

Commonwealth of Virginia Stormwater Regulatory Update

Ginny Snead, PE
Office of Regulatory Programs Manager
July 12, 2012

Office of Regulatory Programs

Regulation

Applicability threshold

- Erosion & Sediment Control Act → 10,000 sq ft
- Chesapeake Bay Preservation Act → 2,500 sq ft
- VA SW Management Permit (VSMP) → 1 acre
 - Construction General Permit
- Municipal Separate Storm Sewer System (MS4)
 - Phase I Individual Permits
 - Phase II (Small) General Permit
- Chesapeake Bay Total Maximum Daily Load (TMDL) Watershed Implementation Plan (WIP)

Virginia Stormwater Management Program (VSMP)

- Currently State Run
- Compliance = Water Quality
 - Current Compliance @ 40%
 - Local vs. State confusion
- *Simplification*: Local Programs = Local Control = Improved Compliance
- *Consistency*: Facilitates uniform program oversight and enforcement.



VSMP Regulations Timeline

- Virginia Soil and Water Conservation Board adopted regulations May 24, 2011
- Regulations became effective September 13, 2011 and Published on DCR website
- Implementation date = July 1, 2014 through State Construction General Permit and Local Ordinances
- Before July 1, 2014, Local Gov'ts Develop and Adopt Ordinances and Programs



Program Development Timeline

- Regulations effective *September 13, 2011*
- Local program development timeframe
January through June 2013 (15 - 21 months of effective date of regulations)
 - One year extension to **July 1, 2014**
 - Compliance = Water Quality Protection
- Local Program Development **NOW**
 - Outreach, Outreach, Outreach
 - Tool Development
 - Stormwater Local Government Advisory Committee (SLGAC)

Local Program Benefits

- **Developers**
 - Eliminates local vs. state confusion
 - More effective options
 - Greater compliance=better protection of local natural resources
- **Local Control**
 - Speed of plan review and approval
 - Economic development advantage
 - Address local issues



DCR Assistance Timeline

- Establish Local Government Advisory Team – Began March 2012
- Program Requirement Checklist – Final May 2012
- Model Ordinance development – underway (end of summer)
- Training Plan
- Administrative Tools



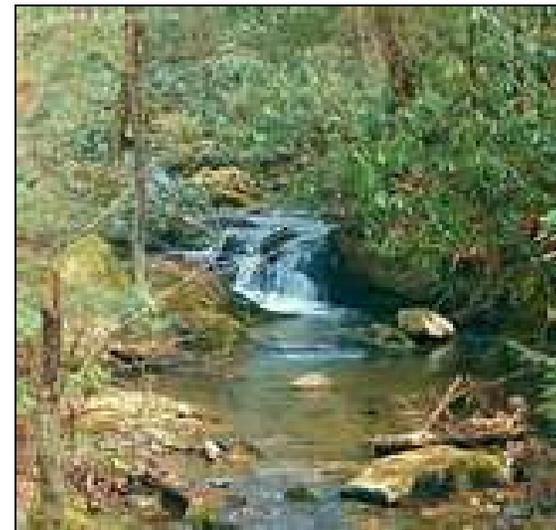
Relevant 2012 Legislation

- Budget (local financial assistance)
- Integration Bill (HB1065, SB407)
 - Statewide Reach and Streamlines Programs
- Nutrient Trading Bill (HB176, SB77)
 - Expansion of Current Programs
 - CAFOs, MS4s, Industrial SW
 - Cost Effective Compliance
 - Stormwater Offsets
- Necessitates several exempt regulatory actions



General Permit Reissuance

- Small MS4 General Permit
 - RAP Meetings June, July, August
 - Proposed Regs to Board this September (2012)
 - Effective July 2013
- Construction General Permit
 - May 21 - June 20 Initial Public Comment
 - RAP Meetings August, September, October
 - Proposed Regs to Board December 2012
 - Effective July 2014



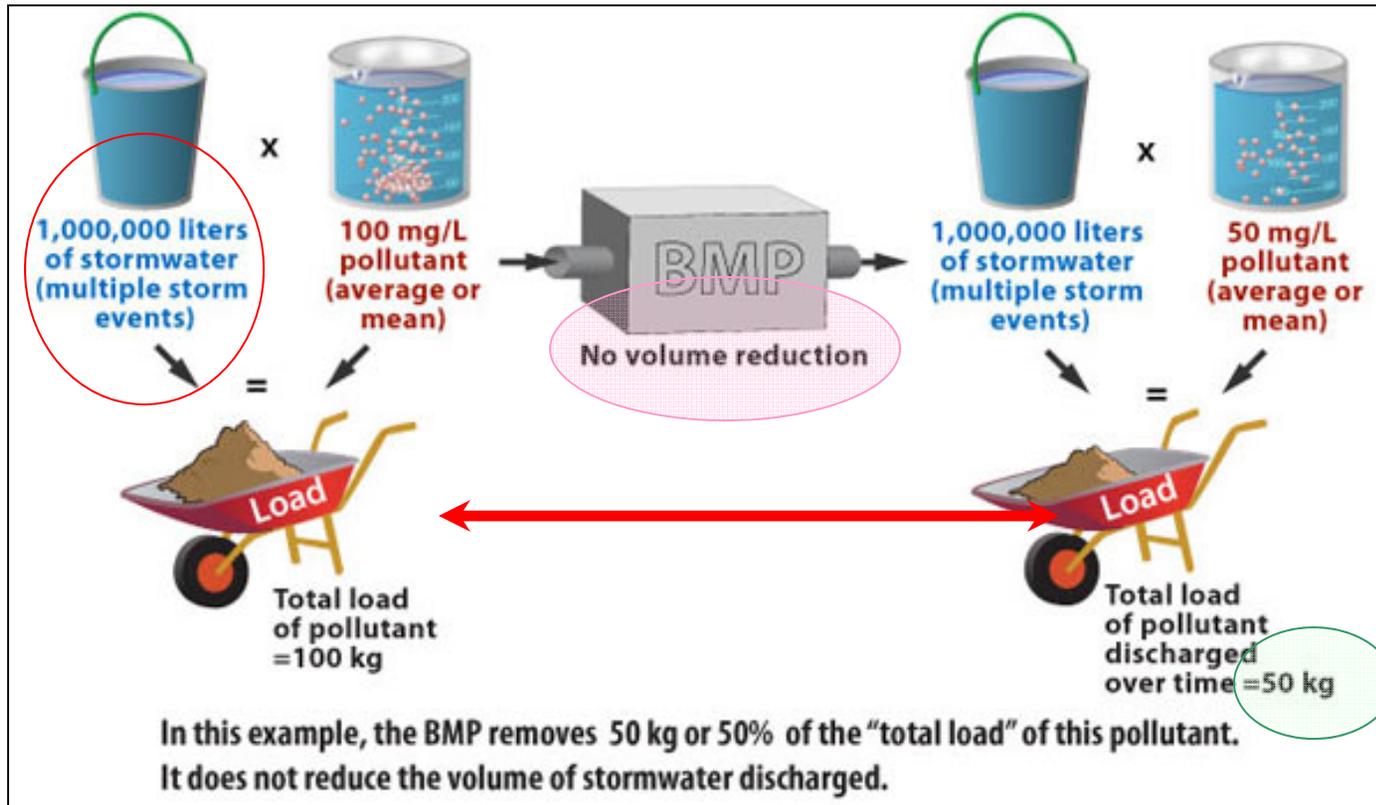
Question and Answer



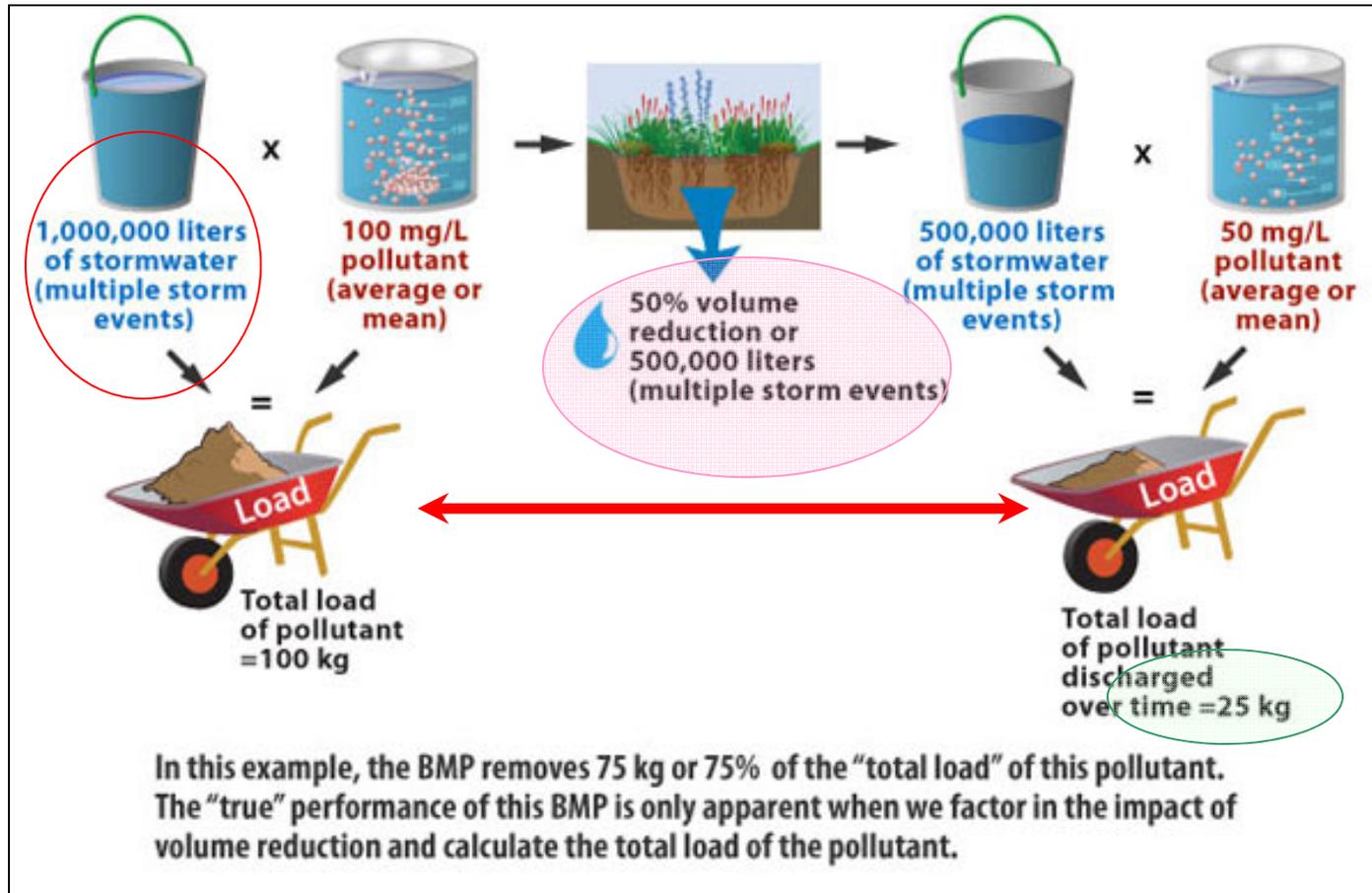
Introducing Runoff *Volume* Reduction

- The *Virginia Runoff Reduction Method (RRM)* was developed by the Center for Watershed Protection (CWP) and the Chesapeake Stormwater Network (CSN) for DCR.
- The method focuses on determining a BMPs' capacity to capture/reduce the overall volume of runoff as well as mass pollutant removal. **Goal = mimic pre-development site hydrology.**
- The method also incorporates built-in incentives for forest preservation and the minimization of impervious surfaces.
- ***The RRM is a tool for planning and measuring compliance. It is not a design tool.***





- “Traditional” BMP pollutant removal efficiencies do not take into account the removal that occurs when the runoff volume is reduced.
- Many BMPs, such as ponds and filters, do not reduce runoff volume at all.



- Using BMPs that also provide volume reduction provides greater overall pollutant (mass load) removal
- This reflects a "Mass Balance" Approach

The Key Differences in Application

Existing Rules

Impervious Surface
(IC) only

0.5 inches of *Runoff*
from the IC only

Average land condition/
technology based

10% reduction TP

Simple Method

Land Use(s)

Event

New Design Criteria

**Redevelopment
Criteria**

**Compliance
Methodology**

Modified Rules

IC + Forest/Open Space
+ Managed Turf

1.0 inches of *Rainfall*
from the whole site

0.41 lbs./ac/yr TP

<1 acre = 10% red. TP,
>1 acre = 20% red. TP

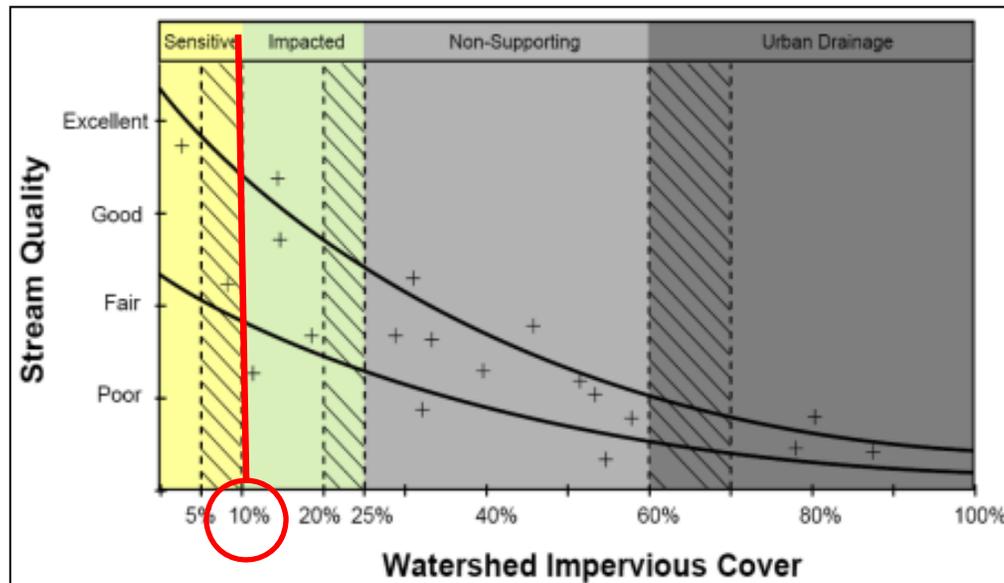
Runoff Reduction Method
(RRM = enhanced
Simple Method)

0.41 lbs/ac/yr Total Phosphorus Threshold associated with the *Impervious Cover Model*

Statewide requirement based on three types of land cover and NRCS hydrologic soil groups of soil on site

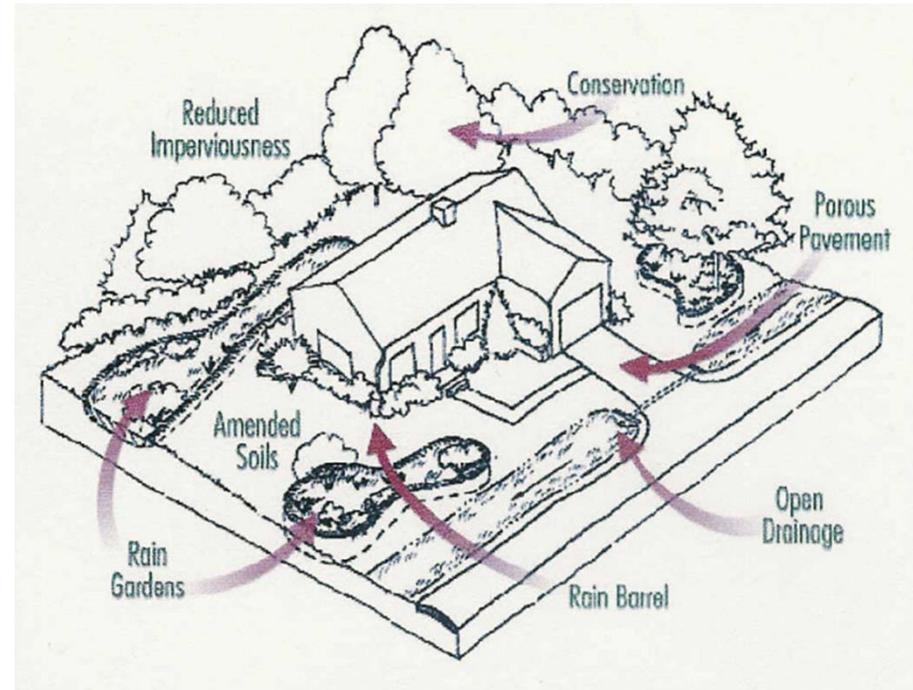
Threshold assumes 10% impervious cover, 30% turf, 60% forest

The Impervious Cover Model focuses on protecting water quality in *local* streams.



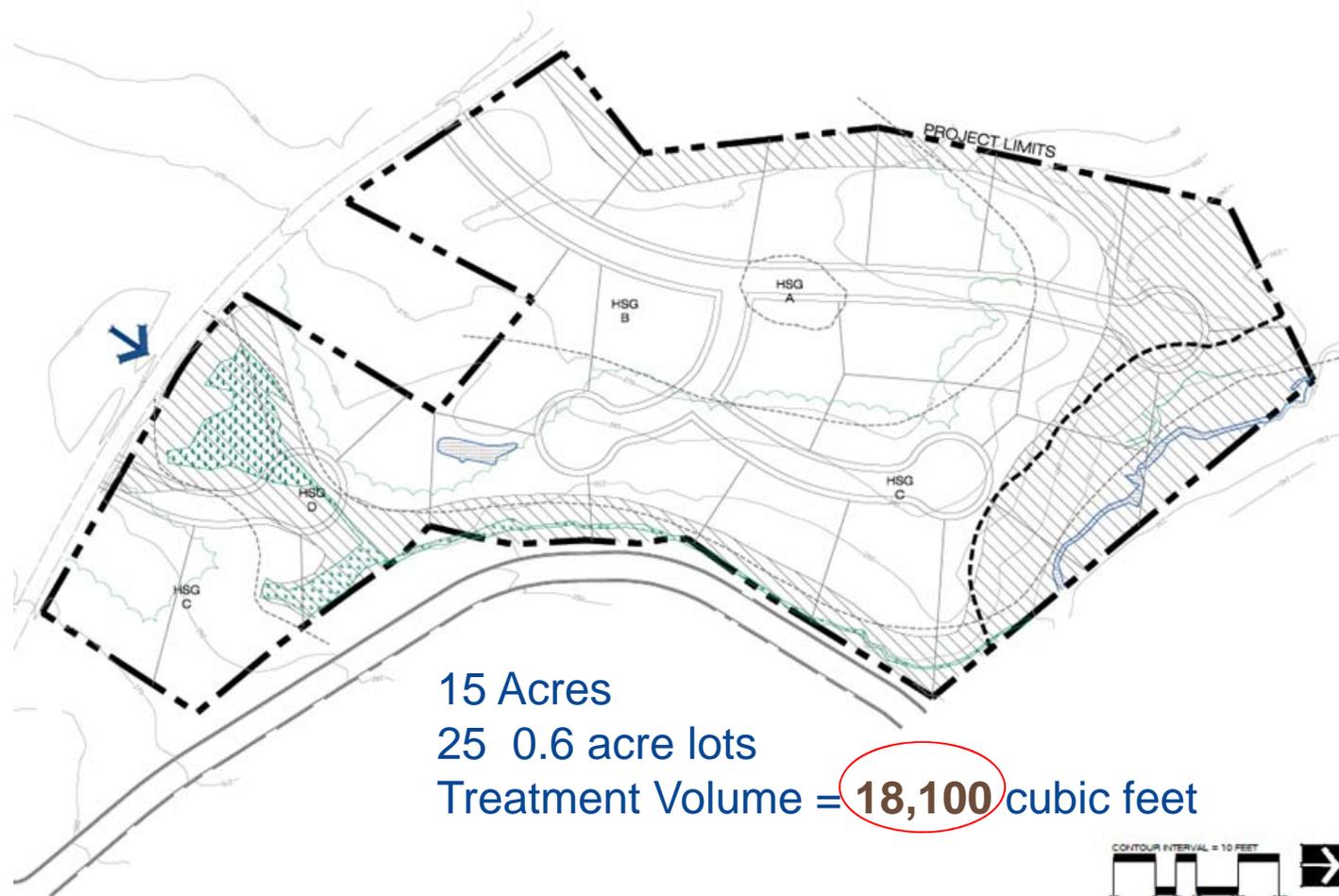
Use Environmental Site Design (Think about this early in the design process)

- Fit the design to terrain
- Locate development in less sensitive areas
- Reduce the limits of clearing and grading
- Use open space design (clustering) techniques
- Reduce impervious cover

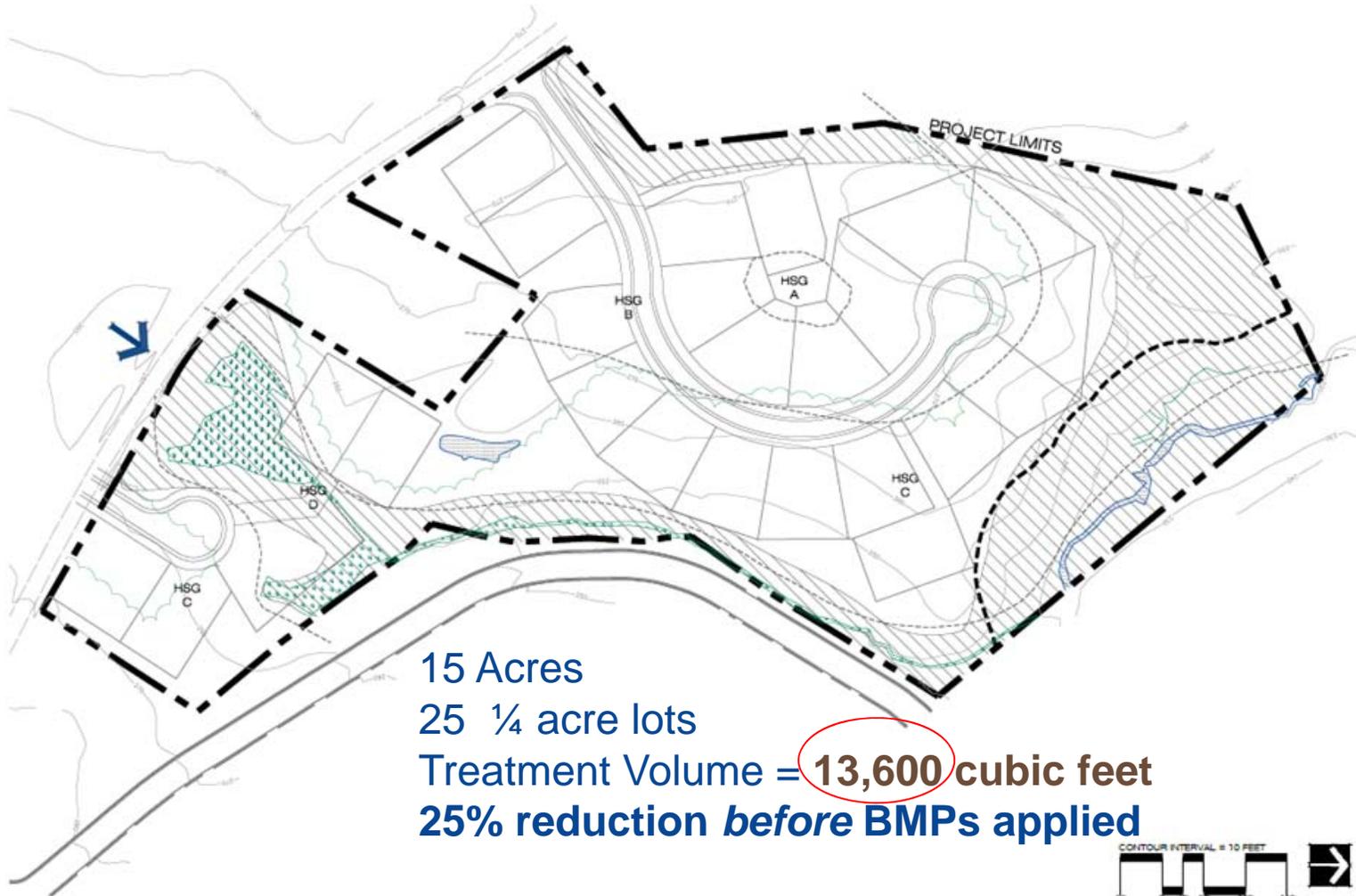


If designers wait until site plans are completed and then apply SWM solutions afterwards, SWM solutions are likely to be more constrained, less effective, and more costly.

Typical Development Site Plan



Example Runoff Reduction Site Plan



Water Quantity Control

The new paradigm is Volume-Based Hydrology (VBH),
focused on:



Volume
Peak Flow
Velocity
Flooding



Channel Protection Criteria are now Situational

Manmade Stormwater Conveyance *Systems*



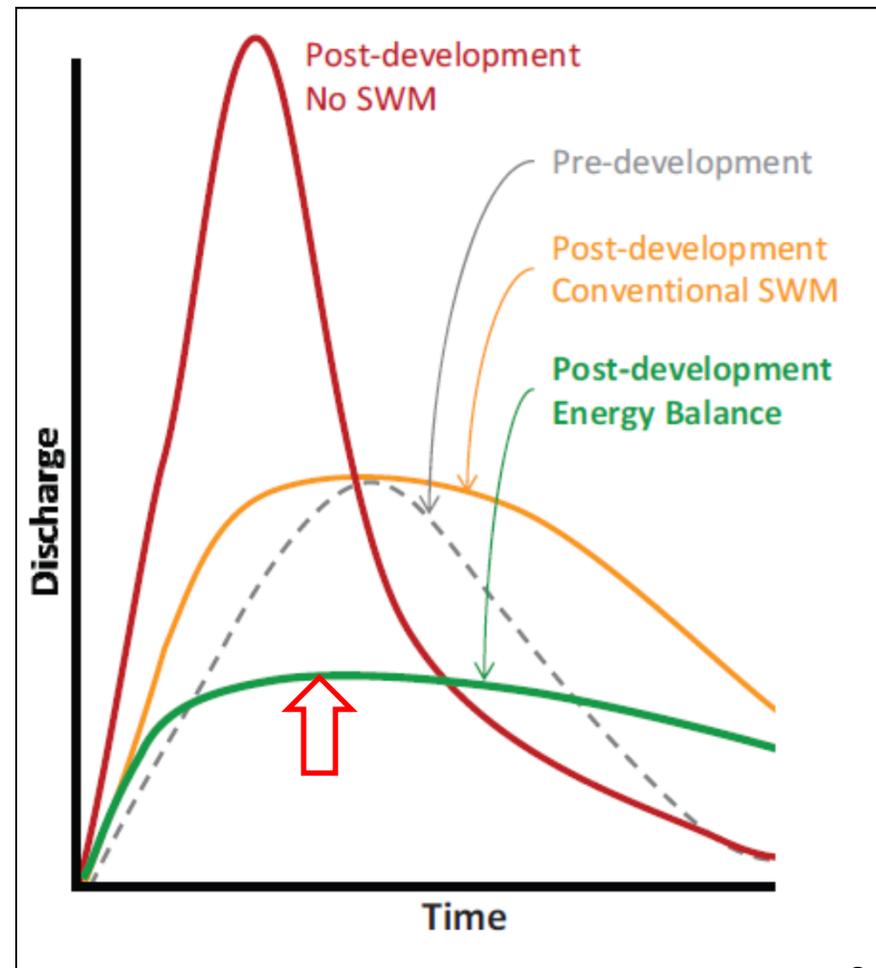
Restored Stormwater Conveyance *Systems*

Natural Stormwater Conveyance *Systems*



The Energy Balance Method

- The new *ENERGY BALANCE METHOD* is based on the interaction of both flow volume and peak discharge, which determine the stream channel configuration



Runoff Reduction Method Spreadsheet

Compliance tool, *NOT* a design tool:

- Calculates treat. volume & pollutant reduction requirement
- Tracks & totals BMP pollutant removals
- CN adjustments for quantity control

1. Post-Development Project & Land Cover Information					
Constants					
Annual Rainfall (inches)	43				
Target Rainfall Event (inches)	1.00				
Phosphorus EMC (mg/L)	0.28				
Target Phosphorus Load (lb/acre/yr)	0.41				
Pi	0.90				
Land Cover (acres)					
	A Soils	B Soils	C Soils	D Soils	Totals
Forest/Open Space -- undisturbed, protected forest/open space or reforested land	0.0	2.0	4.0		6.0
Managed Turf -- disturbed, graded lawns or other turf to be mowed/managed		6.0	14.0		20.0
Impervious Cover (all soil types)	14.0				14.0
				Total	40.0
Rv Coefficients					
	A soils	B Soils	C Soils	D Soils	
Forest/Open Space	0.02	0.03	0.04	0.05	
Managed Turf	0.15	0.20	0.22	0.25	
Impervious Cover	0.95				

Microsoft Excel - corner.commercial-6.xls		
Site Results		
Phosphorous		
TOTAL TREATMENT VOLUME (cf)		2,101
TOTAL LOAD REDUCTION REQUIRED (LB/YEAR)		1.11
RUNOFF REDUCTION (cf)		1,881
ADJUSTED POST-DEVELOPMENT PHOSPHOROUS LOAD (LB/YR)		0.1
PHOSPHOROUS LOAD REDUCTION ACHIEVED (LB/YR)		1.01
REMAINING LOAD REDUCTION (LB/YR) NEEDED	CONGRATULATIONS!! YOU EXCEEDED THE TARGET REDUCTION BY 0.1 LB/YEAR!!	

Apply Runoff Reduction Practices to Reduce Treatment Volume & Post-Development Load in Dr						
Credit	Unit	Description of Credit	Credit	Credit Area (acres)	Downstream Treatment to be Employed	
1. Vegetated Roof						
1.a. Vegetated Roof #1 (Spec #5)	acres of green roof	45% runoff volume reduction	0.45	0.00		
1.b. Vegetated Roof #2 (Spec #5)	acres of green roof	60% runoff volume reduction	0.60	0.00		
2. Rooftop Disconnection						
2.a. Simple Disconnection to A/B Soils (Spec #1)	impervious acres disconnected	50% runoff volume reduction for treated area	0.50	0.00	None	
2.b. Simple Disconnection to C/D Soils (Spec #1)	impervious acres disconnected	25% runoff volume reduction for treated area	0.25	0.00	4.a. Grass Channel A/B Soils 4.b. Grass Channel C/D Soils 4.c. Grass Channel Compost Amended 5.a. Dry Swale #1 5.b. Dry Swale #2 6.a. Bioretention #1 6.b. Bioretention #2	
2.c. To Soil Amended Filter Path as per specifications (existing C/D soils) (Spec #4)	impervious acres disconnected	50% runoff volume reduction for treated area	0.50	0.00		

Grandfathered Projects (4 VAC 50-60-48)

Land-disturbing activities where the following was approved by a locality prior to July 1, 2012:

- a currently valid proffered or conditional zoning plan,
- preliminary or final subdivision plat,
- preliminary or final site plan or
- zoning with a plan of development,
- or any document determined by the locality as being equivalent

and

- Coverage under the Virginia Stormwater Management Program (VSMP) General Permit was not obtained prior to July 1, 2014.

The land disturbance activity must be complete by June 30, 2019 or portions not under construction shall become subject to the new regulatory design criteria.

Grandfathered Local, State and Federal Projects

A local, state or federal project is grandfathered until June 30, 2019 when:

There has been an *obligation* of locality, state, or federal funding, in whole or in part, prior to July 1, 2012, or for which the department has approved a stormwater management plan prior to July 1, 2012

Additional discussion is required on what this means for state college and university master plans.

If bonds or public debt financing has been secured prior to July, 1 2012, projects shall be grandfathered

Time Limit on Applicability of Approvals (4 VAC 50-60-47.1)

The approved post-development SWM design is valid for construction only for the remaining portion of the General Permit cycle under which it was originally permitted (up to 5-years) PLUS two additional permit cycles (10-years)

unless:

VSMP permit coverage lapses (failure to reapply)

or

Two additional permit cycles have passed



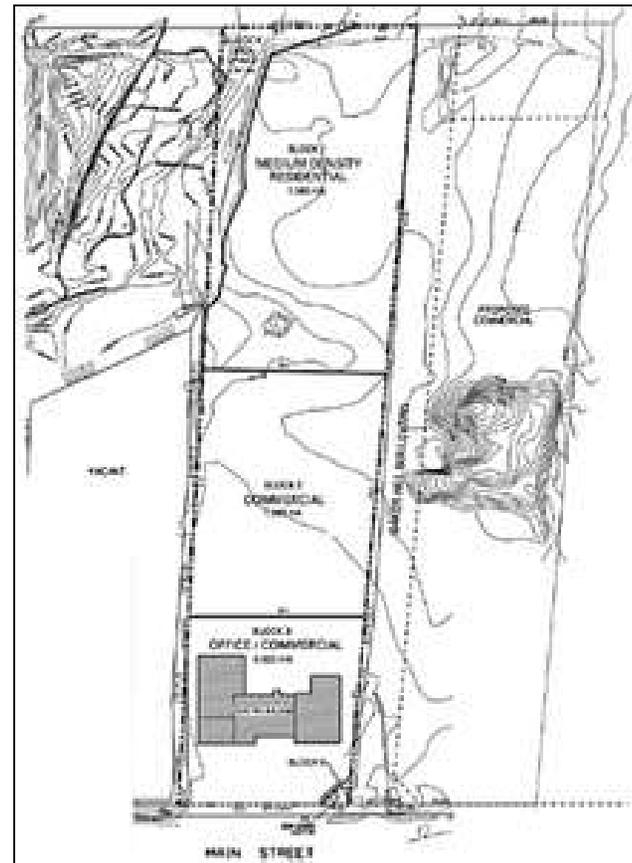
In that event, portions of the project not under construction are required to meet any new technical criteria adopted since the original permit coverage was issued.

Example Time Limit on an Approved Plan

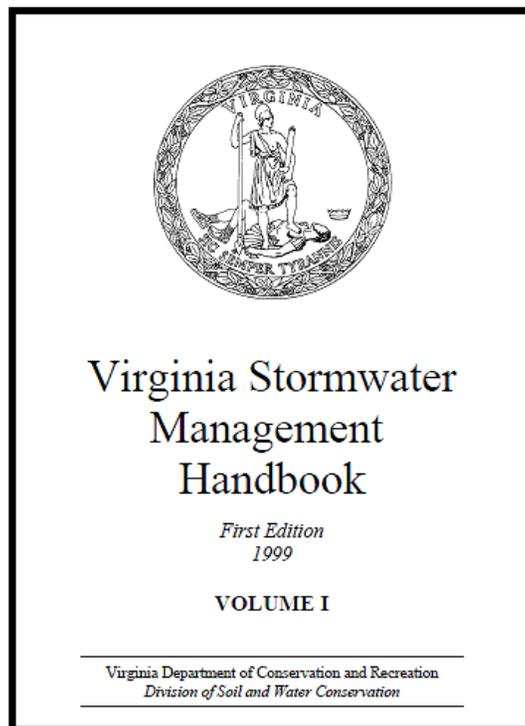
A subdivision registers under the VSMP General Permit on July 12, 2013.

The post-development criteria applicable to the subdivision remains applicable for the remaining portion of that permit cycle (until 2014) plus two additional permit cycles (2014-19, 2019-24).

Any portions of the sub-division not under construction by July 1, 2024 must meet the post-development design criteria in the regulations at that time.



Resources Available in the New (Revised and Updated) Virginia Stormwater Management Handbook



Background

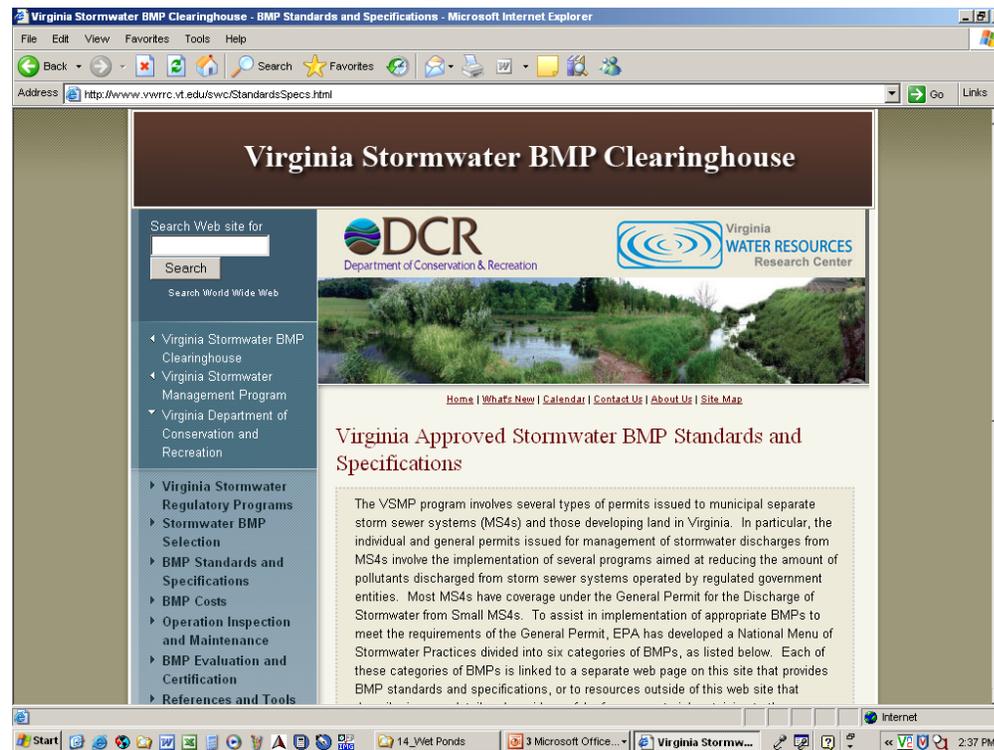
- The existing Virginia SWM Handbook (nicknamed the “Blue Book”) was released in 1999.
- Many new technologies, practices, and design techniques developed since then, but NOT reflected in the existing Handbook.
- New Handbook reflects quantum leaps in research and in knowledge of how to do SWM well.

Handbook Organization

- The Handbook organized in 3 Parts.
 - Part 1: Laws, Regulations and Program Implementation (Chapters 1-3)
 - Part 2: Understanding Stormwater Management (Chapters 4-7)
 - Part 3: Tools, Methods and Examples (Chapters 8-14)
- Most chapters have multiple Appendices that provide specific guidance, useful tools, case studies, etc.
- Handbook has many more helpful photos and graphics.

Virginia Stormwater BMP Clearinghouse

Design standards and specifications of BMPs approved for use in Virginia to control the quality and/or quantity of stormwater runoff.



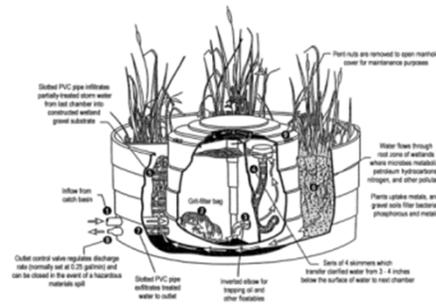
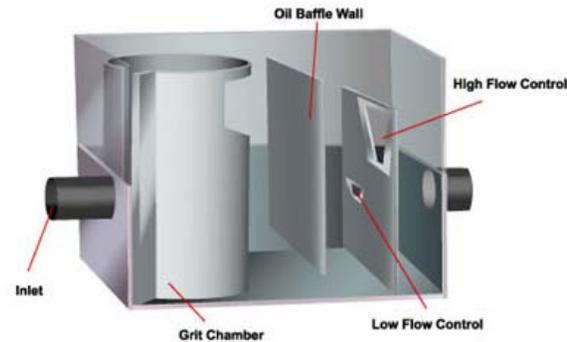
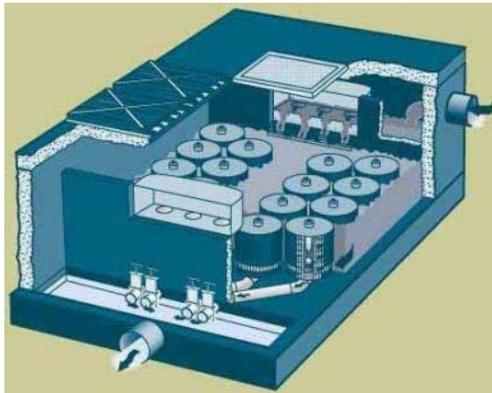
Traditional Runoff Treatment BMPs



Runoff Volume Reduction/LID BMPs



Manufactured (Proprietary) BMPs



Clearinghouse website disseminates the results of Virginia's process to evaluate and certify the performance claims of manufactured/proprietary BMPs using the Virginia Technology Assessment Protocol (VTAP)

LEED Credits for BMP Use

- Site Reforestation: SS5.1, SS5.2, SS6.2; maybe SS7.1, WE1.1, WE1.2
- Rooftop Disconnection: SS6.1, SS6.2; maybe WE1.1, WE1.2
- Filter Strips: SS5.2, SS6.1, SS6.2; maybe WE1.1, WE1.2
- Grass Channel: SS5.1, SS5.2, SS6.1, SS6.2
- Vegetated Roofs: EA pre-1 & EA1; maybe SS5.1 and/or SS5.2 if get SS2; maybe SS6.1, SS6.2, SS7.1, WW7.2
- Rainwater Harvesting: SS6.1, SS6.2, WE1.1 & WE1.2 or WE2 or WE3
- Permeable Pavement: SS6.1, SS6.2; maybe SS5.1, SS7.1, WE credits, MR credits
- Infiltration: SS6.1, SS6.2
- Bioretention: SS5.1, SS5.2, SS6.1, SS6.2, WE1.1, WE1.2
- Wet Swale/Wet Ponds: SS5.1; maybe SS5.2, SS6.1, SS6.2
- Filtering Practices: SS6.2; maybe SS5.1, SS6.1
- Constructed Wetlands: SS5.1; maybe SS5.2, SS6.1, SS6.2

KEY: SS = sustainable sites; WE = water efficient landscaping;
EA = energy and atmosphere; MR = materials and resources

Additional Information

Draft Stormwater Handbook

<http://www.dcr.virginia.gov/lr2i.shtml>

BMP Clearinghouse Website

<http://vwrrc.vt.edu/swc/>

Runoff Reduction Methodology

<http://www.dcr.virginia.gov/lr2f.shtml>

Modified Regulations

<http://lis.virginia.gov/000/reg/TOC04050.HTM#C0060>

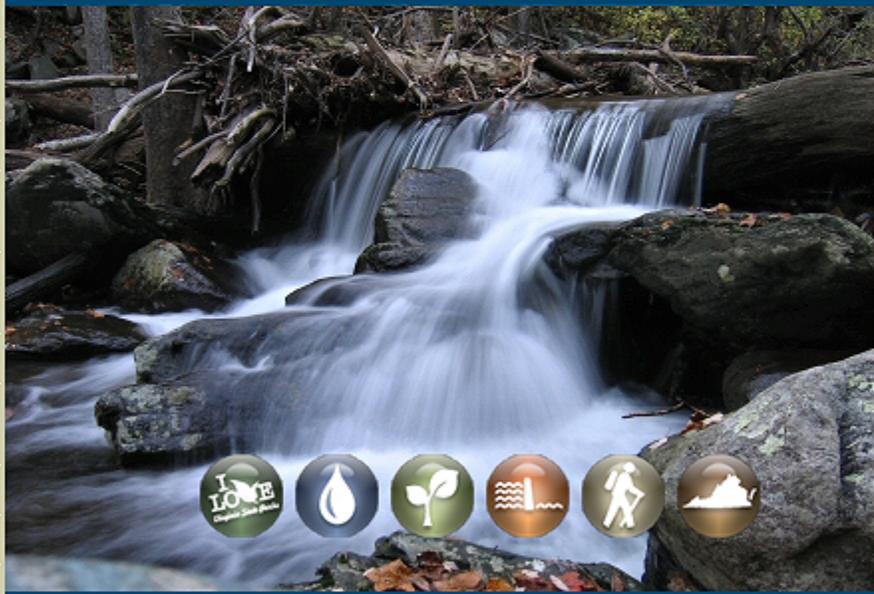
Stormwater Local Government Advisory Committee
(SWLGAC) Information

<http://www.dcr.virginia.gov/lrswlgac01.shtml>



- Home
- Home
- State Parks
- Water Management
- Natural Heritage
- Safety, Floodplain Management
- Recreation Planning, Lands and Grants
- Wild Conservation
- Wildlands and Reservations
- Special Events
- Map
- About Us

Conservation is a state of harmony between men and land --- Aldo Leopold



- What's New
- News Releases
- Get Involved!
- Publications and Reports
- Policy, Regulations and Public Comments**
- Calendar
- Local Assistance
- Forms
- Links
- Procurement

Greetings!

VIRGINIA STATE PARKS Make cabin, camping and picnic shelter



LAWS AND REGULATIONS

Regulatory Updates

This section of the website is intended to provide information for the public regarding DCR's and its board's regulatory actions. Use these pages to track progress made by regulatory advisory panels, which are developing regulations, and to download associated supporting documents. Several current regulatory actions include the following:

Reissuance of the MS4 General Permit: DCR is currently considering amendments to the applicable portions of Virginia Soil and Water Conservation Board's Virginia Stormwater Management Program (VSMP) Permit Regulations in order to reauthorize and amend the General Virginia Stormwater Management Program (VSMP) Permit for Discharges of Stormwater from Small Municipal Separate Storm Sewer Systems (small MS4s). The existing 5-year General Permit became effective on July 9, 2008; thus necessitating the regulatory promulgation of a new General Permit before the July 8, 2013 expiration date. For more information about this regulatory action, please [click here](#).

Reissuance of the Construction General Permit: DCR is currently considering amendments to the applicable portions of Virginia Soil and Water Conservation Board's Virginia Stormwater Management Program (VSMP) Permit Regulations in order to reauthorize and amend the General Virginia Stormwater Management Program (VSMP) Permit for Discharges of Stormwater from Construction Activities. The existing 5-year General Permit became effective on July 1, 2009; thus necessitating the regulatory promulgation of a new General Permit before the June 30, 2014 expiration date. For more information about this regulatory action, please [click here](#).

Stormwater Regulation Rollout: DCR, under the authority of the Virginia Soil and Water Conservation Board, is working with localities and others on the rollout of the stormwater management regulations. The target

Would you like to make Internet Explorer your default browser? Yes No x

QUESTIONS?

