REPORT OF THE SECRETARY OF AGRICULTURE AND FORESTRY AND THE SECRETARY OF NATURAL AND HISTORIC RESOURCES

PROGRESS REPORT OF THE CHAPTERS 735 AND 736 (2023) STAKEHOLDER ADVISORY GROUP

TO THE GOVERNOR, THE CHAIRMAN OF THE HOUSE COMMITTEE ON AGRICULTURE, CHESAPEAKE, AND NATURAL RESOURCES, AND THE CHAIRMAN OF THE SENATE COMMITTEE ON AGRICULTURE, CONSERVATION AND NATURAL RESOURCES

COMMONWEALTH OF VIRGINIA
RICHMOND
JULY 2024

July 1, 2024

The Honorable Glenn Youngkin
Governor of Virginia
1111 East Broad Street
Richmond, Virginia 23219

The Honorable David W. Marsden, Chair
Senate Committee on Agriculture, Conservation and Natural Resources
Post Office Box 10889
Burke, Virginia 22009

The Honorable Alfonso H. Lopez, Chair
House Committee on Agriculture, Chesapeake and Natural Resources
Post Office Box 40366
Arlington, Virginia 22204

Dear Governor Youngkin, Senator Marsden, and Delegate Lopez:

Section 62.1-44.19:2 of the *Code of Virginia* directs the Secretary of Agriculture and Forestry and the Secretary of Natural and Historic Resources to convene a stakeholder advisory group that reviews "annual progress and make recommendations towards the implementation of the Commonwealth's agricultural commitments" in the Phase III Chesapeake Bay Watershed Implementation Plan. The second enactment clause of Chapters 735 and 736 of the 2023 Acts of Assembly requires the stakeholder advisory group to submit a first annual progress report due on July 1, 2024.

We are pleased to present this progress report on behalf of the stakeholder advisory group.

If you have any questions regarding this report or require any additional information, please do not hesitate to contact us.

Respectfully submitted,

Travis A. Voyles
Secretary of Natural and Historic Resources

Matthew J. Lohr
Secretary of Agriculture and Forestry

Preface

This report has been prepared in accordance with the requirements established in the second enactment clause of Chapters 735 and 736 of the 2023 Acts of Assembly. The enactment clause states:

" 2. That the stakeholder advisory group (the Group) created by the Secretary of Agriculture and Forestry and the Secretary of Natural and Historic Resources pursuant to § 62.1-44.119:2 of the Code of Virginia, as created by this act, shall make recommendations to the Governor and the Chairmen of the House Committee on Agriculture, Chesapeake and Natural Resources and the Senate Committee on Agriculture, Conservation and Natural Resources to ensure that all of the Commonwealth's agricultural sector commitments are achieved in accordance with the Chesapeake Bay Total Maximum Daily Load Phase III Watershed Implementation Plan. The Group shall develop a year-to-year timeline for achieving specific metrics for the achievement of the Commonwealth's agricultural sector commitments, including the coverage of a sufficient portion of Chesapeake Bay cropland by nutrient management plans or the installation of a sufficient number of livestock stream exclusion practices, in the Chesapeake Bay Total Maximum Daily Load Phase III Watershed Implementation Plan. Such timeline shall include specific annual percentages for nutrient management plan and stream exclusion adoption to meet the requirements of the Phase III Watershed Implementation Plan. The year-to-year timeline for achieving specific metrics shall be used to determine reasonable progress per § 62.1-44.119:4 of the Code of Virginia, as created by this act. The Group shall include representatives from the Department of Conservation and Recreation, soil and water conservation districts, the Virginia Farm Bureau Federation, the Virginia Agribusiness Council, the Shenandoah Riverkeepers, the Chesapeake Bay Commission, the Chesapeake Bay Foundation, the James River Association, the Virginia Cooperative Extension, the Virginia Cattlemen's Association, the Virginia Association of the Commissioners of the Revenue, and the Virginia Association of Counties. The Group shall also include two legislative members, one each from the Senate and the House of Delegates appointed by the Senate Committee on Rules and the Speaker of the House of Delegates, respectively. Such legislative members shall be members of the Virginia delegation of the Chesapeake Bay Commission. A preliminary report from the Group shall be due on December 1, 2023. The first annual report for the Group shall be due on July 1, 2024, and include the timeline with specific metrics. Thereafter, the progress report shall be due on an annual schedule to be determined by the Group.

The members of the stakeholder advisory group included:

The Honorable Travis A. Voyles,
Secretary of Natural and Historic Resources

The Honorable Matthew J. Lohr,
Secretary of Agriculture and Forestry

The Honorable Richard H. Stuart, Senate of Virginia

Dr. Kendall Tyree, Virginia Association of Soil and Water Conservation Districts

Mr. Matthew Wells, Department of Conservation and Recreation

Mr. Wayne Pryor, Virginia Farm Bureau Federation

Mr. Mark Frondorf, Shenandoah Riverkeeper

Mr. Jay Ford, Chesapeake Bay Foundation

Dr. Mike Gutter, Virginia Cooperative Extension

Mr. James Timberlake, II, Virginia Association of the Commissioners of the Revenue

Ms. Lindsay Reames, Virginia Agribusiness Council

Ms. Adrienne Kotula, Chesapeake Bay Commission

Mr. Tom Dunlap, James River Association

Mr. Jim Riddell, Virginia Cattlemen's Association

Mr. Jason Bellows, Virginia Association of Counties

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Executive Summary

Section 62.1-44.119:2 of the *Code of Virginia* directs the Secretary of Agriculture and Forestry and the Secretary of Natural and Historic Resources to convene a stakeholder advisory group (Group) that reviews "annual progress and make recommendations towards the implementation of the Commonwealth's agricultural commitments" in the Phase III Chesapeake Bay Watershed Implementation Plan (WIP). The second enactment clause of Chapters 735 and 736 requires the development of

> "a year-to-year timeline for achieving specific metrics for the achievement of the Commonwealth's agricultural sector commitments, including the coverage of a sufficient portion of Chesapeake Bay cropland by nutrient management plans or the installation of a sufficient number of livestock stream exclusion practices, in the Chesapeake Bay Total Maximum Daily Load Phase III Watershed Implementation Plan. Such timeline shall include specific annual percentages for nutrient management plan and stream exclusion adoption to meet the requirements of the Phase III Watershed Implementation Plan. The year-to-year timeline for achieving specific metrics shall be used to determine reasonable progress per § 62.1-44.119:4 of the Code of Virginia, as created by this act... The first annual report for the Group shall be due on July 1, 2024, and include the timeline with specific metrics."

Over the last year, the Group has prioritized the development of the timeline and specific metrics for nutrient management plan development and the installation of livestock stream exclusion practices in order to meet the statutory deadline of July 1.

Determination of reasonable progress

Earlier this year, the Group discussed both the timeline for reporting best management practice implementation and the use of a tiered approach to determine if the Commonwealth met its WIP commitments. Both the timeline and the use of a tiered approach impact the review conducted by the Secretaries to determine if the progress made by July 1, 2025 is "sufficient to substantially reach the allocated goals by July 1, 2028."

Timeline for determining reasonable progress

The Group decided that all agricultural practices reported by September 1, 2027 should be considered in determining whether "reasonable progress" has been made in meeting the Commonwealth's commitments in the Chesapeake Bay Phase III Watershed Implementation Plan. This timeline allows Virginia's Soil and Water Conservation Districts (Districts), the Department, and other essential partners to provide information on the practices implemented and installed under their programs.

Tiered approach to determine if Commonwealth has met its WIP commitments

Section 62.1-44.119:1 establishes a limited framework for how the Secretary of Agriculture and Forestry and the Secretary of Natural and Historic Resources are to determine if the Commonwealth has met its WIP commitments.

The Group refined the framework to more clearly define the steps utilized to make this determination. The steps are:

1. A review of the Commonwealth's overall nutrient and sediment load reduction must be conducted to determine if those targets were met. If those reduction targets are met, then the Commonwealth has met its commitments as it relates to §62.1-44.119:1 of the *Code of Virginia*.
2. If the Commonwealth's overall nutrient and sediment load reduction targets were not achieved, a review of the nutrient and sediment load reduction targets for the agricultural sector must be conducted to determine if those targets were met. If the agricultural sector nutrient and sediment load reduction targets have been met, then the Commonwealth has met its commitments as it relates to §62.1-44.119:1 of the *Code of Virginia*.
3. If the agricultural sector's nutrient and sediment load reduction targets are not met, an examination of the specific metrics established for both nutrient management plan development and livestock stream exclusion implementation must be conducted to determine if those metrics were achieved. If the metrics are achieved, the Commonwealth has met its commitments as it relates to §62.1-44.119:1 of the *Code of Virginia*.

In addition to examining the practices implemented and the load reductions that are achieved, the Group also decided that the levels of effort and commitment demonstrated by agricultural producers should be considered. Nitrogen load reductions are especially driven by the implementation and installation of structural practices; however, the high level of demand for the necessary materials and qualified contractors has led to routine delays of implementation and installation of two or more years after a producer applies for funding through the VACS Program. As such, there is a disconnect between when the agricultural producer makes a commitment to implement and install a practice and when the Commonwealth is shown to have achieved a load reduction from that practice. The progress shown in 2023 in reducing the Commonwealth's nutrient loads is reflective of the funding and commitments made by producers in 2021.

Specific metrics for nutrient management plans and livestock stream exclusion practices

As part of the Agricultural Needs Assessment developed each year in accordance with §10.1-2128.1, annualized targets are established for both annual and structural practices. Continuing that established process, annual targets have been developed for both nutrient management plans and livestock stream exclusion practices for FY2024, FY2025, FY2026, and FY2027. These targets are gradually increasing over each of the four years to reach the implementation targets.

Priorities for next progress report

Section 62.1-44.119:2 requires the Group to "develop (i) a process to assist any operator of 50 or more acres of Chesapeake Bay cropland in developing a nutrient management plan that meets the requirements of the goals to be achieved by the target date and (ii) a plan for the stream exclusion program in the Chesapeake Bay watershed."

Over the next year, the Group will continue to discuss ways to encourage and expediate the development of nutrient management plans for producers and to increase the implementation rates of livestock stream exclusion practices. The recommendations developed during these discussions will provide additional direction and guidance to ensure the Commonwealth meets its WIP commitments.

The Group will also focus on examining additional mechanisms that capture practices whose lifespans have expired within the EPA Bay Model and voluntarily implemented or installed practices that do not utilize state or federal financial assistance. Reporting the data associated with practices that are out of modeled or contract lifespan and voluntarily implemented or installed practices are critical to the Commonwealth's ability to meet its commitments.

1. Background and Progress Made Since 2107

Since 2017, the Commonwealth has made remarkable progress towards achieving the significant nutrient and sediment load reductions. In its Phase III WIP, there is a heavy reliance on the agricultural sector to achieve the water quality objectives. Based on the levels of best management practice implementation reported to the U.S. Environmental Protection Agency (EPA) in the 2017 progress reports, the Commonwealth needs to reduce 7.4 million pounds of nitrogen from agricultural sources to reach its WIP III commitment. Similarly, reductions of 520,000 pounds of phosphorus and 207 million pounds of sediment need to be achieved.

Background

Watershed Implementation Plans (WIPs) are roadmaps for how Chesapeake Bay (Bay) states and the District of Columbia, in partnership with federal and local governments, will attain the Bay Total Maximum Daily Load (TMDL). The TMDL is designed to ensure that all pollution control measures needed to fully restore the Bay and its tidal rivers are in place by 2025. Over the past several decades, coordinated efforts by local government agencies, state and federal programs, agricultural producers, landowners, conservation groups, consultants and many others have resulted in significant improvements to Virginia's water quality. The Commonwealth's successes are the result of the collective effort of the public and private sectors.

Phase I and Phase II WIPs were developed and submitted to EPA in 2010 and 2012. The Commonwealth's Phase III WIP was completed in August 2019. It details best management practices, along with programmatic actions, necessary to achieve state basin planning targets for nitrogen and phosphorus.

As noted in WIP III, "based on the BMP implementation levels and experiences over the last several years, it is clear that Virginia's nutrient reduction goals for 2025 are ambitious and will require significant effort, sustained funding and increased technical capacity in all sectors." To date, the agriculture sector has made significant progress towards reaching its WIP III commitments, but much work is yet to be done.

Priority practices

There are best management practices that have been historically identified as the most cost-effective practices, based on their ability to provide significant nutrient and sediment reductions at the least cost. For the Commonwealth, these practices include nutrient management, precision agriculture, cover crops, tillage systems, livestock stream exclusion, and riparian buffers.

Practice	Reduction (percentage)	Description
Cover crops	20.0	These practices establish vegetative cover on agricultural lands to reduce soil erosion from wind and water. Cover crops also reduce the amount of nutrients and sediment that reach surface and ground water.

Nutrient management plans	15.4	Nutrient management plans improve and protect water quality by managing timing, rate and placement of fertilizer, manure and biosolids.
Animal waste systems	13.2	Animal waste systems are designed to manage liquid or solid waste in areas where livestock or poultry are concentrated. These systems help curb surface runoff and erosion and enable producers to recycle waste as fertilizer.
Livestock stream exclusion	11.8	These structural and management practices provide fencing along streams and other water sources, creating buffers that reduce erosion of stream banks from grazing livestock.
Tillage management	7.8	These practices reduce erosion by minimizing the tillage of soils on agricultural lands.

Emphasis on nutrient management and livestock stream exclusion practices

The Commonwealth's WIP focuses on livestock stream exclusion practices and nutrient management practices as critical keystones for achieving our commitments. During the 2020 General Assembly Session, Chapters 1185 and 1186 established statutory implementation requirements for these practices in the Commonwealth's Chesapeake Bay watershed if the WIP's commitments are not satisfied by a deadline between 2027 and 2030.

The Commonwealth's WIP specifically "seeks 85% implementation of NMPs on all cropland acres in the Chesapeake Bay watershed…these plans will include advanced actions, such as precision application, which further enhance the timing, rate and placement of nutrients." In support of this commitment, § 62.1-44.121 of the Code of Virginia states "[a]ny operator of 50 or more acres of Chesapeake Bay cropland shall maintain and implement an approved nutrient management plan." Section 62.1-44.123 of the Code of Virginia requires landowners "on which 20 or more bovines are pastured…[to] install and maintain stream exclusion practices sufficient to exclude all such bovines from any perennial streams in the watershed."

The provisions established in §§ 62.1-44.121 and 62.1-44.123 become effective only if:
"the Secretary of Agriculture and Forestry and the Secretary of Natural and Historic Resources jointly determine that the Commonwealth's commitments in the Chesapeake Bay Total Maximum Daily Load Phase III Watershed Implementation Plan have not been satisfied by a combination of (i) agricultural best management conservation practices, including the coverage of a sufficient portion of Chesapeake Bay cropland by nutrient management plans or the installation of a sufficient number of livestock stream exclusion practices, and (ii) other point or nonpoint source pollution reduction commitments."

The fifth enactment clause of Chapters 1185 and 1186 required the Virginia Soil and Water Conservation Board to develop a methodology for identifying perennial streams no later than December 31, 2020. The adopted methodology could not require field verification. The resulting perennial stream viewer is now available on the Department of Conservation and Recreation's website at https://www.dcr.virginia.gov/soil-and-water/perennial-streams.

Agricultural producer participation levels

One of the most critical components of ensuring the Commonwealth's success in achieving its water quality goals is ensuring agricultural producers participate in the numerous voluntary opportunities available to them.

The Department currently tracks the number of agricultural producers participating in the VACS Program. In FY2022, there were 1,981 participants in the VACS Program; in FY2023, 2,240 participants were involved; and in FY2024, there were 2,399 participants.

In FY2023, outreach efforts were increased by the Department, Districts, and partners. Those efforts were focused on marketing to new producers including producers considered socially disadvantaged or operate small farms. The Department began tracking new participants in FY2023. There were 511 new participants during FY2023 and 509 new participants in FY2024.

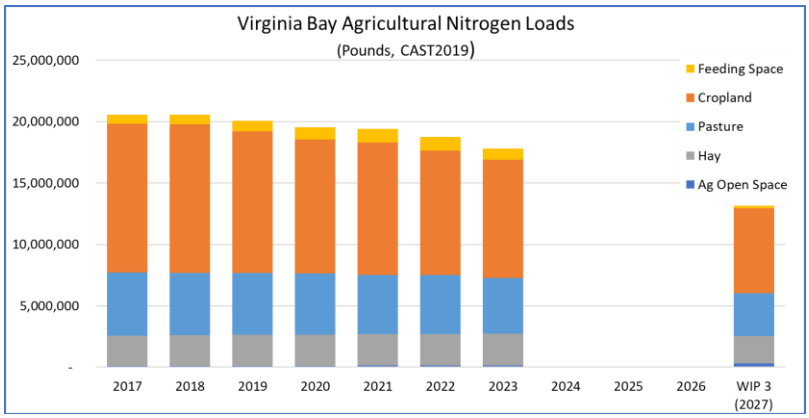
Nutrient and sediment load reductions for the Commonwealth's portion of the Chesapeake Bay watershed

The graphs below show the progress that the Commonwealth has made over the last several years in achieving its reductions. The reductions reflect the substantial financial investments made by the Commonwealth, state and local partners, and producers.

Load reductions are driven by the implementation and installation of structural practices. However, the high level of demand for the necessary materials and qualified contractors has led to routine delays of implementation and installation of two or more years after a producer applies for funding through the VACS Program. Therefore, there is a delay between when the agricultural producer makes a commitment to implement and install a practice and when the Commonwealth is shown to have achieved a load reduction from that practice. The progress shown in 2023 in reducing the Commonwealth's nutrient loads is reflective of the funding and commitments made by producers in 2021.

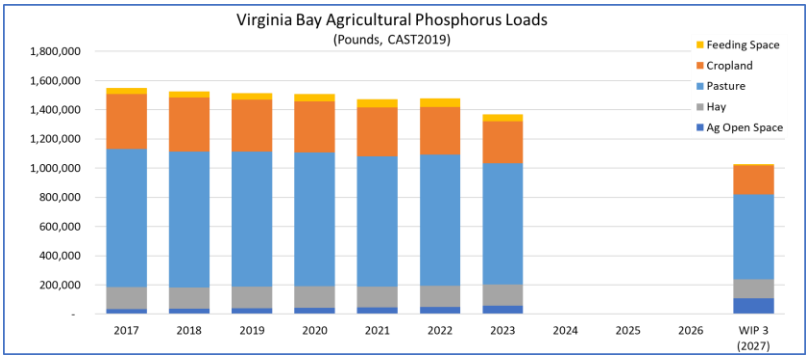
Nitrogen reductions

Since 2017, nitrogen loads from agricultural sources have been reduced by more than 2.7 million pounds. Nearly 60% of those reductions have been realized in the last two years; almost 1 million pounds of nitrogen was reduced in 2023 alone. This is indicative of a significantly accelerating pace of reductions that is closely correlated with the significant increases in funding provided for the VACS Program.



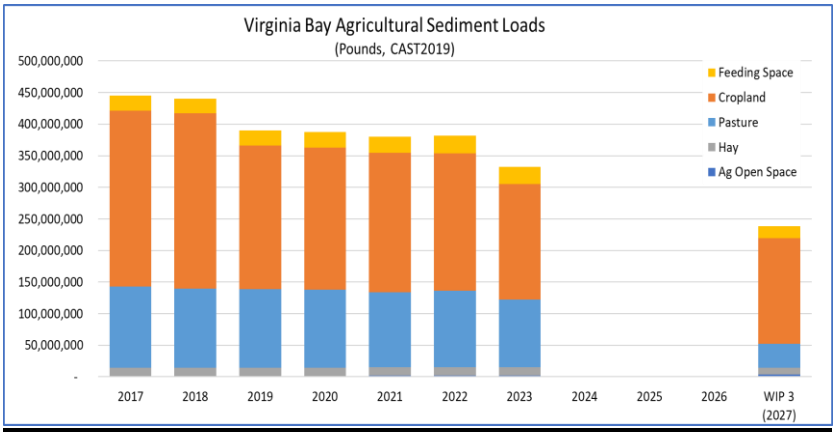
Phosphorus reductions

Since 2017, phosphorus loads from agricultural sources have been reduced by more than 180 thousand pounds. Nearly 60% of those reductions have been realized in the last year. This is indicative of a significantly accelerating pace of reductions that is closely correlated with the significant increases in funding provided for the VACS Program.



Sediment reductions

Since 2017, sediment loads from agricultural sources have been reduced by more than 112 million pounds. The Commonwealth has already fully met its sediment reduction targets for the Phase III WIP. The bar on the graph below showing the WIP III levels shows the significant additional reductions that could be realized with full implementation of the WIP. These reductions are critically important to continuing improvements to the health of our local streams and rivers.



Similar graphs for each major river basin in the Commonwealth's portion of the Chesapeake Bay watershed are available in the Appendices. Chapters 735 and 736 are primarily focused on achieving the Commonwealth's overall WIP commitments; however, it is equally important to remember the impact of the implementation and installation of practices for local water quality. Measuring and tracking the reductions achieved in each major river basin recognizes the impact of these efforts on the local waters; it also highlights which major river basins may need more targeted efforts to achieve the nutrient and sediment load reductions.

Practice implementation progress for the Commonwealth's portion of the Chesapeake Bay watershed

The graphs below show the implementation levels of ten key practice types included in the Commonwealth's Phase III WIP, one as numeric targets and the second as percentage targets. The practices included in the 2023 progress are only those practices that remain in either contract or EPA Bay Model lifespan. The Commonwealth recognizes that there are likely a substantial number of structural practices, including livestock stream exclusion practices, that are no longer "counted" in the EPA Bay Model. These practices remain functional and the Group is continuing to discuss ways to gather information related to these practices for inclusion in the data reported to the EPA Bay Model.

The tables below are measuring the achievements in acres for all practices except for the animal waste management practices. The animal waste management practices are measured in animal units.

Baywide	2017	2018	2019	2020	2021	2022	2023	WIP 3 (2027)
Commodity + Cover Crop	156,337	137,159	149,594	238,883	184,076	304,205	352,950	443,557
Nutrient Application Management Core Nitrogen	599,920	572,768	499,565	556,803	584,909	645,616	718,090	951,395
Animal Waste Management	1,127,337	1,085,320	963,830	762,626	481,003	582,003	955,264	2,228,900
Livestock Stream Exclusion	8,857	9,477	9,688	10,266	17,318	19,168	33,759	72,156
Tillage Management	674,937	655,958	643,803	639,888	634,908	630,082	672,672	608,044
Soil and Water Conservation Plans	-	-	-	-	-	7,246	117,938	1,183,460
Forest Buffers	5,443	4,379	3,374	3,040	3,592	5,565	6,095	21,965
Land Retirement to Open Space	30,641	28,049	24,551	22,839	23,975	25,818	25,437	50,451
Grass Buffers	5,668	6,742	6,693	6,518	5,303	5,121	4,897	24,058
Pasture Management Composite	343,586	363,672	340,185	336,447	546,235	497,648	586,308	543,402

Baywide	2023	Percent of WIP Completed	WIP 3 (2027)
Commodity + Cover Crop	352,950	80%	443,557
Nutrient Application Management Core Nitrogen	718,090	75%	951,395
Animal Waste Management	955,264	43%	2,228,900
Livestock Stream Exclusion	33,759	47%	72,156
Tillage Management	672,672	111%	608,044
Soil and Water Conservation Plans	117,938	10%	1,183,460
Forest Buffers	6,095	28%	21,965
Land Retirement to Open Space	25,437	50%	50,451
Grass Buffers	4,897	20%	24,058
Pasture Management Composite	586,308	108%	543,402

Similar graphs for each major river basin in the Commonwealth's portion of the Chesapeake Bay watershed are available in the Appendices. Chapters 735 and 736 are primarily focused on achieving the Commonwealth's overall WIP commitments; however, it is equally important to remember the impact of the implementation and installation of practices for local water quality. Measuring and tracking the reductions achieved in each major river basin recognizes the impact of these efforts on the local waters; it also highlights which major river basins may need more targeted efforts to achieve the nutrient and sediment load reductions.

While the Commonwealth's WIP includes programmatic and numeric metrics for practices, it is important to remember that the Commonwealth could achieve its WIP commitments with any combination of implemented and installed practices. Chapters 735 and 736 have prioritized the development of nutrient management plans and the installation of livestock stream exclusion practices; however, the Commonwealth may achieve its needed reductions through increased implementation in other practices. Based on the 2023 progress, the Commonwealth is exceeding its targets in tillage management and pasture management; it is likely that the nutrient management and cover crop targets will be met as well. Similarly, there are practices that the Commonwealth is facing significant challenges in achieving, such as grass buffers. These grass buffers are not created through the installation of livestock stream exclusion practices; these are stand-alone buffer practices. Additional information on why these grass buffer practices do not seem to be implemented or installed at the rates anticipated is needed to determine potential barriers.

2. Funding for Agricultural Best Management Practices

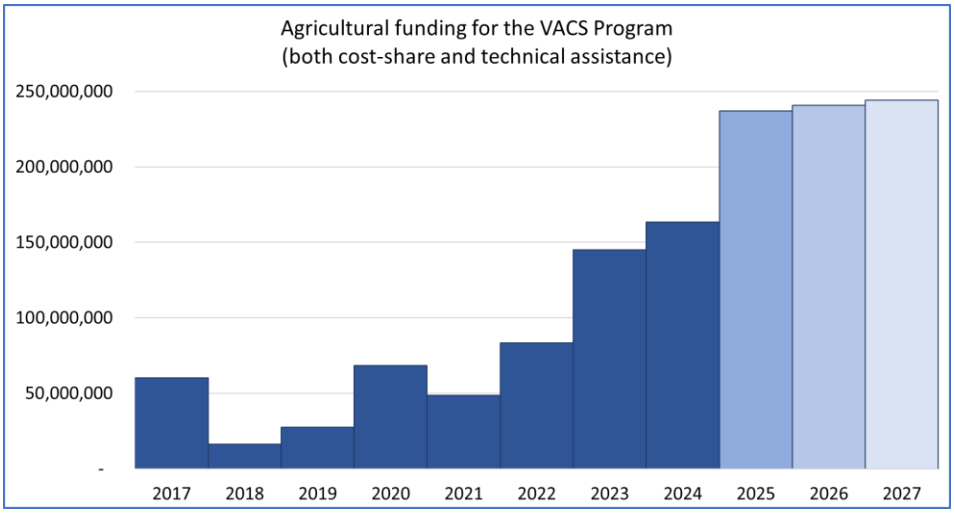
Section 10.1-2128.1 of the *Code of Virginia* requires:

> "[t]he Department of Conservation and Recreation, in consultation with stakeholders, including representatives of the agricultural community, the conservation community, and the Soil and Water Conservation Districts, shall determine an annual funding amount for effective Soil and Water Conservation District technical assistance and implementation of agricultural best management practices pursuant to §10.1-546.1."

The agricultural needs assessment is calculated based on several variables, including: the amount of nutrient reductions required from the agricultural sector for Virginia to meet its Chesapeake Bay water quality goals, the BMPs targeted for implementation to meet those goals, the cost of those BMPs, and the timeline (number of years) remaining to reach the water quality goals. When the amount of money appropriated for the Virginia Agricultural Cost-Share (VACS) Program at least equals the needs assessment, it is considered to be "fully funded." The agricultural needs assessment assumes funding is provided from both state and federal sources. In the FY2024-FY2025 biennium, increased inflation required revisions to the agricultural needs assessment. Additional state funding was required to meet the state's fiscal responsibilities in order to offset the rising costs associated with implementing and installing practices.

With the approval of Chapter 2 of the 2024 Special Session 1 Acts of Assembly, the state portion of the agricultural needs assessment is anticipated to be fully funded through FY2026.

The graph below represents the allocations provided through the VACS Program to Districts for both practice implementation (cost-share) and technical assistance funding for FY2017-FY2024. FY2025 represents the anticipated allocations; FY2026-FY2027 represent the funding levels needed as determined by the 2023 agricultural needs assessment.



Additional information about the agricultural needs assessment is available in Appendix A.

Federal funding received

In addition to the significant investments made by the Commonwealth, substantial federal funding has been directed towards the implementation and installation of agricultural best management practices; however, challenges continue to exist with reporting these practices to the EPA Bay Model. The various federal *Programs*, funding sources, and grant opportunities provide different incentives, different payment timelines, and different practice options for producers.

Farm Bill Programs

The Natural Resources Conservation Service (NRCS) provides funding through several programs authorized through *Farm Bills*; these programs result in the implementation and installation of agricultural best management practices. NRCS has reported that cumulative 2023 funding for these programs in Virginia totaled nearly $50 million. Similar *Farm Bill* funding is anticipated in 2024.

Inflation Reduction Act (IRA)

The Inflation Reduction Act has added significant funding through NRCS to supplement funding provided through the Farm Bill. In 2023 $7.4 million was added to core *Farm Bill* programs. For 2024, Virginia NRCS has announced that $50 million from *IRA* will be added to core *Farm Bill* programs.

Infrastructure Investment and Jobs Act

In November 2021, the *Infrastructure Investment and Jobs Act* was enacted, providing funding to the states for implementation of agricultural best management practices in certain geographic areas. Using the VACS Program framework, $1,861,900 has been utilized for practice implementation and $279,285 has been provided to Districts for technical assistance. As directed by the Environmental Protection Agency, these funds were utilized on the Eastern Shore, within the Northern Neck area, and within the Shenandoah Valley. In the Shenandoah Valley, structural practices, primarily livestock stream exclusion practices, have been prioritized, although nutrient management and cover crops have been funded. On the Eastern Shore and the Northern Neck area, annual practices, such as nutrient management, precision agriculture, and cover crops were prioritized through these initiatives.

Climate Smart Commodities Grants

Under these grant opportunities, the U.S. Department of Agriculture, has funded 29 projects that have a footprint in the Commonwealth. Combined, over $900 million has been provided for these multi-state projects in Arkansas, Minnesota, North Dakota, and the Commonwealth. The Commonwealth may receive over $90 million over the next 5 years from these funds. In one of the largest of these projects, Virginia Tech, collaborating with 14 other state and national partners (the Alliance to Advance Climate Smart Agriculture) was awarded $80 million for a pilot program. Each producer that participates in the pilot receives $100 per acre or animal unit

for implementing climate smart agricultural practices; all of which have water quality benefits as well. More than $18 million is being invested in practice implementation in the Commonwealth as part of this project.

The Department of Conservation and Recreation is coordinating the Commonwealth's efforts related to this pilot. The Colonial District and the Thomas Jefferson District are leading the efforts to reach producers within the Commonwealth, with both Virginia Cooperative Extension and Virginia State University's Small Farm Outreach Program focusing on providing information to producers as well. Producers in the following counties are eligible to participate: Albemarle, Caroline, Charles City, Chesterfield, Essex, Fluvanna, Hanover, Henrico, Isle of Wight, James City, King and Queen, King William, Louisa, Mathews, Middlesex, New Kent, Nelson, Prince George, Surry, and York. Producers in the cities of Charlottesville, Suffolk, and Williamsburg are also eligible to participate.

In the initial application period, over 500 producers in Virginia applied for funding; those applications are being reviewed. An additional application period will be held later this summer and two more are planned to be held in 2025.

3. Determination of Reasonable Progress

Section 62.1-44.119:1 states:

> "on or after July 1, 2028,the Secretary of Agriculture and Forestry and the Secretary of Natural and Historic Resources jointly determine that the Commonwealth's commitments in the Chesapeake Bay Total Maximum Daily Load Phase III Watershed Implementation Plan have not been satisfied by a combination of (i) agricultural best management conservation practices, including the coverage of a sufficient portion of Chesapeake Bay cropland by nutrient management plans or the installation of a sufficient number of livestock stream exclusion practices, and (ii) other point or nonpoint source pollution reduction commitments."

The second enactment clause states "[t]he year-to-year timeline for achieving specific metrics shall be used to determine reasonable progress per § 62.1-44.119:4 of the Code of Virginia, as created by this act."

The third enactment clause states:

> "[t]hat the Secretary of Agriculture and Forestry and the Secretary of Natural and Historic Resources shall, no later than August 1, 2025, jointly review the July 1, 2025, report of the Group established by the second enactment of this act as well as other relevant information at their disposal and together determine in their judgment whether work accomplished to date as well as planning and resource allocation are sufficient to substantially reach the allocated goals by July 1, 2028, and whether additional initiatives or resources or both will be necessary to continue an incentive-based effort."

Earlier this year, the Group discussed both the timeline for reporting best management practice implementation and the use of a tiered approach to determine if the Commonwealth met its WIP

commitments. Both the timeline and the use of a tiered approach impact the review conducted by the Secretaries that determines if the progress made by July 1, 2025 was "sufficient to substantially reach the allocated goals."

Timeline for determining reasonable progress

The Group decided that all agricultural practices reported by September 1, 2027 should be considered for determining whether "reasonable progress" has been made in meeting the Commonwealth's commitments in the Chesapeake Bay Phase III Watershed Implementation Plan. This timeline allows Virginia's Soil and Water Conservation Districts (Districts), the Department, and other essential partners to provide information on the practices implemented and installed under their programs.

Tiered approach to determine if Commonwealth has met its WIP commitments

Section 62.1-44.119:1 establishes a limited framework for how the Secretary of Agriculture and Forestry and the Secretary of Natural and Historic Resources are to determine if the Commonwealth has met its WIP commitments.

The Group refined the framework to more clearly define the steps utilized to make this determination. The steps are:

1. A review of the Commonwealth's overall nutrient and sediment load reduction must be conducted to determine if those targets were met. If those reduction targets are met, then the Commonwealth has met its commitments as it relates to §62.1-44.119:1 of the *Code of Virginia*.
2. If the Commonwealth's overall nutrient and sediment load reduction targets were not achieved, a review of the nutrient and sediment load reduction targets for the agricultural sector must be conducted to determine if those targets were met. If the agricultural sector nutrient and sediment load reduction targets have been met, then the Commonwealth has met its commitments as it relates to §62.1-44.119:1 of the *Code of Virginia*.
3. If the agricultural sector's nutrient and sediment load reduction targets are not met, an examination of the specific metrics established for both nutrient management plan development and livestock stream exclusion implementation must be conducted to determine if those metrics were achieved. If the metrics are achieved, the Commonwealth has met its commitments as it relates to §62.1-44.119:1 of the *Code of Virginia*.

In addition to examining the practices implemented and the load reductions that are achieved, the Group also decided that the levels of effort and commitment demonstrated by agricultural producers should be considered. Nitrogen load reductions are especially driven by the implementation and installation of structural practices; however, the high level of demand for the necessary materials and qualified contractors has led to routine delays of implementation and installation of two or more years after a producer applies for funding through the VACS Program. As such, there is a disconnect between when the agricultural producer makes a commitment to implement and install a practice and when the Commonwealth is shown to have achieved a load reduction from that practice. The progress shown in 2023 in reducing the

Commonwealth's nutrient loads is reflective of the funding and commitments made by producers in 2021.

Specific metrics for nutrient management plans and livestock stream exclusion practices

As part of the Agricultural Needs Assessment developed each year in accordance with §10.1-2128.1, annualized targets are established for both annual and structural practices. Continuing that established process, annual targets have been developed for both nutrient management plans and livestock stream exclusion practices for FY2024, FY2025, FY2026, and FY2027. These targets gradually increase over the four years to achieve the necessary implementation levels.

Baywide	2023	2024 Forecast	2025 Forecast	2026 Forecast	WIP 3 (2027)
Commodity + Cover Crop	352,950	375,602	398,254	420,906	443,557
Nutrient Application Management Core Nitrogen	718,090	776,416	834,742	893,069	951,395
Animal Waste Management	955,264	1,273,673	1,592,082	1,910,491	2,228,900
Livestock Stream Exclusion	33,759	43,358	52,957	62,557	72,156
Tillage Management	672,672	672,672	672,672	672,672	608,044
Soil and Water Conservation Plans	117,938	384,319	650,699	917,080	1,183,460
Forest Buffers	6,095	10,062	14,030	17,997	21,965
Land Retirement to Open Space	25,437	31,691	37,944	44,197	50,451
Grass Buffers	4,897	9,687	14,477	19,268	24,058
Pasture Management Composite	586,308	586,308	586,308	586,308	543,402

4. Potential Pathways to Enhance Progress

Many of the programs and initiatives the Commonwealth currently offers producers to voluntarily implement and install practices must continue in order to reach our water quality goals. Sustained financial commitments, as well as further refinements and enhancements to these programs and initiatives, are critical to the Commonwealth's continued ability to reach its water quality goals.

Virginia Agricultural Best Management Practices Cost-Share (VACS) Program

The VACS Program (Program) is a water quality improvement program to reduce nutrients, sediment, and bacteria in waterways by implementing the most cost-effective best management practices. The Program is overseen by the Virginia Soil and Water Conservation Board (Board); administered by the Department of Conservation and Recreation (Department); and locally implemented by the Commonwealth's 47 Soil and Water Conservation Districts (Districts). This year, there are over 60 practices that an agricultural producer could receive cost-share funding for implementing or installing. The Board will allocate approximately $206 million for practice implementation and installation through the VACS Program this year. Over $31 million will be allocated for technical assistance services provided to producers by Districts. For FY2025, a producer is eligible to receive up to $300,000 in cost-share funding.

Funding for the VACS Program

Section 10.1-2128.1 of the *Code of Virginia* requires the Department, in consultation with stakeholders, to determine the annual funding needed for effective District technical assistance and implementation of agricultural best management practices. This assessment is required every two years in conjunction with the development of the biennial budget and is reported in the Chesapeake Bay and Virginia Waters Clean-Up Plan Report submitted by the Secretary of Natural and Historic Resources in accordance with §62.1-44.118 of the *Code of Virginia*.

The needs assessment is calculated based on several variables, including: the amount of nutrient reductions required from the agricultural sector for Virginia to meet its Chesapeake Bay water quality goals, the BMPs targeted for implementation to meet those goals, the cost of those BMPs, and the timeline (number of years) remaining to reach the water quality goals. When the amount of money appropriated for the VACS Program at least equals the needs assessment, it is considered to be "fully funded." The agricultural needs assessment assumes funding is provided from both state and federal sources. In the FY2024-FY2025 biennium, increased inflation required revisions to the agricultural needs assessment. Additional state funding was required to meet the state's fiscal responsibilities in order to offset the rising costs associated with implementing and installing practices.

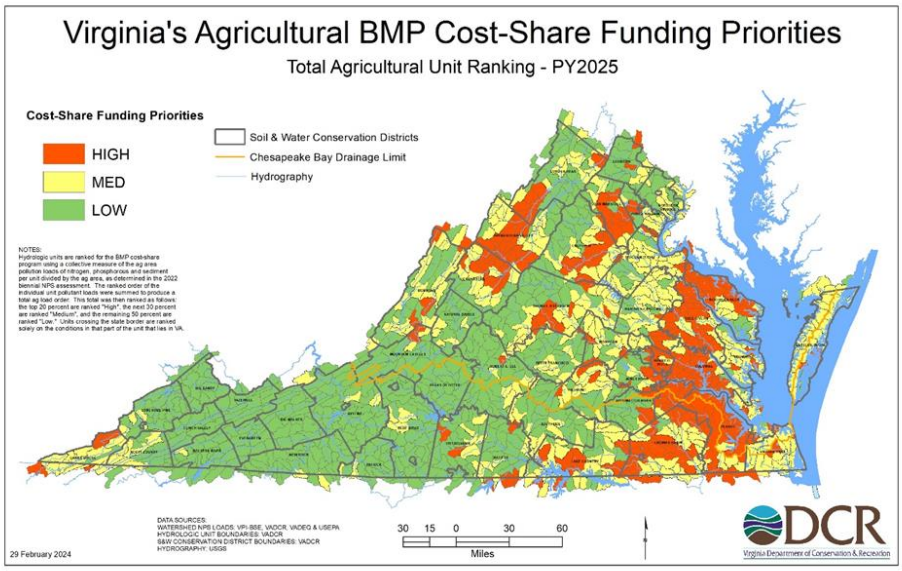
With the approval of Chapter 2 of the 2024 Special Session 1 Acts of Assembly, the agricultural needs assessment is anticipated to be fully funded through FY2026.

Funding for High Priority Hydrologic Units

The Department utilizes the agricultural component of Virginia's Nonpoint Source Assessment to focus its cost-share allocations where funds can produce the greatest reductions in surface and ground water contamination. The *2024 Nonpoint Source Assessment* represents the most recent information available for use.

The allocations provided to each District for the VACS Program are primarily based on providing a high percentage of the funding to the waters with the most pollutant load based on nitrogen, phosphorus, and sediment. For FY2025, the highest ranked hydrologic units (units) – those units that have the highest potential to contribute nutrients and sediment to the waters - are assigned 50 percent of the cost-share funds. The medium ranked units are assigned 30 percent of the cost-share funds, while the lowest ranked units are assigned 20 percent of the cost-share funds.

For FY2025, based on the *2024 Nonpoint Source Assessment*, the cost-share funding priorities for the VACS Program are shown in the map below.



AgBMP Technical Advisory Committee

The Board relies on the advice and experience of an AgBMP Technical Advisory Committee (TAC) for guidance on ways to improve the Program. The TAC is comprised of representatives from state and federal agencies, Soil and Water Conservation Districts, agriculture industry organizations, environmental organizations, and other partners. Over the last several years, hundreds of suggestions have been reviewed and discussed by the TAC. Many of these suggestions are incorporated into the Program, after receiving approval from the Board. The work of the TAC has led to improved flexibility in the Program and increased options for producers. The Board and the Department will continue to examine ways to more effectively utilize the expertise of the TAC members, recognizing the time commitment members make to serve on the TAC.

Whole Farm Approach

In 2019, the Board approved a Whole Farm Approach (WFA) pilot project in one District. The WFA allows a producer to submit a single cost share application for a bundle of agricultural BMPs, including their choice of nutrient management, precision nutrient management, or cover crop practices. This significantly simplifies the process for the producer. The WFA has significantly increased producer participation and provides information on all the practices implemented or installed on the agricultural operation, not just information on the practices funded by WFA. The WFA was slightly expanded in FY 2021 to include the Chesapeake Bay watershed portion of the Eastern Shore. In FY 2023, the WFA was again expanded to include seven Districts: Eastern Shore (Accomack and Northampton Counties), Halifax (Halifax County), Holston River (Washington County), New River (Carroll and Grayson County, City of Galax), Shenandoah Valley (Rockingham County), Tidewater (Gloucester, Mathews, and Middlesex Counties), and Three Rivers (Essex, King and Queen, and King William Counties). This very successful pilot was further expanded in FY 2024 to include an additional 5 Districts.

As the WFA has expanded to different geographic regions of the Commonwealth, refinements have been made to more easily allow animal operations to participate as well.

It is anticipated that several additional Districts will participate in the WFA in FY2025. A steady expansion of the WFA will increase the number of VACS Program participants and encourage producers to utilize precision agriculture techniques on their operations.

Direct Pay for Nutrient Management Planners

In 2019, the Department established a direct pay initiative for nutrient management planners as an alternative to funding nutrient management plans through the VACS Program. This initiative pays nutrient management planners for the development, revision, and implementation of nutrient management plans, particularly in counties within the Chesapeake Bay watershed where there is the greatest need for plans on cropland. This emphasis on ensuring that nutrient management plans are implemented on cropland will assist the Commonwealth in reaching its water quality goals. Payments are made to the planners on a first-come, first-served basis until available funding has been fully obligated. This is a far simpler process for planners to receive payment than responding to a Request for Applications (RFA).

The Department continues to review methods to further incentivize private planners. One of the methods may be further encouraging private planners to utilize the Nutrient Management Module in the Conservation Application Suite. Using the Module would be beneficial for both the planners and the Department. The Department would have access to needed nutrient management data (i.e. acres, location); the planners would not have to track their information on a spreadsheet. The Department is currently exploring ways to assist planners with digitizing their field maps and ways to increase the responsiveness of the Module.

Dairy Producer Margin Coverage Premium Assistance Program

The Virginia Department of Agriculture and Consumer Services implements the Dairy Producer Margin Coverage Premium Assistance Program (Program) to provide reimbursement to dairy producers for Tier I federal Dairy Margin Coverage premium payments, while also providing a conservation benefit by requiring producers to develop, or initiate the process of developing, a nutrient management plan (NMP). In the Program's third year, 32% of the dairies that applied submitted applications in which NMPs had an effective date within one month of the Program's opening enrollment date. This would indicate some correlation between the Program requirements and motivation to develop or update a resource management plan or NMP.

Poultry litter transport program

During the most recent General Assembly Sessions, funding was provided for nonpoint source reduction projects including the poultry litter transport incentive program. Utilizing the funding provided, the Department expanded the transport program to include Accomack County while maintaining programs in Page and Rockingham counties. As a strategy in WIP III, poultry litter transported from these three key counties needs to increase from 5,000 – 6,000 tons annually to approximately 89,000 tons annually by year 2025, and each year thereafter. For FY2023,

7,349.67 tons of litter were transported out of Accomack County, totaling $220,490.10 in payments. Out of Rockingham County, 21,549.07 tons of litter were transported, totaling $523,279.50 in payments. To date there has been no participation in Page County; this may be partially due to a lack of participating haulers in this county. FY2023 contracts requested a total of 64,926 tons of litter be moved; however, a majority of these requests were unable to be filled due to the limited availability of litter for the applicants.

For FY2025, the number of counties that are eligible to receive poultry litter has been expanded. The Department will continue to investigate the program to determine if there are additional ways to encourage its use. Additionally, it is anticipated that the Virginia Soil and Water Conservation Board will allocate $3 million over the next two years (FY2025 and FY2026) to this important program.

Continue providing support to the Department and Districts

The 2024 Special Session 1 provided additional resources to both the Department and the Districts. The Department received three additional positions: one nutrient management planner position; one position to assist with the training needs of Districts so Districts are able to provide engineering, agronomic, and technical assistance for the preparation of all conservation practices in the Virginia Agricultural Cost share program; and one position to expedite the provision of assistance to Soil and Water Conservation Districts with engineering designs for structural practices.

Districts were provided an additional $3 million for administrative and operations funding. This additional funding recognizes the extra administrative and financial responsibilities Districts assume with the increased cost-share funding from the VACS Program.

An additional $97,000 was provided to the Department for services supporting Districts including auditing and training. These enhanced funds recognize the increased expense associated with financial audits and will also allow the Department to offer additional training opportunities to Districts.

Support increased federal funding

The Commonwealth recognizes the critical role federal funding plays in achieving the WIP. Ensuring NRCS and other federal partners receive the level of funding determined necessary in the agricultural needs assessment is vital to the Commonwealth's continued success in reducing the nutrient and sediment load reduction targets. Working with stakeholders and partners to increase the awareness of the needs of federal partners should be a focused, ongoing effort.

Collaborate with NRCS to increase exclusion practices reported

Efforts are ongoing to improve the tracking, reporting and verification of NRCS-implemented agricultural best management practices, one of which is specifically targeted towards livestock exclusion practices funded by NRCS. Currently, NRCS only tracks "fencing" and there is no distinction between the extent of fence excluding livestock from streams and boundary or cross

fencing. One proposal is for NRCS to modify their databases to capture this distinction, which would allow the fence excluding livestock from the stream to be reported for credit in the EPA Bay Model. An alternative solution may be allowing United States Geological Survey, which is under contract by NRCS to aggregate and report their implementation data, to conduct a mapping exercise that attempts to estimate the portion of NRCS reported "fence" that is associated with livestock exclusion from streams.

Continue reviews of existing data to target efforts

The Department has begun a review of pastures with perennial streams. Utilizing the perennial stream viewer, developed pursuant to Chapters 1185 and 1186 (2020), the Department has begun a review of all pasture land in the Commonwealth's Chesapeake Bay watershed that contains a perennial stream. Additionally, the Department has included all of the practice data available as an overlay of this review. Functionally, the Department will be able to delineate areas that appear to be pasture, with a perennial stream, that have no practices implemented or installed on the land. This review could help determine where to target efforts to reach additional producers.

Contract with data scientist to identify opportunities for VACS Program improvements

The Department maintains an incredible amount of data related to the VACS Program. However, the Department does not have the resources to study and review the data for potential programmatic improvements. One possible solution to address this concern is to contract with a data scientist. A data scientist would be able to examine the data for potential efficiencies with data entry and data reporting. This individual could also review data points related to practice implementation and installation that could lead to revisions to the VACS Program that could encourage more producer participation.

Funding provided for pay-for-outcome initiative

Chapter 2 of the 2024 Special Session 1 Acts of Assembly provided $20 million to the Department of Environmental Quality for a pay-for-outcomes pilot program in the Chesapeake Bay watershed. The Department of Environmental Quality is currently developing the Program's structure. Item 365 L provides certain guidelines for the Program including that

> "[the] Department shall issue requests for nonpoint source pollution reduction proposals, conduct a transparent proposal selection process based on project ranking criteria, execute contracts with selected entities, verify that the promised nonpoint source pollutant reductions are being achieved, and make payments when contractually defined terms are verified. The project ranking criteria shall include cost per pound of nutrients removed, the level of assurance that nutrient reductions shall be provided, habitat and resilience benefits, readiness to proceed, local government coordination, the provision of long-term maintenance and applicability to locally impaired waters."

5. Future Work of the Group

Section 62.1-44.119:2 requires the Group to "develop (i) a process to assist any operator of 50 or more acres of Chesapeake Bay cropland in developing a nutrient management plan that meets the requirements of the goals to be achieved by the target date and (ii) a plan for the stream exclusion program in the Chesapeake Bay watershed."

In order to provide these deliverables, the Group will prioritize discussions related to ways to encourage and expediate the development of nutrient management plans for producers as well as increase the implementation rates of livestock stream exclusion practices.

The Group will also focus on examining additional mechanisms that capture voluntarily implemented or installed practices that do not utilize state or federal financial assistance. Additional ways to report practices that have fallen out of contract lifespan or model lifespan will also be discussed. Reporting the data associated with practices that are out of modeled or contract lifespan and voluntarily implemented or installed practices is critical to the Commonwealth's ability to meet its commitments. Virginia Cooperative Extension, collaborating with the Department and partners, will lead a survey effort to obtain additional data on these practices over the next several years. Updates on that effort will be provided periodically to the Group. Additionally, previous attempts to document voluntarily implemented and installed practices will be reviewed and suggestions on ways to improve those efforts could also be provided.

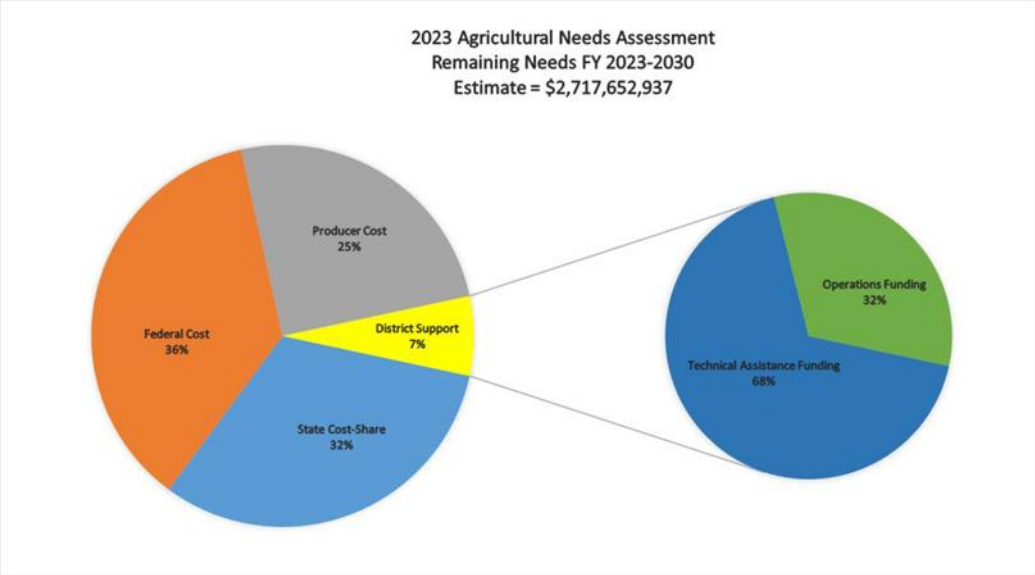
The substantial amounts of grant funding available in the Commonwealth have provided additional incentive models for the Group to review. In addition to ensuring adequate funding is available for the traditional voluntary programs (i.e. VACS Program), different incentive types, variable financial incentive amounts, and different practices prioritized in different programs could all be ways to encourage producers to participate in voluntary programs or to provide information on practices implemented and installed on their operations.

The Group will also review the processes of the AgBMP Technical Advisory Committee (TAC) to ensure the process is efficient and effective. Fully utilizing the expertise of the TAC members is critical to the continued success of the VACS Program.

In addition to discussions held within the Commonwealth, discussions about the future of Bay restoration efforts are being held at the federal level and throughout the Chesapeake Bay region. The Chesapeake Bay Program Beyond 2025 steering committee has been charged with developing a path forward for the Chesapeake Bay Program and Partnership past 2025. While these discussions are not specifically tied to the work of this Group, decisions made by the Beyond 2025 Steering Committee and the leadership of the Chesapeake Bay Program may have impacts to this Group.

Appendix A: Chapter 5 (Annual Funding Needs for Effective Implementation of Agricultural Best Management Practices) from the FY2023 Chesapeake Bay and Virginia Waters Clean-Up Plan

In accordance with subsection C of § 10.1-2128.1 of the Water Quality Improvement Act, the Department of Conservation and Recreation (DCR), in consultation with a stakeholder advisory group (SAG), including representatives of the agricultural community, the conservation community, and the Soil and Water Conservation Districts (SWCDs or Districts), determines the funding needs for effective SWCD technical assistance and implementation of agricultural best management practices (BMPs). Pursuant to § 2.2-1504 of the *Code of Virginia*, DCR must provide to the Governor the annual funding amount needed for each year of the ensuing biennial period. For Fiscal Years (FY) 2023-2030 a revised estimate of over $2.7 billion may be required from state and federal funds as well as farmer financial contributions to meet water quality goals (Figure 1 and Table 1). Approximately 38.5% of this total (slightly over $1.0 billion) could be needed from State sources, the vast majority of which is direct funding of the Virginia Agricultural Cost-Share (VACS) Program and support for SWCDs that implement the VACS program.



2023 Agricultural Needs Assessment Summary

Virginia's Phase 3 Chesapeake Bay Total Maximum Daily Load (TMDL) Watershed Implementation Plan (WIP III) was finalized on August 23, 2019. The methodology for the Agricultural Needs Assessment was revised in 2020 to accurately reflect the commitments made by Virginia in WIP III. Although Virginia made excellent progress towards the 2025 nutrient reduction goals as of the FY 2022 progress report, significant investments in agricultural BMP implementation continue to be needed, most notably for nutrient management on cropland, cover crops, animal waste storage, poultry litter transport, conservation planning, including Resource Management Plans, both grass and forested riparian buffers, and additional livestock stream exclusion. Using BMP cost data from Virginia and where BMP data was lacking in Virginia, from the Chesapeake Bay Program (CBP), the following table shows the revised funding needs

for agricultural BMP implementation. These funding needs are based on Commonwealth-specific estimated costs and Commonwealth-specific BMP standards and specifications.

For the Southern Rivers areas, the needs assessment is based on the Chesapeake Bay annual cost estimates and a revised split of 70% to the Chesapeake Bay watershed and 30% to lands outside of the Chesapeake Bay watershed (the Southern Rivers watershed). Recognizing that implementation in the Southern Rivers is not affected by the 2025 deadline associated with the Chesapeake Bay TMDL, the comparison showed that using the revised 70/30 split as an approximation of the long-term Southern Rivers implementation needs is sufficient. As additional TMDL implementation plans are developed in the Southern Rivers area, this analysis will be reevaluated.

The total annual implementation costs are then divided between the various funding sources: federal (35% [assumed]), state (40%) and agricultural producer (25%). In developing the 2023 Agricultural Needs Assessment, the Agricultural Needs Assessment Workgroup held significant discussion and raised concerns about the divisions between the funding sources. While the 2023 Assessment continues to assume 35% of the necessary funding will be provided from federal sources, recent federal funding appropriations indicate that this estimate may be too high. In 2022, there was nearly a $92.7 million shortfall between the estimated need from federal sources and the federal funding received. The Workgroup discussed reducing the percentage of funding that is received from federal sources or including the "gap" between the estimated need and the actual funding received in the state's portion of the Assessment. No consensus about how to address this gap was reached by the Workgroup; for this Assessment the federal shortfall is left as a federal responsibility. Table 1 below has been modified to show the calculated federal funding needs for each biennium as well as the federal shortfall. Regardless of federal funding levels, Virginia is responsible for achieving the Chesapeake Bay WIP III goals. With that in mind, future federal funding shortfalls may need to be accounted for at the state level. The Agricultural Needs Assessment for FY 2023 – 2030 uses the VACS Program cost-share payment rates for cover crop and nutrient management practices that were increased in FY 2023 in recognition of the rising costs to implement these practices. DCR used the implementation progress made by Virginia through FY 2022, which has been accepted by EPA's CBP, to calculate the additional practices needed to fulfill the WIP III Agricultural BMPs and achieve the expected reductions for the agricultural sector.

Costs through June 2022 were not adjusted; however, estimated costs for all remaining agricultural practices needed through FY 2030 were revised as follows:

- The agricultural BMP implementation "delta" between CBP approved FY 2022 progress and the WIP III Agricultural BMPs was determined.
- Remaining implementation costs for each BMP were divided equally among the five years left to the 2027 WIP completion timeline for all practices.
- The 2027 goal WIP completion date was based on the changes enacted in Chapters 735 and 736 of the 2023 Session Acts of Assembly.
- Practice costs were calculated for all remaining implementation using 2021-2023VACS average costs or the VSWCB-approved increased practice rates where applicable, with an additional 4.93% inflation adjustment based on 2023 projected inflation.

- The actual FY 2023-2024 VACS Program funding received and actual federal 2021 and 2022 funding was documented.
- For years following full implementation of the WIP, post 2027, a 3% annual repair and replacement rate for structural practices was assumed.
- The revised FY 2024 budget included an additional $286.7 million in funding for the cost-share program and technical assistance for SWCDs. This funding reduced the 2025-2026 biennial state funding needs by the same amount.
- The technical assistance funding percentage has been increased from the previous years' versions of the worksheet. The percentage was increased to reflect the percentage amount provided in Chapter 1 of the 2023 General Assembly Acts of Assembly.

DCR has two Professional Engineers (PE) and three Engineering Specialists to assist SWCDs and farmers. The total cost related to providing these services is part of the DCR budget and therefore has been excluded from the revised agricultural needs assessment.

During the 2020 General Assembly, a base technical assistance amount of $4.55 million was provided to SWCDs as part of the SWCDs' reoccurring base budget. This budget action recognized consistent funding is necessary for SWCDs to adequately provide technical assistance to their agricultural producers. During the 2022 General Assembly Special Session 1, an additional $3.6 million in administration and operational funding was provided to SWCDs. These stable funds will allow SWCDs to hire additional employees, including administrative employees, provide appropriate training for employees, and address increased expenses related to the day-to-day operations.

Chapter 1 of the 2023 General Assembly Acts of Assembly (Appropriation Act) fully funded the agricultural needs assessment developed in 2022. During last year's review of the funding needs, an additional $73.8 million was determined to be needed to offset the impacts of inflation ($65.3 for the implementation of best management practices and $8.5 million for technical assistance funding for Districts). This is reflected as a "State Gap" of $100.8 million in the agricultural needs worksheet. The amended 2023 budget adopted on September 14, 2023 provided $286.7 million in additional funding for the VACS program and technical assistance funding for the SWCDs, fully funding the program for FY2024.

2023 Agricultural Needs Assessment – Biennial Needs Summary with All Data

2023 Agricultural Needs Assessment - Biennial Needs Summary with All Data

Estimated Costs			2021-2022 Biennium		2023-2024 Biennium		2025-2026 Biennium		2027-2028 Biennium		2029-2030 Biennium		2031-2032 Biennium	
									2027 Target Year					
2019-2025	FY19 Funding*	FY20 Funding*	FY 21 Funding*	FY 22 Funding*	2023	2024	2025	2026	2027	2028	2029	2030	2031	2032
CHESAPEAKE BAY STATE COST SHARE	$14,384,534	$39,486,279	$26,466,959	$48,860,000	$119,545,650	$121,713,372	$123,881,094	$126,048,816	$128,216,538	$48,460,684	$48,460,684	$48,460,684	$48,460,684	$48,460,684
CHESAPEAKE BAY TECHNICAL ASSISTANCE	$2,141,348	$6,367,656	$3,883,068	$6,351,800	$15,540,935	$15,822,738	$18,582,164	$18,907,322	$19,232,481	$7,269,103	$7,269,103	$7,269,103	$7,269,103	$7,269,103
CHESAPEAKE BAY PRODUCER PORTION					$74,716,031	$76,070,857	$77,425,684	$78,780,510	$80,135,336	$30,287,928	$30,287,928	$30,287,928	$30,287,928	$30,287,928
CHESAPEAKE BAY FEDERAL PORTION	$15,960,273	$15,401,409	$20,641,081	$22,174,025	$104,602,444	$106,499,200	$108,395,957	$110,292,714	$112,189,470	$42,403,099	$42,403,099	$42,403,099	$42,403,099	$42,403,099
OCB STATE COST SHARE	$9,613,603	$17,608,120	$12,697,099	$20,940,000	$51,233,850	$52,162,874	$53,091,897	$54,020,921	$54,949,945	$20,768,865	$20,768,865	$20,768,865	$20,768,865	$20,768,865
OCB TECHNICAL ASSISTANCE	$1,431,125	$2,890,794	$1,966,931	$2,722,200	$6,660,401	$6,781,174	$7,963,785	$8,103,138	$8,242,492	$3,115,330	$3,115,330	$3,115,330	$3,115,330	$3,115,330
OCB PRODUCER PORTION					$32,021,156	$32,601,796	$33,182,436	$33,763,076	$34,343,715	$12,980,540	$12,980,540	$12,980,540	$12,980,540	$12,980,540
OCB FEDERAL PORTION	$18,964,850	$19,008,462	$15,739,229	$23,572,978	$44,829,619	$45,642,514	$46,455,410	$47,268,306	$48,081,202	$18,172,757	$18,172,757	$18,172,757	$18,172,757	$18,172,757
SWCD OPERATIONS FUNDING	$6,209,091	$6,209,091	$6,209,091	$6,209,091	$9,809,091	$9,809,091	$9,809,091	$9,809,091	$9,809,091	$9,809,091	$9,809,091	$9,809,091	$9,809,091	$9,809,091
	* Actual state and federal funding in FFY19-22 has been updated. Federal projected for 2023 is shown on the NRCS Funding Tab and the federal shortfall in 2023 is shown to the 2023-2024 Funding Gap below.													
TOTALS	$68,704,824	$106,971,811	$87,603,458	$130,830,094	$458,959,176	$467,103,617	$478,787,518	$486,993,893	$495,200,269	$193,267,396	$193,267,396	$193,267,396	$193,267,396	$193,267,396
CS + TA STATE NEEDS	$27,570,610	$66,352,849	$45,014,057	$78,874,000	$192,980,835	$196,480,158	$203,518,940	$207,080,197	$210,641,454	$79,613,981	$79,613,981	$79,613,981	$79,613,981	$79,613,981

	FY23 VACS Allocated	FY24 VACS Allocated
Bay CS	$81,404,841	$78,644,889
OCB CS	$34,889,744	$33,704,953
WFA Set Aside	$6,639,483	$20,000,000
Bay & OCB TA	$15,979,030	$17,396,050
Total CS+TA	$138,913,098	$149,745,892
Admin & OPS	$9,809,091	$9,809,091
CS + TA Gap	$54,067,737	$46,734,266

Includes VNRCF deposits and recordation revenue appropriation

NOTE: Does not include FY24 WQIF/VNRCF amendments

2023-2024 Funding Gap		
	State Gap	$100,802,003
	2023 Federal Gap	$92,677,263
	2024 Federal Need	$152,141,715

Revised state cost share and technical assistance (15% of CS starting in 2025) needs and federal funding need will be adjusted annually based on actual budgets and gaps.

2025-2026 State Funding Need	
State Gap	$67,201,335
2025-2026 CS + TA	$410,599,137
2025-2026 State Funding Need	$477,800,472
FY24 Amendments	$286,714,688
FY25-26 Request	$181,876,028

2027-2028 State Funding Need	
State Gap	$33,600,668
2027-2028 CS + TA	$290,255,436
2027-2028 State Funding Need	$323,856,104

2029-2030 State Funding Need	
State Gap	$0
2029-2030 CS + TA	$159,227,963
2029-2030 State Funding Need	$159,227,963

2031-2032 State Funding Need	
State Gap	$0
2029-2030 CS + TA	$159,227,963
2029-2030 State Funding Need	$159,227,963

2025-2026 Federal Need	$374,197,229

2027-2028 Federal Need	$251,738,948

2029-2030 Federal Need	$121,151,711

2030-2031 Federal Need	$121,151,711

AG BMP FUNDING NEEDED TO MEET WIP III	FY23	FY24	FY25	FY26	FY27	FY28	FY29	FY30	FY31	FY32	
CHESAPEAKE BAY CUMULATIVE BMP COST	$247,176,242	$247,176,242	$247,176,242	$247,176,242	$247,176,242	$47,786,609	$47,786,609	$47,786,609	$47,786,609	$47,786,609	Bay Total Costs based on 2022
CHESAPEAKE BAY ANNUAL BMP COST	$51,687,884	$57,107,188	$62,526,493	$67,945,797	$73,365,102	$73,365,102	$73,365,102	$73,365,102	$73,365,102	$73,365,102	Progress and WIP III calculated in
CHESAPEAKE BAY STATE SHARE 40%	$119,545,650	$121,713,372	$123,881,094	$126,048,816	$128,216,538	$48,460,684	$48,460,684	$48,460,684	$48,460,684	$48,460,684	2023
CHESAPEAKE BAY PRODUCER PORTION 25%	$74,716,031	$76,070,857	$77,425,684	$78,780,510	$80,135,336	$30,287,928	$30,287,928	$30,287,928	$30,287,928	$30,287,928	
CHESAPEAKE BAY FEDERAL PORTION 35%	$104,602,444	$106,499,200	$108,395,957	$110,292,714	$112,189,470	$42,403,099	$42,403,099	$42,403,099	$42,403,099	$42,403,099	
TOTAL OCB BMP COST	$128,084,625	$130,407,184	$132,729,743	$135,052,302	$137,374,862	$51,922,162	$51,922,162	$51,922,162	$51,922,162	$51,922,162	Total OCB cost based on
OCB STATE SHARE 40%	$51,233,850	$52,162,874	$53,091,897	$54,020,921	$54,949,945	$20,768,865	$20,768,865	$20,768,865	$20,768,865	$20,768,865	30%/70% WIP need calculated in
OCB PRODUCER PORTION 25%	$32,021,156	$32,601,796	$33,182,436	$33,763,076	$34,343,715	$12,980,540	$12,980,540	$12,980,540	$12,980,540	$12,980,540	2023
OCB FEDERAL PORTION 35%	$44,829,619	$45,642,514	$46,455,410	$47,268,306	$48,081,202	$18,172,757	$18,172,757	$18,172,757	$18,172,757	$18,172,757	

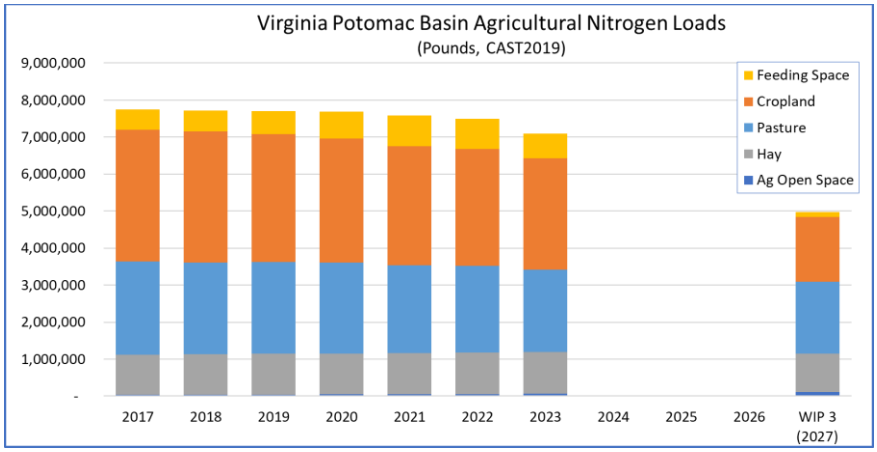
Annual BMPs include cover crops, nutrient management, poultry litter transport

Appendix B: Progress Report for the Shenandoah/Potomac River Basin

The graphs below show the progress that the Commonwealth has made over the last several years in achieving its pollution reductions in the Shenandoah/Potomac River Basin. The reductions reflect the substantial financial investments made by the Commonwealth, state and local partners, and producers.

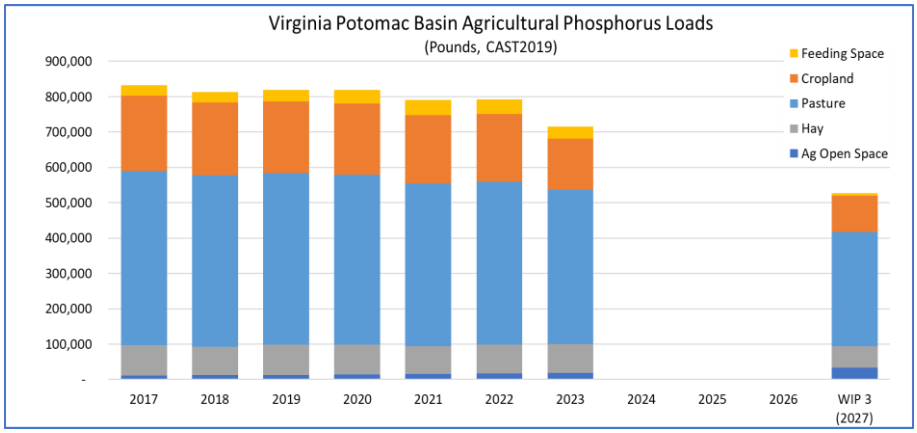
Nitrogen reductions

Since 2017, nitrogen loads delivered to the Chesapeake Bay from agricultural sources in the Shenandoah/Potomac River Basin have been reduced by more than 654,000 pounds. Nearly 63% of those reductions have been realized in the last two years; 411,000 pounds of nitrogen was reduced in 2023 alone. This is indicative of a significantly accelerating pace of reductions that is closely correlated with the significant increases in funding provided for the VACS Program.



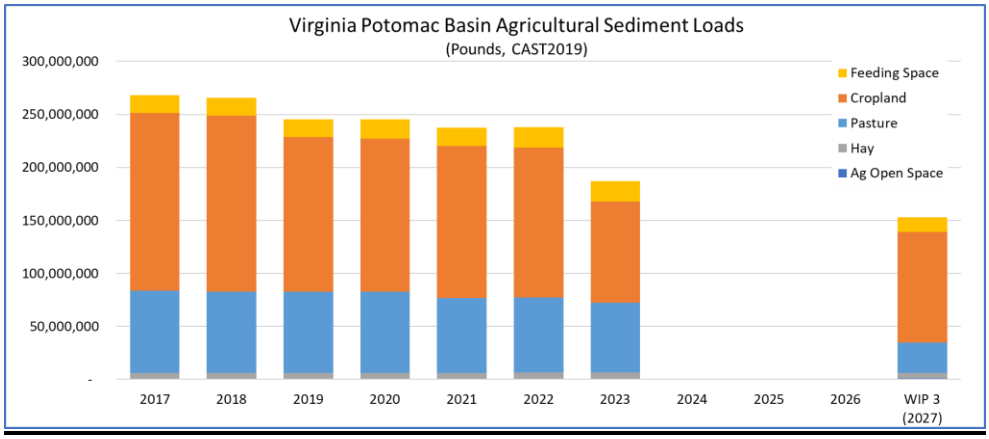
Phosphorus reductions

Since 2017, phosphorus loads delivered to the Chesapeake Bay from agricultural sources in the Shenandoah/Potomac River Basin have been reduced by more than 116,000 pounds.



Sediment reductions

Since 2017, sediment loads delivered to the Chesapeake Bay from agricultural sources in the Shenandoah/Potomac River Basin have been reduced by more than 80.9 million pounds. The Commonwealth has already fully met its sediment reduction targets for the Phase III WIP. The bar on the graph below showing the WIP III levels shows the significant additional reductions that could be realized with full implementation of the WIP. These reductions are critically important to continuing improvements to the health of our local streams and rivers.



Practice implementation progress

The graph below shows the implementation levels of ten key practice types included in the Commonwealth's Phase III WIP for the Shenandoah/Potomac River Basin from 2017 through 2023.

VA Potomac River Basin	2017	2018	2019	2020	2021	2022	2023	WIP 3 (2027)
Commodity + Cover Crop	30,891	24,993	24,802	36,707	32,848	41,593	47,337	124,346
Nutrient Application Management Core Nitrogen	170,862	160,643	157,437	123,852	144,152	171,184	184,059	319,301
Animal Waste Management	922,811	894,330	776,864	593,794	404,366	476,095	790,143	1,575,193
Livestock Stream Exclusion	2,672	2,949	2,970	3,017	5,621	6,565	13,020	8,923
Tillage Management	164,212	160,828	159,094	157,820	156,894	155,499	193,548	152,005
Soil and Water Conservation Plans	-	-	-	-	-	2,623	18,909	293,984
Forest Buffers	2,205	1,843	1,432	1,233	1,289	1,664	1,777	4,782
Land Retirement to Open Space	15,374	13,890	12,667	10,880	10,205	10,702	10,376	18,614
Grass Buffers	1,931	2,320	2,267	2,203	1,728	1,692	1,629	5,203
Pasture Management Composite	117,499	134,750	125,287	124,145	188,322	162,762	187,802	178,715

The graph below shows the implementation forecast of ten key practice types included in the Commonwealth's Phase III WIP for the Shenandoah/Potomac River Basin from 2024 through full implementation of the WIP in 2027.

VA Potomac River Basin	2023	2024 Forecast	2025 Forecast	2026 Forecast	WIP 3 (2027)
Commodity + Cover Crop	47,337	66,590	85,842	105,094	124,346
Nutrient Application Management Core Nitrogen	184,059	217,869	251,680	285,490	319,301
Animal Waste Management	790,143	986,406	1,182,668	1,378,931	1,575,193
Livestock Stream Exclusion	13,020	13,020	13,020	13,020	8,923
Tillage Management	193,548	193,548	193,548	193,548	152,005
Soil and Water Conservation Plans	18,909	87,678	156,447	225,215	293,984
Forest Buffers	1,777	2,528	3,279	4,030	4,782
Land Retirement to Open Space	10,376	12,436	14,495	16,555	18,614
Grass Buffers	1,629	2,523	3,416	4,309	5,203
Pasture Management Composite	187,802	187,802	187,802	187,802	178,715

The graph below shows the implementation levels of ten key practice types included in the Commonwealth's Phase III WIP for the Shenandoah/Potomac River Basin in 2023 and the percentage of the WIP III levels completed through 2023.

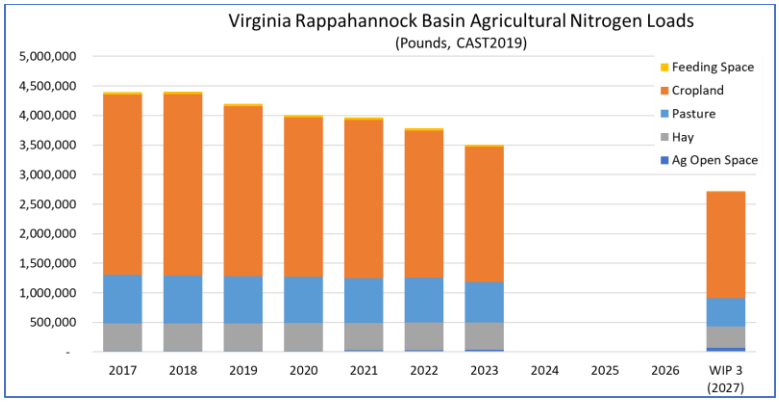
VA Potomac River Basin	2023	Percent of WIP Completed	WIP 3 (2027)
Commodity + Cover Crop	47,337	38%	124,346
Nutrient Application Management Core Nitrogen	184,059	58%	319,301
Animal Waste Management	790,143	50%	1,575,193
Livestock Stream Exclusion	13,020	146%	8,923
Tillage Management	193,548	127%	152,005
Soil and Water Conservation Plans	18,909	6%	293,984
Forest Buffers	1,777	37%	4,782
Land Retirement to Open Space	10,376	56%	18,614
Grass Buffers	1,629	31%	5,203
Pasture Management Composite	187,802	105%	178,715

APPENDIX C: Progress Report for the Rappahannock River Basin

The graphs below show the progress that the Commonwealth has made over the last several years in achieving its pollution reductions in the Rappahannock River Basin. The reductions reflect the substantial financial investments made by the Commonwealth, state and local partners, and producers.

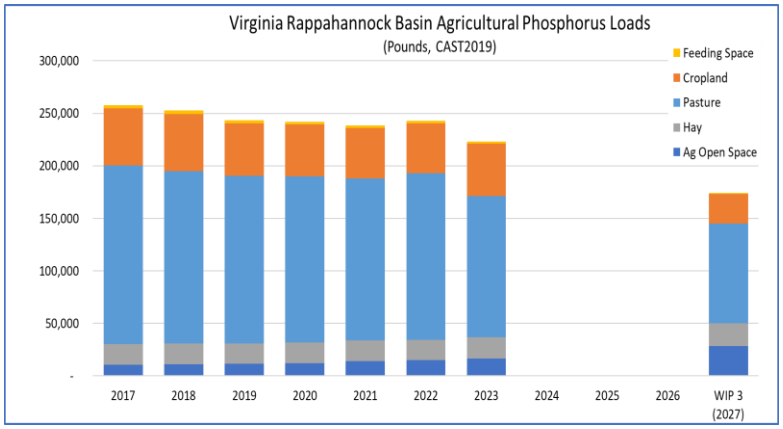
Nitrogen reductions

Since 2017, nitrogen loads delivered to the Chesapeake Bay from agricultural sources in the Rappahannock River Basin have been reduced by more than 895,000 pounds. Nearly 52% of those reductions have been realized in the last two years; 280,000 pounds of nitrogen was reduced in 2023 alone. This is indicative of a significantly accelerating pace of reductions that is closely correlated with the significant increases in funding provided for the VACS Program.



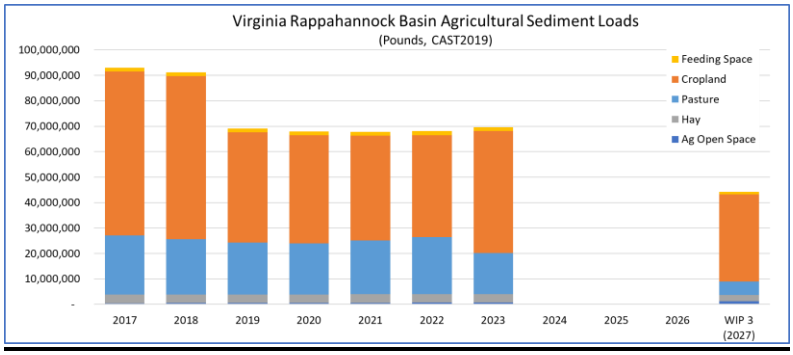
Phosphorus reductions

Since 2017, phosphorus loads delivered to the Chesapeake Bay from agricultural sources in the Rappahannock River Basin have been reduced by more than 34,000 pounds.



Sediment reductions

Since 2017, sediment loads delivered to the Chesapeake Bay from agricultural sources in the Rappahannock River Basin have been reduced by more than 23.3 million pounds. The Commonwealth has already fully met its sediment reduction targets for the Phase III WIP. The bar on the graph below showing the WIP III levels shows the significant additional reductions that could be realized with full implementation of the WIP. These reductions are critically important to continuing improvements to the health of our local streams and rivers.



Practice implementation progress

The graph below shows the implementation levels of ten key practice types included in the Commonwealth's Phase III WIP for the Rappahannock River Basin from 2017 through 2023.

VA Rappahannock River Basin	2017	2018	2019	2020	2021	2022	2023	WIP 3 (2027)
Commodity + Cover Crop	48,029	37,727	38,890	62,648	41,329	75,191	93,871	91,992
Nutrient Application Management Core Nitrogen	140,027	138,806	121,329	133,923	142,718	150,816	177,301	170,889
Animal Waste Management	4,968	2,260	1,889	1,909	3,039	2,019	7,504	30,718
Livestock Stream Exclusion	1,982	2,135	2,271	2,259	3,735	3,406	5,230	12,101
Tillage Management	157,782	153,969	153,102	152,275	150,546	149,305	156,065	138,441
Soil and Water Conservation Plans	-	-	-	-	-	1,203	46,896	237,295
Forest Buffers	620	447	346	240	491	683	796	5,012
Land Retirement to Open Space	4,708	4,316	3,937	3,843	4,894	5,582	5,622	10,072
Grass Buffers	777	780	718	759	895	848	825	4,064
Pasture Management Composite	49,620	49,639	47,011	47,136	94,131	90,241	113,082	77,825

The graph below shows the implementation forecast of ten key practice types included in the Commonwealth's Phase III WIP for the Rappahannock River Basin from 2024 through full implementation of the WIP in 2027.

VA Rappahannock River Basin	2023	2024 Forecast	2025 Forecast	2026 Forecast	WIP 3 (2027)
Commodity + Cover Crop	93,871	93,871	93,871	93,871	91,992
Nutrient Application Management Core Nitrogen	177,301	177,301	177,301	177,301	170,889
Animal Waste Management	7,504	13,307	19,111	24,915	30,718
Livestock Stream Exclusion	5,230	6,947	8,665	10,383	12,101
Tillage Management	156,065	156,065	156,065	156,065	138,441
Soil and Water Conservation Plans	46,896	94,496	142,096	189,695	237,295
Forest Buffers	796	1,850	2,904	3,958	5,012
Land Retirement to Open Space	5,622	6,734	7,847	8,959	10,072
Grass Buffers	825	1,635	2,445	3,254	4,064
Pasture Management Composite	113,082	104,268	95,454	86,639	77,825

The graph below shows the implementation levels of ten key practice types included in the Commonwealth's Phase III WIP for the Rappahannock River Basin in 2023 and the percentage of the WIP III levels completed through 2023.

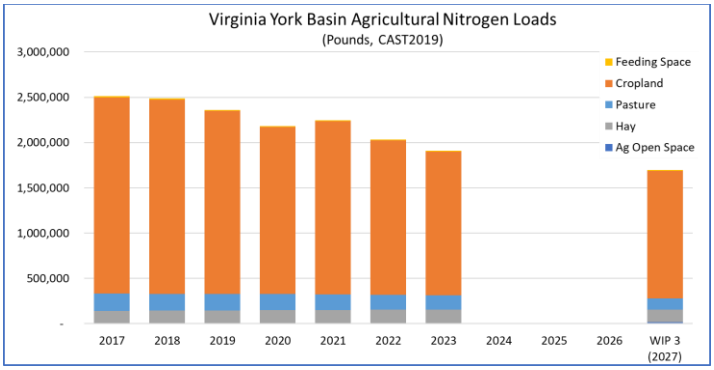
VA Rappahannock River Basin	2023	Percent of WIP Completed	WIP 3 (2027)
Commodity + Cover Crop	93,871	102%	91,992
Nutrient Application Management Core Nitrogen	177,301	104%	170,889
Animal Waste Management	7,504	24%	30,718
Livestock Stream Exclusion	5,230	43%	12,101
Tillage Management	156,065	113%	138,441
Soil and Water Conservation Plans	46,896	20%	237,295
Forest Buffers	796	16%	5,012
Land Retirement to Open Space	5,622	56%	10,072
Grass Buffers	825	20%	4,064
Pasture Management Composite	113,082	145%	77,825

APPENDIX D: Progress Report for the York River Basin

The graphs below show the progress that the Commonwealth has made over the last several years in achieving its pollution reductions in the York River Basin. The reductions reflect the substantial financial investments made by the Commonwealth, state and local partners, and producers.

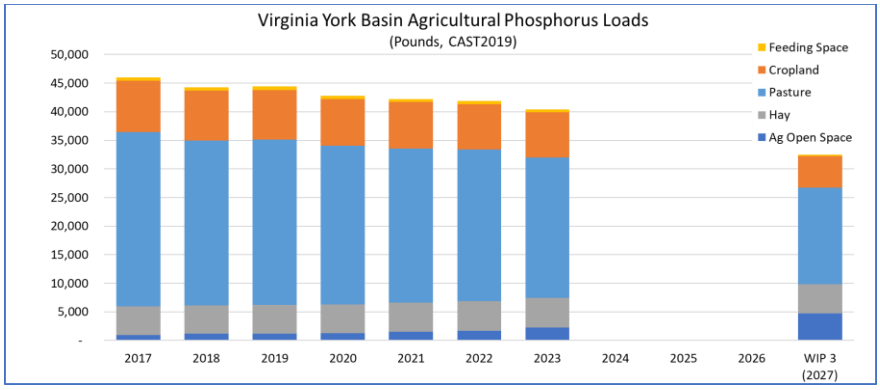
Nitrogen reductions

Since 2017, nitrogen loads delivered to the Chesapeake Bay from agricultural sources in the York River Basin have been reduced by more than 603,000 pounds. Nearly 56% of those reductions have been realized in the last two years; 125,000 pounds of nitrogen was reduced in 2023 alone. This is indicative of a significantly accelerating pace of reductions that is closely correlated with the significant increases in funding provided for the VACS Program.



Phosphorus reductions

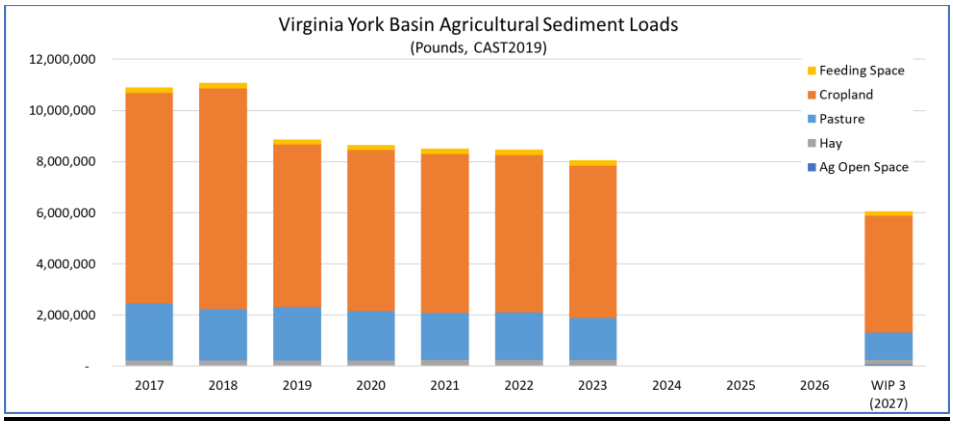
Since 2017, phosphorus loads delivered to the Chesapeake Bay from agricultural sources in the York River Basin have been reduced by more than 5,000 pounds.



Sediment reductions

Since 2017, sediment loads delivered to the Chesapeake Bay from agricultural sources in the York River Basin have been reduced by more than 2.8 million pounds. The Commonwealth has

already fully met its sediment reduction targets for the Phase III WIP. The bar on the graph below showing the WIP III levels shows the significant additional reductions that could be realized with full implementation of the WIP. These reductions are critically important to continuing improvements to the health of our local streams and rivers.



Practice implementation progress

The graph below shows the implementation levels of ten key practice types included in the Commonwealth's Phase III WIP for the York River Basin from 2017 through 2023.

VA York River Basin	2017	2018	2019	2020	2021	2022	2023	WIP 3 (2027)
Commodity + Cover Crop	28,354	35,549	38,282	64,522	39,140	85,637	97,889	95,735
Nutrient Application Management Core Nitrogen	109,805	116,062	89,873	141,634	128,115	134,284	149,665	162,586
Animal Waste Management	7,926	7,882	3,871	3,762	6,013	5,872	6,105	30,980
Livestock Stream Exclusion	659	764	740	915	1,380	1,605	2,885	4,532
Tillage Management	154,575	148,090	139,996	139,204	138,042	137,163	152,970	139,569
Soil and Water Conservation Plans	-	-	-	-	-	839	28,226	185,933
Forest Buffers	410	303	289	271	341	393	463	1,905
Land Retirement to Open Space	3,182	3,062	2,259	2,386	2,723	2,771	2,923	4,906
Grass Buffers	752	965	1,043	1,002	791	803	797	2,463
Pasture Management Composite	37,861	39,716	37,732	37,368	51,803	47,137	51,260	32,806

The graph below shows the implementation forecast of ten key practice types included in the Commonwealth's Phase III WIP for the York River Basin from 2024 through full implementation of the WIP in 2027.

VA York River Basin	2023	2024 Forecast	2025 Forecast	2026 Forecast	WIP 3 (2027)
Commodity + Cover Crop	97,889	97,350	96,812	96,273	95,735
Nutrient Application Management Core Nitrogen	149,665	152,895	156,125	159,356	162,586
Animal Waste Management	6,105	12,323	18,542	24,761	30,980
Livestock Stream Exclusion	2,885	3,297	3,709	4,120	4,532
Tillage Management	152,970	152,970	152,970	152,970	139,569
Soil and Water Conservation Plans	28,226	67,653	107,080	146,506	185,933
Forest Buffers	463	824	1,184	1,545	1,905
Land Retirement to Open Space	2,923	3,419	3,914	4,410	4,906
Grass Buffers	797	1,214	1,630	2,047	2,463
Pasture Management Composite	51,260	51,260	51,260	51,260	32,806

The graph below shows the implementation levels of ten key practice types included in the Commonwealth's Phase III WIP for the York River Basin in 2023 and the percentage of the WIP III levels completed through 2023.

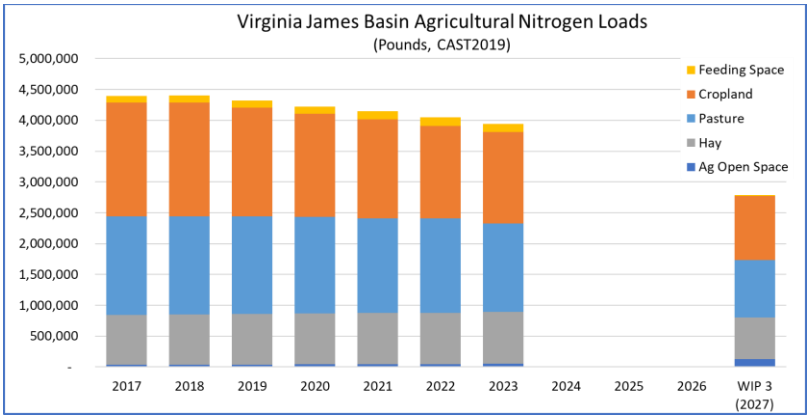
VA York River Basin	2023	Percent of WIP Completed	WIP 3 (2027)
Commodity + Cover Crop	97,889	102%	95,735
Nutrient Application Management Core Nitrogen	149,665	92%	162,586
Animal Waste Management	6,105	20%	30,980
Livestock Stream Exclusion	2,885	64%	4,532
Tillage Management	152,970	110%	139,569
Soil and Water Conservation Plans	28,226	15%	185,933
Forest Buffers	463	24%	1,905
Land Retirement to Open Space	2,923	60%	4,906
Grass Buffers	797	32%	2,463
Pasture Management Composite	51,260	156%	32,806

APPENDIX E: Progress Report for the James River Basin

The graphs below show the progress that the Commonwealth has made over the last several years in achieving its pollution reductions in the James River Basin. The reductions reflect the substantial financial investments made by the Commonwealth, state and local partners, and producers.

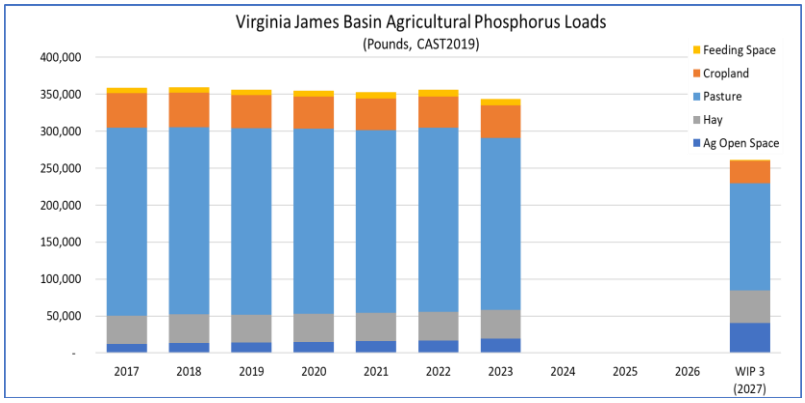
Nitrogen reductions

Since 2017, nitrogen loads delivered to the Chesapeake Bay from agricultural sources in the James River Basin have been reduced by more than 455,000 pounds. Nearly 46% of those reductions have been realized in the last two years; 104,000 pounds of nitrogen was reduced in 2023 alone. This is indicative of an accelerating pace of reductions that is closely correlated with the significant increases in funding provided for the VACS Program.



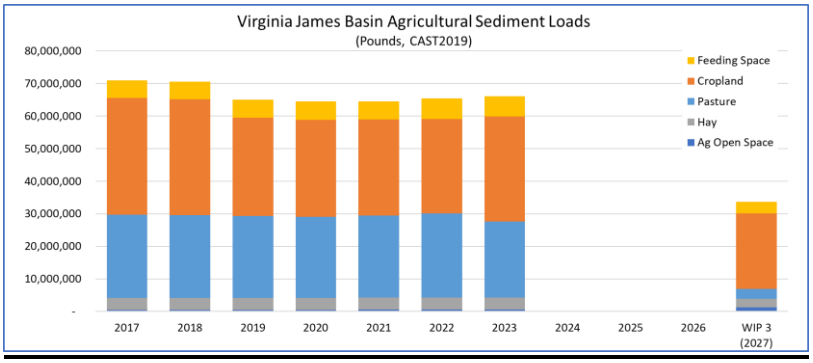
Phosphorus reductions

Since 2017, phosphorus loads delivered to the Chesapeake Bay from agricultural sources in the James River Basin have been reduced by more than 14,000 pounds.



Sediment reductions

Since 2017, sediment loads delivered to the Chesapeake Bay from agricultural sources in the James River Basin have been reduced by more than 4.9 million pounds. The Commonwealth has already fully met its sediment reduction targets for the Phase III WIP. The bar on the graph below showing the WIP III levels shows the significant additional reductions that could be realized with full implementation of the WIP. These reductions are critically important to continuing improvements to the health of our local streams and rivers.



Practice implementation progress

The graph below shows the implementation levels of ten key practice types included in the Commonwealth's Phase III WIP for the James River Basin from 2017 through 2023.

VA James River Basin	2017	2018	2019	2020	2021	2022	2023	WIP 3 (2027)
Commodity + Cover Crop	38,975	32,044	37,118	57,051	56,980	77,721	87,047	97,455
Nutrient Application Management Core Nitrogen	142,560	133,607	114,787	124,032	132,851	152,880	167,527	253,142
Animal Waste Management	119,655	117,350	115,747	103,685	44,477	54,891	75,751	402,331
Livestock Stream Exclusion	3,542	3,627	3,705	4,061	6,565	7,578	12,610	46,470
Tillage Management	149,597	145,223	144,674	143,390	142,019	140,428	126,246	128,450
Soil and Water Conservation Plans	-	-	-	-	-	2,401	17,303	428,267
Forest Buffers	2,131	1,758	1,290	1,283	1,408	2,753	2,967	7,957
Land Retirement to Open Space	6,874	6,316	5,285	5,360	5,809	6,432	6,247	16,577
Grass Buffers	1,973	2,519	2,528	2,434	1,656	1,610	1,478	12,065
Pasture Management Composite	138,477	139,462	130,069	127,680	211,914	197,466	234,126	253,844

The graph below shows the implementation forecast of ten key practice types included in the Commonwealth's Phase III WIP for the James River Basin from 2024 through full implementation of the WIP in 2027.

VA James River Basin	2023	2024 Forecast	2025 Forecast	2026 Forecast	WIP 3 (2027)
Commodity + Cover Crop	87,047	89,649	92,251	94,853	97,455
Nutrient Application Management Core Nitrogen	167,527	188,931	210,335	231,738	253,142
Animal Waste Management	75,751	157,396	239,041	320,686	402,331
Livestock Stream Exclusion	12,610	21,075	29,540	38,005	46,470
Tillage Management	126,246	126,797	127,348	127,899	128,450
Soil and Water Conservation Plans	17,303	120,044	222,785	325,526	428,267
Forest Buffers	2,967	4,215	5,462	6,709	7,957
Land Retirement to Open Space	6,247	8,829	11,412	13,994	16,577
Grass Buffers	1,478	4,124	6,771	9,418	12,065
Pasture Management Composite	234,126	239,056	243,985	248,915	253,844

The graph below shows the implementation levels of ten key practice types included in the Commonwealth's Phase III WIP for the James River Basin in 2023 and the percentage of the WIP III levels completed through 2023.

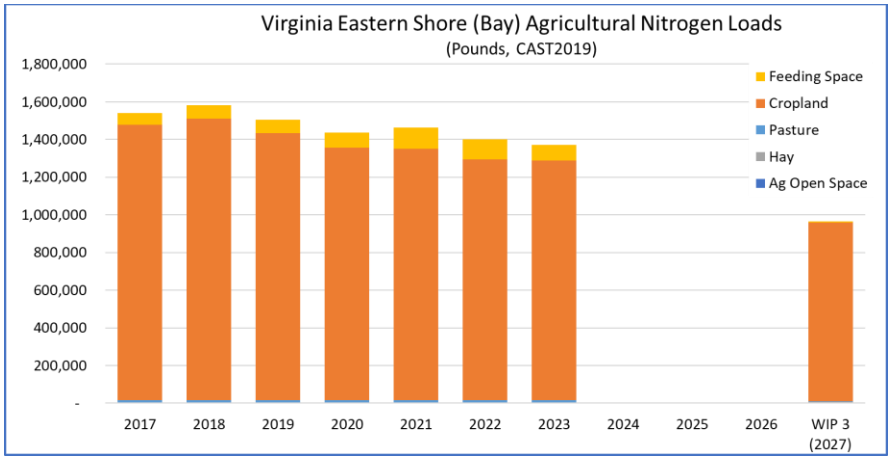
VA James River Basin	2023	Percent of WIP Completed	WIP 3 (2027)
Commodity + Cover Crop	87,047	89%	97,455
Nutrient Application Management Core Nitrogen	167,527	66%	253,142
Animal Waste Management	75,751	19%	402,331
Livestock Stream Exclusion	12,610	27%	46,470
Tillage Management	126,246	98%	128,450
Soil and Water Conservation Plans	17,303	4%	428,267
Forest Buffers	2,967	37%	7,957
Land Retirement to Open Space	6,247	38%	16,577
Grass Buffers	1,478	12%	12,065
Pasture Management Composite	234,126	92%	253,844

APPENDIX F: Progress Report for the Eastern Shore

The graphs below show the progress that the Commonwealth has made over the last several years in achieving its pollution reductions in the Eastern Shore. The reductions reflect the substantial financial investments made by the Commonwealth, state and local partners, and producers.

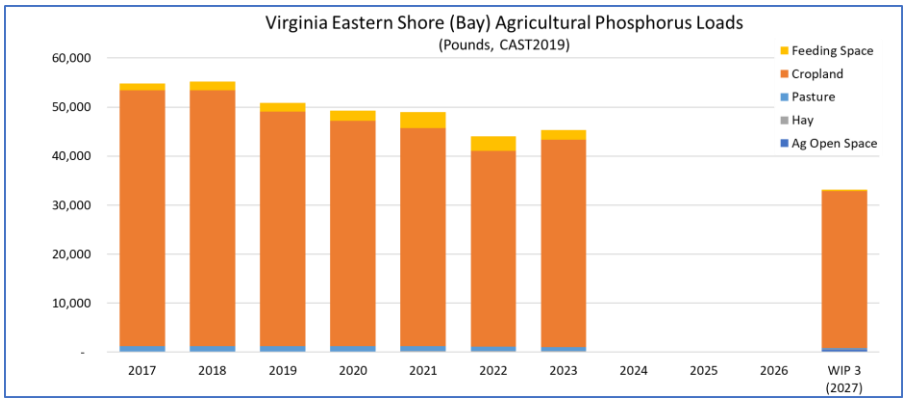
Nitrogen reductions

Since 2017, nitrogen loads delivered to the Chesapeake Bay from agricultural sources in the Eastern Shore have been reduced by more than 168,000 pounds. Nearly 54% of those reductions have been realized in the last two years. This is indicative of a significantly accelerating pace of reductions that is closely correlated with the significant increases in funding provided for the VACS Program.



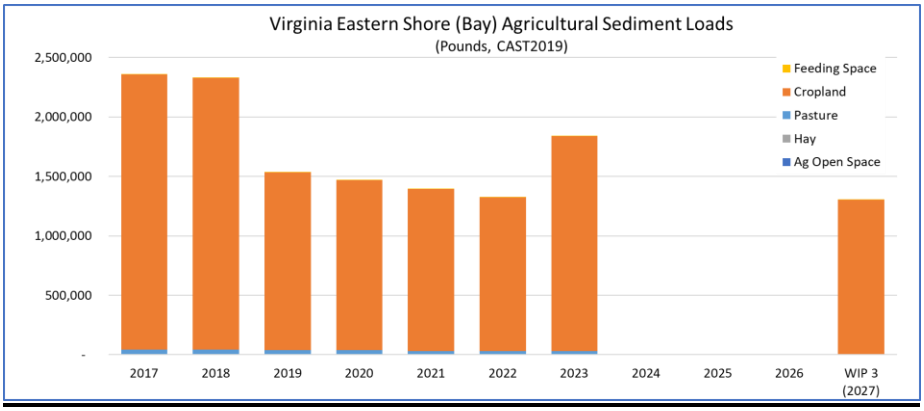
Phosphorus reductions

Since 2017, phosphorus loads delivered to the Chesapeake Bay from agricultural sources in the Eastern Shore have been reduced by more than 9,000 pounds.



Sediment reductions

Since 2017, sediment loads delivered to the Chesapeake Bay from agricultural sources in the Eastern Shore have been reduced by more than 0.5 million pounds. The Commonwealth has already fully met its sediment reduction targets for the Phase III WIP. The bar on the graph below showing the WIP III levels shows the significant additional reductions that could be realized with full implementation of the WIP. These reductions are critically important to continuing improvements to the health of our local streams and rivers.



Practice implementation progress

The graph below shows the implementation levels of ten key practice types included in the Commonwealth's Phase III WIP for the Eastern Shore from 2017 through 2023.

VA Eastern Shore of Chesapeake Bay	2017	2018	2019	2020	2021	2022	2023	WIP 3 (2027)
Commodity + Cover Crop	10,088	6,847	10,502	17,955	13,779	24,063	26,806	34,030
Nutrient Application Management Core Nitrogen	36,666	23,650	16,139	33,363	37,073	36,452	39,538	45,477
Animal Waste Management	71,976	63,498	65,458	59,477	23,107	43,127	75,761	189,678
Livestock Stream Exclusion	2	2	2	13	16	14	14	130
Tillage Management	48,771	47,849	46,938	47,199	47,408	47,686	43,842	49,580
Soil and Water Conservation Plans	-	-	-	-	-	180	6,604	37,981
Forest Buffers	77	27	17	13	63	72	92	2,309
Land Retirement to Open Space	502	465	404	370	345	331	269	283
Grass Buffers	235	157	137	120	233	169	168	264
Pasture Management Composite	129	106	85	118	65	44	37	212

The graph below shows the implementation forecast of ten key practice types included in the Commonwealth's Phase III WIP for the Eastern Shore from 2024 through full implementation of the WIP in 2027.

VA Eastern Shore of Chesapeake Bay	2023	2024 Forecast	2025 Forecast	2026 Forecast	WIP 3 (2027)
Commodity + Cover Crop	26,806	28,612	30,418	32,224	34,030
Nutrient Application Management Core Nitrogen	39,538	41,023	42,508	43,992	45,477
Animal Waste Management	75,761	104,241	132,720	161,199	189,678
Livestock Stream Exclusion	14	43	72	101	130
Tillage Management	43,842	45,277	46,711	48,145	49,580
Soil and Water Conservation Plans	6,604	14,448	22,293	30,137	37,981
Forest Buffers	92	646	1,200	1,755	2,309
Land Retirement to Open Space	269	272	276	279	283
Grass Buffers	168	192	216	240	264
Pasture Management Composite	37	81	124	168	212

The graph below shows the implementation levels of ten key practice types included in the Commonwealth's Phase III WIP for the Eastern Shore in 2023 and the percentage of the WIP III levels completed through 2023.

VA Eastern Shore of Chesapeake Bay	2023	Percent of WIP Completed	WIP 3 (2027)
Commodity + Cover Crop	26,806	79%	34,030
Nutrient Application Management Core Nitrogen	39,538	87%	45,477
Animal Waste Management	75,761	40%	189,678
Livestock Stream Exclusion	14	11%	130
Tillage Management	43,842	88%	49,580
Soil and Water Conservation Plans	6,604	17%	37,981
Forest Buffers	92	4%	2,309
Land Retirement to Open Space	269	95%	283
Grass Buffers	168	64%	264
Pasture Management Composite	37	17%	212