

**REPORT OF THE DEPARTMENT OF CONSERVATION AND
RECREATION**

**REPORT OF THE REVIEW AND
EVALUATION OF LOCAL
STORMWATER MANAGEMENT
PROGRAMS**

TO THE GENERAL ASSEMBLY OF VIRGINIA



**COMMONWEALTH OF VIRGINIA
RICHMOND
APRIL 2005**

W. Tayloe Murphy, Jr.
Secretary of Natural
Resources



Joseph H. Maroon
Director

COMMONWEALTH of VIRGINIA
DEPARTMENT OF CONSERVATION AND RECREATION

203 Governor Street
Richmond, Virginia 23219-2010
(804) 786-6124

June 1, 2005

Members of the Virginia General Assembly

I am pleased to submit the attached report and to provide you with an update on the Department of Conservation and Recreation's stormwater management and erosion and control sediment control programs. This annual report provides a status report on the comprehensive review and evaluation of the effectiveness of local government and state agency stormwater management programs. This is completed in order to assess the extent to which the programs have reduced nonpoint source pollution and mitigated the detrimental effects of localized flooding. Annually, the Department is directed to submit a summary of these reviews and evaluations to the General Assembly. In accordance with this provision, the attached report summarizes the review and evaluation of local programs conducted during fiscal year 2004.

This report will also provide you with an update the significant progress achieved towards implementation of Chapter 372 of the 2004 Virginia Acts of Assembly (HB1177) and the consolidation of Virginia's stormwater management programs within the Department of Conservation and Recreation.

We appreciate your consideration of this report and look forward to a continuing dialogue on this important issue. I truly believe that the Commonwealth's water quality will benefit greatly from these significant actions.

Respectfully submitted,

A handwritten signature in black ink that reads "Joseph H. Maroon".

Joseph H. Maroon
Director

Attachment

TABLE OF CONTENTS

EXECUTIVE SUMMARY	i
INTRODUCTION.....	1
The Virginia Stormwater Management Act of 1990	1
2004 Changes to Stormwater Management Law in Virginia.....	3
PERIODIC REVIEW OF LOCAL PROGRAMS	4
Local Program Reviews During Fiscal Year 2004	5
State Agency Reviews	5
Overall Results.....	6
GOING FORWARD.....	7
APPENDIX A	8
Review and Evaluation of a Local Stormwater Management Program.....	8

EXECUTIVE SUMMARY

To address concerns associated with the quantity and quality of stormwater runoff from developed landscape, the Virginia General Assembly established Virginia's Stormwater Management (SWM) Program in 1990. The Virginia Stormwater Management Act of 1990, Title 10.1, Chapter 6, Article 1.1 of the Code of Virginia, §10.1-603.1 *et seq.*, (1990 Act) established the Virginia Stormwater Management Program (SWM Program) and enabled Virginia counties, cities and towns to establish local stormwater management programs meeting specific criteria. The intent of local SWM programs was to manage runoff from land development projects through the implementation and maintenance of post-development structural or non-structural controls. Implementation and maintenance of such controls in accordance with the Regulations would result in reductions of post-development nonpoint source pollution ranging from 10-65% depending on the type of control (4 VAC3-20-71.C).

The 1990 Act required each state agency to submit a stormwater management plan to DCR for approval prior to any land clearing, soil movement, or construction activity greater than or equal to one acre in area. In lieu of such a plan, the agency could submit annual stormwater standards and specifications that would ensure consistency with the 1990 Act and Regulations.

A total of 166 localities statewide implemented the mandatory Erosion and Sediment Control (ESC) program. Of these, 15 local ESC programs were reviewed during this period. Of these, seven were either consistent or provisionally consistent, seven were taking action to become consistent, and one review was still underway. No SWM programs authorized under the 1990 Act were reviewed during fiscal year 2004.

Of Virginia state agencies with active maintenance and construction projects, only VDOT chose to annually submit standards and specifications to DCR for review and approval during fiscal year 2004. All other agencies submitted site-specific project plans or regional SWM plans for DCR review and approval. Between July 1, 2003 and June 30, 2004, state agencies submitted approximately 300 site-specific project or regional plans to DCR for review. In addition to review and approval of plans, DCR staff carried out approximately 1300 site inspections of land disturbing activities and SWM installations on VDOT and other state agency projects; further ensuring state agency compliance with the ESC and SWM laws and regulations.

The reviews confirm that where local programs or site specific project plans were implemented in a manner consistent with the 1990 Act and Regulations, nonpoint source pollution was substantially reduced.

The Commonwealth's SWM efforts were also significantly enhanced by other reorganizational activities occurring in 2004. In the past, three separate state agencies [DCR, Department of Environmental Quality (DEQ) and Chesapeake Bay Local Assistance Department (CBLAD)] managed separate stormwater programs. While the three programs were related in many ways, and the agencies had made efforts to reduce redundancy, this situation resulted in general confusion within the regulated community and with local governments. The Partnership Agenda resulting from the Governor's Natural Resources Leadership Summit held in April 2003, identified the multiple state stormwater management programs as a significant problem that needed to be addressed. The Secretary of Natural Resources, W. Tayloe Murphy, Jr., directed Mr. Joseph H. Maroon, DCR Director, to lead an interagency task force that included staff from DCR, DEQ and CBLAD to streamline and strengthen the State's stormwater programs. The outcome of the nearly year-long effort was the passage and enactment of House Bill 1177 (HB1177) by the 2004 General Assembly and Governor Mark Warner [Chapter 372 of the 2004 Virginia Acts of Assembly].

HB1177 amended and reenacted the Virginia Stormwater Management Act of 1990 to consolidate the three separate stormwater management programs into the Virginia Stormwater Management Program (VSMP) under the oversight of the Virginia Soil and Water Conservation Board (VSWCB) and DCR. The VSMP establishes a statewide approach to stormwater management that will require changes in the manner localities and state agencies address stormwater management. Fully implemented, the VSMP will result in a dramatic increase in the reduction of nonpoint source pollution statewide. Total annual reductions in nonpoint source pollution resulting from the combination of erosion and sediment control with the new stormwater management program are expected to equal 972,000 tons of sediment, 466,000 pounds of phosphorus and 710,000 pounds of nitrogen.

During fiscal year 2005, the VSWCB and DCR will take specific steps to implement the program including administratively consolidating the three agencies' respective stormwater regulations, securing delegation from USEPA for the Municipal Separate Storm Sewer System (MS4) and Construction Site Stormwater Permitting programs under the federal Clean Water Act, developing model ordinances and other support documents, and conducting outreach activities to inform the regulated communities of program changes. At this writing, the VSWCB has published consolidated regulations, received program delegation from USEPA, and implemented a consolidated program stormwater management permitting programs beginning on January 29, 2005.

The resulting Virginia Stormwater Management Program (VSMP) streamlines and strengthens Virginia's local SWM programs and will implement the technical and general criteria of Virginia's stormwater management programs statewide.

INTRODUCTION

The Virginia Stormwater Management Act of 1990

To address concerns associated with the quantity and quality of stormwater runoff from developed landscape, the Virginia General Assembly established Virginia's Stormwater Management (SWM) Program in 1990. The Virginia Stormwater Management Act of 1990, Title 10.1, Chapter 6, Article 1.1 of the Code of Virginia, §10.1-603.1 *et seq.*, (1990 Act) established the Virginia Stormwater Management Program (SWM Program) and enabled Virginia counties, cities and towns to establish local stormwater management programs meeting specific criteria.

“Each locality may, by ordinance...establish a local stormwater management program which shall include, but is not limited to, the following:

- 1. Consistency with regulations promulgated in accordance with provisions of this article;*
- 2. Provisions for long-term responsibility for and maintenance of stormwater management control devices and other techniques specified to manage the quality and quantity of runoff; and*
- 3. Provisions for the integration of locally adopted stormwater management programs with local erosion and sediment control, flood insurance, flood plain management and other programs requiring compliance prior to authorizing construction in order to make the submission and approval of plans, issuance of permits, payment of fees, and coordination of inspection and enforcement activities more convenient and efficient both for the local governments and those responsible for compliance with the programs.” (§10.1-603.3)*

The 1990 Act also stated that,

“...a state agency may not undertake any land clearing, soil movement, or construction activity involving soil movement or land development unless the agency has submitted and obtained approval of a stormwater management plan from the Department. In lieu of such a plan, the agency may annually submit stormwater management standards and specifications.” (§10.1-603.5)

To ensure compliance with the 1990 Act, the Department of Conservation and Recreation (DCR) was directed to

“...periodically conduct a comprehensive review and evaluation of the effectiveness of each local government's and state agency's stormwater management program. The review shall include an assessment of the extent to which the program has reduced nonpoint source pollution and mitigated the detrimental effects of localized flooding. A summary of these reviews and evaluations shall be submitted annually to the General Assembly.” (§10.1-603.12A)

Thus the 1990 Act enabled Virginia counties, cities and towns to establish local SWM programs that were consistent with both the 1990 Act and the regulations promulgated under the article (Regulations). The intent of local SWM programs was to manage runoff from land development projects through the implementation and maintenance of post-development structural or non-structural controls. Implementation and maintenance of such controls in accordance with the Regulations would result in reductions of post-development nonpoint source pollution ranging from 10-65% depending on the type of control (4 VAC3-20-71C). Localities were further authorized to adopt more stringent SWM regulations than required by the 1990 Act and the Regulations and to charge applicants a reasonable fee to defray the cost of program administration.

The Regulations established specific requirements, or criteria, for local stormwater programs that described program expectations with respect to four program areas: local program administration, stormwater management plan review and approval, inspection of regulated activities and enforcement. These criteria were summarized in the checklist, Review and Evaluation of A Local Stormwater Management Program, contained in the Appendix. To provide additional assistance to local programs, DCR published the Virginia Stormwater Management Handbook (1999), which includes design standards and specifications.

Through fiscal year 2004, 21 localities had established a local SWM program under the 1990 Act. These localities are:

Cities: Alexandria, Chesapeake, Hampton, Newport News, Staunton, Suffolk, Virginia Beach, Waynesboro, Williamsburg

Counties: Albemarle, Augusta, Clarke, Fauquier, Greene, Henrico, Spotsylvania, Stafford, Westmoreland

Towns: Berryville, Bluefield, Culpeper

The 1990 Act required each state agency to submit a stormwater management plan to DCR for approval prior to any land clearing, soil movement, or construction activity greater than or equal to one acre in area. In lieu of such a plan, the agency could submit annual stormwater standards and specifications that would ensure consistency with the 1990 Act and Regulations. The Virginia Department of Transportation chose this option and has routinely submitted annual standards and specifications to DCR for review. All other state agencies engaged in construction or land disturbing activities have submitted site-specific stormwater management plans.

2004 Changes to Stormwater Management Law in Virginia

The Commonwealth's SWM efforts were also significantly enhanced by other reorganizational activities occurring in 2004. During the year, three separate state agencies [DCR, Department of Environmental Quality (DEQ) and Chesapeake Bay Local Assistance Department (CBLAD)] managed separate stormwater programs. While the three programs were related in many ways, and the agencies had made efforts to reduce redundancy, this situation resulted in general confusion within the regulated community and with local governments. The Partnership Agenda resulting from the Governor's Natural Resources Leadership Summit held in April 2003, identified the multiple state stormwater management programs as a significant problem that needed to be addressed. The Secretary of Natural Resources, W. Tayloe Murphy, Jr., directed Mr. Joseph H. Maroon, DCR Director, to lead an interagency task force that included staff from DCR, DEQ and CBLAD to streamline and strengthen the State's stormwater programs. The outcome of the nearly year - long effort was the passage and enactment of House Bill 1177 (HB1177) by the 2004 General Assembly and Governor Mark Warner [Chapter 372 of the 2004 Virginia Acts of Assembly].

HB1177 amended and reenacted the Virginia Stormwater Management Act of 1990 to consolidate the three separate stormwater management programs into the Virginia Stormwater Management Program (VSMP) under the oversight of the Virginia Soil and Water Conservation Board (VSWCB) and DCR.

The VSMP establishes a statewide approach to stormwater management that will require changes in the manner localities and state agencies address stormwater management. Fully implemented, the VSMP will result in a dramatic increase in the reduction of nonpoint source pollution statewide. Total annual reductions in nonpoint source pollution resulting from the combination of erosion and sediment control with the new stormwater management program are expected to equal 972,000 tons of sediment, 466,000 pounds of phosphorus and 710,000 pounds of nitrogen.

This report also summarizes the Department's review and evaluation of local and state agency SWM programs as required under the Virginia Stormwater Management Act of 1990 for fiscal year 2004. In addition, this report briefly describes the steps underway to transition from the 1990 SWM Program to the VSMP as envisioned in HB 1177.

PERIODIC REVIEW OF LOCAL PROGRAMS

The 1990 Act directed DCR to "conduct a comprehensive review and evaluation of the effectiveness of each local government's and state agency's stormwater management program" in order to assess the extent to which the programs reduced nonpoint source pollution and mitigated the detrimental effects of localized flooding. While the range of nonpoint source pollution reduction is a function of each site-specific group of SWM practices, consistency with the SWM Law and Regulations and the SWM Handbook is estimated to result in an average 50% reduction in overall nonpoint source pollution from regulated land development sites. Individual sites may show a greater or lesser reduction in nonpoint source pollution depending on the types of practices used to control stormwater. The Department, therefore, used the checklist, Review and Evaluation of A Local Stormwater Management Program, to ensure that it uniformly reviewed local programs for consistency with the 1990 Act, Regulations and SWM handbook.

Local programs were recommended for periodic review by DCR watershed office staff based on a variety of factors including the amount of disturbed acreage, local growth trends, the results of the last program review, whether or not a local government or agency is covered by a Virginia Pollution Discharge Elimination System (VPDES) permit for stormwater, time elapsed since the last review, and the number of complaints received in DCR watershed offices.

Once identified at the watershed office level, a list of programs for periodic review was submitted to the Virginia Soil and Water Conservation Board for approval or amendment.

DCR reviewed each selected local program for compliance with both ESC and SWM concurrently. Local programs that have not established a SWM program are reviewed for ESC only. Program reviews consisted of a personal interview between DCR staff and the local program administrator, a review of the local ordinance(s) and other applicable documents, a review of plans approved by the program, inspection of regulated activities, and a review of enforcement activities. Programs that are not consistent with the 1990 Act and Regulations were required to implement a corrective action agreement (CAA) that details the needed corrective actions and the expected timeframe for implementation (§10.1-603.12B). Once a CAA was approved by DCR, the local program was considered to be provisionally consistent with the 1990 Act and Regulations. DCR then monitors local program progress under the CAA, with the goal of having local programs fully consistent with the 1990 Act and Regulations by the established timeframes.

Local Program Reviews During Fiscal Year 2004

A total of 166 localities statewide implemented the mandatory ESC program. Of these, 15 local ESC programs were reviewed during this period. No SWM programs authorized under the 1990 Act were reviewed during fiscal year 2004.

Local Programs Reviewed Between July 1, 2003 and June 30, 2004

Local ESC Program	Status of Review at end of Period
Campbell County	Review complete, developing CAA
Christiansburg, Town of	Provisionally consistent
Floyd County	Provisionally consistent
Henrico County	Review complete, developing CAA for ESC, (SWM found consistent in 2003)
King William County	Review complete, developing CAA
Mecklenburg County	Provisionally consistent
Portsmouth, City of	Review complete, draft CAA under review
Prince George County	Provisionally consistent
Prince William County	Provisionally consistent
Rappahannock County	Review complete, developing CAA
Roanoke, City of	Consistent
Warren County	Review complete, developing CAA
Warrenton, Town of	Review in progress
Wise County	Provisionally consistent
Woodstock, Town of	Review complete, developing CAA

Of the 15 local ESC programs reviewed, seven were either consistent or provisionally consistent, seven were taking action to become consistent, and one review was still underway.

State Agency Reviews

Of Virginia state agencies with active maintenance and construction projects, only VDOT chose to annually submit standards and specifications to DCR for review and approval during fiscal year 2004. All other agencies submitted site-specific project plans or regional SWM plans for DCR review and approval. Between July 1, 2003 and June 30, 2004, state agencies submitted approximately 300 site-specific project or regional plans to DCR for review. In addition to review and approval of plans, DCR staff carried out approximately 1300 site inspections of land disturbing activities and SWM installations on VDOT and other state agency projects; further ensuring state agency compliance with the ESC and SWM laws and regulations.

DCR's review of the *Draft 2004 VDOT Annual ESC and SWM Specifications and Standards* identified several areas of concern. Consequently, VDOT was given conditional approval for their draft 2004 specifications and standards. This conditional approval recognized that the VDOT SWM program is consistent with the 1990 Act and Regulations as well as the guidance contained in the SWM Handbook. It should also be noted that the 2004 draft specifications and standards included measures necessary to meet the ESC and SWM program needs as well as enhancements required to meet VDOT's obligations under their federal stormwater management permits.

GOING FORWARD

The enactment of HB 1177 and the Virginia Stormwater Management Program (VSMP) requires a series of actions in order to successfully transition from the 1990 SWM Program. During fiscal year 2005, the VSWCB and DCR will take specific steps to implement the program including administratively consolidating the three agencies' respective stormwater regulations, securing delegation from USEPA for the Municipal Separate Storm Sewer System (MS4) and Construction Site Stormwater Permitting programs under the federal Clean Water Act, developing model ordinances and other support documents and outreach activities to inform the regulated communities of program changes.

At this writing, the VSWCB has published consolidated regulations and received program delegation from USEPA, and implemented a consolidated stormwater management permitting program on January 29, 2005.

The resulting Virginia Stormwater Management Program (VSMP) streamlines and strengthens Virginia's local SWM programs and will implement the technical and general criteria of Virginia's stormwater management programs statewide.

APPENDIX A

Review and Evaluation of a Local Stormwater Management Program

Part I: Administrative Criteria

___ A copy of the approved plan and a record of all inspections is maintained for each land development project.

___ Evidence of approval of all necessary permits is present.

___ All SWM facilities have a maintenance plan/agreement, which identifies the owner and the responsible party for carrying out the maintenance plan.

___ SWM program has been integrated with other local programs requiring compliance prior to construction authorization (e.g. erosion & sediment control, Chesapeake Bay, flood insurance, flood plain management, etc.).

Ordinance

___ Identify the plan-approving authority and other positions of authority within the program.

___ Include the regulations and technical criteria to be used in the program.

___ Designate design standards to be used in plan review and inspection (e.g., VSWMH, local manual, etc.).

___ Include procedures for the submission and approval of plans.

___ Include procedures for the issuance of permits.

___ Include procedures for the monitoring and inspection of land development projects.

___ Identify the party responsible for conducting inspections and maintenance of permanent stormwater management facilities.

Part II: Technical Criteria

** Denotes components that are required by the Virginia Stormwater Management Law or Regulations.

General Criteria**

- ___ Flooding and channel erosion impacts to receiving streams due to land development projects is calculated at each point of discharge from the development project and such includes any runoff from the balance of the watershed, which also contributes to that point of discharge.

- ___ The specified design storms is defined as either:
 - ___ 24-hour storm
 - ___ Storm of critical duration that produces the greatest required storage volume at the site, when using a design method such as the Modified Rational Method.

- ___ For purposes of computing runoff, all pervious lands in the site are assumed prior to development to be in good condition (if the lands are pastures, lawns, or parks), with good cover (if the lands are woods), or with conservation treatment (if the lands are cultivated); regardless of conditions existing at the time of computation.

- ___ Construction of SWM facilities or modifications to channels complies with all applicable laws and regulations.

- ___ Impounding structures that are not covered by the Impounding Structure Regulations (4 VAC 50-20-10 et seq.) are engineered for structural integrity during the 100-year storm event.

- ___ Pre-development and post-development runoff rates are verified by calculations that are consistent with good engineering practices.

- ___ Outflows from SWM facilities are discharged to an adequate channel, and velocity dissipators are placed at the outfall of all SWM facilities and along the length of any outfall channel, as necessary to provide a non-erosive velocity of flow from the basin to a channel.

- ___ SWM criteria are applied to proposed subdivisions as a whole. Hydrologic parameters reflect the ultimate land development and are used in all engineering calculations.

- ___ Construction of SWM impoundment structures within a FEMA designated 100-year floodplain are avoided to the extent possible. When this is unavoidable, all SWM facility construction is in compliance with all applicable regulations under the National Flood Insurance Program.

- ___ Natural channel characteristics are preserved to the maximum extent practicable.

- ___ Land development projects comply with the Virginia Erosion and Sediment Control Law and Regulations.

Water Quality

- ___ Water quality criteria is implemented according to VSWMR 4VAC 3-20-71. Criteria is:
 - ___ Performance-based, or
 - ___ Technology-based

Stream Channel Erosion

- ___ Land development projects comply with Minimum Standard 19 (only requirement for compliance with stream channel component).
- ___ Plan approving authority has the ability to require 24-hour extended detention of the runoff generated by the 1-year, 24-hour storm.
- ___ Is there any other design criteria used for stream channel analysis?

Flooding**

- ___ 10-year post-developed peak rate of runoff from development sites do not exceed the 10-year pre-development peak rate of runoff, or
- ___ Alternate design criteria is adopted, based on geographic, land use, topographic, geologic or other downstream conveyance factors as appropriate.

Regional Stormwater Management Plans

- ___ Regional SWM plan is adopted which addresses:
 - ___ Specific SWM issues within the targeted watersheds
 - ___ Technical criteria, outlined in 4 VAC 3-20-50 through 4 VAC 3-20-85, as needed based on the specific SWM issues.
 - ___ Implications of any local comprehensive plans, zoning requirements and other planning documents
 - ___ Opportunities for financing the watershed plan
 - ___ Maintenance of the regional SWM facilities
 - ___ Future expansion of the selected SWM facilities, in the event that development exceeds the anticipated level