REPORT OF THE SECRETARY OF NATURAL RESOURCES

CHESAPEAKE BAY AND VIRGINIA WATERS CLEAN-UP PLAN - Progress Report

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

COMMONWEALTH OF VIRGINIA
RICHMOND
JANUARY 2012

COMMONWEALTH of VIRGINIA

Office of the Governor

Doug Domenech
Secretary of Natural Resources

January 3, 2012

The Honorable Robert F. McDonnell
Governor, Commonwealth of Virginia
Office of the Governor
Patrick Henry Building, 3rd Floor
1111 East Broad Street
Richmond, Virginia 23219

The Honorable Patricia S. Ticer
Chair, Senate Agriculture, Conservation and
Natural Resources Committee
301 King Street
City Hall, Room 2007
Alexandria, Virginia 22314-3211

The Honorable Harvey B. Morgan
Chair, House Agriculture, Chesapeake and
Natural Resources Committee
P.O. Box 949
Gloucester, Virginia 23061

Re: Report on the cleanup of the Chesapeake Bay and Virginia's waters designated as impaired by the U.S. Environmental Protection Agency

Dear Governor McDonnell, Senator Ticer and Delegate Morgan:

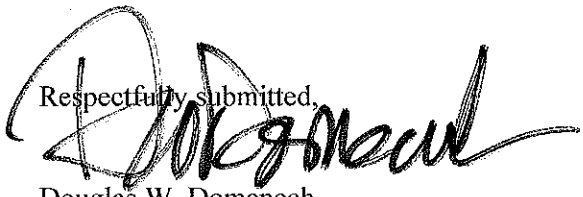
I am pleased to submit the attached report in accordance with §62.1-44.117 and §62.1-44.118 of the Code of Virginia. This report is a consolidated report including information required under §10.1-2127 related to nonpoint pollution programs, information required under §10.1-2128 regarding an annual funding amount for effective Soil and Water Conservation District technical assistance and implementation of agricultural best management practices and information required under §10.1-2134 related to the amount and recipients of grants from the Virginia Water Quality Improvement Fund. This report has been prepared with information provided by the Department of Environmental Quality and the Department of Conservation and Recreation, with contributions from the Department of Mines, Minerals and Energy.

The Chesapeake Bay is a valuable natural resource to the Commonwealth and we have made great strides in reducing pollution loads into the Bay. Nitrogen and phosphorus pollution has been reduced by 18.9% and 23.5% respectively since 1985. This has been accomplished by upgrading waste water treatment plants, reducing air deposition of nitrogen, and implementing best management practices to reduce non point source pollution. Restoration activities will become more difficult and more expensive as we move forward with our efforts as many of the most low cost practices have been implemented.

The Commonwealth submitted its Chesapeake Bay Watershed Implementation on December 29, 2010, and it was approved by EPA and included in their Chesapeake Bay TMDL. In addition, the Commonwealth appropriated $ 36.4 million into the Water Quality Improvement Fund in FY11 and the Governor is proposing an additional $ 50.3 million appropriation for FY12. These funds will not only be used to reduce pollution in the Chesapeake Bay, but in the Southern Rivers.

As always, I look forward to our continuing efforts to improve water quality in the Chesapeake Bay and in the Southern Rivers and working with the legislative branch on these and other important matters.

Respectfully submitted,



Douglas W. Domenech

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Executive Summary

This report was developed to comply with consolidated water quality reporting requirements stipulated in § 62.1-44.118. This section requires the Secretary of Natural Resources to submit a progress report on implementing the impaired waters clean-up plan as described in § 62.1-44.117. This consolidated report also includes the *"Annual Report on the Water Quality Improvement Fund"* by the Department of Conservation and Recreation and Department of Environmental Quality in §10.1-2134 and incorporates the "*Cooperative Nonpoint Source Pollution Programs"* in subsection D of § 10.1-2127. The report also encompasses the *"Annual Funding Needs for Effective Implementation of Agricultural Best Management Practices"* in subsection C of §10.1-2128.1 by the Department of Conservation and Recreation.

Water Quality Improvement Fund and Cooperative Nonpoint Source Pollution Programs

During FY11, the Department of Conservation and Recreation contracted $7.1 million to local soil and water conservation districts to cost-share the installation of best management practices with farmers. The entire amount of funding for FY11 was generated from recordation fees on land transfers since there was no deposit for nonpoint sources to the WQIF during FY11. Practices installed on farms during FY11 will result in estimated edge of field nitrogen reductions of 2.8 million pounds, phosphorus reductions of almost 700,000 pounds and sediment reductions of 500,000 tons. Utilizing funds remaining after closing a number of previous grant projects, the Department of Conservation and Recreation awarded $2,652,550 in grants to nonpoint source water quality improvement projects in response to the *2010 Virginia Water Quality Improvement Fund Request for Proposals*. The Department of Environmental Quality currently has 57 signed WQIF agreements which obligated $657 million in state grants ranging from 35% to 90% cost-share, for design and installation of nutrient reduction technology at Bay watershed point source discharges.

Funding Needs for Effective Implementation of Agricultural Best Management Practices

Projected funding needs from state and federal sources for statewide agricultural BMPs and their associated technical assistance are estimated at $85.0 million for FY13 and $90.5 million for FY14 to fully fund the state and federal portion of BMP costs. Funding projections for the Chesapeake Bay were based on a detailed analysis of practices in the Chesapeake Bay Watershed Implementation Plan as well as the Southern Rivers, and technical assistance needs projections based on the funding split prescribed in the Natural Resources Commitment Fund. A summary of total projected cost-share and technical assistance needs from all funding sources is included in Figure 2-2. Actual funding that should be appropriated is less than the amounts presented above for two key reasons.

First, the Secretary of Natural Resources, as directed by §2.2-220.3, is developing a procedure to track BMPs that some farmers install voluntarily without cost-share assistance if farmers are willing to report the practices. This report assumes all BMPs would need to be cost-shared; therefore any voluntary installations that can be included in the pollution reduction goals at no cost to the state will reduce costs. Secondly, the extent of farmer demand to utilize BMP cost-share funding at levels much greater than historical appropriations, while uncertain, is unlikely to result in state and federal expenditures that approach the levels needed to fully achieve water quality goals. For these reasons, an appropriate strategy is to increase agricultural BMP funding to levels greater than historical amounts in order to test farmer demand for the BMP cost-share practices. DCR suggests allocating a total of $24.0 million in FY13 and $16.7 million in FY14 of WQIF for agricultural BMPs and technical assistance to further test farmer demand for cost-shared BMPs. By utilizing WQIF balances, a portion of the FY11 WQIF deposit, and estimated revenues from dedicated recordation fees, a budget request may be needed in FY14 to supplement the existing and expected funds in order to implement the program.

Chesapeake Bay and Virginia Waters Clean-up Plan Report

During FY11, many strategies were implemented to reduce pollutants entering the Chesapeake Bay tributaries and Southern Rivers basins. Significant progress was made in reducing point source discharges from sewage treatment plants, installing agricultural best management practices, reducing the phosphorus content of poultry litter through effective dietary management of poultry, enhanced compliance with state erosion and sediment control regulations, and the adoption of revised Stormwater Management Regulations. Most notable during the period was the development of Virginia's Phase I Watershed Implementation Plan, in response to the Chesapeake Bay TMDL, which was approved by EPA in December, 2010. Since several of the goals and objectives identified in the initial Chesapeake Bay and Virginia Waters Clean-up Plan have been essentially achieved, the agencies will consider revising the plan during FY12.

Chapter 1

Annual Report on Water Quality Improvement Fund Grants

The purpose of the Virginia Water Quality Improvement Act of 1997 (Act) is "to restore and improve the quality of state waters and to protect them from impairment and destruction for the benefit of current and future citizens of the Commonwealth" (§10.1-2118 of the Code of Virginia). The Act was amended in 2005 and 2008. The Water Quality Improvement Fund's (WQIF) purpose is "to provide Water Quality Improvement Grants to local governments, soil and water conservation districts, institutions of higher education and individuals for point and nonpoint source pollution prevention, reduction and control programs" (§10.1-2128.B. of the Code of Virginia). In 2008, the General Assembly created a sub-fund of the WQIF called the Virginia Natural Resources Commitment Fund (NRCF, §10.1-2128.1) that is to be used for agricultural best management practices and associated technical assistance.

The two major state agencies responsible for administering the fund are the Department of Environmental Quality (DEQ) and the Department of Conservation and Recreation (DCR). DEQ has the responsibility to provide technical and financial assistance to local governments, institutions of higher education, and individuals for the control of point source pollution. The DCR has the responsibility to provide technical and financial assistance to local governments, soil and water conservation districts, institutions of higher education, and individuals for nonpoint source pollution prevention, reduction, and control programs. Because of the nature of nonpoint source pollution controls, the DCR seeks the assistance and support of other state agencies to provide the necessary expertise and resources to properly implement the nonpoint source elements of the Act.

This report fulfills the Department of Conservation and Recreation's (DCR) and the Department of Environmental Quality's (DEQ) legislative requirement under § 10.1–2134 of the *Virginia Water Quality Improvement Act of 1997* (WQIA). Additionally, Chapter 21.1 of Title 10.1 of the *Code of Virginia* requires that an annual report be submitted to the Governor and the General Assembly specifying the amounts and recipients of grants made from the Water Quality Improvement Fund (WQIF) and pollution reduction achievements from these grants. WQIF grants awarded are provided along with available data on pollutant reductions achieved and estimated pollutant reductions to be achieved from recently funded grant projects.

WQIF & NRCF Nonpoint Source Programs

The WQIF has served as the principal funding source for nonpoint pollution control projects in Virginia. In 2008, the General Assembly created a sub-fund of the WQIF called the Virginia Natural Resources Commitment Fund (NRCF, §10.1-2128.1), funding for agricultural best management practices and associated technical assistance. Section

10.1-104.1 in the *Code of Virginia* designates DCR as the lead agency for the nonpoint source pollution management program.

The goal of the nonpoint source grant component of the WQIF is to improve water quality throughout the Commonwealth of Virginia and in the Chesapeake Bay by reducing nonpoint source pollution. Nonpoint source pollution is a significant cause of degradation of state waters throughout the Commonwealth. Within the Chesapeake Bay watershed, the immediate priority is to implement the Watershed Implementation Plan developed by the Commonwealth and approved by EPA in 2010. In the Southern Rivers watersheds (Virginia waters not draining to the Chesapeake Bay), the goal is to achieve measurable improvements in water quality, which can include nutrient and sediment reductions as well as reduction of other pollutants. Other uses of grant funds may include providing protection or restoration of other priority waters such as those containing critical habitat or that serve as water supplies.

DCR is responsible for managing the distribution of the nonpoint WQIF and NRCF grants. This includes managing the allocation of funding to the Agricultural Cost Share Program and Conservation Reserve Enhancement Program and soliciting applications for Water Quality Initiative grants and Cooperative Nonpoint Source Pollution Program Projects with Local Governments. A summary table of WQIF nonpoint expenditures and cash balances through June 30, 2011 is provided in Appendix A and a Special Condition Statement of the Virginia Natural Resources Commitment Fund as of June 30, 2011 is provided in Appendix B. The WQIF nonpoint programs projected cash flows for FY12 – 14 are included in Appendix C. A brief explanation of each program follows.

Agricultural Best Management Practices Cost-Share Program – Agricultural conservation practices that are most effective in reducing excess nutrients and sediment from agricultural lands will be implemented through the Virginia Agricultural Best Management Practices (BMP) Cost-Share Program. BMPs supported through state financial incentives must be implemented in accordance with the Virginia Agricultural BMP Manual. Cost share expenditures are guided by agreements signed by DCR and the state's 47 conservation districts.

Conservation Reserve Enhancement Program – WQIF funds support Virginia's commitment for participation in the USDA Conservation Reserve Enhancement Program (CREP). Under the USDA-administered CREP program, which is implemented through the SWCDs, eligible landowners may receive cost-share financial incentives for eligible program BMPs for establishment of riparian buffer and wetlands restoration and for rental payments for up to 15 years. DCR also provides additional financial incentives to landowners to enter into permanent easements on the riparian lands.

Water Quality Initiatives – Funding for water quality initiatives will be considered by the Department of Conservation and Recreation to manage other nonpoint source pollution priority needs and particularly cost effective, innovative, and new initiatives which further advance Virginia's nonpoint source programs and provide for measurable

water quality improvements. These may include initiatives with other state agencies, soil and water conservation districts, planning district commissions, local governments, educational institutions, and individuals on nonpoint source pollution reduction, education, and research.

Cooperative Nonpoint Source Pollution Program Projects with Local Governments – In accordance with § 10.1-2127.B. and C. of the Code of Virginia, DCR will work cooperatively with local governments to provide matching funds for nonpoint source projects which administer locally identified solutions for nonpoint source problems that cause local water quality problems and/or contribute to the impairment of other state waters outside the jurisdiction.

2011 WQIF & NRCF Nonpoint Source Programs Funds Contracted

Agricultural Cost-Share Contracts

DCR emphasis for BMP implementation focuses on efficient nutrient and sediment reduction including; cover crops, conservation tillage, nutrient management, livestock exclusion from streams, and the establishment of vegetative riparian buffers. These five priority BMPs are emphasized in the guidance given to Soil and Water Conservation Districts (SWCD) for program year contracts. Contracts to SWCD for 2011 are summaries in Table 1-1.

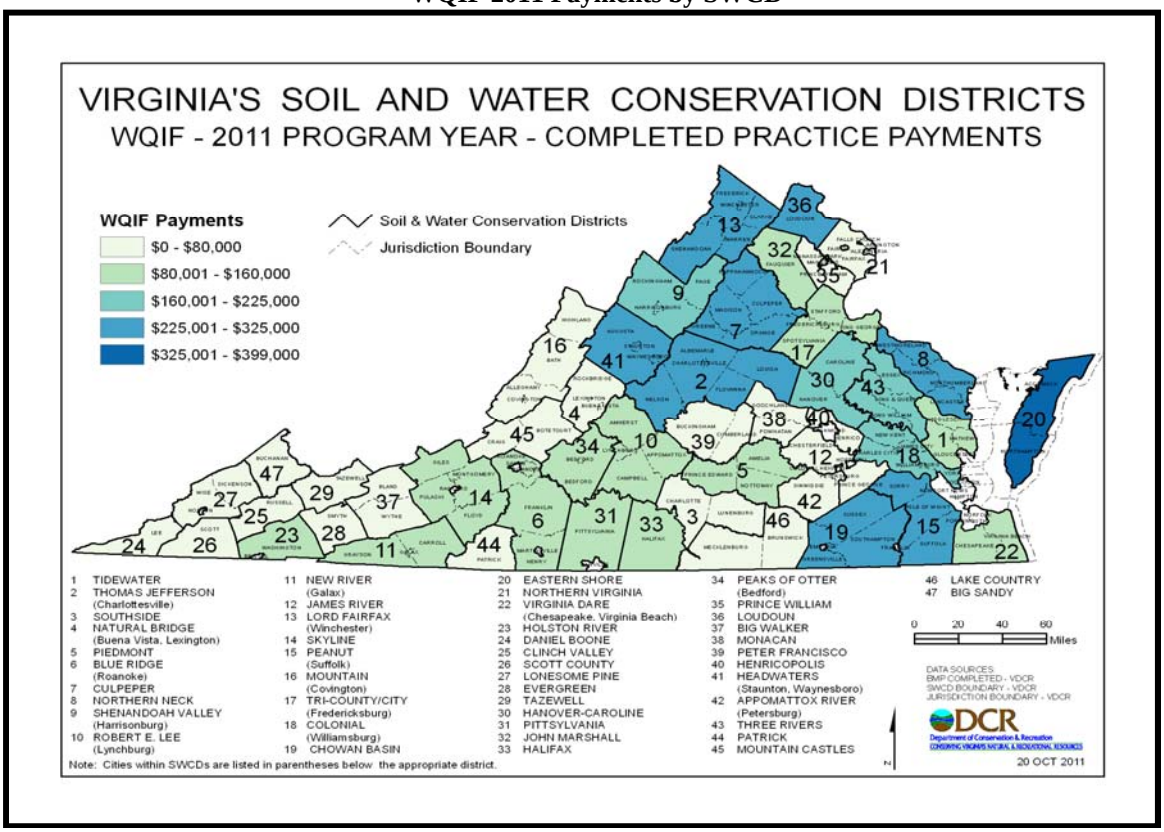
Table 1-1
2011 SWCD Agricultural Cost-Share Contracts

SWCD	Contract Amount	SWCD	Contract Amount
Appomattox River	$70,229	Mountain Castles	$149,244
Big Sandy	$14,218	Natural Bridge	$187,222
Big Walker	$110,000	New River	$176,000
Blue Ridge	$143,593	Northern Neck	$273,193
Chowan Basin	$276,941	Northern Virginia	$5,556
Clinch Valley	$154,000	Patrick	$56,694
Colonial	$170,792	Peaks Of Otter	$109,263
Culpeper	$305,482	Peanut	$291,476
Daniel Boone	$99,000	Peter Francisco	$57,993
Eastern Shore	$391,424	Piedmont	$128,142
Evergreen	$76,961	Pittsylvania	$144,799
Halifax	$121,985	Prince William	$23,642
Hanover-Caroline	$193,289	Robert E. Lee	$184,512
Headwaters	$333,046	Scott County	$134,429
Henricopolis	$34,929	Shenandoah Valley	$368,440
Holston River	$156,742	Skyline	$231,000
James River	$72,211	Southside	$101,556
John Marshall	$181,551	Tazewell	$77,000

Lake Country	$92,799	Thomas Jefferson	$208,649
Lonesome Pine	$30,806	Three Rivers	$170,776
Lord Fairfax	$341,246	Tidewater	$85,506
Loudoun	$175,748	Tri-County/City	$86,823
Monacan	$53,404	Virginia Dare	$109,922
Mountain	$141,728	**Totals:**	**$7,103,961**

BMPs installed and cost-share payments issued to SWCD are displayed in Figure 1-1. Cost-share payments do not match total cost-share contract amounts for the same year for several reasons. The primary reason being not all practice installations are completed within the same program year as when initial sign-up occurred.

Figure 1-1
WQIF 2011 Payments by SWCD



Conservation Reserve Enhancement Program (CREP)

The Virginia CREP program is divided into two regions. The Chesapeake Bay (CB) CREP targets Virginia's entire Chesapeake Bay watershed and is authorized to restore 22,000 acres of riparian buffers and filter strips as well as 3,000 acres of wetlands. The CB CREP has 8,061 acres available to enroll as of August of 2011. The Southern Rivers (SR) CREP aims to restore 13,500 acres of riparian buffers and filter strips and 1,500 acres of wetland restoration. The SR CREP only has 1,692 acres available to enroll as of

August of 2011. A summary of Virginia CREP cost share assistance to farmers during the period from July 1, 2010 to June 30, 2011 is provided in Table 1-2 below.

Table 1-2
CREP Summary – July 1, 2010 – June 30, 2011 by Major Basin

Drainage	Acres Buffer Restored	Total BMP Cost	Number of Participants	Total Approved Cost Share Payment
Chesapeake Bay	1,290.30	$1,020,938.62	92	$539,228.63
Southern Rivers	850.80	$958,626.16	61	$396,116.09
Statewide Totals	**2141.1**	**$1,979,564.78**	**153**	**$935,344.72**

2010 Cooperative Nonpoint Source Pollution Programs with Local Governments and Strategic Nonpoint Source Water Quality Initiatives Grants

DCR manages two grant WQIF programs. Awards are intended to reduce pollution through partnerships with local governments, community groups, and others. There has not been a General Fund allocation to WQIF for these programs since FY07 except for authorization to utilize interest funds; there were no additional funds for FY08 thru FY11. A request for proposals was issued in August 2010 that reissued grant funds that became available from closed Cooperative Nonpoint Source or Strategic Water Quality Initiatives projects.

The Virginia Department of Conservation and Recreation awarded **$2,652,550** in grants to nonpoint source water quality improvement projects in response to the *2010 Virginia Water Quality Improvement Fund Request for Proposals*, DCR Document # (DCR199-166)(09/10), issued August 31, 2010. A detailed listing of the projects and funding amounts can be found in Appendix D.

WQIF Point Source Program

There are currently 57 signed WQIF agreements, obligating $657 million in state grants ranging from 35% to 90% cost-share, for design and installation of nutrient reduction technology at the Bay watershed point source discharges. This is critical support for compliance with the nutrient discharge control regulations and achieving Chesapeake Bay nitrogen and phosphorus waste load allocations. A summary of active grant projects is accessible via the DEQ-WQIF webpage at this Internet address: http://www.deq.virginia.gov/bay/wqiflist.html#SGA.

Since its formation in 1998, the WQIF Point Source Program has received a total of $652.6 million in appropriations and accrued interest. There was an appropriation of $3.6 million made to the WQIF by the 2011 General Assembly, but this funding was not available for the point source upgrade projects. A portion of the funds were earmarked for a study of the James River chlorophyll water quality standards and a deposit to the WQIF Reserve.

Of the total funding made available, $95.3 million was used for twenty-four voluntary/cooperative "BNR" grants prior to the adoption of nutrient discharge control regulations in late 2005. A total of $4.01 million was awarded for 39 technical assistance grants, including Basis of Design Reports, Interim Optimization Plans, and startup support for the Nutrient Credit Exchange Association.

The balance of $553.6 million was made available for recent grants to meet the Bay nutrient waste load allocations. With $657 million obligated in grant agreements for these projects, and an available balance of $553.6 million, the WQIF is over-obligated by approximately $103.4 million**.** This is largely due to the statutory requirement for DEQ to approve and enter into funding agreements with all eligible applicants, except if the project is deferred based on the cost-effectiveness and viability of nutrient trading in lieu of nutrient reduction technology installation.

The over-obligation can be managed with additional funding to capitalize the WQIF, which may be provided by the General Assembly through the state budget process, and also with unused funds returned to the WQIF as projects are completed.

In addition to the 57 current grant agreements, there is the potential for about 50 projects to be added to the WQIF. DEQ has 26 grant applications pending that have not yet received signed agreements. The majority of these projects need to develop the required Preliminary Engineering Report. Another 24 eligible facilities have not yet applied. Many of these owners were able to phase construction or delay a capital upgrade project through use of the Nutrient Credit Exchange Program, thus allowing for economical use of the limited funds and an orderly schedule for the upgrade projects completed or underway.

In 2011, five WQIF projects were issued a Certificate to Operate ("CTO"), either final or conditional, for nutrient reduction technology installations in Onancock, Arlington, HRSD-Nansemond, Henrico County, and Allegany County-Lower Jackson. Three other grantees have had their CTO inspection conducted by DEQ; final issuance is pending receipt of their Project Engineer's Certification of Substantial Completion: Lexington/Rockbridge, York River and Wilderness Shores

With numerous projects coming on-line, reductions in the annual nutrient loads discharged from wastewater plants in the Bay watershed for 2011 and 2012 are anticipated. Review of the nutrient loads to-date coming from facilities subject to the Watershed General Permit for Nutrient Discharge indicates that the basin-aggregate nutrient waste load allocations for significant dischargers will likely be achieved for the

first compliance year (2011). It is likely plants will exceed reduction targets and generate nutrient credits.

WQIF & NRCF Nutrient Reductions

Estimated Nutrient Reductions from Nonpoint Source WQIF-Funded Projects

Statewide, CREP is expected to reduce annual nitrogen loads to waterways by 710,000 pounds of nitrogen, phosphorous by 114,000 pounds, and sediment by more than 62,000 tons.

The Agricultural BMP Cost-Share Program installed practices during FY11 that are expected to reduce edge of field nutrient and sediment losses by almost 2.8 million pounds nitrogen, 700,000 pounds phosphorus, and 500,000 tons of sediment. A summary of these reductions by major basin are included in Appendix E.

Estimated Nutrient Reductions from Point Source WQIF-Funded Projects

Under the Chesapeake Bay Watershed General Permit, the compliance period for the point source nitrogen and phosphorus waste load allocations in the Bay watershed began January 1, 2011.

Appendix F shows estimated nutrient reductions resulting from the 57 projects with signed WQIF grant agreements. Five of those listed with "NA" values are non-significant dischargers that must maintain their "permitted design capacity", rather than achieve reductions from existing loads. It illustrates the nutrient load each facility delivered to the Bay and tidal rivers in 2009, compared to the maximum nutrient load they are allowed to deliver under current regulations, and the amount they are projected to deliver in 2011.

By 2011, these projects will reduce the nutrient load delivered to the Bay and tidal rivers by approximately 2.7 million pounds of nitrogen and 126,000 pounds of phosphorus compared to the 2009 loads. As part of the Chesapeake Bay TMDL process, Virginia is now reissuing the Chesapeake Bay Watershed General Permit, which proposes further nutrient reductions for significant dischargers in the York basin (phosphorus) and James basin (nitrogen and phosphorus) according to the schedule contained in Appendix X of the Chesapeake Bay TMDL.

Chapter 2

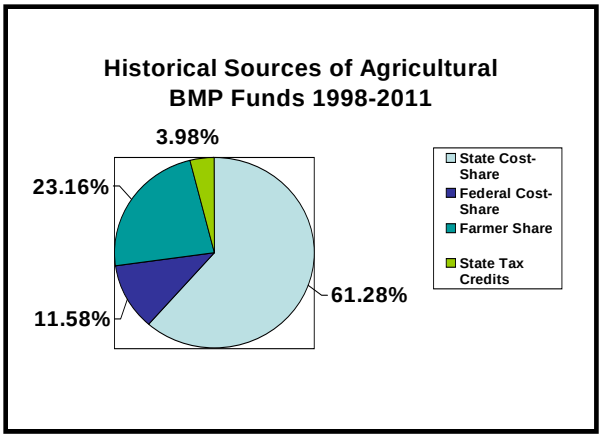
Annual Funding Needs for Effective Implementation of Agricultural Best Management Practices

This chapter fulfills the requirements in §10.1-2128.1 of the Water Quality Improvement Act that calls for the 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 § 2.2-1504, the Department shall provide to the Governor the annual funding amount needed for each year of the ensuing biennial period" and an estimate for of the same next two succeeding biennium. For the fiscal years 2013 – 2018, a total of $866.7 million will be required from state and federal funds as well as farmer financial contributions.

Agricultural Best Management Practices – Who Pays?

Farmers voluntarily participate in state and federal cost-share programs to implement agricultural best management practices for a variety of reasons. These agricultural practices provide multiple benefits that not only focus on the Commonwealth's interest in water quality improvement, but also often enhance the farm operation. All BMPs offered through the state's cost-share program provide water quality benefits. Once a practice is implemented according to the required specifications, the farmer receives reimbursement for up to 75% of the eligible costs of the practice, or for some BMPs, a flat rate incentive payment is issued.

Figure 2-1



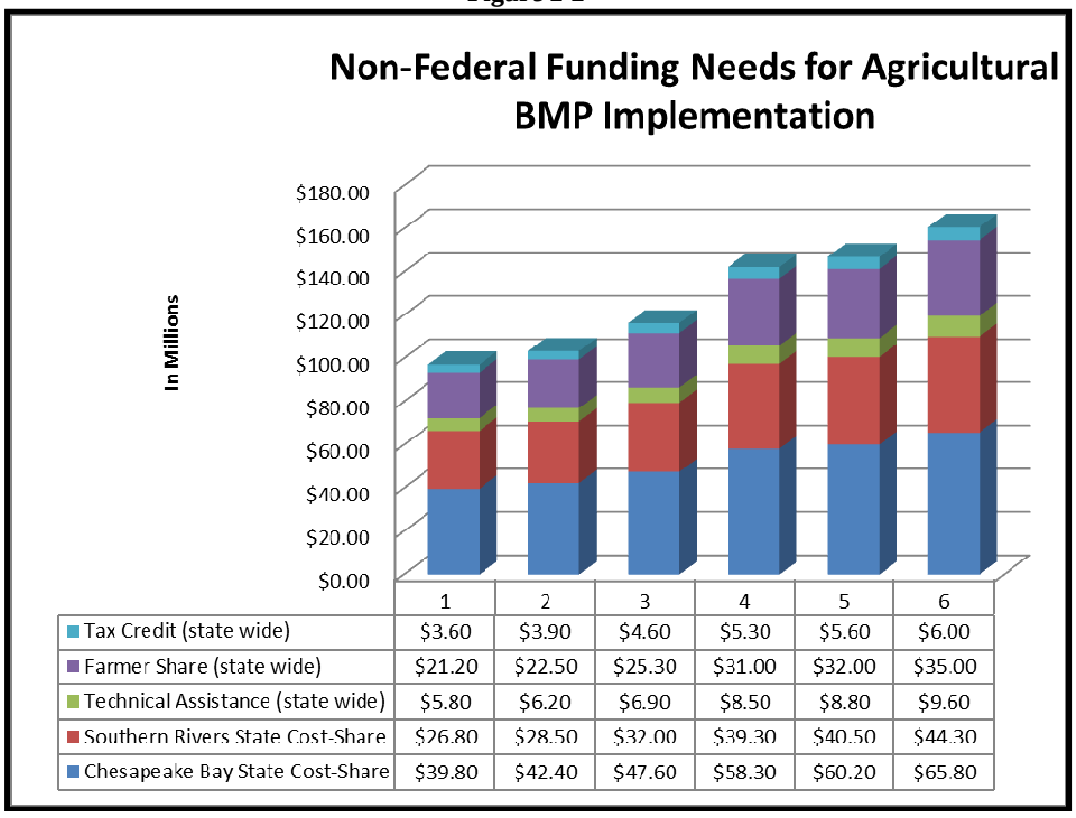
Given these arrangements, farmers bear a portion of the cost for implementation of all agricultural BMPs. Based on analysis of statewide data from program years 1998 – 2011, the farmer financial input to cost-shared agricultural BMPs has averaged 23.16% of total practice cost after accounting for tax credits on eligible practices. BMP costs eligible for state tax credits over the same period averaged 3.98% of total practice cost. Figure 2-1 summarizes the historical cost share data for program years 1998-2011.

Appendix H contains historical funding information.

Projecting Needs for Agricultural Best Management Practices

The funding projections contained herein and summarized in Figure 2-2 are predicated largely upon Virginia's need for fulfilling Chesapeake Bay restoration commitments based on implementation of the Phase I WIP of the Bay TMDL and restoring other impaired waters in the Southern Rivers region. Changes are expected through ongoing revisions to the Chesapeake Bay Watershed Model and also through the ongoing refinement of nutrient and sediment reductions that will be addressed through Phase II of the WIP in support of the Chesapeake Bay TMDL. Model updates will likely alter Virginia's projection of numbers of needed BMPs and their nutrient/sediment reduction efficiencies. Funding projections will also be effected by changes in the agricultural economy, world markets, climate, weather events, and a variety of other factors.

Figure 2-2



	1	2	3	4	5	6
Tax Credit (state wide)	$3.60	$3.90	$4.60	$5.30	$5.60	$6.00
Farmer Share (state wide)	$21.20	$22.50	$25.30	$31.00	$32.00	$35.00
Technical Assistance (state wide)	$5.80	$6.20	$6.90	$8.50	$8.80	$9.60
Southern Rivers State Cost-Share	$26.80	$28.50	$32.00	$39.30	$40.50	$44.30
Chesapeake Bay State Cost-Share	$39.80	$42.40	$47.60	$58.30	$60.20	$65.80

Notes:

1) Bay Cost-Share projections based on detailed projection of Bay TMDL WIP BMPs
2) Assumes funding split of 55% Bay, 37% SR, 8% TA
3) Farmer share is net after tax credit amounts since BMP tax credit is now "refundable"
4) Farmer share and tax credit amounts based on historical data compared to state cost-share amounts

These points are critical towards an understanding that the projections of agricultural BMPs which are necessary to achieve the state's water quality commitments will be changing in the years to come. With those changes, the funding projections to carry out those BMPs will change and revisions to the levels of funding that are necessary to implement those BMPs should be expected.

It is very important to note that the maximum funding needs identified in this report represent the theoretical combined state and federal funding necessary to implement agricultural BMPs, assuming farmer demand for BMPs is not limited and that no reporting of voluntary BMPs that did not receive cost-share occurs. It is not possible at this time to predict the degree of farmer demand that would result from funding the program at the maximum levels. The maximum funding level identified in this report is roughly three times the level of the greatest combined state and federal funding available in any single previous year to date, making it difficult to predict whether farmers would actually be willing to sign-up and install this very high level of BMPs. Until the demand is tested at significantly higher levels of available funding, no data exists to analyze the demand curve for BMPs at a greater level of funding supply. In addition, the development of a means to capture voluntary actions taken by the agricultural and silvicultural sectors as directed in §2.2-220.3 will result in some level of verified BMPs installed that did not receive cost-share assistance. This will reduce funding needs below the levels of these projections, but cannot be accurately projected at the present time.

Basic Assumptions

The basis for projecting funding needs in both the Chesapeake Bay and Southern Rivers watersheds incorporates:

- The available acreage (or available quantity) where BMPs may be implemented.
- Per unit BMP costs to the state were based on average state cost per practice during FY09 and FY10.
- Accounts for actual BMP implementation through June 30, 2011, from all appropriate data sources including the Virginia Agricultural BMP Cost Share (VACS) Program, USDA EQIP, and others
- Accounts for estimated BMPs implemented for fiscal year 2012 for VACS based upon historical BMP implementation with the funding available.
- Estimates the cost of achieving the 2017 agricultural BMP requirements of the Chesapeake Bay TMDL and the first year of the 2018–2025 period BMP implementation goal. In the WIP, a different mix of BMPs was applied to the 2018-2025 period as compared to the period ending in 2017. Some specific practices were not applied until 2018 and thereafter if they were new and presently undeveloped practices, or if they were viewed as more costly practices.
- For the FY13-FY17 period, the funding projection is based on ramping up of cost-share dollars expected to achieve 15% of total agricultural Chesapeake Bay load reductions needed for the 2013 milestone, 35% of reductions for the 2015 milestone, and 60% of reductions for the 2017 milestone.
- For FY18, the funding projection is based on a straight-line progression of BMPs needed to be installed between 2018 and 2025.
- Accounts for the costs of longer term BMPs that must be retained for 10 years.
- Accounts for the costs of replacing BMPs with 3 and 5 year life spans
- Estimates the costs for annual, recurring BMPs.
- Includes an additional 7.5% of funding to enable BMPs that are not directly included in the Watershed Implementation Plan, but that are supportive of practices in the plan or other practices contained in the Virginia BMP Manual.

Chesapeake Bay Watershed

The Environmental Protection Agency has established a Total Maximum Daily Load (TMDL) for the entire Chesapeake Bay watershed which requires Virginia to put in place all needed pollution reduction control measures no later than 2025. On November 29, 2010, Virginia submitted its Final Phase I Watershed Implementation Plan (WIP) to achieve the nutrient and sediment allocations set by EPA. Virginia is committed by this WIP to meeting two-year "milestones" to accelerate the Bay's restoration. The two-year milestones beginning with 2013 are part of the progress accounting system for the TMDL and may carry regulatory consequences if they are not achieved.

Based on the Chesapeake Bay Phase 5.3 Model, Virginia's estimates of needed agricultural BMPs are expected to enable the Commonwealth to fulfill needed nutrient and sediment reductions from agricultural lands. Using the total mix of BMPs included in Watershed Implementation Plan that must be implemented during the period FY13 through FY18, the projected funding needs are calculated through an increasing progression of practices that could be implemented each year. Progress to achieve these end points will be measured and assessed incrementally through two year milestones that begin with the 2013 milestone. By 2017, Virginia must complete 60% of the overall implementation plan required to meet the final TMDL by 2025. Appendix G contains a table of agricultural BMPs provided in the WIP that represents coverage of BMPs in 2009 (known as "current progress" just prior to the TMDL) as well as coverage targets for 2017 and 2025.

It is important to note that the projections are based on the needed mix of BMPs to achieve the WIP goals by prorating the progress needed for each individual BMP. It is difficult to predict the actual progression of BMP sign-up and installation that will occur by farmers, since some practices will likely prove to be more popular than others. Also, if equal progress is not made for both long-term/structural practices and short-term/annual practices, total costs will vary. It is particularly important that adequate progress is made for long-term BMPs, since these BMPs continue to maintain pollutant reductions over a long period of time, whereas annual or term practices must be recurring over time. The funding projections do not have any margin of error applied to account for potential problems such as wide variations in weather or failure for farmers to follow through on practice installation following contract development. Consequently, it will be important to recalculate and re-project these funding needs each year.

The Table 2-3 summarizes projected funding needs for the various BMPs contained in Virginia's Chesapeake Bay Watershed Implementation Plan.

Table 2-3 Chesapeake Bay TMDL Practices*

BMP	Units	FY13	FY14	FY15	FY16	FY17	FY18
Structural / Long-term Practices							
Animal Waste Systems	Systems	$1,054,262	$3,235,045	$3,236,987	$4,045,942	$4,045,554	$11,875,773
Barnyard Runoff Cont	Systems	$8,562,671	$6,816,464	$6,820,556	$8,525,081	$8,524,263	$11,662,818
Nursery Runoff & Reuse**	Acres	$0	$0	$0	$0	$0	$1,521,000
Forest Buffers	Acres	$1,410,135	$2,641,834	$2,643,420	$3,304,037	$3,303,719	$2,564,315
Grass Buffers	Acres	$117,750	$1,068,851	$1,197,473	$1,496,733	$1,496,590	$1,525,501
Tree Planting	Acres	$4,152,951	$3,654,008	$3,656,202	$4,569,923	$4,569,484	$0
Mortality Composters	Systems	$3,675,586	$2,507,860	$2,509,366	$3,136,481	$3,136,180	$0
Non-Urban Stream Restoration	Linear Ft	$7,667,000	$5,109,289	$5,112,355	$6,389,984	$6,389,371	$6,250,000
Prescribed Grazing	Acres	$28,595	$51,830	$101,675	$127,084	$127,072	$102,751
Water Control Structure**	Acres	$0	$0	$0	$0	$0	$12,500
Wetland Restore	Acres	$337,619	$415,580	$415,829	$519,749	$519,699	$174,000
Pasture Fence	Linear Ft	$1,300,659	$2,313,499	$5,544,449	$6,930,062	$6,929,397	$9,582,056
Annual or Term Practices							
Cover Crop	Acres	$3,425,057	$3,945,728	$4,466,712	$5,117,896	$5,769,017	$6,129,562
Commodity Cover Crop	Acres	$722,216	$838,219	$954,292	$1,099,372	$1,244,438	$1,322,224
Continuous No-till	Acres	$2,674,906	$4,674,958	$5,153,827	$6,228,487	$6,825,310	$4,833,280
Nutrient Management	Acres	$1,660,319	$1,808,393	$1,956,557	$2,141,748	$2,326,921	$2,359,238
Precision Ag	Acres	$187,500	$312,450	$437,475	$593,745	$750,000	$1,140,585
Manure transport	Tons	$50,000	$50,000	$50,000	$50,000	$50,000	$137,500
Subtotal of Practices in WIP		$37,027,227	$39,444,009	$44,257,174	$54,276,325	$56,007,016	$61,193,103
7.5% additional practices supportive of WIP practices and other misc. practices not in WIP		$2,777,042	$2,958,301	$3,319,288	$4,070,724	$4,200,526	$4,589,483
Total		$39,804,269	$42,402,310	$47,576,462	$58,347,050	$60,207,542	$65,782,586

*** Projected costs exclude farmers' cost, tax credits and NRCF technical assistance payments.**
**** Two BMPs (Nursery Runoff & Reuse and Water Control Structures) are not used in the WIP until after 2017 since they are new BMPs, so cost projections prior to 2018 are zeros for these practices.**

Southern Rivers Watersheds

Funds placed within the NRCF must be divided with 55% supporting BMPs in the Chesapeake Bay and 37% for BMPs in the Southern Rivers; thus the funding needs levels for the Southern Rivers was driven by the cost of the Chesapeake Bay needs assessments. Funding projections are first targeted to implement small TMDL Implementations Plans to clean up impaired stream segments with the balance of Southern Rivers funds to be used for agricultural cost-share projects across all agricultural lands within the Southern Rivers.

In the Southern Rivers watersheds, the focus of projecting agricultural BMP funding needs is based upon the implementation of TMDLs on smaller scale water bodies which fail to meet the state's water quality standards. The impaired waters generally demonstrate bacterial and benthic impairments that are most frequently attributed to pollutants from agricultural sources.

Cost-share funding to implement targeted small TMDL Implementations Plans to clean up impaired stream segments is summarized and projected as in Table 2-4.

Table 2-4 Proposed Funding for Targeted TMDL Watersheds in Southern Rivers*

Impaired Streams	Plan Completed	$Million					
		FY13	FY14	FY15	FY16	FY17	FY18
New River Tributaries	2011	-	-	$ 2.00	$ 2.00	$ 2.00	$ 2.00
Little River	2011	-	-	$ 2.38	$ 2.38	$ 2.38	$ 2.38
N.F. Holston River	2011	$ 3.65	$ 3.65	$ 3.65	$ 3.65	$ 3.65	$ 3.65
Clinch River - Upstream	2011	$1.33	$ 1.33	$ 1.33	$ 1.33	$ 1.33	$ 1.33
Clinch River - Downstream	2011	$ 1.10	$ 1.10	$ 1.10	$ 1.10	$ 1.10	$ 1.10
Indian Creek, Little River, Clinch and Tributaries	2011	-	-	$ 2.33	$ 2.33	$ 2.33	$ 2.33
Upper Banister River	2011	$ 1.43	$ 1.43	$ 1.43	$ 1.43	$ 1.43	$ 1.43
Lower Banister River	2012	-	$ 1.00	$ 1.00	$ 1.00	$ 1.00	$ 1.00
Stroubles Creek	2006	$ 0.27	-	-	-	-	-
Falling River	2009	$ 0.25	$ 0.25	$ 0.25	$ 0.25	-	-
Pigg River - Franklin	2010	$ 0.50	$ 0.50	$ 0.50	$ 0.50	-	-
Pigg River - Pittsylvania	2010	$ 0.75	$ 0.75	$ 0.75	$ 0.75	-	-
Laurel Creek & Tributaries	2012	-	$ 3.92	$ 3.92	$ 3.92	$ 3.92	$ 3.92
Upper Roanoke Watershed	2012	-	-	-	$ 3.28	$ 6.55	$ 6.55
Back Creek	2008	$ 0.67	$ 0.67	$ 0.67	$ 0.67	$ 0.67	$ 0.67
Lewis Creek	2010	$ 0.16	$ 0.16	$ 0.16	$ 0.16	$ 0.16	-
Guest River	2005	$ 1.03	$ 1.03	$ 1.03	$ 1.03	$ 1.03	$ 1.03
Totals Per Fiscal Year		**$ 11.14**	**$ 15.79**	**$ 22.50**	**$ 25.78**	**$ 27.55**	**$ 27.39**
***Projected costs exclude farmers' cost, tax credits and NRCF technical assistance payments.**							

The funding for small TMDL watershed needs was based on actual and projected costs to implement agricultural BMPs as required by TMDL implementation plans as developed by DCR or DEQ. Implementation plans in the Southern Rivers for shellfish impairments on the Atlantic side of the Eastern Shore and watersheds with significant resource extraction in southwest Virginia were not included in the funding needs assessment. Generally, these areas have minimal agricultural sources contributing to the water quality impairments.

Table 2-5 below summarizes the funding needs per fiscal year for targeted TMDL implementation in the Southern Rivers and with the remaining portion of the NRCF allocation being used for widespread agricultural cost-share practices throughout the Southern Rivers.

Table 2-5
Southern Rivers AG BMP Cost-Share Funding:
Projected Needs (in millions)*

	FY13	FY14	FY15	FY16	FY17	FY18
Targeted TMDL Funds	**$11.1**	**$15.8**	**$22.5**	**$25.8**	**$27.6**	**$27.6**
Southern Rivers Ag BMP C-S Funds	**$15.7**	**$12.8**	**$9.5**	**$13.5**	**$13.0**	**$16.7**
Total	**$26.8**	**$28.5**	**$32.0**	**$39.3**	**$40.5**	**$44.3**
***Projected costs exclude farmers' cost, tax credits and NRCF technical assistance payments.**						

Farmer Financial Investments in Cost-Share Program BMPs

All BMPs offered through the state's cost-share program provide water quality benefits. Once a practice is implemented according to the required specifications, the farmer receives reimbursement for up to 75% of the eligible costs of the practice, or for some BMPs a flat rate incentive payment is issued. In the case of practices eligible for up to 75% cost reimbursement, program "caps" on maximum total payment dollars are sometimes exceeded from high cost BMPs, making the farmer's share greater than 25%. Some other practices are "flat rate" practices whereby payments generally enable the farmer to recoup most of the out of pocket cost for the practice.

Given these arrangements, farmers bear a portion of the cost for implementation of all agricultural BMPs. Based on analysis of statewide data from program years 1998 – 2011, the farmer financial share of installing agricultural BMPs has averaged 23.16% of total practice cost after accounting for tax credits on eligible practices. BMP costs eligible for state tax credits over the same period averaged 3.98% of total practice cost. If these averages are applied going forward the farmers share is projected to be FY13 - $21.2 M, FY14 - $22.5 M, FY15 - $25.3 M, FY16 - $31.0 M, FY17 - $32.0 M, and FY18 - $35.0 M. Likewise the state tax credit are projected to be FY13 - $3.6 M, FY14 - $3.9 M, FY15 - $4.6 M, FY16 - $5.3 M, FY17 - $5.6 M, and FY18 - $6.0 M.

Accounting for Federal Funds

For FY12, the Natural Resources Conservation Service has initially allocated $11.8 million as Virginia's share of the special Chesapeake Bay appropriations authorized by the 2008 federal Farm Bill and designated as Chesapeake Bay Watershed Initiative (CBWI) funding. These funds are not expected to be available in FY13 and beyond unless inserted into the next farm bill. In addition there is expected to be ongoing funding of the federal Environmental Quality Incentive Program or "EQIP" program. These collective funds and their actual and projected BMPs are $9.1 million statewide for FY12. Because of the fluctuating and uncertainty of future federal funding to support incentive programs, accurate projections of federal cost-share dollars in future years cannot be made. DCR collects tracking information on non-state funding (mostly federal) used in concert with state cost-share. Therefore, the historical funding data presented in Figure 2-1 can be used to derive an equitable ratio of state to federal funding for those agricultural BMPs delivered through the state cost-share program. The use of the historical relationships in Figure 2-1 would suggest the amounts of relative state and federal funding contained in Table 2-6.

Table 2-6
Projected State and Federal Agricultural BMP Cost-Share Funding

	FY13	FY14	FY15	FY16	FY17	FY18
State BMP Cost-Share Funding Needs	**$66.6**	**$70.9**	**$79.8**	**$97.6**	**$100.7**	**$110.1**
Related Federal BMP Funding Needs	**$12.6**	**$13.4**	**$15.1**	**$18.5**	**$19.0**	**$20.8**
Total	**$79.2**	**$84.3**	**$94.9**	**$116.1**	**$119.7**	**$130.9**
***Projected costs exclude technical assistance, farmers' cost and tax credits.**						

In addition to these federal funds that have been used in combination with the Commonwealth's cost-share program, past federal EQIP and CBWI funding have been used to solely fund some practices. DCR does not have sufficient data to analyze the past federal cost-share funding that has not been associated with state cost-share. DCR will work to obtain historical aggregate data from USDA Natural Resources Conservation Service and Farm Service Agency in order to provide additional analysis in next year's edition of this report.

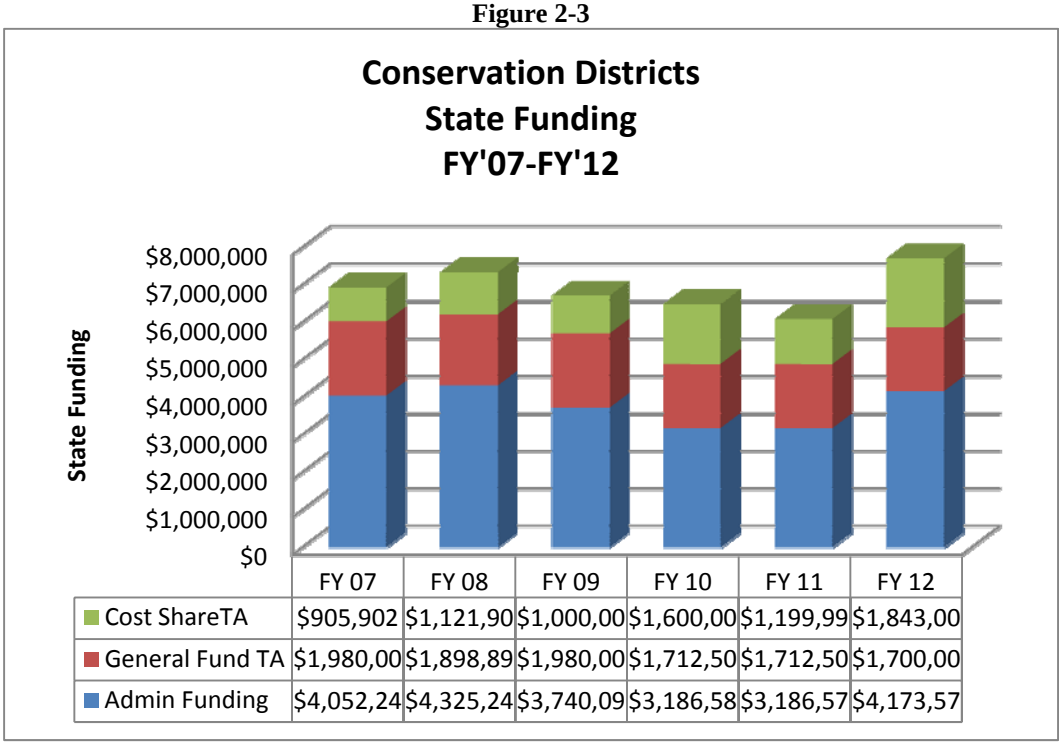
Funding Needs for SWCD Technical Assistance

A line item within the DCR budget provides operational support for all SWCDs. These administrative funds are allocated amongst the districts by DCR through a policy adopted and periodically revised by Virginia Soil and Water Conservation Board. The funds are provided as a basic foundation for each SWCD to pay for their most essential operating costs that enable the operation of an office, provide administrative support, and business expenses of the 333 elected and appointed directors that serve on 47 district boards. In addition to this administrative need, the SWCDs have a need to fund technical staff that performs cost-share program delivery to ensure successful field implementation. If there is not adequate technical assistance available to deliver the cost-share program, funding agricultural BMPs is of little value.

It takes an average of two years for a new SWCD technical staff person to obtain the expertise through appropriate conservation training courses and on-the-job training to effectively assist agricultural producers with BMP implementation. The eight percent (8%) of funding provided by NRCF is specifically directed to the technical staffing necessary to deliver the agricultural BMPs. These NRCF technical assistance funds are supplemented by a general fund appropriation to DCR.

Figure 2-3 depicts historical levels of state support to conservation districts. Three categories of financial support include: (1) administrative funding for administrative staff and operational funding, (2) general fund technical assistance, and (3) cost-share technical assistance that varies proportionally with the level of cost share funding received as stipulated in the Natural Resources Commitment Fund.

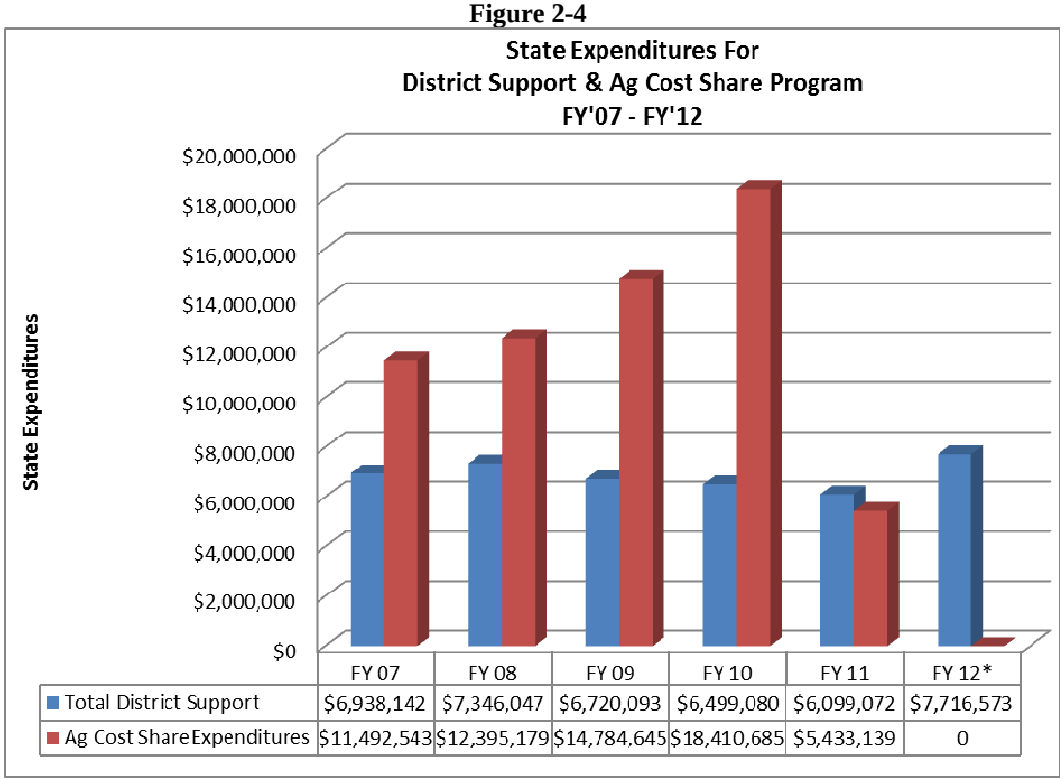
Figure 2-3



	FY 07	FY 08	FY 09	FY 10	FY 11	FY 12
Cost ShareTA	$905,902	$1,121,90	$1,000,00	$1,600,00	$1,199,99	$1,843,00
General Fund TA	$1,980,00	$1,898,89	$1,980,00	$1,712,50	$1,712,50	$1,700,00
Admin Funding	$4,052,24	$4,325,24	$3,740,09	$3,186,58	$3,186,57	$4,173,57

Figure 2-4 compares historical total district financial support (the sum of the costs presented in Figure 2-3) with actual agricultural cost share expenditures to date. While delivery of the state cost-share program is a primary mission for soil and water conservation districts, other activities include: promoting conservation through means such as offering conservation equipment rentals to farmers, delivery of educational initiatives targeted at youth and adult groups to further awareness and understanding of water quality issues and solutions, promotion of other incentive programs such as federal programs, and assistance to localities.

Figure 2-4



	FY 07	FY 08	FY 09	FY 10	FY 11	FY 12*
Total District Support	$6,938,142	$7,346,047	$6,720,093	$6,499,080	$6,099,072	$7,716,573
Ag Cost Share Expenditures	$11,492,543	$12,395,179	$14,784,645	$18,410,685	$5,433,139	0

* Year-end FY12 actual expenditures are not available until July 2013.

For the purposes of this needs report, projections associated with delivery of technical assistance by SWCDs continue to be based upon the 8% allowed through the NRCF: FY13 - $5.8 M, FY14 - $6.2 M, FY15 - $6.9 M, FY16 - $8.5 M, FY17 - $8.6 M, and FY18 - $9.6 M.

Other initiatives currently under development will impact SWCD technical assistance needs into the future but cannot be accurately projected at this time. The recent enactment in 2011 to create §10.1-104.7 of the Code of Virginia requires the Department of Conservation and Recreation to promulgate regulations specifying criteria for Resource Management Plans (RMPs). These regulations are currently under development. Since the content of the final regulations is unknown at this time, the department expects to be in a better position to evaluate workload requirements of RMPs in next year's version of this report. In addition, §2.2-220.3 requires the Secretary of Natural Resources to develop a database of voluntary actions taken by the agricultural and silvicultural sectors that contribute progress toward achieving water quality goals. A pilot project involving six SWCDs has been initiated to test the implementation of such a database. The pilot project is scheduled for completion in June, 2012. The pilot will provide data and information that should enable projection of statewide technical assistance needs in next year's report.

Conclusions

The projected funding needs identified would be expected to fully implement the Chesapeake Bay Watershed Implementation Plan and provide substantial funding for Southern Rivers to implement local TMDL projects and a broad cost-share and technical assistance program.

It is very important to note that the funding needs projections in this report represent the theoretical combined state and federal funding necessary to implement agricultural BMPs, assuming farmer demand for BMPs is very strong and SWCDs have the capacity to assist farmers in implementing BMPs. It is not possible at this time to predict the degree of farmer demand or SWCD capacity constraints that would result from funding the program at the levels suggested. The funding level suggested in this report is roughly three times the level of the maximum combined state and federal funding available in any single previous year to date, making it difficult to predict whether farmers would actually be willing to sign-up and install this very high level of BMPs. Until the demand is tested at significantly higher levels of available funding, no data exists to analyze the demand curve for BMPs or the capacity to implement at a greater level of funding supply. A rational course of action by the Commonwealth could be to test farmer demand for BMP funds by appropriating more funding than historically has been provided, but initially not to the magnitude identified as the theoretical maximum needed. If farmers utilize all the funding, upward adjustments to funding projections could be made in future years.

Any voluntary reporting of BMPs by producers that have not received cost-share will reduce the funding needs identified in this report and needs to be carefully evaluated in the future.

Given the federal mandate of the Chesapeake Bay TMDL and President Obama's related Executive Order on restoration of the Chesapeake, it is reasonable to expect the federal government to contribute to the very significant funding required to implement agricultural best management practices at high levels on a widespread basis. The burden should not rest solely with the Commonwealth. However, this report does not attempt to establish an equitable means for determining relative shares of state and federal funding needs for agricultural BMPs.

DCR is allocating a total of $24.0 million in FY13 and $16.7 million in FY14 of WQIF for agricultural BMPs and technical assistance to further test farmer demand for cost-shared BMPs. The FY14 amount presumes full utilization of WQIF balances, estimated revenues from dedicated recordation fees including advance obligation of the FY15 recordation fees, and utilization of $4.5 million from the WQIF reserve for FY14. A budget request may be needed in FY14 to supplement the existing and expected funds.

Chapter 3

Chesapeake Bay and Virginia Waters Clean-up Plan Report

This chapter is submitted to fulfill the progress reporting requirements of § 62.1-44.117 and 62.1-44.118 of the Code of Virginia which calls on the Secretary of Natural Resources to plan for the cleanup of the Chesapeake Bay and Virginia's waters designated as impaired by the U.S. Environmental Protection Agency (EPA). This chapter also includes information necessary to report annually to EPA relative to the Commonwealth's §319 Nonpoint Source Pollution implementation grant. This progress report is organized to report the status of implementation of goals and objectives contained within the Chesapeake Bay and Virginia Waters Clean-up Plan. As such, it contains the detailed goals and objectives within each subsection, but in the interest of readability and conciseness, it does not repeat the detailed strategies and background information that can be found in the original Chesapeake Bay and Virginia Waters Clean-up Plan.

Wastewater

GOAL: Wastewater dischargers of nutrient pollution into the Chesapeake Bay watershed

- Objective: By January 1, 2011, upgrade sufficient wastewater treatment facilities to meet the Commonwealth's nutrient reduction goal for point sources

2011 Progress Report:
Under the Chesapeake Bay Watershed General Permit, the compliance period for the point source nitrogen and phosphorus waste load allocations in the Bay watershed began January 1, 2011.

The table in Appendix F shows estimated nutrient reductions resulting from the 57 projects with signed WQIF grant agreements. Five of those listed with "NA" values are non-significant dischargers that must maintain their "permitted design capacity," rather than achieve reductions from existing loads. It illustrates the nutrient load each facility delivered to the Bay and tidal rivers in 2009, compared to the maximum nutrient load they are allowed to deliver under current regulations, and the amount they are projected to deliver in 2011.

By 2011, these projects will reduce the nutrient load delivered to the Bay and tidal rivers by approximately 2.7 million pounds of nitrogen and 126,000 pounds of phosphorus compared to the 2009 loads. As part of the Chesapeake Bay TMDL process, Virginia is now reissuing the Chesapeake Bay Watershed general permit which proposes further nutrient reductions for significant dischargers in the York basin (phosphorus) and James basin (nitrogen and phosphorus) according to the schedule contained in Appendix X of the Chesapeake Bay TMDL. See Appendix F for a detail breakdown of nutrient reductions.

GOAL: Discharges of toxic substances

- Performance Measurement: Report semi-annually on TMDL clean-up plan development and implementation or waters impacted by toxic contamination.
    - Polychlorinated Biphenyl (PCB) TMDLs

2011 Progress Report:
Bluestone: West Virginia plans to join Virginia in the development of an interstate PCB TMDL for the Bluestone River. The Virginia portion of the watershed has impairments for PCBs in fish and water. High PCB concentrations in the water column found during Virginia's TMDL data acquisition phase triggered an EPA concern and a cleanup effort. A former Super Fund site, Lin Electric facility located one mile upstream in West Virginia, was targeted for additional remediation. This effort resulted in the discovery of 38 barrels, some containing hazardous materials, 3 transformers, contaminated groundwater, and extremely high levels of PCBs in sediment/sludge. The EPA Super Fund effort is conducting additional PCB monitoring in both states.

Elizabeth/Tidal James River: PCB source investigation work is on-going in these waterbodies. As part of TMDL development, PCB point source monitoring was requested from those VPDES permits identified as possible contributors to fish impairments. Efforts are also underway to more accurately control regulated storm water inputs. The TMDL is scheduled to be completed in 2013.

Roanoke (Staunton): This TMDL was completed in early 2010. The Roanoke TMDL monitoring identified two significant PCB sources. TMDL implementation has been initiated and includes monitoring requirements for an extensive list of VPDES permits. Pollutant Minimization Plans have been submitted to DEQ from the known active point sources and will be required for newly identified facilities that discharge elevated levels of PCBs.

Levisa Fork: This TMDL was completed in April 2010. Since TMDL monitoring has not revealed a viable source(s) of the contaminant, this particular TMDL was submitted to EPA as a phased TMDL. As a phased TMDL, a monitoring plan to

collect additional data and a commitment date to reopen the TMDL was included.

New River: PCB source identification has been initiated. Ambient river water PCB monitoring has been completed while monitoring requirements for VPDES permits is on-going. The TMDL is targeted for completion in 2014.

- Mercury TMDLs

North Fork Holston River: This TMDL was completed in 2011. A fish consumption advisory for mercury extends approximately 81 miles from Saltville, Virginia to the Tennessee state line. While most of the river mercury originated from the Olin plant site, this contaminant has been distributed throughout the floodplain downstream. The TMDL identified that most of the current mercury loadings come from the watershed and floodplain with lesser amounts from the former plant site. In order to meet the TMDL loadings, mercury reductions will be needed from all contributors.

South and Shenandoah River: This TMDL that was completed in 2010. The South River has a fish consumption advisory that extends about 150 miles from Waynesboro to the confluence of the Shenandoah and Craig Run. The primary source of mercury deposited in the floodplain occurred during the 21 years of DuPont facility operations. Atmospheric deposition was not identified as a significant mercury source. Fish tissue from a reference site above a dam in Waynesboro show safe mercury levels while fish tissue below the dam contain elevated amounts of mercury. Unfortunately, mercury levels in fish tissue from this portion of the River have not shown a decline since the use of mercury was eliminated by DuPont in 1958.

GOAL: Discharges from boats

- Performance Measurement: Report semi-annually on outreach efforts and No Discharge Zone designations being pursued.

2011 Progress Report:
DEQ is currently focusing on tidal creeks fringing Virginia's Northern Neck (the peninsula of land separating the tidal Potomac and Rappahannock Rivers). This area was selected based on need (22 bacteria TMDLs, covering over 90 individual shellfish impairments, completed since 2000), locally high density of recreational boat traffic, and stakeholder support expressed at TMDL public meetings. Working in collaboration with the Northern Neck Planning District Commission, DEQ completed boat-based shore reconnaissance and boat traffic estimates for the area's shoreline in fall 2010. The four applications scheduled in this project have been drafted, presented to stakeholders during four public meetings, and advertised using a public notice and public comment process. The bodies of water affected by these applications are listed in the table below. DEQ

anticipates submitting the first applications to EPA by fall of 2011, with the project scheduled to be complete by spring of 2012.

An NDZ application for Rudee Inlet and Owl Creek in Virginia Beach continues to be under development by the stewardship group, Lynnhaven River Now. The Middle Peninsula Planning District Commission, which represents the peninsula of land separating the Rappahannock and York Rivers, and the Go Green Committee of the Gloucester County Board of Supervisors have each requested a list of impaired streams for potential NDZ designation in their respective geographic ranges. DEQ is currently developing that list.

Table 3-1
Draft applications for Federal No Discharge Zone Designations

Bodies of Water	Affected Location
Farnham Creek, Lancaster/Morattico Creek	Richmond County
Mulberry, Deep, Greenvale, Paynes, Beach, Whitehouse, Town, Myer, Moran, Taylor, Carter, Mosquito, Oyster, Windmill Point Resort Boat Basin, Antipoison, Davenport, Tabbs, Dymer, and Indian Creeks, and East and West Branches of the Corrotoman River	Lancaster County
Jarvis Creek, Prentice Creek, Dividing Creek, Cloverdale Creek, Great Wicomico River, Little Wicomico River and Ingram Bay, Cod Creek, Coan River and the Glebe, Judith Sound, Yeocomico River	Northumberland County
Bonum Creek, Jackson Creek, Gardner Creek, Ragged Point, Branson Cove, Lower Machodoc Creek, Glebe Creek, Cabin Point Creek, Nomini Creek, Poor Jack Creek, Currioman Creek, Cold Harbor Creek, Mattox Creek, Monroe Bay, and Rosier Creek	Westmoreland County

Table 3-2
Approved Federal No Discharge Zone Designations

Bodies of Water Affected	Location
Broad and Jackson Creeks and Fishing Bay	Middlesex County
Lynnhaven Bay	Virginia Beach
Smith Mountain Lake	Bedford, Roanoke

GOAL: Failing On-site septic systems and illegal straight pipe (untreated) discharges

- Objective: Encourage nitrogen-reducing treatment units in the repair of failing on-site sewage systems and in new systems. Continue to identify and replace straight pipe discharges with approved on-site sewage systems.

- Performance Measurement: Report semi-annually on the number of failing systems or straight pipes that have been repaired.

2011 Progress Report:
Virginia Department of Health

The VDH database, the Virginia Environmental Information Systems (VENIS), is the main record keeping tool for all VDH environmental health programs. The database includes records of on-site sewage disposal system repair permits. For the fiscal year beginning July 1, 2010, through June 30, 2011, a total of 2,160 repair permits were issued statewide. Repair permits are issued for basic items such as replacing septic tanks and distribution boxes, but also include complete system replacement such as installing wastewater treatment systems and pressure dosed drip irrigation fields. Currently, the VDH database does not track the different types of repairs nor does it recognize any nitrogen reducing technologies; so VDH does not have the ability to report this information. An effort is underway to modify the database so that Virginia can begin reporting BMPs for on-site systems that are recognized by the Chesapeake Bay Model. That effort is expected to be completed in 2012.

Virginia Department of Conservation and Recreation – 319/Bay Implementation Grants

DCR continues to work with organizations and localities across Virginia to fund projects that correct failing septic systems or straight-pipes. A majority of these projects are part of larger watershed restoration and implementation efforts in TMDL Implementation areas. Other projects were initiated through various "requests for proposals". During fiscal year 2011, DCR provided funding to pump-out septic systems, repair or replace failing septic systems or removing straight pipes from at least 224 homes through $198,613 of funds from Federal Section 319(h) and the Water Quality Improvement Fund (WQIF) NPS Request for Proposals.

Table 3-3
Residential Septic Program - Grant Funded BMPs
7/1/2010-6/30/2011

Name of BMP	BMP Practice Code	Number of BMPs	Pounds of Nitrogen Reduced	CFU of Bacteria Reduced	Total Amount of Cost-share Provided
Septic Tank Pump-out	RB-1	140	392.15	6.97E+02	$18,456
Connection to Public Sewer	RB-2	1	30.81	4.98E+10	$3,000
Septic Tank Repair	RB-3	51	1,178.57	1.90E+12	$48,448
Septic Tank Replacement/Installation	RB-4	24	554.62	8.95E+11	$75,894
Septic Tank Replacement/Installation w/ pump	RB-4P	7	161.76	2.61E+11	$42,815
Alternative Septic System	RB-5	1	23.11	3.73E+10	$10,000
Total Installed		**224**	**2,341.02**	**3.15E+12**	**$198,613**

Agriculture and Forestry

GOAL: Widespread adoption of cost-effective agricultural best management practices ("Priority Practices")

- Objective: Implement to the maximum extent practicable, the five priority agricultural best management practices (BMPs) and other effective BMPs to significantly advance the Commonwealth's nutrient and sediment pollution reduction goals by 2025 and beyond.

- Performance Measurement: Pounds of nitrogen and phosphorus reduced through the implementation of priority practices
    - Estimated Nutrient Reductions for Priority Practice Implementation, cumulative through June 30, 2011

2011 Progress Report:
Estimated Nutrient Reductions for Priority Practice Implementation, cumulative through June 30, 2011.

Table 3-4

Practice	Level of Implementation	Total Nitrogen Pounds Reduced	Total Phosphorus Pounds Reduced
Nutrient Management	669,722 acres	282,060	34,420
Cover Crops	89,296 acres	571,494	0
Livestock Exclusion	11,403,506 linear ft.	282,607	53,757
Stream Buffers	27,183 acres	68,537	6,484
Continuous No-Till	78,905 acres	33,440	11,870

GOAL: Implement nutrient management on lands receiving poultry litter

- Objective: Revise the current poultry litter management program to assure that all land application of poultry litter will be in accordance with prescribed nutrient management planning practices.

- Performance Measurement: Number of acres of nutrient management plans written and implemented and tons of litter and nutrients transferred.

2011 Progress Report:
Efforts continue to be pursued relative to this objective. The Department of Conservation and Recreation (DCR) and the Virginia Poultry Federation (VPF) have a cooperative effort to cost-share the transport of poultry litter from areas of concentrated poultry production in the Shenandoah Valley to areas where soil analyses indicate that crops need additional phosphorus outside of the Chesapeake Bay watershed. The Commonwealth and the VPF each contribute equally in transport cost-share funding. The program pays $15 per ton of poultry litter transferred from either Page or Rockingham counties. Nutrient management plans submitted with applications for this program are reviewed by DCR staff, and all litter that has been transferred under this program has been applied in accordance with these plans. The goal is to transport 5,000 tons annually. In the first nine months of 2011, almost 2000 tons of transported poultry litter were approved for payment utilizing the program. More tonnage has been applied for and is pending approval.

GOAL: Significantly reduce the phosphorus content of poultry, swine, and dairy manures through aggressive diet and feed management

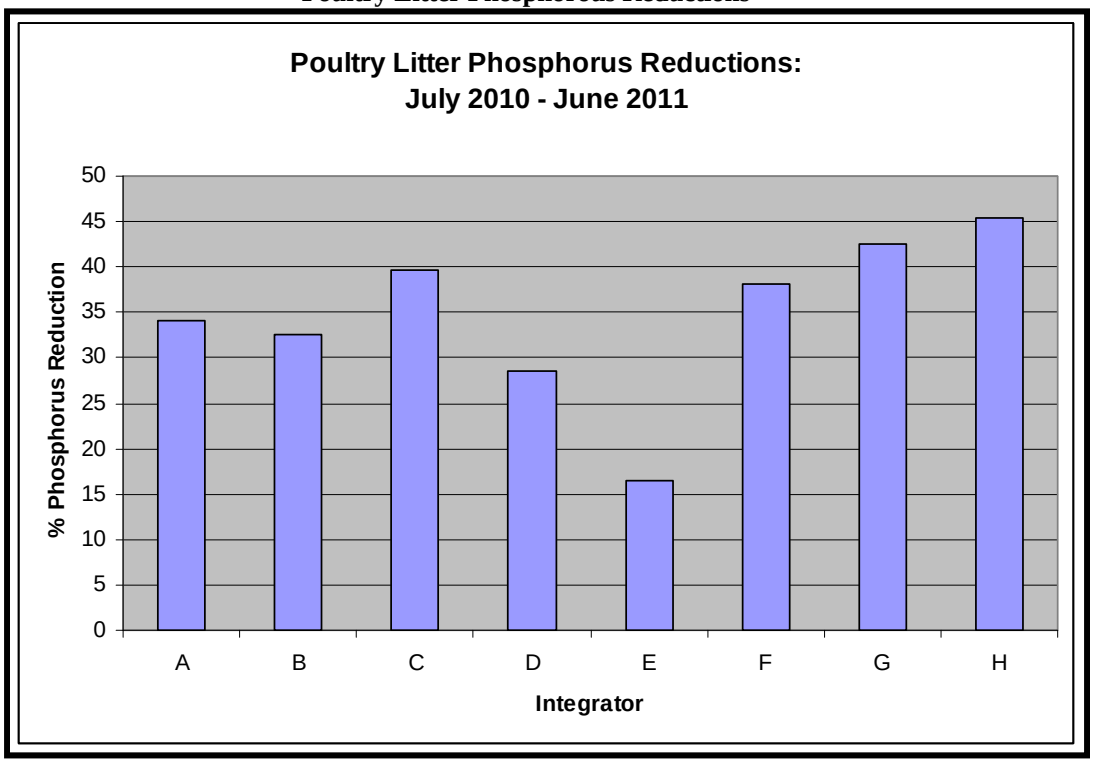
- Objective: Reduce the phosphorus content in poultry litter by 30% and swine manure by 35% through wide-spread adoption of feed supplements throughout Virginia's poultry and swine industries and achieve a 10% phosphorous content reduction in dairy manure through improved diet and feed management.

- Performance Measurement:
    - Percentage reduction in phosphorus content of sampled poultry litter and swine manure

2011 Progress Report:
Memorandums of Agreement were signed with six poultry integrators in November, 2007. These signings established a goal of achieving a 30% reduction level in phosphorus excreted in broiler and turkey litter for each integrator (as compared to baseline data) by December 31, 2010. Monitoring of each poultry integrator's phosphorus reduction began on July 1, 2008, and continued annually throughout the Memorandums' three year life span. Reductions were calculated using baseline poultry litter analyses conducted in years before the use of the phytase enzyme in poultry feed was implemented. Differing clean-out practices were also figured into the calculations. DCR staff met with each integrator individually to inform them of the results of the monitoring and discuss with them any needed adjustments for them to achieve full compliance with the 30% reduction goal. The July 1, 2011, monitoring results are shown in the figure below. Each bar represents a separate integrator or complex of an integrator.

Letter codes are used to denote integrators to protect their anonymity. Although some integrators and/or complexes have not met their individual goals, the poultry industry as a whole has met the 30% phosphorus reduction goal overall for 2010-2011 with a composite average reduction of 34.67%.

Figure 3-1
Poultry Litter Phosphorous Reductions



DCR is investigating working with the primary swine integrator in Virginia, Murphy Brown, LLC, to evaluate phosphorus reduction levels achieved to date in swine feed and manure. Efforts to establish a Memorandum of Agreement with Murphy Brown and other swine integrators in Virginia to reduce phosphorus levels further will be pursued if a 35% reduction goal has not already been reached.

- Percentage of dairy animals in the Chesapeake Bay in dairy operations utilizing diet and feed modification technology

2011 Progress Report:
The Department of Conservation and Recreation funded a Dairy Precision Phosphorus Feeding program to help reduce phosphorus in dairy feed. DCR contributed $400,000 of Water Quality Improvement Fund (WQIF) funds to create this pilot incentive program for dairy producers. An additional $880,000 in federal grant funds was leveraged through the use of these state funds. Farmers

who met performance targets for phosphorus in their rations were eligible to receive incentive payments. Producers who participate in the program also received free feed and manure analyses.

The program had 163 herds complete sufficient sampling to generate an annual summary of phosphorus feeding levels. There was a reduction of phosphorus fed and thus excreted of 2.65 lbs. per cow per year or 32.6 total tons per year in the 24,522 cows in these herds. A 19% reduction in excess phosphorus fed was achieved in these herds. In addition, approximately $126,804 was approved for incentive payments to Virginia dairy farms, and $166,804 was used for 7,047 lab analyses in support of better feeding management to reduce environmental pollution potential from dairy farms.

A newsletter was prepared for all farm participants summarizing results from the project. In addition, results were shared via newsletters and magazine articles. Programs were conducted highlighting impacts of the project.

Developed and Developing Lands

GOAL: Implementation and compliance of erosion and sediment control programs state wide

- Objective: By the end of 2010, 90% of the 164 local erosion and sediment programs will be consistent with the requirements of the Virginia Erosion and Sediment Control Law.

- Performance Measurement: Number of local program reviews completed annually and percentage of programs reviewed in compliance with state standards.

2011 Progress Report:
At the end of FY10, 150 of 164 programs (91.5%) had been found consistent with the Virginia Erosion and Sediment Control Law and Regulations. All of the programs were reviewed over the preceding 5 years. Programs that were found to be inconsistent at the time of the review were provided continuing assistance by the Board and the Regional Offices until the programs were found to be consistent.

From July 2010 through June 2011, the local ESC program review process was under revision. Therefore, no program reviews were performed during the July 1, 2010 – June 30, 2011 period. On a normal year, 33 to 35 program reviews are performed so that all programs are reviewed at least once in every 5 years.

GOAL: Implement revised stormwater management program

- Objective: Complete the revision of Virginia's stormwater management regulations and implement the regulations statewide with maximum local government adoption.

- Performance Measurement: Upon completion of the regulatory revision process, progress will be tracked semi-annually through future revisions to the Clean-Up plan as follows:
    - Number of localities with a Board approved stormwater program
    - Number of stormwater programs operated by DCR
    - Number of construction sites that require the stormwater general permit that have obtained permit coverage
    - Number of DCR and locality inspections of permitted sites

2011 Progress Report:
Revised stormwater management regulations were approved and are effective on September 13, 2011 with implementation to occur effective July 1, 2014. Not all localities are required to develop local programs, but those who wish to do so must notify DCR by early 2012. Until such time as local implementation occurs, all VSMP permitting is DCR's responsibility.

Therefore, there are presently no localities with Board approved stormwater programs. All programs were operated by DCR for the present reporting period. DCR issued 2,029 VSMP permits during the reporting period, including 205 VDOT permits and 1,824 non-VDOT permits.

GOAL: Incorporate specific water quality protection measures into local land development codes, ordinances, and processes.

- Objective: Conduct Tidewater locality code and ordinance review by DCR staff by December 2010. Review will determine the extent to which the Tidewater localities are implementing measures to protect water quality, particularly requirements to reduce impervious cover, minimize land disturbance and maintain indigenous vegetation.

- Performance Measurement: Number of local governments compliant with BMP maintenance, septic pump-out, and Phase III requirements.

2011 Progress Report:
As of September 30, 2011, reviews have been completed for 59 of the 84 Bay Act localities, with an estimated completion date for the remainder of spring of 2012.

Compliance with the Phase III requirements: Compliance for all Bay Act localities has not yet been determined at this point, but will be part of the current round of Bay Act compliance evaluations which was initiated in the spring of 2011. As of September, 2011, 8 of the 84 local programs were reviewed for compliance. This round of compliance evaluations will proceed through 2016, at which point, all will have been reviewed for the Phase III code and ordinance provisions, as well as 28 other regulatory provisions of the Bay Act regulations.

Phase III of local government implementation of the Chesapeake Bay Preservation Act Regulations (Regulations) requires the 84 Tidewater local governments to review local land development ordinances, and revise them if necessary, in order to ensure these ordinances adequately manage the protection of the quality of state waters. An important element of Phase III is the requirement for local ordinances to have specific standards to ensure that development in Chesapeake Bay Preservation Areas minimizes land disturbance, preserves indigenous vegetation, and minimizes impervious cover, as well as six specific requirements for approved plats and development plans. Phase III also involves the identification and resolution of obstacles and conflicts to achieving the water quality goals of the Chesapeake Bay Preservation Act within local programs and ordinances. Although DCR cannot yet quantify the level of accomplishment achieved by the local code changes, progress has been made in this area.

On June 15, 2009, the Chesapeake Bay Local Assistance Board approved a Phase III review approach that will assess the extent to which Bay Act localities are in compliance with these requirements. To assist local governments in reviewing local ordinances, the Board has developed two checklists. The Plan and Plat Consistency Review Checklist will determine if a locality has developed/reviewed the six plan and plat provisions that must be contained in local ordinances, as they are specifically required by the Regulations. The Checklist for Advisory Review of Local Ordinances is being used to determine if there are adequate provisions to include the three performance criteria and contains numerous examples of requirements that may be contained within a locality's land development ordinances. From September of 2009 through March of 2012, DCR staff will be working with local government staff to evaluate local ordinances and processes to determine the extent to which specific provisions exist to enable the locality to implement the requirements of the regulations described above. Based on this review, localities may choose to modify ordinances and processes to address development standards that benefit water quality.

Resource Extraction

GOAL: Reduce water quality impacts associated with former resource extraction activities by proper site planning and best management practice implementation.

- Objective: Reduce erosion on abandoned or orphaned mined land. Include water quality goals in prioritization of areas for reclamation activities.

2011 Progress Report:
Orphaned lands are those areas disturbed by the mining of all minerals, except coal, which were not required by law to be reclaimed or have not been reclaimed. Funds for the reclamation of orphaned mines are obtained from interest monies earned from a state managed industry self-bonding program, but due to budget constraints this money was diverted to the general fund in 2010. Mine operators participating in the program make payments into the Mineral Reclamation Fund based on the acreage disturbed by their operations. The fund assures that active mines will be reclaimed and participation is mandatory under Virginia's Mineral Mining Law.

Since 1981, DMME has completed the reclamation of 638 acres of disturbed land at 123 abandoned mine sites in Virginia. The total value of contracts awarded for orphaned mineral mine reclamation is $3,647,626 through fiscal year 2011. There are approximately 4,000 abandoned mineral mine sites in Virginia and DMME has completed inventories on 2,565. The sites occur in all physiographic provinces and some sites were mined prior to the Revolutionary War. In fiscal year 2011, 101 sites were inventoried with the support of Section 319 Funds administered by the Department of Conservation and Recreation.

In fiscal year 2011, reclamation was completed on four Orphaned Land Sites. The total acreage reclaimed was 19.4 acres for orphaned land sites.

Local/State Coordination:

GOAL: Fully achieve local government compliance with septic maintenance and pump-out requirements and BMP monitoring and inspection requirements of the Chesapeake Bay Preservation Act

- Objective: Achieve 100% compliance by Tidewater localities with septic pump-out requirements of the Chesapeake Bay Preservation Act by 2010. – This objective has been achieved.

- Objective: Achieve 100% compliance by Tidewater localities with the urban best management practice (BMP) maintenance requirements of the Chesapeake Bay Preservation Act by 2010. – This objective has been achieved

- Objective: Establish voluntary septic tank pump-out maintenance programs in localities outside the Chesapeake Bay Preservation Act area, both within the Chesapeake Bay Watershed and Southern Rivers portion of the Commonwealth

- Performance Measurement:
    - Number of localities in compliance with local septic pump-out programs
    - Number of localities in compliance with BMP maintenance requirements
    - Number of systems pumped with estimated resulting nutrient reductions
    - Numbers of BMPs installed along with pollutants removed and acres treated

2011 Progress Report:
As of September 30, 2011, 100% of the 84 Tidewater localities were found by the Chesapeake Bay Local Assistant Board (CBLAB) to have met the septic tank pump-out requirements.

The Chesapeake Bay Preservation Area Designation and Management Regulations (Regulations) require all Bay Act localities to submit an annual report outlining the implementation of their Bay Act programs. According to the information received from local governments within the Bay Act area, roughly 220,658 onsite septic systems exist in locally designated Chesapeake Bay Preservation Areas. Based on Annual Report data for the 2010-2011 fiscal years, 48,859 septic pump out notices were sent to owners of onsite systems and 20,542

systems were pumped, inspected, or had a plastic filter installed. From the time when the Department began collecting data on pump outs (2008) through the present, the cumulative total of pump outs that have been conducted is 122,724, roughly half of the septic systems located within Chesapeake Bay Preservation Areas located in the Tidewater region of Virginia. This amount of pump outs equates to a total nitrogen reduction of 61,362 pounds (based on the Bay Model assigned reduction of 0.5 pounds of nitrogen per 1,000 gallons pumped).

As of September 2011, 100% of the Tidewater localities remain compliant with the BMP maintenance requirements or the Bay Act Regulations.

As part of the required annual report of Bay Act implementation, localities are also required to track the number of water quality BMPs that have been installed for the previous fiscal year, as well as the acres treated by those BMPs. For the 2010-11 fiscal year, 83 localities reported 1,291 new water quality BMPs were installed. A total of 3,179 acres were treated by these BMPs. The four year cumulative total for all water quality BMPs installed since 2008 is 3,457, treating 9,191 acres of land.

Chesapeake Bay and Southern Rivers Water Quality Strategic Efforts

GOAL: Chesapeake Bay Total Maximum Daily Load report and implementation plan development

- Objective: Work with EPA Chesapeake Bay Program and program partners to establish the Chesapeake Bay TMDL and State Watershed Implementation Plan.

2011 Progress Report:
Virginia's water quality agencies are in the midst of developing Virginia's Phase II Chesapeake Bay Watershed Implementation Plan (WIP). EPA has established a completion deadline of March 30, 2012. The Phase II WIP will build from the Phase I plan further dividing the TMDL allocations among smaller geographic areas in order to help local decision makers better understand their contribution to and responsibility for reducing pollutant loads. Numerous meetings have been conducted with Planning District Commissions and local governments to engage them in the process.

Concurrently, Virginia's water quality agencies are developing the first TMDL Milestones covering the period 2012-2013. The milestones are part of a two year planning cycle to further specify intended actions and strategies to achieve the

TMDL by 2025.

These efforts have been complicated by continuing concerns related to the adequacy of the Chesapeake Bay Watershed Model. State water quality agencies and the Secretary of Natural Resources are continuing efforts to work with EPA to resolve these modeling concerns.

As called for in the Phase I WIP, work is progressing on developing regulations for Resource Management Plans for agriculture, evaluating alternatives for expanding the Nutrient Credit Exchange, and studying the chlorophyll A water quality standard in the James River.

For additional information on the Chesapeake Bay TMDL and associated efforts please visit:

www.dcr.virginia.gov/vabaytmdl/index.shtml

www.deq.virginia.gov/vpdes/NutCrdExStudy.html

GOAL: Development of Total Maximum Daily Load reports, implementation plans, and implementation projects

- Objective: For each impaired water body a TMDL study must be conducted that identifies the maximum pollutant load allowable and the level to which each pollutant must be reduced to maintain water quality standards. The process includes: developing TMDL reports, developing TMDL implementation plans designed to reduce pollution in order to meet standards, implementation of pollution reduction strategies, and water quality monitoring.

- Performance Measurement:
    - Number of water bodies removed from the list of impaired waters.

2011 Progress Report:
TMDL Development
To meet the 1999 Consent Decree (CD) that resulted from a settlement by EPA with plaintiffs regarding enforcement of the TMDL provisions of the Clean Water Act, Virginia completed TMDLs covering approximately 225 shellfish and 375 non-shellfish CD impairments, and approximately 198 non-CD impairments. Virginia has received credit under the CD for an additional 145 delisted or re-categorized impairments.

Table 3-5

1999 - 2012 TMDL Development Status

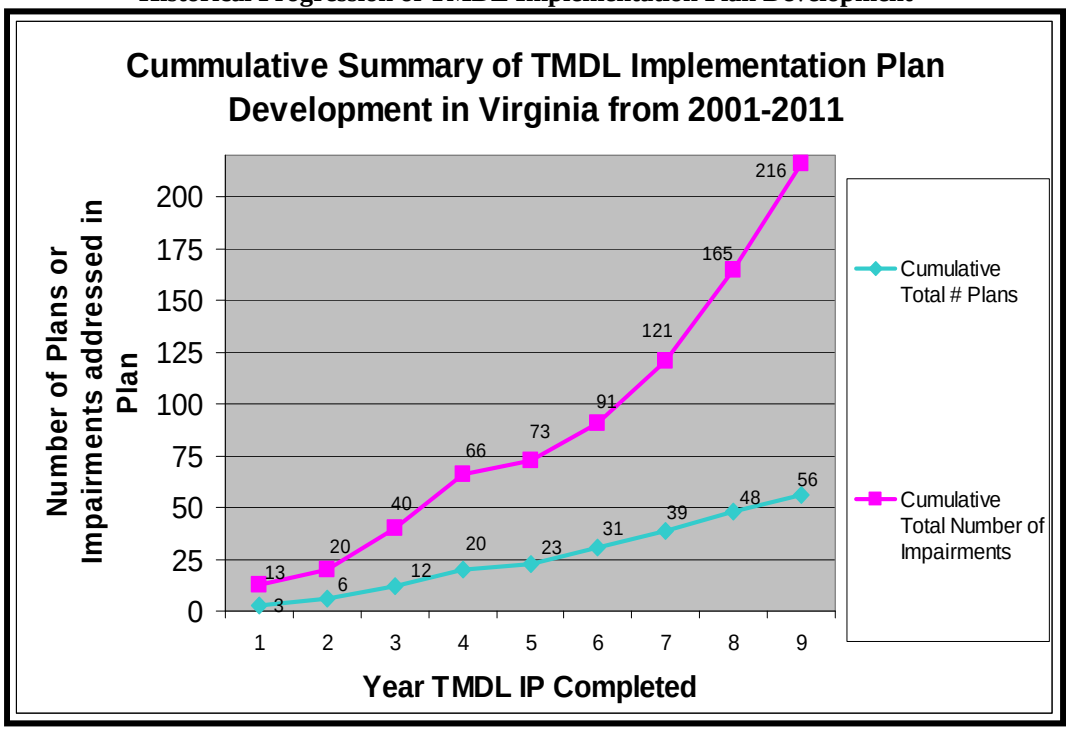
Year	1999 - 2010 CD TMDL	1999 - 2010 Non-CD TMDL	Post CD TMDL Schedule	Totals
2000	11	0		11
2002	24	0		24
2004	91	8		99
2006	170	36		206
2008	132	82		214
2010	172	72		244
2011			120	120
2012			71	71
Totals	**600**	**198**	**191**	**989**

2011 Progress Report:

TMDL Implementation Plan Development

In FY11, DCR and DEQ, along with other agency and non-agency partners, continued to develop TMDL implementation plans and to execute these plans throughout Virginia. Once a TMDL is developed the study report is submitted to EPA for approval. Virginia state law (1997 Water Quality Monitoring, Information, and Restoration Act, §62.1- 44.19:4 through 19:8 of the Code of Virginia), or WQMIRA, requires the development of a TMDL implementation plan (IP) after a TMDL is developed and approved. There is not a mandated schedule for implementation plan development; however, local or state agencies, as well as community watershed groups, can take the lead in developing TMDL implementation plans. The implementation plan describes the measures that must be taken to reduce pollution levels in the stream and includes a schedule of actions, costs, and monitoring. In 2011, DCR and DEQ completed 8 implementation plans covering 51 impaired segments and started an additional 3 implementation plans covering 7 impaired segments (see following figure). Since 2000, Virginia has completed 56 implementation plans, covering over 193 TMDL impaired stream segments and 216 impairments (Map NPS Implementation through 2011).

Figure 3-2
Historical Progression of TMDL Implementation Plan Development



2011 Progress Report:
TMDL Implementation

From January 1, 2010 thru June 30, 2011, there were 26 active implementation projects jointly funded by Federal EPA §319(h), state Water Quality Improvement (WQIF) funds, and state Virginia Natural Resources Commitment Funds (VNRCF). Collectively, these projects spent $2,963,203 of cost-share funds implementing 529 agricultural and residential best management practices (BMPs). This included 369 BMPs funded with 319(h), 31 BMPs funded with VNRCF, and 129 BMPs funded thru WQIF. This implementation resulted in over 374,397 feet of stream exclusion and the reduction of 2.72041E+16 colony forming units (CFU) of fecal coliform bacteria, 238,777 pounds of nitrogen, 44,820 pounds of phosphorous, and 43,380 tons of sediment. The table below provides detailed information regarding TMDL watershed implementation projects for the period 2001 through 2011.

Table 3-6
2011 Status of TMDL/ Watershed Implementation Projects

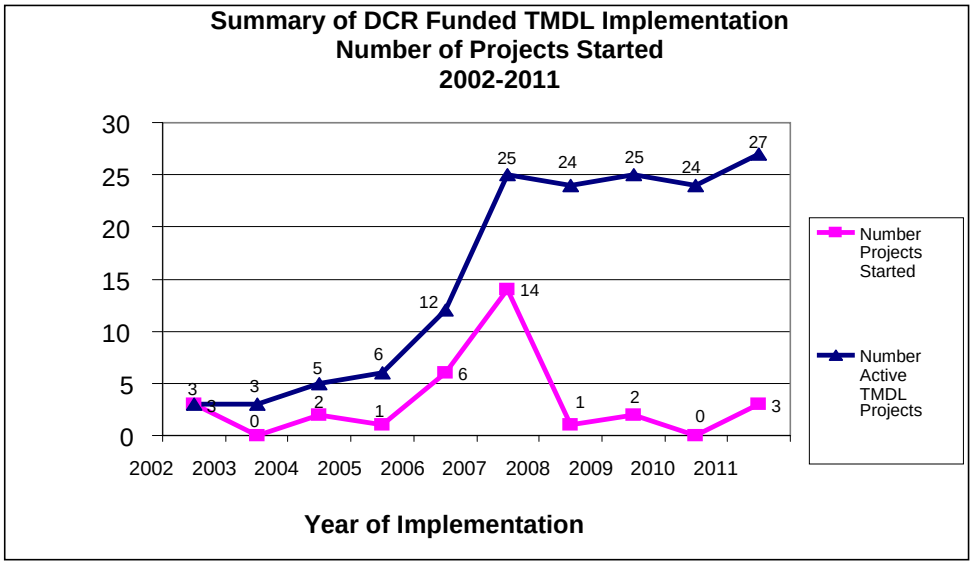
Watershed Area	TMDL Segment	Status	Year Implementation	Lead Agency	Funds Used
A. Projects received 5-7 years of continuous funding from 319(h) administered by DCR. These projects are no longer receiving 319 funds, but may continue to receive funding from other sources.					
1. -Middle Fork Holston River	VAS-O05R	Moderate Improvement	2001-2007	DCR	§319(h)
2. Upper Blackwater River	LAW-L08R	Some Improvement	2001-2007	DCR	§319(h)
3. North River	VAN-B21R, B22R, B27R & B29R	Improvement	2001-2008	DCR	§319(h
4. Holmans Creek	VAV-B45R	Some Improvement	2005-2008	DCR	§319(h
5. Catoctin Creak	VAN-A-02R	Improvement	2005-2009	DCR	§319(h)
B. Projects are being funded by Federal 319(h) as well as State WQIF and VNRCF administered by DCR (for select projects)					
1. Willis River	VAC-H36R	Improvement, Delisted(3)	2005-2012	DCR	§319(h) & VNRCF
2. Lower Blackwater River	VAW-L09R, L10R and L11R	Some Improvement, Candidate for Delisting (2008)	2006-2011	DCR	§319 & VNRCF
3. Thumb, Great, Carter & Deep Runs	VAN-E01R, E02R & E10R	Too Early	2006-2012	DCR	§319(h) & VNRCF
4. Big Otter River	VAW-L23R, L25R, L27R, & L28R	Improvement, Candidate for Delisting (2008), Delisted 2008	2006-2012	DCR	§319, VNRCF, RFP
5. Cook Creek and Blacks Run	VAV-B25R, B26R	Some Improvement	2006-2011	DCR	§319, RFP, NFWF
6. Mill and Dodd Creeks	VAW-N20R & N21R	Too Early	2007-2011	DCR	§319 & VNRCF
7. Little and Beaver Creeks	VAS-O07	Too Early	2007-2012	DCR	§319, RFP, VNRCF
8. Hawksbill and Mill Creeks	VAN-B38R, B39R	Too Early	2008-2012	DCR	§319(h) & VNRCF
9. Looney Creek	VAW-I26R	Too Early	2009-2013	DCR	§319 & VNRCF
10. Hazel River	VAN-E03R, E04R, E05R	Too Early	2009-2013	DCR	§319, WQIF RFP, VNRCF
11. Slate River and Rock Island Creek	VAC-H17R, H21R, H22R	Too Early	2010-2014	DCR	§319, VNRCF
C. Projects have received some WQIA RFP funds (and other funds as well)					
1. Moore's Creek	VAV-H28R	Too Early	2005+	N/A	WQIF RFP
2. Guest River	VAS-P11R	Too Early	2005+	N/A	WQIF RFP
3. Smith CreeK	VAV-1347R	Too Early	2008+	DEQ/DCR	NFWF, NRCS, §319
4. Stroubles Creek	VAW-N22R	Too Early	2006+	N/A	WQIF RFP

NFWF=National Fish and Wildlife Fund grant, NRCS – USDA Natural Resource Conservation Service, VNRCF=Virginia Natural Resource Commitment Fund

Watershed Area	TMDL Segment	Implementation Years	Lead Agency	Funds Used
D. Projects are receiving WQIF / VNRCF funds for Agricultural BMPS (and potentially RFP for septic work)				
1. Chowan Study Area	VASC-K14R,	2005-2009+ (Ag)	DCR	WQIF/VNRCF
2. Falling River	VAW-L34R	2007+ (Ag only)	DCR	WQIF/VNRCF
3. Mossy & Naked Creeks, Long Glade Run	VAV-B19R, B24R, B28R	2007+ (Ag only)	DCR	WQIF/VNRCF
4. Pigg River (Blue Ridge SWCD)	VAW-L14R, L15R, L16R, L17R	2007+ (Ag only)	DCR	WQIF/VNRCF/RFP
5. Pigg River (Pittsylvania SWCD)	VAW-L13R, L17R, L18R	2007+ (Ag only)	DCR	WQIF/VNRCF/RFP
6. Twittys and Ash Camp Creeks	VAC-L39R	2007+ (Ag only)	DCR	WQIF/VNRCF
7. Abrams & Opequeon Creeks	VAV-B08R & VAV-B09R	2006+	DCR/DEQ	WQIF/VNRCF , RFP
8. Cub, Turnip and Buffalo Creek	VAC-L36R, L37R, L40R	2007+ (Ag only)	DCR	WQIF/VNRCF
9. Flat, Nibbs, Deep, West Creeks	VAP-J08R, J09R, J11R	2007+ (Ag only)	DCR	WQIF/VNRCF
10. Moffett Creek, Middle River, Polecat Draft	VAV-B10, B13, B15	2007+ (Ag only)	DCR	WQIF/VNRCF
11.Christians Creek & South River	VAV-B14, B30	2007+ (Ag only)	DCR	WQIF/VNRCF
12. Upper Clinch River	VAS-P01R	2007+ (Ag only)	DCR	WQIF/VNRCF
13. Bluestone River	VAS-N36R	2007+ (Ag only)	DCR	WQIF/VNRCF
14. Briery, Little Sandy, Spring, Saylers Creeks and Bush River	VAC-J02, J03, J04, J05 and J06R	2007+ (Ag only)	DCR	WQIF/VNRCF
15. Craig Run, Browns Run, and Marsh Run	VAN-E08R	2011	DCR	VNRCF
16. Little Dark Run and Robinson River	VAN-E15R	2011	DCR	VNRCF
TOTAL IP implemented 36, under implementation w/ 319 funds 15, implemented with WQIF 14, Not implemented or implemented with other funds 8, (319*) = One-time 319 Base Project NFWF=National Fish and Wildlife Fund grant, NRCS – USDA Natural Resource Conservation Service, VNRCF=Virginia Natural Resource Commitment Fund				

The following graph indicates the progression of TMDL implementation projects since 2002. The large increase in projects in 2007 is primarily attributed to the targeted use of WQIF resources to initiate additional projects aimed at water impairments where agricultural practices are a primary causal factor.

Figure 3-3



The following tables indicate sources of cost-share funding and a summary of pollutants reduced during FY11.

Table 3-7
Summary of Targeted TMDL Cost-share Funds Spent 7/1/2010 - 6/30/2011 on TMDL Implementation

	Federal 319(h)	State VNRCF	State WQIF	Total
Cost-Share Paid	$1,104,866.50	$336,369.95	$1,521,966.54	**$2,963,202.99**
Other Match Funding	$ 65,499.66		$78,796.94	**$144,296.60**
Tax Credit Issued	$ 42,903.97	$24,106.77	$92,681.41	**$159,692.15**

Table 3-8
Summary of Pollutants Reduced from 7/1/2010 - 6/30/2011 thru Targeted TMDL Implementation

Data	Federal 319(h)	State VNRCF	State WQIF	Grand Total
Total Pounds Nitrogen Reduced	37,884.57	30,298.62	170,593.59	238,776.78
Total Pounds Phosphorus Reduced	6,862.20	6,030.31	31,927.50	44,820.00
Total Tons Sediment Reduced	6,394.72	5,626.60	31,359.12	43,380.43
Total of Bacteria Reduced	9.31003E+15	4.27718E+15	1.36168E+16	2.72041E+16

Table 3-9
Summary of BMP implementation for Targeted TMDL Projects from 7/1/10-6/30/11

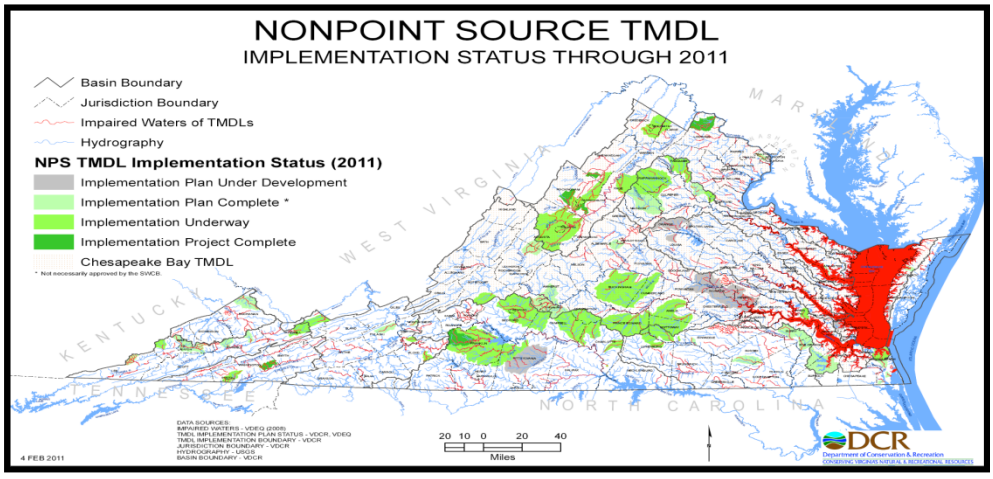
Practice Code	Name of Practice	# of BMPs installed	Amount Installed	Unit of BMP
FR-1	Reforestation of erodible crop and pastureland	3	23	Acres
FR-3	Woodland buffer filter area	1	-	Acres
LE-1T	Livestock Exclusion with Riparian Buffers for TMDL Imp.	105	313,609	Linear Feet
LE-2T	Livestock Exclusion with Reduced Setback for TMDL Imp.	11	18,896	Linear Feet
RB-1	Septic Tank Pumpout	212	212	System
RB-2	Connection to Public Sewer	1	1	System
RB-3	Septic Tank System Repair	55	55	System
RB-4	Septic Tank System Replacement	31	31	System
RB-4P	Septic Tank System Installation/Replacement with Pump	17	17	System
RB-5	Installation of Alternative Waste Treatment System	4	4	System
SL-1	Permanent Vegetative Cover on Cropland	13	269	Acres
SL-6	Stream Exclusion With Grazing Land Management	5	9,865	Linear Feet
SL-6T	Stream Exclusion with Grazing Land Management for TMDL Imp.	2	4,522	Linear Feet
SL-7T	Support for Extension of CREP Watering Systems - TMDL	4	21	Acres
SL-8B	Small Grain cover crop for Nutrient Management	51	1,619	Acres
WP-2T	Stream Protection - TMDL	3	27,505	Linear Feet
WP-3	Sod waterway	1	1	Acres
WP-4	Animal waste control facilities	6	6	System
WP-4B	Loafing lot management system	4	5	System
Grand Total		**529**		

Since the TMDL Implementation program began in 2001 (VA FY02), a total of 32 individual TMDL implementation projects have been funded over the last 10 years as summarized in the following table. A total of 2,629 BMPs have been installed utilizing a total of $12.3 million in federal and state funds spent on cost-share. This activity has resulted in a total of nearly 1.2 million pounds of nitrogen reduced, 220,318 pounds of phosphorus reduced, and 203,567 tons of sediment reduced.

Table 3-10

Summary of TMDL Implementation Activity Over the Past 10 Years July 1, 2002-June 30, 2011							
VA Fiscal Year	**# of Active TMDL Projects**	**Number of BMPs installed**	**Total of Cost-share Payments**	**Pounds Nitrogen Reduced**	**Pounds Phosphorus Reduced**	**Tons Sediment Reduced**	**Colonies of Bacteria Reduced**
FY02	3	13	$ 16,517	12,430	2,546	2,273	1.0946E+11
FY03	5	64	$ 106,873	4,573	859	767	2.69672E+14
FY04	5	79	$ 256,600	11,038	2,244	1,942	7.836E+11
FY05	7	130	$ 424,562	26,571	5,831	4,784	9.0302E+11
FY06	8	217	$ 740,798	86,703	19,283	15,788	1.49456E+15
FY07	16	246	$ 1,219,631	84,722	18,196	15,423	2.34637E+15
FY08	25	540	$ 2,034,312	356,864	70,144	65,225	1.27859E+15
FY09	24	446	$ 1,949,773	143,748	27,523	26,127	1.33321E+15
FY10	25	365	$ 2,596,360	223,059	28,872	27,857	2.04992E+16
FY11	27	529	$ 2,963,203	238,777	44,820	43,380	2.72041E+16
Total	**32**	**2629**	**$ 12,308,631**	**1,188,485**	**220,318**	**203,567**	**5.44275E+16**

Figure 3-4



2011 Progress Report:

The Department of Conservation and Recreation and the Department of Environmental Quality are implementing the following healthy waters elements:

The Healthy Waters Initiative continues to gain momentum at the state, regional, and national levels. Significant additional resources dedicated to support this conservation priority were evident in 2011. At the federal level, EPA continues to support the advancement of the Virginia Healthy Waters Initiative. Virginia was fortunate to receive funding for Healthy Waters conservation to support the expansion of data collection into the Chowan Watershed, a resource shared with North Carolina. The Commonwealth is working with the EPA to host a National Conference on Healthy Waters in the 2012 calendar year.

As part of the Chesapeake Bay Program's Maintaining Healthy Watersheds Goal Implementation Team, the strategic plan has been initiated to advance such areas as outreach and communication, developing a crediting system that could be considered as part of the Chesapeake Bay WIP process, and assessment of a shared fish assemblage strategy with Maryland to improve the robust nature of the data as it relates to the Chesapeake Bay. This work plan will help advance conservation of healthy watersheds across the Chesapeake Bay Watershed. This effort continues to be part of the Chesapeake Bay Action Plan.

At the state level, the Healthy Water Initiative continues to grow due to interest from local governments, planning district commissions, soil and water conservation districts, and non-governmental organizations such as The Nature Conservancy. Through funding from the EPA, the Virginia Healthy Waters Initiative will be expanding into the Chowan watershed. A partnership with the Albemarle-Pamlico Sound National Estuary Program, the State of North Carolina Department of Natural Resources, the North Carolina Coastal Management Program and The Nature Conservancy will work to identify and protect resources in this valuable area. The Chowan contains significant stands of healthy timber and exceptional water resources and opportunities to protect both.

The Virginia Healthy Waters Initiative is also planning to expand to include the resources in the Clinch and Powell watershed of southwest Virginia. This will also be done through a partnership with The Nature Conservancy as they are currently a strong local ally in this effort. The Nature Conservancy has been successful in engaging local staff and officials in steps to identify and protect areas in these watersheds.

A State Code review is being conducted to identify specific areas of the Code that may be modified to include language that supports efforts.

Glossary of Acronyms

BMP – Best Management Practice
CD – Consent Decree
CREP – Conservation Reserve Enhancement Program
CTO – Certificate to Operate
DCR – Department of Conservation and Recreation
DEQ – Department of Environmental Quality
DMME – Department of Mines, Minerals and Energy
NPS – Nonpoint Source
NRCF – Natural Resources Commitment Fund
SR – Southern Rivers
SWCD – Soil and Water Conservation District
TMDL – Total Maximum Daily Load
VDH – Virginia Department of Health
VDOT – Virginia Department of Transportation
VPF – Virginia Poultry Federation
VSMP – Virginia Stormwater Management Program
WIP – Watershed Implementation Plan
WQIF – Water Quality Improvement Fund

Appendices

Appendix A - WQIF Nonpoint Expenditure and Cash Balance Summary

Summary	Total Expenditures FY 2007-FY 2011	Total Balance Unspent Thru 6/30/11	Total Encumbrances	Total Unobligated As of 6/30/11
General WQIF Programs				
Agricultural BMP Cost-Share Program	$39,458,219	$2,277,722	$1,912,210	$365,512
Conservation Reserve Enhancement Program (CREP)	$1,442,350	$1,737,272	$1,737,272	-
Water Quality Initiatives Projects	$3,748,656	$2,080,301	$2,041,975	$38,326
Cooperative NPS Pollution Programs with Local Governments	$5,000,079	$1,648,771	$1,178,671	$470,100
Sub-Total General WQIF	$49,649,304	$7,744,065	$6,870,127	$873,938
VA Natural Resources Commitment Fund				
Agricultural BMP Cost-Share Program	$34,697,606	$10,229,415	$10,229,415	-
Technical Assistance	$3,788,461	$11,539	$11,539	-
Conservation Reserve Enhancement Program (CREP)	-	-	-	-
Sub-Total VNRCF	$38,486,068	$10,240,954	$10,240,954	-
WQIF - Line items				
Friends of the Shenandoah	$65,000	-	-	-
BMP Tracking Program Updates	$751,967	$248,033	$248,033	-
Sub-Total General WQIF	$816,967	$248,033	$248,033	-
TOTAL WQIF & VNRCF	$88,952,339	$18,233,052	$17,359,115	$873,938
VNRCF-WQIF - Overhead Assessment				
Central Service Fees	$699,379	-	-	-
Total VNRCF-WQIF	$699,379	-	-	-
WQIF Transfer to Reserve Fund				
WQIF Transfer to Reserve Fund	-	$4,919,805	-	-
Total WQIF Transfer to Reserve Fund	-	$4,919,805	-	-

Notes:

1) From FY98 thru FY03 a balance of $410,081 remains (original allocation $51,023,648 and expenditures through 6/30/11 of approximately $50,613,568. All of these funds are designated for contracting with private planners to write nutrient management plans. An RFP is being finalized and awards will be issued in October with contracts being completed 12/31/2012.
2) Funding analysis was done for FY07-FY11 appropriations. Funds not analyzed prior to FY07 or after FY11. There are small balances remaining.
3) This analysis does not include Funds received June 2011 that were available for program activity 7/1/2011.

Appendix B – Virginia Natural Resources Commitment Fund Special Condition Statement

Virginia Natural Resources Commitment Fund (VNRCF) Special Condition Statement June 30, 2011		
Cash Balance 06/30/2010		7,632,186
Revenue		
Recordation Fees	8,509,725	
General Fund Transfer per § 10.1-2128.A	27,878,895	
Prior Year Expenditures returned from the Districts (Unspent)	217,296	
Total Revenue		36,605,917
Expenditures		
Central Service Fees	257,326	
FY 2009 Contract Payments	1,279,535	
FY 2010 Contract Payments	576,877	
FY 2011 Contract Payments	3,963,871	
Total Expenditures		6,077,608
Cash Balance 06/30/2011		38,160,495

Appendix C - WQIF Nonpoint Programs Projected Cash Flows

Cash & Revenue			
	FY 2012	FY 2013	FY 2014
Cash Balance as of Start of Fiscal Year	38,160,495	30,762,782	7,705,182
Estimated Recordation Revenue	8,500,000	8,500,000	8,500,000
Current Budget Request	4,275,443		0
Available Cash	50,935,938	39,262,782	16,205,182
Cash Expenditures*			
	FY 2012	FY 2013	FY 2014
Technical Assistance (8% of Expenditures)***	1,843,156	2,337,600	1,530,400
CREP Expenditures	600,000	600,000	0
Ag BMPs in TMDLs Expenditures	2,100,000	2,300,000	3,000,000
Ag BMP Cost Share	15,630,000	26,320,000	16,130,000
Total Cash Expenditures	20,173,156	31,557,600	20,660,400
Cash Balance at end of Fiscal Year	30,762,782	7,705,182	(4,455,218)****
Obligations **			
	FY 2012	FY 2013	FY 2014
Prior Year Obligated Balance		16,090,000	8,570,000
Grants to SWCD for Cost Share	18,700,000	18,700,000	11,400,000
Technical Assistance	1,843,156	2,337,600	2,286,400
Ag BMPs in Targeted TMDLs	3,000,000	3,000,000	3,000,000
Create additional livestock Assistance for SWCD	4,000,000		
Animal Waste Storage Structures	2,000,000		
Additional Ag BMPs (to be contacted in January 2012)	6,720,000		
Total Obligations	36,263,156	40,127,600	25,256,400
Cash Outflows	20,173,156	31,557,600	20,660,400
Obligated Balance	16,090,000	8,570,000	4,596,000

* Cash expenditures based on the following assumptions

CREP is based on signed contracts with 50% of paid FY 2012 and balance in FY 2013
Ag BMPs in TMDLs Expenditures is based upon $3,000,000 in grants per Fiscal Year with 70% of FY 2012 grants paid in FY 2012 and 80% of FY 2013 & FY 2014 grants paid fiscal year and balance of grant paid in next FY

Ag BMP Cost Share is based on the following:
FY 2012 - based on $18.7 million currently under contract and projecting 70% will be paid in FY 2012 plus $12.7 million new contacts issued in January 2012 projecting 20% will be paid in FY 2012
FY 2013 - based on $18.7 million currently under contract projecting 30% will be paid in FY 2013 plus $12.7 million contracts issued in January 2012 projecting 60% will be paid in FY 2013 and a additional 18.7 million being placed under contract with 70% being paid in FY 2013
FY 2014 based on $11.4 million being placed under contract with 70% being paid in FY 2014 plus 30% of FY 2013 18.7 million being paid in FY 2014 and 20% of the $12.7 million issued in January 2012 being paid in FY 2014

** This is the amount of items under contact not paid for at the end of the Fiscal Year.
*** FY 2012 amount under contract
**** WQIF reserve could be used to cover shortfall

Appendix D - FY2011 Virginia Water Quality Improvement Fund Grants

Project Sponsor	Project Title	WQIF Award	*Match*
The Nature Conservancy	*Reclaiming Abandoned Mined Lands in the Upper Clinch River Watershed of Southwest Virginia*	**$ 182,989**	*$ 237,866*
Roanoke County	*Glade Creek Stream Restoration Project at Vinyard Park*	**$ 7,950**	*$ 12,430*
Upper Tennessee River Roundtable	*Reclaiming low priority and ineligible abandoned mine lands in the Clinch-Powell watershed*	**$ 250,000**	*$ 250,000*
Holston River SWCD	*Beaver Creek TMDL Stream Restoration*	**$ 59,500**	*$ 78,500*
New River-Highlands RC&D	*2010 New River-Highlands RC&D Streambank Stabilization Project*	**$ 108,888**	*$ 171,914*
Peaks of Otter SWCD	*Russell Woods*	**$ 100,000**	*$ 277,125*
Blue Ridge SWCD	*Pigg River & Old Woman's Creek Residential Septic Systems*	**$ 180,290**	*$ 253,953*
Big Sandy River Basin Coalition	*Big Sandy River Basin Abandoned Mine Land Reclamation Project*	**$ 231,000**	*$ 231,000*
Division of Mined Land Reclamation	*Big Prater Creek Restoration Phase II*	**$ 125,000**	*$ 296,552*
Trout Unlimited	*Streambank Restoration of Mossy Creek: A Shenandoah Valley TMDL Stream*	**$ 105,451**	*$ 303,910*
City of Falls Church	*Impervious Retrofits on Park Property*	**$ 50,000**	*$ 50,000*
Elizabeth River Project	*Focused on the Lafayette Branch*	**$ 89,500**	*$ 504,684*
Prince William County	*Cow Branch Stream Restoration*	**$ 250,000**	*$ 300,000*
Henricopolis SWCD	*Soil Test Voucher Program*	**$ 12,750**	*$ 12,850*
City of Charlottesville	*Azalea Park Constructed Stormwater Wetland Retrofit*	**$ 59,500**	*$ 76,638*
Caroline County	*Dawn Decentralized Wastewater-Septic Replacement Phase II*	**$ 192,000**	*$ 290,000*
Central Shenandoah PDC	*Central Shenandoah Stormwater Management Assistance Program*	**$ 60,000**	*$ 60,000*
Madison County	*Robinson River/Little Dark Run Residential Cost-Share Program*	**$ 157,360**	*$ 158,503*
Augusta County	*Greenville Wastewater Project*	**$ 195,000**	*$ 290,000*
Middle Peninsula PDC	*Middle Peninsula Regional Onsite Wastewater Treatment and Disposal Assistance*	**$ 95,596**	*$ 104,216*
Powhatan County Planning Department	*Local Stormwater Management Program*	**$ 19,000**	*$ 19,000*
James River Association	*Extreme Stream Makeover: Newport News*	**$ 75,812**	*$ 76,021*
Friends of the Rappahannock	*RainScapes Retrofits: Targeting Residential Sources of Stormwater Pollution*	**$ 44,964**	*$ 44,943*
	Total	***$2,652,550***	***$4,100,105***

Appendix E - Nonpoint Programs Nutrient Reductions

FY2011 Summary of Reductions from CREP
July 1, 2010 – June 30, 2011 by Major Basin

Drainage	Number of Participants	Acres Buffer Restored	Miles Stream Bank Protected	Tons SL Reduced	Pounds N Reduced	Pounds P Reduced
Chesapeake Bay	92	1,290.30	30.21	8,955.11	48,715.81	9,960.63
Southern Rivers	61	850.80	26.73	9,942.65	52,246.02	9,946.35
Statewide Totals	153	2141.1	56.94	18,897.76	100,961.83	19,906.98

FY2011 BMP Summary of Reduction from Ag Cost Share Practices Installed
July 1, 2010 – June 30, 2011

Chesapeake Bay Basin	Tons SL Reduced	Pounds N Reduced	Pounds P Reduced	Tons of Waste Treated
Chesapeake Bay Coastal	2,545.38	13,846.84	2,950.71	
James-Appomattox	23,160.23	125,991.65	28,654.48	
James-Rivanna	887.85	4,829.90	745.79	
Upper James	15,082.95	82,051.25	15,026.58	
Middle James	7,396.09	40,368.50	5,845.02	
Lower James	171,462.16	932,754.16	253,158.45	
Potomac-Shenandoah	45,318.46	246,834.26	56,752.84	1,184.0
Upper Potomac	5,343.43	29,068.24	4,846.24	
Lower Potomac	12,380.46	67,349.69	11,013.33	
Rappahannock	10,909.20	59,668.88	10,941.54	
York	14,886.26	80,981.26	14,854.06	
Southern Rivers Basin	**Tons SL Reduced**	**Pounds N Reduced**	**Pounds P Reduced**	**Waste Treated**
Albemarle Sound Coastal	1,389.70	7,559.97	1,389.70	
Atlantic Ocean Coastal	0.00	0.00	0.00	
Big Sandy	6.00	32.64	6.00	
Upper Chowan	134,477.23	731,556.13	195,085.20	
Chowan-Meherrin	17,145.33	93,270.60	25,332.84	
Upper Roanoke	11,688.09	63,768.10	11,957.59	1,006.0
Roanoke-Dan	7,921.69	43,094.00	8,154.05	
Tennessee-Clinch	2,748.10	14,949.66	3,033.65	
Tennessee-Holston	26,351.61	143,459.20	28,880.78	
Tennessee-Powell	1,741.30	9,472.67	1,741.30	
Yadkin	1,596.20	8,683.33	1,596.20	
Statewide Totals	**514,437.72**	**2,799,590.92**	**681,966.34**	**2,190.00**

Appendix F - Estimated Nutrient Reductions from Point Source WQIF-Funded Projects

WQIF Grantees	Delivered TN Load (lbs/yr)			Delivered TP Load (lbs/yr)		
Facility	2009	WLA	2011	2009	WLA	2011
Onancock STP	2,811	9,137	6,944	736	685	521
Cape Charles STP	8,176	3,046	7,066	1,235	228	219
Alleghany Co.-Lower Jackson *	NA	NA	NA	NA	NA	NA
Craigsville STP	NA	NA	NA	NA	NA	NA
Chesterfield Co.-Falling Creek	510,597	153,801	153,801	21,771	15,380	18,456
Chesterfield Co.-Proctors Creek	387,701	411,151	388,004	63,642	41,115	31,631
Farmville STP	22,881	16,665	16,665	5,908	1,572	1,572
Henrico STP	858,485	1,142,085	813,466	38,551	114,209	74,706
HRSD-Army Base STP	876,483	610,000	917,058	25,245	54,820	55,024
HRSD-James River STP	802,213	1,250,000	537,525	33,015	60,911	44,794
HRSD-Nansemond STP	1,188,051	750,000	621,169	63,870	91,367	56,470
Lex.-Rockbridge Reg. STP	12,354	16,446	9,356	12,354	4,568	8,576
Richmond STP	1,841,366	1,096,402	1,047,673	67,695	68,525	65,480
RWSA-Moores Crk. STP	253,426	167,201	161,702	122,683	22,842	21,538
HRSD-York STP	554,099	274,100	281,231	19,451	31,978	26,248
HRSD-King William STP	NA	NA	NA	NA	NA	NA
Louisa Co.-Regional STP	NA	NA	NA	NA	NA	NA
N. Kent Co.-Parham Landing	1,478	36,547	9,319	146	4,264	1,087
Culpeper WWTP	33,423	33,440	24,300	8,208	4,112	3,984
FCW&SA-Remington	4,704	14,862	6,962	342	1,827	884
Orange STP	25,346	22,293	8,174	4,692	2,741	1,005
Rapidan SA-Wilderness	17,410	9,289	8,583	6,032	1,142	1,055
Spotsylvania Co.-Massaponax	52,182	97,458	75,094	3,267	7,309	5,632
Stafford Co.-Little Falls Run	38,112	97,458	72,941	2,770	7,309	4,376
Tappahannock STP	8,464	9,746	6,091	1,306	731	457
Warrenton STP	49,614	18,578	18,578	1,972	2,284	2,284
Warsaw STP	9,127	3,655	1,827	2,971	274	244
Town of Washington STP	NA	NA	NA	NA	NA	NA
ACSA-Fishersville STP	12,117	21,441	11,846	8,385	2,814	1,555
ACSA-Middle River STP	27,914	36,449	26,855	9,424	4,784	3,525
ACSA-Stuarts Draft STP	5,818	21,440	8,737	2,248	2,814	1,147
Alexandria S.A.	433,082	493,381	493,381	8,161	29,603	22,202
Arlington Co. WPCF	697,209	365,467	365,292	8,012	21,928	7,306
Berryville STP	15,958	5,713	14,088	3,978	492	2,032
Broadway STP	36,884	19,752	15,855	7,161	1,703	1,477
Clarke Co. SA-Boyce STP	NA	NA	NA	NA	NA	NA
Colonial Beach STP	20,744	18,273	18,273	5,723	1,827	1,827
Dale Service Corp. #1 STP	28,936	42,029	34,719	960	2,522	2,083
Dale Service Corp. #8 STP	28,563	42,029	34,719	813	2,522	2,083
Fairfax Co.-Noman Cole	576,963	612,158	612,158	12,268	36,729	22,038
FCW&SA-Vint Hill STP	1,208	3,180	1,325	29	241	104
FWSA-Opequon STP	62,843	90,170	48,410	2,327	8,864	3,358
FWSA-Parkins Mill STP	29,397	45,074	19,833	33,319	3,517	2,064
HRRSA-North River STP	64,286	111,492	71,826	9,525	14,633	9,427
K. Geo. Co-Dahlgren STP	5,333	9,137	7,675	408	914	672
K. Geo. Co-Fairview Beach	652	1,827	822	86	183	82
LCSA-Broad Run STP	32,310	111,224	44,085	483	2,580	1,022
Luray STP	7,898	8,576	8,576	2,989	1,126	1,126
Middletown STP	NA	NA	NA	NA	NA	NA
Mt. Jackson STP	583	5,713	4,081	79	493	352
Pr. Wm. Co.-Mooney STP	246,928	219,280	150,755	3,525	13,157	9,045
Purcellville STP	8,420	15,167	10,617	406	1,055	591
Stafford Co.–Aquia STP **	55,522	73,093	86,205	1,522	4,386	3,448
Waynesboro STP	57,693	21,441	16,643	23,603	2,814	2,718
Upper Occoquan S.A.	679,950	763,096	687,457	2,539	7,236	4,496
Woodstock STP	16,473	16,324	16,324	3,273	1,407	1,407
Totals =	10,700,187	9,416,286	8,004,086	659,108	710,537	533,430
Notes: * Plant not yet on-line. ** Two grants made for this facility.						

Appendix G - Virginia Phase I Watershed Implementation Plan

Input Deck BMPs	2009 % Treatment	2017 Coverage Level	2025 Coverage Level
Forest Buffers Riparian Cropland and Specialty Crops	1.3 %	3 %	5 %
Forest Buffers Riparian Hay	0 %	1 %	5 %
Forest Buffers Riparian Pasture	8 %	10 %	10 %
Grass Buffers Riparian Cropland and Specialty Crops	9 %	30 %	90 %
Grass Buffers Riparian Hay	0 %	1 %	90 %
Grass Buffers Riparian Pasture	12 %	15 %	20 %
Land Retirement Ag	3 %	5 %	5 %
Upland Tree Planting Ag	0.7 %	5 %	5 %
Wetland Restoration	0.05 %	0.15 %	0.20 %
Continuous No-Till	11 %	35 %	60 %
Conservation Till (includes CNT acres)	57 %	80 %	90 %
Conservation Plan Cropland and Specialty Crops	60 %	65 %	95 %
Conservation Plan Hay	7 %	40 %	95 %
Conservation Plan Pasture	41 %	50 %	95 %
Cover Crop Standard planting	4 %	10 %	10 %
Cover Crop Early planting	3 %	10 %	20 %
Commodity Cover Crop Early planting	4 %	10 %	15 %
Stream Protection with Fencing (linear feet)	15 %	45 %	95 %
Alternative Water Pasture	2 %	2 %	0 %
Prescribed Grazing Pasture	20 %	40 %	60 %
Animal Waste Management System	25 %	34 %	95 %
Nutrient Management Cropland & Specialty Crops	59 %	90 %	95 %
Nutrient Management Hay	18 %	90 %	95 %
Nutrient Management Pasture	5 %	15 %	20 %
Non Urban Stream Restoration (linear feet)	0.02%	0.11%	0.22%
Poultry Mortality Composters	-	100%	100%
Swine Mortality Composters	-	95 %	95 %
Water Control Structures	-	-	1,000 acres
Manure Transport (Exported from Rockingham & Page to Outside Bay Watershed)	-	5,000 tons	75,000 tons
Manure Transport (Exported from Rockingham & Page but within Chesapeake Bay Watershed)	-	75,000 tons	75,000 tons
Poultry Phytase Phosphorus 30% Reduction in Broilers and Turkeys	60 %	100 %	100 %
Swine Phytase Phosphorus 35% Reduction	60 %	100 %	100 %
Precision / Decision Agriculture on Cropland	-	50,000 acres	50%
Container Nursery and Greenhouse Runoff / Leachate Recovery	-	-	95%

Appendix H – Historical Cost Data for Agricultural BMPs

Program Year	Actual BMP Cost	State Cost Share Payment	Other Funding Amount	Farmers Cost Before Tax Credit $	Tax Credit Amount Issued
1998	$6,402,535	$3,991,534	$378,525	$2,032,476	$413,677
1999	$3,816,452	$3,146,798	$134,592	$535,062	$199,108
2000	$9,037,489	$4,513,185	$1,615,929	$2,908,375	$303,897
2001	$4,289,272	$2,977,908	$108,887	$1,202,477	$255,708
2002	$9,417,995	$3,515,142	$2,774,125	$3,128,727	$334,325
2003	$4,420,792	$1,371,713	$1,248,782	$1,800,297	$227,606
2004	$3,289,669	$1,094,066	$967,556	$1,228,047	$148,895
2005	$4,833,719	$2,452,749	$538,009	$1,842,962	$275,752
2006	$8,971,632	$5,596,196	$839,302	$2,536,134	$322,629
2007	$14,572,719	$11,039,403	$938,603	$2,594,714	$426,905
2008	$14,515,590	$9,133,036	$1,409,327	$3,973,226	$531,765
2009	$16,629,830	$10,894,949	$2,091,108	$3,643,772	$525,027
2010	$27,534,958	$18,376,778	$2,347,001	$6,811,180	$969,365
2011	$8,873,245	$5,615,431	$421,632	$2,836,183	$503,184
Statewide Totals	**$136,605,898**	**$83,718,886**	**$15,813,378**	**$37,073,634**	**$5,437,845**