. **John Marshall:** Fauquier
33. **Halifax:** Halifax
34. **Peaks of Otter:** Bedford, Bedford (City)
35. **Prince William:** Prince William
36. **Loudoun:** Loudoun
37. **Big Walker:** Bland, Wythe
38. **Monacan:** Goochland, Powhatan
39. **Peter Francisco:** Buckingham, Cumberland
40. **Henricopolis:** Henrico
41. **Headwaters:** Augusta, Staunton (City), Waynesboro (City)
42. **Appomattox River:** Dinwiddie, Petersburg (City)
43. **Three Rivers:** Essex, King & Queen, King William
44. **Patrick:** Patrick
45. **Mountain Castles:** Botetourt, Craig
46. **Lake Country:** Brunswick, Mecklenburg
47. **Big Sandy:** Buchanan

Note: Cities within SWCDs are listed in parentheses after the appropriate district.

SOURCE: Virginia Association of Soil and Water Conservation Districts.

Appendix E: Analysis of cost-effective VACS BMPs

As part of its review of the VACS program, JLARC conducted a preliminary analysis of the cost-effectiveness of the agricultural best management practices (BMPs) implemented with FY23–FY25 VACS funding, though data limitations necessitate cautious interpretation of the results. Cost-effectiveness is generally an important component of any state program as it ensures efficient use of taxpayer funds and maximizes program outcomes when resources are limited.

Data Limitations

A cost-effectiveness analysis of VACS BMPs would ideally include information on VACS cost-share payment amounts as well as the water pollution reductions achieved for each BMP implemented through VACS. With that data, the state could determine and compare the average cost per unit of water pollution reduction for each type of BMP.

Edge-of-field versus edge-of-stream pollution reduction data

DCR's BMP implementation data system estimates pollution reductions at the "edge of field" rather than "edge of stream." Edge-of-field data measures pollutants prevented from leaving a field rather than those prevented from entering a waterway. Therefore, these estimates tend to overstate BMPs' water quality impacts because some pollution runoff from a field may be stopped (e.g., because of a neighboring forest) before it reaches water. The extent of this overestimation varies by BMP; some BMPs (e.g., a stream exclusion fencing BMP) may tend to be closer to the edge of a stream than others.

Lack of pollution reduction data for some VACS BMP types

Pollution reduction data was not available for all VACS BMP types. DCR's VACS BMP implementation data system is generally programmed to create estimates for the nitrogen, phosphorus, and sediment reductions expected for each VACS BMP using data about the BMP's characteristics (e.g., specifications and size), the location (e.g., distance from water, soil characteristics), and research-based characteristics (e.g., one unit reduces nitrogen runoff by 20 percent). However, estimates are not available for all BMP types. For instance, Whole Farm Approach BMPs are not included because the system is not equipped to process multiple BMPs implemented under one practice name. DCR's VACS BMP implementation data system also does not track nutrient management BMPs because DCR reports those reductions through a separate nutrient management data system. Ultimately, the VACS data system had pollution reduction information available for only 31 of the 55 VACS BMP types and about 20 percent of the individual BMPs implemented (because Whole Farm and nutrient management comprise a significant portion of VACS BMPs) with FY23–FY25 VACS funding.

Full BMP cost versus VACS BMP cost

The cost-effectiveness of a BMP may vary depending on whether the *full* BMP cost or the *VACS* BMP cost is considered.

- The *full* BMP cost includes the cost of all labor and materials needed to implement the BMP. The full cost of a BMP may be split between the producer, the VACS program, and/or any other parties (e.g., the federal government).
- The *VACS* BMP cost is the proportion of the full BMP cost that the state has agreed to pay through the program. The amount the state pays varies by BMP and depends on (1) the BMP's reimbursement rate (e.g., 90 percent versus 75 percent); (2) the local district's average cost list (e.g., reimbursing 4-strand barbed wire for a fence at $4.50 versus $7.02 per foot); and (3) whether VACS was paired with another program to fund the BMP (e.g., VACS may pay a smaller portion of the full cost if another program splits the cost). (See Chapter 5 to learn more about how VACS cost-share payment amounts are determined.)

JLARC's preliminary analysis of BMP cost-effectiveness included only the *VACS* BMP cost because JLARC's review focused on the VACS program. VACS BMP cost information is the most useful for determining how to spend VACS funding in the most cost-effective manner. Additionally, full BMP cost information was not available for some BMPs in DCR's VACS BMP implementation data system.

DCR VACS BMP implementation data versus Chesapeake Bay Program model data

The Chesapeake Bay Program tracks similar BMP data as DCR, but their data limitations differ. The Chesapeake Bay Program tracks and publishes the average nitrogen, phosphorus, and sediment "edge-of-tide" reductions (i.e., reductions to the Chesapeake Bay, specifically) per unit of various BMP types in Virginia. Additionally, this data is limited to BMPs located within the Chesapeake Bay watershed, and cost estimates are in 2018 dollars. The Chesapeake Bay Program's data also includes BMPs implemented through other programs, which prevents using the data to identify VACS BMP costs. Furthermore, DCR's and the Chesapeake Bay Program's BMPs and their reported units do not align fully; therefore, it is difficult to accurately merge data between these data systems.

JLARC cost-effectiveness analysis

To conduct a preliminary statewide analysis of VACS BMPs' cost-effectiveness, JLARC used data from DCR's VACS BMP implementation data system. Although this data had several limitations, the data enabled JLARC staff to analyze VACS cost-effectiveness statewide and for specific BMPs.

JLARC conducted its analysis using VACS BMPs that were (i) implemented using FY23–FY25 VACS funding and (ii) had VACS cost-share payment and "edge-of-field" reduction information available in DCR's data system. JLARC staff calculated the average VACS cost per pound of nitrogen, pound of phosphorus, and ton of sediment reduced at the edge of field across each BMP's full lifespan. Because edge-of-field pollution reduction does not directly indicate water quality cost-effectiveness, the cost metrics were standardized to compare relative cost-effectiveness across BMP types rather than absolute dollar values. This standardization was achieved by dividing each BMP's cost per unit of edge-of-field reduction by the cost per unit of the most cost-effective BMP. The tables below outline JLARC's preliminary findings on the cost-effectiveness of each BMP type for nitrogen (Table E-1), phosphorus (Table E-2), and sediment (Table E-3) pollution reductions.

Using cost-effectiveness information

Even with perfect data, VACS BMP cost-effectiveness can change each year, so past trends may not represent current realities. For example, VACS reimbursement rates may change annually to reflect changing BMP costs and/or policy decisions. As a result, the absolute and relative cost-effectiveness of a BMP may change from year to year. However, cost-share rate changes are unlikely to significantly affect VACS BMPs' rankings because JLARC's preliminary analysis shows wide variation in BMPs' relative cost-effectiveness.

Moreover, a cost-effective BMP may not always be the most effective BMP. For instance, maintenance BMPs are very cost-effective as they may "double" a BMP's lifespan through a minimal maintenance payment, but they do not lead to the implementation of a new BMP. Similarly, producers can receive a direct financial benefit from harvestable cover crops, so these BMPs receive a lower VACS payment than other cover crop BMPs. This makes them more cost-effective to the state than other cover crop BMPs, but other cover crop BMPs may be more effective at reducing pollution. For instance, DCR's VACS BMP implementation data indicates that the average acre of legume cover crop will reduce more nitrogen, phosphorus, and sediment than the average acre of harvestable cover crop, but harvestable cover crops appear to be more cost-effective on nitrogen and sediment.

TABLE E-1
VACS BMP by cost-effectiveness for nitrogen pollution

VACS BMP	Relative cost-effectiveness magnitude
Herbaceous Riparian Buffer - Maintenance Practice	1
Long Term Continuous No-Till Planting Systems	3
Continuous High Residue Minimal Soil Disturbance Tillage System	8
Harvestable Cover Crop	11
Roof Runoff Management System	11
Continuous No-Till Forage Production System	15
Forested Riparian Buffer - Maintenance Practice	16
Legume-Based Cover Crop	17
Protective Cover for Specialty Crops	24
Long Term Vegetative Cover on Cropland	26
Small Grain and Mixed Cover Crop for Nutrient Management and Residue Management	34
Afforestation of Crop, Hay, and Pasture Land	57
Manure Injection	68
Stream Exclusion - Maintenance Practice	76
Stream Exclusion with Wide Width Buffer - Maintenance Practice	78
Composter Facilities	104
Stream Exclusion with Narrow Width Buffer - Maintenance Practice	142
Stream Protection Fencing with Wide Width Buffer - Maintenance Practice	161
Prescribed Grazing Land Management	167
Woodland Buffer Filter Area	189
Stream Exclusion with Wide Width Buffer and Grazing Land Management	202
Extension of Watering Systems	251
Stream Exclusion with Narrow Width Buffer and Grazing Land Management	289
Permanent Vegetative Cover on Critical Areas	351
Animal Waste Control Facilities	397
Stream Protection Fencing with Narrow Width Buffer - Maintenance Practice	432
Loafing Lot Management System	521
Stream Protection Fencing with Wide Width Buffer	525
Sediment Retention, Erosion or Water Control Structures	771
Stream Protection Fencing with Narrow Width Buffer	1,618
Sod Waterway	3,855

SOURCE: JLARC analysis of VACS BMP implementation data (FY23–FY25).
NOTE: The relative cost-effectiveness represents the magnitude of the cost difference between the given BMP and the most cost-effective BMP.

TABLE E-2
VACS BMP by cost-effectiveness for phosphorus pollution

VACS BMP	Relative cost-effectiveness magnitude
Herbaceous Riparian Buffer - Maintenance Practice	1
Long Term Continuous No-Till Planting Systems	2
Continuous High Residue Minimal Soil Disturbance Tillage System	4
Roof Runoff Management System	4
Manure Injection	8
Forested Riparian Buffer - Maintenance Practice	11
Continuous No-Till Forage Production System	13
Long Term Vegetative Cover on Cropland	21
Afforestation of Crop, Hay, and Pasture Land	48
Stream Exclusion with Wide Width Buffer - Maintenance Practice	57
Stream Exclusion - Maintenance Practice	58
Legume-Based Cover Crop	59
Prescribed Grazing Land Management	62
Stream Exclusion with Narrow Width Buffer - Maintenance Practice	93
Harvestable Cover Crop	98
Stream Exclusion with Wide Width Buffer and Grazing Land Management	120
Stream Exclusion with Narrow Width Buffer and Grazing Land Management	121
Animal Waste Control Facilities	133
Composter Facilities	139
Stream Protection Fencing with Wide Width Buffer - Maintenance Practice	142
Extension of Watering Systems	146
Woodland Buffer Filter Area	162
Loafing Lot Management System	173
Protective Cover for Specialty Crops	234
Permanent Vegetative Cover on Critical Areas	287
Stream Protection Fencing with Narrow Width Buffer - Maintenance Practice	332
Sediment Retention, Erosion or Water Control Structures	350
Small Grain and Mixed Cover Crop for Nutrient Management and Residue Management	363
Stream Protection Fencing with Wide Width Buffer	409
Stream Protection Fencing with Narrow Width Buffer	1,396
Sod Waterway	1,894

SOURCE: JLARC analysis of VACS BMP implementation data (FY23–FY25).
NOTE: The relative cost-effectiveness represents the magnitude of the cost difference between the given BMP and the most cost-effective BMP.

TABLE E-3
VACS BMP by cost-effectiveness for sediment pollution

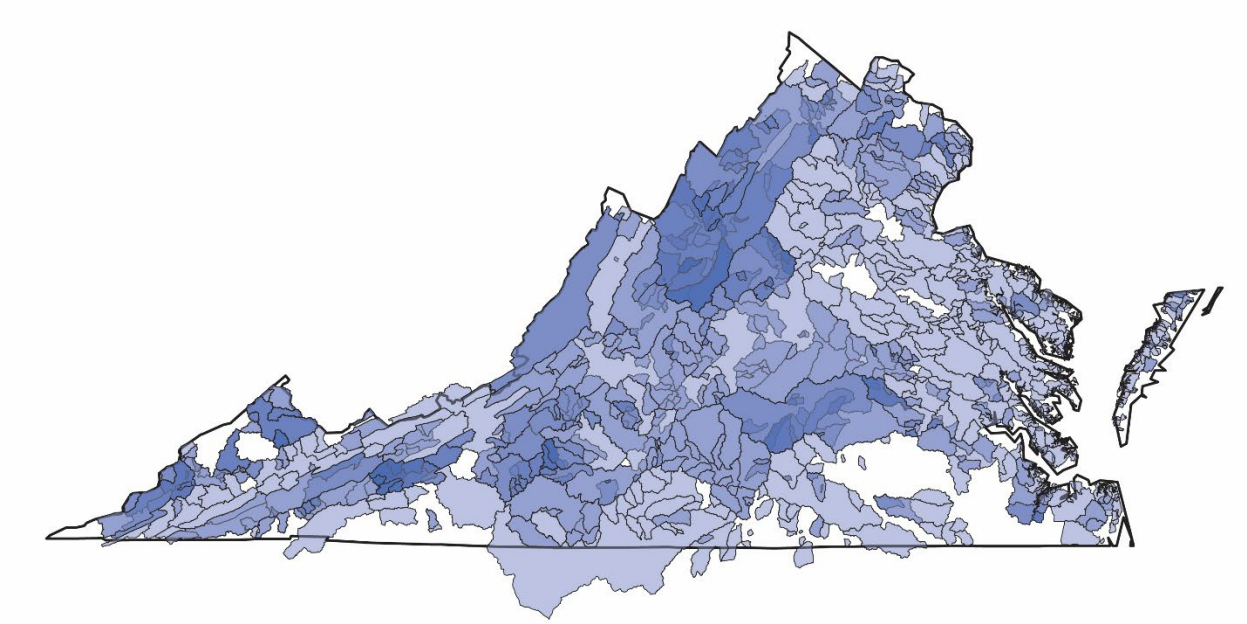
VACS BMP	Relative cost-effectiveness magnitude
Herbaceous Riparian Buffer - Maintenance Practice	1
Long Term Continuous No-Till Planting Systems	2
Continuous High Residue Minimal Soil Disturbance Tillage System	5
Continuous No-Till Forage Production System	6
Roof Runoff Management System	7
Forested Riparian Buffer - Maintenance Practice	54
Long Term Vegetative Cover on Cropland	76
Harvestable Cover Crop	79
Legume-Based Cover Crop	83
Prescribed Grazing Land Management	88
Afforestation of Crop, Hay, and Pasture Land	148
Protective Cover for Specialty Crops	159
Stream Exclusion with Wide Width Buffer and Grazing Land Management	171
Stream Exclusion - Maintenance Practice	172
Extension of Watering Systems	197
Stream Exclusion with Wide Width Buffer - Maintenance Practice	199
Stream Exclusion with Narrow Width Buffer and Grazing Land Management	238
Stream Exclusion with Narrow Width Buffer - Maintenance Practice	243
Sediment Retention, Erosion or Water Control Structures	334
Woodland Buffer Filter Area	336
Small Grain and Mixed Cover Crop for Nutrient Management and Residue Management	494
Stream Protection Fencing with Wide Width Buffer - Maintenance Practice	504
Loafing Lot Management System	558
Permanent Vegetative Cover on Critical Areas	1,125
Stream Protection Fencing with Narrow Width Buffer - Maintenance Practice	1,365
Stream Protection Fencing with Wide Width Buffer	1,398
Stream Protection Fencing with Narrow Width Buffer	3,384
Sod Waterway	9,351
Animal Waste Control Facilities	n/a
Composter Facilities	n/a
Manure Injection	n/a

SOURCE: JLARC analysis of VACS BMP implementation data (FY23–FY25).
NOTE: The relative cost-effectiveness represents the magnitude of the cost difference between the given BMP and the most cost-effective BMP. The three BMPs for which no magnitude is provided do not reduce sediment pollution.

Appendix F: Data on bacterial reduction

Bacteria are a significant contributor to water impairment in Virginia that can be addressed through VACS agricultural best management practices (BMPs). High bacteria levels can be dangerous to human health by causing serious diseases, so the Department of Environmental Quality (DEQ) has set statewide bacteria standards. As of July 2026, DEQ had identified excessive levels of bacteria in numerous watersheds across the state that require an EPA-approved implementation plan, similar to the Chesapeake Bay Watershed Implementation Plan (Figure F-1). In these plans, stream exclusion fencing BMPs have been noted as one of the most effective BMPs for reducing bacteria, and VACS has been noted as a potential funding source for implementing these impairment plans.

FIGURE F-1
Excessive bacteria are a common cause of water impairment across Virginia



SOURCE: JLARC analysis of DEQ TMDL Watershed mapping data.
NOTE: Blue coloring indicates watersheds for which DEQ has made implementation plans to reduce E. coli, fecal coliform, and/or enterococci bacteria levels to be within state standards. Darker blue coloring indicates overlapping plans.

However, VACS BMPs' ability to address bacterial impairments is not often accounted for within VACS, which largely focuses on nitrogen, phosphorus, and sediment pollution. VACS policy allows for some consideration of bacterial reduction potential in VACS award decisions. For example, for some BMP types, the Conservation Efficiency Factor (CEF) score generated to compare the relative effectiveness of BMP applications considers bacterial impacts. Additionally, some districts may prioritize BMPs that reduce bacteria as part of their secondary considerations. (See Chapter 6 for more information on VACS CEF scores and secondary considerations.) Otherwise, the program does not target bacterial reduction specifically, though it may occur through BMPs targeted at other pollutants. The program allocates funding based on relative local agricultural nitrogen, phosphorus, and sediment

pollution loads without considering local agricultural bacterial loads, and VACS BMPs' nitrogen, phosphorus, and sediment reduction outcomes are tracked, while bacterial reduction outcomes are not.

As the program's purpose is to address statewide agricultural nonpoint source pollution, the Department of Conservation and Recreation (DCR) could, in the long term, study how the VACS program could better address bacterial water impairments. Although the state may currently need to focus on nitrogen, phosphorus, and sediment in the Chesapeake Bay watershed, bacterial loads may be more concerning than those of the other three pollutants in other parts of the state. Additionally, the state may be able to broaden the program's water quality focus as greater progress is made toward the Phase III Chesapeake Bay Watershed Implementation Plan goals. The program could better incorporate bacterial load reduction into its water quality goals in several ways. For example, over the long term:

- BMPs that are cost-effective at reducing bacteria could be included in the state priority BMP list.
- Additional BMPs that primarily address bacterial pollution could be added to the list of eligible BMPs.
- Agricultural bacterial loads could be factored into the agricultural pollutant potential rankings of hydrologic units that determine district funding allocations.
- Estimated bacterial reductions from VACS BMPs could be shared in program reports.

Any changes to the program's approach to balancing water quality efforts across pollution types would require careful review, given the variety of ways bacterial reductions could be addressed through the program, the potential impacts on district funding amounts and training requirements, and the state's current Chesapeake Bay goal obligations. Therefore, DCR would need to put sufficient time and thought into assessing the best way to incorporate bacterial reductions into VACS's design.

In the short term, DCR could begin tracking VACS BMPs' existing bacterial reductions in its VACS BMP implementation data system. The data system tracks similar reduction estimates for nitrogen, phosphorus, and sediment, and methods for estimating BMPs' bacterial reductions have already been developed in Virginia and used by DEQ to report the state's progress in the U.S. Environmental Protection Agency's Clean Water Act 319(h) Nonpoint Source Program. As these estimates would be calculated in the data system automatically, this new information would not require additional work from district staff. Without this information, DCR and districts are not able to evaluate VACS applications' water quality impacts holistically or identify the best BMP for an area with a bacterial impairment. DCR could use this information to create bacterial cost-effectiveness rankings, similar to how it will for nitrogen, phosphorus, and sediment. (See Chapter 2 and Appendix E for additional information on BMP cost-effectiveness.) Additionally, this information would be useful for the department's consideration of how greater bacterial reductions could be achieved through the VACS program to maximize the program's effectiveness at improving water quality statewide.

Appendix G: Agency response

As part of an extensive validation process, the state agencies and other entities that are subject to a JLARC assessment are given the opportunity to comment on an exposure draft of the report. JLARC staff sent an exposure draft of the full report to the secretary of natural and historic resources, secretary of agriculture and forestry, and the Department of Conservation and Recreation. The Department of Environmental Quality was provided with relevant portions.

Appropriate corrections resulting from technical and substantive comments are incorporated in this version of the report. This appendix includes a response letter from the secretary of natural and historic resources and secretary of agriculture and forestry.

COMMONWEALTH of VIRGINIA
Office of the Governor

David Bulova
Secretary of Natural and Historic Resources

August 31, 2026

Hal Greer, Director
Joint Legislative Audit and Review Commission
919 East Main Street, Suite 2101
Richmond, VA 23219

Dear Director Greer,

Thank you for the opportunity to review a draft of the Joint Legislative Audit and Review Commission's report on Virginia's Agricultural Cost-Share (VACS) Program. We sincerely appreciate the in-depth analysis of this vital program. The VACS Program is not only critical to the success of Virginia's Chesapeake Bay restoration efforts and keeping our local streams healthy, but also pivotal in supporting our farmers as they work to provide the food and raw materials that fuel our economy.

As evidenced by the Environmental Protection Agency's *Evaluation of Virginia's 2024-2025 and 2026-2027 [Chesapeake Bay] Milestones*, Virginia must continue to accelerate implementation of voluntary agricultural best management practices (BMPs) in accordance with our Phase III Watershed Implementation Plan (WIP). Indeed, fully funding the needs of the VACS Program is regarded as a strength in Virginia's efforts to reduce nitrogen, phosphorus, and sediment pollution and has been a bi-partisan point of pride for both the General Assembly and the Governor.

Looking forward, we are pleased the report recognizes that achieving Phase III WIP targets is only a milestone, albeit an important one, in a longer journey to restore the Chesapeake Bay. Once Phase III WIP targets are met, these gains must be maintained. In addition, Virginia is preparing to develop our Phase IV WIP in response to the next update of the Chesapeake Bay Model in 2028. The VACS Program will undoubtedly continue to serve as a primary tool for meeting these new water quality targets.

To that end, we appreciate JLARC's focus on cost-effectiveness, which is a goal we strongly share. Indeed, since Virginia developed its first Chesapeake Bay Watershed Implementation Plan in 2010, the Commonwealth has approached the necessary pollution reductions with cost-effectiveness in mind.[i] While different BMPs have different efficiencies – they all have value to water quality. An unimplemented BMP, of course, has no value to water quality. As such, cost-effectiveness includes both dollars per pound of pollutant reduction as well as making sure the program is flexible and robust enough so that farmers will implement practices that meet their

needs. We look forward to further exploring the recommendations in the JLARC report and working with the General Assembly and stakeholders to ensure the long-term effectiveness and sustainability of the program.

Another key focus of the report is the technical assistance necessary to get BMPs into the field. Funding for practices is essential, but effective program delivery relies on adequate, stable support for our soil and water conservation districts. While there are several factors that contribute to the gap between appropriated and obligated VACS funding noted in the report, a significant factor is the capacity of soil and water conservation districts to provide technical assistance. Inadequate or unstable funding also contributes to the attrition of technical staff, which costs the Commonwealth in loss of talent and the need for training new personnel.

Many of the Chesapeake Bay water quality deadlines are driven by factors outside of the Commonwealth's direct control. However, the report notes that § 62.1-44.119.1 of the *Code of Virginia* establishes a Virginia-specific requirement that on or after July 1, 2028, the Secretary of Agriculture and Forestry and the Secretary of Natural and Historic Resources must jointly determine whether the Commonwealth has met its Chesapeake Bay water quality commitments. If such determination is not made, then certain voluntary BMPs would become mandatory. As JLARC highlights, the Virginia-specific target sets a more aggressive timeline for meeting water quality commitments than those contained in the recently revised Chesapeake Bay Watershed Agreement (2025). This context, among other key considerations, is important should the General Assembly decide to re-evaluate the deadline. Our Secretariats recognize the importance of these considerations and stand ready to help facilitate this discussion.

Finally, we want to note that a critically important, and integrally related, study of the Water Quality Improvement Fund is currently being finalized and is due to be submitted to the General Assembly no later than November 1, 2026. This includes recommendations both for the VACS Program as well as funding for wastewater treatment facility upgrades. Many of the policy discussions from this study overlap with the JLARC report and will require additional thought to ensure that action items are consistent and complementary.

Our Secretariats look forward to working with the General Assembly and our partners to consider the recommendations and options highlighted in the JLARC – with our overarching goal remaining focused on meeting our water quality commitments and supporting our farmers as they implement conservation practices.

Sincerely,

David L. Bulova
Secretary of Natural and Historic Resources

Katie K. Frazier
Secretary of Agriculture and Forestry

[i] Senate of Virginia, Senate Finance Committee, Chesapeake Bay TMDL Watershed Implementation Plan: What will it cost to meet Virginia's goals? Page 18. Dated November 18, 2011.

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